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CENTRAL AMERICA REGIONAL ENVIRONMENT AND CLIMATE CHANGE ANALYSIS

Final Regional Tropical Forest and Biological Diversity Analysis

June13, 2016

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Cover photo: Lake Atitlan in Guatemala, February 2016
Photo credit: Bruce Kernan/ECODIT

ACRONYMS AND ABBREVIATIONS

ACICAFOC	Indigenous and Peasant Association Coordinator of Communal Agroforestry in Central America
ACM	Monte Verde Conservation Association, Costa Rica
ADS	Automated Directives System
AECID	Spanish International Agency for Development Cooperation
AFE	Estate Forest Administration, Honduras
ALIDES	Alliance for Sustainable Development
ANCON	National Association for Conservation of Nature, Panama
ASIDE	Association for Ecological and Socioeconomic Development, Honduras
BCIE	Banco Centroamericano de Integración Económica (Central American Bank for Economic Integration)
BIOFIN	Biodiversity Finance Initiative, UNDP
BPM	Biodiversity Partnership Mesoamerica
CA/DR	Central America and the Dominican Republic
CAFTA-DR	Dominican Republic-Central America Free Trade Agreement
CALAS	Center for Legal Environmental Action
CATHALAC	Water Center for the Humid Tropics of Latin America and The Caribbean
CATIE	Tropical Agricultural Research and Higher Education Center
CAV	Combined Area Value
CBD	Convention on Biological Diversity
CC	Climate Change
CCAD	Central America Commission for Environment and Development
CCB	Climate, Community, and Biodiversity
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CCS	Conservation Concern Species
CDEEE	Corporación de Empresas Eléctrica Estatales
CEDAF	The Center for Agriculture and Forestry, Dominican Republic
CEDAW	Convention on the Elimination of all forms of Discrimination against Women
CEM	Center for Marine Ecology, Honduras
CEMAD	Center for Environmental Studies and Development, Panama
CEPRODE	National Center for Protection from Disasters, El Salvador
CIDEA	Institute for Training, Research and Environmental Development
CINPE	The International Centre in Economic Policy for Sustainable Development (part of Universidad Nacional Costa Rica)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLIFOR	Adaptation to Climate Change of the Forest Sector Project
CNCG	Climate, Nature and Communities Project, USAID
CNGO	Conservation Non-Governmental Organization

COAST	Caribbean Ocean and Aquaculture Sustainability Facility
CONABIO	National Commission for Knowledge and Use of Biodiversity, Mexico
CONAMA	National Environmental Commission, Guatemala
CONAP	Guatemala Consejo Nacional de Áreas Protegidas (National Council of Protected Areas)
CONVEMAR	Convención de las Naciones Unidas sobre el Derecho del Mar (Law of the Sea)
CORAASAN	Corporación de Acueducto y Alcantarillado de Santiago
CR	Critically Endangered/Critically Threatened
CRRH	Regional Commission of Hydrologic Resources
CSO	Civil Society Organization
CANSR	Central American Network of Corporate Social Responsibility
CSV	Climate-Smart Verification
DIGEPESCA	Dirección General de Pesca y Acuicultura (Directorate General of Fisheries and Aquaculture, Honduras)
DO	Development Objective
DR	Dominican Republic
ECA	Environmental Cooperation Agreement
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EN	Endangered
EPMC	East Pacific Marine Corridor
EU	European Union
FAA	Foreign Assistance Act
FAO	Food and Agriculture Organization
FCG	Guatemala Foundation for the Conservation of Natural Resources and the Environment
FEIS	Friends of the Earth International, Spain
FFI	Fauna and Flora International
FIAES	Fondo de la Iniciativa para las Américas
FINNIDA	Finnish Ministry of Foreign Affairs
FLEGT	Forest Law Enforcement, Governance, and Trade
FMCN	Mexican Fund for the Conservation of Nature
FOMIN	Multilateral Investment Fund
FONAFIFO	Costa Rica National Fund for Forestry
FONCAGUA	The Fund for the Conservation of Water of the Metropolitan Zone, Guatemala
FPIC	Free, Prior and Informed Consent
FSC	Forest Stewardship Council
FUNDAECO	Foundation for Eco-Development and Conservation
GDP	Gross Domestic Product
GEF	Global Environment Facility
GISRES	Integral and Sustainable Management of Solid Waste in the South Caribbean Coast

	Autonomous Region, UNDP
GIZ	German Society for International Cooperation
GMARN	Guatemalan Ministry of Environment and Natural Resources
GNP	Gross National Product
GPD	Geology and Petroleum Department, Belize
HIV	Human Immunodeficiency Virus
HKND Group	Hong Kong Nicaragua Canal Development Group
HRI	Healthy Reef Initiative
IBRD	International Bank for Reconstruction and Development
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IJC	International Joint Boundary Waters Commissions
INAB	Forests National Institute, Guatemala
IRCADR	Regional Institute for Training, Research and Environment Development
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
JICA	Japanese International Cooperation Agency
KfW	German International Development Bank
KI	Key Informant
LUA	Land Utilization Authority, Belize
M&E	Monitoring and Evaluation
MAB	Man and Biosphere Programme
MAG	Ministry of Agriculture
MAGFOR	Ministry of Agriculture and Forestry, Nicaragua
MAP	Mesoamerican Agro Environmental Program
MAR	Mesoamerican Reef
MAREA	USAID's Regional Program Management of Aquatic Resources and Economic Alternatives
MARENA	The Ministry of Environment and Natural Resources, Nicaragua
MAR Fund	Mesoamerican Reef Fund
MARN	Ministry of Environment and Natural Resources, El Salvador
MBC	Mesoamerican Biological Corridor
MCC	Millennium Challenge Corporation
MCRC	Mesoamerican Caribbean Reef Corridor
MDA	Ministry of Agrarian Development, Panama
MEA	Mesoamerican Ecotourism Alliance
MF	Model Forests
MIAMBIENTE	Ministry of Environment and Natural Resources, Panama
MIF	Multilateral Investment Fund
MINAE	Ministry of Environment and Energy), Costa Rica
MINSA	Ministry of Health, Nicaragua

MPA	Marine Protected Area
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organization
PA	Protected Area
ODECA	Organization of Central American States
OEL	Organic Environmental Law, Costa Rica
OSPESCA	Central America Fisheries and Aquaculture Organization
OTS	Organization for Tropical Studies
PACT	Protected Areas Conservation Trust, Belize
PERFOR	Regional Strategic Framework for Forest Ecosystem Management
PES	Payment for Environmental Services
PHD	Public Health Department, Belize
PINFOR	Forestry Incentives Program, Guatemala
PROCAFOR	Regional Forestry Program for Central America
PROFISH	World Bank Global Program on Fisheries
PS	Performance Standards
PSA	National Program for Payment of Environmental Services
PWS	Payment for Watershed Services
RA	Rainforest Alliance
RACCN	Northern Atlantic Autonomic Region of Nicaragua
Ramsar	Convention on Wetlands of International Importance
RDCS	Regional Development Cooperation Strategy
REDD	Reducing Emissions from Deforestation and Degradation
RedLAC	Latin American and Caribbean Network of Environmental Funds
RICAM	International Network of Mesoamerican Highways
RICRUMC	Regional Initiative for Conservation and Rational Use of Mangroves and Corals
ROLAC	Regional Office for Latin America and the Caribbean
RS	Relatively Stable
SD	Standard Deviation
SERNA – MIAMBIENTE	Secretariat for Energy, Natural Resources, Environment, and Mining, Honduras
SETENA	National Technical Environmental Secretariat, Costa Rica
SFM	Sustainable Forest Management
SICA	Central American Integration System
SICAP	Central American System of Protected Areas
SIECA	Central America Secretariat for Economic Integration
SIEPAC	Central American Electrical Interconnection System
SIGAP	Guatemalan System of Protected Areas
SINAC	National System for Protected Areas, Costa Rica
SOH	Ornithological Society of Hispaniola, Dominican Republic

SOW	Scope of Work
STRI	The Smithsonian Tropical Research Institute
TIDE	Toledo Institute for Development and Environment
TNC	The Nature Conservancy
TSC	Tropical Science Center, Costa Rica
UCA	Institute for Training, Research and Environmental Development
UCI	Neotropica Foundation University for International Cooperation
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNES	Salvadorian Ecological Unit
UNESCO	United Nations Environment, Science, and Culture Organization
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USAID/CAM	USAID/El Salvador's Central America Regional Program
EPA	United States Environmental Protection Agency
V	Vulnerable
VCS	Verified Carbon Standard
WB	World Bank
WBCSD	World Business Council for Sustainable Development
WNBR	World Network of Biosphere Reserves
WWF	World Wildlife Fund

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PURPOSE AND METHODOLOGY

In compliance with Sections 118(e) and 119(d) of the Foreign Assistance Act (FAA) of 1961, as amended, and USAID's Automated Directives Systems (ADS) 201.3.4.2(1)(a), the purpose of this report is to provide an analysis of tropical forests and biological diversity in Central America and the Dominican Republic (CA/DR) for USAID/El Salvador's Central America Regional Program (USAID/CAM) Regional Development Cooperation Strategy (RDCS).

The analysis is based on reliable, current, and representative data from more than 80 interviews with Key Informants (KIs), review of documents, and field observations that focused on key geographic areas in Guatemala, El Salvador, Honduras, and Nicaragua.

INSTITUTIONAL AND LEGAL FRAMEWORK FOR CONSERVATION

CA/DR countries are all parties to the principal international conservation and environmental treaties and conventions. With the exception of Belize, all are also signatories to the seven principal regional conservation treaties. These treaties form the basis for the regional cooperation and integration required to resolve conservation issues and conserve CA/DR's tropical forests and biodiversity.

Documentary evidence indicates that CA/DR countries have an extensive and detailed body of national conservation laws. These laws regulate land use, contamination, hunting and fishing, and introduced species. They declare protected areas (PAs), govern forest management units, and establish procedures and requirements for environmental assessments. They also establish conservation institutions, usually ministries of environment, to oversee the implementation of conservation laws. KIs commented that CA/DR environmental ministries often are unable to enforce national conservation laws consistently and effectively because they so frequently lack sufficient budgets, personnel, and equipment, and in some cases, because other laws are inconsistent with conservation laws. Also, financial penalties for breaking conservation laws tend to be low, so sometimes it is less expensive to pay a penalty than to incur the costs required to adhere to them.

Many KIs emphasized the powerful role CA/DR's municipal governments could play in furthering the conservation of CA/DR's biodiversity and tropical forests. CA/DR countries have decentralized to municipal governments the power to regulate waste disposal, land uses, forest reserves, and water sources. Two or more municipal governments can formally establish a *mancomunidad*, or group of municipalities, for the purpose of solving problems that overlap municipal boundaries. KIs indicated that a frequent purpose of mancomunidades is to regulate and protect the quality and flow of water. Municipal leaders tend to be people from the community with a financial stake in the success of the local economy, so they are often closely attuned to the concerns, demands, and needs of the members of their communities. Although corruption does pervade municipal governments in CA/DR countries, KIs provided evidence that municipal politicians who have been able to resolve local issues satisfactorily, especially water issues, can gain the trust and credibility of their constituents.

KIs and documents indicated that women are underrepresented in decision-making that affect tropical forests and biodiversity in their communities, despite being directly dependent on natural resources for their own and their children's welfare. Women are often not invited or allowed to take part in major decisions related to the management of natural resources and products of biodiversity. Indigenous peoples control substantial areas of land, much of it forested, in CA/DR, so indigenous peoples and their women have a particularly important role to play in conservation. Dealing with gender issues in

indigenous communities can be difficult because of deep-rooted cultural norms and the need to better identify the role of women within activities that are traditionally considered for men.

The Central American Commission for Environment and Development (CCAD) has the mandate to lead the Central America Integration System's (SICA) efforts to conserve CA/DR's tropical forests and biodiversity. Several KIs noted CCAD's current weaknesses in leadership, capacity, and vision, but they also emphasized that no other institution can replace CCAD as the leader for using integration as a means to solve regional conservation problems. Non-governmental organizations (NGOs) also play an important role in the conservation of Central America's tropical forests and biodiversity. KIs identified the conservation programs of The Nature Conservancy (TNC), the World Wildlife Fund (WWF), the International Union for the Conservation of Nature (IUCN), and the Rainforest Alliance (RA) as addressing important regional and country conservation issues, such as integrated watershed management, protection of the Mesoamerican Reef, forest management, and landscape-scale conservation. Regional conservation institutions include the Tropical Science Center (TSC), the Tropical Agricultural Research and Higher Education Center (CATIE), the Smithsonian Tropical Research Institute (STRI), and the Organization for Tropical Studies (OTS). Universities that carry out conservation research and education include Landivar University and the University de El Valle in Guatemala, and the Catholic University in Nicaragua. Costa Rica has the highest number of institutions with conservation research and educational programs. These include the National University, the Technical University, the Technological Institute, and the Regional School of Agriculture for the Humid Tropics (EARTH).

In addition to USAID, multilateral and bilateral institutions that finance or influence conservation in CA/DR include the Global Environmental Facility (GEF), the World Bank (WB), the Inter-American Development Bank (IADB), the United Nations Development Programme (UNDP), the United Nations Environmental Programme (UNEP), the Food and Agriculture Organization (FAO), the International Tropical Timber Organization (ITTO), the Spanish International Agency for Development Cooperation (AECID), the German Cooperation Agency for Development (GIZ), and the German International Development Bank (KfW). These institutions have financed and implemented numerous conservation projects that provide successful lessons and models for replication. For example, the successful conservation experiences of the USAID/Honduras ProParque Project and the USAID/El Salvador Improved Management and Conservation of Critical Watersheds (IMCCW) Project are particularly instructive. In particular, responding to local populations' needs stimulates interest in conservation measures, local management, and entrepreneurism strategies can result in positive achievements, and widespread landscape conservation can be achieved from an assortment of small and local conservation mechanisms. In the past, however, many programs have not been successfully sustained after their funding has ended due to insufficient stakeholder and local participation, a lack of capacity building, or inattention to incentives.

Numerous conservation funds provide financing for conservation in CA/DR. These funds include the Mesoamerican Reef Fund (MAR Fund), the Costa Rica National Fund for Forestry (FONAFIFO), the Foundation for the Conservation of Natural Resources (Nature Foundation), and the Summit Foundation in Panama. The U.S. Tropical Forest Conservation Act has also provided local organizations in the CA/DR countries with funding for many successful conservation activities.

More than 75 private reserves have been legally established in Costa Rica, Nicaragua, Guatemala, and El Salvador. Business groups have joined or established two regional groups with conservation mandates: the World Business Council for Sustainable Development (WBCSD) and the Central American Network of Corporate Social Responsibility (CANSR).

The principal regional conservation strategy is the CCAD Regional Environment Framework Strategy: Promoting Regional Environmental Integration 2015–2020, which was approved by the Council of

Ministers in December 2014. CCAD also has prepared a Regional Strategic Framework for Forest Ecosystem Management (PERFOR, 2008–2022). Another regional conservation strategy is the IUCN Regional Situation Analysis and Actual Perspective: A Platform for Biodiversity. USAID's past MAREA program formulated two regional strategies: the Regional Research Strategy and the Inter-Sectorial Agenda for Fisheries and Environment. The USAID/CAM RDCS provides direction on the development of environment activities through the associated Project Appraisal Document for environment that includes a biodiversity component.

STATUS AND MANAGEMENT OF BIODIVERSITY

The Biomes and Ecoregions Classification System was used to classify and map CA/DR's ecosystems and biodiversity. There are 12 biomes with 59 ecoregions in CA/DR. Of these, seven biomes and 39 ecoregions are terrestrial. Three biomes and 13 ecoregions are freshwater. Two biomes and seven ecoregions are marine.

Currently in CA/DR, 25.3 million hectares (ha) of land, or 45.5 percent of terrestrial ecoregion areas, remain as natural habitats. Of these natural terrestrial habitats, 10.2 million ha are found within PAs. As explained in ***Section 3*** of this report, a Combined Area Value (CAV) scale was used to classify the conservation status of the ecoregions. Ten of the 39 terrestrial ecoregions were classified as needing Most Immediate Attention, five as Critically Endangered, 11 Vulnerable, and five can be considered Relatively Stable.

Three out of 13 fresh water ecoregions are Critically Endangered, three are Endangered, and seven are Vulnerable. Consequently, all freshwater ecoregions should be considered of conservation concern.

Limited data was found on the conservation status of marine ecoregions. However, the WWF lists the Greater Antillean marine ecoregion as Critically Endangered, and the Panama Bight as Vulnerable. The Western Caribbean and Chiapas-Nicaragua marine ecoregions can be considered Vulnerable, and the Cocos Island marine ecoregion can be considered Relatively Stable, based on known existing adverse impacts and threats. Information was not available to assess the conservation status of the other two marine ecoregions.

The team built a database on the occurrence of conservation concern species (CCS) in each of the 59 terrestrial, freshwater, and marine ecoregions, using vertebrate fauna, vascular terrestrial plants, and corals as indicators. In the CA/DR's 39 terrestrial ecoregions, 456 CCS were identified, including 234 amphibians, 67 reptiles, 55 birds, 27 mammals, and 73 vascular plants. Of these, 148 species were determined to be Vulnerable, 181 Endangered, and 127 Critically Endangered. In addition, 216 species were identified as Endemic.

Ecoregions were ranked by their number of CCS. The Central American Mountain Forests ecoregion ranks first, with a total of 145 species. It is followed by the Talamanca Mountain Forest ecoregion, with 95 species, and the Central American Atlantic Moist Forests with 77 species. The 15 ecoregions of moist and montane forests have the highest average number of CCS (28.7) among terrestrial ecoregions, followed by the dry forests ecoregions (10.8), and the flooded grasslands and shrub lands ecoregions (9 each). Moist and montane forests have the highest numbers of CCS because they provide habitat for numerous amphibian species that are going rapidly extinct.

Twenty-four CCS fish species were identified in the 13 freshwater ecoregions. These include one species classified as Vulnerable, three as Endangered, five as Critically Endangered, and 15 as Endemic. The Chiapas-Fonseca ecoregion has the highest number of CCS (10), followed by the Quintana Roo-Motagua ecoregion (9), and the Santa María ecoregion (3).

In the seven marine ecoregions, 99 CCS were identified. They include 82 fish and 17 coral species, of which 76 are listed as Vulnerable, 13 Endangered, and 10 Critically Endangered. Twenty-two species are identified as Endemic. The Western Caribbean and the Southwestern Caribbean ecoregions have the highest numbers of CCS (50 and 48, respectively), followed by the Greater Antillean ecoregion with 41 CCS.

Genetic diversity is a third aspect of overall biodiversity, but no data were found about the status of genetic diversity in CA/DR.

There are 847 PAs in CA/DR. Their current terrestrial area is nearly 133,000 km^2, 23.4 percent of the terrestrial area of CA/DR. The marine area within PAs is approximately 72,150 km^2. Belize is the country with the highest portion of its total land area under protection (32.3%). It is followed by Panama, Guatemala, and the Dominican Republic, each with about 26 percent of their land area in PAs. Honduras (24.2%), Costa Rica (20.1%), Nicaragua (18.9%), and El Salvador (9.7%) follow. The Dominican Republic has the largest area of marine PAs, covering almost 46,000 km^2. Honduras has about 8,230 km^2; Panama and Nicaragua have a little over 5,000 km^2 each. Costa Rica has 4,300 km^2, Belize has 2,420 km^2, and Guatemala and El Salvador have less than 350 km^2 of marine PAs each. CA/DR countries have collaborated through CCAD to strengthen their national systems of PAs, which together form the Central American System of Protected Areas (SICAP).

CA/DR's PAs contribute enormously to its economic growth and prosperity. For example, a study in Costa Rica estimated that tourism in eight PAs contributes more than US$1.5 billion annually to its economy. About $100 million, 10 percent of the Panama Canal's yearly income, depends on reliable flows of water from PAs within the canal's watershed. In spite of their economic value, however, most of CA/DR's PAs are not achieving their purpose of conserving tropical forests and biodiversity, in part because they are generally underfunded and understaffed. They are unlikely to be adequately funded and staffed unless they become perceived as assets that contribute to local and national economic growth.

The scientific literature also stresses that conservation at large spatial scales is critical for the conservation of threatened or endangered species, particularly megafauna and migratory birds, which require very large ranges in order to survive as species. Yet CA/DR's natural protected areas are not large enough to conserve the region's biodiversity and tropical forests by themselves. Conservation of large-scale landscapes, with PAs and forest management areas, are required to conserve CA/DR's biodiversity and tropical forests. Documents and KI data indicate that two concepts for establishing and managing large-scale landscapes for conservation are particularly useful in CA/DR: integrated watershed management and integrated coastal zone management. These concepts also respond to what KIs clearly indicated to be widespread and intense concerns of local people about the security and quality of their water supplies and the risks to their economies and livelihoods from degradation of coastal zone resources and investments.

STATUS AND MANAGEMENT OF TROPICAL FORESTS IN CENTRAL AMERICA

The Terrestrial Ecoregions Classification System (Olson et al., 2001) distinguishes five forest types in CA/DR: moist broadleaf forests, moist broadleaf montane forests, coniferous forests, broadleaf dry forests, and mangrove forests. These types of forests and their conservation status are discussed in detail in ***Section 4*** of this report. The rate of deforestation for the region as a whole is about 1.23 percent per year. Firewood is the principal source of household energy for rural people in Guatemala, Nicaragua, and Honduras, and its harvest may be contributing to forest degradation.

As of 2010, the Forest Stewardship Council (FSC) had certified a total of 597,535 ha in CA/DR. However, the financial cost of certification generally exceeds its financial benefits for most forestland owners. Furthermore, certification has generally neither provided access to larger or more stable markets nor a price premium. International donors generally no longer provide funds for forest

management certification in CA/DR. The USAID Climate, Nature and Communities in Guatemala (CNCG) Petén forest management activity (2013–2018) has shown, however, that group certification can be cost effective and can attract specific buying companies (e.g., international guitar manufacturers).

Nonetheless, certification has contributed to the long-term viability of concessions and the success of forest management in stopping deforestation in the Multiple Use Zone of the Maya Biosphere Reserve of the Petén of Guatemala. Industrial and community forest concessions were established there more than 20 years ago, with the assistance of the USAID/Guatemala Maya Biosphere Project. Deforestation and forest fires have been nearly absent in these concessions because the concessioners have protected the forest. Within the Reserve's forest concessions under certification, deforestation rates were 20 times less than in adjacent, noncertified concessions. During the same period, deforestation and burning has devastated the natural habitats of the western Petén, where the Guatemalan National Council of Protected Areas (CONAP) declared "strictly protected" areas, but proved entirely unable to keep them from becoming open access areas where agricultural migrants clear and burn the forest at will. In addition to stopping deforestation on concession lands, the sustainable forest management activities of the concessions have maintained wildlife and vegetative species diversification within the managed forests and created viable jobs for community members.

Forest ecosystem services contribute hugely to the growth and prosperity of CA/DR countries, although their economic value is not reported in national accounts. CA's current hydropower production is worth about $3 billion/year, which suggests that the watersheds from which the water flows to generate this electricity provide economically valuable regulatory ecosystem services. Similarly, a study in El Salvador estimated the economic value of ecosystem services in its mountainous areas to be more than $14.2 million per year.

Costa Rica has led CA/DR in establishing Payments for Environmental Services (PES) schemes to compensate residents in watersheds for the value of ecosystem services that their forests provide. Its PES programs are not only helping to protect existing forests, but also are stimulating practices for forest re-establishment. Costa Rica's PES programs are financed by a percentage of a tax on gasoline, donated funds, and payments by private businesses. Since they started in July 2015, the programs have provided incentives that have covered more than 1 million ha of land and nearly 15,000 contracts, with an investment of around $316 million. In Honduras, USAID's ProParque activity also established PES in and around the protected areas included in that activity. There have been other local-level PES schemes in other countries. These experiences demonstrate the promise of PES when established with adequate and long-term sources of financing.

THREATS TO BIODIVERSITY AND TROPICAL FORESTS

Five categories of direct threats to tropical forests and biodiversity are generally recognized: habitat loss and degradation; invasive species; over-exploitation; contamination or pollution; and climate change. They all occur in CA/DR. Within these categories, the team identified 42 types of more specific threats. Based on the databases built by the team, which counted the occurrence of each threat in all of CA/DR's 59 ecoregions and most PAs, there are four main specific threats to terrestrial and freshwater ecoregions. These are logging (including for firewood and charcoal) cattle grazing, agriculture, and urban expansion/human settlements. Road construction, land usurpation, uncontrolled hunting, recurrent fires, and tourism developments also are specific threats that occur relatively frequently. The most common specific threats to marine ecosystems are pollution from industrial sources, siltation, solid waste, tourism developments, overfishing, untreated sewage, agrochemicals runoff from fields, invasive species, and dredge-and-fill operations. The principal drivers of these direct threats to tropical forests and biodiversity in CA/DR are population growth, urbanization, poverty, and insecurity and corruption.

MAJOR ISSUES FOR CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY

Five categories of issues emerged from this analysis as major issues for the conservation of tropical forests and biodiversity in CA/DR:

1. **Regional Integration for Conservation:** Although there are successful examples of conservation in CA, they need to be expanded in geographic scope so that the threats to CA's biodiversity and tropical forests are diminished and successful conservation experiences are expanded across a larger geographic scale all across the region. There is also a need to coordinate CA's conservation efforts more effectively and consistently. Regional integration of conservation activities will contribute greatly to expanding the geographic scope of successful conservation activities.
2. **Governance of Tropical Forests and Biodiversity:** A gap still exists between the strong governance that conservation of CA's biodiversity and tropical forests requires and the capabilities of CA's current governance structures. CA clearly needs more support for strengthening its governance of biodiversity and tropical forests. Municipal governments often lack financial and technical capabilities, but could play an important conservation role because they have legal power to establish mancomunidades, regulate land use, and control environmental impacts of development, and because their leaders can understand and respond to local concerns and needs.
3. **Science, Technology, and Education:** Although a strong foundation for high-quality research, technology development, and education related to conservation of biodiversity and forests exists in CA, the principal CA universities are not educating sufficient numbers of foresters, soil conservationists, and fisheries professionals as compared to biologists, economists, and lawyers. Furthermore, there is still a gap between the need in CA for high-quality conservation research, technology, and education, and their supply. To achieve the conservation of CA's biodiversity and tropical forests, this need must be met.
4. **Conservation Economics and Finances:** Although there are strong links between conservation and economic growth in CA, and that these links create opportunities for sustainable local funding of conservation activities, the currently available financing for conservation actions in CA far from matches the economic value of the ecosystem services its biodiversity and tropical forests provide. There is a need for actions that more accurately identify the economic value decision-makers give to ecosystem services so that they can better assess the priority they place on financing conservation activity.
5. **Large-scale Landscapes for Conservation:** Conservation across large-scale landscapes is needed to reverse the loss of CA's biodiversity and tropical forests. There is widespread concern in CA about the degradation of the coastal resources and watersheds that contribute so strongly to CA's potential for pervasive and equitable prosperity. Watershed and coastal resources management can create large-scale conservation landscapes within which biodiversity and tropical forests can be conserved.

RECOMMENDATIONS AND PROPOSED ACTIONS

The analysis recommends that USAID/CAM consider transnational CA programs that will strengthen local capacity to address the highest-priority biological diversity and tropical forest conservation concerns. These recommendations are guided by lessons learned and major issues identified during the analysis. The key lessons learned that were gleaned from past conservation projects in CA are summarized as follows:

- Use participation and process to build inter-organization coalitions.
- Focus on issues that most concern decision-makers and local people.
- Do research that is directly pertinent to resolving local conservation problems.

- Promote markets for commercial products from well-managed natural resources.
- Use monitoring and evaluation to support flexible, responsive, adaptive administration and management.
- Share systematically successful conservation experiences across the CA region.
- Specify mechanisms for giving women an equitable role in conservation actions.
- Focus training on increasing conservation capacities of local people.
- Expand pilot conservation projects to large-scale landscapes.
- Utilize analyses of the economic and financial costs and benefits of conservation.

These lessons learned and the evaluation of analysis findings suggest the following recommendations:

1. CA countries have entrusted SICA/CCAD with the lead role in resolving regional conservation issues; therefore, USAID/CAM would benefit from channeling its support for conservation actions through CCAD.
2. USAID/CAM should clearly use participatory processes to identify and respond to the conservation problems that most concern decision-makers and local people.
3. USAID/CAM should support transnational conservation training programs to train people all across CA in conservation practices. The core participants in the training would be people who make decisions at the local level that affect conservation of tropical forests and biodiversity such as mayors, municipal staff, NGO staff member, local business leaders, farmers, and community leaders. The training would take place through short courses, conferences, and study tours to expose participants to successful examples of conservation in CA. Each training session would include people from different countries, occupations, and types of organizations. The training would raise the participants' level of knowledge about conservation practices so that they can make more informed decisions on matters that affect tropical forests and biodiversity.
4. USAID/CAM should finance activities to strengthen the capacity of municipal governments to plan, implement, monitor, and evaluate conservation actions by providing financial resources to local conservation NGOs enabling them to start, continue, or expand their alliances for conservation with municipal governments. These activities would be transnational. Local conservation NGOs could assist municipal government to use participatory methodologies to prepare, review, and revise municipal land use plans and ordinances that affect tropical forests and biodiversity.
5. USAID/CAM should finance grants for conservation research, technology development, and education, thereby providing the basis for the development of technologies for solving conservation problems. Research could provide the empirical basis for systematically sharing successful conservation experiences across the CA region and expanding pilot conservation projects to large-scale landscapes. Grants could finance investigation into the mechanisms that would allow and increase the ability of women to fully participate in making decisions about the management of natural resources. Grants also could build coalitions between universities, conservation NGOs, and local governments, and enable universities and organizations with technology development responsibilities to facilitate their investigation of conservation issues and develop better programs to training their conservation professionals. The grants would be closely monitored and evaluated so their programs could be responsive to changing needs and conditions. These activities would be transnational.
6. USAID/CAM should finance activities that allow CA decision-makers to be more conscious of and able to act on the economic rationale for government and private expenditures for conservation actions. Specific, well-designed, systematic programs will demonstrate to decision-makers across CA the economic value of conservation. These activities will reinforce and leverage training, research,

technology development, and educational activities. This transnational program would target decision-makers across the CA region and demonstrate to them the economic value of ecosystem services and highlight the actions that are required to conserve the ecosystems that provide those services.

7. USAID/CAM provides resources to support conservation activities that involve municipalities and mancomunidades in large-scale conservation landscapes that are modeled after successful experiences with watershed management and coastal resources. The previous activities that the analysis has recommended USAID/CAM support complement this recommendation. In addition, USAID/CAM could support landscape-scale planning of conservation actions across boundaries between countries, including study tours and working sessions on landscape-scale conservation. USAID/CAM should use its resources to promote people and institutions to innovate, take risks, and create links so that the technologies and capabilities to establish large-scale conservation landscapes emerge naturally, incrementally, gradually, and sustainably from the strong base for conservation that CA countries have already established.

The actions USAID/CAM proposes for the period 2015–2019 in its RDCS and associated Development Objectives (DOs) correspond closely to the needs for conservation of biodiversity and tropical forests identified in this analysis.

- DO 1 seeks to increase regional economic integration through "expanded trade and stronger institutional capacity." This analysis identified regional economic integration as a condition for conservation of CA/DR's tropical forests and biodiversity. The activities to achieve this objective are not expected to cause negative effects on biodiversity and tropical forests and may contribute to their conservation.
- DO 2 will promote "sustainable, climate-smart practices and policies that lower emissions through clean energy investments, increasing the resiliency of people, places, and livelihoods to the impacts of climate change, and improving the management of the region's biologically diverse ecosystems." Such actions will contribute substantially to the needs identified in this analysis for conserving CA/DR's biodiversity and tropical forests and are not expected to cause significant negative effects on biodiversity and tropical forests.
- DO 3 will improve regional human rights and citizen security. The analysis identifies crime and violence as drivers of the direct threats to biodiversity and tropical forests, so this objective may contribute to the conservation of CA/DR's biodiversity and tropical forests. There is no reason to expect that the activities planned to achieve DO 3 will cause negative effects on biodiversity and tropical forests.
- DO 4 activities to contain HIV prevalence in Central America are unlikely to either contribute to the conservation identified in this analysis or cause any negative impacts to Central America's biodiversity and tropical forests.

The design and implementation of activities to achieve the four DOs will use best management practices (BMP) to avoid negative environmental impacts. Moreover, USAID/CAM will adhere to the procedures required by USAID Environmental Regulation 216 in designing and carrying out these activities. These procedures will identify and provide for measures to avoid or mitigate any negative effects from activities proposed to attain the four DOs. The implementation of measures to avoid and mitigate negative environmental impacts will be monitored and evaluated through the design and implementation of Environmental Mitigation and Management Plans (EMMP).

RESUMEN EJECUTIVO

OBJETIVO Y METODOLOGÍA

En cumplimiento con las Secciones 118(e) y 119(d) de la Acta de Asistencia Exterior (FAA) de 1961, según enmendada, y los Sistemas Directivos Automatizados (ADS) de USAID 201.3.4.2(1)(a), la revisión de esta evaluación es preparar una evaluación de los bosques tropicales y la diversidad biológica en América Central y República Dominicana (AC/RD) para el Programa Regional de América Central de USAID y El Salvador (USAID/CAM) Estrategia Regional de Cooperación para el Desarrollo (RDCS) .

El analysis se basa en datos fiables, actuales y representativos de más de 80 entrevistas con Informantes Clave (IC), revisión de documentos, y observaciones sobre áreas claves geográficas en Guatemala, El Salvador, Honduras y Nicaragua.

MARCO INSTITUCIONAL Y LEGAL PARA LA CONSERVACIÓN

Los países de AC/RD son todos los participantes de la conservación internacional principal y los tratados y convenciones ambientales. Con la excepción de Belice, todos son también firmantes de los siete tratados regionales principales de la conservación. Estos tratados proveen una base para la cooperación regional y la integración requerida para resolver los problemas de conservación y conservar los bosques tropicales y biodiversidad de AC/RD.

La evidencia documental indica que los países de AC/RD tienen un marco amplio y detallado de las leyes y reglamentos de conservación a nivel nacional. Estas leyes y reglamentos regulan el uso de suelo, la contaminación, la cacería, y pesquería y especies introducidas. Ellos declaran áreas naturales protegidas (ANP), gobiernan unidades de manejo forestal, y establecen los procedimientos y requisitos para las evaluaciones ambientales. Asimismo, establecen las instituciones de conservación, por lo general ministerios de medio ambiente, para supervisar la implementación de estas leyes y reglamentos. ICs comentaron que los ministerios ambientales de AC/RD a menudo son incapaces de hacer cumplir las leyes nacionales de conservación de manera constante y eficiente, ya que con frecuencia carecen de presupuestos suficientes, personal y equipo, y en algunos casos debido a incompatibilidades de las leyes de conservación con otras leyes y reglamentos. Además, las multas por violar las normas de conservación tienden a ser de poca cantidad, y por eso a menudo es menos costoso simplemente pagar la penalidad que incurrir costos asociados para adherirse a las de conservación.

Muchos ICs enfatizan la función de gran alcance que los gobiernos municipales de AC/DR podrían desempeñar en la promoción de la conservación de la biodiversidad y los bosques tropicales de AC/DR. Los países de AC/RD han descentralizado a los gobiernos municipales el poder de regular la eliminación de desechos, usos de terreno, reservas forestales y la protección de fuentes de agua. Dos o más gobiernos municipales pueden establecer formalmente mancomunidades, o grupo de municipios, con el fin de resolver los problemas que se superponen a los límites municipales. ICs indicaron que un propósito frecuente de las mancomunidades es regular y proteger la calidad y el flujo de agua. Los líderes municipales tienden a ser personas del lugar con un interés financiero en el éxito de la economía local. Por lo tanto, están muy relacionados con las preocupaciones, demandas y necesidades de los miembros de sus comunidades. Aunque la corrupción impregna los gobiernos municipales de AC/RD. varios ICs también proporcionan evidencia que los políticos municipales que han sido capaces de resolver satisfactoriamente temas locales, y en especial los problemas del agua, podrían ganar la confianza y credibilidad de sus electores.

Los ICs y documentación indicaron que las mujeres son subrepresentadas en la toma de decisiones que afectan los bosques tropicales y la biodiversidad en sus comunidades, pese a que ellas dependen

directamente de los recursos naturales para su propio bienestar y el de sus hijos. Las mujeres a menudo no son invitadas o permitidas a tomar parte de las decisiones majores relacionadas con el manejo de recursos naturales y productos de la biodiversidad. Pueblos indígenas controlan áreas grandes de tierras, mayormente cubiertas con bosques. Por lo tanto, gente indígena y sus mujeres indígenas tienen un rol importante en la conservación. Tratar cuestiones de género en las comunidades indígenas puede ser difícil debido a las normas culturales profundamente arraigadas y la necesidad de identificar mejor el papel de las mujeres dentro de las actividades que se consideran tradicionalmente para los hombres.

La Comisión Centroamericana de Ambiente y Desarrollo (CCAD) tiene el mandato de dirigir los esfuerzos del Sistema de Integración de Centroamérica (SICA) para conservar los bosques tropicales y la biodiversidad de AC/RD. Varios ICs señalar las debilidades actuales de la CCAD en el liderazgo, la capacidad y visión, pero enfatizan que ninguna otra institución puede reemplazar la CCAD como el líder regional para la solución de los problemas de conservación. Las organizaciones no gubernamentales (ONG) también juegan un papel importante en la conservación de los bosques tropicales y la biodiversidad de América Central. ICs identifican los programas de conservación de The Nature Conservancy (TNC) y el Fondo Mundial para la Naturaleza (WWF), la Unión Internacional para la Conservación de la Naturaleza (UICN), y Rainforest Alliance (RA) en sus actividades dirigidas a problemas importantes de la conservación regional y nacional, tales como la gestión integrada de cuencas hidrográficas, la protección del arrecife mesoamericano, el manejo forestal y la conservación a escala de paisaje. Las instituciones regionales de conservación incluyen el Centro Científico Tropical (CCT), el Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), el Instituto Tropical Smithsonian de Investigación (STRI), y la Organización para Estudios Tropicales (OET). Universidades que realizan investigaciones para la conservación incluyen a la Universidad Landívar y la Universidad de El Valle, en Guatemala, y la Universidad Católica de Nicaragua. Costa Rica tiene la concentración mas numerosa de instituciones de investigación y educación en temas de conservación. Estos incluyen: la Universidad Nacional, la Universidad de Costa Rica y la Escuela Regional de Agricultura para los Trópicos Húmedos (EARTH).

Además de USAID, instituciones multilaterales y bilaterales que financian o influyen la conservación en AC/RD incluye el Global Environmental Facility (GEF), el Banco Mundial (BM), el Banco Interamericano de Desarrollo (BID), el Programa de las Naciones Unidas para el Desarrollo (PNUD), el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA), la Organización para la Agricultura y la Alimentación (FAO) y la Organización Internacional de las Maderas Tropicales (OIMT), la Agencia Española de Cooperación Internacional para el Desarrollo (AECID), la Agencia de Cooperación alemana para el Desarrollo (GIZ) y el Banco Internacional de Desarrollo Alemán (KfW). Estas instituciones han financiados y implementados numerosas proyectos de conservación, los cuales han proveído lecciones y modelos para replicación. Por ejemplo, las experiencias exitosas de conservación del Proyecto ProParque de USAID/Honduras y el Proyecto de USAID/El Salvador de Mejor Manejo y Conservacion de Cuencas Hidrograficas Criticas (IMCCW) son particularmente instructivos. En particular, responder a las necesidades de las poblaciones locales estimula el interés en las medidas de conservación, administracion local, y estrategias enmpresariales que puedenresultar en logros positivos y la extensa conservación de paisajes puede lograrse a partir de una variedad de mecanismos de conservación pequenos y locales. En el pasado, sin embargo, muchos programas no han sido exitosamente sostenidos después de que su financiación ha terminado debido a insuficiente participación local y de grupos de interés, la falta de desarrollo de capacidad, o inatención aincentivos Numerosos fondos de conservación proporcionan financiamiento a la conservación de AC/RD. Estos fondos incluyen el Fondo Arrecife Mesoamericano (Fondo SAM), el Fondo Nacional de Costa Rica por Forestal (FONAFIFO), y la Fundación para la Conservación de los Recursos Naturales (Nature Foundation) y la Fundación Summit en Panamá. Los EE.UU. también han proporcionado a las organizaciones locales en los países del AC/RD fondos para la conservación a través de la Ley de Conservación de Bosques Tropicales para muchas actividades exitosas de conservación.

Más de 75 reservas privadas se han establecido legalmente en Costa Rica, Nicaragua, Guatemala y El Salvador. Grupos empresariales han establecido, o unido a dos grupos regionales con mandatos de conservación: el Consejo Mundial Empresarial para el Desarrollo Sostenible (WBCSD) y la Red Centroamericana de Responsabilidad Social Corporativa (RCRSC).

La principal estrategia regional de conservación es la Estrategia de Marco Ambiental Regional de la CCAD: Promoviendo la Integración Regional del Medio Ambiente 2015-2020, lo cual fue aprobado por el Consejo de Ministros en diciembre de 2014. Otra estrategia regional es el Análisis de la Situación Regional y Perspectiva Actual de IUCN: una Plataforma para la Biodiversidad. CCAD también tiene un marco estratégico regional para la gestión del ecosistema forestal (PERFOR, 2008-2022). El programa de MAREA de USAID formuló dos estrategias regionales: la Estrategia Regional de Investigación y la Agenda Intersectorial para la Pesca y Medio Ambiente. USAID/CAM RDCS proporciona orientación sobre el desarrollo de las actividades de medio ambiente a través del Documento de Evaluacion Inicial del Proyecto asociado para el medio ambiente que incluye un componente de la biodiversidad.

ESTADO Y ADMINISTRACION DE LA BIODIVERSIDAD

Los Biomas y Sistema de Clasificación de Ecorregiones se utilizaron para clasificar y trazar un mapa de los ecosistemas y la biodiversidad en AC/RD. Hay 12 biomas con 59 ecorregiones. De éstos, siete biomas y 39 ecorregiones son terrestres. Tres biomas y 13 ecorregiones son de agua dulce. Dos biomas y siete ecorregiones son marinas.

Actualmente, en CA/DR, 25.3 millones de hectáreas de tierra, o 45.5 por ciento de las ecoregiones terrestres, permanecen como hábitats naturales. De estos hábitats naturales, 10.2 millones de hectáreas se encuentran dentro de APs. Como se explica en la Sección 3 de este reporte,una escala de Área de Valor Combinada (AVC) fue utilizado para clasificar el estado de conservación regional de las ecorregiones. 10 de las 39 ecorregiones terrestres fueron clasificadas en necesidad de Atención Más Inmediata cinco se consideran en Peligro Crítico, 11 se consideran Vulnerables, y cinco son consideradas Relativamente Estables.

Tres de cada 13 ecorregiones de agua dulce están consideradas en Peligro Crítico, tres en Peligro, y siete como Vulnerables. En consecuencia, todas las ecorregiones de agua dulce podrían ser consideradas de interés para la conservación.

Se encontraron datos limitados sobre el estado de conservación de las ecorregiones marinas. Sin embargo, WWF clasifica la ecoregión marina Antillana Mayor como en Peligro Crítico, y el Golfo de Panamá como Vulnerable. Las regiones ecológicas marinas occidentales Caribe y Chiapas-Nicaragua pueden ser consideradas vulnerables, y la ecoregión marina Isla del Coco se puede considerar Relativamente Estable, basado en los efectos adversos conocidos existentes y amenazas. No se encontró suficiente información para evaluar el estado de conservación de las otras dos regiones ecológicas.

El equipo construyó una base de datos sobre la presencia de especies de interés para la conservación (CCS) en cada uno de los 59 terrestres, de agua dulce, y ecorregiones marinas, utilizando la fauna de vertebrados terrestres, plantas vasculares, y los arrecifes de coral como indicadores. En las 39 ecoregiones terrestres, fueron identificados 456 CCS, incluyendo 234 anfibios, 67 reptiles, 55 aves, 27 mamíferos, y 73 plantas vasculares. De estos, 148 especies fueron determinados a ser vulnerables, 181 en peligro, y 127 en peligro crítico. Además 216 especies fueron identificadas como endémicas.

Las ecorregiones fueron clasificadas por su número de CCS. Primero está la ecoregión de América Central de Bosques de Montaña con un total de 145 especies, seguido por la ecoregión de los Bosques de Talamanca con 95 especies, y los Bosques Húmedos del Atlántico de América Central con 77 especies. Las 15 regiones ecológicas de los bosques húmedos y montanos tienen el número promedio más alto de CCS (28.7) entre las ecorregiones terrestres, seguido por las ecorregiones de bosques

secos (10.8), y praderas inundadas y tierras arbustivas (9 cada uno). Los bosques húmedos y de montaña tienen la mayor cantidad de CCS, ya que proporcionan muchos hábitats para numerosas especies de anfibios que se están extinguiendo rápidamente.

Veinticuatro especies de peces CCS se producen en las 13 ecoregiones de agua dulce. Estas incluyen una especie clasificada como Vulnerable, tres como En Peligro, cinco como En Peligro Crítico, y 15 como Endémico. En la ecoregión Chiapas/Fonseca está el número más alto de CCS (10), seguido por la ecoregión de Quintana Roo-Ontagua (I9) y la ecoregión Santa María.

En las siete regiones ecológicas marinas, hay 99 especies de CCS. Incluyen 82 peces y 17 especies de arrecife coral, de los cuales 76 están clasificadas como Vulnerables, 13 en Peligro, y 10 en Peligro Crítico. Veintidós especies fueron identificadas como Endémica. La ecoregión Caribe Occidental y las regiones ecológicas del Caribe Suroeste tienen el mayor número de CCS (50 y 48 respectivamente), seguido de la ecoregión Antillana Mayor con 41 CCS.

La diversidad genética es un tercer aspecto de la biodiversidad en general, pero no se encontraron datos sobre la situación de la diversidad genética en AC/RD.

Hay 847 áreas protegidas (AP) en AC/RD. Su área terrestre actual es de casi 133.000 km2, el 23,4 por ciento del área terrestre de AC/RD, mientras que el área marina cubierta es aproximadamente de 72.150 km2. Belice es el país con la parte más alta de su superficie total bajo protección (32,3%), seguido por Panamá, Guatemala y la República Dominicana en torno al 26 por ciento cada uno, luego, Honduras (24,2%), Costa Rica (20,1%), Nicaragua (18,9%), y El Salvador (9,7%). La República Dominicana tiene la mayor superficie de áreas protegidas marinas, que abarca casi 46.000 km2. Honduras tiene aproximadamente 8.230 km2, Panamá y Nicaragua tienen más de 5.000 km2 cada uno, Costa Rica 4.300 km2, Belice 2.420 km2, y Guatemala y El Salvador tienen menos de 350 km2 de áreas marinas protegidas cada uno. Los países de AC/RD han colaborado a través de la CCAD para fortalecer sus sistemas nacionales de áreas protegidas, que en conjunto forman el Sistema Centroamericano de Áreas Protegidas (SICAP).

Las áreas protegidas de AC/RD contribuye enormemente para el crecimiento económico y prosperidad. Por ejemplo, un estudio realizado en Costa Rica estima que el turismo de ocho APs contribuye más de US $ 1.5 billones anualmente a su economía. Alrededor de $ 100 millones, un 10 por ciento del ingreso anual del Canal de Panamá depende de los flujos confiables de agua de programas nacionales de acción dentro de la cuenca del Canal. Sin embargo, a pesar de su valor económico la mayor parte de las áreas protegidas no están conseguido su objetivo principal de garantizar la conservación a largo plazo y/o la restauración de los ecosistemas naturales de la región. En parte porque no cuentan con los fondo y personal necesarios. No es probable que lleguen a cubrir estas necesidades hasta que se las mire como activos que contribuyen a la economía de los países.

Recientes literaturas científicas recalcan la conservación en grandes escalas espaciales es fundamental para la conservación de especies amenazadas o en peligro, en particular mega fauna y las aves migratorias, que requieren muy grandes rangos con el fin de sobrevivir como especie. Las áreas naturales protegidas de AC/RD no son lo suficientemente grandes para solo conservar la biodiversidad de la región. La conservación de paisajes de grande escala, con áreas protegidas y áreas de manejo forestal, es un requerimiento para conservar la diversidad biológica y bosques tropicales de AC/RD. Documentos y datos de ICs indican que dos conceptos de la administración de áreas espacialmente grandes para la conservación son particularmente útiles en AC/RD: la administración integrada de cuencas hidrográficas y la gestión integrada de zonas costeras. Estos conceptos no sólo se pueden aplicar al manejo de tierras para la conservación a gran escala, sino también responden a lo que ICs claramente indicaron ser una preocupación extensa e intensa de la gente sobre la seguridad y la calidad de sus suministros de agua y los riesgos de perder sus recursos naturales costeros, tales como los arrecifes, playas, vida marina comercial y su infraestructura construida, como casas, hoteles y puertos.

ESTADO Y ADMINISTRACION DE LOS BOSQUES TROPICALES EN CENTROAMÉRICA

El Sistema de Clasificación de Ecorregiones Terrestres (Olson et al, 2001) distingue cinco tipos de bosques en AC/RD: bosques húmedos de hoja ancha, bosques húmedos de hoja ancha de montañas, bosques de coníferas, bosques secos de hoja ancha, y bosques de manglares. Estos tipos de bosques y su estado de conservación se discuten en detalle en la Sección 4 de este informe La tasa de deforestación para la región en su conjunto es de aproximadamente un 1,23 por ciento por año. La leña es la principal fuente de energía en el hogar para la población rural en Guatemala, Nicaragua y Honduras, y su cosecha puede estar contribuyendo a la degradación de los bosques.

Hasta 2010, el Consejo de Administración Forestal (FSC) había certificado 597,535 hectáreas ha en CA/DR. se ha determinado que el costo financiero de certificación excedan los beneficios económicos para la mayoría de los propietarios de terrenos forestales. Es más, la certificación ha generalmente proporcionado ni el acceso a los mercados más grandes o más estables ni una prima significativa de los precios. Los donantes internacionales generalmente no proporcionan fondos para la certificación del manejo forestal en CA/DR. La actividad de manejo forestal Petén (2013-2018) de USAID climático, la naturaleza y las comunidades en Guatemala (CNCG) ha demostrado, sin embargo , que la certificación de grupos puede ser rentable y puede atraer a empresas de compras específicas (por ejemplo, los fabricantes internacionales de guitarra).

De todos modos, la certificación ha contribuido a la viabilidad a largo plazo de las concesiones y el éxito del manejo forestal como medio para detener la deforestación en la Reserva de la Biosfera Maya del Petén de Guatemala. Se establecieron las concesiones forestales industriales y de la comunidad allí hace más de 20 años, con la ayuda del Proyecto Biosfera Maya USAID. La deforestación y los incendios forestales han estado casi ausentes en estas concesiones debido a que las personas han recibido las concesiones han protegido el bosque. Dentro de las concesiones forestales de la Reserva bajo certificación , las tasas de deforestación eran 20 veces menos que en las concesiones adyacentes , no certificados. Durante el mismo período la deforestación y la combustión ha devastado los hábitats naturales de Petén occidental, donde el Consejo Nacional Guatemalteco de Áreas Protegidas (CONAP) declaró zonas "estrictamente protegidas", pero se probaron totalmente incapaces de impedir que se conviertan en áreas de acceso abierto donde los migrantes agrícolas despejan y queman el bosque a voluntad propia. Además de detener la deforestación en tierras de concesión, las actividades de manejo forestal sostenible de las concesiones han mantenido la fauna y la diversificación de las especies vegetativa dentro de los bosques gestionados y ha creado puestos de trabajo viables para los miembros de la comunidad.

Los servicios de los ecosistemas, particularmente de los bosques, contribuyen enormemente al crecimiento económico y la prosperidad de los países de AC/RD. La producción de energía hidroeléctrica de corriente de CA tiene un valor de $ 3 billones por año sugiere que las cuencas por las cuales fluye el agua que generan esta electricidad proveen servicios del ecosistema de regulación económicamente valiosos. Un estudio realizado en El Salvador calculó el valor económico de los servicios de los ecosistemas en las zonas montañosas de ser más de $ 14.2 millones por año.

Costa Rica ha sido un líder en el establecimiento del esquema de Pagos por Servicios Ambientales (PSA) para compensar a los residentes en las cuencas por el valor de los servicios del ecosistema que proporcionan los bosques. Su programa de PSA parece no solo ayudar en la protección de los bosques existentes, pero tambien estimulan la regeneración de los bosques secundarios. Los programas de PSA de Costa Rica son financiados por un porcentaje de un impuesto sobre la gasolina, fondos donados, y pagos por empresas privadas. Desde que comenzó en julio del 2015, el programa ha proporcionado incentivos que cubren más de un millón de hectáreas de tierra y cerca de 15,000 contratos, con una inversión de alrededor de $316 millones. En Honduras, la actividad ProParque de USAID también

estableció PSA alrededor y en las áreas protegidas incluidas en la citada actividad. Ha habido otros esquemas de PSA a nivel local en otros países. Estas experiencias demuestran que el éxito a largo plazo de los sistemas de PSA depende de sus mecanismos de investigación para proporcionar suficientes fondos necesarios para pagar los servicios ambientales en largo plazo y en gran escala de paisaje.

AMENAZAS A LA BIODIVERSIDAD Y BOSQUES TROPICALES

Hay cinco categorías de amenazas directas a los bosques tropicales y la biodiversidad de AC/RD: la pérdida y degradación del hábitat; especies invasivas; la sobreexplotación; contaminación o polucion; y el cambio climático. Dentro de estas categorías el equipo identificó 42 tipos de amenazas. Basado en la base de datos construida por el equipola cual cuenta la ocurrencia de cada amenaza en las 59 ecoregiones y la mayoría de las varias áreas protegidas, hay cuatro amenazas específicas a los ecoregiones terrestres y de agua dulce. Estas son la tala de bosques (incluyendo la leña y el carbón vegetal), el pastoreo de ganado, la agricultura y la expansión urbana / asentamientos humanos. Otras amenazas importantes incluyen la construcción y mejora de carreteras, usurpación de tierras, la caza incontrolada, la caza furtiva, los incendios recurrentes y desarrollos turísticos. Las amenazas más comunes para los ecosistemas marinos son la contaminación de origen industrial, la sedimentación, residuos sólidos (especialmente plásticos), el desarrollo del turismo, la pesca excesiva, aguas residuales no tratadas, el escape de agroquímicos en los campos, las especies invasoras, y las operaciones de dragado y relleno. Los impulsores principales de las amenazas directas a los bosques tropicales y la biodiversidad son el crecimiento demográfico, la urbanización, la pobreza y la inseguridad y la corrupción.

PROBLEMAS PRINCIPALES DE CONSERVACIÓN DE BOSQUES TROPICALES Y BIODIVERSIDAD

Cinco categorías de temas surgieron de este análisis como los principales problemas para la conservación de los bosques tropicales y la biodiversidad en AC/RD:

1. **Integración Regional para la Conservación**: A pesar de que hay ejemplos exitosos de conservación de CA, ellos necesitan ampliar el alcance geográfico de modo que las amenazas a la biodiversidad de CA y los bosques tropicales se ven disminuidos y las experiencias exitosas de conservación se expanden a través de una mayor escala geográfica en toda la región. También hay una necesidad de coordinar los esfuerzos de conservación de CA de manera más eficaz y consistente. Las actividades regionales de conservación contribuirán en gran medida a ampliar el alcance geográfico de las actividades de conservación exitosas.
2. **Gobierno de los bosques tropicales y la biodiversidad:** Existe una brecha entre el sólido gobierno que la conservación de la biodiversidad y los bosques tropicales de CA requiere y las capacidades de las estructuras de gobierno actuales de CA. AC necesita claramente más apoyo para fortalecer su gestión de la biodiversidad y los bosques tropicales. Los gobiernos Municipalcipales a menudo carecen de las capacidades financieras y técnicas, pero podría jugar un papel importante la conservación porque tienen poder legal para establecer mancomunidades, regular el uso de la tierra, y el control de los impactos ambientales del desarrollo, y debido a que sus líderes puedan comprender y responder a las preocupaciones y necesidades locales.
3. **Ciencia, Tecnología y Educación:** A pesar de una base sólida para la investigación de alta calidad, el desarrollo tecnológico y la educación relacionada con la conservación de la biodiversidad y los bosques existe en CA, las principales universidades CA no están educando a un número suficiente de silvicultores, conservación de suelos, y los profesionales de la pesca, en comparación con los biólogos, economistas y abogados. Por otra parte, hay una brecha entre la necesidad de CA para la investigación de alta calidad de la conservación, la tecnología y la educación, y su suministro. Para

lograr la conservación de la biodiversidad y los bosques tropicales de CA, se deben cumplir esta necesidad.

4. **Economía y Finanzas de Conservación:** A pesar de que existen fuertes vínculos entre la conservación y el crecimiento económico de CA, y que estos enlaces crean oportunidades para la financiación local sostenible de las actividades de conservación, la financiación disponible actualmente para las acciones de conservación en CA no coinciden con el valor económico de los servicios de los ecosistemas que su biodiversidad y bosques tropicales proporcionan. Hay una necesidad de acciones que identifican con mayor precisión el valor económico de la toma de decisiones presten servicios de los ecosistemas para que puedan evaluar mejor la prioridad que le dan a la financiación de las actividades de conservación.
5. **Paisajes a gran escala para la conservación:** La conservación a través de paisajes de gran escala necesitan revertir la pérdida de la biodiversidad de CA y los bosques tropicales. También identifica aExiste una preocupación generalizada en CA sobre la degradación de los recursos costeros y las cuencas hidrográficas que contribuyen con tanta fuerza que el potencial de CA para la prosperidad generalizada y equitativa. La cuenca y gestión de recursos costeros pueden crear paisajes de conservación a gran escala dentro de la cual los bosques tropicales y la biodiversidad se pueden conservar.

RECOMENDACIONES Y PROPUESTA DE ACCIONES

El analisis recomienda que USAID/CAM considere programas transnacionales de CA que fortalezcan la capacidad local a atender a las preocupacions de mas alta prioridad de la diversidad biológica y la conservación de bosques tropicales. Estas recomendaciones están guiadas por las lecciones aprendidas y los principales problemas identificados durante el análisis. Las lecciones aprendidas que fueron obtenida de los proyectos pasados de conservación en CA se resumen de la siguiente manera:

- Usar la participación y el proceso de construir coaliciones entre organizaciones.
- Centrarse en las cuestiones que más preocupan a los tomadores de decisiones y la población local.
- Hacer investigaciónes que sean directamente pertinentes para la resolución de problemas locales de conservación.
- Promover mercados para los productos comerciales de recursos naturales bien manejados .
- Usar seguimiento y evaluación para apoyar la administración y manejo de adaptación flexible y responsiva.
- Compartir experiencias exitosas de conservación de forma sistemática en toda la región CA.
- Especificar los mecanismos para dar a las mujeres un papel equitativo en las acciones de conservación.
- Centrar entrenamientos basados en el aumento de la capacidad de conservación de la población local.
- Ampliar los proyectos piloto de conservación de paisajes a gran escala.
- Utilizar el análisis de los costos económicos y financieros y los beneficios de la conservación.

Estas lecciones aprendidas y la evaluación de los resultados del análisis sugieren las siguientes recomendaciones:

1. Los países de América Central han confiado SICA / CCAD con el papel principal en la resolución de los problemas de conservación regionales; Por lo tanto, la USAID / CAM se beneficiaría de canalizar su apoyo a las acciones de conservación a través de la CCAD.

2. USAID/CAM debe utilizar claramente los procesos participativos para identificar y responder a los problemas de conservación que más preocupan a los tomadores de decisiones y la población local.

3. USAID / CAM debe apoyar programas de entrenamientos de conservación para capacitar a las personas en todo CA prácticas de la conservación. Los participantes principales en la formación serían las personas que toman decisiones a nivel local que afectan a la conservación de los bosques tropicales y la biodiversidad, tales como alcaldes, funcionarios municipales, miembro de una ONG, líderes de negocios locales, agricultores y líderes de la comunidad. La formación se llevaría a cabo a través de cursos, conferencias y viajes de estudio cortos para exponer a los participantes a ejemplos exitosos de conservación en CA. Cada sesión de entrenamiento incluiría a personas de diferentes países, ocupaciones y tipos de organizaciones. El entrenamiento elevaría el nivel de conocimiento sobre las prácticas de conservación de los participantes para que puedan tomar decisiones más informadas sobre los asuntos que afectan a los bosques tropicales y la biodiversidad.

4. USAID / CAM debe financiar las actividades para fortalecer la capacidad de los gobiernos municipales a planificar, ejecutar, supervisar y evaluar las acciones de conservación, proporcionando recursos financieros a la conservación local de ONGs que les permite iniciar, continuar o ampliar sus alianzas para la conservación con los gobiernos municipales. Estas actividades serían transnacional. ONG conservacionistas locales podrían ayudar al gobierno municipal para utilizar metodologías de participación para preparar, revisar y revisar los planes y ordenanzas que afectan a los bosques tropicales y la biodiversidad de uso del suelo municipal.

5. USAID / CAM debe financiar becas de investigación para la conservación, el desarrollo tecnológico y la educación, proporcionando así la base para el desarrollo de tecnologías para la solución de los problemas de conservación. La investigación podría servir de base empírica para el intercambio sistemático de experiencias exitosas de conservación en toda la región CA y la ampliación de los proyectos piloto de conservación de paisajes a gran escala. Las subvenciones se podrían financiar investigación sobre los mecanismos que permitan y aumentar la capacidad de las mujeres para participar plenamente en la toma de decisiones sobre la gestión de los recursos naturales. Las donaciones también podrían construir coaliciones entre universidades, organizaciones no gubernamentales de conservación, y los gobiernos locales, y que las universidades y organizaciones con responsabilidades de desarrollo de la tecnología para facilitar su investigación de los problemas de conservación y desarrollar mejores programas para la formación de sus profesionales de la conservación. Las donaciones se estrecha supervisión y evaluación por lo que sus programas podrían ser responsivas a las nuevas necesidades y condiciones. Estas actividades serían transnacionales.

6. USAID/CAM debe financiar actividades que permiten a CA que toman las decisiones sean más conscientes y capaces de actuar sobre la justificación económica de los gastos gubernamentales y privadas para las acciones de conservación. bien diseñados, programas específicos, sistemáticos demostrarán a los tomadores de decisiones a través de CA el valor económico de la conservación. Estas actividades reforzarán la formación y el apalancamiento, la investigación, el desarrollo tecnológico y las actividades educativas. Este programa transnacional sería dirigida tomadores de decisiones en toda la región CA y demostrar a ellos el valor económico de los servicios ambientales y poner de relieve las acciones que se requieren para conservar los ecosistemas que proporcionan esos servicios.

7. USAID/CAM ofrece recursos para apoyar las actividades de conservación que involucran a municipios y mancomunidades en los paisajes de conservación a gran escala que siguen el modelo de las experiencias exitosas en el manejo de cuencas y recursos costeros. Las actividades previas que el análisis ha recomendado el apoyo de USAID/CAM complementan esta recomendación. Además, USAID/CAM podría apoyar la planificación a escala de paisaje de las acciones de conservación a través de fronteras entre países, incluyendo viajes de estudio y sesiones de trabajo en materia de conservación a escala de paisaje. USAID/CAM debe utilizar sus recursos para promover a las

personas e instituciones para innovar, asumir riesgos, y crear enlaces para que las tecnologías y capacidades para establecer los paisajes de conservación a gran escala surgen de forma natural, de forma incremental, poco a poco , y de manera sostenible desde el fuerte base para la conservación que CA países ya han establecido.

Las acciones que USAID/CAM propone para el período 2015-2019 en sus EDR y Objectivos de Desarrollo asociados (OD) corresponden cercanamente con las necesidades de conservación de la biodiversidad y los bosques tropicales identificados en este análisis.

- OD 1 busca aumentar la integración económica regional a través de "la expansión del comercio y una capacidad institucional más fuerte." Esta analisis identificó la integración económica regional como una condición para la conservación de bosques tropicales y la biodiversidad en AC/RD. Las actividades para lograr este objetivo no se espera que cause efectos negativos sobre la biodiversidad y los bosques tropicales y pueden contribuir a su conservación.
- OD 2 promoveera " las prácticas y las pólizas sostenibles climáticamente inteligentes que reducen emisiones a través de inversiones en energía limpia, lo que aumenta la resistencia de las personas, lugares y medios de vida a los impactos del cambio climático, y la mejora de la administración de ecosistemas biológicamente diversos de la región". Tales acciones contribuirán sustancialmente a las necesidades identificadas en esta evaluación para la conservación de AC/RD y la biodiversidad de los bosques tropicales y no se espera que cause efectos negativos significativos en la biodiversidad y los bosques tropicales.
- OD 3 mejorará la seguridad de derechos humanos regionales y la seguridad ciudadana. El analisis identifica el crimen y la violencia como conductores de las amenazas directas a la biodiversidad y los bosques tropicales,. por lo que este objetivo puede contribuir a la conservación de la biodiversidad y los bosques tropicales CA / de DR. No hay razón de creer que las actividades de DO 3 van a afectar los bosques tropicales y la biodiversidad.
- OD 4 tienen actividades para contener la prevalencia del VIH en Centroamérica es poco probable que contribuyana la conservación identificadas en este analisis causen ningún impacto negativo sobre la conservación de la biodiversidad y bosques tropicales de AC/RD.

El diseño e implementación de actividades para lograr los cuatro oficinas descentralizadas utilizar las mejores prácticas de manejo (BMP) para evitar impactos ambientales negativos . Por otra parte , la USAID / CAM se adherirá a los procedimientos requeridos por USAID Reglamento Ambiental 216 en diseñar y llevar a cabo estas actividades. Estos procedimientos identificar y prever medidas para evitar o mitigar los efectos negativos de las actividades propuestas para alcanzar los cuatro OD. La implementación de medidas para evitar y mitigar los impactos ambientales negativos será supervisado y evaluado a través del diseño e implementación de Mitigación Ambiental y Planes de Gestión (PAMA).

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

USAID/El Salvador's Central America Regional Program (USAID/CAM) is developing a new Regional Development Cooperation Strategy (RDCS) to inform Central America projects. As a part of the documentation for the new, five-year RDCS, USAID/CAM is required by Sections 118(e) and 119(d) of the Foreign Assistance Act (FAA) of 1961, as amended, and USAID's Automated Directives Systems (ADS) 201.3.4.2(1)(a) to complete an analysis of tropical forests and biological diversity in Central America.

FAA Sections 118, Tropical Forests, and 119, Endangered Species, codify U.S. interests in forests and biological diversity. They require that all country plans include: (1) an analysis of the actions necessary in that country to conserve biological diversity and tropical forests; and (2) the extent to which current or proposed USAID actions meet those needs. Section 118/119 analyses are specific legal requirements of all USAID operating unit strategic plans and conducted upon the basis of the new strategic plan developed by the Missions. The law does not require developing a conservation program per se or even changing proposed activities based on the analysis findings.

The analysis is limited geographically to the Central American region, defined as Central American Integration System (SICA) member countries: Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, and the Dominican Republic.

1.2 METHODOLOGY

Fifty-six study questions were drawn from the Statement of Work (SOW). Team members identified which of these study questions they felt most qualified to address. On that basis, the team leader assigned study questions to be addressed by team members. The team leader reviewed and commented on the team members' draft responses to the study questions and the team members responded to and clarified the review of their responses to the questions.

Reliable, representative, and current data to answer the study questions were obtained from documents, interviews with key informants, and field observations. ***Annex A*** provides a bibliography of the documentation consulted. ***Annex C*** provides a list of over 90 Key Informants (KI), selected for their knowledge of and experience with conservation issues in Central America, who were interviewed using a standardized interview form. Field observations were made in the El Salvador and Honduras parts of the Gulf of Fonseca, the Guatemala and Honduras sections of the Gulf of Honduras, the Nicaraguan Miskito Coast, and the Salvadorian section of the Trifinio Biosphere Reserve. The Team Leader also reviewed the lessons learned from an array of USAID biodiversity

conservation and forest management programs implemented throughout the region. The methodologies used to analyze data are described in the appropriate sections.

Section 2 describes and discusses Central America's regional and national legal and institutional framework for conservation. ***Section 3*** (Status and Management of Biodiversity) describes the methodology that was used to generate data on protected areas and biodiversity by biomes and ecoregions. ***Section 4*** (Status and Management of Tropical Forests) drew its data mostly from documents. ***Section 5*** (Threats to Tropical Forests and Biodiversity) is based on data gathered about the threats to the terrestrial, fresh water and marine biomes of Central America. ***Section 6*** discusses the issues for conservation of tropical forests and biodiversity that emerged from an analysis of the interviews with Key Informants, documents and field observations. ***Section 7*** presents the analysis' recommendations and proposed actions.

1.3 LIMITATIONS

There are few scientific analyses of how the deforestation and exploitation of specific natural resources in Central American countries and the Dominican Republic (CA/DR) is affecting the structure and functioning of its ecosystems compared to their baseline conditions (Morris 2010). Sea cucumbers and jelly fish, for example, are currently being removed in large numbers from the marine ecosystems off the Miskito Coast of Honduras (Kernan per. obs), and the Motagua River is carrying immense amounts of liquid and solid wastes into the waters of the Gulf of Honduras (KI). Studies that clarify exact effects on ecosystems of such exploitation and contamination were not available, and their lack limited the degree to which this analysis could link conservation of tropical forests and biodiversity with the potential for, or lack of, economic growth in CA/DR.

Ecosystem services of various categories underlie the stability of the Central American economy and its potential for the steady growth that is required to achieve prosperity and increase human welfare. Yet the economic value of ecosystem services in Central America has barely been assessed, and national economic accounts generally do not reflect the full value of ecosystem services or the economic losses that occur when ecosystem services are degraded or destroyed (KI). Lack of such analyses made it sometimes necessary to draw conclusions about the links between ecosystems services and Central America's economic growth based on inference and reasonable assumptions.

Time and budget constraints also limited the amount of data that could be collected from documents, KIs, and field observations. Field observations were, therefore, made in carefully selected sites. Only some of the hundreds of articles and reports could be reviewed; the most up-to-date documentary data was sought and used. Only a small portion of the many people in Central America who are highly knowledgeable about the conservation of its tropical forests and biodiversity could be interviewed. The analysis' findings, conclusions, and recommendations, therefore, are based on a selection of the potential relevant documentary, interview, and observational data. The data collected however, are sufficiently representative, reliable, and current to provide a reasonably robust basis to formulate findings, conclusions, and recommendations for the purpose of this analysis.

2 LEGAL AND INSTITUTIONAL FRAMEWORK FOR CONSERVATION

2.1 LEGAL FRAMEWORK

2.1.1 INTERNATIONAL CONSERVATION TREATIES

Table 1 indicates the principal international conservation treaties that the Central American countries have signed. ***Table 2*** provides a list of the most important regional agreements for cooperation on conservation issues and indicates which countries have entered into these agreements.

Table 1: Principal International Conservation Treaties Signed by CA/DR Countries

Year	Agreement
1940	Protection of Flora and Fauna and Scenic Natural Beauty
1971	Important Wetlands with International Importance (Ramsar)
1972	Protection of World Cultural and Natural Patrimony
1975	International Commerce in Threatened Flora and Fauna (CITES)
1979	Conservation of Migratory Wild Animal Species (CMS, or the Bonn Convention)
1982	Law of the Sea (CONVEMAR)
1992	Climate Change
1994	Combating Desertification
1997	Kyoto Protocol
1992	Biological Diversity
2003	Security of Biotechnology (Cartagena Protocol)
2011	Rights of Access (Nagoya Protocol)

Table 2: Important Regional Agreements for Cooperation on Conservation Issues

Year	Name	Countries
1990	Agreement for the Protection of the Environment	All
1992	Convention for the Conservation of Biodiversity and PAs	All
1994	Convention for the Management and Conservation of Natural Forest Ecosystems and Development of Forest Plantations	All
1994	Convention for the Establishment of the Coordination Center for the Prevention of Natural Disasters in CA	All
1995	Convention on Climate Changes	All
1997	Treaty Among the Republics of El Salvador, Guatemala, and Honduras for the Execution of the Trifinio (the Trifinio Plan)	El Salvador, Guatemala, Honduras
2001	Cooperation Agreement between the Republics of El Salvador and Nicaragua for the Protection and Sustainable Use of Fisheries	El Salvador, Nicaragua
2005	Agreement among the Governments of Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and the United States of America on Environmental Cooperation	All & U.S.
2009	Convention for the Establishment of the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC)	All

Annex I provides an overview and summary of selected international treaties and agreements. ***Annex H*** provides the designated administrative and scientific national authorities for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Wetlands of International Importance (Ramsar), the Man and Biosphere Programme (MAB).

2.1.2 NATIONAL CONSERVATION LAWS

Central American countries generally have relied on the exploitation of natural resources, through agricultural, forestry, and tourism, for economic growth and prosperity. Recently, industrial production has become more important in some geographic areas of some of the countries (Mauri, 2005). Consequently, in the 1960s and 1970s, CA/DR countries inserted provisions in their constitutions that give their citizens the right to a healthy environment and enacted a diverse range of codes and legal instruments to address the negative environmental impacts of hunting, fishing, and logging. During the 1980s, CA/DR countries expanded the authority and size of the state's regulation of environmental issues without integrating and coordinating them well enough to avoid creating conflicts between laws and institutions. Moreover, these laws and regulations generally reflected a "command and control" approach to reducing environmental impact, which depends on enforcement by the government of laws and regulations, without, however, establishing the institutional or financial capacity needed to enforce the laws and regulations.

During the 1990s, the CA/DR countries established more general and integrated "General Environmental Laws" as well as environmental impact assessment (EIA), biodiversity, and forestry laws (Mauri, 2005). Below is an overview of each CA/DR country's principal environmental and conservation laws and regulations. Some of the national and local regulations are binding to international agreements.

- **Belize:** The Environmental Protection Act enables the government to address modern environmental pollution problems and prevent and control pollution, conserve and manage natural resources, and conduct EIAs. The EIA Regulations describe the processes required for preparing EIAs. The Pollution Regulations address issues of air, water, noise, and soil pollution. The Mines and Minerals Act regulates the extraction of all nonrenewable resources, except petroleum. The Public Health Act regulates contamination of air, soil, and water. The National Lands Act establishes a framework for the management of national land other than Forest Reserves, but including the coast. The Petroleum Act regulates oil exploration and exploitation, and reserves all oil for the state. The Forest and Wildlife Conservation Acts provide for the conservation of mangrove forests and Forest Reserves. The Land Utilization Act provides for measures to govern the use, development, and conservation of land and watersheds, including beachfront properties. The Wildlife Protection Act controls the conservation and use of protected species. The National Park System Act establishes the Ancient Monuments and Antiquities Act, which places all ruins and antiquities under government control. The Tourist Board Act provides for promoting environmentally sound tourism. The Solid Waste Management Authority Act provides for proper disposal or recycling of solid waste. The Effluent Limitation Regulations are used to control and monitor effluents (CBD, 2016).
- **Costa Rica:** Costa Rica's constitution says every person has a right to a healthy environment and can denounce acts that violate this right. The Organic Environmental Law (OEL) integrates environmental norms. It includes general environmental principles and regulates EIA, biodiversity, and pollution, and establishes the structure and powers of the National Technical Environmental Secretariat (SETENA). SETENA is empowered to enforce the guidelines on the EIA process. SETENA has been seen as obstructionist towards the EIA process due to its sluggish bureaucratic procedures. The language of the OEL is unclear, and the OEL centralizes implementation in the central government without providing SETENA with sufficient and stable qualified technical staff

or budget. Other important Costa Rican conservation laws are the Wildlife Conservation Law, Forestry Law, Biodiversity Law, Water Law, Coastal and Maritime Zone Law, Soil Conservation Law, Fishing and Hunting Law, and the General Health Law.

- **El Salvador:** El Salvador's constitution states that citizens' health is a public good and that natural resources are a public interest. The Environmental Law, implemented by the Ministry of Environment and Natural Resources (MARN), provides general principles for the sustainable use of natural resources and declares that the state and municipalities are responsible for sustainable environmental management. It establishes an institutional framework for the protection of renewable and nonrenewable natural resources, makes EIA mandatory for all proposed development projects, and establishes procedures to punish environmental violations. Other environmental laws are the General Health Law, Forestry Law, Irrigation and Drainage Law, Wildlife Conservation Law, General Fishing Activities Law, Mining Law, and Hydrocarbons Law. The Environmental Law establishes sanctions for environmental violations and states that any individual or corporation, five citizens, or the Attorney General can bring a civil action for environmental damages to a community. The Criminal Code covers crimes related to environmental pollution, deforestation, depredation of protected flora and fauna, burning of waste, and transport of toxic substances, with penalties of imprisonment and fines. Seventeen Environmental Prosecutors in the General Prosecutors Office build environmental cases against violators of environmental laws and regulations.
- **The Dominican Republic:** The 2010 constitution recognizes the right of citizens to a healthy environment. Conservation laws and regulations cover agrochemicals, nuclear and hazardous waste, promote the use of nonpolluting technologies, obligations to preserve the environmental and ecological balance, and to put it back on to its natural state if damaged, and to control the risk of environmental damage. The General Law 64 of Environment and Natural Resources provides the legal framework to implement these provisions of the constitutions and covers protected areas and biodiversity, environmental management, coastal and marine resources, forest resources, lands, and water. It contains principles, objectives, instruments for environmental management, and administrative, civil, and criminal penalties, etc. The Minister has regulation faculties through administrative resolutions. (ICLG, 2015; UNEP 2015 DR Presentation)
- **Guatemala:** Guatemala's constitution establishes that the state, municipalities, and citizens must "prevent environmental pollution and maintain an ecological balance." The Environmental Protection and Improvement Law requires the National Environmental Commission (CONAMA) to prevent pollution, manage waste, oversee EIAs, and protect natural resources by enacting regulations for the Environmental Law. Other environmental laws include the Protected Areas Law, Hunting Law, Mining Law, Health Law, and Criminal Code. Environmental regulations include the Maximum Permissible Limits for the Disposal of Waste Waters, Regulation for the Evaluation of Environmental Impacts, and the Regulation of the Protected Areas Law. The protected areas system is managed by the National Council of Protected Areas (CONAP), with direct authority and nominated by the country's president.
- **Honduras:** The constitution of Honduras obligates the state to protect the environment, natural resources, and human health, and requires the rational uses of natural resources. It declares reforestation and conservation of forests to be of national and collective interest. The General Environmental Law is intended to protect, conserve, restore, and manage the environment and natural resources. It recognizes citizens' right and duty to protect, conserve, and restore the environment and gives administrative and judicial standing to citizens when harm occurs to the environment or natural resources. The law requires EIAs for private and public activities that involve the use of natural resources or that might negatively affect the environment, establishes

provisions for preventing pollution and managing wastes, and creates a system of protected areas. Other important laws are the Forestry Law, Fishing Law, Mining Code, Health Code, Phytozoosanitary Law, and the Regulation for the Environmental Law and the Decree for the Creation of Protected Areas.

- **Nicaragua:** The constitution of Nicaragua states that Nicaraguans have the right to a healthy environment and that the state is obliged to ensure the preservation and conservation of the environment and natural resources, and is responsible for developing and exploiting natural resources. The General Environmental and Natural Resources Law governs conservation and use of natural resources in order to prevent, regulate, and control activities that harm the environment or pollute ecosystems. It also establishes measures for rational exploitation of natural resources in the National Planning Policy, promotes the conservation of water resources, and establishes criteria for applying administrative sanctions, such as for harm caused to human health, valuation of damages, economic benefits received by the violator, type of violation and its degree. More specific legislation includes the Regulation on Permits and EIA.
- **Panama:** The constitution of Panama requires the state to guarantee a clean environment in which the "quality of the air, water and food meet the standards for appropriate development and maintenance of human life." The General Environmental Law states that all individuals or legal entities are responsible for preventing environmental damages and provides for violators to pay the cost of mitigating environmental damages. The Forestry Law, the Law of Wild Flora and Fauna, and the Regulation on the Use of Water Resources are also important environmental laws in Panama. The Forestry Law provides for sanctions for crimes against natural resources such as forest fires, illegal logging, unauthorized change in land use, and changes in the flow of natural waters.

The role of the environmental ministries in the CA/DR countries is defined by the well-known characterization of government bureaucracies as institutions that regulate and control—rather than implement—actions. KIs repeatedly commented that the effectiveness of the ministries of environment in CA suffer from cumbersome and rigid decision-making processes. Obstacles facing the implementation of environmental laws in CA/DR are in part due to the quality of the laws themselves (Mauri, 2005). Many existing laws do not clearly establish implementation measures or lines of authority, nor do they assign responsibility for overseeing environmental compliance. Laws often have detailed descriptions of objectives and terms but fail to include mechanisms of enforcement or specific definitions of infractions. Lack of legal clarity permits varying interpretations of the laws, which causes confusion and contradictions. Governments, for example, sometimes promote the use of chemicals in farming that environmental laws prohibit. Others encourage the expansion of agriculture activities into environmentally protected regions. In some cases, laws and regulations may not be outright contradictory, but simply inconsistent, as when environmental regulations may require companies to investment in more expensive, but more environmentally friendly, equipment, while the tax codes do not reflect those same objectives. Wastewater treatment and pollution control equipment, for example, are sometimes subject to import duties. Furthermore, loans for such "nonproductive assets" can have higher interest rates. In general, CA/DR environmental legislation tends to apply sanctions rather than promote preventive measures. As such, enterprises often look for loopholes in the legislation and opt for the least costly option for them. They may, for example, dump untreated wastewater into water bodies instead of purchasing wastewater treatment equipment.

2.1.3 REGULATORY FRAMEWORK FOR MAJOR PROJECTS

Mauri (2005) provides a detailed review of the environmental regulations in Central American countries for assessing and mitigating or avoiding the negative environmental impacts of proposed

major projects. Since the late 1980s and early 1990s, the CA/DR countries have had regulations that require major projects to be approved by a government agency on the basis of an EIA process. In 2005, Mauri (2005) determined that, in practice, environmental law enforcement and compliance has been weak and has not served to effectively avoid or mitigate the negative effects of major development projects.

In 2004, to strengthen the CA/DR environmental regulatory framework, the Dominican Republic–Central America Free Trade Agreement (CAFTA-DR) countries negotiated an Environmental Cooperation Agreement (ECA) associated with the agreement. The United States Environmental Protection Agency (EPA) implements the ECA in partnership with USAID, the U.S. Department of State, and the CAFTA-DR countries. The EPA also provides technical assistance to the CA/DR countries to:

- synchronize their environmental regulations;
- improve or establish policies and procedures for wastewater treatment;
- improve enforcement of environmental laws and regulations;
- design and establish environmental management systems in the ministries of environment;
- manage hazardous substances and chemicals;
- design and implement a registry for pollutant releases;
- measure, analyze, and manage urban air quality; and
- establish systems to map land use.

An assessment of the USAID Environmental Cooperation Program to Promote Compliance with CAFTA-DR found that the activities of the EPA were generally well-designed and implemented (ECODIT, 2011).

The Convention on Biological Diversity (CBD) Decision VII/28 requires signatory countries to conduct EIAs of proposed projects in zones that include: a) protected areas, b) threatened ecosystems outside of protected areas, c) threatened species, and/or d) important key ecological or evolutionary processes. However, contradictions sometimes occur between the CBD requirements and the economic goals of the CA/DR countries. For example, CBD article 8(h) requires that each contracting party shall, to the extent possible and as appropriate, prevent the introduction of, control, or eradicate invasive species that threaten ecosystems, habitats, or native species. However, some countries have permitted the introduction of exotic species for commercial purposes, such as Tilapia (*Oreochromis* spp.) and Japanese Pacific Giant Oyster (*Crassostrea gigas*).

Several KI's commented that the EIA regulatory requirements for major projects have not yet become fully effective in the CA/DR countries. One KI, for example, said he recently found "a backlog of 1,200 environmental review processes because more came in than could be processed" in an environmental ministry. Other KIs said that many projects simply disregard environmental regulations and do not face repercussions. For example, in Roatan, Honduras, although it is illegal to destroy mangroves, construction of tourist resorts has caused the rampant destruction of mangroves, seagrass, and turtle grass beds (Vega et. al., 2014). Another KI in Guatemala noted that consultations are not being carried out with indigenous peoples for major hydropower projects within their territories, as required by the Indigenous and Tribal Peoples Convention (ILO-Convention, 169).

Although no thorough, objective evaluation of the current effectiveness of the CA/DR regulatory process for major projects is available, the EPA's technical assistance and need to comply with CBD requirements for the preparation of EIAs have presumably improved CA/DR countries' capacity to

regulate major projects. CA/DR countries, however, could still greatly improve their environmental regulatory processes in this area.

The Millennium Challenge Corporation (MCC) finances major infrastructure projects in some Central American countries. MCC recently amended its Environmental Guidelines to adopt the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (PS). These standards cover social and environmental risks and impacts, labor and working conditions, resource efficiency and pollution prevention, community health, safety and security, land acquisition and involuntary resettlement, biodiversity conservation, and sustainable management of living natural resources, indigenous peoples, and cultural heritage.

The World Bank, the Inter-American Development Bank (IDB), and USAID all have environmental assessment regulations that would apply if thy finance major development projects in Central America. These regulations are similar in requiring the following:

1. Scoping.
2. Definition of proposed actions and potential alternative actions to achieve the same objective.
3. Description of the affected environment.
4. Analysis of the predicted effects of the proposed action and alternative actions on the affected environment.
5. Recommendation of the preferred alternative action based on environmental criteria.
6. Recommended actions to avoid, mitigate or compensate for negative environmental impacts.
7. Monitoring and evaluation (M&E) plans for the recommended actions.

Several KIs commented that USAID environmental regulations are not being implemented in a way that incorporates the results of environmental assessments fully into the design of projects and project activities. Rather environmental reviews are done only after project or activity objectives, contracts, budgets, implementation plans, and M&E plans have been contracted and approved, and implementation has begun. Conservation practices, therefore, do not become fully incorporated into projects. USAID is currently examining possibilities to improve its environmental procedures so that conservation considerations will be more fully integrated into the design and implementation of the projects it finances.

2.2 INSTITUTIONAL FRAMEWORK

2.2.1 CENTRAL AMERICAN INTEGRATION SYSTEM

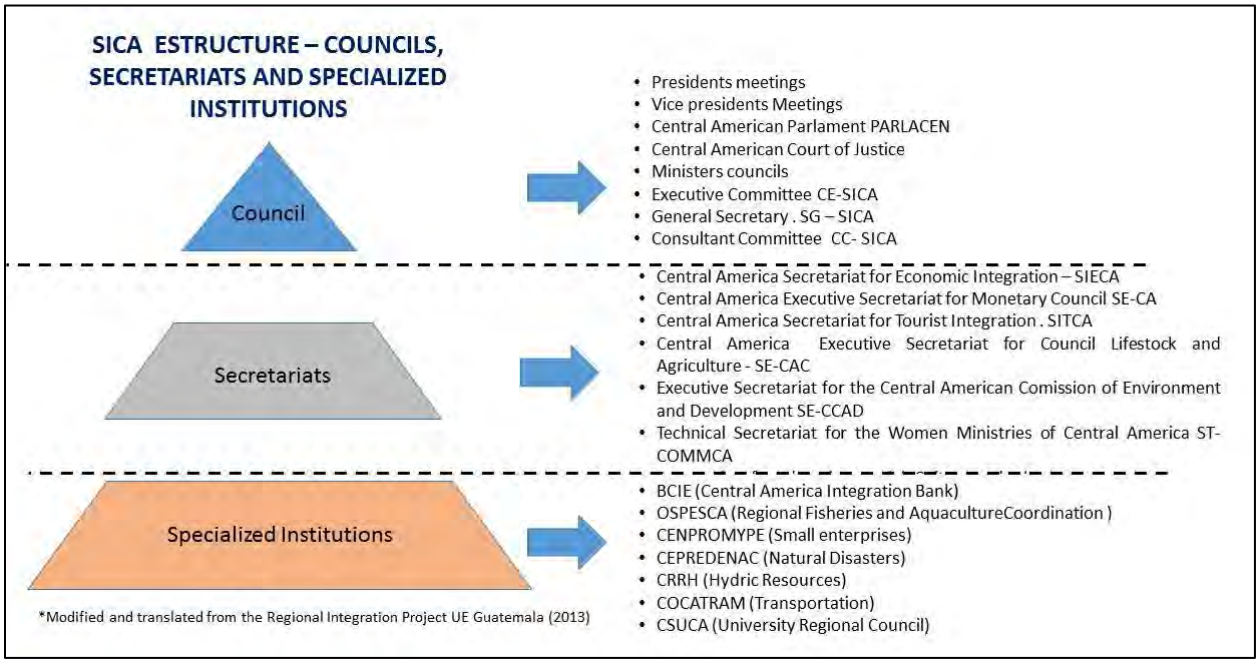
The Central American Integration System (SICA) and several of its associated organizations are the most important regional organizations involved with the conservation of CA/DR's tropical forests and biodiversity. SICA evolved from a long history of failed attempts of the CA countries to work together. After the normalization of the political situation that followed the period of civil wars in CA during the 1980s, the European Community and economic globalization put pressure on CA countries to collaborate as a means to achieve economic growth (Finizio, 2011; Garcia 2003).

During the 11th Meeting of Central American Presidents held in Tegucigalpa in 1991, the Tegucigalpa Protocol was signed. It reformed the Charter of the Organization of Central American States (ODECA) and established SICA. The protocol stated that SICA should constitute the "region's organic structure aiming to achieve integration in all its aspects ... with the perspective of the transformation of Central America into a region of peace, freedom, democracy and development." The protocol defines goals for member states, including democratic governance, regional security,

economic prosperity, and sustainable development and "protecting the environment through the establishment of a new regional ecological order." It set economic integration goals, including the creation of a customs union, a common market and freedom of movement for citizens and goods. Subsequently, the General Treaty of Economic Integration, Central American Treaty for Social Integration (Treaty of El Salvador), the Alliance for Sustainable Development, and the Framework Treaty for Democratic Security in Central America were signed. Other economic blocs in the world, particularly the EU, began to take Central America into further consideration. In particular, SICA established a better basis for Central America to negotiate the Central America Free Trade Agreement (CAFTA/DR) and the North America Free Trade Agreement (NAFTA) with the United States.

Figure 1 shows SICA's complex institutional structure. At its highest level are the Central American Parliament, the Central American Court of Justice, and the Presidents and Vice Presidents Meetings. The Presidents Meetings supervise the Council of Ministers and the Executive Committee. Under the Executive Committee, the General Secretariat coordinates the various Secretariats. Specialized institutions are also associated with SICA.

Figure 1: SICA Structure – Councils, Secretariats and Some of its Specialized Institutions



Environmental issues cut across most of SICA's secretariats and specialized institutions. Three of them, however, are particularly concerned with issues that affect tropical forests and biodiversity. The Central American Commission for Environment and Development (CCAD) leads SICA's political and strategic issues related to conservation. The Central America Fisheries and Aquaculture Organization (OSPESCA) develops and coordinates management of regional fisheries and aquaculture activities in the national waters, inland waters, and Exclusive Economic Zones (EEZ) (FAO, 2016). The Regional Commission of Hydrologic Resources (CRRH) is concerned with protection of watersheds and water supplies.

In 1994, the Alliance for Sustainable Development (ALIDES) was signed. It was a comprehensive strategy for the environmental sustainable development of Central America (Finizio, 2011). ALIDES defines sustainable development as "a process that pursues progressive change in the quality of

human life and which targets human beings as the central and primary target of development. It is achieved through economic growth with social equity and changes in production and consumption patterns, based on ecological equilibrium and the support of the region" and "respect for sustainable use of the vitality and diversity of the earth, including protection of biodiversity, pursuit of regeneration, and sustainable management of natural resources." ALIDES also emphasizes respect for cultural plurality and ethnic diversity, including explicit reference to the overlap between indigenous peoples and the location of sites with great biodiversity (Mauri, 2005).

According to Finizio (2011), the process of integration contemplated by ALIDES soon "ran out of steam" and "SICA's ambitious objectives have been gradually reduced when in contact with reality … despite its complex institutional framework and its wide competences, faces the same challenges that had led to the failure of past experiments." Five principal problems have limited SICA's ability to achieve regional integration:

1. It has been difficult to coordinate the economic sub-system due to institutional friction between the General Secretariat of Economic Integration (SIECA) and the General Secretariat of SICA and uncertainty over the speed and direction of economic integration.
2. SICA is overburdened by the number of its institutions and organizations and their high administrative costs, leading to resentment of national government.
3. The countries continue to depend more on trade with the U.S. and E.U. than with each other, making regional integration a low priority.
4. National governments have been unwilling to compromise their sovereignty, and have favored national agendas over integration. Since all substantive decisions, both at the Presidents Meetings and in the Council of Ministers, require consensus, decisions often reflect the lowest common denominator.
5. Other factors, especially border disputes and natural disasters, such as Hurricane Mitch, have weakened the integration process. Strong economic and social disparities between the countries and their weak political systems also make integration difficult to achieve.

Attempts to reform SICA's institutional structure and functions to correct for these weaknesses have so far not succeeded. SICA has remained with the same institutional structure of the Tegucigalpa Protocol, a "half-way house … in terms of competences as well as in terms of results" in which "inter-governmentalism still holds sway" and where "regional integration pertains still to the field of international law rather than to integration law." The Presidents' Meetings and unanimity continue to control its decision-making process, and governments refuse to hand over power to integrated organizations to implement their own decisions. As a result, "integration is fragile and dependent on national and even personal situations" (Finizio, 2011).

The Central American System for Integration (SICA) was established to further the integration of Central America more than to implement conservation projects. Its associated conservation institutions—CCAD, OSPESCA and CRRH—likewise, were established to promote integration of regional conservation efforts. As a KI observed, "SICA was not intended and does not function as a regional government with decision-making and enforcement powers. Rather it is subject to constant negotiation among its member countries about almost every conservation issue and can rarely enforce its decisions" (KI). Several KI's indicated that SICA, CCAD and OPESCA depend on external financing for most of their operation, a clear indication of the low priority they are given by the national governments. Although several KIs noted CCAD's current lack of strong leadership, capacity, and vision, they also acknowledged that "CCAD's role leading the environment issues in the region is very important and should be strengthened" A number of KIs noted that OSPESCA promotes regional conservation integration more effectively than CCAD because its leadership has a clearer concept of how regional integration for conservation can succeed.

2.2.2 THE TRIFINIO PLAN

A female KI expressed her opinion that the Trifinio Plan "is the best example of regional integration in Central America" and that "we need real integration and free trade" in order to improve the CA economies and conserve its natural resources. The Trifinio Plan emerged from the regional peace process, which culminated in the signing of the Esquipulas peace agreements in 1987. Later, with the support of the General Secretariat of the Organizations of American States (OAS) and the Inter-American Institute for Agricultural Co-operation (IICA), the Trifinio Plan was developed. The Trifinio Plan has been implemented by Guatemala, El Salvador, and Honduras and serves as an example of practical efforts to integrate river basin management as a for protecting natural resources while facilitating the flow of goods, services, and people across national boundaries. A principal lesson learned from the Trifinio experience is that conservation strategies that involve local actors are more likely to be successful than strategies that use a top-down approach (FWW, 2016). A KI noted that the fact that the Trifinio Plan is overseen by the vice presidents of the three countries contributes greatly to its success, since they have a higher administrative status than any single ministry. The KI also emphasized that it is necessary to work closely with the municipal governments even though the mayors change every three years; the new mayors learn about and continue conservation programs, especially those than conserve water, the supply of which interests voters. Three mayors from the Trifinio region also confirmed the importance of municipal governments in the Trifinio Plan and the importance of watershed management in responding to the concerns of their constituents.

2.2.3 NATIONAL INSTITUTIONS

All CA/DR countries have established national institutions for implementing environmental and conservation laws and regulations. Below is an overview of each CA/DR country's principal environmental and conservation institutions.

- **Belize:** The main authority responsible for all lands, land planning and management processes, mining control and regulations, integrated management and use of water resources (except water supply and services), and solid waste management is the Ministry of Natural Resources and Immigration. The Department of Environment has overall responsibility for enforcing environmental laws and regulations. Other conservation-related public institutions are the Land Utilization Authority (LUA), the Geology and Petroleum Department (GPD), and the Public Health Department (PHD) (CBD 2016). In March 2012, a new ministry was created: The Ministry of Forestry, Fisheries, Sustainable Development and Indigenous People. The Department of Fisheries regulates the industrial and artisanal fishing industry. The Forest Department oversees the sustainable management of forest resources, and administers the National Parks System Act. The Protected Areas Conservation Trust (PACT) provides funds for supporting conservation and promoting environmentally sound management of Belize's natural and cultural resources and is within this new ministry.
- **Costa Rica:** The Ministry of Environment and Energy (MINAE) is responsible for implementing the OEL and, through its National System for Protected Areas (SINAC), for conserving the country's 11 conservation areas. The conservation areas have been established based on bioregions. Each area has a Technical Council and a Local Committee that prepare and implement Sustainable Development Plans. The Directorate of Geology and Mines within SINAC regulates the use of riverbed materials and underground mining. The National Technical Environmental Secretariat (SETENA) is an independent agency within MINAE that reviews, evaluates, and monitors EIAs. The Ministry of Health is responsible for protecting public health from environmental hazards. The Ministry of Agriculture (MAG) regulates and restricts land use based on the suitability of sites for agriculture, livestock, and forestry. The Environmental

Prosecutors Office prosecutes violations of environmental laws, while the Administrative Environmental Tribunal within MINAE enforces sanctions established in the OEL.

- **Dominican Republic:** The Ministry of Environment and Natural Resources prepares environmental, ecosystem, and natural resources policies. The Office for the Defense of the Environment and Natural Resources is a department of the Attorney General's Office that defends society's interests in environmental issues and prosecutes violations of environmental legislation. The National Council on Climate Change establishes policy regarding climate change (ICLG, 2015)
- **El Salvador:** MARN prepares national environmental policies, enforces environmental laws, leads land use planning processes, regulates environmental permits (EIAs), and manages the PA system. MAG is responsible for forestry planning and regulations, fisheries, water for agricultural and livestock uses, and national implementation of CITES. The Ministry of Public Health and Social Assistance controls the quality of chemical products and food products.
- **Guatemala:** The Guatemalan Ministry of Environment and Natural Resources (GMARN) is Guatemala's highest official environment-related topics referent and coordinator. CONAMA coordinates actions in the development and implementation of national environmental policies and laws, but its main responsibility is to review and approve EIAs and implement environmental audits as a basis for imposing sanctions for environmental harm. Four National Environmental Prosecutors in the General Prosecutor's Office and one auxiliary Environmental Prosecutor in each Judicial District conduct investigations for crimes against the environment. CONAP directly administers some of the Guatemalan System of Protected Areas (SIGAP) and oversees the administration of co-administration agreements for other parts of SIGAP, and builds a national fund for the conservation of Guatemalan natural resources. The Forests National Institute (INAB) administers all forests, except those within PAs. The Ministry of Public Health and Social Assistance coordinates protection of human health, implementing sanitation, and protection of water for human consumption. The Ministry of Agriculture, Livestock and Food develops and implements policies for agriculture, cattle ranching, irrigation, and renewable natural resources. The Ministry of Energy and Mines formulates national energy policies and regulates and supervises the exploitation of hydrocarbons and minerals. The Ministry of National Defense controls protected areas in border zones.
- **Honduras:** The Secretariat for Energy, Natural Resources, Environment and Mining (SERNA – MIAMBIENTE) is responsible for PAs and wildlife protection, environmental policy, EIAs and licensing, biodiversity policies and planning, mining permits and concessions, climate change adaptation, water resource administration, and environmental quality monitoring. The Honduran Institute for Conservation and Development (ICF) is the Honduran institution responsible for the conservation and protection of protected areas and wildlife, water resources, and sustainable use of by implementing policies, laws and incentives and for the harvesting, industrialization and commercialization of forest products (ICP 2016) The forest sector depends directly on the Presidency of the Republic. The Secretariat for Agriculture, Livestock and Food coordinates the agricultural sector as well as the General Directorate of Fisheries and Aquaculture (DIGEPESCA), which manages fisheries and aquaculture. The Secretariat for National Defense and Public Safety monitors continental and coastal waters.
- **Nicaragua:** The Ministry of Environment and Natural Resources (MARENA) implements and enforces environmental legislation, land use planning, PAs and natural resources management, and conservation. The Ministry of Agriculture and Livestock coordinates the agricultural and forestry sectors. The Ministry of Health (MINSA) coordinates actions to protect human health and prevent pollution, including by ensuring proper disposal of toxic wastes and the provision of sanitary drinking water. The Office for Environmental and Natural Resources Defense, within the

Attorney General's Office, has six Environmental Officers that prosecute environmental violations.

- **Panama:** The National Environmental Authority was converted into the Ministry of Environment and Natural Resources (MIAMBIENTE). The Ministry of Agrarian Development (MDA) promotes sound, technical use of natural resources, identifies lands for agriculture, plans the use of water for irrigation and controls the introduction of exotic species. The Ministry of Health monitors the disposal of waste waters and upholding standards for protecting human health.

Mauri (2005) identifies a number of institutional weaknesses that prevent CA/DR institutions from effectively and consistently implementing the national environmental legislation: lack of sufficient financial resources, equipment, and stable, qualified staff. Several KIs agreed that Mauri's 2005 assessment of the institutional capacity of national conservation institutions is still largely valid.

KIs repeatedly noted that although conservation laws and regulations abound in CA often they are not enforced. Corruption, as discussed in ***Section 5.2.4***, frequently undermines the rule of laws in some CA countries. Violence and crime, especially in El Salvador, Guatemala, and Honduras, is making enforcement of laws and regulations even more difficult. The small budgets assigned to public conservation institutions compound the problem of lack of enforcement. A KI in Puerto Barrios, Guatemala, for example, said that fishing regulations cannot be enforced because "there are no personnel to enforce the regulations. There are only two fishing inspectors in Barrios and one in Livingston. They do not have a boat or gasoline" (KI). Likewise, a KI who directs a conservation NGO in Tela, Honduras, said, "There are enough laws; the problem is that they are not equally applied and favors are for sale, or exchanged among friends … there is no enforcement." One conclusion of the final evaluation of the USAID Management of Aquatic Resources and Economic Alternatives (MAREA) Project was, "Although the activities involving policies and laws were necessary and useful at one time, probably by now sufficient policies and laws have been drafted or approved, and they now need to be implemented effectively and consistently, a responsibility not of USAID but of national and local governments" (Kernan et al., 2014).

2.2.4 MUNICIPALITIES

KIs and documents emphasized that CA's municipalities are ubiquitous, permanent, reasonably democratic institutions that have an important role in land-use planning, water services provision, health, and education. Within their territories, municipalities have the power to authorize and establish local rules for natural resources management under Municipal Codes. The codes permit municipalities to join forces in a *mancomunidad*, an association of municipalities.

For example, the Mancomunidades at Trifinio, a mountainous region that crosses the boundaries between El Salvador, Honduras, and Guatemala, respond to common cultural, social, environmental, and economic goals, allowing them to benefit from economies of scale with respect to technical assistance, developing joint project proposals and financial aid (UNIQUE, 2014).

In Cerro San Gil, Guatemala, and under the USAID Conservation of Central American Watersheds Program (CCAW) implemented during 2006–2009, the municipality created a water fund that remains operational to date, to support water management in the Motagua River. These provide good examples where involving communities and local governments can help ensure sustainability in the management of environmental services (KI). Several KIs and documents noted the important role municipal governments often play in resolving conflicts over water and land use. Pervasive, culturally embedded corruption, as several KIs noted, undermines the effectiveness of municipal governments in addressing conservation problems. Nonetheless, KIs who work in municipal governments in El

Salvador, Honduras, Guatemala, and Nicaragua were knowledgeable and concerned about conservation issues, particularly those linked to water supplies. Interviews with mayors in Trifinio, El Salvador, suggest that some municipalities need to clarify legally rights and procedures related to the collection, use, and disposal of water (KI). In Puerto Cabezas, Nicaragua, the mayor cannot control the massive capture of sea cucumbers and sea urchins that is currently going on for lack of any legal authority to do so (KI). KIs in Puerto Barrios, Guatemala, mentioned the difficulties the mayor has had in regulating collection and disposal of solid waste, in part for lack of the necessary municipal ordinances. KIs also noted that municipalities often lack technical expertise, scientific data, and financial resources to be able to govern the use of natural resources and protect biodiversity and forests well.

2.2.5 PRIVATE SECTOR ORGANISATIONS AND CONSERVATION FUNDS

PRIVATE SECTOR ORGANIZATIONS

There are more than 75 private reserves in Costa Rica, Nicaragua, Guatemala, and El Salvador, some of which have been recognized by the Ministries of Environment and Forestry institutions. Local and national NGOs have shown the capacity to carry out processes in the field and are considered a link between governability and governance (KI).

The World Business Council for Sustainable Development (WBCSD) currently includes 210 large multinational companies. In order to become a member, companies must show commitment to change the way they do business regarding clean energy and sound environmental practices. J.M. Alvarez (KI) explained that the El Salvador Chapter of WBCSD has 20 members; some are multinationals; such as Holcim, Lab Swiss, and Sherwin Williams; and others are local, such as a dairy company and a few sugar mills that own plantations. Work with these companies has mainly focused on green construction, such as energy efficiency and water treatment with a textile company, which helps; however, working directly with WBCSD members on biodiversity conservation has not yet occurred.

The Central American Network of Corporate Social Responsibility (CANSR) has already held several regional meetings starting in 2002 in El Salvador, 2004 in Guatemala, 2005 in Honduras, 2006 in Nicaragua, and 2008 in Costa Rica and Panama. These enterprises are committed to corporate social responsibility and to complying with the ISO 26000.[1] Some funds have already been integrated in biodiversity projects, as is the case of Costa Rica Forever (KI).

The Regional Wildlife Network of Private Owners (RWNPO), a CCAD initiative related to the Mesoamerican Biological Corridor, has provided some positive results in Costa Rica, Nicaragua, El Salvador, and Honduras. Nicaragua is a good example of this effort. Based on 10 owners who began in 2002, today there are 89 owners who are engaged in this organization. They are recognized by the government under the Protected Areas Law and have complied with all requirements, in addition to developing activities of forest management, sustainable tourism, silviculture, and educational programs, among others (KI).

The Biodiversity Partnership for Mesoamerica (BPM) promotes innovative initiatives through public-private partnerships to improve the state of biodiversity in the MBC and the Dominican Republic. Investments under the BPM consider "biodiversity conservation and the adoption of mitigation measures, particularly climate change adaptation." Participation in BPM offers its CA

[1] http://www.iso.org/iso/iso_26000_project_overview-es.pdf

members "a global network for the exchange of experiences, new business opportunities, and political dialogue at a high level" (BPM, 2016).

The BPM arose from an initiative between the REWE Group (European supermarket chain with annual sales of 43.5 billion Euros that drives the green products market), Chiquita Brands Int. (banana supplier for REWE), CORBANA (National Banana Corporation, Costa Rica's marketer for bananas from the Atlantic), and GIZ (German Society for International Cooperation). They "formed a public-private partnership to develop a pilot project with common objectives designed to protect wetland areas, mountain forests and critical watersheds of the provinces of Talamanca in Costa Rica and Bocas del Toro in Panama." The BPM is currently implementing the program Support to the Mesoamerican Biodiversity Alliance, "to strengthen synergies that benefit the private sector generating business options, which also promote biodiversity conservation in nine countries" (BPM, 2016). The BPM also participates in global policy dialogues as part of the board of directors of the Global Business and Biodiversity Alliance promoted by the CBD.

CONSERVATION FUNDS

The Latin American and Caribbean Network of Environmental Funds (RedLAC) was established in 1999. Through coordination and collaboration among its members, it strengthens their capacities to use the fund to conserve biodiversity while contributing to economic development. Most of these funds are in a form of U.S. debt swap with Central American countries.

The Fund for the Mesoamerican Reef System (MAR Fund) was founded by PACT, the Guatemala Foundation for the Conservation of Natural Resources and the Environment (FCG), the Biosphere Foundation of Honduras, and the Mexican Fund for the Conservation of Nature (FMCN). MARN provides substantial, long-term financing for conservation efforts through a competitive process to civil society organizations (CSOs) that are working on conservation of the Mesoamerican Reef (WB, 2016; KI). These funds have administered more than US$185 million in hundreds of conservation projects that have helped to conserve biodiversity of more than 4.5 million ha and benefit thousands of people (RedLAC, 2016).

The Costa Rica National Fund for Forestry (FONAFIFO), founded in 1996, is a public entity that finances activities to strengthen the forestry sector and establish biological corridors and private protected areas. Also in Costa Rica, the association Costa Rica Forever was founded in 2009 with the purpose of conserving terrestrial and marine ecosystems by strengthening the technical capabilities of public, civil society, and private sector institutions and organizations and through environmental education campaigns.

The El Salvador Environmental Fund (FIAES) was started in 1996. It has promoted conservation through strategic alliances with CSOs who work to conserve protected areas and watersheds, reduce contamination, and supports territorial planning, especially through the use of improved technologies. The Honduran National Fund for the Management of PAs and Wildlife was established in 2009, with a fee that all imported vehicles must pay; nonetheless, according to key local stakeholders,[2] the money or most of the money is not actually going to conservation actions.

In Panama, **the Foundation for the Conservation of Natural Resources (Nature Foundation)** was established in 1991. The Nature Foundation administers a capital fund, two debt swap funds, and helps finance the activities of conservation NGOs. In Belize, PACT was established in 1995. Although private businesses could donate to PACT, currently it is financed by a tax on tourists

[2] Flores, Merlin, Parks, Monitoring, Education & Communities Coordinator, PROLANSATE; Paz, Ana, Executive Director, FUCSA

and by a 20 percent fee paid by tourists from cruise ships. Five percent or more of these taxes and fees must be deposited in a capital fund, by law, rather than being spent on current projects and expenses. PACT does not implement conservation projects itself. Rather, it donates funds for conservation projects by public sector and (CSOs) and institutions. In Guatemala, **The Guatemala Foundation for the Conservation of Natural Resources and the Environment (FCG)** is an NGO specialized in fundraising and funds management, whose main funder is the U.S. Government's Forest Conservation Act Program from 2001.

The Summit Foundation awards grants to other organizations for projects to reduce land and marine-based threats to the Mesoamerica Reef from the headwaters downstream to the Caribbean Sea. Its grants support the establishment of fish refuges, reduced water contamination, zero-plastic tourism zones, and advocacy for conservation laws. It financed the Healthy Reefs for Healthy People Initiative, which collects data to produce biennial report cards that gauge the health of the Mesoamerican Reef (MAR).

The Rufford Foundation provides grants for research projects related to conservation (Rufford Foundation, 2016).

2.2.6 ACADEMIC/RESEARCH INSTITUTIONS

The principal universities in Central America that have educational and research programs related to conservation are **Landivar University** and the **University de El Valle**, both in Guatemala, and **the Catholic University of Nicaragua**, which has developed an Institute for Training, Research and Environment Development, CIDEA, starting 22 years ago. It has become the research Center for Coastal Marine Resources and Aquatic Ecosystems. Municipalities and private sectors have become very important allies. Recently, the center finished a climate change study for the Gulf of Fonseca that has gathered lots of data and proposal from the municipalities for adaptation activities (KI).

In Honduras **the Center for Marine Ecology (CEM)** conducts research on the Bay Islands. CEM carries out research applicable to the conservation of marine biodiversity, advises government agencies, and monitors compliance with marine and coastal regulations. **The Tropical Agricultural Research and Higher Education Center (CATIE)** serves as a regional center for graduate education and research in the fields of agriculture and natural resources. It has become a regional center of expertise on the issue of climate change (CATIE, 2016). The three principal Honduran CNGOs are the local **Association for Ecological and Socioeconomic Development (ASIDE)**, the national **Center for Marine Ecology (CEM)**, and the **Regional Institute for Training, Research and Environment Development (IRCADR)**.

In Panama, **The Smithsonian Tropical Research Institute (STRI)** has been active since 1923, leading research of natural resources and ecological studies. In addition to its program in Bocas del Toro, STRI also has activities in Belize, and presents an opportunity for the region to join efforts with other countries and programs. Panama has two principal national CNGOs: (1) the **National Association for Conservation (ANCON)** conserves biodiversity and natural resources, and (2) **Natura Fund** is a trust fund (U.S. debt swap) for conservation projects. The local **Center for Environmental Studies and Development (CEMAD)** is concerned with relieving poverty through the management of natural resources. **The Avina Foundation** is a regional organization or private and social alliances for sustainable development that is based in Panama.

In Costa Rica, the **Tropical Science Center (TSC)** is an influential non-governmental scientific and environmental organization (TSC, 2016). **CATIE** and the **Organization for Tropical Studies** are regional institutions based in Costa Rica. Costa Rica also has the **National University**, the **Technical University**, the **Technological Institute**, and the **Regional School of Agriculture for the Humid Tropics** (EARTH).

On the exclusive subject of marine coastal resources, USAID's MAREA program conducted a regional study during 2011–2014 about marine coastal resources in order to propose a Regional Strategy for Research. A total of 97 institutions and 180 participants from seven countries were surveyed. (DR did not participate since it was not included in the project.) Findings and results were delivered to OSPESCA and CCAD. The study showed that there were 85 persons in the region dedicated to research in coastal and marine resources working in academic institutions (32%), in government institutions (30%), represented by NGOs and associations dedicated to research (29%), independent research (7%), and in private organizations or enterprises (0.7%) (MAREA, USAID).

2.2.7 NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

INTERNATIONAL NGOS

The Nature Conservancy (TNC) works with large business, such as hydropower companies and African palm and banana plantations, to conserve large landscapes. It currently implements activities in four categories: power lines, water and food security, smart infrastructure related to hydroelectric plants, and protecting oceans and coasts. TNC divides Central America into two regions, one that includes Costa Rica and Panama with the northern South American countries, and the other that includes Nicaragua, El Salvador, Honduras, Guatemala, and Belize with Mexico. TNC does not generally have regional programs, however, only country programs (KI). TNC is a co-donor and participant however in the Conservation of Mesoamerican Pine-Oak Forests program. This program is implemented by ProNatura, Defensores de la Naturaleza, TNC, and through the United States Fish and Wildlife Service - Neotropical Migratory Bird Conservation Act. It seeks to implement and evaluate an innovative integrative model of sustainable regional forest management in Chiapas, México; Altiplano Central and Verapaces, Guatemala; and Olancho, Honduras. The model integrates logging, reforestation, fire management, firewood collection and charcoal production, as well as monitoring of biodiversity indicators and conservation of neotropical birds[3].

The World Wildlife Fund (WWF) has six global program areas: (1) water security, (2) smart fishing, (3) integrated coastal and oceans management, (4) forests, (5) mitigation of an adaptation to climate change adaptation, (6) wildlife. Its focus in CA has been the conservation of the Mesoamerican Reef, but it also implements business models to generate income and, as a result, preserves biodiversity along with local communities using forest management and certification, and protected areas (KI).

The International Union for Nature Conservancy (IUCN) principal interest is making protected areas more effective for conserving biodiversity, especially through co-management with local people, especially women, and other measures to improve governance. IUCN places a priority on projects that assist indigenous communities to manage natural resources within protected areas and will publish a map with information about the overlap between indigenous territories and protected areas in Central America. IUCN gives particular emphasis to the role of indigenous women in protecting natural resources (KI).

The Rainforest Alliance (RA) specializes in certification of agricultural and forest products. It has been particularly active in the community forest management concessions of the Petén of Guatemala (KI).

The Healthy Reef Initiative (HRI) publishes an annual report on the conservation status of 248 coral reef sites of the Honduras and Guatemala sections of the Mesoamerican Reef. Healthy Reef is a

[3] http://www.fws.gov/birdhabitat/Grants/NMBCA/2012.shtm

co-management NGO for protected areas in Bay Island; The Biodiversity Partnership Mesoamerica (BPM) promotes innovative initiatives through public-private partnerships to improve the state of biodiversity in the MBC and the Dominican Republic (BPM, 2016). Local NGOs working on protected areas need government support to help get the job done that the state should do (KI)

Fauna and Flora International (FFI) has a program in Nicaragua that strengthens the capabilities of local and governmental institutions to conserve endangered species in dry forests. It is currently building capacity for participatory ecosystem-based marine conservation in Central America, which is implemented in Costa Rica, Nicaragua, and Honduras (FFI, Programs, 2015).

Friends of the Earth International, Spain, (FEIS) implements sustainable conservation programs for communities along the coastal marine zones in Costa Rica, Nicaragua, and Honduras. It specializes in strengthening the local governance capacity of municipalities and communities.

The Mesoamerican Ecotourism Alliance (MEA) plays an important role in the development of a more sustainable and cultural-based tourism in the region. MEA is a partnership of NGOs, small local tourism ventures (including community organizations), and individual members from six CA countries, Mexico, and the U.S. Its main two roles are: (1) the building of local capacity, including the hosting of the Mesoamerican Conference on Sustainable Tourism that was held annually from 2004 until 2009, and the design and implementation of tourism products, workshops, and other training-related topics; and (2) the establishment of links to international markets, particularly the U.S. ecotourism market.

NATIONAL NGOS

At the national and local level, civil society, private sectors, and municipalities have increased their participation in the administration and management of the protected areas and have organized as NGOs or local development organizations in their territories. Civil society has played a crucial role in forest conservation through private reserve management, which has helped to conserve resources to varying degrees in the different countries (KI).

Annex J provides a list of the principal local and national conservation non-governmental organizations (CNGO) in the CA/DR counties, the conservation issues with which they are most concerned, and their web addresses. The table indicates that NGOs tend to specialize in different conservation issues, such as wildlife protection, conservation policies, protected areas, and coastal and marine conservation. Some of these and others are briefly discussed below.

In El Salvador, the national CNGO **Center for Protection from Disasters (CEPRODE)** is concerned with natural disasters, the national **PRISMA Foundation** mostly is concerned with conservation policies, and the **Salvadorian Ecological Unit (UNES)** is a group of local CNGOs that deals with rights-of-access to natural resources, especially water, and also climatic change effects in the marginal and rural communities.

In Belize, one international (**Belize Audubon Society**) and two local (**Green Reef** and **Belize Zoo**) CNGOs are concerned mostly with environmental education, and **the Toledo Institute for Development and Environment (TIDE)** and **PACT** are both national CNGOs that work to strengthen protected areas.

Guatemala's other three principal CNGOs are national. These are the **Foundation for Eco-Development and Conservation (FUNDAECO)**, which works in and around protected areas and local development; the **Center for Legal Environmental Action (CALAS)**, which is concerned with the legal aspects of conservation and compliance; and the association **SHARE**, which works towards sustainable management of natural resources.

In Nicaragua the three principal national CNGOs are the **Club of Young Environmentalists**, a network of environmental clubs for young people; the **Nicaraguan Foundation for Sustainable Development**, which promotes watershed management; and the **Network of Private Wild Reserves**, a group of private natural reserves. Three regional CNGOs are based in Nicaragua: **the Humbolt Center** has social and local development projects; **the Institute for Training, Research and Environmental Development (UCA)** does academic research in the Gulf of Fonseca; and **Paso Pacifico** works on establishing a biological corridor in the area of the Gulf of Fonseca. **Esperanza Verde Reserve** is a local CNGO that manages a Ramsar site.

PETROMA is the country's principal national CNGO and works to conserve marine turtles and sharks. Three local CNGOs—**Talamanca Biological Corridor Association**, **Monte Verde Conservation Association (ACM)**, and the **Manati Foundation**—conserve specific habitats.

There are numerous local CNGOs in the Dominican Republic, including the **Jaragua Group**, the **Ornithological Society of Hispaniola (SOH)**, the **Punta Cana Foundation**, and the **Center for Agriculture and Forestry (CEDAF)**. The principal national CNGO is **PRONATURA**. **ReefCheck** is a regional CNGO that monitors the condition of reefs.

From the information available, local, national, and international conservation NGOs play an important role in designing and implementing conservation activities in Central America. Many interviews and field observations clearly indicated that conservation NGOs in CA tend to be flexible and innovative; run and staffed by dedicated, experienced conservation professionals; and capable of working effectively under difficult, and sometimes dangerous, field situations. When NGOs raise sufficient funds, they can implement exemplary field conservation activities. Yet CA/DR conservation NGOs often depend on international funds and charismatic leaders to function. When the funds dry up, or the charismatic leader moves on, conservation NGOs may wither—sometimes just when their field activities are becoming successful and could expand to a large scale. Besides stable financing, technical training for staff members is a principal need of conservation NGOs. One KI mentioned that USAID regional conservation projects used to finance a lot of exchanges between countries and training through workshops:

> "These projects supported small NGOs throughout CA through regional workshops. I and many of our staff were trained under these projects … we need to start training the next generation of natural resource managers. My younger staff, for example, has never travelled to Costa Rica. There are great examples of agro-silvopastoral systems in CR and in Nicaragua. It would save me one year of work if I could send technicians to Colombia and Costa Rica. Cross pollination is one key task for a regional program and it should be a main point of a regional program to help countries learn from each other" (KI).

2.2.8 INTERNATIONAL DEVELOPMENT INSTITUTIONS

INTERNATIONAL BANKS

The **Central American Bank for Economic Integration (BCIE)** was created in 1960 as part of the Central American Integration Program to channel additional external resources to finance manufacturing and infrastructure works with an emphasis on trade. Currently, BCIE has 12 members: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Mexico, the Republic of China (Taiwan), Argentina, Colombia, Spain, Panama, and the Dominican Republic. Environmental sustainability is one of BCIE's strategic objectives. BCIE believes that, "In less developed countries … there is a direct relationship between poverty levels and deterioration of natural resources and the environment" and that "environmental sustainability and reduction of vulnerability to natural disasters associated with

climate change are fundamental for guaranteeing that the Bank's efforts focusing on social development, competitiveness and regional integration are environmentally viable on the medium and long term." BCIE finances regional integration projects, such as the International Network of Mesoamerican Highways (RICAM), the Central American Electrical Interconnection System (SIEPAC), the Regional Electricity Market, and the Mesoamerican Integration Corridor. It also finances rural development through agriculture, forestry, fishing, and adaptation to climate change projects. BCIE believes its projects should "serve as a basis for creating synergies and complementarities with development initiatives by other organizations."

The **Global Environment Facility (GEF)**, part of the **International Bank for Reconstruction and Development (IBRD)**, has a portfolio of $16 million for national biodiversity conservation projects in Central America. However, it is not financing regional activities that concern conservation of biodiversity and tropical forests outside of protected areas. Currently in the design phase, the Caribbean Ocean and Aquaculture Sustainability Facility (COAST) proposes to promote the resilience of the small-scale fisheries sector in the Caribbean against increasing climate change-related disaster risk. The objective is to create a platform for innovative insurance financing that also incentivizes small-island governments to support coastal management and reef restoration for climate resilience, among other activities. Belize has expressed an interest in being part of the COAST project, with scaled-up activities and more countries possibly involved over time. The World Bank is partnering with the U.S. Department of State, the FAO, the Nature Conservancy, and the Caribbean Catastrophe Risk Insurance Facility (CCRIF), among others, to begin to address this current challenge in ocean health. The State Department has already provided a seed contribution of $5 million toward this effort. Donor funds will be housed at PROFISH, the World Bank's Global Program on Fisheries, working to improve environmental sustainability, livelihoods, and economic performance in global fisheries and aquaculture. Through PROFISH, the World Bank has generated important lessons and highlighted the importance of focusing on the poor and most vulnerable in fish-farming communities (WB(b), 2016).

The **Inter-American Development Bank (IDB)** has been financing the Mesoamerica Project, which, in addition to the Central American countries, includes Colombia and Mexico. This project has provided loans for around $1.6 billion, of which around 1.3 percent has been for financing environmental projects. The IDB websites do not indicate financing for any other regional conservation activities (IDB, 2016).

The German International Development Bank (KfW) mainly makes grants and low-interest loans to developing countries for expanding economic and social infrastructure, such as sewer and water systems, and for conserving natural resources. Its goal is to expand economic and social infrastructure and to protect the environment and natural resources. Until early 2016, KfW was the principal source of financing for Plan Trifinio. It is currently planning another project in the Trifinio Biosphere Reserve for $11 million that will continue the activities of the prior project in territorial planning, governance, and watershed management. The KfW is financing the Conservation of Marine Resources in Central America Project, which is creating and strengthening a network of protected marine and coastal protected areas in the region of the MAR (FMCN, 2016)

BILATERAL AND MULTI-LATERAL INTERNATIONAL ORGANIZATIONS

The **United Nations Development Programme (UNDP)** county programs mostly assist countries to meet their commitments under the global warming and biodiversity international treaties and monitor progress towards the Millennium Goals. The UNDP website does not show any Central American regional projects as such. The BIOFIN financial initiative is a worldwide UNDP program in concurrence with the EU, Germany, and Switzerland to help the countries to reach the CBD Aichi Biodiversity Targets. Guatemala and Costa Rica are participating in the global BIOFIN

project; Guatemala has moved forward and an alliance has been established with government support and UNDP. At the moment, seven documents have been produced to be validated among biodiversity conservation strategies (KI). The UNDP also supports projects for meeting national objectives. In Belize, the UNDP's program concerns effective water governance, land management, conservation of biodiversity, and adaptation to climate change (UNDP, 2016). Recently, the Mainstreaming and Capacity Building for Sustainable Land Management Project developed a comprehensive National Land Use Policy, a National Integrated Planning Framework for land resource development, and a suitability mapping system for Belize (Fabro, 2011). In Costa Rica, the UNDP has a portfolio of environmental and energy projects, mostly intended to consolidate Costa Rica's contribution to global environmental targets for the ozone layer, climate variation, and conservation of biodiversity, but also implements projects in rural tourism and governance of water resources. In the Dominican Republic, the UNDP implements a project to reduce the vulnerability of rural households to climatic change through territorial planning and a project to establish the financial soundness of the National System of Protected Areas (UNDP, 2016).

The UNDP's El Salvador program implements a project to strengthen the governability and sustainability of water and sanitary services with a focus on the integrated management of water and a project to managed coastal and marine biodiversity together with the fishing and tourism sectors. In Honduras, UNDP implements a project to provide financing through regional banks for enterprises related to the use of biodiversity and another project that aims to establish management of the pine-oak forests in the northern part of the department of Olancho. In Guatemala, UNDP implements a project to strengthen forest management and the finances of the SIGAP, and to promote technically sound ecotourism, conserve biodiversity in coffee plantations, increase investments in the management of biodiversity in order to comply with the targets of the Aichi Agreement, and plan the use and conservation of biodiversity. In Nicaragua, UNDP is implementing a project, GISRES, or Integral and Sustainable Management of Solid Waste in the South Caribbean Coast Autonomous Region, for the proper disposal of solid waste. In Panama, UNDP has financed the preparation of an integral development plan for indigenous people of Panama and the management of natural resources in Boca del Toro (UNDP, 2016).

The **United Nations Environment Programme (UNEP**) has a Regional Office for Latin America and the Caribbean (ROLAC) in Panama. Its six priorities are: (1) climate change, (2) disasters and conflicts, (3) ecosystem management, (4) environmental governance, (5) harmful substances, and (6) resource efficiency. Its five types of activities are: (1) sound science for decision making, (2) mainstreaming environmental sustainability, (3) policy setting and assistance, (4) capacity building and training, and (5) stakeholder engagement and participation. UNEP is currently implementing five conservation projects in Central America. The Microfinance for Ecosystem-Based Adaptation Project integrates ecosystem-based approaches to climate change adaptation in the practices of microfinance institutions. The Regional Gateway for Technology Transfer on Climate Change Action Project has created a virtual platform, called Communities of Practice, for sharing conservation knowledge. The Mangroves Project reduces vulnerability to climate change and integrated coastal management along the Caribbean Coast of Guatemala, Honduras, and Nicaragua, and improves management of natural resources in the Tabasará and Chucunaque river basins of Panama and the Bosawas Biosphere of Nicaragua. The Effective Management of Mesoamerican Terrestrial Protected Areas Project, in the Volcán Barú National Park and La Montañona Conservation Area of El Salvador, has made economic valuations of biodiversity and ecosystem services and estimated the costs of their loss and degradation (UNEP, 2016).

The **Food and Agriculture Organization (FAO)** program in Central America works to reconcile food production and the protection of natural resources in the context of climate change by promoting climate-smart agriculture and sustainable intensification. In Belize, the FAO has assisted

the government to develop a national agricultural strategy and provided technical assistance in statistics, extension, cooperatives, and aquaculture. FAO's Costa Rica program concerns climate change and agricultural competitively. In the Dominican Republic, the FAO has projects concerned with food security and nutrition, family agriculture, watershed management, and climate change. In El Salvador, the FAO is implementing 29 projects in 2015–2017 concerned with issues of agriculture, rural development, nutrition, climate change, and management of natural resources. FAO's priorities in Guatemala are food security and nutrition, management of natural resources, adaptation to climate change, agriculture policies and institutions, and increased competitively of family farms. The FAO Honduras program concerns food security and family agriculture, rural enterprises, management of natural resources and adaptation to climate change and management of risks and resilience. In Nicaragua, the FAO assists the government to improve food security. FAO is implementing 12 projects in Panama, including ones concerning lobster production, food security, and sustainable land management (FAO, 2016).

The **United States Agency for International Development** currently has bilateral development programs in Guatemala, El Salvador, Nicaragua, Honduras and the Dominican Republic. It has closed it programs in Panama and Costa Rica.

Since the 1940s, the United States Agency for International Development (USAID) has financed activities to conserve the natural resources of Central America. These activities have sometimes crossed the whole region, including all the countries, sometimes included only two or three countries, and sometimes been bilateral, including activities in only one country. No overall evaluation of USAID conservation activities in Central America was identified, although such a retrospective evaluation of USAID conservation activities in Costa Rica has been prepared.

Annex G lists and summarizes 21 recent or current bilateral and regional USAID-financed conservation projects in CA. Since the 1970s, the principal regional USAID conservation projects have been the Regional Natural Resources Management Project (RENARM), the Central American Regional Environmental Program (PROARCA), the Conservation of Central America Watersheds Program (CCAW), the Marine Resources and Economic Alternatives (MAREA) project and the Regional Climate Change Program (RCCP).

In El Salvador, recent bilateral conservation projects have been the Improved Management and Conservation of Critical Watersheds (IMCCW), the Sea Turtle Conservation and Improvement of Coastal Communities Livelihoods Program, and the Agroforestry for Biodiversity and Ecosystem Services (ABES) Project. In Guatemala, recent conservation projects are Climate, Nature and Communities in Guatemala (CNCG), Sustainable Water Management in the Cuchumatanes, and Strengthening Governance in the Maya Biosphere Reserve. In Honduras, ProParque has been the principal conservation project but ended in early 2016. Currently, the only bilateral USAID Mission that is financing stand-alone conservation projects is USAID/Guatemala. USAID/Honduras is financing some conservation as part of the ACCESO project in western Honduras. USAID/Guatemala is financing conservation activities under the Western Highlands Integrated Program of Integrated Actions for Food Security and Nutrition (PAISANO). Lessons learned and evaluations of prior USAID conservation projects are available in ***Annex K*** and are summarized throughout various sections of this analysis.

The Millennium Challenge Corporation (MCC) forms partnerships with countries that demonstrate good governance, economic freedom, and investments in their citizens. MCC grants are financing projects in El Salvador, Guatemala, Honduras, and Nicaragua. MCC seeks to achieve protection of natural resources by "incorporating cost-effective, technically and economically viable measures into projects that can promote energy efficiency, improve water resource management, support less carbon intensive land use practices, improve institutional capacity for environmental

management, and help protect worker and public health and safety." For example, its Rural Business Development Project in Nicaragua financed 185 biodigestors that reduced use of wood by 60 percent (MCC, 2016)

The German Cooperation Agency for Development (GIZ) currently has about 17 bilateral and regional conservation projects in CA and is providing support for the CCAD. At the national level, the GIZ backs the implementation of measures designed to avoid forest degradation and promotes the development of Reducing Emissions from Deforestation and Degradation (REDD) strategies and inter-sectoral policy dialogue. Regionally, GIZ supports the technical and political coordination processes between the eight CA/DR countries, in order to strengthen their regional position in international negotiations. National level planning workshops with key actors from the eight countries involved commenced in November 2010, and in this way "GIZ helped build the regional approach" (KI). Collective steps to implement REDD in the region were agreed at a synthesis workshop and presented by CCAD at the UN Climate Conference in Cancun, Mexico, in December 2010. GIZ also prepared a strategy paper on forest protection and biodiversity on behalf of the CCAD Council of Ministers. The overall GIZ program has three components: (1) arranging for inter-sectoral dialogue between sectors and levels (national, regional, international) to achieve forest conservation; (2) sustainable compensation mechanisms for reducing CO_2 emissions due to deforestation and forest degradation; and (3) to assist countries to monitor and report those CO_2 emission reductions to the United Nations Framework Convention on Climate Change, UNFCC (GIZ, 2016).

The Forest Law Enforcement, Governance and Trade (FLEGT) Facility supports EU member and partner countries to implement an action plan that is intended to: (1) prevent the import of illegal timber into the EU; (2) improve the supply of legal timber; (3) increase demand for timber from responsibly managed forests; (4) promote public procurement policies for legal wood; (5) encouraging voluntary codes of conduct for private companies sourcing timber; (6) encourage financial institutions investing in the forest sector to develop due care procedures; and (7) address the problem of conflict timber (FLEGT, 2016).

2.3 GENDER AND NATURAL RESOURCES MANAGEMENT

All Central American countries and the Dominican Republic have signed the 1979 Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) and the 1995 Beijing Declaration and Platform for Action. Both UN instruments are legally binding and concern human rights and equity, in particular with respect to women. However, a lot more remains to be done in the CA region to adequately address various gender issues and the role of women in natural resources management and climate change adaptation.

It is important to note that women have important roles in conservation institutions across CA. Women hold many of the natural resource field professional positions and direct many of the departments and sometimes ministries that are responsible for or deal with biodiversity and forests issues. Conservation NGOs have many female staff members. The placement of women in these types of positions should facilitate the implementation of actions that engage women in natural resource conservation programs. Quantitative data to support these observations are available but were not collected.

There are several environment-related factors that directly impact women and directly and indirectly impact the conservation of natural resources. Women are responsible for obtaining water for household uses, so when water is scarce or contaminated, women's workload increases. In El Salvador, Guatemala, Honduras, and Nicaragua, firewood is still a principal source of fuel, and women

are generally responsible for obtaining it. A scarcity of firewood in these regions makes it necessary for women to spend a greater amount of time gathering firewood. Women generally have less of a voice than men in making decisions about the use of renewable natural resources in CA. It's important that women and men have an equal role in making decision about the use of forests and biodiversity because each gender has different knowledge about them, make different use of them, teach children about them, and can suggest unique solutions that apply to solving problems associated with their use. In this regard, several KI interviews indicated that women are a repository of knowledge about local ecosystems and the plants and animals that they contain, and mothers pass this knowledge on to their children. Improving the lives of women depends on increasing the economic prosperity of communities down to the poorest levels. Since women's activities are affected more than men if forests are degraded, it's difficult for communities to become more economically prosperous. Although these observations were frequently stated among KIs, data to quantitatively support the magnitude and importance of these claims needs to be developed. The following paragraphs expand on these issues in greater detail and suggest the basis for legal and programmatic actions.

Municipalities are made up of many communities and, according to some KIs, it is at the community level where many decisions are made that affect biodiversity and tropical forests. Gender equity therefore emerged as an important issue within the municipalities. Several KIs emphasized their belief that the "nurturing" concerns of women, possibly derived from being mothers, is sometimes transferred into a concern for conserving the natural resources they use and the environment that surrounds their living spaces. Also, women tend to be more concerned than men about the crucial task of bringing up healthy, educated children who can create wealth.

Yet rural women are sometimes excluded from productive economic activities and from participating in making decisions about the use of natural resources. A detailed study of women's role in natural resources management in northeastern Nicaragua indicated how women's roles in decision making about natural resources are changing but still remain somewhat ambiguous (Mairena et al., 2012). However, KIs also noted that gender inequity in Costa Rica generally is not an issue. They also stated that the role of women in conservation depends a great deal on the specific natural resource. For example, women are usually not involved directly in fishing but are affected a great deal by how successful men are in fishing enterprises, while women often are more involved in tourism activities.

Women play a key role in natural resources management, especially when engaged in meeting the water, food, and energy needs of their households and communities. However, they often are not invited or allowed to take part in major decisions related to the management of natural resources and products of biodiversity. Equity is not just about women; it recognizes the role of everyone in a community and their environmental responsibility (UNDP, 2013). Projects should also contain guidelines to help improve the behavior of men within the family (KI). This is why the International Union for Conservation of Nature's (IUCN) corporate structure includes a Biodiversity and Rights Unit instead of a Gender Unit, and deals with gender as a cross-cutting issue. Any project that does not recognize community rights would likely be unsuccessful.

Dealing with gender issues in indigenous communities can be difficult because of deep-rooted cultural norms. A lot of work is needed in indigenous communities to better identify the role of women within activities that are traditionally considered for men, particularly given their potential role in management of protected areas and major forest ecosystems that they reside in (KI). Governance needs to be carefully considered at the local and regional level in relation to such gender aspects, among others. For example, at the Matumbac-Mayanes community at the RACCN on the Nicaraguan Miskito Coast, women have been incorporated to the Board of Directors, but as secretaries, never as presidents, and still do not have the opportunity to really be decision-makers (KI).

Natural resources are economic products, and economy is often considered a topic for men only, with women's opinions considered less important. The situation is worse in indigenous communities, as mentioned previously. There are some cases where women have become empowered and trained through certain activities during the implementation of environmental projects, but that is not common. Despite the work implemented over two decades since the Beijing Agreement was ratified by CA countries, the main objectives concerning environmental management remain incomplete: "Strengthen or establish mechanisms at the national, regional, and international levels to assess the impact of development and environmental policies on women" (UNEP, 1995). The Regional Environment Strategy, approved by ministers of environment from the region, does not even mention gender approaches (CCAD, 2015). Understanding the culture and role of women in a society is necessary when working on gender-specific programs. Women's role and status in society will determine best practices and the appropriate means of interventions in order to empower women (USAID, 2007).

Gender is a matter of equity, governance, and human rights, and should be considered in all projects at all levels: regional, local, or national (UICN, 2011). It is important to propose and approve policies and regulations to strengthen women's equality. Such actions face challenges because the organizational bases of institutional or community structures must be considered, which becomes more difficult when dealing with conservation while taking gender needs into account in all activities and results. Including gender equality in projects should help assure better results (KI). Men should be involved in the issues and support the process, and recognize the role of women and the benefits of women's participation and leadership. Agriculture is a fundamental activity for women's livelihood around the world, not just in Central America, and especially in underdeveloped countries. Four-fifths of economically active women have declared that agriculture is their main economic activity (Doss, 2011). Agriculture is the main reason to establish new policies and climatic programs with gender approaches as a requirement. Access to international funding must include more gender considerations, including priorities and needs for women and men within project designs and proposals, along with indicators and evaluations to measure social inclusion and gender perspectives (CGIR & CCAFS, 2015).

2.4 STATUS OF REGIONAL CONSERVATION STRATEGIES

In the Declaration of Punta Cana of June 27, 2014, the heads of state of the members of SICA instructed CCAD to prepare a Regional Environmental Strategy for 2015–2020. In December 2015, the ministers of environment of the CA/DR countries, who are the directors of CCAD, approved the CCAD **Regional Environment Framework Strategy: Promoting Regional Environmental Integration 2015–2020 (CCAD Strategy).** The CCAD Strategy is intended to permit "the eradication of poverty and social inequalities while promoting sustained, inclusive and equitable growth." It establishes "direct links between the regional sectoral strategies and CCAD's integration vision"; "responds integrally to the United Nations conventions on Climate Change, Biological Diversity and Desertification"; and "adheres to the principles of the Declaration of Paris that refer to the efficiency of development aid." These principles require that developing countries exercise effective leadership over their own development policies and strategies; donor countries base their assistance on the developing countries own development strategies, institutions, and procedures; and donors and receptors of development aid provide each other with the results that aid has produced. The CCAD regional strategy "integrates the efforts of each of the subsystems of SICA and of the countries with the objective of facilitating and promoting in each one of the countries in accordance with its specific social, environmental, institutional and economic situation, the actions that are necessary to ensure environmental sustainability of the region's ecosystems."

In 2011, the International Union for Conservation of Nature (UICN) prepared a regional profile, the **Regional Situation Analysis and Actual Perspective, a Platform for Biodiversity**. The document has four overall sections that (1) review the factors underpinning change, taking into account population, technology, politics, and the regional institution; (2) update the status, conditions, and trends in the Central American and Caribbean; (3) assess political processes and main players; and (4) propose implications for actions to guide IUCN's work in this region over the next four years. This update of the regional situation's main components has been done in alignment with the five thematic areas of the IUCN Global Program 2013–2016, to provide orientation in the process of preparing the 2013–2016 programs in Central America and the Caribbean. It notes that the regional trends are towards higher population levels, a more urban population, more trade, higher poverty levels, more emigration, and more insecurity.

CCAD has a **Regional Strategic Framework for Forest Ecosystem Management** (PERFOR, 2008–2022). This document establishes the principles, vision, mission and general and specific objectives for sustainable forest development PERFOR was approved in June 2008 for 15 years or more (2008-2022+), by the Environment Ministers Council of CCAD and by the Agriculture Ministers Council of the Central American Agricultural Council (CAC) under the SICA framework. The GIZ, through the REDD/CCAD-GIZ Program, the FAO and the IUCN support the implementation of the strategy (CCAD 2014). USAID's MAREA program also formulated two regional strategies: the **Regional Research Strategy** and the **Inter-Sectorial Agenda for Fisheries and Environment**. Both MAREA strategies were discussed and agreed upon with focal points and staff from different ministries and fisheries authorities (USAID, MAREA 2014).

The new **USAID/CAM five-year RDCS** was released in March 2016. Its Development Objectives (DOs) include Economic Growth/Environment, Democracy and Governance, Climate Change, and HIV. This new RDCS has two DOs that will have environmental components and development programs directly associated with them. ***Annex L*** provides key excerpts from this RDCS and its DOs. DO 1 seeks to increase regional economic integration through expanded trade and stronger institutional capacity. This objective is a precondition for conservation of Central America's tropical forests and biodiversity. DO 2 will enhance regional climate-smart economic growth by promoting sustainable, climate-smart practices and policies that lower emissions through clean energy investments, increasing the resiliency of people, places, and livelihoods to the impacts of climate change, and improving the management of the region's biologically diverse ecosystems.

The final evaluation of the USAID MAREA project (Kernan et al., 2015) reviewed the lessons learned from RENARM, PROARCA, and CCAW. Some of the lessons learned from these programs in relation to strategies for regional cooperation include: focusing on synergies for common objectives by using participation to build inter-organizational coalitions at the local level; creating precedents with widespread application throughout CA; and working closely with SICA in the design and implementation of programs to support SICA's principal purpose of furthering the integration of the CA countries.

An Assessment of the USAID Environmental Cooperation Program to Promote Compliance with CAFTA-DR (Barnes, Kernan, Hansen and Najera, 2011) suggests that, although CCAD has limitations as an implementing agency because of its nature as a multilateral political institution, this gives it the advantage of having political support and buy-in for its activities, offers an institutional platform and continuity, backed by the ministers of environment, to implement, monitor, and follow up on programs in process. The CAFTA-DR compliance assessment also suggested that process is often as important as product, because it requires people and institutions to work together to solve environmental problems through collaborative relationships across sectors, within a country, and across international borders. Additional information on the lessons learned reviewed from these and other USAID programs is available in ***Annex K***.

Based on information from KIs, this analysis also found that the U.S. government has legitimacy in the regulatory, sustainable, and equitable policy arena, it can be facilitative and catalytic, and it should not be isolated from the development of strategies across the region. This analysis also noted there has always been an issue of on-site conservation actions versus emphasis on promoting activities that would support regional conservation actions, and that the U.S. should not work independently from SICA.

Collaboration between countries addressing conservation issues is an important strategy, but CA countries tend not to work together and usually do not share best practices. CA countries have porous borders so an excellent conservation program in one country can be negatively impacted by lack of conservation practices in a neighboring country. In addition, the legal and policy structure of a country must support conservation for conservation strategies to be successful. The State Department Regional Environmental Hub is also involved in many regional conservation activities, often participating with other U.S. government agencies, but it lacks sufficient funds to implement most of its activities for the period of time and at the scale that is required to make a significant difference.

3 STATUS AND MANAGEMENT OF BIODIVERSITY

3.1 DESCRIPTION OF BIODIVERSITY

The 1992 UN Convention on Biological Diversity (CBD, 2016) defines biological diversity (or "biodiversity") as the "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."

3.1.1 ECOSYSTEM BIODIVERSITY

This analysis uses biomes and ecoregions (Olson *et al.* 2001; Spalding *et al.* 2007; Abell *et al.* 2008) to organize and present ecosystems at a regional scale, which is also consistent with other USAID documents and guidelines that refer to this classification system (Tolisano & López – Selva, 2010; Myton et al., 2014; USAID 2015). An ecoregion is a relatively large area of land or water that shows similar environmental conditions, contains a geographically distinctive assemblage of natural communities that shares a large majority of its species and ecological dynamics, and that interacts ecologically in ways that are critical for its long-term existence. A biome is a collection of related ecoregions that have common biogeographic and climatic characteristics (WWF, Internet source). The Biomes and Ecoregions Classification System can be used as a common basis for conservation analysis, planning, monitoring, and evaluation at a regional scale.

The CA/DR region has 59 ecoregions and 12 biomes. Of these, 39 ecoregions and seven biomes are terrestrial, 13 ecoregions and three biomes are freshwater, and seven ecoregions and two biomes are marine. ***Table 3***, ***Table 4***, and ***Table 5*** summarize CA/DR terrestrial, freshwater, and marine biomes, respectively, and indicate the conservation status of associated ecoregions of each by

country. Detailed information on all biomes and ecoregions are in ***Annex O***. Charts and maps of biomes and ecosystems can be found in ***Annex D***.

Its location and geomorphologic characteristics are the main causes for the region's ecosystem richness. The region is a strip between two large masses of land whose high volcanic activity has created abrupt elevation ranges, rich soils, and variable rainfall. According to recent regional land use maps, CA/DR still has 45.53 percent of its original natural ecosystems/ecoregions coverage, and 40.3 percent of these remaining ecosystems are within PAs (see ***Figure 2*** overleaf). However, specific data for each particular type vary greatly.

According to information available from WWF (Internet source, 2016[4]) on the conservation status of terrestrial ecoregions, 18 of the 39 terrestrial ecoregions (46.2%) are considered Critically Endangered (CR); 13 (33.3%) are considered Vulnerable (V), and six (20.5%) are considered Relatively Stable (RS), while no conservation status has been assigned to the remaining two. However, the international assessment of an ecoregion's conservation status may mask its assessment within a specific region or country.

Therefore for the purposes of this analysis, a revised conservation status scale was developed. Such a scale could be considered further by USAID/CAM to be refined and adopted by relevant USAID projects and studies in CA/DR for use as standardized criteria. This revised scale (CAV) is computed by multiplying the percentage of the remaining area in hectares by the percent of the remaining area that is within PA boundaries. This index can be used as a pragmatic initial evaluation criteria to produce a Combined Area Value (CAV) for each ecoregion to define a regional conservation status, as follows:

- Stable (S) = CAV > 75%
- Relatively Stable (RS) = 50% < CAV < 75%
- Vulnerable (V) = 25% < CAV < 50%
- Endangered (EN) = 12.5% < CAV < 25%
- Critically Endangered (CR) = 6% < CAV < 12.5%
- Most Immediate Attention (MIA) = CAV < 6%

Using the CAV to identify the conservation status, two terrestrial ecoregions (5.1%) are considered Stable (S); five (12.8%) are considered Relatively Stable (RS); 11 (28.2%) are considered Vulnerable (V); six (15.4%) are considered Endangered (EN); five (12.8%) are considered Critically Endangered (CR); and 10 (25.6%) are considered as needing Most Immediate Attention. Based on this classification, further analyzes of the ecoregions status should consider how well corresponding PAs meet their conservation objectives, how secure their long-term conservation is, and what the mean annual loss and/or degradation rates are.

[4] https://www.worldwildlife.org/science/wildfinder/

Figure 2: Natural Habitats and Protected Areas in Central America

Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016)

Table 3: Conservation Status and Occurrence of Terrestrial Biomes and Ecoregions by Country

BIOMES / ECOREGIONS	ORIGINAL EXTENSION (hectares)	REMAINING		WITHIN NPA's		ASSIGNED CONSERVATION STATUS	COMBINED AREA (% Remaining x % within NPAs)	ESTIMATED CONSERVATION STATUS	OCURRENCE							
		Hectares	%	Hectares	%				Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Dominican Republic
I.A. Tropical and Subtropical Moist Broadleaf Forests	**33,795,525**	**18,629,225**	**55.12%**	**8,590,301**	**46.11%**		**25.42%**	**V**								
I.A.1. Petén – Veracruz Moist Forests	6,426,402	4,243,212	66.03%	2,446,020	57.65%	CR	38.06%	V								
I.A.2. Yucatán Moist Forests	18,562	8,235	44.37%	7,461	90.60%	V	40.20%	V								
I.A.3. Central American Atlantic Moist Forests	8,967,971	5,403,744	60.26%	2,291,589	42.41%	V	25.55%	V								
I.A.4. Central American Montane Forests	1,484,468	1,132,794	76.31%	504,513	44.54%	V	33.99%	V								
I.A.5. Chiapas Montane Forests	23,667	16,182	68.37%	0	0.00%	CR	0.00%	MIA								
I.A.6. Sierra Madre de Chiapas Moist Forests	1,269,576	588,690	46.37%	59,292	10.07%	CR	4.67%	MIA								
I.A.7. Cayos Miskitos – San Andrés - Providencia Moist Forests	5,561	1,773	31.88%	1,548	87.31%	CR	27.84%	V								
I.A.8. Costa Rican Seasonal Moist Forests	756,456	185,499	24.52%	32,238	17.38%	CR	4.26%	MIA								
I.A.9. Isthmian-Atlantic Moist Forests	4,498,003	2,406,744	53.51%	916,254	38.07%	V	20.37%	EN								
I.A.10. Isthmian-Pacific Moist Forest	4,247,519	1,505,250	35.44%	449,289	29.85%	CR	10.58%	CR								
I.A.11. Cocos Island Moist Forests	2,474	2,474	100.00%	2,474	100.00%	RS	100.00%	ST								
I.A.12. Talamancan Montane Forests	2,000,269	1,603,233	80.15%	1,009,593	62.97%	RS	50.47%	RS								
I.A.13. Chocó-Darién Moist Forests	1,020,674	922,428	90.37%	581,121	63.00%	RS	56.94%	RS								
I.A.14. Eastern Panamanian Montane Forests	189,978	174,969	92.10%	146,727	83.86%	RS	77.23%	ST								
I.A.15. Hispaniolan Moist Forests	2,883,945	433,998	15.05%	142,182	32.76%	CR	4.93%	MIA								
I.B. Tropical and Subtropical Dry Broadleaf Forests	**8,428,077**	**968,148**	**11.49%**	**159,786**	**16.50%**		**1.90%**	**MIA**								
I.B.16. Central American Dry Forests	6,908,402	633,276	9.17%	50,103	7.91%	CR	0.73%	MIA								
I.B.17. Chiapas Depression Dry Forests	55,492	5,715	10.30%	0	0.00%	CR	0.00%	MIA								
I.B.18. Panamanian Dry Forests	506,024	32,409	6.40%	882	2.72%	CR	0.17%	MIA								
I.B.19. Hispaniolan Dry Forests	958,159	296,748	30.97%	108,801	36.66%	CR	11.36%	CR								
I.C. Tropical and Subtropical Coniferous Forests	**11,114,533**	**4,590,783**	**41.30%**	**904,338**	**19.70%**		**8.14%**	**CR**								
I.C.20. Belizean Pine Forests	281,492	211,572	75.16%	76,194	36.01%	RS	27.07%	V								
I.C.21. Central American Pine-Oak Forests	8,259,912	3,400,020	41.16%	449,226	13.21%	CR	5.44%	MIA								
I.C.22. Miskito Pine Forests	1,739,711	572,823	32.93%	85,482	14.92%	V	4.91%	MIA								
I.C.23. Hispaniolan Pine Forests	833,418	406,368	48.76%	293,436	72.21%	V	35.21%	V								
I.D. Montane Grasslands and Shrublands	**9,898**	**7,047**	**71.20%**	**6,732**	**95.53%**		**68.01%**	**RS**								
I.D.24. Talamanca, Costa Rican or Isthmian Paramo	9,898	7,047	71.20%	6,732	95.53%	V	68.01%	RS								
I.E. Flooded Grasslands and Savannas	**42,058**	**15,246**	**36.25%**	**14,337**	**94.04%**		**34.09%**	**V**								
I.E.25. Enriquillo Wetlands	42,058	15,246	36.25%	14,337	94.04%	V	34.09%	V								
I.F. Deserts and Xeric Shrublands	**219,681**	**41,112**	**18.71%**	**18,342**	**44.61%**		**8.35%**	**CR**								
I.F.26. Motagua Valley Thornscrub	219,681	41,112	18.71%	18,342	44.61%	CR	8.35%	CR								
I.G. Mangroves	**2,041,340**	**1,085,859**	**53.19%**	**506,610**	**46.66%**		**24.82%**	**EN**								
I.G.27. Belizean Coast Mangroves	255,802	178,776	69.89%	45,882	25.66%	V	17.94%	EN								
I.G.28. Belizean Reef Mangroves	15,889	10,944	68.88%	2,376	21.71%	V	14.95%	EN								
I.G.29. Northern Honduras Mangroves	128,050	69,282	54.11%	49,617	71.62%	V	38.75%	V								
I.G.30. Tehuantepec – El Manchón Mangroves	123,418	33,804	27.39%	2,637	7.80%	?	2.14%	MIA								
I.G.31. Northern Dry Pacific Coast Mangroves	74,693	45,972	61.55%	27,549	59.93%	CR	36.88%	V								
I.G.32. Southern Dry Pacific Coast Mangroves	91,796	32,814	35.75%	9,369	28.55%	CR	10.21%	CR								
I.G.33. Gulf of Fonseca Mangroves	170,953	88,848	51.97%	57,213	64.39%	CR	33.47%	V								
I.G.34. Mosquitia – Nicaraguan Caribbean Coast Mangroves	446,017	198,738	44.56%	91,863	46.22%	RS	20.60%	EN								
I.G.35. Río Negro – Río San Sun Mangroves	202,969	142,380	70.15%	102,609	72.07%	CR	50.55%	RS								
I.G.36. Moist Pacific Coast Mangroves	150,747	87,291	57.91%	36,927	42.30%	V	24.50%	EN								
I.G.37. Bocas del Toro–San Bastimentos–San Blas mangroves	72,798	59,508	81.74%	37,611	63.20%	V	51.66%	RS								
I.G.38. Gulf of Panama or Panama Bight Mangroves	191,173	98,352	51.45%	22,563	22.94%	CR	11.80%	CR								
I.G.39. Greater Antilles or Bahamian – Antilles Mangroves	117,034	39,150	33.45%	20,394	52.09%	?	17.43%	EN								
TOTAL	**55,651,111**	**25,337,420**	**45.53%**	**10,200,446**	**40.26%**		**18.33%**	**EN**								

The areas (Original Extensions) of freshwater ecoregions were defined as the total continental area of the watersheds associated with the rivers, lakes, and other bodies of water that host a particular biota (Abell *et al.* 2008). Thus, freshwater ecoregions overlay one or more terrestrial ecoregions. No specific data on conservation status were found for most freshwater ecoregions (with the exception of the Hispaniola freshwater ecoregion, listed as Critically Endangered). Thus, a preliminary conservation status was established based on the status of their corresponding terrestrial ecoregions. Based on this review, six out of 13 ecoregions (46%) can be considered as Critically Endangered, three (23%) as Endangered, and four (31%) as Vulnerable. However, if the CAV analysis that was used in the terrestrial ecoregions is applied to the freshwater ecoregions, based on the percent of a given freshwater ecoregion that presently is within PAs, then seven freshwater ecoregions appear Vulnerable, three Endangered, and three as Critically Endangered. Using these criteria, all freshwater ecoregions should be considered of conservation concern.

Table 4: Conservation Status and Occurrence of Freshwater Biomes and Ecoregions by Country

BIOMES / ECOREGIONS	CONSIDERED EXTENSION (hectares)	WITHIN NPA's		ASSIGNED CONSERVATION STATUS	ESTIMATED CONSERVATION STATUS	OCURRENCE							
		Hectares	%			Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Dominican Republic
II.H. Tropical and subtropical coastal rivers	**46,886,312**	**10,246,999**	**21.85%**		**EN**								
II.H.40. Quintana Roo - Motagua	5,824,039	2,023,952	34.75%	EN	V								
II.H.41. Grijalva - Usumacinta	725,814	183,154	25.23%	CR	V								
II.H.42. Chiapas - Fonseca	6,175,145	452,905	7.33%	CR	CR								
II.H.43. Mosquitia	12,117,587	3,078,538	25.41%	EN	V								
II.H.44. Estero Real - Tempisque	2,949,152	367,735	12.47%	CR	CR								
II.H.45. San Juan (Nicaragua/Costa Rica)	10,381,914	1,792,535	17.27%	V	EN								
II.H.46. Isthmus Caribbean	1,065,386	514,466	48.29%	V	V								
II.H.47. Chiriquí	2,499,900	392,068	15.68%	EN	EN								
II.H.48. Santa María	1,604,328	173,206	10.80%	CR	CR								
II.H.49. Chagres	1,152,829	339,631	29.46%	V	V								
II.H.50. Tuira River	2,390,218	928,808	38.86%	V	V								
II.I. Tropical and subtropical upland rivers	**4,313,346**	**1,626,109**	**37.70%**		**V**								
II.I.51. Upper Usumacinta	4,313,346	1,626,109	37.70%	CR	V								
II.J. Greater Antillean Freshwater	**4,842,502**	**980,982**	**20.26%**		**EN**								
II.J.52. Hispaniola	4,842,502	980,982	20.26%	CR	EN								
TOTAL	**56,042,160**	**12,854,089**	**22.94%**		**EN**								

Limited data on conservation status of marine ecoregions was found. The Greater Antillean marine ecoregion is listed as Critically Endangered, and the Panama Bight as Vulnerable (WWF, Internet source). The Western Caribbean and Chiapas-Nicaragua marine ecoregions can be considered Vulnerable, and the Cocos Island marine ecoregion can be considered Relatively Stable, based on known existing adverse impacts and threats. Not enough information was found to assess the conservation status of the other two marine ecoregions.

Table 5: Conservation Status and Occurrence of Marine Biomes and Ecoregions by Country

BIOMES / ECOREGIONS	CONSIDERED EXTENSION (hectares)	WITHIN NPA's		CONSERVATION STATUS	OCURRENCE							
		Hectares	%		Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Dominican Republic
III.K. Tropical Northwestern Atlantic	**269,412,479**	**2,160,379**	**0.80%**									
III.K.53. Western Caribbean	24,509,845	360,838	1.47%	V								
III.K.54. Southwestern Caribbean	81,077,427	645,116	0.80%	?								
III.K.55. Greater Antillean Marine	163,825,207	1,154,425	0.70%	CR								
III.L. Tropical East Pacific	**153,042,543**	**925,260**	**0.60%**									
III.L.56. Chiapas-Nicaragua	39,172,403	88,577	0.23%	V								
III.L.57. Nicoya	28,402,023	577,810	2.03%	?								
III.L.58. Cocos Island	33,544,527	198,672	0.59%	RS								
III.L.59. Panama Bight	51,923,590	60,202	0.12%	V								
	422,455,022	**3,085,639**	**0.73%**									

3.1.2 SPECIES BIODIVERSITY

INVENTORY OF CONSERVATION CONCERN SPECIES (CCS)

Based on an analysis of Vulnerable, Endangered, and Critically Endangered species reported by IUCN's Red List for the eight countries in CA/DR, species' distribution maps, and the corresponding ecoregions' maps, it was possible to generate preliminary information on the occurrence of conservation concern species (CCS) in each of the 59 terrestrial, freshwater, and marine ecoregions found in Mesoamerica and DR. The tables (see ***Annex Q*** or the separately submitted Excel database) cover amphibians, reptiles, birds, mammals, and superior vascular plants for all terrestrial ecoregions; fishes for freshwater ecoregions; and fishes and cnidarians for marine ecoregions. Two main considerations when reviewing the CCS data are: (1) it is highly possible that not all existing information on species, their status and distribution has yet been incorporated into IUCN's database; and (2) different numbers of CCS found in ecoregions can be due to dissimilar levels of inventory effort.

A total of 456 CCS were identified in 39 CA/DR terrestrial ecoregions. Included were 234 amphibians, 67 reptiles, 55 birds, 27 mammals, and 73 vascular plants, out of which 148 were listed as Vulnerable, 181 as Endangered, and 127 as Critically Endangered (IUCN-Red List, 2016). In addition, 216 species were identified as Endemic. Ecoregions were ranked by the number of occurring CCS. First was the Central American mountain forests, with a total of 145 CCS, followed by the Talamanca mountain forests with 95, and the Central American Atlantic moist forests with 77. The 15 ecoregions of moist and montane forests had the highest average number of CCS (28.67) among terrestrial ecoregions, followed by the dry forests ecoregions (10.75), and flooded grasslands and shrub lands (9 CCS each). Moist and montane forests had the highest numbers of CCS mainly because they provide habitat for numerous amphibian species that are going rapidly extinct.

A total of 24 fish CCS were identified in 13 freshwater ecoregions. This included one species listed as Vulnerable, three as Endangered, five as Critically Endangered, and 15 identified as Endemic. The Chiapas-Fonseca ecoregion has the highest number of CCS (10), followed by the Quintana Roo-

Motagua ecoregion (9), and the Santa María ecoregion (3), San Juan (Nicaragua/Costa Rica), Chiriquí, and Hispaniola each have two CCS: and Miskito Coast, Estero Real–Tempisque, and Upper Usumacinta each have one CCS.

In the seven marine ecoregions, 99 CCS were identified. They include 82 fish and 17 coral species, of which 76 were listed as Vulnerable, 13 Endangered, and 10 as Critically Endangered (this including 22 endemic species). The Western Caribbean and the Southwestern Caribbean ecoregions have the highest numbers of CCS (50 and 48 respectively), followed by the Greater Antillean with 41 CCS, the Nicoya marine ecoregion with 39 CCS, the Panama Baight 36, Cocos Island 29, and the Chiapas-Nicaragua ecoregion with 17 CCS.

A complete list of CCS per taxa and ecoregion can be found in ***Annex Q*** or the separately submitted Excel File. It should be noted that the number of species varies with size of the area and the level of inventory effort. The conservation status of each species depends on how well-known the species is. All this has a significant effect on the number of CCS identified for a given area/ecoregion.

CRITICAL HABITATS FOR ENDANGERED SPECIES

When using vertebrate fauna, vascular terrestrial plants, and corals as indicator groups, moist and mountain forests report the highest numbers of Endangered and Critically Endangered species. The overall average is 31.4 (±26.88 SD [standard deviation]). However, the number of Endangered and Critically Endangered species varies greatly among these groups. The ecoregions with the highest number of Endangered and Critically Endangered species are the Central American Mountain Forests, with a total of 103 species (42 CR; 61 EN); the Talamancan Mountain Forests, with a total of 65 species (28 CR; 37 EN); and the Central American Atlantic Moist Forests, with a total of 49 species (20 CR; 29 EN). Ecoregions with the lowest number are San Andrés–Providencia Moist Forests with zero, the Cocos Island Moist Forests with one, and the Yucatán Peninsula Moist Forests with four.

Tropical dry forests have the second highest average number of endangered species, 6.25 (±2.6 SD), with the Central American Dry Forests having the greatest number (10 species: 1 CR; 9 EN) followed by the Hispaniolan Dry Forests (7 species: 2 CR; 5 EN). Coniferous forests come in third as a group, with an average of 5.5 (±4.39 SD) endangered species, although 13 species (more than in any dry forest: 4 CR; 9 EN), have been identified for the Central American Pine-Oak Forests. Grasslands, shrublands, and mangroves have the lowest average number of endangered species, four, four, and 0.62, respectively.

In freshwater habitats, the average number of endangered fish species is 1.08 (±0.83 SD) with the systems of coastal rivers of Quintana Roo–Motagua, Chiapas–Fonseca, the San Juan region, Santa María, and la Hispaniola ecoregions having two endangered fish species each, the Mosquitia, Estero Real–Tempisque, Chiriquí, and Upper Usumacinta ecoregions, having one endangered fish species each, and the Gijalva–Usumacinta, Isthmus Caribbean, Chagres, and Tuira River, none. These relatively low numbers, however, could be due to the few studies that have been made in the freshwater systems of CA/DR.

Focusing on endangered cnidarians and fishes, the region's marine ecosystems/ecoregions average eight (±5.18) endangered species. However, there is a difference between Caribbean and Pacific systems. The Caribbean systems average 13.3 (±1.7) endangered species (5.33 CR; 8 EN) and the Pacific systems average four (±2.74; 1.75 CR; 2.25 EN). This difference may be the result of fewer studies and more difficult study conditions in most of the CA Pacific Coast systems.

A complete list of all Endangered and Critically Endangered species can be found in ***Annex Q*** (also submitted as an Excel file).

Out of a total of 345 endangered species (142 CR; 203 EN), 185 (96 CR; 89 EN) were amphibians (53.62%); 48 (16 CR; 32 EN) were reptiles (13.91%); 44 (10 CR; 34 EN) were vascular plants (12.75%); 22 (10 CR; 12 EN) were fishes (both freshwater and marine) (6.38%); 20 (4 CR; 16 EN) were mammals (5.8%); 19 (2 CR; 17 EN) were birds (5.51%), and seven (4 CR; 3 EN) were corals (2.03%). The predominance of amphibians is also the reason why moist and montane forests, which provide the greatest number of microhabitat for this taxonomic group, had the highest numbers of endangered species.

3.1.3 GENETIC DIVERSITY OF SPECIES

Genetic diversity refers to the variety of genes within a species and provides a mechanism for populations to adapt to their ever-changing environment (WWF[5] and US National Biological Information Infrastructure - NBII[6]). To obtain this information requires the genetic sequencing of a many individuals within each species. Doing this is difficult and expensive, which is why so little is known about genetic diversity in tropical ecosystems in general, and in developing countries, such as those of CA/DR, in particular.

However, a regional study of big leaf mahogany (*Swietenia macrophylla*) in Nicaragua did quantify its genetic diversity to understand the impacts of selective logging on this species. The study found that populations of big leaf mahogany in logged areas had lower genetic diversity than populations where logging had not occurred. The study concluded that selective logging can reduce genetic diversity in this species and thereby pose a threat to the future viability of the species (Gillies et al., 1999).

Another study examined the genetic variability of the endangered iguana species *Ctenosaura quinquecariniata* (Hasbún et al., 2005). In this study, three main populations of the species (one in Mexico, one in Guatemala–Honduras–El Salvador, and one in Nicaragua–Costa Rica) were examined, which provided scientifically sound data to support the taxonomic change of a single species to three different species: *C. quinquecariniata*, *C. flavidorsalis*, and *C. oxacana*. When genetic evidence is not available, morphologic and biochemical variations may be also used as indicators of biodiversity. Morphology, including color patterns, is commonly applied to birds, a taxon in which subspecies may be relatively easy to identify by sight.

These examples illustrate how genetic diversity could be utilized to identify changes in a region's biodiversity. High numbers of subspecies and other phenotypes are an indicator of the biodiversity within the region.

3.2 MANAGEMENT OF BIODIVERSITY

3.2.1 DECLARED AND PROPOSED PROTECTED AREAS

The CA/DR countries have collaborated through CCAD to strengthen their National Systems of Protected areas, which together form the Central American System of Protected Areas (SICAP) (CCAD, 2003; CONABIO, 2008; CONAP, 2008). However, the term "protected area" can have different interpretations. As sta considered Critically Endangered (CR); 13 (33.3%) are considered Vulnerable (V), and six (20.5%) are considered Relatively Stable (RS), ted by USAID's *Biodiversity and Development Handbook* (2015), "protected area" is used for a large array of land and water designations. IUCN's definition of a protected area is a "clearly defined geographical space, recognized, dedicated, and managed, through legal or other effective means, to achieve the long-term

[5] http://www.wwf.org.au/our_work/saving_the_natural_world/what_is_biodiversity/genetic_diversity/
[6] https://web.archive.org/web/20110225072641/http://www.nbii.gov:80/portal/server.pt?open=512&objID=405&PageID=0&cached=true&mode=2&userID=2)

conservation of nature with associated ecosystem services and cultural values." Sizes and characteristics of PAs vary considerably from country to country and even within the same country. In some cases, an PA is a vast extension of landscape, including various public lands, thousands of private properties, and even paved roads and complete towns, while in other cases the term refers to a single cadastral parcel as small as a hectare.

Similarly, country executive or legislative protection decrees are usually granted without considering the implications or the resources needed to properly implement them. When a subsequent government decides there are better uses for a natural protected area, a different decree can be issued. For example, in the Dominican Republic, the Sectorial Law for Protected Areas excluded 5,368 hectares from the west coast of the Del Este National Park and another 1,418 hectares from its northern limit to be used for the development of tourism facilities (Domínguez et al., 2010). A protection decree should not be the goal, but an instrument to reach the real goal: the perpetuation of the land and its resources and benefits. Another common practice in the region (with the notable exception of El Salvador) is the inclusion of private properties as part of PA core zones, many times without even asking the owners' opinions. One of the key challenges after a protected area has been created is ensuring effective long-term management of that area (USAID, 2015).

Each of the region's countries has its own set of management categories, and although they may have the same names, they are not necessarily administered in the same manner. Nonetheless, an equivalent category can be usually found in IUCN's global nomenclature system for protected areas.

Currently, 35 different PA categories are being used in CA/DR. All countries have particular PA categories that are not found in other countries, while some of the categories' names are common to two or more countries but do not necessarily have the same meaning. All of which complicate the task of listing existing PAs by type. There are 153 National Parks, 114 Wildlife Refuges or Wildlife Sanctuaries, 76 Private Reserves, 65 Nature Reserves, 54 Forest Reserves, 46 Nature or National Monuments, 41 Protection and Restoration Areas, 31 Biologic Reserves, 27 Definitive Ban Zones, 12 Water Protection Areas or Spring Reserves or Hydrological Reserves, and 228 areas assigned to other minor 25 categories in CA/DR. No regional PA categorization system exists, which makes regional systematization, monitoring, and coordination difficult, in addition to causing potential confusion with the nomenclature and definitions provided above. USAID may want to support the development of a common regional PA classification system based on IUCN's global PA nomenclature system for the CA/DR's regional needs. Such a regional classification could help in monitoring purposes, and possibly help foster a common regional understanding and vision. Such a system's nomenclature should ideally be linked to specific conservation objectives, but should not seek to substitute national legal categories.

PAs in CA/DR total 847, covering an area of almost 133,000 km^2 in land (23.37% of the region) and 72,154 km^2 in marine surface. Belize is the country with the highest PA/territory ratio of land under protection, with 32.38 percent, followed by Panama (26.89%), Guatemala (26.58%), the Dominican Republic (25.84%), Honduras (24.25%), Costa Rica (20.14%), Nicaragua (18.86%), and El Salvador (9.73%). The country with the largest area of marine PAs is the Dominican Republic, with 45,923 km^2. It is followed by Honduras (8,233 km^2), Panama (5,625 km^2), Nicaragua (5,132 km^2), Costa Rica (4,301 km^2), Belize (2,417 km^2), Guatemala (315 km^2), and El Salvador (207 km^2). ***Annex E*** provides detailed information on existing and proposed protected areas by country.

3.2.2 EFFECTIVENESS OF PROTECTED AREAS

The general goal for a given protected area (PA) or a system of them is the long-term preservation or restoration of their natural and cultural characteristics (landscape features, ecosystems, species, genetic materials, environmental services, archaeologic/historic goods, customs, and other cultural

expressions) found on a given piece of land. To establish if an existing PA fulfills its goal, the following questions should be answered: (1) Do current PAs include all attributes or characteristics that should be preserved/restored? (2) Is the way PAs are currently managed appropriate to guarantee the preservation/restoration of their attributes or characteristics? (3) How likely it is that the PAs will maintain or improve their current attributes or characteristics in the long term?

1. Do current PAs include all attributes or characteristics that should be preserved/restored?

In a particular area, specific conservation objectives might be relatively easy to identify, but at a larger scale, it becomes increasingly more difficult to be specific about what needs to be preserved because all attributes that should be preserved are probably not well understood or even known. This certainly is the case in the CA/DR region. To appropriately expand a protected areas system, a statistical approach should be taken to ensure the selection of areas that have the attributes that should be preserved. To help ensure that the protected areas adequately represent these, the proportion of land to be placed under protection in a given country is usually set at a minimum of 25 percent of the total area. The current 847 PAs in CA/DR cover a total area of 205,129 km^2 (72,154 km^2 marine and 132,976 km^2 terrestrial), which is equivalent to 23.36 percent of the region's land and only slightly under the 25 percent "acceptable threshold."

The 39 terrestrial, 13 freshwater, and seven marine ecoregions identified in CA/DR (***Table 3***, ***Table 4***, and ***Table 5)*** describe the region's conservation areas. When considering the representation of those ecoregions within the region's PAs, the Chiapas Montane Forests and the Chiapas Depression Dry Forests ecoregions are completely absent. In simple terms of being appropriately represented, 26 terrestrial and freshwater ecoregions, or half of all 52 terrestrial and freshwater ecoregions, are not adequately represented in the current regional PA system (***Table 21*** in ***Annex P***). This highlights the fact that the regional system of PAs was neither designed nor managed as a system. The group of marine ecoregions was intentionally left out of this analysis, because information does not exist to even preliminary estimate the minimum representative threshold for a marine ecoregion.

2. Is the way PAs are currently managed appropriate to guarantee the preservation/restoration of their attributes or characteristics?

Although many of the specific conditions needed to maintain biological diversity and environmental processes are unknown, PAs tend to sustain biological diversity and environmental processes. Current management of the great majority of PAs throughout the region has failed to prevent highly significant and continuous human interference. Only three out of 39 terrestrial ecoregions can be considered as stable, while 11 have a remaining protected area under six percent of their original extension, and are thus classified as needing Most Immediate Attention. Of 13 freshwater ecoregions, not one is considered stable. Only one marine ecoregion is considered stable out of the five of seven whose status is known. There are at least 564 conservation concern species that inhabit all CA/DR ecoregions, and probably many other that remain unknown. This, and the high number of threats that almost all CA/DR PAs face, threaten the integrity of the PAs themselves in many cases. Protection decrees have resulted in so-called paper PAs, which have a decree but lack field presence and thus effective protection. Public declarations or recognitions of the importance of a given piece of land and the need to preserve it and its resources are positive and important, however they tend to give a false sense of achievement and security, which, in many cases, prevents further actions needed to protect these areas. As stated in the USAID 2015 *Biodiversity and Development Handbook*, "One of the key challenges after a protected area has been created is ensuring effective long-term management of that area," and that continues to be a challenge in most of the region's PAs.

3. How likely it is that the PAs will maintain or improve their current attributes or characteristics in the long term?

A PA's long-term sustainability has two dimensions: (1) the ecologic dimension, and (2) the socio-economic dimension. The first addresses the intrinsic capacity of nature to maintain or recover its conditions (resiliency), including the survival of wildlife populations and the continuity of ecological processes (viability). The preservation or restoration of natural conditions does not require human intervention, but large, functioning natural ecosystems are two indispensable conditions to long-term preservation of their natural attributes. Since most CA/DR PAs face problems that compromise their functions and diminish and fragment their areas, the long-term preservation of their original attributes is put at risk. The socio-economic dimension focuses on the basic conservation notion that a PA's sustainability depends on its social and financial sustainability. This is "particularly true in developing countries where needs are so many and so pressing that long-term vision is clouded by the urgency to satisfy immediate needs" (Domínguez, 2012). Without community support and proper financial means, no PA has a chance to survive in the long term. Although public awareness and general support to PAs in the region has consistently increased in the last decades, so have poverty, inflation, criminality, and other socio-economic problems that overwhelm governments.

The current PA regional model has not achieved its main goal of guaranteeing the long-term preservation and/or restoration of the region's natural ecosystems. One cause for the limited results is the lack of capacity and vision of government employees and institutions to effectively manage PAs. Governments should address the socio-economic importance of natural resources by (a) integrating environmental budgets within each country's economic plans, (b) creating national environmental funds from local taxes, and (c) implementing result-oriented environmental budgets. In addition, a regional training and monitoring program should be designed and implemented to (a) raise and standardize the institutional capacity needed for the management of PAs, and (b) build a regional effort and collaboration. Such a training and monitoring program should be based on best practices and specific targeted results.

The community forest concessions in the Multiple Use Zone of the Maya Biosphere Reserve provide Central America's most striking example of how important and effective local support for a PA can be. Forest concession communities have protected and regenerated the natural forest, whereas the rest of the Maya Biosphere Reserve, including its supposed PAs, has been ravaged by fire and deforestation. A KI who recently studied these concessions said, "The community forest concessions in Guatemala are the best project I have seen in my career". Another KI noted that local people are protecting the forest from deforestation and fire and conserving mahogany and other species of trees because they have economic value. By contrast, a KI in Miskito of Nicaragua said that mahogany has been so heavily cut there that it no longer regenerates. Surprisingly, officials at Guatemala's CONAP continue to oppose the forest concessions. Evidently, they still conceive of protected areas not as sources of economic benefits and growth but as zones set aside entirely for preservation (KI). Changing this attitude would further the effectiveness of Central American PAs.

The ProParque project of USAID/Honduras has implemented bird tourism into some PAs which has provided jobs for trained local community members. Buffer zone sustainable economic activities (such as improved coffee management, establishment of private reserves that include tourism and sustainable agriculture that provides shade cover) have provided an economic incentive to conserve forests and biodiversity, as well as habitat corridors. Other needs of PAs include regional criteria for their minimum size, classification, monitoring, evaluation, and connectivity with external habitats and other PAs.

3.2.3 LOCAL COMMUNITY PARTICIPATION IN MANAGEMENT OF PROTECTED AREAS

To achieve sustainable conservation results, local communities must be given the opportunity to be involved in decisions to manage their own territory (KI) especially by formulating and implementing rules for the use of natural resources such as water and forest products (Gibson, C. et al. 2000).

Indigenous communities practicing the management of natural resources have linked territorial governance, knowledge, and ancestral practices for centuries. However, government decisions and policies, land use change, human invasions, drought, and floods because of climate change, pests, and mining are external elements that have broken the balance between natural ecosystems and such communities (CADPI, 2014). Rural and indigenous communities take their decisions under their own vision of development, and this vision does not necessarily coincide with the vision of the central government. It is important to understand the needs and beliefs of rural and indigenous communities in order to design policies and possible solutions to conflicts to ensure sustainability (IRG, 2008).

The CBD Convention includes a clause known as "Free, prior and informed consent," (FPIC), which refers to the right of the local communities and indigenous people to participate in decision-making associated with issues affecting them: natural resources management, economic development, uses of traditional knowledge, genetic resources, health care, and education (UNDP, 2005). IUCN, along with three indigenous communities at Cayos Miskitos, is preparing a regulation for FPIC that allows these parties to manage these coastal, marine, and forestry resources around a declared bioreserve in a technical and scientifically appropriate way (KI). Private sector investment in indigenous territories should involve consultations with Indigenous Councils and apply the FPIC principle.

Local governance is an important principle in forest management, especially as related to the concept of biological corridors. Indigenous communities should be trained for such negotiations. Costa Rica just published an official decree to accept local governance as a mechanism to recognize the role of private, public, local communities, and indigenous people in conservation. This decree was signed by the president and the minister of Environment, Natural Resources and Energy (MINAE) of Costa Rica (Feb. 26, 2016). Recognition of different governance models by government institutions acknowledges that there are others involved in and needed to manage protected areas and biodiversity (KI). International cooperation agencies should support these processes and establish them as part of the requirements for different programs and projects. Municipalities could be key actors in conservation if they are trained to lead these processes and utilize good communication mechanisms.

Women have a very important role to play within local governance and community involvement processes. Women's traditional and cultural knowledge is an important input in these processes (KI). The Miskito Coast is an example where a Women Participation in Indigenous Territories Regulation is being formed in order to include women in decision making (UNDP, 2014).

3.3 ECONOMIC IMPORTANCE OF PROTECTED AREAS

Studies carried out in Costa Rica indicate that PAs can provide an important contribution to the prosperity of a national economy. ***Table 6*** shows that the contribution of Costa Rica's PAs to the national economy was estimated at more than US$800 million in 2002 and US$1.3 billion in 2009. In 2009, this represented approximately 5 percent of Costa Rica's Gross Domestic Product (GDP). Costa Rica's PAs considered here cover approximately 650,000 ha; therefore, each hectare of a PA contributed more than US$2,000 to the Costa Rican economy on average in 2009.

Table 6 also indicates that the hotel, transport, food services, and other economic activities associated with tourism in or around Costa Rica's PAs contributed more than US$700 million in

2002 and US$900 million in 2009 to the national GDP. Power generation associated with water flowing out of Costa Rica's PAs is their next largest contribution to the economy: US$87 million in 2002 and more than US$350 million in 2009. Infrastructure works associated with the conservation of PAs declined slightly between 2002 and 2009, while the economic contribution of research and bioprospecting declined sharply. The contribution to Costa Rica's economy from visits to PAs and from the generation of direct employment, by contrast, increased. Payment for Environmental Services (PES) associated with PAs in 2002 was only about US$7,500, but grew to more than US$240,000 by 2009.

Table 6: Contribution of PAs to the Costa Rican Economy

Economic Activity	Contribution to Economy (US$)	
	2002	2009
Tourism associated activities	708,440,700	952,530,800
Hydropower	87,000,000	357,968,115
Conservation works	8,917,250	8,520,706
Research and bioprospecting	5,600,000	229,498
Tourism visits to Pas	2,900,000	12,639,338
Direct employment in PAs	1,311,529	23,491,991
Land purchases	710,526	1,565,199
PES	7,536	241,985
Total	832,590,873	1,357,187,632

Sources: CINPE, 2004; Moreno et al., 2010a

No comparable data on the overall contribution of Costa Rican PAs to the national economy could be located for any year after 2009. As more tourists visit Costa Rica, however, it is likely that PAs are currently contributing at least as much and probably more to the national economy than they did in 2009. ***Table 7*** summarizes the findings of studies on the economic contribution associated with tourism from eight PAs. A PA such as the Chirripo National Park, which was receiving few visitors, was contributing only US$173,323 per year. By contrast, PAs with more visitors, such as the Poas Volcano, Corcovado-Isla del Cano, and Las Baulas national parks, contributed tens of millions of dollars to the local economy.

Table 7: Annual Contribution of Eight Costa Rican Protected Areas to the Local Economy

Protected Area	Annual Contribution (US$)
Chirripó National Park (Source 1)	173,323
Cahuita National Park (Source 1)	4,900,000
Volcán Poás National Park (Source 1)	23,400,000
Corcovado-Isla del Caño National Park (Source 2)	41,569,298
Palo Verde National Park (Source 3)	1,193,217
Rincón de la Vieja National Park (Source 4)	4,257,778
Marino Las Baulas National Park (Source 5)	64,782,945
Vida Silvestre Playa Hermosa-Punta Mala Nat'l Reserve (Source 6)	12,725,100

Sources: Prepared for this report using data from CINPE, 2004 (Source 1); Otoya et al., 2010 (Source 2); Moreno et al., 2010b (Source 3); Salas et al., 2010 (Source 4); Reyes et al., 2013 (Source 5); Reyes et al., 2015 (Source 6).

Costa Rica is well known for its successful nature-based tourism industry. The economic contribution that its PAs provide is probably as great as or greater than the PAs in other Central American countries, all things being equal. The economic value of the Jeannette Kawas National Park in Honduras has been estimated to be US$38.7 million per year. These values include ecosystem services, such as fishing, tourism, agricultural production, livestock, carbon sequestration, coastal protection, and water quality. Belize's economy depends largely on its coastal zone. The Management Plan for the Coastal Zone of Belize (CZMA, 2013) estimates that the coastal zone generates US$175.9 million to US$200 million per year from tourism, aquaculture, fishing, and agriculture.

An example of the benefits and associated financial management of Cerro San Gil protected area in Guatemala (see box). It was not feasible to study the economic contribution of PAs in detail. It appears likely that other PAs in Central America also make substantial economic contributions. Some of the PAs in other CA countries certainly are also making considerable contributions to the national and local economies. As national and international tourism is likely to increase, Central America's PAs, if well-protected and managed, should contribute even more to the region's economic growth.

Financial self-sustainability scheme case study: Springs of Cerro San Gil Protected Area, Guatemala

Manantiales de Cerro San Gil Reserve is a PA co-administered by FUNDAECO. The area of protected water sources is more than 700 ha. The people who live nearby receive economic benefits from the protected area because it provides their water. It supplies water to the port of Santo Tomas de Castilla and Puerto Barrios (30,000 people) and to 36 communities within the PA, with a total population of 18,500. The protected area also provides water for agricultural production in these poor communities. Their average annual income is US$316 per family. To achieve self-sustainability, FUNDAECO receives revenues of approximately US$186,000 from visitation each year. Many visitors are tourists from cruise ships, which stop at the port of Santo Tomás de Castilla. Communities have been involved in the management of the protected area. Youth guide tourists and women sell food and souvenirs. FUNDAECO also helps locals to increase their income so they do not feel compelled to degrade the protected area's core zone (KI). To achieve increased financial stability, FUNDAECO has made agreements with the municipal governments of Tomás de Castilla, Puerto Barrios, Livingston, and Morales for the payment of rangers. Currently, municipalities have financed 17 rangers (KI).

There is little information about the economic impact of ecosystem services that PAs provide at the local or national level. The value of such ecosystem services are difficult to quantify, but can be high, although often overlooked or under-valued by politicians and economic decision-makers. The relatively low budgets that the countries assign to PAs indicate how such services are probably undervalued. ***Table 8*** shows the data from 2016 that are available on budgets allocated to PAs. With the exception of Costa Rica, the amounts shown exclude donations and other support from organizations that co-administer PAs. Costa Rica invests the largest amount in its PAs, with a budget US$33.2 million, corresponding to 0.22 percent of its total national budget.

Table 8: 2016 Budgets for Protected Areas in Central America

Country	National Budget for PAs (US$)	% of Total National Budget (%)
Belize	130,000	0.03%
Costa Rica	33,254,961	0.22%
El Salvador	n/a	n/a
Guatemala	422,479	0.005%
Honduras	5,678,701	0.06%

Country	National Budget for PAs (US$)	% of Total National Budget (%)
Nicaragua	4,028,440	0.08%
Panama	3,648,400	0.04%
Dominican Republic	n/a	n/a
Total	47,162,980	

Sources: Ministries of Treasuries and Finance

3.4 CONSERVATION OF BIODIVERSITY OUTSIDE OF PROTECTED AREAS

3.4.1 WATERSHEDS

Figure 3 shows the locations and areas of principal shared watersheds in Central America. They indicate that many rivers and watersheds in CA cross the national boundaries. The Lempa River crosses the boundaries between Guatemala, El Salvador, and Honduras. The watershed of the Motagua River lies in both Honduras and Guatemala, and the river is the international boundary between them in its lower section. The San Juan River is the boundary between Nicaragua and Costa Rica. The Usumacinta River is a boundary between Guatemala and Mexico. Tributaries to larger rivers also cross international boundaries.

Watershed boundaries generally cross property or political (community, municipality, department, province, country) boundaries, so conflicts over the location of boundaries, navigation, trade, ground water, and water quality frequently occur. Differences between countries in political maturity, political orientation, degrees of development, and population density often exacerbate such conflicts.

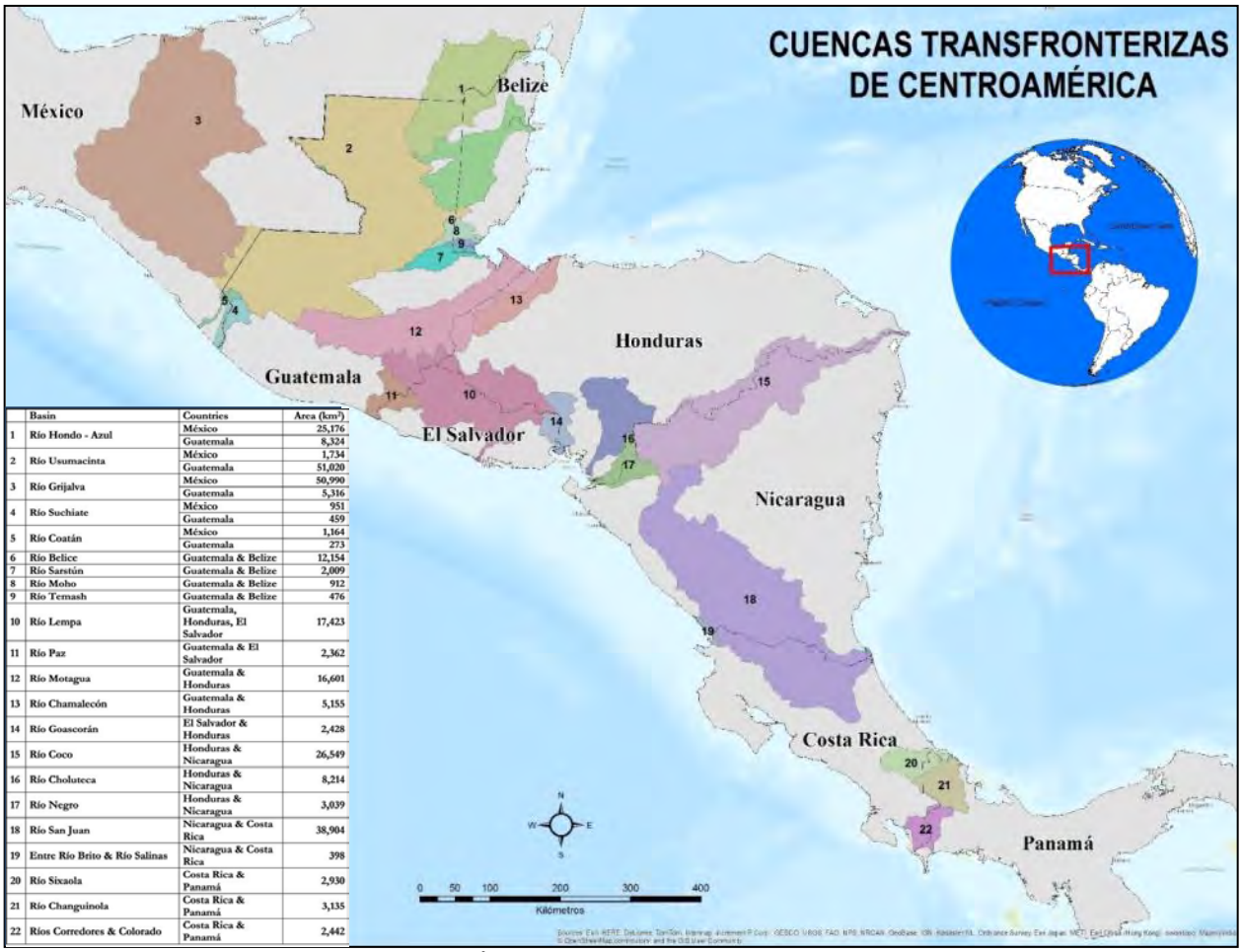
There are no universally accepted international norms for the management of rivers that cross international boundaries. Upstream countries favor the principle of Unlimited Territorial Sovereignty because it gives the country exclusive rights to use of waters within its territory. Downstream countries favor the principle of Unlimited Territorial Integrity, which says that one country cannot alter the quantity or quality of water available to another country. In Central America, however, regulation of transboundary waters mostly occurs through bilateral agreements and treaties that reflect customary legal norms and principles, such as the prevention of transboundary impact or significant harm, equitable utilization, and previous consultation. International Joint Commission (IJC) has helped to formulate and implement boundary waters agreements, such as the Sixaola Agreement between Costa Rica and Panama and the Trifinio Agreement between El Salvador, Guatemala, and Honduras.

Garcias (2009) notes that efforts to manage watershed conflicts have yielded four important lessons. International financing can contribute to developing cooperation and understanding between countries, especially through drafting of common sustainable development plans. Participation of local communities, on both sides of the border and between upper and lower basins, is important. Market-based mechanisms hold promise for allocating water resources but have not been used extensively yet. Finally, in spite of treaties and commissions, conflicts will continue to arise (Garcia, 2009).

Conservation of biodiversity and tropical forests is a collateral effect of watershed management. Watershed management aims to maintain or improve the quantity, quality, and reliability of the water that humans need for drinking, cleaning, agriculture, livestock, and industrial purposes. Its techniques generally involve well-established agricultural, livestock, soil conservation, and forestry practices that prevent or reduce sedimentation or contamination of water bodies or remove land for protection areas. The principal problem is persuading large numbers of people to apply these practices

consistently, effectively, and continually at large scales so that land use practices improve rather than degrade water quality, reliability, and quantity.

Figure 3: Areas and Locations of Principle Shared Watersheds in Central America



	Basin	Countries	Area (km²)
1	Río Hondo - Azul	México	25,176
		Guatemala	8,324
2	Río Usumacinta	México	1,734
		Guatemala	51,020
3	Río Grijalva	México	50,990
		Guatemala	5,316
4	Río Suchiate	México	951
		Guatemala	459
5	Río Coatán	México	1,164
		Guatemala	273
6	Río Belice	Guatemala & Belize	12,154
7	Río Sarstún	Guatemala & Belize	2,009
8	Río Moho	Guatemala & Belize	912
9	Río Temash	Guatemala & Belize	476
10	Río Lempa	Guatemala, Honduras, El Salvador	17,423
11	Río Paz	Guatemala & El Salvador	2,362
12	Río Motagua	Guatemala & Honduras	16,601
13	Río Chamalecón	Guatemala & Honduras	5,155
14	Río Goascorán	El Salvador & Honduras	2,428
15	Río Coco	Honduras & Nicaragua	26,549
16	Río Choluteca	Honduras & Nicaragua	8,214
17	Río Negro	Honduras & Nicaragua	3,039
18	Río San Juan	Nicaragua & Costa Rica	38,904
19	Entre Río Brito & Río Salinas	Nicaragua & Costa Rica	398
20	Río Sixaola	Costa Rica & Panamá	2,930
21	Río Changuinola	Costa Rica & Panamá	3,135
22	Ríos Corredores & Colorado	Costa Rica & Panamá	2,442

Source: Technical Report - Contract RQ000398, Óscar Chacón Chavarría: Generation of Maps for the BRIDGE/IUCN Project Implementation and GIS Course, 2016

PES is one of the principal means to persuade people to conserve watersheds on a large scale. Although nearly a decade old, Porras' 2008 review of PES in developing countries' watersheds, including Central America, summarizes the issues associated with PES and concluded: PES involves a payment either to landlords or from water users or both; their scale and purpose has varied; in Nicaragua, Honduras, El Salvador and Guatemala there are small-scale PES projects intended to protect specific sources of water; and in Costa Rica, a government-financed program has enlarged PES to a national scale with the purpose of preventing deforestation. In Guatemala and Honduras, USAID's CNCG and ProParque, as well as Feed the Future activities have local farmers' irrigation water payments contributing to watershed reforestation and conservation.

Problems in measuring and attributing changes in water quality, reliability, and quantity make it necessary to monitor proxy indicators. The most common proxy is improved land use practices, such as soil conservation and forest management. Other proxies are protection of natural vegetation, reforestation, and rehabilitation of degraded ecosystems. In CA, most PES payments are going to private landowners with clear titles. As of 2008, governments and international donors, rather than

the private sector, had financed most of the PES projects in CA. Porras et al. (2008) concluded that "PWS [Payment for Watershed Services] schemes are unlikely to be the route to major sources of new private money. Proponents of PWS will need to make the case for earmarking tax or water revenue rather than tapping private willingness to pay."

In national PES schemes, administrative decisions have determined payment levels. In local schemes, they have been determined mostly by negotiations through an intermediary. In CA, hydroelectric companies and water utility companies have collected and managed funds from electricity and water customers. Payments are usually by flat rates per hectare in cash at fixed periods for different activities regardless of location, so, on the supply side, there is little difference from traditional soil conservation projects. The PES schemes differ on the demand side when the funds come from water users. Financial payments are often considered insignificant by sellers, since they are so low relative to the profits that could be made from conventional land use practices or changing land use from forest to agriculture. Non-financial benefits, such as strengthening property rights, capacity building, and improvements in organization and quality of life, may be the incentive for greater participation in PES.

Linkages between land use and water quality are well-documented scientifically, but little evidence exists on how much PES protects water supplies or quality, especially because so many factors, such as topography and vegetation, affect the water flowing from watersheds. Porras et al. (2008) concluded that there was "little evidence that the schemes are matching up to the high expectations placed on them." They recommended that if payment schemes are to be financially self-sustaining, "they need to be driven by the water users and become an integral part of water resource management and allocation policy." They noted that the beneficial impacts of sustainable land-management practices on water flow and quality need to be better documented, and that "PWS is likely to work best when it is coherent with water-resource allocation and pricing."

Lessons learned from USAID's Panama Canal Integrated Watershed Management Project are available in ***Annex K***. Watershed management clearly is a priority issue for conserving key ecoregions. Many KIs expressed concerns that integrated watershed management can address:

- Mayors from the Trifinio region of El Salvador, Honduras, and Guatemala described the conflicts that arise when contaminated water from one municipality flows into another municipality (KI).
- The executive director of Plan Trifinio noted that the plan was created 20 years ago to resolve water issues between Honduras, El Salvador, and Guatemala (KI).
- In the municipal offices of Marcovia, in the Gulf of Fonseca, at least 40 men and women were waiting to ask Mayor Jose Nahun Calix to bring them water for themselves, their animals, and their crops (KI).
- In Puerto Cabezas, we saw the large pipes being unloaded, which were to be used to bring water from a forest reserve 40 km away to the city. Puerto Barrerio in Izabal, Guatemala, finances the protection of the Escobas Reserve because it provides the city with its water supply (KI).
- The need of cattle ranchers for pasture during the dry season on the Pacific Coast is driving rampant deforestation in central and eastern Nicaragua (KI).
- Costa Rica's system of payments for the ecosystem services of watersheds has successfully reversed deforestation.
- In Izabal, Guatemala, fishermen expressed their concern that the massive quantity of solid and liquid waste that the Motagua River is carrying to the Gulf of Honduras is endangering the survival of fish stocks (KI).
- A KI noted that businessmen in Guatemala are concerned about protecting their large investments in hydropower plants by conserving the watersheds that provide them with water.

- Another KI said that the owners of sugar cane plantations on the Pacific Coast of Guatemala depend on water from the range of volcanoes and are concerned about the security of their supply of irrigation water that comes from the mountains to the east.

3.4.2 COASTS AND GULFS

Central America's coastal zones are an extensive geographic area whose integrated management could contribute greatly to the conservation of the region's biodiversity and tropical forests. The coastal zone is the interface where the land meets the ocean, encompassing shoreline environments as well as adjacent coastal waters. Its components can include river deltas, coastal plains, wetlands, beaches and dunes, reefs, mangrove forests, lagoons, other coastal features (UNEP 2010, www.unep.org/.../coastal_zone_definition) Lemay (1998) defines integrated coastal management as a "broad, multi-purpose endeavor aimed at improving the quality of life of communities dependent on coastal resources" using participatory methods to address coastal issues such as depleted fisheries stocks, declining coastal water quality, and conflicts between coastal uses with zoning, access restrictions, habitat management, monitoring and enforcement, and communication. The two CA regional accords that promote sustainable and integrated management of marine coastal zones are the Conservation of the Mesoamerican Reef System and the marine and coastal aspects in the Mesoamerican Biological Corridor Agreement.

Figure 4 shows the coastline and gulfs of Central America, and ***Table 9*** indicates some of the biophysical characteristics of its coastal zone. CA has 6,603 km of coastline with 566,900 ha of mangroves, 1,600 km of coral reef, and about 237,650 km^2 of continental platform (Windevoxhel et al., n.d.). The principal gulfs in Central America are the Gulf of Honduras, the Gulf of Fonseca, the Gulf of Nicoya, the Gulf of Panama, and Mosquito Gulf. Islands and islets abound on the Caribbean Coast. There are some 2,400 islands off the Caribbean Coast, in Belize (the Keys), Honduras (Bay Islands and Cochinos Keys), Nicaragua (Miskitos, Cisne, and Maíz keys), and Panama (Bocas del Toro and San Blas Archipelago.) There are fewer islands on the Pacific coast except for Panama, which has about 200, in the Gulf of Fonseca (where Meanguera, Meanguerita, Amapola, Conejo, and El Tigre are the main islands), the Gulf of Nicoya, and the Murcielago Islands off the northern coast of Costa Rica. Coco Island, 500 km to the southwest of the continent, marks the most distant territorial point of the CA region (Windevoxhel et al., n.d.).

Figure 4: Coastline and Gulfs of Central America

Source: google.com image with names of marine features added by the team

Table 9: Biophysical Characteristic of the Central American Coastal Zone

Biophysical Aspects	Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Total
Length of Coast (km)	250	403	844	307	923	1,376	2,500	6,603
200 m Continental Shelf (km^2)	8,250	12,300	53,500	17,800	72,700	15,800	57,300	237,650
Mangroves (ha)	11,500	16,000	145,800	26,800	155,000	41,000	170,800	566,900
Coral reefs (km length)	474	1	364	1	455	2.5	320	1,617.5
Surface drainage, Pacific (%)	0	21	18	100	10	53	69	271
Surface drainage, Caribbean (%)	100	79	82	0	90	47	31	429

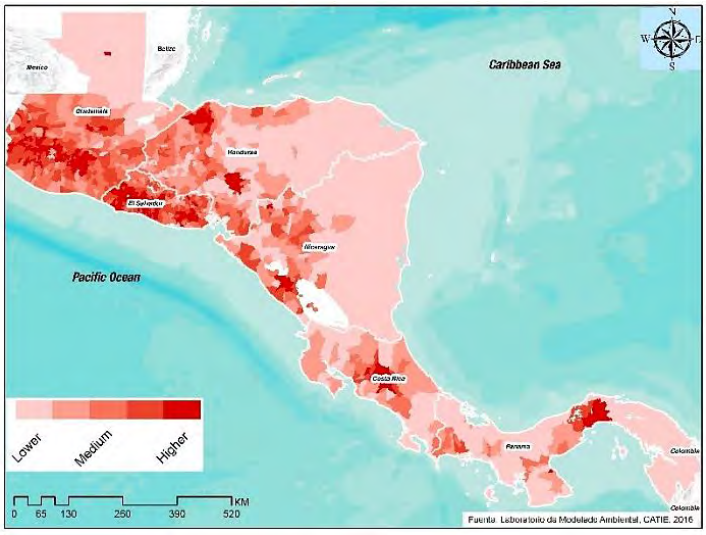
Source: Windevoxhel e al., n.d.

Table 5 in ***Section 3.1.1*** indicates that CA has 422,455,022 ha of marine biomes. There are two biomes (Tropical Northwestern Atlantic and Tropical East Pacific) with seven ecoregions between them. El Salvador, Nicaragua, Costa Rica, and Panama have coral formations in the Pacific. On the Caribbean side, coral reefs occur in all of the countries.

The Pacific has many coastal cliffs in from Panama through El Salvador, whereas Guatemala has no coastal cliffs. The coast on the Caribbean side is mostly flat. On the Pacific side, rainfall is heavy in southern Costa Rica and Panama, except for two months of dry season. There is a dry zone from northern Costa Rica to Guatemala where rainfall decreases. Precipitation on the Caribbean Coast is more uniform all year. Tides on the Pacific are to 6 meters high, while tides on the Caribbean are around 60 cm high. Waves on the Caribbean Coast are higher than on the Pacific coast. Pacific Coast rivers are short and flood during the rainy season from May to November. Rivers on the Caribbean are longer and have more stable flows (Windevoxhel et al., n.d.).

Figure 5 indicates that the population density in CA is higher along the Pacific than the Caribbean Coast. The Pacific Coast has more than 21.6 percent of the region's population and produces at least US$750 million in fish catch and fishing activities that provide work and sustenance for more than 450,000 persons in the region. Eight percent of the world's mangroves are located in CA, as well as the second largest coral barrier reef in the planet. Due to these special conditions, at least half of CA's coastal zones is devoted to tourism, one of the three primary economic activities in four of the region's countries where multiple activities of economic and social importance are carried out.

Figure 5: Population Density in Central America



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016). Data from Bouroncle et al., n.d.

Forty years ago, Central America's economic base was the export of cotton, bananas, sugar, coffee, and beef. Tourism has now become a principal economic activity (Cañada, 2011). About 17.5 million tourists visit CA each year, and they bring income of about US$12.3 billion. As long ago as 2002, tourism to see green turtle nesting in Tortuguero National Park, Costa Rica, generated about US$6.7 million of local gross revenue; tourism and revenues have probably increased since then.

Fisheries are another economic value of coastal areas. The Caribbean's surface water mixes very little with colder deep waters that are richer in nutrients, and as a result, areas of open seas are low in primary productivity. Rather, productivity is associated with the presence of the coral reefs, rocky outcrops, and mangroves, and it is in those areas that most fish are caught. No data on the volume of fish caught in CA could be found in the FAO or the OSPESCA databases. The only recent data that could be found was that *15,364,787* kg of fish were caught in Costa Rica in 2013, and 49,286,860 kg were caught Nicaragua in 2014. Data from 2001 indicates that reef fisheries of the Mesoamerican Barrier Reef of Belize, Honduras, and Mexico were calculated to be worth US$15,000–$150,000 per km² per year, and in 2004, the Terraba-Sierpe wetlands and fisheries in Costa Rica provided fish and shellfish worth US$6 million to local families (Reyes et al., 2004). A 2001 study in the Gulf of Panama estimated that each kilometer of coastline generated an estimated US$95,000 in shrimp and fish annually. Reefs, mangroves, and sea grasses provide non-commercial values such as protection of coastal infrastructure from high storms and carbon sequestration (WRI, 2012).

Figure 6 indicates the degree of threats to the reefs in CA as of 2012. The reefs off the Miskito Coast and the coast of Belize are rated as having a low threat, whereas the reefs in the Bay of Honduras and off the coast of Panama are rated as having a high or moderate threat (WRI, 2012).

Figure 6: Degree of Threats to Central American Reefs

Source: WRI, 2012

Marine protected areas (MPA) play an important role in conserving biodiversity and forests in coastal zones. A network of MPAs should be designed to reduce the risk from climate change and other

stressors, provide protection to areas that can supply seed for replenishment and preservation of ecological functions, maintain connectivity between protected areas, and take into account socioeconomic factors (RR, 2016). Of CA's 422,455,022 ha of marine biomes, 3,085,639 has, or 0.73 percent, are within one of its natural protected areas.

As human populations increase and the stocks of fish decrease, aquaculture along the coasts of CA has become an important factor in coastal resource management. Although aquaculture can destroy natural habitats, such as mangroves, it also provides food people need and lowers the price of those species that are cultivated, thereby perhaps reducing the financial incentive for catching some wild marine species. In Costa Rica, the Institute of Fish and Aquaculture (INCOPESCA) is planning for the orderly development of aquiculture, since the country needs 83,000 tons of marine products annually that ocean fishing can no longer supply (INFOPESCA, 2016). In Belize, all but one of the aquaculture enterprises has been certified by the WWF (KI).

The final evaluation of the USAID MAREA project concluded that the use of fisheries best management practices could be effective in conserving fish species and stocks while also producing financial returns that contribute to economic growth and that rapid, widespread degradation and destruction of marine and coastal biodiversity severely threatens the economic welfare of the Central American countries (Kernan et al., 2014). Data from documents, KI interviews, and field observations in the Gulf of Fonseca, Gulf of Honduras, and the Miskito Coast, also provide evidence that the concept of integrated coastal management responds directly to the concerns of local people for achieving economic growth.

3.4.3 BIOLOGICAL CORRIDORS

Biological corridors link protected areas with suitable habitat, or link important unprotected habitat, thereby allowing interchange of species, migration, and genes (IUCNa, 2016). The Mesoamerica Biological Corridor (MBC, see ***Figure 7***) is located along the mountain range that runs from Panama to southern Mexico (IUCNc, 2016). The initial concept of the MBC was to link the protected areas of CA and southern Mexico with suitable habitat. Now the MBC concept gives more emphasis to integrating conservation outside of protected areas with rural economic growth (GTCN, 2016). 2016). The CBD Protected Areas Work Plan, Objective 1.2, suggests that PA systems should be integrated into broader landscapes, terrestrial and marine, using an ecosystem approach that takes into account ecological connectivity and networks. Such approaches could be applied to private networks of Natural Forests such as those in Nicaragua, Costa Rica, El Salvador, Honduras and Guatemala, for successful and sustainable results (KI).

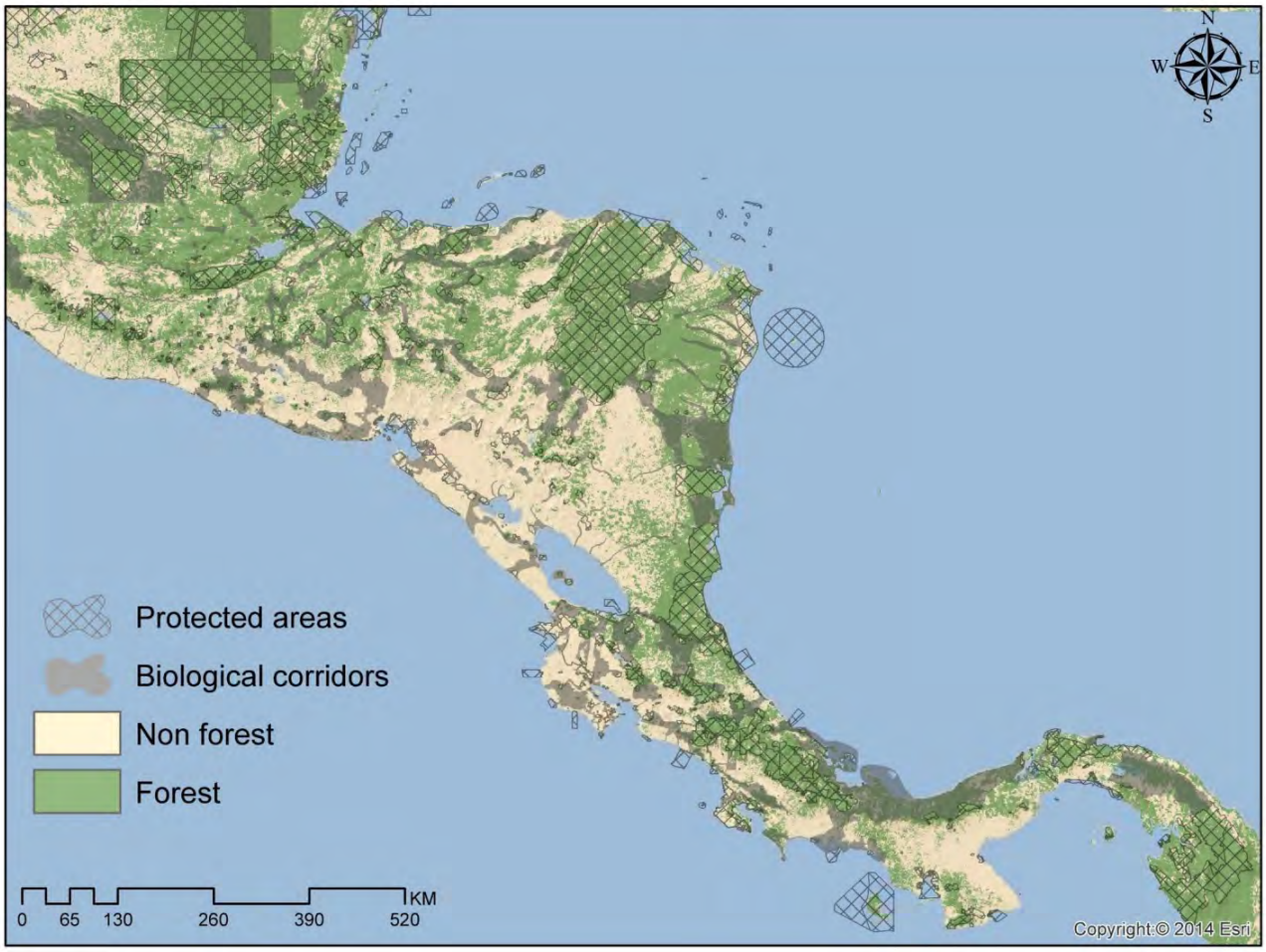
The East Pacific Marine Corridor (EPMC) runs from Isla Coiba in Panama to Isla Coco in Costa Rica, then to Isla Malpelo in Colombia, and ends up in Galápagos, Ecuador (KI). The Mesoamerican Caribbean Reef Corridor (MCRC), which was established by the Tuluva Agreement among Mexico, Belize, Guatemala, and Honduras, extends for 1,000 km, from the southern border of Mexico to the Río Plátano Biological Reserve in Honduras (see ***Figure 8***). Panama, Costa Rica, and Guatemala also have conceptualized and started to implement national biological corridors, which complement the regional biological corridors. A Mangrove Corridor was established and implemented through a project at the Pacific East Coast in the Gulf of Fonseca, shared by Nicaragua, El Salvador, and Honduras (CCAD/AECID, 2008). These various regional and national efforts to establish biological corridors have provided much experience indicating that they can be an effective platform for implementing conservation practices outside of protected areas (KI).

In 2005, the Rainforest Alliance founded Paso Pacífico in CA. Its mission is to "restore and conserve the natural ecosystems of Central America's Pacific slope by collaborating with landowners, local communities and involved organizations to promote ecosystem conservation." Paso Pacifico tries to

establish connections between ecosystems. It supports community eco-tourism, fishing, agriculture, and natural resource management enterprises, and advises private landowners and the private sector in conservation measures (RA, 2016).

The Dry Forest Corridor on the South Pacific side of Nicaragua is a joint effort to conserve the last remains of the dry forest in Nicaragua, based on an economic approach. It integrates local communities, private owners of wild areas network, municipalities, and private enterprises, and focuses on the benefits of forest services and products. The project has been funded by GIZ and private enterprise (KI). In Costa Rica, biological corridors are defined by decree within a national law. GIZ is financing the National Corridors Program to comply with the Aichi Biodiversity Targets of CBD, emphasizing governance and participation of civil societies (KI).

Figure 7: Map of Protected Areas and Biological Corridors



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016)

Figure 8: The Mesoamerican Caribbean Reef Corridor

Source: MAR Fund, 2016

3.4.4 RAMSAR SITES

The Ramsar Convention "provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources" (Ramsar (a), 2016). There are 55 Ramsar sites in CA/DR, with a total area of 2,425,478 ha. The Ramsar Secretariat promotes coordination between Ramsar sites, and for example, has implemented the Regional Initiative for Conservation and Rational Use of Mangroves and Corals (RICRUMC). The designation of a wetland as a Ramsar site often encourages national governments to provide financing for their protection and management, usually through international sources of funding. In 2012, for example, the Japanese International Cooperation Agency (JICA) signed a memorandum of cooperation with the Ramsar Secretariat for financing the management of Ramsar sites in Costa Rica and El Salvador (JICA, 2016). Every two or three years, the Ramsar Secretariat evaluates compliance of each site with Ramsar criteria (KI). Recent National Ramsar reports reveal that countries are complying with only about half of their obligations under the convention (Ramsar b., 2016).

The convention also provides important recommendations to the CA/DR countries. These recommendations include guidelines for Environmental Impact Assessments (EIA, based on CBD Decision VIII/28) as well as ecological impact criteria requirements for energy projects that ensure the survival of endemic and rare species (Ramsar Resolution XI.10, number 17). Salvadoran authorities considered the latter within an EIA presented by the National Electrical Authority to obtain a permit for a hydroelectrical power plant modification where rare freshwater clams occur (Cruz-Pérez, 2014). Other support from the Ramsar Secretariat includes inspections related to border and environmental issues associated with the San Juan River for Nicaragua and Costa Rica (Ramsar Sectretariate, 2011), as well as meetings with personnel and officers associated with the

construction of Nicaragua Transoceanic Channel,[7] which encompasses a Ramsar site. USAID/CAM should consider supporting Ramsar sites as part of regional conservation activities it may finance.

3.4.5 BIOSPHERE RESERVES

Since 1971, the United Nations Environment, Science and Culture Organization (UNESCO) have operated the Man and the Biosphere Programme (MAB). MAB's World Network of Biosphere Reserves (WNBR) has 651 such reserves in 120 countries. Biosphere reserves are intended to integrate protected areas into their surrounding landscapes; contribute to the conservation of landscapes, ecosystems, species, and genetic variation; foster economic and human development; and support research, monitoring, education, and information exchange related to conservation (UNESCO 2016). CA/DR has 20 biosphere reserves under various categorizations with a total area of 10,774,899 ha. (see ***Annex P***).

Fourteen of the reserves are entirely terrestrial; six are terrestrial, coastal, and marine (see **Annex E**). There are three multi-country biosphere reserves in CA/DR: La Amistad Biosphere Reserve is in both Costa Rica and Panama; the Corazón Biosphere Reserve includes parts of Nicaragua and Honduras; and the Trifinio Biosphere Reserve includes parts of Guatemala, Honduras, and El Salvador. MAB National Committees, or Focal Points, oversee national compliance with MAB criteria for biosphere reserves.[8] Every 10 years, UNESCO prepares independent evaluations of each biosphere reserve's compliance. CA/DR's biosphere reserves are an important regional effort to combine conservation and economic growth outside of protected areas (KI).

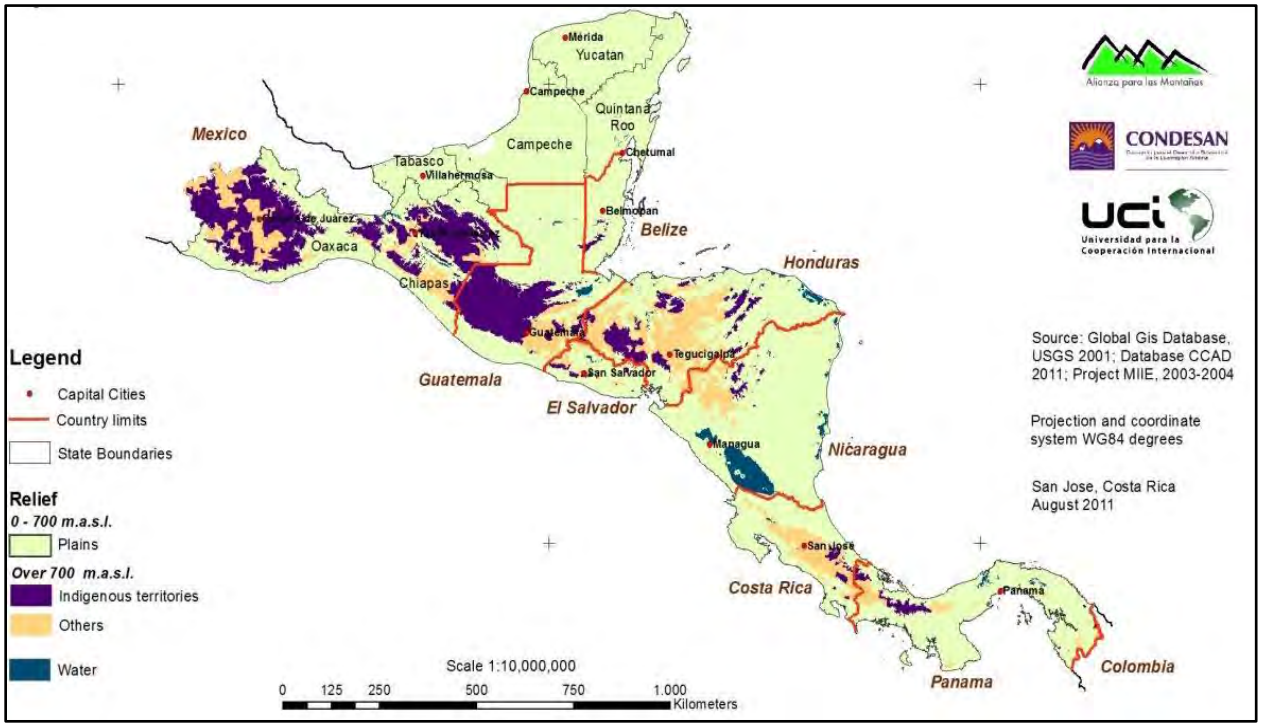
3.4.6 INDIGENOUS AND SEMI-AUTONOMOUS TERRITORIES

There are approximately 46 indigenous groups and various groups of African descent in CA/DR (CCAD 2014). Indigenous communities have practiced territorial governance, knowledge, and ancestral practices for centuries, and with a dependency on natural resources management. ***Table 10*** shows forest cover percentages in Central American countries in indigenous territories and as protected areas. In Panama, Guatemala, and Nicaragua almost half of the forest areas are in indigenous territories; in Belize, El Salvador, and Honduras, the proportion is about one-third; and in Costa Rica, only 13.3 percent of the forests are in indigenous territories. It should be kept in mind however, that the definition of and formal registration of indigenous territories varies from country to country. There are forests within indigenous territories that also have a legal protection status; about 15 percent of the total CA forest cover. The percentage of forest sharing both conditions is 23 percent in Panama; 18.5 percent in Nicaragua; 10–15 percent in Honduras, Guatemala, and Belize; and about 3 percent in El Salvador and Costa Rica (CABAL, 2010). **Figure 9** also shows the locations of such indigenous territories.

There are also territories that have determined to become more independent from their central governments; such is the case of the Autonomous Region from the north Caribbean Coast of Nicaragua, RACCN, represented by a Council of Representatives from each region. A similar organized autonomous sub-national government is San Blas in the Guna Yala region in Panama. These territories and communities have grown stronger in governance and more self-determined in decision making. At the Miskito Coast in RACCN, the MAREA USAID Regional Program achieved successful results.

[7] http://latino.foxnews.com/latino/espanol/2015/01/14/delegacion-de-ramsar-estudia-proyecto-de-canal-interoceanico-en-nicaragua/
[8] The Statutory Framework for Biosphere Reserves establishes these criteria.

Figure 9: Mesoamerican Indigenous Territories



Source: Chassot et al., 2011

Table 10: Forest Cover in Protected and Indigenous Areas in Central America

Country	Total forest cover (thousand ha)	Forest cover (%)	Forest in indigenous territories (%)	Protected forest areas (%)	Overlap: Protected forest areas & indigenous territories (%)
Belize	1,506	68	30.5	45.5	10.4
Costa Rica	2,913	56.8	13.3	32.7	3.6
El Salvador	180	8.7	30.6	6.5	3.3
Guatemala	4,047	37	48.3	53.5	11.9
Honduras	4,855	43	33.3	31.9	14.5
Nicaragua	5,414	41.8	44.7	28.5	18.5
Panama	4,336	52.2	50.3	35.5	23.7
Total CA	23,251	44.3	39	36.3	15

Source: Salamanca, 2013

3.5 BIODIVERSITY AND COASTAL CONSERVATION PROJECTS

The CA/DR region is a focal point for collaboration between bilateral and multilateral international cooperation institutions. ***Annex G*** lists a sample of country and regional projects that have been recently or are currently being implemented in the region. The annex provides a description of the projects and information on their locations, funding, and duration.

USAID projects that emphasize the different types of conservation programs in the region are the Regional MAREA project (2010-2015), El Salvador's Sea Turtle Conservation and Improvement of Coastal Community Livelihoods project (2011-2014), Guatemala's Strengthen Governance in the Maya Biosphere Reserve project (2010-2020), the Improved Management and Conservation of Critical Watersheds (IMCCW) Project (2006-2011) and the ProParque project in Honduras (2011-2016). The Maya Biosphere is discussed further in ***Section 4***, while recommendations presented in ***Section 7*** are developed based on various key lessons learned from these and other experiences as discussed elsewhere throughout this report. Examples of the key lessons learned from the Honduran IMCCW and El Salvador's ProParque projects are provided in the boxes presented in this subsection.

KI's also suggested that the USAID/El Salvador IMCCW project was successful because it sponsored inter-changes of conservation experiences, particularly with farmers in Honduras; introduced agroforestry practices that improved soil conditions, which increased crop production and reduced soil erosion; and worked through the municipalities and mancomunidades, whose leaders are supported by the people and therefore can accomplish a great deal for conservation. It also emphasized the vital role of SICA as the regional leader for conservation actions and the importance of diffusing knowledge of successful conservation practices, such as those implemented in Trifinio.

The Improved Management and Conservation of Critical Watersheds (IMCCW) Project

The USAID/El Salvador IMCCW project's aim was to conserve biodiversity and promote economic growth in six watersheds in Ahuachapán and Sonsonate departments of El Salvador. IMCCW Project's strategy was to increase income generated through farming practices that also conserve biodiversity. One key lesson from IMCCW is that financially viable production practices that respond to the local population's immediate needs stimulate interest in conservation measures. A second lesson is that coordination between sectors increases and improves conservation results. Additionally, the project also emphasized strengthening capacity through environmental education and technical assistance programs. The project's design however was considered weak with respect to the partner and stakeholder participation mechanisms which were not clearly defined, and lacked a strategy for transference and sustainability on the basis of the competences of each of the stakeholders. (USAID 2011).

Additional information on the lessons learned reviewed from these and other USAID programs is available in ***Annex K***. Among the lessons learned from the Final Evaluation of the MAREA Project, for example, is to make the design process participatory by engaging local coalitions that can formulate joint conservation and development plans and to combine activities to conserve marine and coastal biodiversity with those to increase adaptation and resilience to climate change. An evaluation of five biodiversity projects that were financed by USAID/Dominican Republic suggested that: conservation and tourism can benefit each other since conservation protects the reefs, wildlife, beaches, water, and landscapes that tourists pay to enjoy, and tourism can provide revenues to implement conservation practices; that best practices must be constantly adapted to meet the needs of different and constantly changing biological, institutional, and socioeconomic situations biodiversity; and that biodiversity programming should be linked to the financial interests of important economic sectors.

KIs interviewed also highlighted the complexities of trans-boundary issues, such as those observed in Costa Rica where sea turtles were protected, then swim to Honduras and are killed; and in Honduras, where control of the spread of the pine bark beetles through its pine forests influences how fast and severely they spread in Guatemala's pine forests. They also highlighted how increased collaboration between CA countries and the Dominican Republic (DR) could facilitate the incorporation of the DR's extensive experience in conservation of marine habitats into regional marine programs in CA. The DR and Haiti also could learn from CA about how to cooperate on

conservation issues. Another KI noted also that Mexico could also play a role in the sharing of solutions to conservation problems between the countries.

Many natural resources managers (KI) have also suggested the positive impacts and particularly the sustainability of projects, programs and their corresponding field activities have been limited. Thus, the significant investment of these financial resources has resulted in somewhat limited success, and supports the conclusions of various authors: The main limiting factors for conservation in Central America are (1) weak institutional and law enforcement; (2) lack of capacity and vision; and (3) contradicting policies and laws in general (USAID, 2015), and in some CA countries in particular (Domínguez, 2012; Myton et al., 2014).

Significant differences exist between the strategies and funding levels of international cooperation agencies, with only a few of them directly supporting regional projects and programs (see ***Annex G***). Besides USAID, these include the GIZ, the European Union (EU), UNEP and GEF, AECID, the World Bank, the Nordic Development Fund, The Luxembourg's Development Cooperation, JICA, and the Swiss Agency for Development and Cooperation are other international cooperation agencies that have national and local programs in the region.

The number of international cooperation agencies supporting regional projects/programs is significantly fewer than those supporting national- and/or local-level interventions. A clear regional environmental action agenda would not only improve the chances of success, but also may be effective in increasing the support to regional scale actions by other donors.

ProParque

The financing for conservation based on local management and entrepreneurism strategy employed by the USAID Honduras ProParque, including the Honduran Private Nature Reserves Network (REHNAP) and PES mechanism achieved are particularly positive achievements with the potential to be used as models in other CA/DR countries. ProParque has also demonstrated that wide landscape conservation can be achieved from an assortment of small and local conservation mechanisms, and can help areas of natural habitat within private properties become better represented in CA/DR country PA systems. Among other key lessons learned, ProParque suggests that (Seeley C. and C. Rivas, 2015):

- Models which combine economic activities based on demand and the conservation of natural resources provide effective incentives
- Developing financing mechanisms requires a supportive, adequate and facilitating political environment for private ventures
- For a PES to be effective, a well-structured, transparent and participatory management system must be developed and implemented. PES and their corresponding conservation actions should be based on environmental benefits most directly related to people's needs and livelihoods, such as water and watersheds.
- Integration of stakeholders and creation of strategic alliances translate into economic and representation benefits and supports long-term sustainability. Local governance and stakeholders participation in decision-making is key to the success of conservation programs.
- Incentives for conservation can also include training, access to markets, ownership security, among others, but must be tangible and work at a local level.

4 STATUS AND MANAGEMENT OF TROPICAL FORESTS

4.1 FOREST TYPES

According to the Terrestrial Ecoregions Classification System (Olson *et al.*, 2001), five general forest types can be distinguished in the region: moist broadleaf forests; moist broadleaf montane forests; coniferous forests; broadleaf dry forests; mangrove forests. Because of the region's geographic location, all these forest types correspond to the tropical and subtropical climate region.

4.1.1 MOIST BROADLEAF FORESTS

These are characterized with very high numbers of tree species that form the system's primary structure, and are associated with very high number of shrubs and herbaceous plants. In some classification systems, such high diversity and density "forests" are called "jungles." Annual rainfall is close to 2,000 mm or more, and epiphytism can also be high, although not as high as in montane forests. Depending on soils, topography, and local climatic conditions, these forests can be found from sea level up to 1,000–1,800 m.a.s.l., where they are usually substituted by Coniferous or Montane Forests (***Figure 24*** in ***Annex D***).

Due to their high diversity, these ecosystems are main genetic and bioprospecting banks, and also home to the highest number of conservation concern species (CCS) (see ***Annex Q***). Most commercial woods come out of these forests, including precious woods, mainly illegally, but great progress is being made in the sustainable management of indigenous and community lands, particularly in the Petén area. Non-timber products, like latex, chicle, medicinal and ornamental plants, as well as cinegetic species and ornamental plant species are also some of the main products provided by these forests to local people, including many indigenous communities. Due to their vast extension, dense foliage, and location in most high- and mid-range watershed basins, moist forests play a fundamental role in climate regulation, runoff control, and soils stabilization.

These were also the most widespread forests in the region, where 11 different types or ecoregions occur, originally covering some 30,000 km^2 or about 54 percent of the land. However, they have been reduced to almost half, and at least six of them are considered to be Critically Endangered (WWF, Web):

a. Petén–Veracruz Moist Forests (CR)
b. Yucatán Moist Forests
c. Central American Atlantic Moist Forests
d. Sierra Madre de Chiapas Moist Forests (CR)
e. Cayos Miskitos–San Andrés–Providencia Moist Forests (CR)
f. Costa Rican Seasonal Moist Forests (CR)
g. Isthmian–Atlantic Moist Forests
h. Isthmian–Pacific Moist Forest (CR)
i. Cocos Island Moist Forests
j. Chocó–Darién Moist Forests
k. Hispaniolan Moist Forests (CR)

4.1.2 MONTANE BROADLEAF FORESTS

Similar in structure and species richness to moist forests (and also considered jungles), montane forests are adapted to lower temperatures and a much higher relative humidity (although annual rainfall can in some cases be lower than that in moist forests), caused by the regular presence of clouds/mist, which is why they are also known as cloud forests. This accounts for the enormous biomass in epiphytes, which is their main structural characteristic. Due to their temperature and humidity requirements, these forests are restricted to highlands, particularly mountain peaks (thus their name), from 1,000 to 3,000 m.a.s.l., depending on local climate. In their lower limit, CA montane forests transition to moist or coniferous forests, while above 3,000 meters they tend to change into dwarf very dense forests (still considered montane forests) or allow room for páramo vegetation to grow.

Water "trapped" by these forests directly from the clouds represents a significant portion of the water cycle, and their presence is vital for the stabilization of upper watersheds. Although not as much natural product comes out of these forests in comparison to moist forests due to their particular climate requirements and relative isolation, they are considered regional endemic hotspots, and are thus potentially rich genetic and bioprospection banks.

Four montane forest types or ecoregions are found in CA (none in DR), which originally covered an extension of some 3,700 km^2 (close to 7% of the region). Regional montane forests have, in general, survived better than moist forests, with about 75 percent of them still remaining (2,800 km^2). However, at least one of them is considered to be Critically Endangered (WWF, Web):

a) Central American Montane Forests
b) Chiapas Montane Forests (CR)
c) Talamancan Montane Forests
d) Eastern Panamanian Montane Forest

4.1.3 CONIFEROUS FORESTS

In contrast to moist and montane forests, coniferous forests have a low diversity and also relatively low density of trees (thus they are "true forests" and not "jungles"). Their brush and underbrush strata are also poorly developed (thus usually considered "open vegetation cover"). CA (specifically Nicaragua) and DR represent the southernmost limit of the northern coniferous vegetation. Different from temperate regions, here conifers (particularly *Pinus* spp. and marginally *Cupressus* spp.) are non-dominant species, and have actually been relegated to the poorest soils. After the last ice age, the conifer species that remained adapted well to the warm climate can be found in the Caribbean coastal plains of Honduras and Belize, but they mostly occur at elevations from 600 to 1,800 m.a.s.l. Above that, they are usually substituted by montane forests in CA, but not in DR, where coniferous forests are the dominant high-range vegetation.

Coniferous forests are important to soil stabilization in mid- and upper-range watersheds, particularly where poor clay soils prevent the occurrence of dense forests, and in DR, where they are considered only highland forest. They are also the main source of commercial, relatively low-priced wood, and host a relatively diverse associated fauna and microflora, including cinegetic and CCS. In Honduras, wild pine trees are also used to produce turpentine.

Four coniferous forest types or ecoregions are recognized in CA/DR, where they originally covered some 11,000 km^2 (20% of the region). Natural pine and pine-oak forests have been reduced to about 41 percent of their original size (about 4,500 km^2), and although three of the four types have been

severely reduced, particularly the Miskito Pine Forests. Only the Central American Pine-Oak Forests have been "awarded" a Critically Threatened status (WWF, Web):

a) Belizean Pine Forests
b) Central American Pine-Oak Forests (CR)
c) Miskito Pine Forests
d) Hispaniolan Pine Forests

4.1.4 BROADLEAF DRY FORESTS

As with the moist and montane forests of CA/DR, which share a common origin, dry forests exhibit a rich diversity and density of flora, but less than the other two types. Dry forests also share many species and genus with moist and montane forests, but have adapted to the dry conditions that characterized the lower areas, mainly in the Pacific Coast of CA and the western half of DR, from sea level up to 800 meters of elevation. The most conspicuous adaptation, and a characteristic of these forests, is that they lose most of their foliage during the dry season.

A lot of wood, particularly firewood and local construction wood, comes out of these forests, as well as medicinal, commercial, and ornamental plant species, and hunted and commercial fauna species. A lot of wild honey also comes from these forests. Fires frequently are started when smoke is used to tranquilize the bees while extracting the honey, and is a common indirect cause of fires. Since their location coincides with the most densely human populated areas in CA, dry forests have been drastically reduced, from 747 km^2 to 64.5 km^2. That is a reduction of more than 90 percent, with catastrophic impacts in the low-lands hydrological systems, affecting mangroves and marine ecosystems, particularly coral reefs and soil fertility. Dry forests in DR have also been reduced dramatically, from 9,580 to 2,950 km^2, with similar consequences. Four dry forests occur in CA/DR, and all of them are Critically Endangered (WWF, Web):

a) Central American Dry Forests (CR)
b) Chiapas Depression Dry Forests (CR)
c) Panamanian Dry Forests (CR)
d) Hispaniolan Dry Forests (CR)

4.1.5 MANGROVE FORESTS

Mangrove forests are characterized by flora adapted to soils completely or partially flooded by salt and/or brackish water, out of which a few species of mangrove trees form the predominant stratus. Although floral diversity is relatively low (which corresponds to a "forest"), density and fauna diversity are usually very high. Due to their particular requirements, mangroves are usually found no more than few hundreds of meters from coastal tidal zones, depending on local topography and hydrography.

Mangrove forests provide invaluable environmental services, such as habitat for many local commercial species (particularly mollusks and arthropods, upon which many local livelihoods depend), nursery for both freshwater and marine fishery species, barriers against extreme weather events, natural filters for siltation, solid wastes, agrochemicals, and other pollutants coming from the inland watersheds, among others. Mangrove wood is also an appreciated construction material, due to its natural resistance to humidity and mites. Thirteen mangrove forest types or ecoregions occur in CA/DR, which originally covered an area of about 17,500 km^2, but have been reduced to almost a half (a little more than 9,000 km^2). A KI noted that participatory planning and enforcement of local

regulations have slowed the loss and degradation of mangroves in the Bay of Jiquilisco in El Salvador. At least five of the mangrove ecoregions are considered to be Critically Endangered:

a) Belizean Coast Mangroves
b) Belizean Reef Mangroves
c) Northern Honduras Mangroves
d) Tehuantepec–El Manchón Mangroves
e) Northern Dry Pacific Coast Mangroves (CR)
f) Southern Dry Pacific Coast Mangroves (CR)
g) Gulf of Fonseca Mangroves (CR)
h) Miskito Coast–Nicaraguan Caribbean Coast Mangroves
i) Río Negro–Río San Sun Mangroves (CR)
j) Moist Pacific Coast Mangroves
k) Bocas del Toro–San Bastimentos–San Blas Mangroves
l) Gulf of Panama or Panama Bight Mangroves (CR)
m) Greater Antilles or Bahamian–Antilles Mangroves

4.2 ECONOMIC IMPORTANCE OF FORESTS TO THE REGION

Table 11 indicates the forest cover and annual rate of deforestation in CA/DR countries. The total area of forest is approximately 23 million hectares. The rate of deforestation for the region as a whole is about 1.23 percent per year.

Table 11: Forest Cover and Annual Deforestation Rates

County	Total forest cover (thousand ha)[1]	Forest cover (%)[1]	Annual Deforestation Rate[2]
Belize	1,506	68	-0.68%
Costa Rica	2,913	56.8	0.90%
El Salvador	180	8.7	-1.47%
Honduras	4,047	37	-2.16%
Guatemala	4,855	43	-1.47%
Nicaragua	5,414	41.8	-2.11%
Panama	4,336	52.2	-0.36%
Dominican Republic	1,585	33	
TOTAL	23,251	44.3	-1.23%

Sources: 1 Salamanca, 2013; 2 Fuente: Banco de Datos Regional sobre Recursos Forestales, GIZ 2016.

4.2.1 VALUE OF FOREST ECOSYSTEM SERVICES

Forest ecosystems generally contribute to economies through regulating, cultural, and supporting ecosystem services. Regulating services contribute to the regional economy by helping to control the quantity, quality, and stability of water that flows out of mountainous watersheds for various productive and health-related or human consumption uses. This includes providing fresh water and nutrients that estuarine ecosystems need to produce valuable wood and seafood. CA has 126,133 km^2 of mountainous watersheds, of which 25,301 km^2, or 20 percent, lie within PAs. Data were not

available to estimate either the entire volume or economic value of water that flows out of mountainous watersheds, nor the value of water from watersheds from within PAs. Several examples, however, indicate that the contribution of water from these watersheds to the CA/DR economy is substantial.

The Panama Canal watershed provides 95 percent of the drinking water for the inhabitants of the cities of Colon, Panama, San Miguelito, and Chorrera (PCA, 2016). A disruption in the flow of goods through the Panama Canal due to lack of water would harm the U.S. economy, since 10 percent of U.S. shipping goes through the canal (GP, 2016). Each operation of the canal's locks requires between 48 and 52 million gallons of the freshwater that flows from the 2,892 km^2 of the canal's watersheds (EB, 2016). The income-generating power of the canal depends on abundant, reliable supplies of water. About 270,000 ha, or 10 percent, of the canal's 2,892,000 ha watershed lies within the National System of PAs (Condit et al., 2001), so about US$100 million, or 10 percent of the canal's yearly income, depends on reliable flows of water from PAs in the canal's watersheds. Clearly, these PAs provide regulatory ecosystem services that are vital to Panama's economy.

Hydropower in CA provides another example of the economic contribution of the regulatory ecosystem services provided by forests in the region. In 2011, CA generated an estimated 20,000 gigawatt-hours of hydropower annually, accounting for 49 percent of total electricity generation in the region. Over the next 15 years, economic growth and urbanization are expected to double the demand for electricity in CA. The CA Regional Electricity Market was made possible by the construction, at a cost of about US$730 million, of the Central American Electrical Interconnection System (SIEPAC). At a wholesale price of US$150/MV (an average world price, although a third of CA's wholesale price), CA's current hydropower production is worth about US$3 billion/year. Forests in the watersheds from which the water flows to generate this electricity clearly provide extremely economically valuable regulatory ecosystem services. The forests of the Soberanía and Chagras national parks also add tremendous value to tourists visiting the Trail of Tears and the Embera Indians, giving them a natural experience along with their cultural and historical experiences.

To fill gaps in information about the economic value of ecosystems, the UNDP Biodiversity Finance Initiative (BIOFIN) proposed a methodology that permits an estimate of the public expenditure that countries make in biodiversity and of the financial resources that are required to conserve biodiversity. This is an international project that responds to the Aichi Biodiversity Targets Nos. 17 and 20, which seek the development of Strategies of Biodiversity and Plans of Action. Costa Rica and Guatemala in Central America are participating (KI).

BIOFIN is seeking to quantify public and private expenditure in Costa Rica and Guatemala. It is calculating the cost of implementing these countries' Biodiversity Strategies and Action Plans, and estimating the gap between needed funds and actual funding. To fill these gaps, it is proposing different sources of public and private financing. With the results of the study in Guatemala, 29 financial instruments were proposed. Three of these were given priority and were further developed (KI). In Costa Rica, the study has quantified public and private expenditures on biodiversity. It has estimated the cost for implementing the Biodiversity Strategy, but has not yet calculated the gap in financing (KI).

Costa Rica and Guatemala have developed national programs for PES as a means to value ecosystem services that forests provide. Since other countries have not taken measures to start similar national programs, their PES schemes have been only local, not national. Honduras, for example, has local initiatives for PES. These programs seek to compensate forest owners for ecosystem services that their forests produce.

Costa Rica was the pioneer in Central America in the creation of the National Program for Payment of Environmental Services (PSA) in 1996, which evolved from a program of forest incentives

(Forestry Law 7575). The PSA program is financed by a percentage of a tax on gasoline, donated funds, and payments by private businesses. Since it started in July 2015, the program has provided incentives that covered 1,052,867 ha and 14,713 contracts, with an investment of US$315.7 million. Payments are made under different modalities, including forest conservation, reforestation, natural regeneration, and payment for hydraulic services (FONAFIFO, 2016). In 2011, the National Forestry Finance Fund (FONAFIFO) created the Biodiversity Fund. It seeks the sustainability PSA in the long term. Currently, the fund has more than US$20 million for the payment of environmental services, principally to owners of small properties in areas with biological corridors.

Similarly, the Forestry Incentives Program (PINFOR) was created in Guatemala in 1998. Subsequently, the Program of Incentives for Owners of Small Properties with Forest Aptitude (PINFOR) was created. These programs have protected or managed 564,177 ha from 1998 to 2014. The investment in PINFOR has been US$50.6 million (INAB, 2015). This program ended in 2016. Given its beneficial results for the sustainable management of forests and the recuperation of plantations for forest management, in 2015 the Pro Bosque Law was approved. This law provides for a program similar to PINFOR for a period of 30 years.

Other countries have enacted or participated in small–scale, voluntary initiatives since they did not have the legislation for national schemes. In Guatemala, parallel to its national scheme, the WWF, TNC, and IUCN have focused on payments for hydrologic services. They have established the Water Fund of the Sierra de las Minas. Recently, TNC has helped to establish the Fund for the Conservation of Water of the Metropolitan Zone (FONCAGUA) of Guatemala (KI). In a study of the economic value of the conservation of forests of the Guatemala City, it was estimated that the urban population was willing to pay US$7.50 per month. That amount would generate US$4.36 million for reforestation and protection in the watersheds that recharge the aquifers that supply water to the metropolitan area. Through this fund, the intention is to stimulate investment of the private sector by means of dedicated donations (IARNA-TNC, 2013).

In El Salvador, an estimate of the economic value of ecosystem services was made for the mountainous areas. It includes the value of the provision of water, firewood, avoided soil erosion, and other regulating, supporting, and cultural services. The value of the ecosystem was estimated to be in the range of US$14.2–$88.7 million (PRISMA, 2012). These results indicate that the economic value of El Salvador's mountain range has been recognized, including the benefits it provides to the local population. Willingness to pay provides a base for the establishment of a system of compensation mechanisms for ecosystem services in order to maintain the flow of these services. Such mechanisms promote a new relationship between the population and local governments for the establishment of a model of compensation for ecosystem services (PRISMA, 2012).

In the Dominican Republic, GIZ, in alliance with the Ministry of Environment, established the first PES project. They arranged for a voluntary agreement between two of the users of hydraulic resources: Corporación de Empresas Eléctrica Estatales (CDEEE) and Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN). Each corporation contributed US$63,000 per year. On the basis of a calculation of the opportunity cost to the communities of Jarabacoa, the payment for the protection of forests was estimated at US$40–$60 per hectare per year, and for agroforestry systems, at US$20–$30 per hectare per year. Establishing a national system of payment for ecosystem services was accordingly proposed (VIII Congreso de la Biodiversidad Caribeña, 2014).

These experiences indicate that recognition is growing of the economic importance of forest ecosystem services. The long-term success of economic instruments, such as PES, depends on their financing. A large part of those who use forest resources lack property titles, which excludes them from incentives such as PES and other sources of income as an alternative to activities that put

pressure on forest ecosystem resources (CCAD 2014). Few schemes have been sustainable, and many have tended to end along with the projects that financed them.

4.2.2 INDUSTRIAL WOOD

In Guatemala and Costa Rica, efforts have been made to quantify the economic value of forests through their wood production (KIs). In Guatemala, the value of wood products has increased from US$8.3 million in 2001 to US$15.8 million in 2010 (IARNA, 2010). Forests therefore contribute to about 3.2 percent of Guatemala's Gross National Product (GNP) through wood products (KI).

Table 12 indicates that between 2011 and 2014, Guatemala, Nicaragua, and Honduras exported more wood than they imported. Other countries were net importers of wood. The total commercial trade deficit for wood in these four years was a net import of US$760 million for the region. Growth of wood production in Guatemala is contributing to increased deforestation rates, which have risen from 0.8 percent in 2001 to 1 percent in 2008 (IARNA-URL-2012). Estimates also suggest that 95 percent of the wood taken from natural forests is illegal (KI).

Table 12: Commercial Trade Balance of Wood Products, 2011–2014 (Thousand US$)

Country	2011	2012	2013	2014	Total
Costa Rica	-50,740	6,840	-11,690	-8,114	-63,704
Guatemala	6,137	-63	5,759	10,098	21,931
Nicaragua	1,841	-1,964	-563	5,551	4,865
Honduras	7,700	13,031	24,037	33,973	78,741
Belize	-361	634	-4,422	-5,713	-9,862
Panama	-38,276	-45,858	-31,231	-18,380	-133,745
El Salvador	-24,268	-26,584	-28,418	-25,832	-105,102
Dominican Republic	-134,742	-121,085	-152,811	-144,421	-553,059
Total	-232,709	-175,049	-199,339	-152,838	-759,935

Source: Prepared for this report with data from the ITC map

Wood production contributes 0.5 percent of the GNP in Costa Rica (Waves Policy Brief-Costa Rica, 2015). This relatively low contribution is due in part to the emerging development of the forest industry. Costa Rica does, however, adds value to wood imported from Guatemala through additional processing, and also has stronger a policy for preserving rather than exploiting its forests.

4.2.3 FIREWOOD

In the 1970s and 1980s, the international development community paid considerable attention to issues of supplying sufficient firewood and charcoal to rural inhabitants in Central America, but currently there appear to be no firewood-related projects in Central America. Even CATIE, which led the USAID-financed Magdalena Firewood Project during the 1980s and 1990s, could provide no current or detailed data on firewood consumption in the region.

Some data were available from KIs and web sources. In Panama and Costa Rica, firewood is still used mostly by people who live in more remote rural areas. Firewood use there has declined, however, because of more urbanization, better access to electricity, and higher disposable incomes to spend on electricity and petroleum-based fuels. Firewood continues to be a principal source of energy for a large percentage of rural inhabitants in Guatemala, Honduras, El Salvador, and Nicaragua. In Guatemala, the Forestry Law permits each family to take 15 percent of their wooded areas for their

own consumption. Sixty percent of Guatemala's population lives in rural areas and uses firewood as a source of energy (KI).

In Honduras, the most recent data available indicates that about 86 percent of residential energy consumption is provided by biomass, primarily firewood. A household without access to electricity uses approximately 525 kg of firewood per year, amounting to about 11 million m^3 of firewood per year in total. The increase in demand for firewood in Honduras has been calculated to be about 3 percent annually. More efficient wood-burning stoves could reduce firewood consumption by about 70 percent and improve health, particularly for rural women, by reducing their inhalation of smoke and associated particulates. Establishing forest plantations for energy purposes is considered a national priority, along with increased efficiency of household and industrial firewood use. For such plantations, the Honduran Forestry Law provides for financial incentives. It also required that, as of 2012, wood and charcoal used by the industrial and commercial sectors must come from certified plantations, managed forests, or waste from forest industry or forestry activities (Energypedia, 2016)

In Nicaragua, residential energy consumption is around 47.6 percent of total national energy consumption. Fuelwood provides 94.4 percent of this energy (Energypedia, 2016). Little is known about the structure of the fuelwood supply chain or the impacts of urban residential fuelwood consumption on Nicaraguan forests. One study found that fuelwood supply depended on 64 tree species from natural forests, with 59 percent of that supply coming from only three of those species. The Dominican Republic consumes around 115,000 barrels of oil equivalent per day, in the form of oil products (54%) for transportation purposes, firewood (23%) mostly for residential consumption, and electricity (20%) (IDB, 2006).

4.3 FOREST MANAGEMENT STRUCTURES

4.3.1 MANAGEMENT STRUCTURES IN RURAL COMMUNITIES

The Regional Strategic Framework for Forest Ecosystem Management (PERFOR, 2008–2022) is the current framework under which CCAD responds to sustainable forest management (SFM) needs. It defines SFM as: "the process of managing a forest to meet one or several ordination objectives, clearly defined to obtain continuous production of forest products and services without reducing unnecessarily its [forests'] inherent values or future productivity, nor causing unwanted effects on the social and physical surroundings." (CCAD and CAC, 2014). PERFOR focuses on: (1) institutional strengthening for increased governability, (2) enhancing technical and business management capacities, (3) financial and economic management, and (4) harmonizing policies and promoting integration among sectors. Its application depends on the national organizations designated by SICA, under national forestry laws and other subsequent regulations (CCAD and CAC, 2014).

The greatest challenge in implementing SFM is the lack of consistency between legal frameworks and their application. Illegal logging, deforestation, and forest degradation persist because of weak national governance and poor enforcement systems. Promoting better and stronger institutions seems to be a sensible means of addressing these underlying causes of forest degradation and loss.

Countries have increasingly depended on imports to meet a rising demand for wood. This demand has been fueled by the growth of population and tourism, and by rising agricultural exports requiring wood packaging. Pastures were replaced by forests whose exploitation has been increasingly regulated Domestic wood production did not decrease in Costa Rica, and agricultural production has increased almost continuously since 1965. This has been possible through an increase in land use intensity, both in forestry and cattle rearing. Wood has been increasingly supplied from agricultural land and short-rotation melina plantations after the mid-1990s, when policies constrained extraction of wood from natural forests. Since 2002, requirements for obtaining harvest permits have increased.

Wood supply from agricultural land thus decreased, and plantations, though accounting for less than 10 percent of the total forest cover, became the main source of industrial wood. Agriculture intensification first occurred through the conversion of extensive cropland and pastures to large-scale, export-oriented, high-yielding crops (bananas, pineapples, oil palms), and then, through the intensification of cattle rearing on pastures. National-scale land use trends mask sub-national changes in land use. Sub-national scale analyses are thus crucial when evaluating national-scale forest transitions and land use policies.

The Model Forests (MF) concept provides the largest international voluntary structure for forest governance in the region. MF, developed in Canada in the early 1990s, encourages sustainable development through the collaboration of stakeholders of forest resources in a geographical area. MF is a partnership process designed to establish a forum for collaboration to solve a wide spectrum of issues related to the implementation of SFM policies. The key functions of MF are to test new ideas and develop innovations related to SFM with the goal of developing the adaptive capacity of the local social-ecological system to deal with uncertainty and change (LaPierre, 2002).

Four countries have such structures: Costa Rica (Reventazón and Chorotega) MFs, Guatemala (Los Altos and Lachúa), Honduras (Atlántida, Yoro, Sico Paulaya, and Noreste de Olancho), and the Dominican Republic (Sabana Yegua, Yaque del Norte, and Colinas Bajas) (RIBM, n.d.). The MF concept integrates forests within broader landscapes, considering their relationships with communities and the larger social systems they are part of. Although MF is an untraditional approach, it has been highly effective at promoting local participation and governance, and is increasingly important at promoting social inclusion, better land planning and management, and providing local inputs into national processes (KI). A potential international investment mechanism to strengthen governance structures does not need to be large and can produce important outcomes at the local level, which later can be aggregated nationally.

The GIZ, USAID, CATIE, and others are supporting capacity building of local communities and indigenous peoples in the region (GIZ, 2015). The Mesoamerican Alliance of Peoples and Forests (Pre Congreso Forestal Comunitario, 2013) consolidated indigenous participation in 2010. In each country, various indigenous groups participate politically in order to obtain benefits for their people and communities. For example, in Costa Rica, they seek changes to the country's PES system. In Honduras, the Miskito People have obtained ownership rights to their forest lands. In Nicaragua, indigenous peoples recovered their land access rights through their autonomous regions and now the Indigenous Territorial Governments are responsible for their natural resources management (Goff, 2015; Pre Congreso Forestal Comunitario, 2013). These processes are recent and some are still being negotiated, but promising results are expected in the medium to long run.

During the last seven years of PERFOR implementation, community involvement has increasingly become recognized as a key element for improving SFM. Strengthening internal governance and promoting the value of association/collaboration are identified as key elements that must be first promoted to secure good forest management results (Rodríguez Paniagua, 2012; Carneiro, 2015; Radachowsky et al., 2013). Nicaragua has recognized this, and the first component for its REDD+ program implementation is the creation of a governance consultation platform and governance committees. Nicaragua is the first and so far the only country in the region, to implement a participatory mechanism within its REDD+ process. Failing to do so may expose the countries to unnecessary delays. For example, Panama's REDD+ strategy faced a formal process complaint from indigenous groups. Carneiro (2015), Davis (2014), del Gatto (2013), Radachowsky et al. (2013), and Ricardo (2014) demonstrate that forest management is improved through: enhancing local control over resources, strengthening of the social capital, reducing threats to biodiversity, diversifying commercialization of forest products, and empowering local community processes to strengthen their governance over their forests.

Several mechanisms have been used to strengthen forest management programs: recognizing property rights, developing and implementing efficient management and annual harvesting plans, creation and certification of community forest enterprises, forest management and conservation incentive programs, and negotiating more favorable prices for certified timber. Panama is possibly the only country where indigenous communities and small land owners (i.e., Comarca Emberá-Wounan) have been unable to achieve successes that are similar to those achieved elsewhere in the region. The best documented initiatives are in Guatemala (Petén) and Costa Rica, although limited final evaluations of these initiatives exist. Initiatives in Belize and the Dominican Republic have the least documentation. This variability in documentation makes comparisons among countries very difficult. The role international cooperators play in promoting these initiatives is important for the long-term sustainability of these efforts. Given the key role communities play in SFM and REDD+ implementation, success stories need to be encouraged throughout in the region.

4.3.2 MANAGEMENT STRUCTURES IN FOREST INDUSTRY

The forest industry is organized with varying degrees of sophistication, and several value chains can be identified in Costa Rica, Guatemala, Honduras, and Nicaragua. Across all instances, large investments and a clear policy framework that promotes these industries seem to be the key factors for success of SFM or the industry's success. A key difference between Costa Rica and the other countries is that it fulfills its market's demands with teak and melina plantations, whereas native timber is favored elsewhere. Honduras, Guatemala, and Nicaragua suffer from low profitability of production and a limited level of product transformation (Ricardo 2014, Romero 2014). Challenges related to timber production at an industrial level are discussed when we address the Forest Stewardship Council (FSC) below.

Government-promoted incentives and PES systems promote sustainability and conservation of natural resources management across the region. All countries (except Belize, for which no information was available) recognize the potential of natural ecosystems to provide environmental services derived from forests and water bodies. Nicaragua has limited institutional capacity to make incentives work on the ground (Ministry of Agriculture and Forestry–MAGFOR, 2009). Guatemala's PINFOR policy instrument stimulates reforestation and SFM (Ricardo, 2014). The oldest and best established of these systems is Costa Rica's, where FONAFIFO promotes internal consumption of timber, SFM, reforestation, and even agroforestry systems under far-reaching policy and finance structures (Santamaría, 2015). Available evidence shows that these PES schemes do work, but not everywhere or all the time (Robledo, 2003; Mayran & Paquin, 2004; Pagiola et al., 2005; Sierra et al., 2006; Steed, 2007; Wunder et al., 2008; Walker, 2009; Daniels et al., 2010). PES should continue to be promoted, but careful consideration should be placed on where and under what circumstances it should be supported.

4.3.3 FOREST CERTIFICATION PROGRAMS

Two programs have certificated forests in CA/DR: the Forest Stewardship Council (FSC) program and Rainforest Alliance's Climate-Smart Verification (CSV) program. The CSV program has certified 11 coffee, forest tree, rubber, and agroforestry plantations (one each in Costa Rica, El Salvador, Honduras, and Guatemala; three in Nicaragua and four in Panama) with a total area of about 73,800 ha. It uses the Verified Carbon Standard (VCS), Climate, Community and Biodiversity (CCB), and Carbon-Fix standards (RA, 2016). CSV has certified no areas of natural forests.

FSC is the principal program in CA/DR for the certification of forests. It started certifying forests in CA/DR in 1990. By 2002 it had certified 425,000 ha and by 2016, 816,000 ha. This area is less than 4 percent of CA/DR's total forest area of 22,764,518 ha. Of the FSC certified hectares reported in 2010 (FSC, 2010), 597,535 ha were natural forest and 111,950 were forest tree plantations.

According to FSC (2016), Guatemala has 482,000 ha, or 59 percent, of the total FSC certified forest area, Honduras 20,000 ha, Nicaragua 24,000 ha, Costa Rica 51,000 ha, Panama 42,000 ha. The Dominican Republic and El Salvador had none reported. Approximately 85 percent of areas FSC has certified is privately owned and the remaining is community owned. Forty-two percent, or 294.580 ha, of all FSC certified area is the northern Petén of Guatemala in a number of concessions that has varied over the years; 14 at its peak (FSC, 2010). Of these, only two are concessions to industries and the remaining are to communities (KI)

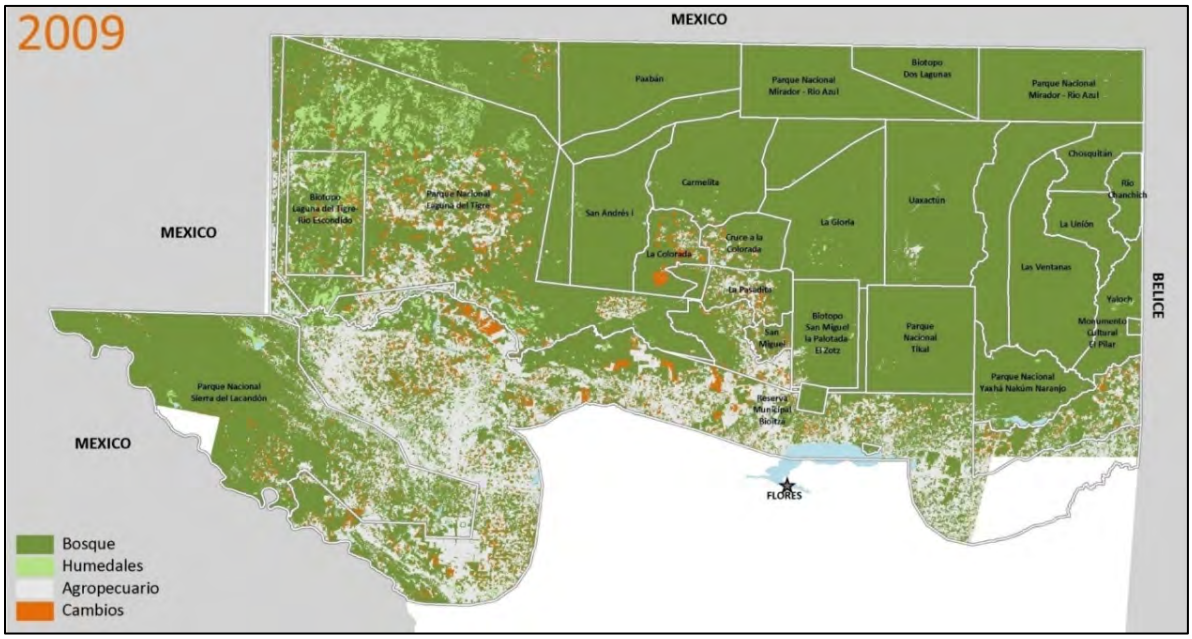
The area of FSC certified forest expanded and then contracted between 1990 and 2000 (KI). Between 2010 and 2011, the FSC certified area increased 65 percent, from 568,000 ha to 935,000 ha (FAO , 2015 and FCS ,2016). Between 2003 and 2005, it increased 31 percent, from 577,000 ha to 757,000 ha. In the other years, the area of FSC certification either remained constant, increased at a moderate rate of 5–11 percent, or decreased at a rate of 3–13 percent with respect to the previous year's area. Since 2011 the area of FSC certified forest has decreased, from 935,000 ha to 737,000 ha in 2014 and 816,000 ha in 2015 (FSC, 2016). No study has clarified the reason for these growth spurts in area with FSC certification. Key informants suggested, however, that they reflect the availability of international funding to pay for forest certification. FSC certification has been concentrated in northern Petén in part because Guatemala requires certification for concessions, but also because international donors have provided funding to finance FSC certification there (KI).

Available data indicate that, without subsidies or international funding support, the financial costs of FSC certification exceed the financial benefits for most forestland owners (FSC 2010 and KIs). Certification provides neither access to larger or more stable markets nor a significant price premium (FSC 2010) . International donors no longer provide funds for forest management certification. More comparative, quantitative analyses by regions and forest types, however, are needed to be able to draw final conclusions about the financial aspects of forest certification (Breukink et al., 2015). Yet current data indicate that area of certified forest in CA/DR is unlikely to expand and may decline (KIs).

KI's have evidence from other places (e.g., Petén in Guatemala and sites in Mexico) that building community forestry enterprise helps to strengthen local institutions and provide alternatives that make communities less vulnerable to land conversion driven by drug traffickers. In the Maya Biosphere Reserve in Guatemala, a KI found that enterprise development around certified products can be a valuable tool for reducing illegal forestry and land conversion. The certification ensures buyers that the products come from a sustainably managed area. Additionally, illegal forestry is reduced through the local management of forests by the cooperatives (Boshoven, Judy. 2014).

Figure 10 clearly shows that deforestation is almost absent where there are community and industrial forest concessions in the northern Petén. Within the Mayan Biosphere Reserve's forest concessions under certification, deforestation rates were 20 times less than in adjacent, non-certified concessions. Forest fires also decreased within concessions, from 6.5 percent of the total area in 1998 to only 0.1 percent of the area in 2007 (Hughell & Butterfield, 2008). It also shows that deforestation has continued unabated in western Petén. There Guatemala declared large national parks rather than grant forest concessions. Yet the National Council of Protected Areas (CONAP) was unable to control access to these national parks. They became open access areas, with insecure rights. Consequently, settlers cleared and burned the forest as a means of obtaining secure rights to use the land.

Figure 10: Forest Cover in and around the Mayan Biosphere Reserve in Petén, Guatemala, 2009



FSC certification, however, has contributed to the long-term viability of the Petén forest concessions. Certification provides strong evidence of rights to use a defined forest area, which helps their residents to resist invasions by migrants and agricultural enterprises who intend to clear and burn forest in order to grow agricultural crops and create pasture.

Certification also requires verifiable adherence to 10 principles. It thereby establishes and enforces technical practices that reduce the negative biological and social impacts of that unregulated and non-technical logging may cause on people and biodiversity (Auld et al., 2008; Clark & Kozar, 2011). Sound silvicultural practices required by FSC also increase regeneration of valuable tree species thus increasing the financial viability of long-term forest management relative to alternative land uses. Field observations in the FSC certified forests of northern Petén, for example, clearly indicate an abundance of regeneration of Spanish cedar and mahogany in areas where logging has occurred (KI). In the Petén concessions, certification has opened up important specialty markets, especially for instrument woods and non-forest products (e.g., xate). It has increased the commercial value of the forests, while reinforcing access rights of community management. Silvical and silvicultural research, however, are lacking to support the sustainable management of the Petén forestry concessions. Of five commercial species of trees in the community forest concessions of the Maya Biosphere Reserve, only the regeneration requirements for mahogany are fairly well understood (KI).

In conclusion, FSC certification has contributed to slowing deforestation in CA primarily by reinforcing access rights of restricted groups of people to the forest, not by increasing the commercial value of the forest.

4.4 FOREST MANAGEMENT PROJECTS

In the 1980s, 1990s and early 2000s, two large, long-term regional forestry projects promoted sustainable forest management (SFM) in CA/DR. The USAID/G-CAP Regional environmental and natural resources management project (RENARM) and FINNIDA (Finnish Ministry of Foreign Affairs) financed the Tree Crops Dissemination for Multiple Use (Madeleña) Project (KI). Through extensive field trials in all the CA countries, Madeleña established technical criteria for matching tree species

suitable for firewood and fodder to site characteristics. Finland financed the Regional Forestry Program for Central America (PROCAFOR). PROCAFOR assisted countries to adopt technical forest management practices (KI). Poole et al., (2002) identified the following lessons learned about natural forest management related to RENARM: windows of opportunity in situations presenting favorable political and economic conditions to implement NRM should be seized; local participation is key in decision-making for the design and implementation stages of NFM activities; and watershed management is central to NRM to maintain stable water flows and mitigate disasters.

Since the decision in 2005 of the UNFCCC to approve forest management as a means for reducing the emissions of carbon from deforestation and degradation, a number of internationally funded projects in CA/DR have assisted countries to be prepared to participate in REDD+ through sustainable forest management (SFM). The Regional Strategy for Forest Ecosystems Management Project (PERFOR) established principles, vision, mission, and aims for a sustainable forest development in CA for 2008–2022 (CCAD, 2014). Finland financed the Finnfor Project between 2009 and 2015. It was intended to increase the use of SFM in the Maya Biosphere Reserve of Guatemala and to increase local capacity for watershed management in the Trifinio region of Guatemala, El Salvador, and Honduras (CATIE, 2015). Between 2010 and 2015, the Rainforest Alliance and the Multilateral Investment Fund (FOMIN) financed the Forest Conservation through Certification, Markets and Strengthening Small and Medium Forest Enterprises Project in Guatemala, Honduras, and the Northern Atlantic Autonomous Region of Nicaragua (RACCN). It promoted SFM and entrepreneurship through demonstrations REDD+ eligible community forest management (RA, 2015). No process or impact evaluation of any of these projects was available, although a KI expressed his opinion that they have demonstrated successful SFM under a variety of socioecological conditions. More thorough evaluation of these projects is warranted, given the lessons that they could provide for the design of future forestry projects. From 2010 to 2013, the USAID the Community Forestry in the Darien (FCD) Program also worked to decrease the burden on natural resources in the Darien region by improving forest management planning and creating economic opportunities for local communities.

Currently, CATIE's Mesoamerican Agro Environmental Program (MAP) promotes agricultural, forestry, and agroforestry practices on farms in Nicaragua and the Trifinio region. In Honduras, the Adaptation to Climate Change of the Forest Sector Project (CLIFOR) involves local communities in managing forest concessions (KI). In Guatemala, USAID/Guatemala is funding the Rainforest Alliance to implement the Climate, Nature and Communities Project (CNCG) through 2016. CNCG strengthens the capabilities of communities in the Maya Biosphere Reserve to manage forest, market forest products, and adapt to climate change (KI). The Multilateral Investment Fund (MIF), part of the Inter-American Development Bank (IDB), is financing a five-year project, Forest Conservation through Certified Markets and Strengthening of Small and Medium Forestry Enterprises. The Rainforest Alliance is implementing the project in Guatemala, Honduras, and Nicaragua (RA, 2016).

Lessons learned from USAID's global Forest, Climate, and Communities Alliance (FCCA) implemented mostly in Honduras in the region, suggested that illegal, lucrative practices (e.g., illegal logging related to drug trafficking) are difficult to combat with law enforcement alone and that community forestry cannot compete with such higher-financial returns operations, but that forest management and local enterprise can create the social capital and resilience necessary to resist the influence of such illegal practices. USAID/Costa Rica's BOSCOSA Project to slow deforestation on the Osa Peninsula provide local residents with education and economic alternatives that contribute to the maintenance of forest cover. An evaluation of BOSCOSA suggested that forestry practices should be introduced on smaller rather than larger tracts, and that grassroots organizations should play a more prominent role in holding others accountable. ***Annex K*** contains additional details on these USAID projects and some of the lessons learned from them.

5 THREATS TO TROPICAL FORESTS AND BIOLOGICAL DIVERSITY

Following commonly accepted classifications of threats to tropical forests and biodiversity, this analysis distinguishes between direct and indirect threats. Direct threats can be defined as "proximate human activities or processes that have caused, are causing or may cause the destruction, degradation, and/or impairment of biodiversity targets and natural processes." (Salafsky *et al.*, 2008) Indirect threats are "Negative factors, including social, economic, political, institutional, or cultural factors that contribute to the occurrence or persistence of direct threats." (USAID 2014a)

5.1 DIRECT THREATS

Five categories of direct threats to biodiversity and tropical forests are generally recognized: (1) loss or degradation of natural habitat, (2) contamination or pollution, (3) over-exploitation, (4) invasive species, and (5) climate change. Based on a literature review, interviews with KIs, and site visits, 42 specific threats to CA/DR's PAs and biodiversity and tropical forests were identified. Direct threats interact synergistically, and at the fine scale are not mutually exclusive, usually related through common stressors (Wong, 2011).

Figure 11, ***Figure 12***, and ***Figure 13*** present the main threats affecting CA/DR's terrestrial, freshwater and marine ecosystems within the five categories of threats, respectively. A database was built by the team, which counted the occurrence of each threat in all 59 ecoregions and most PAs (847 of them). These data are available in ***Annex O*** on Ecoregions Occurrence and Status and ***Annex P*** with the Natural Protected Areas Database (both available in a separate Excel file also). **Figure 14**, ***Figure 15***, and ***Figure 16*** show the number of threats occurring in each terrestrial, freshwater and marine ecoregion on regional maps, respectively.

Based on these databases, there are four main specific threats to terrestrial and freshwater ecosystems. These are logging (including firewood and charcoal), cattle grazing, agriculture, and urban expansion/human settlements. Other important threats include road construction and improvement, land usurpation, lack of forest management practices and uncontrolled hunting, poaching, recurrent fires, and tourism developments.

Freshwater ecoregions generally have a higher number of threats. These ecoregions are not only directly impacted by the construction of dams and droughts but also by watershed runoff threats that include inadequate agricultural and ranching practices, mining, untreated sewage and solid wastes from populated areas, among others. The most common threats to marine ecosystems are pollution from industrial sources, siltation, solid waste (particularly plastics), tourism development, overfishing, untreated sewage, agrochemicals runoff from fields, invasive species, and dredge-and-fill operations.

Figure 11: Main Direct Threats to Terrestrial Ecosystems/PAs

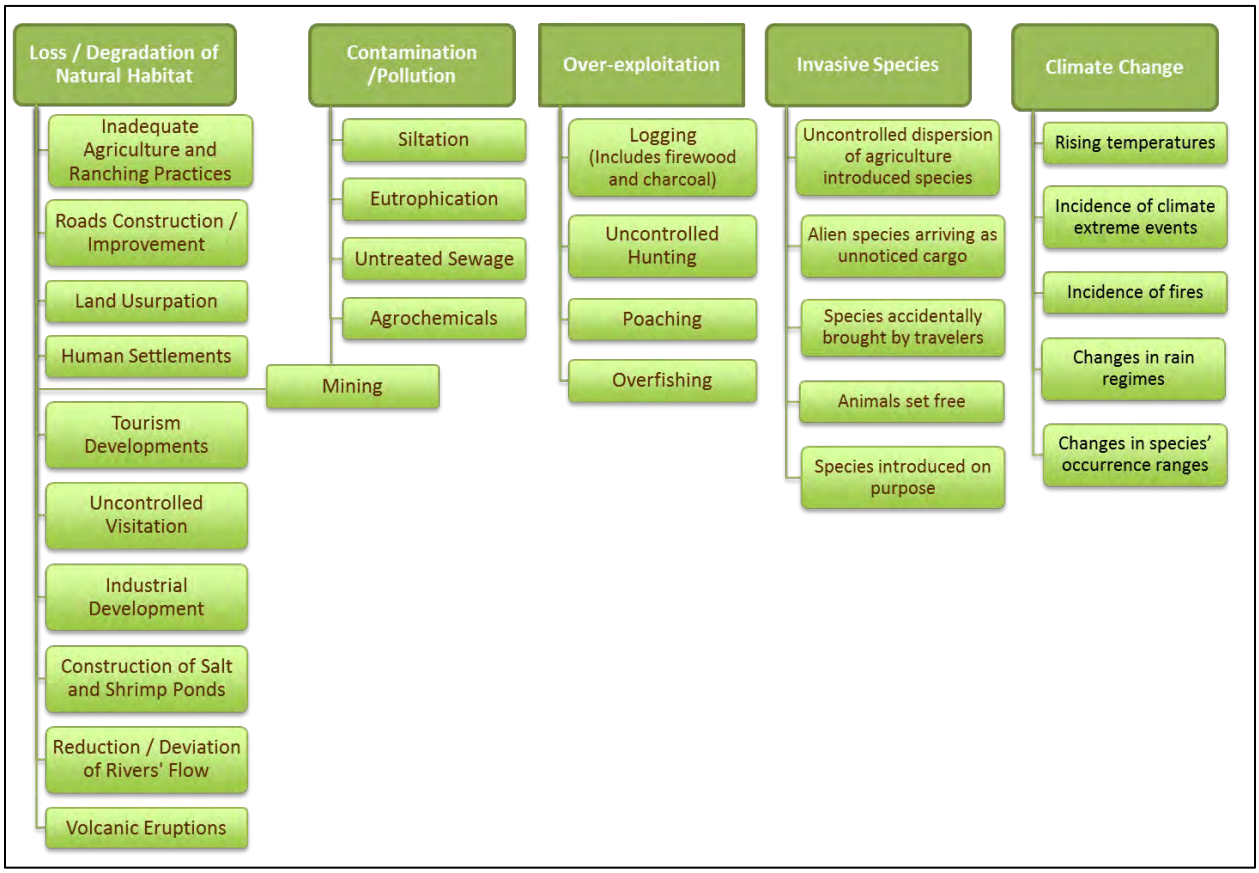


Figure 12: Main Direct Threats to Freshwater Ecosystems/PAs

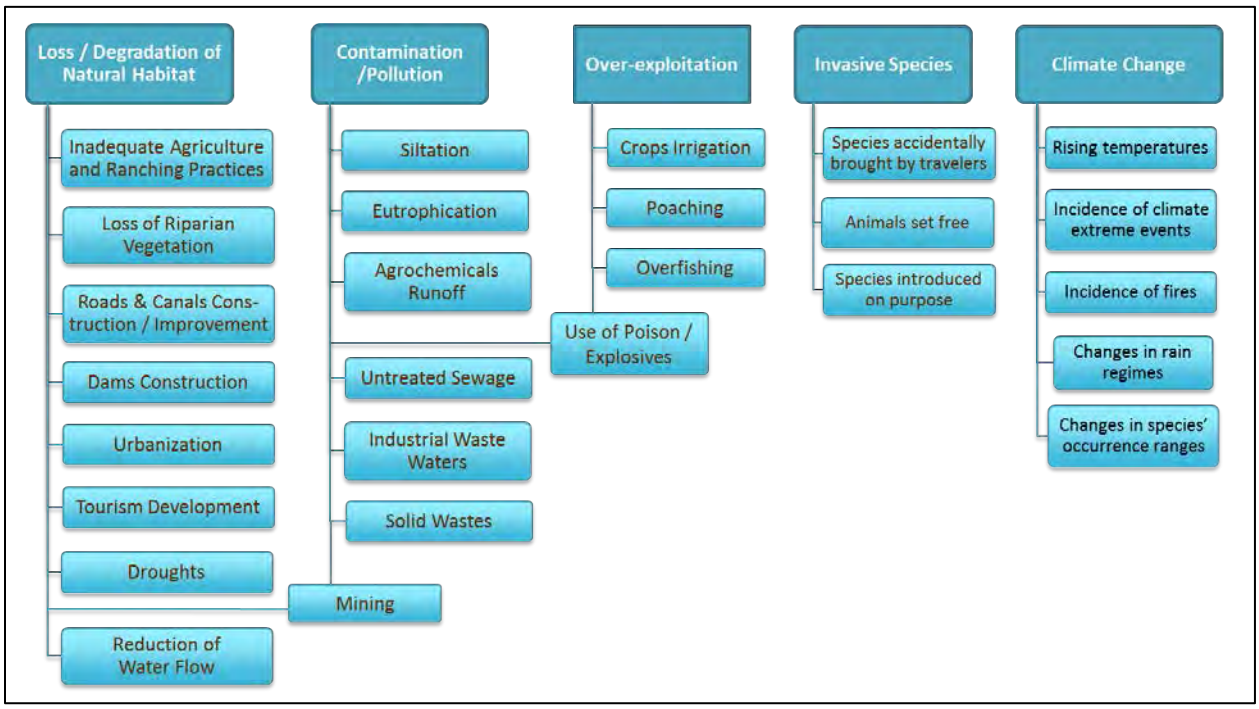
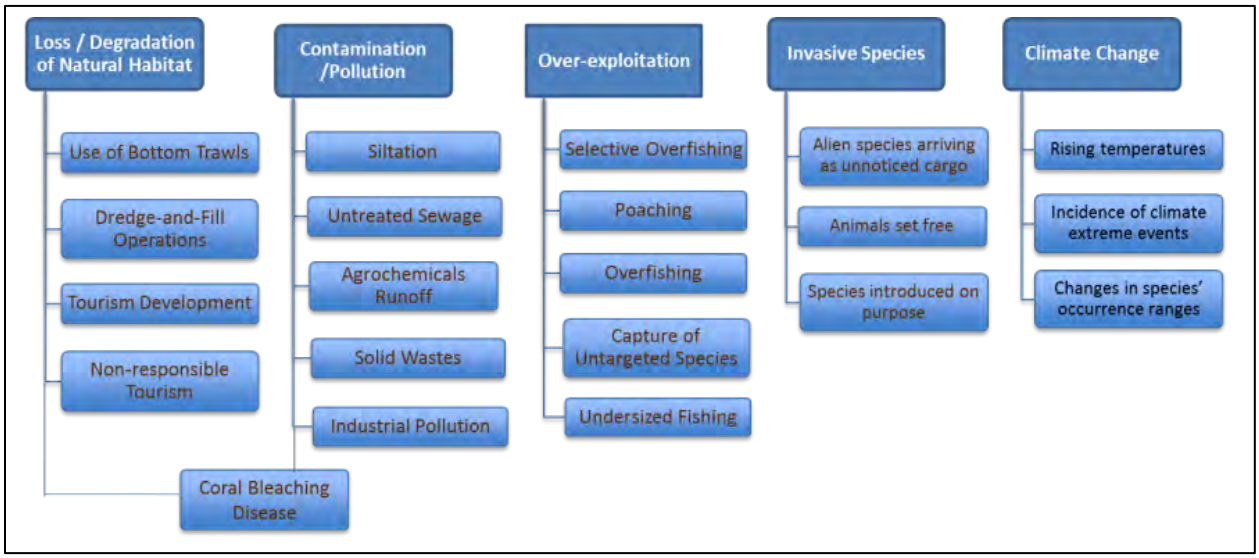


Figure 13: Main Direct Threats to Marine Ecosystems/PAs



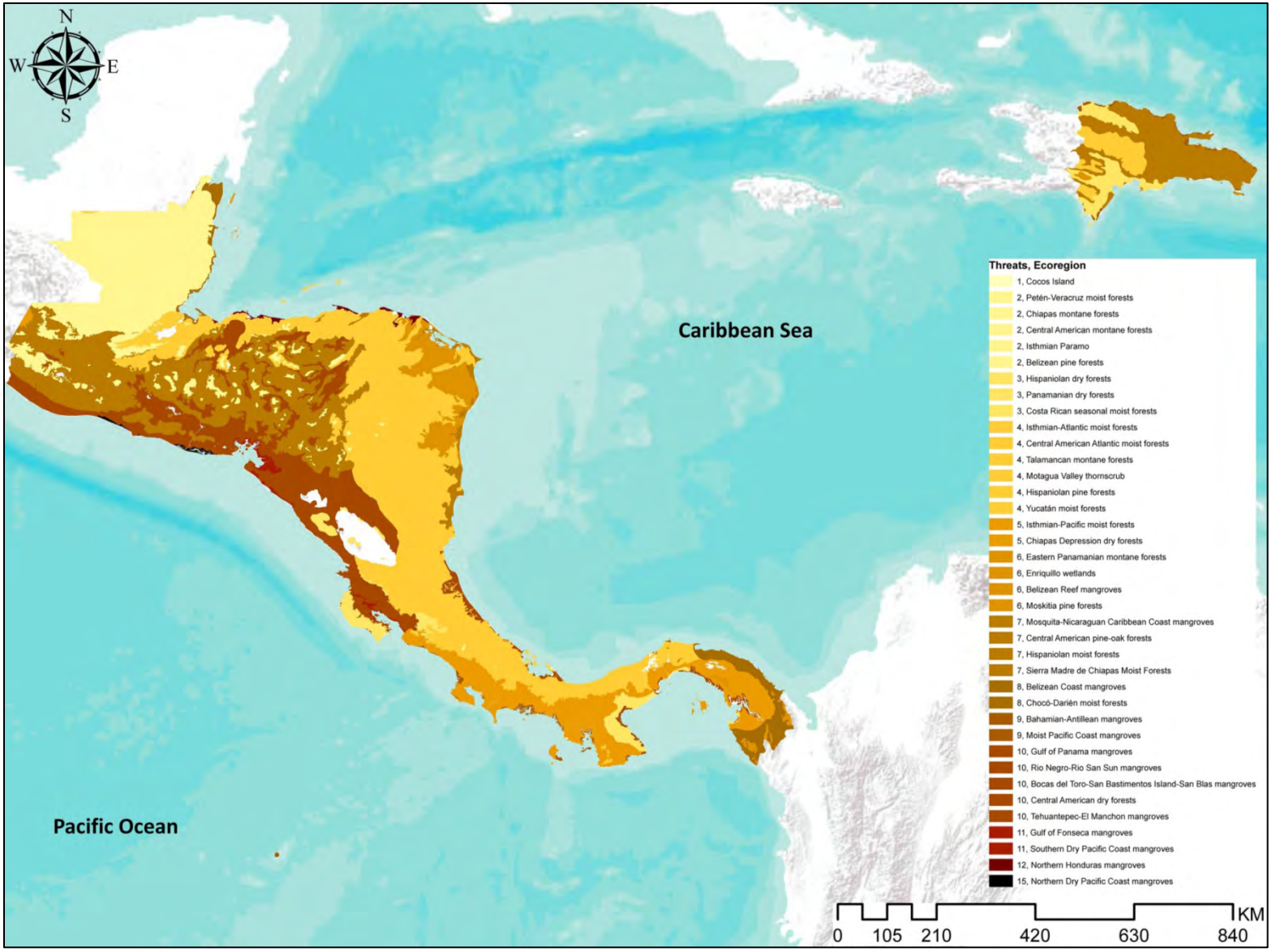
As can be seen in ***Table 18*** (in ***Annex O***), mangroves are in general the most threatened terrestrial ecoregions[9]. The Northern Dry Pacific Coast Mangroves is the terrestrial ecoregion with the highest number of threats (15). Other highly threatened ecoregions include the Northern Honduras Mangroves (12 threats); Gulf of Fonseca and Southern Dry Pacific Coast Mangroves (11 threats each); and Tehuantepec–El Manchón, Río Negro–Río San Sun, Bocas del Toro–San Blas and Gulf of Panama Mangroves (10 threats each).

In freshwater ecoregions, the Chiapas–Fonseca ecoregion is affected with the highest number of threats (19), followed by the Mosquitia ecoregion (16), and the Estero Real–Tempisque and San Juan ecoregions (14 threats each). Two of these ecoregions: The Chiapas–Fonseca and the San Juan (Nicaragua–Costa Rica) ecoregions are in a geographic area with the highest human population density, as well as urban and industrial development. The other two: The Mosquitia and Estero Real – Tempisque correspond to rapidly deteriorating areas that are affected by high deforestation and agricultural expansion rates. The Tropical Northwestern Atlantic and the Tropical East Pacific marine biomes both have a similar number of threats (14 and 13, respectively). The Western Caribbean ecoregion has 10 of the 14 threats identified in its corresponding biome, and the Chiapas-Nicaragua ecoregion has 13 of the 13 threats identified in its biome. See ***Figure 14*** below, and ***Figure 24*** in ***Annex D***.

Geographic areas showing the most threats are, in general, the coastal lowlands of the whole region (especially mangrove areas), and particularly the northern Pacific Coast from Guatemala through El Salvador and south Honduras to northwestern Nicaragua. This zone with the most threats occurring, then extends up both sides of the Honduras–Nicaragua border into the Río Plátano–Bosawas Biosphere Reserve, to the Miskito Coast, and finally along the Nicaraguan Coast to the south.

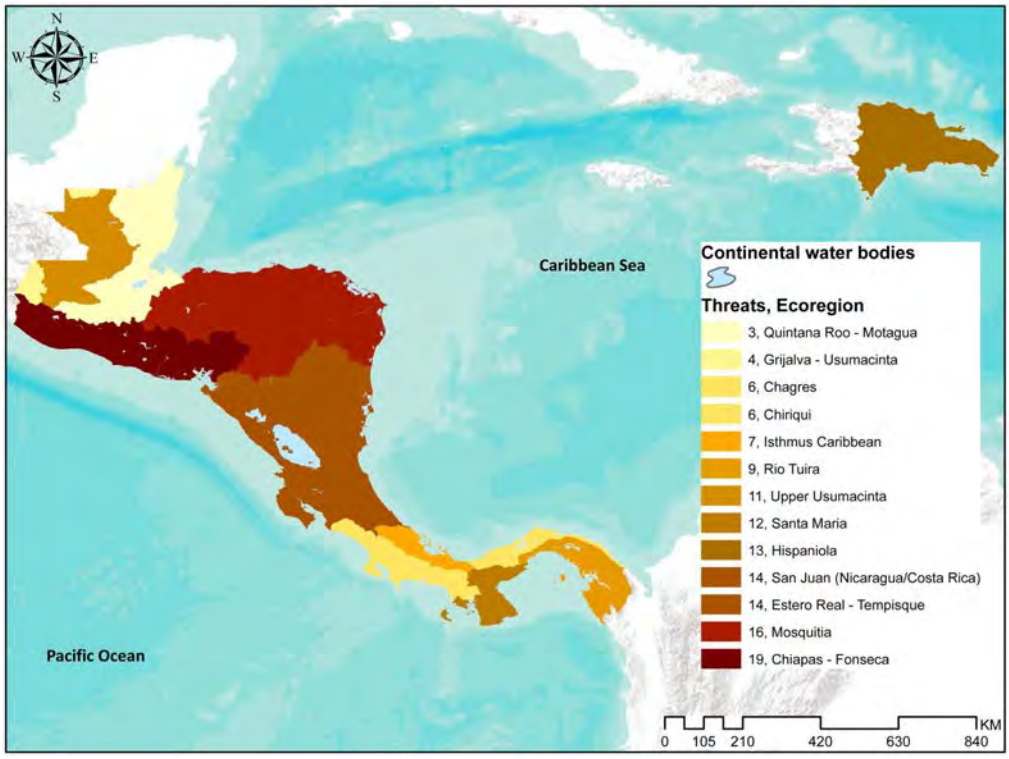
[9] Mangroves are consider a terrestrial biome by the Olson et al., (2001) international ecoregions classification system

Figure 14: Occurrence of Threats within Terrestrial Ecoregions



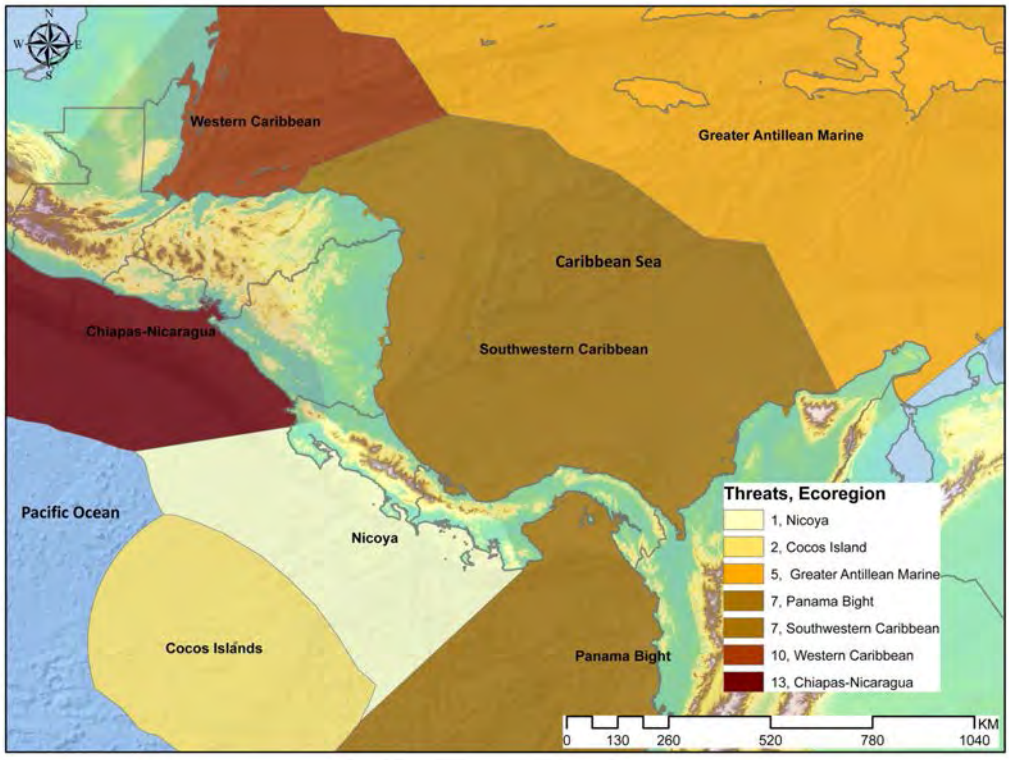
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016)

Figure 15: Occurrence of Threats within Freshwater Ecoregions



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016)

Figure 16: Occurrence of Threats within Marine Ecoregions



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016)

Although the number of threats to the Petén–Veracruz and Isthmian–Atlantic Moist Forests ecoregions are relatively low (2 and 4 threats, respectively), some of their corresponding geographic areas, the Petén Maya Reserve in Guatemala and the Chocó–Darién in Panama, have high deforestation rates (see also ***Figure 10*** and ***Figure 17***) and should thus be considered highly threatened.

5.1.1 HABITAT LOSS, FRAGMENTATION AND DEGRADATION

Habit loss, fragmentation and degradation cause the number and diversity of species in a particular habitat to decline. Their effects are particularly severe on species that have restricted ranges. Taxa respond differently to habitat loss and degradation. The residual or altered habitat that follows habitat loss, fragmentation and degradation will have a different type and degree of biodiversity. A secondary forest that may regenerate after the original forest has been degraded or eliminated may never match the original forest in species richness and composition.

Scientific evidence is missing to understand the exact effect of deforestation on water flow and quality, the effect of forest fires on biodiversity, the complex interactions between forest flora and fauna, and the return of biodiversity to secondary forests (Morris, 2010). Little is known about the life cycles and reproductive requirements of many commercial species of marine organisms, including well-known fish species, as well as more new commercial species such as jellyfish, sea cucumbers, and sea urchins (Kernan et al., 2014). McKinney et al. (2009) say, "Spatial scale is now considered critical for biodiversity, both to provide essential habitat and to protect multiple species.

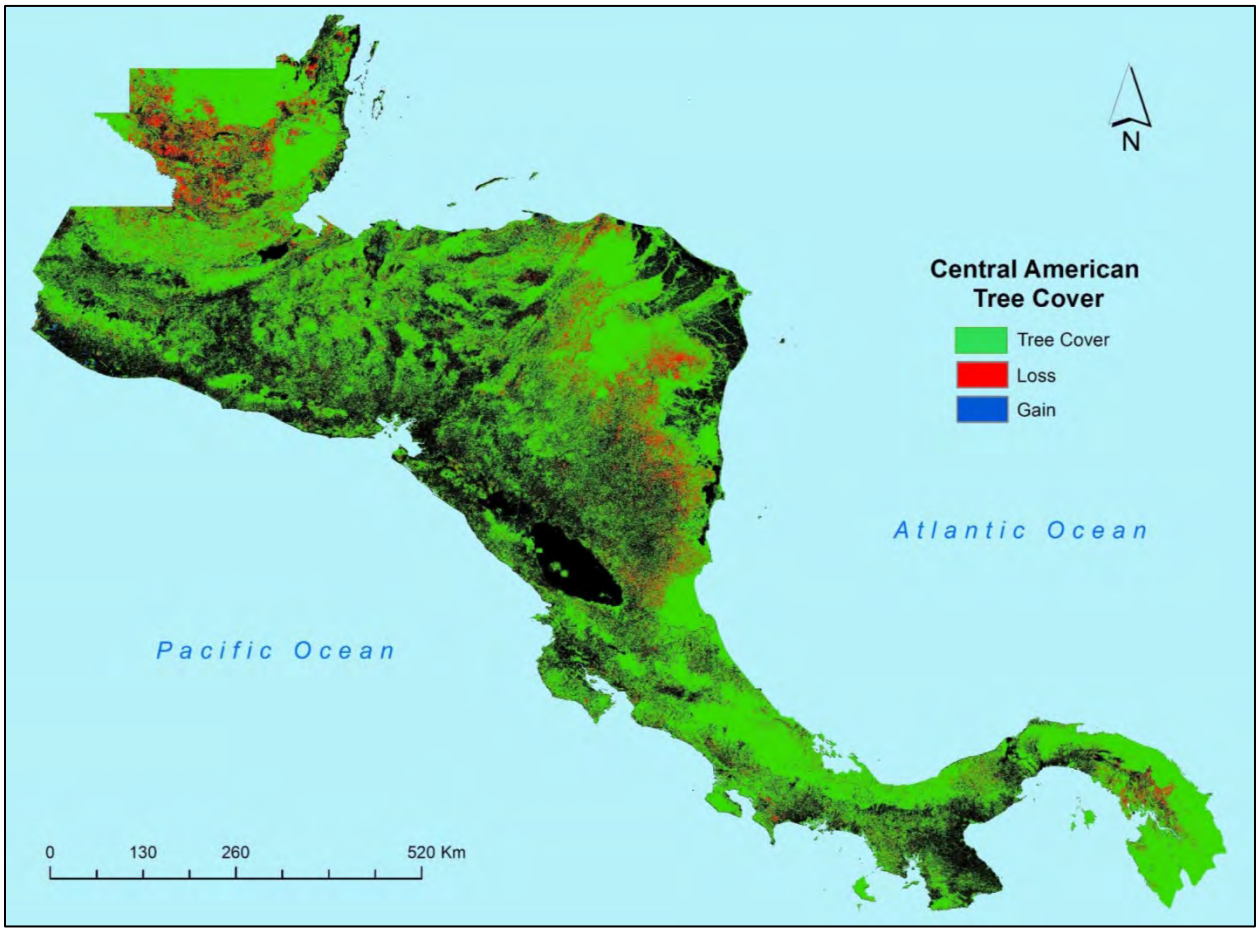
Wildlife and plant species inhabit geographies of different sizes and shapes, none of which conform to the boundaries of legal and political jurisdictions. For many threatened or endangered species, particularly megafauna and migratory birds, the range required for viable populations is very large, and almost always includes parts or all of several adjacent political jurisdictions." For example, if only small patches of primary forest habitat are left on a landscape, they may be too small for some species to persist. The patches of habitat may also be too dispersed to permit species to move between them. An extended process of loss of the residual diversity from the remaining habitat may then occur and may result in the extinction of some species as their genetic base becomes too narrow for them to survive. The edge effects of fragments of habitat may also affect species richness and composition (Morris, 2010). Climate change adds another factor that makes conservation across large-scale landscapes a requirement for conservation of biodiversity.

Eighteen specific threats were identified that cause habitat loss and degradation in CA/DR's ecosystems/ecoregions, 11 of which occur in terrestrial systems, nine in freshwater, and five in marine systems. Some threats like tourism development affect multiple ecosystems in all three environments, while others, like coral bleaching disease, are specific for a given environment and a specific ecoregion (e.g., in the Western Caribbean marine ecoregion). Mining is an example of a specific threat that can be considered both a habitat loss and degradation threat, as well as a contaminant threat.

All the USAID country-specific reports on tropical forests and biodiversity identify habitat loss, fragmentation and degradation as a principal threat to biodiversity and forests. In the region, deforestation to accommodate agriculture and cattle are the most widespread habitat-degrading threats, affecting all freshwater and 27 out of 39 terrestrial ecoregions, as well as more than 80 percent of all PAs. Expansion of infrastructure and urbanization is the third most common threat to habitat loss and degradation, affecting 12 out of 13 freshwater and 22 out of 39 terrestrial ecoregions, and present in more than half of all PAs.

Figure 17 indicates areas in terrestrial Central America where habitat loss and degradation is occurring most aggressively due to loss of tree cover. These are in northern Guatemala, along the western part of the northern Honduras coast, in eastern Nicaragua and in the Darien region of Panama.

Figure 17: Central American Tree Cover Loss (2000 - 2014)



Source: Prepared by ECODIT for USAID/CAM under this Analysis using Hansen/UMD/Google/USGS/NASA

Table 13 (see ***Annex F*** for more details) indicates that public solicitations for a total value of just under $8 billion of road construction projects were advertised in Central America during 2015. Although it was not possible to determine if this is a typical annual value of road construction and improvement projects in Central America, this large amount in 2015 does suggest that large scale of investment in road construction and improvement is occurring in Central America.

When roads are built into formerly inaccessible areas they make the ecoregions through which they pass through or near, more accessible and therefore more attractive for small and large-scale investments, and for clearing forest to establish agricultural or cattle production. ***Figure 18*** clearly shows how the construction of a road through the middle of the Darien region of Panama has resulted in the clearing of natural vegetation.

Figure 18: Deforestation Associated with Road Construction in the Darien Region of Panama

Source NN, 2016

Other types of infrastructure construction threaten the forests and biodiversity of Central America's terrestrial and freshwater ecoregions less than roads. The only reference that could be found to a pipeline project in Central America is dated January 2014 and concerns pipeline from Mexico to Guatemala (CADb, 2014). Hydropower projects often are located in mountainous terrain where their access roads and reservoirs could cause loss of natural vegetation. Their dams or diversions degrade freshwater bioregions. ***Table 13*** lists some of the major hydropower projects being planned in Honduras, El Salvador, Nicaragua and Costa Rica, but many hydroelectric projects are underway also in Guatemala (KI). KIs in Honduras noted that hydroelectric plants on the northern coast of Honduras pose a threat to natural habitats.

Table 13: Major Hydropower Projects in Central America

NAME	COUNTRY/LOCATION	MW
OXEC II	Guatemala/Alta Verapaz Department	45
El Tablón	Honduras/Chamelecón river	20
El Cimarrón	El Salvador/Lempa River	NA
El Chaparral	El Salvador/San Miguel, Torola river	300
Tumarín	Nicaragua/Matagalpa river, RAAS	250
Torito	Costa Rica/Turrialba province	51
El Diquís	Costa Rica/Río General Superior	650

Sources: www.prensalibre.gt, www.latribuna.hn, www.centralamericadata.com

Canals also cause loss and degradation of ecoregions along and to the sides of their routes. There is only one canal in Central America, the Panama Canal, built over 100 years ago. It initially caused devastation of natural vegetation, but currently its need for water has been the impetus for protecting its watersheds. The EIA for the Panama Canal's expansion identified 40 negative and five positive impacts during the construction phase and 34 negative and nine positive impacts during the operation phase, but only two of them were rated significant (URS 2007).

In 2012, Nicaragua approved the proposal of the Hong King Nicaragua Canal Development Group (HKND Group) to build a cross-isthmus canal. ***Figure 19*** shows its route of 276 km from Punta Gorda on the Caribbean Coast, across Lake Cocibolca to Brito on the Pacific Coast (IPS, 2015). The EIA for the project determined that massive deforestation is occurring in the protected areas along the proposed route. It concluded that the canal would have a net positive impact on biodiversity only if it

provided the means to stop this deforestation and preserve and/or rehabilitate the natural vegetation of the Indio Maiz Biological Reserve, the Mesoamerican Biological Corridor between Indio Maiz and Bluefields and the Punta Gorda Nature Reserve (ERM 2016).

Figure 19: Location Map of Proposed Nicaragua Canal

Source: http://worldmaritimenews.com/

5.1.2 CONTAMINATION AND POLLUTION

KIs believe contamination and pollution affect aquatic (marine and freshwater) more than terrestrial biodiversity. Runoff carries contaminants and pollutants found across watersheds, to rivers, water bodies, and often ultimately to the ocean. Dissolving and dispersing throughout water, organisms far from the source of pollution source are affected, even if such pollutants are normally considered low-reaction contaminants when found on land (e.g., nano-plastics). In coastal areas, for example, an increase in nitrogen and phosphorus in the water can stimulate the growth and reproduction of algae that can colonize coral reefs, affecting their health and making them more susceptible to the effects of warmer or more acidic water, aggressive introduced species, or increase in sea level. An increase in sediments in fresh and saltwater ecosystems often associated with deforestation or agricultural practices in the watersheds of rivers, can impede the penetration of light, thereby affecting complex photosynthetic processes. Sediment can also smother sessile organisms, weakening them and making them less able to reproduce and less resistant to such other threats as contamination or over-exploitation (Morris, 2010).

Siltation is the most prevalent of the nine contamination/pollution-related threats. It was identified in 11 out of 13 freshwater, four out of seven marine, and 13 out of 39 terrestrial ecoregions (including 12 mangrove ecoregions), as well as in more than 70% of all freshwater and marine PAs. The presence and runoff of agrochemicals from crop fields is the second most prevalent contamination and pollution threat, affecting 11 out of 13 freshwater, three out of seven marine, and 11 out of 39 terrestrial ecoregions (including 11 mangrove ecoregions), as well as almost 70% of all freshwater and marine PA's. Eutrophication is the third most prevalent threat to freshwater and aquatic habitats associated with terrestrial ecosystems. This is influenced by factors such as erosion/siltation, the presence of some agrochemicals (fertilizers), untreated sewage, and industrial waste waters (such as the ones produce by coffee or sugar cane processing) affecting eight out of 13 freshwater and 12 out of 39 terrestrial ecoregions (including 11 mangrove ecoregions). In marine ecosystems, the most prevalent threats were industrial pollution (from ships and harbor operations and maintenance, as well as from spills) and solid wastes (particularly plastics carried by rivers). These affect five out of seven marine ecoregions, and more than 80 percent of all marine PAs.

5.1.3 OVER-EXPLOITATION

Over-exploitation affects individual species and can cause a species to become locally or even globally extinct (Morris, 2010). Big-leaf mahogany (*Sweitenia macrophylum*), for example, has become locally extinct in some parts of eastern Nicaragua due to exploitation of all the mahogany of seed-bearing age (KI). In some parts of Central America, Chamaedorea palms (*xaté*), whose leaves are harvested for the floricultural industry, have become locally extinct (Morris, 2010). Fishermen on the Pacific and Atlantic coasts of Honduras and Nicaragua have noted drastic decreases in their catch of commercial fish species and blame it on excessive exploitation (KI).

Logging (including firewood and charcoal) is identified as the greatest over-exploitation threat in CA/DR terrestrial ecosystems. It occurs in 26 out of 39 ecoregions, and affects more than 80 percent of all PAs. Logging also affects freshwater ecosystems, since it may directly diminishes or eliminates riparian vegetation, and indirectly increases erosion/siltation. Logging is one of the main factors contributing to regional deforestation (along with agriculture/cattle expansion and forest fires), and can be relatively easy identified with particular geographic areas (see ***Figure 17***). Uncontrolled hunting and poaching are significant threats in at least 11 of the terrestrial ecoregions, as well as in more than 30 percent of PAs. The unsustainable use of water, particularly for the irrigation of crops, is the biggest threat to fresh- and brackish-water ecosystems (including all mangrove ecoregions), and in seven out of 13 freshwater ecoregions, and affecting close to 15 percent of all PAs in the region. In marine ecosystems and PAs, overfishing in general and selective overfishing of particularly targeted species are the most significant over-exploitation threats. These threats combined are present in five out of seven ecoregions, and more than half of marine PAs.

5.1.4 INVASIVE SPECIES

Invasive species are non-native species that have become established outside their natural range and that aggressively compete against native species for habitat and other resource. These species can cause extinctions, alter abiotic environments, become pests, or introduce diseases. They can reduce the numbers of and cause extinction of native species if they out-compete them for the same habitat. Correlations between the dominance of invasive species and the decline of native species in degraded habitats provide much of the evidence for the detrimental effects of invasive species. It is not always clear, however, if the invasive species is driving the decline of the native species or if the decline is caused by the degradation of the habitat. Changes to an ecosystem may cause a small number of widespread, aggressive invasive species to dominate it, often when that ecosystem has been drastically changed by humans (Morris, 2010). The grass that dominates parts of Panama's canal zone is an example of such a process of biotic hominization by invasive species of plants. Invasive species can come to dominate disturbed or open tropical forest areas, making their recovery to original conditions unlikely (Morris, 2010).

Five individual threats were identified in relation to invasive species, but no adequate information was found to analyze the individual threats associated with their occurrence. However, the presence of invasive species in CA/DR has been documented as a threat to biodiversity in six out of 13 freshwater ecoregions, three out of seven marine ecoregions, and three out of 39 terrestrial ecoregions, and is believed to affect more than half of all marine PAs, but less than one percent of terrestrial PAs. The low number of terrestrial ecoregions and PA's reported to have problems with invasive species is probably more a result of the lack of pertinent studies, than the absence of alien species in such systems.

5.1.5 CLIMATE CHANGE

Morris (2010) says that climate change (CC) is expected to rival land-use change as the most important impact on tropical forest biodiversity. Many studies have shown that climate change causes range shifts

to higher latitudes and elevations, as species expand into areas that become climatically suitable and contract from areas that become too warm (Wilson et al., 2007). Additionally, climate warming affects the phenology of species, leading to potential mismatches between interacting species—for example, between pollinators and plants (Stenseth & Mysterud, 2002).

Climate change will also indirectly affect species by reducing the amount and availability of habitat, and by eliminating species that are essential to the species in question. Climate change is likely to have a particularly significant impact on tropical ectotherms, even taking into account behavioral thermoregulation, because these ectotherms are relatively sensitive to temperature change and are living very close to their optimal temperature (Deutsch et al., 2008; Huey et al., 2009; Kearney et al., 2009). The decline in amphibian populations in the neotropical montane forests, notably golden toads (*Bufo periglenes*), has been linked to changing climate (Pounds, 2001). Also, in central Panama, a change in climate in the form of a 25-year drying trend combined with increasingly severe dry seasons, has led to a decline in the abundance of plant species with affinities for moist microhabitats (Condit et al., 1996). However, it is difficult to make a causal link between climate change and changes in species richness because of the many other variables involved.

Up to five CC-related threats were identified but not enough information was found in order to analyze these individual threats within particular ecoregions and PAs. The five identified threats apply to terrestrial and freshwater ecoregions, while only three apply to marine ecoregions. These are rising temperatures, incidence of climate extreme events, incidence of fires (terrestrial and freshwater only), changes in rain regimes (terrestrial only), and changes in species' occurrence ranges as shown in ***Figure 11***, ***Figure 12***, and ***Figure 13***. Although it has been theorized that these threats will have or are having an impact on biodiversity, little scientific data is available to properly understand the impacts of these threats. A possible example of the impacts of this threat is the apparent decrease and possible disappearance of amphibian species, particularly frogs, in moist and montane forests of CA/DR. It is anticipated that CC-related threats associated with marine, coastal, and high-elevation ecosystems are most likely to identify initial impacts.

5.2 INDIRECT THREATS

A driver, or indirect threat, is the ultimate factor, usually social, economic, political, institutional, or cultural, that enables or otherwise adds to the occurrence or persistence of one or more threats (USAID, 2014a). The principal drivers of the five direct threats to biodiversity and tropical forests in CA are the following: (1) population growth, (2) urbanization, (3) poverty, and (4) insecurity and corruption in the management of forest and marine systems.

5.2.1 POPULATION GROWTH

Table 14 shows the total population of the CA/DR countries in 2015 and their projected population, as well as projected absolute increase and percentage increase in population until 2019.

The total population of CA/DR in 2015 was 56,251,000. By 2019, the population will increase to 59,32,000, an increase of 3,081,000, or 5.5 percent in only five years. The additional 3 million people will need food, housing, water, energy, transportation, health care, and jobs. In 2013, for example, 38 percent of final energy consumption in Central America came from firewood (Dolezal, 2013). If firewood were to make the same percentage contribution to energy in 2019, then the use of firewood will increase by 5.5 percent. According to Dolezal (2013), "the region pays an enormous socioeconomic price for its reliance on fuelwood" largely through the degradation its use is causing on natural ecosystems and human health. The socioeconomic cost will rise even higher if firewood consumption has increased by 5.5 percent in 2019. The additional 3 million people will exert similar demands on

other natural resources. These demands frequently will be the indirect causes of one or more of the direct threats to biodiversity and tropical forests described in ***Section 4***.

Table 14: Demographic Statistics for CA/DR Countries

Country	Total Population		Increase	% Increase
	2015	2019		
Belize	359,000	390,000	31,000	8.6
Costa Rica	4,808,000	4,999,000	191,000	4.0
Dominican Republic	10,528,000	10,996,000	468,000	4.4
El Salvador	6,127,000	6,210,000	83,000	1.4
Guatemala	16,343,000	17,677,000	1,334,000	8.2
Honduras	8,075,000	8,536,000	461,000	5.7
Nicaragua	6,082,000	6,352,000	270,000	4.4
Panama	3,929,000	4,172,000	243,000	6.2
TOTAL	56,251,000	59,332,000	3,081,000	5.5

Source: WB, 2016

ROLE OF SCIENCE, TECHNOLOGY, AND EDUCATION

Improved technology may permit the production of forest and marine system products to satisfy increased demand without degrading biodiversity and tropical forests. Eucalyptus hybrids, for example, produce more than 50 m3 of firewood/ha/yr. compared to a natural forests' 2 m3/ha/yr., so they permit about 25 times more wood to be grown on the same hectare of land instead of expanding the area of forest exploitation by 25 times. No-till agriculture increases agricultural yields over till agriculture with less soil erosion. Renewable energy technologies can replace firewood, reducing degradation of natural forest, while increasing human health and labor (Dolezal, 2015). Indeed, economic growth in modern societies depends more on science, technology, and education than on exploitation of natural resources. Of course, potential negative environmental impacts of new technologies need to be assessed and avoided or mitigated. To conserve CA's tropical forests and biodiversity, therefore, requires that new, improved technologies for managing all aspects of ecosystem services, including their "provisioning" aspects, be constantly developed, tested, and applied. It also requires that sufficient numbers of scientists, professionals, and technicians in the wide range of professions that are related to conservation of tropical forests and biodiversity be educated. KIs indicated that CA/DR may not be educating sufficient numbers of conservation professionals. One noted that many current conservation professionals have been educated as biologists and agronomists, not as foresters, soil conservationists, watershed managers, or conservation biologists.

5.2.2 URBANIZATION

The data in ***Table 15*** indicate the CA/DR countries have become highly urbanized. The Dominican Republic has the highest percent of urban population (79%), followed by Panama (75%), Costa Rica (77%), and El Salvador (67%). The urban percentages of the populations of Nicaragua (59%), Honduras (55%) and Guatemala (52%) are somewhat lower. Although Belize's urban population is comparatively low (44%), it is still a large percentage of the total population and is concentrated in one large city, Belize City. The urban population, moreover, is growing faster than the overall population. The urban populations of Guatemala and Honduras are growing by more than 3 percent per year, while the countries' overall populations are growing at less than 2 percent per year. The urban populations of Costa Rica, the Dominican Republic, and Panama are all growing at more than 2 percent per year, while

the countries' national populations are growing at less than 2 percent per year. The urban populations of El Salvador, Nicaragua, and Belize are projected to grow at less than 2 percent per year, but still are growing faster than the countries' overall populations.

Table 15: Growth in Urban Populations in CA/DR Countries 2015–2019

Country	Urban Population		Increase	% Increase
	2015	2019		
Belize	158,000	170,000	12,000	7.6
Costa Rica	3,693,000	3,996,000	303,000	8.2
Dominican Republic	8,315,000	9,028,000	713,000	8.6
El Salvador	4,088,000	4,255,000	167,000	4.1
Guatemala	8,428,000	9,443,000	1,015,000	12.0
Honduras	4,419,000	4,867,000	448,000	10.1
Nicaragua	3,575,000	3,819,000	244,000	6.8
Panama	2,616,000	2,829,000	213,000	8.1
TOTAL	35,292,000	38,407,000	3,115,000	8.8

Source: WB, 2016

Cities, especially ones with multi-million inhabitants, draw on the landscapes that surround them for the natural resources they require to function. Cities require an abundant, reliable, and uncontaminated supply of water for drinking, industry, control of fire, and irrigation of plants. As they draw down their aquifers, they generally begin to pipe in water from nearby or far-off watersheds. Cities also demand such raw materials and agricultural and livestock products made in rural areas as wood, charcoal, petroleum, natural gas, fibers, foods, meat, milk, flowers, seeds, wild game, and marine organisms. As inhabitants of urban areas become richer, they demand and consume more of these products.

Because they concentrate people and materials, urban areas also expel large quantities of liquid and solid wastes. If the water is not treated, and the solid waste is not disposed of in technically designed and operated sanitary landfills, then these wastes can cause contamination not only of the city's environment but of distant ecosystems. In Guatemala, for example, the Motagua River carries vast quantities of solid waste, largely plastic, and liquid waste to the Gulf of Honduras, 295 km to the east. There, it contaminates the gulf's waters, affecting the life cycles and growth of many types of marine organisms, including commercial species of fish (KI). Thus, increased urbanization of the population is an indirect driver of the direct threats to biodiversity and tropical forests.

5.2.3 POVERTY

Table 16 indicates some economic statistics for the Central American countries. It shows that in 2015, large percentages of the populations of all countries were living in poverty. The highest poverty rate, 60 percent, was in Honduras. Guatemala followed with a poverty rate of 54 percent. Belize, the Dominican Republic, and Nicaragua all had poverty rates above 40 percent. The countries with lowest poverty rates were El Salvador (31%), Panama (26%), and Costa Rica (25%). The GINI Index indicates a skewed concentration of wealth in all the countries, although the two poorest countries, Guatemala and Honduras, have the most unequal distribution of wealth. The unemployment rate for 2015 was not particularly high. The range of GDP/capita varied considerably from lows of US$5,000 in Honduras and Nicaragua, and US$7,900 in Guatemala, to highs of US$20,900 in Panama and US$15,500 in Costa Rica. Panama was also the fastest growing economy in Central America with a growth rate of 6 percent.

Oddly, Costa Rica was one of the slower growing countries with a growth rate of only 3 percent, not much higher than Belize at 2.2 percent and El Salvador at 2.3 percent.

Table 16: Economic Indicators of CA/DR Countries

Country	GDP US$ billion	GDP/ Capita 2015	Latest Un-employment Rate	GDP Growth Rate 2015	Sectoral Contribution to GDP(%)			Pop. Below Poverty Line %	GINI Index
					Agr.	Ind.	Serv.		
Belize	1.69	8,600	11.7	2.2	13	15	72	43	n/a
Costa Rica	49.55	15,500	9.6	3.0	6	20	74	25	50
Dominican Republic	64.1	14,900	14.5	5.5	6	31	63	41	46
El Salvador	25.65	8,300	5.9	2.3	11	25	64	36	47
Guatemala	63.22	7,900	6.8	3.8	13	24	63	54	55
Honduras	4110	5,000	3.9	3.5	14	26	60	60	58
Nicaragua	31.18	5,000	4	4.0	18	23	59	42.5	40
Panama	82.18	20,900	5.8	6.0	3	20	77	26	52

Source: WB, 2016

USAID (2006) discusses in detail the relationship between poverty and conservation. It describes how important natural resources generally are to the poorer, rural segments of countries, such as those of Central America. The report emphasizes the variability of the interactions between poverty and natural resources. Rather than "see the poor as part of the natural resources problem and as the cause of deforestation, degraded landscapes, and dwindling wildlife populations, the report recommends "an asset-based approach to poverty reduction" that "defines poverty as a multidimensional phenomenon in time and space and proposes strategies to reduce the risks and vulnerability facing poor households, and to enhance their ability to participate in and benefit from new economic opportunities by focusing on their assets."

The analysis' conclusions about how poverty is driving the different direct threats to biodiversity and tropical forests in CA/DR were largely indirect and are related to insecurity and corruption concerns Poverty is undoubtedly, exerting influence on how tropical forests and biodiversity are being used, conserved, or degraded. For example, a KI commented, "The environmental movement came from a very bio centric perspective and protected areas in Central America were established to preserve natural ecosystems not to further local, regional or national economic prosperity". IUCN has found that development indices for people living in and around protected areas in Central America tend to be low (IUCN 2011).

By contrast, various experiences in Central America have shown that if protected areas make an economic contribution to a region, they can garner the support of its inhabitants and stand a better chance of being protected. The community forest concessions in the Multiple Use Zone of the Maya Biosphere Reserve in the Petén of Guatemala provide one striking example of how a protected area that improves the economic welfare of local poor people can elicit their support rather than opposition (KI). Similarly, in Izabal, Guatemala, local people, who are not wealthy, backed by municipal government, which generally lacks sufficient funds, support a network of protected areas (KI) because they provide local people with income from tourism and provide economically important water.

The Embera indigenous peoples in Panama, likewise, support the existence of the protected areas next to the Panama Canal because they help to attract the tourist who buy baskets and pay to watch native

dances (KI). In Guatemala, forest community concessions have clearly protected natural forests more effectively than protected areas. CONAP officials, however, are expressing doubts about renewing the forest concessions when their current 25-year period ends, because they consider the Multi Use Zone of the Maya Biosphere Reserve as a natural protected area and therefore off-limits to people and forest management for the production of timber (KI).

Several multilateral and bilateral preferential trade agreements with major world trading partners have integrated Central America into the world economy and stimulated CA countries to replace their previous strong anti-trade and anti-agriculture bias with more favorable treatment of trade and agriculture. They have grown economically through the export of primary commodities and agricultural production for domestic urban and export markets. Agricultural production has become the primary driver of tropical deforestation (Kissinger et al., 2012). Increased world use of agrochemicals usually accompanies an increase in the production of commercial agricultural products. Increased global demand for forest wood and non-wood products and seafood has driven over-exploitation of some species of trees and forest plants and marine organisms, including sea cucumbers, sea urchins, jelly fish, and some species of fish (KI).

5.2.4 INSECURITY AND CORRUPTION

Over the last decade, due to largely persistent poverty and inequity of income, recent armed violence in civil wars, drug trafficking, and underfunded law enforcement agencies, insecurity, and corruption have become rampant in Central America. ***Figure 20*** indicates annual rate of homicides/100,000 people in detail across CA, and is relatively consistent with current rates[10]. If the homicide rates from this figure are taken as a proxy for insecurity in general, then insecurity is highest in Honduras, El Salvador, and Guatemala, and in the urban area of Belize City. Within those countries, the highest level of insecurity is on the northern coast of Honduras and the Gulf of Fonseca. The Miskito Coast region of Honduras and Nicaragua and some highland sections of Guatemala have noticeably lower homicide rates than other parts of those two countries. Poverty and weak governance make it difficult to improve security. Unemployed young males are particularly susceptible to becoming involved in crime, particularly in organized gangs. Persistent poverty, inequality, and unemployment leave large portions of the population susceptible to crime. Weak governance, drug trafficking, and corruption complicate efforts to increase levels of security.

Corruption has permeated all levels and parts of government in CA countries. Again, corruption may be more pervasive in the northern countries than in Costa Rica and Panama. Corruption is the result of lack of post-conflict institutional reforms, and criminal groups' influence on public officials and elections. Transparency International's 2014 Corruption Perceptions Index indicates that citizens in Central America perceive high levels of public sector corruption.

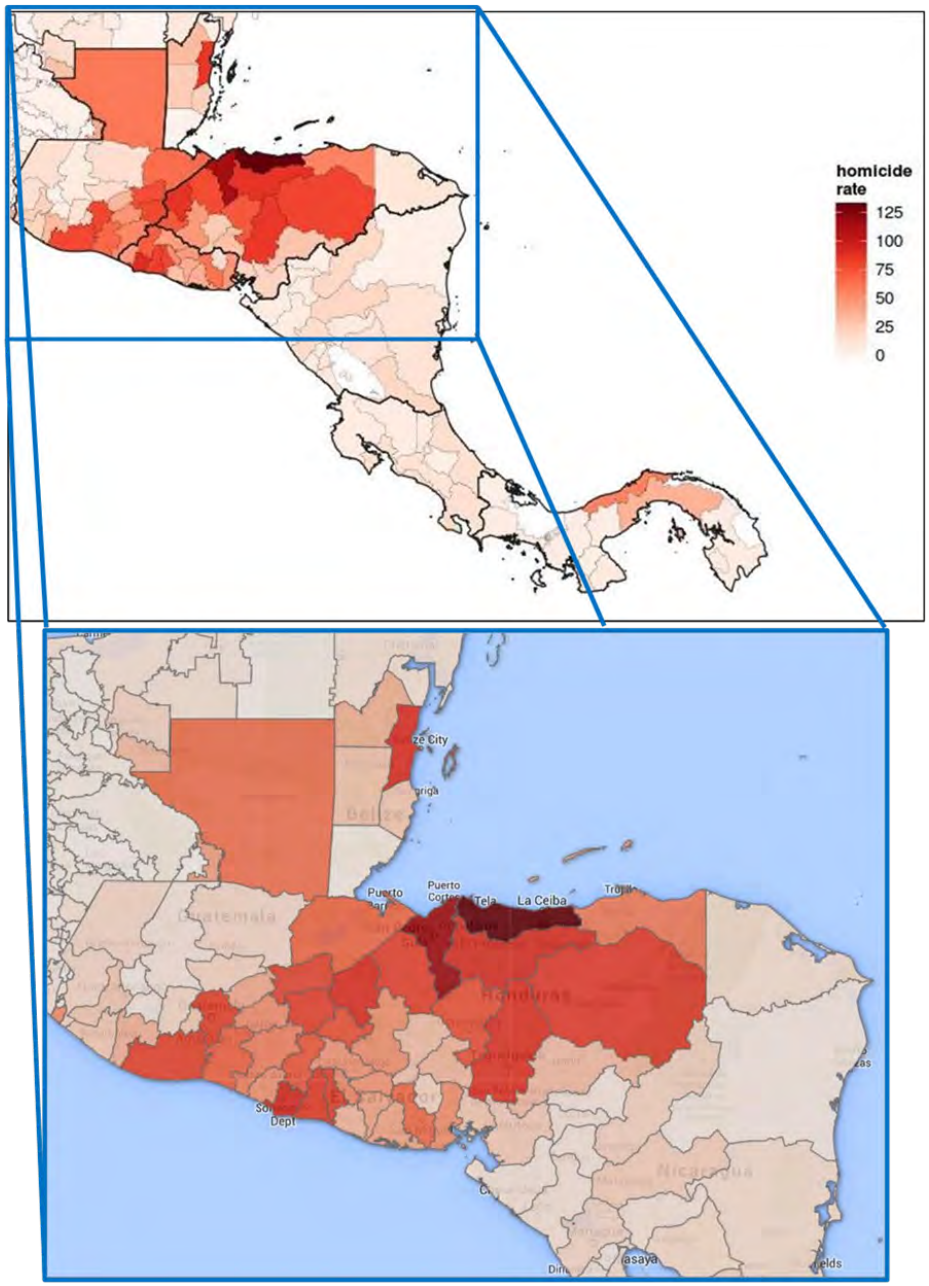
Insecurity and corruption are powerful drivers of the direct threats of habitat loss and degradation and over-exploitation. Crime and violence reduce the GDP of the Central American countries by 2.5 percent (Costa Rica) to 10.5 percent (Honduras). Reduced rates of economic growth increase the unemployment rate, particularly of young males, thereby stimulating them to join criminal gangs. Slow economic growth keeps more people in poverty and amplifies the effect of poverty as a driver of the direct threats to biodiversity and tropical forests. Due to the drug trade, the whole region became dangerous and difficult to work in because it was the drug route.

Victims of crimes become disillusioned with the rule of law, an attitude that undermines the effective, responsive, transparent governance that conservation of biodiversity and tropical forests requires. In

[10] http://www.insightcrime.org/indepth/homicides

Santo Tomas de Castillo in Guatemala, a KI commented, "When local governments are not supported by the people, they refuse to pay more for garbage collection". Personal observations in Santo Tomas de Castillo indicated that much garbage ends up contaminating aquatic ecosystems (Kernan, 2016), but many KIs noted the huge volume of garbage, especially plastic bottles, that the Motagua River carries into the Gulf of Honduras. More specifically, crime, especially drug trafficking, has made field work dangerous for conservation NGOs since protected areas tend to be lightly inhabited and relatively remote, areas where police have less chance of preventing illegal activities (KI).

Figure 20: Homicide Rates in Central America



Data: Panama and Nicaragua, 2009, other countries, 2010

Source: http://www.r-bloggers.com/violence-along-mexicos-southern-border-and-central-america/

Several KIs noted how violence and corruption drive the direct threats to biodiversity and tropical forests in Central America. In Izabal, Guatemala, a KI noted, "Due to corruption there is a lot of sale of what is really supposed to be government-owned land within a certain distance of the sea to private people". KIs reported that natural vegetation in the Río Platano Biosphere Reserve in Honduras is rapidly being lost to land usurpation, logging, and other illegal activities, including drug trafficking. With 816,172 ha, it is the biggest natural land extension in the region, and is said to have some of the best-preserved samples of native natural ecosystems and associated species. The effects of illegality, however, permeate society and drive the direct threats to forests and biodiversity more subtly. A KI noted, for example, that although it is illegal, girls among some social groups in Guatemala are married when they are only 12 or 13. They remain uneducated, which restricts their economic opportunities and their role in decision making. When up to half the population is uneducated, economic growth is less than it could be and the driver of poverty persists.

6 MAJOR ISSSUES FOR CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY

6.1 REGIONAL INTEGRATION FOR CONSERVATION

Section 2.2.1 notes Central American countries have worked for decades towards regional integration as a means to create "a region of peace, freedom, democracy and development" by achieving the goals of "democratic governance, regional security, economic prosperity, and sustainable development." Together, the countries established the Central American Integration System (SICA) to provide an institutional structure for achieving these goals. Within SICA—as described in ***Section 2.2.1*** and ***Figure 1***—are secretariats and specialized institutions (CCAD, OSPESAC, CRRH) that have the dual goals of increased regional integration and increased conservation of tropical forests and biodiversity. CCAD, as noted in ***Section 2.4***, has formulated a Regional Environment Framework Strategy: Promoting Regional Environmental Integration 2015–2020, and a Regional Strategic Framework for Forest Ecosystem Management. The analysis (see ***Annex G*** also) refers to numerous regional conservation projects that SICA has initiated, and international institutions have financed, in order to work towards these dual goals. These institutional structures, strategies, and regional projects provide clear evidence that the CA countries believe regional integration contributes to and benefits from regional conservation activities.

Sections 3, 4, and ***5*** thus provide evidence that in some parts of CA, biodiversity and tropical forests are being protected and well-managed. They also provide evidence, however, that serious threats to CA's biodiversity and tropical forests continue to degrade their status. The analysis concludes, therefore, that the successful examples of conservation in CA need to be expanded in geographic scope so that the threats to CA's biodiversity and tropical forests are diminished and successful conservation experiences are expanded across a larger geographic scale all across the region. The analysis provides evidence that regional integration of conservation activities will contribute greatly to expanding the geographic scope of successful conservation activities. The analysis concludes that a need exists for regional conservation projects that aim specifically to tie CA's conservation efforts together more effectively and consistently.

6.2 GOVERNANCE OF TROPICAL FORESTS AND BIODIVERSITY

Section 2.1 notes the CA countries are signatories to the principal international conservation and environmental treaties and that they all have abundant national conservation legislation. ***Section 2.2.1*** notes that CCAD leads regional efforts to conserve biodiversity and tropical forests. ***Section 2.1.2*** describes the national public institutions that every CA country has established to regulate and control their use and protection. ***Sections 2.2.3*** emphasizes that municipal governments, although often lacking financial and technical capabilities, could play an important conservation role because they have the legal power to establish mancomunidades, regulate land use, and control the disposal of liquid and solid wastes, and because their leaders understand and respond to local concerns and needs.

Sections 2, ***3***, and ***4*** identify numerous examples of successful national and regional activities for improving the governance of CA's biodiversity and forests. ***Section 2.2.1*** describes how SICA harmonizes regional conservation policies and regulations. ***Sections 3.3*** and ***3.4*** note Costa Rica and Panama's successes in managing protected areas and protecting watersheds, and ***Section 2.2.2*** notes how municipalities are playing an important role in governing the tri-country Trifinio watersheds. ***Sections 2.2.5*** and ***2.2.7*** describes the important role that national and international conservation NGOs, foundations, business networks, and environmental funds have been playing in supporting conservation activities. This evidence indicates that the basis exists for effective governance of CA's biodiversity and tropical forests.

Yet the analysis finds that serious governance weaknesses still exist. ***Section 2.2.1*** identifies the institutional complexities, different national agendas, high administrative costs, difficulties setting agendas, and social/political differences that make it difficult for CCAD to lead regional conservation efforts. ***Section 2.2.2*** notes the various weaknesses of national conservation institutions and municipal governments in governing natural resources. ***Section 2.1.3*** describes how the environmental assessment process for major projects often fails to limit their negative impacts on biodiversity and forests. ***Section 5*** identifies that CA's legal and institutional framework has often been unable to reduce or stop the threats to CA's biodiversity and tropical forests, and confirms that CA countries need to improve their governance.

The analysis concludes that a gap still exists between the strong governance that conservation of CA's biodiversity and tropical forests requires and the capabilities of CA's current governance structures. CA clearly needs more support for strengthening its governance of biodiversity and tropical forests.

6.3 SCIENCE, TECHNOLOGY, AND EDUCATION

Section 2.2.6 mentions universities and research institutions in CA where professors and students research and learn about conservation problems and solutions. ***Section 2.2.5*** mentions foundations (Summit, Rufford) that award grants for conservation research. International projects sometimes finance research, such the economic research on ecosystem values from the UNDP BIOFIN project, described in ***Section*** *4.2.1*. Some conservation NGOs, such as the Healthy Reef Initiative mentioned in ***Section 2.2.7***, emphasize research and monitoring. Others do research as part of specific projects.

Section 3.3 and ***Section 4.2.1*** provides examples of how research can reveal the economic value of protected areas and forest ecosystem services. ***Section 4.3.3*** notes how the science-based monitoring criteria established by the Forest Stewardship Council (FSC) have provided empirical evidence of the use of sound forest management practices. Examples of conservation successes in various parts of the analysis indicate that in CA effective science-based technologies for conservation have been developed. For example, a KI who works in USAID/El Salvador cited agroforestry as a key technology for

rehabilitating degraded lands in mountainous parts of El Salvador, and ***Section 3.4.2*** refers to the success of MAREA in introducing improved fishing technologies. Many KI interviews confirmed the excellent education and capabilities of many conservation professionals in CA public and private institutions. The analysis concludes that a strong foundation exists to supply the conservation science, technology, and education needed to conserve CA's biodiversity and tropical forests.

Nonetheless, the analysis found evidence that there is a need for more support for conservation science, technology, and education in CA. For example, ***Section 2.3*** notes deficits in information about gender roles and responsibilities. The discussion of the economic importance of protected areas in ***Section 3.3*** draws most of its data from Costa Rica because such studies have been made almost exclusively in that country. ***Section 3.1.3*** notes that little is known about the genetic diversity of CA's plants and animals. ***Section 3.1.1*** says that sufficient data are lacking to determine the conservation status of two of CA's five marine ecoregions. Similarly, ***Section 4.2.3*** indicates that the most recent data that could be found about the technology of firewood use dates from the 1990s, and ***Section 4.3*** points out that sufficient research is lacking on the silvics and regeneration of even the principal commercial tree species in the forest concessions in the Maya Biosphere Reserve. Data were unavailable on how many CA conservation professionals and technicians are being educated, but several KIs commented that the principal CA universities are not educating sufficient numbers of foresters, soil conservationists, and fisheries professionals as compared to biologists, economists, and lawyers.

Thus, the analysis concludes there is still a gap between the need in CA for high-quality conservation research, technology, and education, and their supply. To achieve the conservation of CA's biodiversity and tropical forests, this need must be met.

6.4 CONSERVATION ECONOMICS AND FINANCES

The analysis identifies many examples of the enormous contributions that CA's tropical forests and biodiversity are making to CA economies and to the financial profits of private and communal enterprises. ***Section 3.3*** cites data that indicates the economic importance of protected areas, for example, and ***Section 4.2*** provides evidence for the economic value of forest ecosystems. ***Section 4.3.3*** notes that forestry concessions in the Maya Biosphere Reserve produce a financial return that out-competes other land uses, and thereby stimulates local people to conserve rather than destroy forests and biodiversity. ***Section 3.4.2*** highlights how shrimp ponds on the coast of Belize have been certified as protecting rather than degrading the mangrove ecosystems that surround them while producing wealth and economic growth. PES, as described in ***Sections 3.4.1***, ***4.2.1***, and ***4.3.1*** are emerging in Central America as a way to compensate those who produce or protect ecosystem services through conservation practices on their land.

Sections 3.3 and ***4.2*** indicate that decision makers in CA countries have sometimes grasped the economic contribution that ecosystem services make to the growth of the national and local economies. In ***Section 3.3***, the case study of Cerro San Fil Protected Area in Izabal, Guatemala, provides an example of how local decision makers, supported by the general populace, can come to attach economic value to ecosystem services and, therefore, provide public financial resources for their management and protection. ***Section 3.4.1*** describes how KIs in the Trifinio Region of Honduras, El Salvador, and Guatemala, some of them elected as municipal mayors, expressed strong support for managing and protecting ecosystem services.

Section 2.2.1 notes that CCAD and OSPESCA are financed largely by international donations, which suggests that CA's national decision-makers are disinclined or unable to provide adequate financing for regional conservation actions. Likewise, ***Section 2.2.3*** describes public conservation institutions as

generally lacking sufficient funding to implement effectively and consistently environmental legislation. Similarly, ***Sections 2.2.5*** and ***2.2.7*** describe numerous international projects and programs that are financing conservation actions in CA. If conservation actions in CA require international financing, then presumably decision-makers have not given sufficient priority to assigning national funds to conservation actions or the problems are greater than their capacity to address them.

The analysis concludes that there are links between conservation and economic growth in CA. These links create opportunities for sustainable, local funding of conservation activities. Currently, however, the available financing for conservation actions in CA far from matches the economic value of the ecosystem services its biodiversity and tropical forests provide. There is a need for actions that more accurately identify the economic value decision-makers give to ecosystem services so that they can better assess the priority they place on financing conservation actions.

6.5 LARGE-SCALE LANDSCAPES FOR CONSERVATION

Section 3.1 demonstrates that CA's species and genetic biodiversity occur in 12 terrestrial, freshwater, and marine biomes, with 59 ecoregions, many of which cross national boundaries. ***Section 3.4.1*** and ***Figure 3*** highlight how CA countries share numerous watersheds and rivers systems, and **Section 3.4.2** and ***Figure 4*** identify coastal zones and territorial waters where ecosystems cross national boundaries. ***Section 3.1*** indicates the endangered status of many of these aquatic and terrestrial ecoregions and of a large proportion of the species for which they provide habitat. ***Section 4.1*** indicates that CA's five forest types occur across the region in bands that reflect altitude and precipitation. ***Section 5.1.1*** discusses the importance of conservation across large-scale landscapes for the preservation of terrestrial biodiversity. ***Figure 2*** shows how small the natural protected areas are relative to the extent of CA's ecoregions. ***Section 4.4***, likewise, notes that CA's has only small areas of sustainably managed forests.

The analysis concludes that natural protected areas and managed natural forests, no matter how well-protected, cannot alone conserve CA's biodiversity and tropical forests. Rather, CA's biodiversity and tropical forests requires conservation across the large-scale landscapes.

Section 3.4 discusses various approaches (watershed management, indigenous territories, coastal zone management, biosphere reserves, and Ramsar sites) to achieving conservation across large-scale landscapes. To be successful, these approaches all require the widespread application of land-use practices—such as sustainable forest management, agroforestry, and soil conservation; control of water and soil contamination; and establishment of protected natural areas—that when widely applied will result in greater conservation of biodiversity and tropical forests across large-landscapes. ***Section 3.5*** notes that there have been particularly successful conservation experiences using the watershed management and coastal resources approaches.

Numerous KIs emphasized their deep concern about degradation of coastal resources and water supplies. Unlike Ramsar sites, biosphere reserves, or indigenous territories, the watershed and coastal resource management approaches are not confined within boundaries around certain geographic areas. Watershed and coastal resource management are inclusive rather than exclusive: They can be used to address conservation concerns across all of rural, semi-rural, and urban CA and thus respond to widespread, deep concerns about the effects of ecosystems on economies, finances, and welfare.

The analysis did not find evidence that regional or national institutions are yet able to provide sufficient technical and financial support for regional actions to promote watershed and coastal resource management on large-scale landscapes. It concludes that CA requires such support in order to use watershed and coastal resource management as a means to further conservation of its biodiversity and tropical forests.

7 RECOMMENDATIONS AND PROPOSED ACTIONS

7.1 PROPOSED REGIONAL ACTIONS

Key lessons Learned from past conservation projects in CA are summarized as follows:

(1) Use participation and process to build inter-organization coalitions.

(2) Focus on issues that most concern decision-makers and local people.

(3) Do research that is directly pertinent to resolving local conservation problems.

(4) Promote markets for commercial products from well-managed natural resources.

(5) Use monitoring and evaluation to support flexible, responsive, adaptive administration and management.

(6) Share systematically successful conservation experiences across the CA region.

(7) Specify mechanisms for giving women an equitable role in conservation actions.

(8) Focus training on increasing conservation capacities of local people.

(9) Expand pilot conservation projects to large-scale landscapes.

(10) Utilize analyses of the economic and financial costs and benefits of conservation.

These lessons learned, drawn in large part from those detailed in ***Annex K***, combined with our other findings formed the basis for the report's recommendations. These recommendations are also influenced by the fact that USAID, for three or more decades, has gained experience with regional and bilateral conservation projects; these projects have been successful and important in assisting CA to conserve biodiversity regionally (across national boundaries) and within countries; and these conservation experiences provide the basis for USAID/CAM's continued assistance to integrate conservation across the entire CA region by creating large-scale landscapes where conservation practices are applied. During this period, USAID/CAM has participated in transboundary conservation projects that are defined as taking actions across the boundary between two countries to address conservation issues in adjacent natural resource areas.

The Trifinio areas, which involve three countries in a biosphere reserve, are one example of such a program. This analysis found that these types of programs have had limited impact on conserving biodiversity and tropical forests across the CA region and were seldom endorsed by KIs because they fail to address the underlying regional conditions that threaten biodiversity and tropical forests. The analysis' findings suggests that regional programs that focus on common, underlying factors that directly impact the conservation of biodiversity and tropical forests in selected countries across the whole region would have a greater impact on conservation of natural resources. An example of this type of regional program would be to strengthen governance of conservation programs at the municipal level across the region by supporting the improvement of their technical capacities and the sharing of their experiences. Such a program would address common issues that reduce the effectiveness of conservation programs on a regional scale rather than simply focusing on a local conservation area. Both types of programs are transboundary in that they address issues that collectively impact two or more countries. In addition, programs with a transnational focus would further strengthen the capacity of country programs to initiate and expand their conservation program activities. This section lays out

recommended approaches for USAID/CAM to take that will have regional impacts and address common issues and opportunities identified across the region during the analysis.

7.1.1 SICA/CCAD INVOLVEMENT

The analysis' finding in ***Section 2.2.1*** that CA countries have entrusted SICA/CCAD with the lead role in resolving regional conservation issues supports our recommendation that USAID/CAM formally coordinate with and involve CCAD in its support of regional conservation actions.

7.1.2 PARTICIPATORY PROCESS

A key theme throughout ***Section 2*** and ***Section 3*** is the importance of the use of participatory processes in the design and implementation of conservation actions, and supports our recommendation that USAID/CAM formally build participatory processes and adaptive management programs into its conservation activities that concern decision-makers and local people.

7.1.3 TRAINING PROGRAMS

To assist CA in addressing the issue of regional integration for conservation, we recommend that USAID/CAM support a regional conservation training program. Such a program would adhere to Lessons Learned (1), (6), and (8) by training people all across CA in conservation practices. The core participants in and beneficiaries of the training would be people who make decisions at the local level that affect conservation of tropical forests and biodiversity. Such people include mayors, municipal staff, NGO staff members, indigenous and community leaders, local business people, and farmers. The training would take place through short courses, conferences, and study tours. Each training session would include people from different countries, occupations, and types of organizations. The training would raise the participants' level of knowledge about conservation practices so that they can make more informed decisions on matters that affect tropical forests and biodiversity. It would also contribute to regional integration by establishing links between people from across the region who are making decisions that affect tropical forests and biodiversity. Moreover, the study tours would expose the participants to successful examples of conservation in CA (e.g., forest concessions in the Maya Biosphere Reserve; watershed management in Costa Rica; coastal zone management in El Salvador).

The program could respond to Lesson Learned (7) by specifying that generally half the participants must be women. A way to equalize the number of female participants is to organize conferences or training that is for women only. It has the added benefit of women getting together alone to talk about and focus on environmental and renewable natural resources and their lives. The exact topics, duration, schedule, location, and participants in the regional conservation training program would be determined, adhering to Lessons Learned (2) and (5), through interactive, participatory processes, which also would contribute to regional integration for conservation. Representative topics for the training and study tours could include the following:

1. Natural forest management: Identification of important tree species and their silvics; the practice of silviculture in different forest types to improve tree growth and obtain natural regeneration; relationships between forests and water flows; forestry as part of watershed management programs; planning and oversight of logging operations; marketing of wood and non-wood forest products; environmental assessment of forestry operations; protecting and increasing biodiversity through management of natural forests. Control of insects and diseases. Management and control of fire. Preparation and use of management plans; community management of forests; industrial management of forests. Study tours to successful examples of natural forest management operations.
2. Agroforestry: Identification of agroforestry tree species; ecological and economic advantages of

agroforestry practices; management of shade for coffee and cacao production; silvicultural aspects of agroforestry plantings; live fencing. Trees for improving pastures and providing fodder; study tours to see successful examples of agroforestry practices.

3. Soil conservation: Types of soils; mapping of soil types; types of soil erosion; effect of agriculture on soils; improving soil fertility and structure; measurements of run-off; relationship between soils and water flows; study tours to see successful soil conservation projects.
4. Coastal zone management: Purpose and theory; classification of coastal zones; ecological characteristics of coastal zones (reefs, sea grass, beaches, etc.); formation and destruction of beaches; fish and other marine animals; role of rivers in providing nutrients; role of reserved areas for fish to reproduce; role of mangrove forests; study tours to see successful examples of coastal zone management and zoning of fishing areas.
5. Natural protected areas: Purpose; management plans, zoning. Scientific studies in protected areas; connectivity between protected areas. Economic value. Study tours to see successful examples of management of protected areas.
6. Watershed management: Purpose; definitions of watersheds, watershed management plans; measurements of water and soils; role of vegetation in regulating water flows and controlling soil erosion. Role of municipalities in watershed management; sources of contamination; measurement of contamination; controlling contamination. Economic value of water. Study tours to see successful examples of managed watersheds.
7. Gender involvement: Issues, management, and responsibilities associated with the use of natural resources; women's management, use, and conservation of natural resources. Women's involvement in decision-making associated with the management and use of natural resources. Study tours to successful examples of women's participation in management of renewable natural resources.

Since similar training is required in nearly all of the CA countries, a transnational training program that addresses regional needs could have significant impact. Such a program would also allow for and encourage dialogue, the sharing of ideas, and the demonstration of successful actions between local resource professionals throughout the CA region.

7.1.4 STRENGTHENING GOVERNANCE

To address the issue of governance of tropical forests and biodiversity, our recommendation is that USAID/CAM finance activities to **strengthen the capacity of municipal governments to plan, implement, monitor, and evaluate conservation actions**. ***Section 6.2*** notes the analysis' finding that municipal governments provide not the only, but the best overall opportunity for sharing conservation experiences across the region and developing large-scale conservation landscapes so they play a central role in governing CA's tropical forests and biodiversity programs and that local conservation NGOs frequently support municipal conservation efforts. We recommend that USAID/CAM support municipal governments and local conservation NGOs, to enable them to start, continue, or expand their alliances for conservation as well as assist municipalities and mancomunidades to undertake territorial planning and preparation of local regulations for land use and disposal of solid and liquid wastes. As an example, local conservation NGOs could assist municipal governments in the use of participatory methodologies to prepare, review, and revise municipal land-use plans, ordinances, and EIAs that affect tropical forests and biodiversity and that regulate the use and management of soils, water, and vegetation through zoning ordinances. Since similar support for municipal governments and local NGOs is required in nearly all of the CA countries, a transnational program that addresses this support across the region could have significant impact. Such a program would also allow for and encourage dialogue, the sharing of ideas, and the demonstration of successful actions between municipal governments and between local NGOs throughout the CA region.

7.1.5 SCIENCE, TECHNOLOGY DEVELOPMENT, AND EDUCATION

To address the issue of science, technology, and education for conservation, we recommend that USAID/CAM **finance grants for conservation research, technology development, and education.** In line with Lessons Learned (2) and (3), the research should increase understanding of and capability to respond to local conservation problems. It should clarify social, biological, economic, commercial, financial, and other aspects of conservation, thereby providing the basis for the development of technologies for solving conservation problems. These activities might include the financial analysis of conservation practices, the analysis of costs and benefits associated with new technologies, and studies that enhance the understanding of ecosystem functions. For example, as mentioned in ***Section 6.3***, the silvics of some of CA's most common commercial trees remains largely unknown, limiting the application of silvicultural practices to ensure their regeneration.

Adhering to Lessons Learned (6) and (9), research could provide the empirical basis for systematically sharing successful conservation experiences across the CA region and expanding pilot conservation projects to large-scale landscapes. Such grants could fund studies on subjects that reduce the ability of municipalities to implement conservation activities. These studies would be targeted and implemented in many municipalities at the same time, thereby integrating specific problems across the region. As per Lesson Learned (7), the grants could finance investigation into mechanisms that would allow and increase the ability of women to fully participate in making decisions about the management of natural resources. In response to Lesson Learned (1), we recommend that the grants be used to build coalitions between universities, conservation NGOs, and local governments to facilitate their investigation of conservation issues and develop better programs for training their conservation professionals. The grants could be made to the national and regional universities mentioned in ***Section 2.2.6***, but also to more local educational institutions and conservation NGOs.

To adhere to Lesson Learned (5), the grants would be closely monitored and evaluated so their programs could be responsive to changing needs and conditions. Since similar support is needed for universities as well as public and private organizations in regard to technology development and training responsibilities in nearly all of the CA countries, a transnational program that addresses research, technology development, and education across the region could have significant impact. Such a program would also allow for and encourage dialogue, the sharing of ideas, and the demonstration of successful actions between universities, conservation NGOs, and local governments with research and development responsibilities throughout the CA region.

7.1.6 CONSERVATION ECONOMICS AND FINANCING

As noted in ***Section 6.4***, the analysis concludes that issues associated with conservation economics and financing will more likely be resolved when decision-makers consistently recognize the economic value of ecosystem services. Therefore, we recommend that USAID/CAM **finance activities that allow CA decision-makers to be more conscious of and able to act on economic rationale for government and private expenditures for conservation actions**. Implementation of this recommendation will build on training activities that we have recommended previously, which will increase awareness of decision-makers and local conservation NGOs about the economic value of conservation. It will also leverage recommended research grants that provide economic and financial analyses. Specific, well-designed, systematic programs that demonstrate to decision-makers across CA the economic value of conservation could be planned and implemented by a coalition of CCAD, national governments, and organizations that represent the environmental interests of businesses, such as those mentioned in ***Section 2.2.5***. Such a program would target decision-makers across the CA region and demonstrate to them the economic value of ecosystem services and highlight the actions that are required to conserve the ecosystems that provide those services.

The program would demonstrate the return on investment from public financing, identify and develop markets for well-managed renewable natural resources as encouraged by Lesson Learned (4), and support the identification and implementation of PES and other sustainable financing schemes to support conservation and forest management programs. Since this transnational program is targeted at institutions and organizations in all of the CA countries, it could have significant impact. Such a program would also allow for and encourage dialogue, the sharing of ideas, and the demonstration of successful actions within the CCAD and between governments initiating conservation policies throughout the CA region.

7.1.7 LARGE-SCALE LANDSCAPES FOR CONSERVATION

Lesson Learned (2) and ***Section 3.4*** support and highlight the widespread, deep concerns individuals and organizations in CA have that are associated with the degradation of water supplies and coastal zone resources. To respond to the issue of large-scale landscapes for conservation, we recommend that USAID/CAM use watersheds and coastal zone management areas as the basis to **support conservation activities that involve municipalities and mancomunidades in large-scale conservation landscapes**. The activities that the analysis has recommended USAID/CAM support complement this recommendation. For example, the needs of watershed and coastal zone management programs will provide guidance for organizing training (including study tours) and research activities. Municipal leaders from coastal areas all across CA, including the DR, could be trained or participate in study tours together to places where coastal zone actions have been successful, such as Puerto Cortez, Honduras. Similarly, training and application of new technologies could involve leaders whose municipalities (or indigenous territories) include large areas of natural forests and involve visits to community concessions in the Petén. In addition, USAID/CAM could provide opportunities for indigenous leaders to meet, discuss their common problems related to conservation, and visit sites of successful coastal zone and watershed management. Also, USAID/CAM could support landscape-scale planning of conservation actions across boundaries between countries, including study tours and working sessions on landscape-scale conservation.

The characteristics of selected large-scale conservation landscape programs throughout CA countries could include transboundary areas. Activities associated with large-scale conservation landscape programs that allow for and encourage dialogue, the sharing of ideas, and the demonstration of successful actions between governments and organizations across the CA region are transnational. Lessons Learned (1), (2), (5), and (9) suggest that USAID/CAM should use its resources to promote people and institutions to innovate, take risks, and create links so that the technologies and capabilities to establish large-scale conservation landscapes emerge naturally, incrementally, gradually, and sustainably from the strong base for conservation that CA countries have already established. Resolving specific conservation problems while also integrating conservation activities across the entire region emphasizes real regional and transboundary activities.

7.2 ACTIONS PROPOSED AND RELATION TO THE RDCS AND USAID ACTIVITIES

The actions USAID/CAM proposes for the period 2015–2019 in its RDCS correspond closely to the needs for conservation of biodiversity and tropical forests identified in this analysis, in general.

DO 1 seeks to increase regional economic integration through "expanded trade and stronger institutional capacity." The analysis has provided evidence for the important contribution that biodiversity and forests make to economic growth and prosperity. Economic growth, moreover, is necessary to create the wealth required to finance large-scale, long-term conservation actions, as demonstrated by the experiences as the Payment for Environmental Services (PES) component of the

ProParque project and the FTF watershed activities in the Honduras and Guatemala USAID bilateral programs. DO 1 may finance or otherwise support construction projects as part of its aid to small businesses. It appears unlikely that such activities would cause significant negative effects on biodiversity and tropical forests. Their potential negative environmental effects will be identified and mitigated or avoided through the use of best management practices (BMP) and adherence to the procedures of USAID Environmental Regulation 216.

DO 2 will enhance regional climate-smart economic growth "by promoting sustainable, climate-smart practices and policies that lower emissions through clean energy investments, increasing the resiliency of people, places, and livelihoods to the impacts of climate change, and improving the management of the region's biologically diverse ecosystems." These alternative energy actions will contribute to conserving Central America's biodiversity and tropical forests through creation of less pollution and less use of fuelwood and charcoal. For example, the activities under Sub-IR 2.1.1 ("Regional climate-smart land use practices scaled-up.") will help to conserve CA's forests and reduce sedimentation. DO 2's IR 2.2 ("Resiliency of humans and the environment to climate change impacts increased.") could contribute to the institutional strengthening that this analysis identifies as a need for conserving CA's biodiversity and tropical forests. No negative effects on biodiversity and tropical forests from the activities proposed to achieve DO 2 were identified.

The activities proposed to attain IR 2.3 ("Transboundary natural resource management strengthened.") directly support the needs identified in this analysis, for conservation actions at the scale of large landscapes that cross national boundaries. The actions proposed to attain Sub-IR 2.3 ("Regional environmental governance improved.") coincide with the recommendation of this analysis for addressing the issue of governance of biodiversity and tropical forests. Regional environmental governance requires the environment that is created by emphasis on democratic governance. The actions proposed to attain Sub-IR 2.3.2 ("Environmentally sustainable livelihoods expanded.") will complement the recommendations in this analysis. No negative impacts on CA's biodiversity and tropical forests from the actions proposed in the RDCS to attain DO 2 could be identified. The activities proposed in the RDCS to attain DO 2 are highly complementary and supportive of the needs identified in this analysis to achieve conservation of CA's biodiversity and tropical forests.

DO 3 ("Regional human rights and citizen security improved.") addresses less directly than DO1 and 2 the conservation needs identified in this analysis. The analysis, however, does identify violence and crime as indirect drivers of the direct threats to biodiversity and tropical forests. The actions to attain DO 3 that will reduce crime and violence, therefore, could also reduce these drivers. The analysis finds that improving governance at the local level is necessary to conserve CA's biodiversity and tropical forests. Some of DO 3's proposed actions, such as developing youth leadership, could contribute to reinforcing the recommendations for institutional strengthening at the local level. It appears unlikely that the actions proposed to achieve DO 3 will cause significant negative impacts on CA's biodiversity and tropical forests.

The potential negative environmental impacts of medical hazardous wastes that may be generated by activities under DO 4 ("HIV prevalence in Central America contained.") will be avoided through adherence to USAID Environmental Procedures, the activity of Environmental Mitigation and Management Plans (EMMP), and BMP for construction and the handling and disposal of medical wastes.

The design and implementation of activities to achieve the four DOs will use BMP to avoid negative environmental impacts. Moreover, USAID/CAM will adhere to the procedures required by USAID Environmental Regulation 216 in designing and carrying out these activities. These procedures will identify and provide for measures to avoid or mitigate any negative effects from activities proposed to attain the four DOs. The implementation of measures to avoid and mitigate negative environmental impacts will be monitored and evaluated through the design and implementation of EMMPs.

ANNEXES

ANNEX A: BIBLIOGRAPHY

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ANNEX B: PRINCIPAL PUBLIC CONSERVATION INSTITUTIONS

Country	Wildlife	Forests	Fisheries
Belize			
Costa Rica	Ministry of Environment and Energy www.minae.go.cr	National System of Conservation Areas/Ministry of Environment, Energy and Mines (MINAE) www.sinac.go.cr	Fisheries and Aquaculture Costa Rican Institute www.incopesca.go.cr
Dominican Republic	Ministry of Environment and Natural Resources www.ambiente.gob.do	Ministry of the Environment and Natural Resources www.ambiente.gob.do	Fisheries and Aquaculture Dominican Council www.codopesca.gob.do
El Salvador	Ministry of the Environment and Natural Resources www.marn.gob.sv	Forestry, Watersheds and Irrigation Planning Department-Ministry of Agriculture and Livestock www.mag.gob.sv	Fisheries and Aquaculture Development- Ministry of Agriculture and Livestock www.mag.gob.sv
Guatemala	Protected Areas National Council www.conap.gob.gt	National Institute of Forests www.inab.gob.gt	Fishing and aquaculture Department-Ministry of Agriculture, Livestock and Feeding www.maga.gob.gt
Honduras	Energy, Natural Resources, Environment and Mines Secretariat Protected Areas and Wildlife Sub Department-Institute of Forest Conservation www.miambiente.gob.hn, www.icf.gob.hn	Forest Management and Development Sub Department- Institute of Forest Conservation and Development, Protected Areas and Wild Life. www.icf.gob.hn	Fisheries and Aquaculture General Department-Secretariat of Agriculture and Livestock www.sag.gob.hn
Nicaragua	Ministry of the Environment and Natural Resources www.marena.gob.ni	Forestry National Institute-Agri-Livestock and Forestry Ministry www.magfor.gob.ni	Fisheries and Aquaculture Nicaraguan Institute www.inpesca.gob.ni
Panama	Ministry of Environment (2015, formerly Panama Environment Authority) www.miambiente.gob.pa	Ministry of Environment	Panama Aquatic Resources Authority www.arap.gob.pa

ANNEX C: LIST OF KEY INFORMANTS

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
Alberto Salas , Senior Adviser Forest, Biodiversity and Governance - Oficina Regional para México, América Central y El Caribe – ORMACC	Puerto Cabezas (Bilwi)	02.03.2016	Cel: +506 88445882	Alberto.Salas@iucn.org	Bruce Kernan, Zulma de Mendoza
Amador, Xavier., Director Ejecutivo Nacional de Acuicultores de Honduras ANDAH	Oficina de ANDAH outside of Cholateca in salida a Guasule, Cuidad Balacanes	Jan 26	504 27170410; 504 95031973	jamador@andah.hn	Bruce Kernan, Enrique Barraza, Hector Fuentes
Arias, Ingrid, Local coordinator of FUNDECO	Puerto Barrios, Izabal, Guatemala	1-Feb-16			Bruce Kernan
Augusto Rosales: especialista en medios y alternativas económicas	Guatemala (via Skype)	28 de febrero, 2016	-502	Augusto Rosales <arosalest07@gmail.com>	Zulma Ricord de Mendoza
Ben Schapiro	Marine Biodiversity, USAID/DR	May 20, 2016	829-368-7042	bschapiro@usaid.gov	Bruce Kernan
Bustamante, Nelbin. Protection, Public Use & Ecotourism Coordinator, PROLANSATE	Tela, Honduras	01.29.16	504 + 2448 – 1686 / 2448 – 2042	nelbin76@yahoo.com	J.P. Domínguez
Cajiao, Victoria, Asesora Legal de la Presidencia de la República de Costa Rica.	San José, Costa Rica	1° de febrero 2016	(505) 8323 1645	vicky.cajiao@gmail.com	Zulma Ricord de Mendoza (6-9 de la noche)
Calderon, Osvlado, Director Regional de FUNDAECO, Mirando, Maria de Rosario, Empresa Portuario Santa Tomas, Sandolval, Roderico, Empresa Portuaria Santa Thomas	Santo Tomas, Izabal, Guatemala	1-Feb-16			Bruce Kernan
Calix, Jose Nahun Acalde Municipio de Marcovia	Office of Alcalde en Marcovia	Jan 25, 2016			Bruce Kernan, Enrique Barazza, Hector Fuentes
Carlos Giovanni Rivera, Técnico PREP, MARN	Country/Place:El Salvador/MARN	2/15/2016		crivera@marn.go.sv	Miguel Cifuentes

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
Carlos Rivas Leclair, Director del Instituto de Capacitacion, Investigación y Desarrollo Ambiental CIDEA	CIDEA, Managua (Universidad Católica)	Feb 29, 2015	(505) 2278 3930	crleclair@ns.uca.edu.ni	Bruce Kernan, Zulma de Mendoza
Castrillo, Milton: Ex Coordinador de MAREA USAID para la Moskitia Nicaragüense	Puerto Cabezas (Bilwi)	1 March, 2016	(505) 8424 5130	miltonsaulcastrillolopez@gmail.com	Bruce Kernan y Zulma de Mendoza
Coordinador Institucional del Programa Costa Rica por Siempre, SINAC (10:30 a 12:30)	San José, Barrio Escalante Costado Este ULACID/SINAC	Martes 2 de febrero 2016	(506) 2522 6500	marco.araya@sinac.gob.cr	Zulma Ricord de Mendoza (10 a.,m – 1 p.m)
Correa, Leana Correa, Director Ejecitvo de Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODEFAGOLFO)	San Lorenzo, Honduras	25 Jan 2016			Bruce Kernan
Dennis Mairena / Director Ejecutivo del Centro de Autonomía y Desarrollo de los pueblos indígenas CADPI.	Bilwi, Nicaragua	March 1 2016	(505) 8629 0197	mairena@cadpi.org	Bruce Kernan and Zulma Ricord de Mendoza
Diaz, Mario, Coordinador Correidores Biologicos, MARN		3 Feb 2016			Bruce Kernan
Dr. Guillermo Navarro, Researcher at CATIE's Bosques Program	Costa Rica/CATIE	2/10/2016	+506 2558-		Miguel Cifuentes
Drysdale, Ian. Executive Director, Healthy Reefs	Roatán, Honduras	01.28.16	504+3336-0406		J.P. Domínguez
Dubois, Karen, FUNAECO, Program de Salud	Puerto Barrios, Golfo de Honduras	Feb 1	Tel: 502505580279		Bruce Kernan
Echeverría, José Luis, Director Oficina Técnica de la Biodiversidad	Guatemala City, Consejo Nacional de Areas Protegidas (CONAP)	5 Feb 2016	1518333	echevariatello@gmail.com	Bruce Kernan
Eduardo Rodríguez, International consultant, Chrysina	Costa Rica/ El Salvador	2/15/2016		eduardorh@chrysina.org	Miguel Cifuentes
Espinoso, Su. Investigador en el Centro; Sandoval, Jeritza; Centeno, Anna, U. Catolica de Managua, Laborator d Genetico	Managua, Nicaragua	29-Feb			Bruce Kernan and Zulma Ricord de Mendoza
Fernando Carrera, Researcher at CATIE's	Costa Rica/CATIE	2/10/2016	+506 2558-		Miguel Cifuentes

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
Bosques Program			2619		
Flores, Merlin. Parks, Monitoring, Education & Communities Coordinator, PROLANSATE	Tela, Honduras	01.29.16	504 + 3208 – 3808	e-mail: daimaufg@gmail.com	J.P. Domínguez
Flores, Victor, Alcalde de Nacaome y Presidente de la Mancommunidad del Golfo	Nacaome, Municipal Building	Jan 25, 2016	504 795 5398; 504 32476972	Email:victorflores1701@gmail.com	Bruce Kernan, Enrique Barazza, Hector Fuentes
Galdames, José Antonio. Minister of Environment, Honduras	La Ceiba, Honduras	01.29.16	504 + 2235 – 7833 / 3192 – 3782 (handy)	e-mail: joseantoniogaldames@gmail.com	J.P. Domínguez
Galvez, Guillermo, Sub-coordinador de Capitulo costa-marino de FUNDAECO Pacheco, Griselda, Costas técnico de campo Representante de COSTAS y TRIGOH	Puerto Barrios, Golfo de Honduras	1-Feb	42205662	g.galvez@fundaeco.org.gt	Bruce Kernan
Godoy, Juan Carlos, TNC	Guatemala City, Guatemala	2-Feb-16			Bruce Kernan
González, Jose Pablo: Abogado, especialista en derecho ambiental. Director de la Fiscalía Ambiental de Costa Rica. (1:00 p.m – 3 p.,m) Almuerzo de trabajo.	San José, Barrio Escalante	Martes 2 de febrero 2016	(506) 8368 1404	jpgonzalez@poder-judicial.go.cr	Zulma Ricord de Mendoza (10 a.,m – 1 p.m)
González, Mario Director, OPESCA	San Salvador,	Jan 29			Bruce Kernan, Zulma Ricord
Hirezi, Irene Secretaria Ejecutiva, Tri-National Commission Plan Trifinio	San Salvador, Paseo General Escalon 5430, San Salvador	Jan 19, 2016	503 7873 4277; 503 2264 361920	mhirezi@sica.int	BSK, JPD, ZR, EB
Ileana Gomez, PRISMA (Programa Salvadoreño de Investigación sobre Desarrollo para el Medio Ambiente)	San Salvador/ El Salvador	February, 18th			Miguel Cifuentes
Janja Eke, Coordinadora subregional FSC para CA	Managua, Nicaragua / Skype	2/10/2016		Janja Eke <j.eke@fsc.org>	Miguel Cifuentes
Jorge Canales Colindres, Ex Director del Instituto Nacional Forestal INAFOR	Puerto Cabezas, (Bilwi), Nicaragua.	02.03.2016	Tel (505) 84218938	jcanalescolindres@yahoo.es	Bruce Kernan, Zulma de Mendoza

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
Karina Willis, Berta Mercado: Secretaría de Planificación del gobierno regional, Fesia Wilson: fesiawilson@yahoo.es Institucion para la captación y atracción de la inversión en el sitio. PRONICARIBE – Pronicaragua, apoyan la inversión en la región	Puerto Cabezas, Bilwi, Nicaragua	2 de marzo, 2016			Bruce Kernan, Zulma Ricord de Mendoza
Leinhoff, Andreas, WWF Guatemala	Guatemala City, Guatemala	4-Feb-16			Bruce Kernan
Machano, Deberto, Presidente del Comite de Mergencia Trimineo, Jona, Unidad Ambiental del Municipio	Cedeno, Honduras	martes 26 de enero 2016			Bruce Kernan
Majano, Ana Maria : Ex Ministra de Medio Ambiente y Recursos Naturales, actual COP para el Programa Reigonal CC	El Salvador	March, 2016		Ana.Majano@catie.ac.cr	Bruce Kernan, Zulma de Mendoza
Marco Aurelio Juarez Calderon, Manejo de Recursos Naturales y Ambiente, Geotecnología, Ingeneria Territorial	Guatemala City	4-Feb-16	502 23694317	marcojuarez@geotechnologia.com.gt	Bruce Kernan
Mario Escobedo, Climate Change Programme/ CATIE	San Salvador/ El Salvador	February, 15th	+503 25228700	mescobedo@catie.ac.cr	Miguel Cifuentes
Mario Marroqui, Asistente Tecnico	San Salvador	Jan 19, 2017	503 72565079 (cel); 503 22643619 (tel)	mmarroqin@sica.int	BSK, JPD, ZR, EB
Mary Rodriguez	MEO, USAID El Sal.	20 de mayo 2016	(503) 2501-3422	mrodriguez@usaid.gov	Bruce Kernan
Mayors, Trifinio	El Salvador, El Trficio	Jan 28			Bruce Kernan
Mejia, Susana, Encargado del Escobas		31 Jan 2016			Bruce Kernan
Mendez, Anglica – Coordinadora de Red de Pescadores Ochoa Lopiez, Eustaqiui – Presidente de la Asociacion de Red de Pescadores Ordonez, Edin – Vocal Primero de la Red y Teserero de la Red	Puerto Barrios, Golfo de Honduras	Feb 1	Tel 56166953, 58192288	angyred38@yahoo.es	Bruce Kernan

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
Representante de Asociacion de Pescadores					
Miller, Teresa, Busines, Private Sector Officer, Economic Growth Office	USAID/Guatemala	May 24, 2016	503 2501-3310	temiller@usaid.gov	Bruce Kernan
Miriam Hirezi	San Salvador, Paseo General Escalon 5430, San Salvador	Jan 19, 2016	503 7873 4277; 503 2264 361920	mhirezi@sica.int	BSK, JPD, ZR, EB
Moncada, Myrna and Cruz Cortez, Freddy: Presidente biologo	Managua	29/ 02/ 2016	(505) 2268 1087 / cel 8932 2922	Myrna.moncadaf@gmail.com	Bruce Kernan, Zulma Ricord
Monje, Nancy: Miembro del Equipo Técnico de la UICN y encargada del componente de Género.	Costa Rica / Barrio Escalante, San José	Viernes 03 de febrero 2016 – Oficina ORMACC	(506) 2283 8449	Nancy.Arroyo@iucn.org	Zulma Ricord de Mendoza (8:30 a.m – 9:30 a.m)
Mujeres Miskitas / Pikineras, indígenas - Anne Margaret Webster, Presidenta; Gloria Lorena Mergara, Secretaria; Berna Collins Mairena, primer vocal. Angela Zacarías Watson, Secretaria de Actas y Acuerdos. Coordinadora de un centro tecnológico de Acción Médica: Juana Clorinda Medina Morales.	Bilwi, Nicaragua	1° de marzo, 2016			Bruce Kernan y Zulma Ricord de Mendoza
Müller, Eduard y Tania Moreno: Universidad de Cooperación Internacional	Barrio Escalante, San José, Costa Rica	2° de febrero 2016	(506) 8871 7565	emuller@uci.ac.cr ; tmoreno@uci.ac.cr	Zulma Ricord de Mendoza (2:00 a 4:00 p.m)
Myton, Jenny. Local Manager, Coral Reef Alliance	Roatán, Honduras	01.28.16		jmyton@coral.org	J.P. Domínguez
Nadia Padilla , Ecóloga Coordinadora de INPESCA, Instituto de Pesca en la RAANC	Puerto Cabezas, Bilwi	2 March, 2016		jianayany@gmail.com	Bruce Kernan, Zulma de Mendoza
Nelda Sánchez, Socióloga, consultora independiente. Especialista en cultura miskita.	Puerto Cabezas (Bilwi)	03 March, 2016	(505) 22780062 /Cel. (505) 88227490	neldasahi@yahoo.es	Bruce Kernan y Zulma de Mendoza

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
Oleas-Montalvo, Julio, El Sistema de Cuentas Ambientales y Económicas (SCAE) 2012: fundamentos conceptuales, CEPAL, Mexico 63 p		2 Feb 2016			Bruce Kernan
Omar Samayoa, Climate Change Programme/ CATIE	Ciudad de Guatemala, Guatemala.	February, 17th		OMARS@iadb.org	Miguel Cifuentes
Oviedo, Machuca Jorge: Gerente General del FIAES[Fondo Iniciativa para las Américas (Fondo fiduciario de condonación de deuda por naturaleza USA)] y miembro del Consejo Asesor de la Red Latinoamericana de Fondos Ambientales y del Caribe REDLAC (10:30 a 12:30)	Country/San Salvador, El Salvador / 75 Ave. Sur #132	Jueves 2 de febrero 2016	(503) 2223 6498 Ext. 102	jorge.oviedo@fiaes.org.sv	Zulma Ricord de Mendoza (5 – 7 p.m)
Paz, Ana. Executive Director, FUCSA	La Ceiba, Honduras	01.28.16	504 + 9836 – 9544 / 3208 – 6130	e-mail: direccioncueroysalado@gmail.com	J.P. Domínguez
Rebolorio, Adelsu,M&E, Director de Planificacion. Monitoreo y Evaluacion Institucional Instituto Nacional de Bosques	Oficina de INAB, Guatemala City, Guatemala	3-Feb-16			Bruce Kernan, Virginia Reyes
Regina Soto	USAID/Guatemala Economic Growth	May 24, 2016	502 2422 4343	rsoto@usaid.gov	Bruce Kernan
Reyes, Wendy, Coordinator de la Unidad Tecnica de la Mancomunidad de Municipios de Sur, NASMA	Centro de Investigacion Aquicultura, San Lorenzo, Empresa Nacional Portuario, Depat. Del Valle	Jan 25, 2016	33759986	Email:wp.reyes72@gmail.com	Bruce Kernan, Enrique Barazza, Hector Fuentes
Robles, Teresa, Asesora en Politicas de Tierra y Recursos Naturales, Oficina de Desarrollo Economico	USAID/Guatemala	May 24, 2016	(*502) 2422 4325	trobles@usaid.gov	Bruce Kernan
Rodríguez, Eduardo Chrysina – Biodiversidad y Bienestar Especialista en desarrollo local y ordenamiento territorial (geógrafo)	San José, Costa Rica	1° de febrero 2016	(506) 8779 1681	eduardorh@chrysina.org	Zulma Ricord de Mendoza
Ron Savage	CC Chief USAID/DR	May 20, 2016	829-368-7042	rsavage@usaid.go	Bruce Kernan

Key Informant:	Country/Place:	Date:	Telephone Numbers:	Email:	Team Member(s):
				v	
Ronnie de Camino, Climate Change Programme/ CATIE	Turrialba, CATIE , Costa Rica	February 15th		rcamino@catie.ac.cr	Miguel Cifuentes
Sandra Liborio: Gender and Development Specialist / Bussiness Adminitration Administration	Country/El Salvador	Viernes 26 de febrero de 2016		sliborio23@gmail.com	Zulma Ricord de Mendoza
Santos, Alejandro, Deputy COP (Subdirector) Clima, Naturaleza y Comunidades en Guatemala, Programa TREES, Rainforest Alliance, Inc.	8 Av. 15-62 zona 10, Ciudad de Guatemala	March 17, 2016	PBX. 2300-6800 Ext	asantos@ra.org	Bruce Kernan
Sevilla, Lesbia: SINAC – Cooperación Internacional	Costado Sur ULACIT, Ave 15, San Francisco, Barrio Escalante	Martes 2 de febrero 2016	(506) 2522 6500	lesbia.sevilla@sinac.go.cr	Zulma Ricord de Mendoza
Shannon Thomas	US Embassy, Costa Rica, Regional Environmental Hub	May 20, 2016	506 251 92392	sthomas@state.gov	Bruce Kernan
Shira Miguel, Coordinadora del Movimiento de Mujeres Nidia White	Puerto Cabezas, Bilwi	2 marzo, 2016			Bruce Kernan, Zulma de Mendoza
Torres, Joe, Regional Environmental Officer	USAID/El Salvador	May 29. 2016	503 2501-3422	jtorres@usaid.gov	Bruce Kernan
Vinicio Cerezo, Marco, Director General, FUNDAECO	Guatemala City, Hotel Barcelo	Feb 5			Bruce Kernan
Yaritza Sandoval, Laboratorio de Biología Molecular, Centeno, Anna y Suyen Espinoza (Bioquímica)	Managua, U. Catolica de Managua, Laboratorio de Genetica	29 feb, 2016			Bruce Kernan, Zulma de Mendoza

ANNEX D: TERRESTRIAL, FRESHWATER AND MARINE BIOMES AND ECOREGIONS

Figure 21: Terrestrial Biomes and Ecoregions

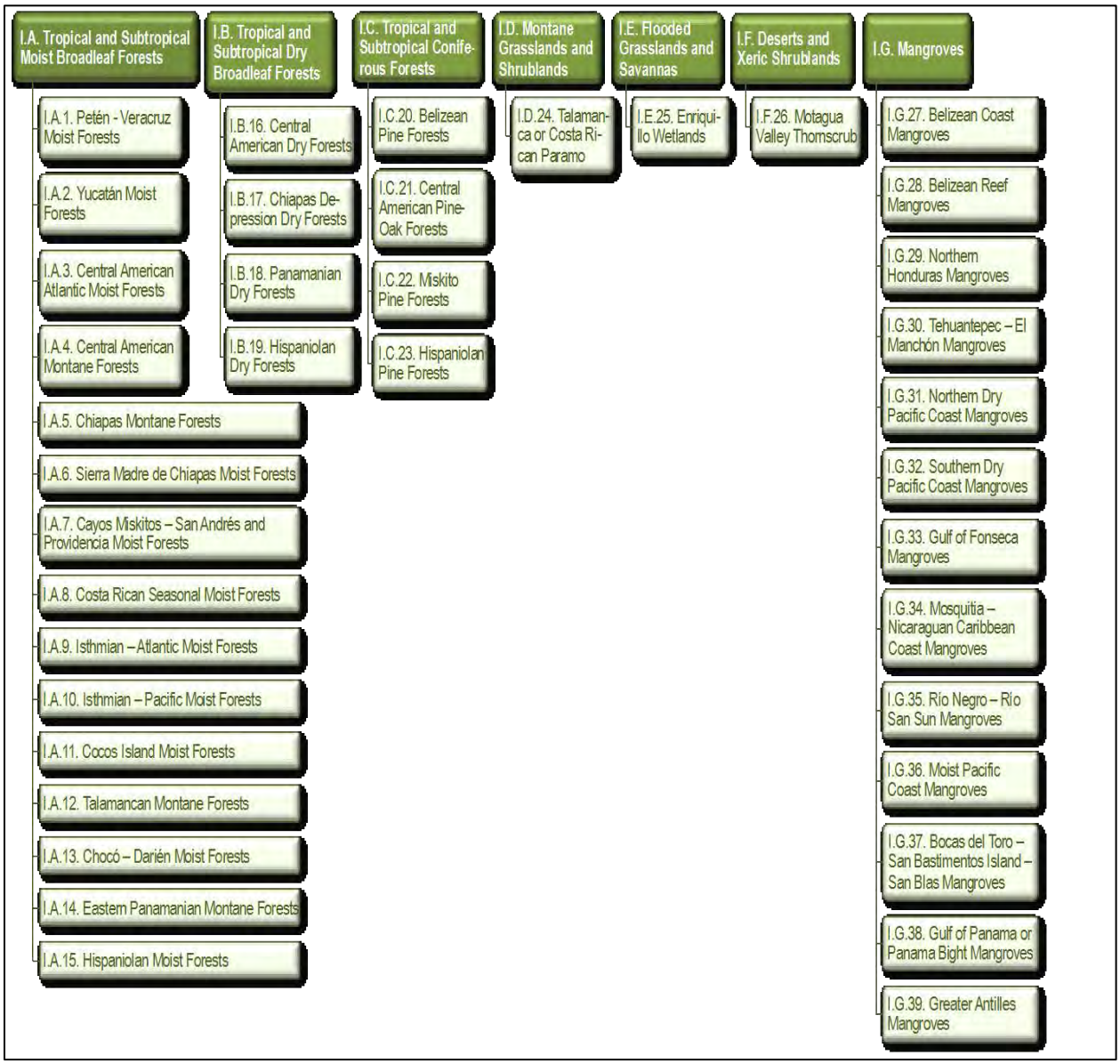


Figure 22: Freshwater Biomes and Ecoregions

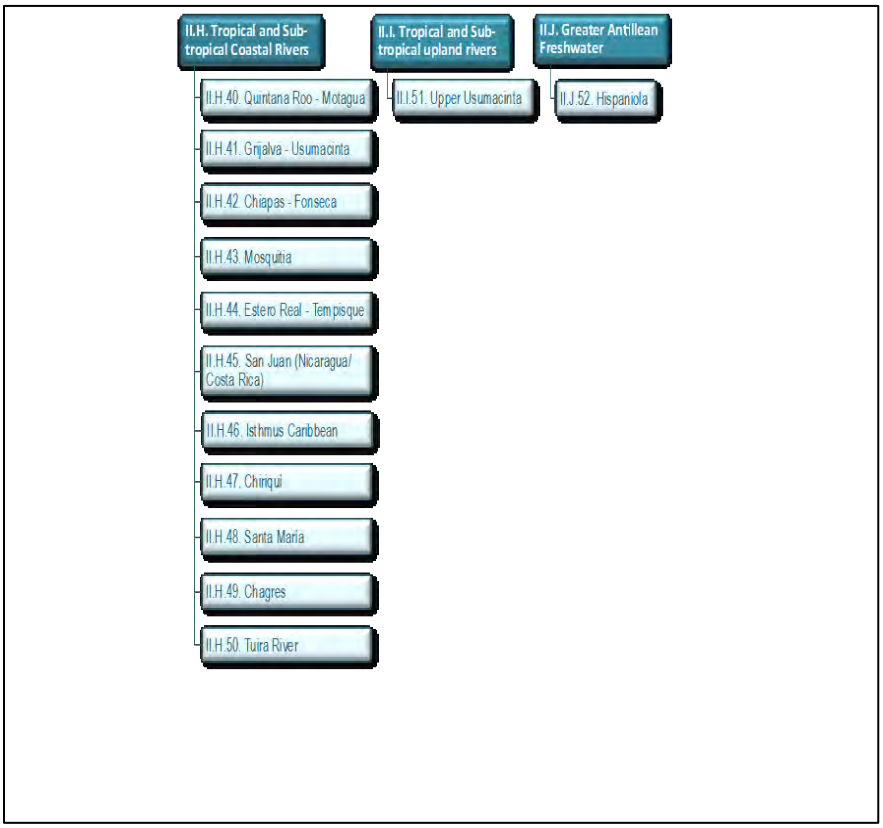
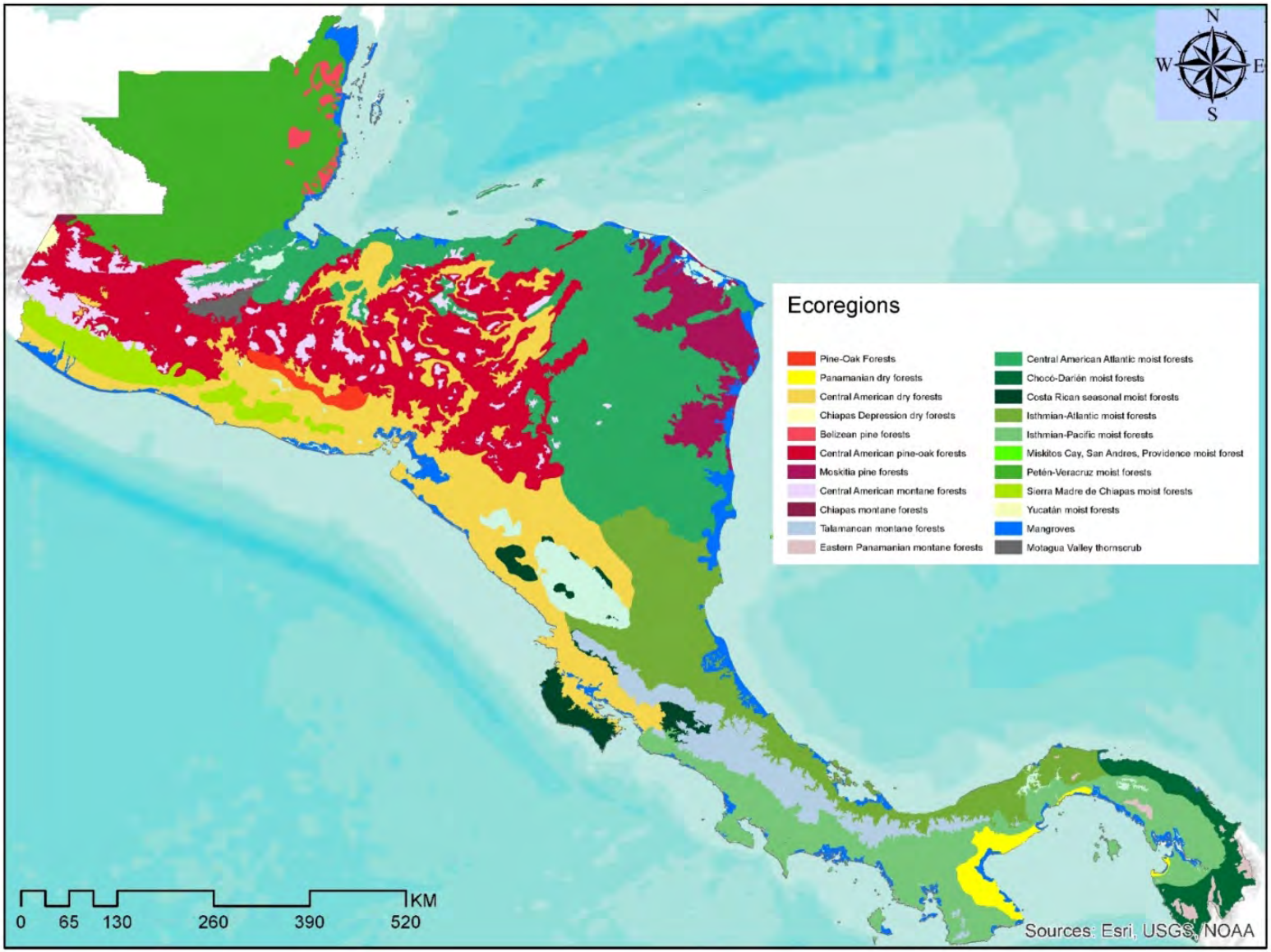


Figure 23: Marine Biomes and Ecoregions

Figure 24: Map of Terrestrial Ecoregions – Central America

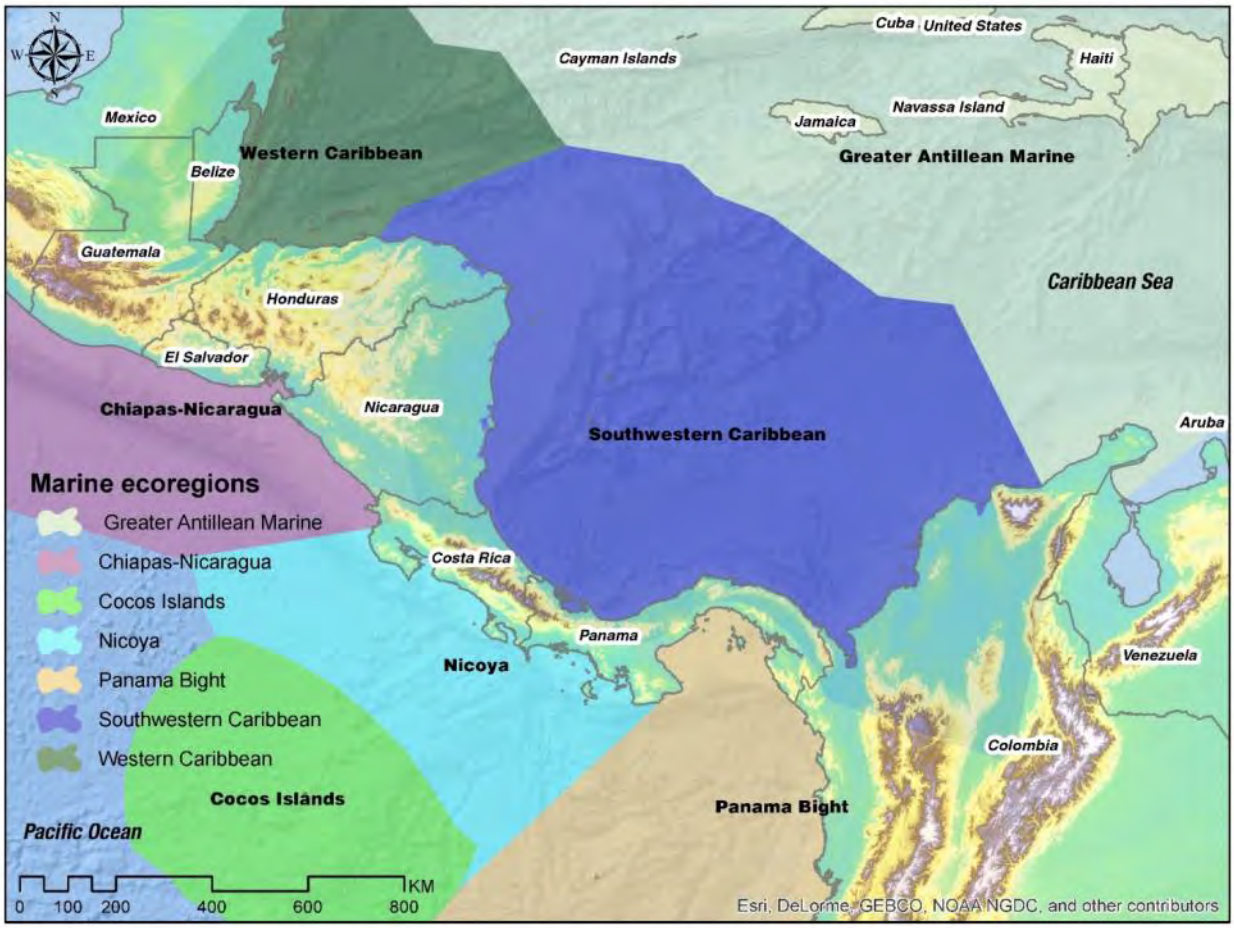


Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 25: Map of Freshwater Ecoregions – Central America

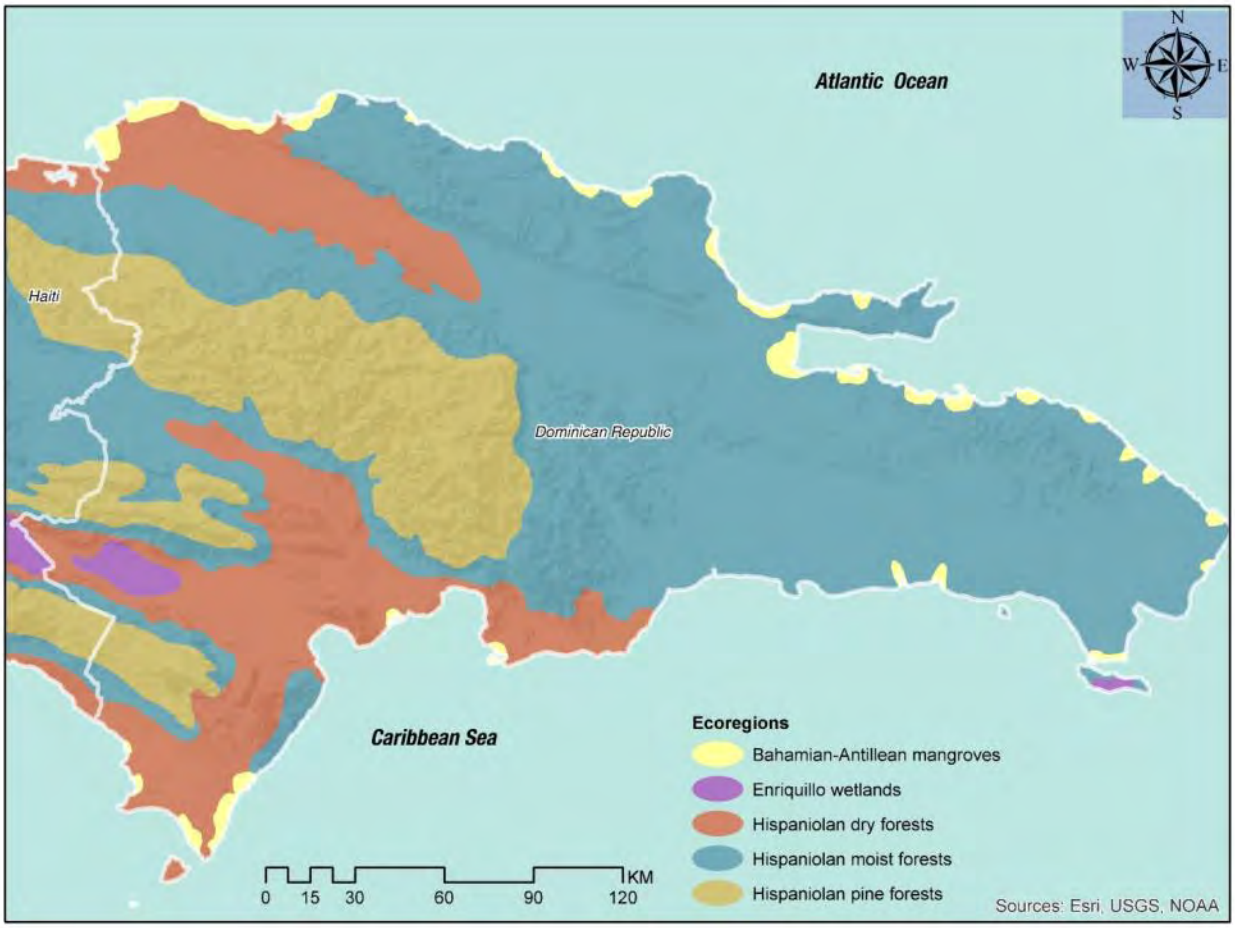
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 26: Map of Marine Ecoregions – Central America



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

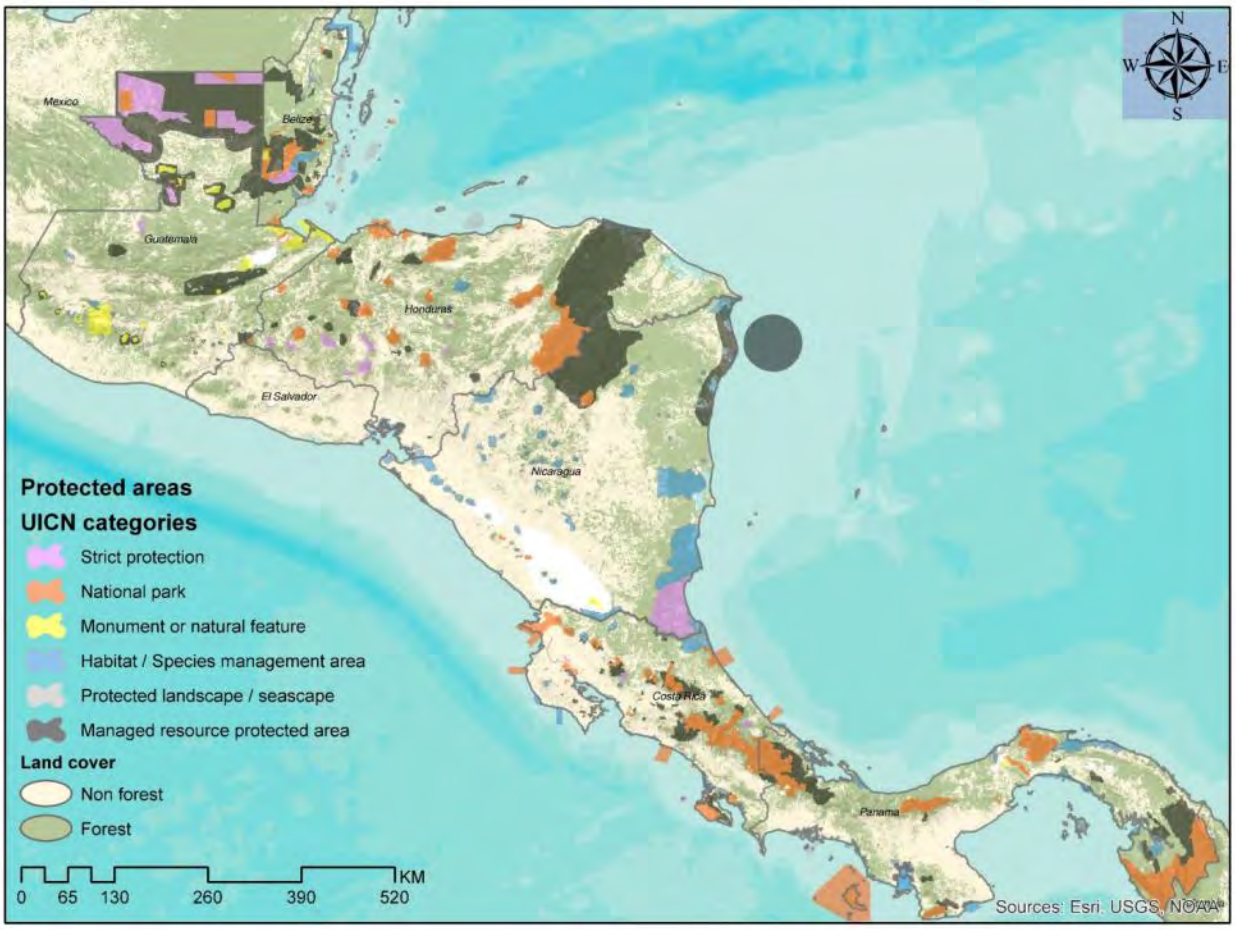
Figure 27: Map of Ecoregions – Dominican Republic



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

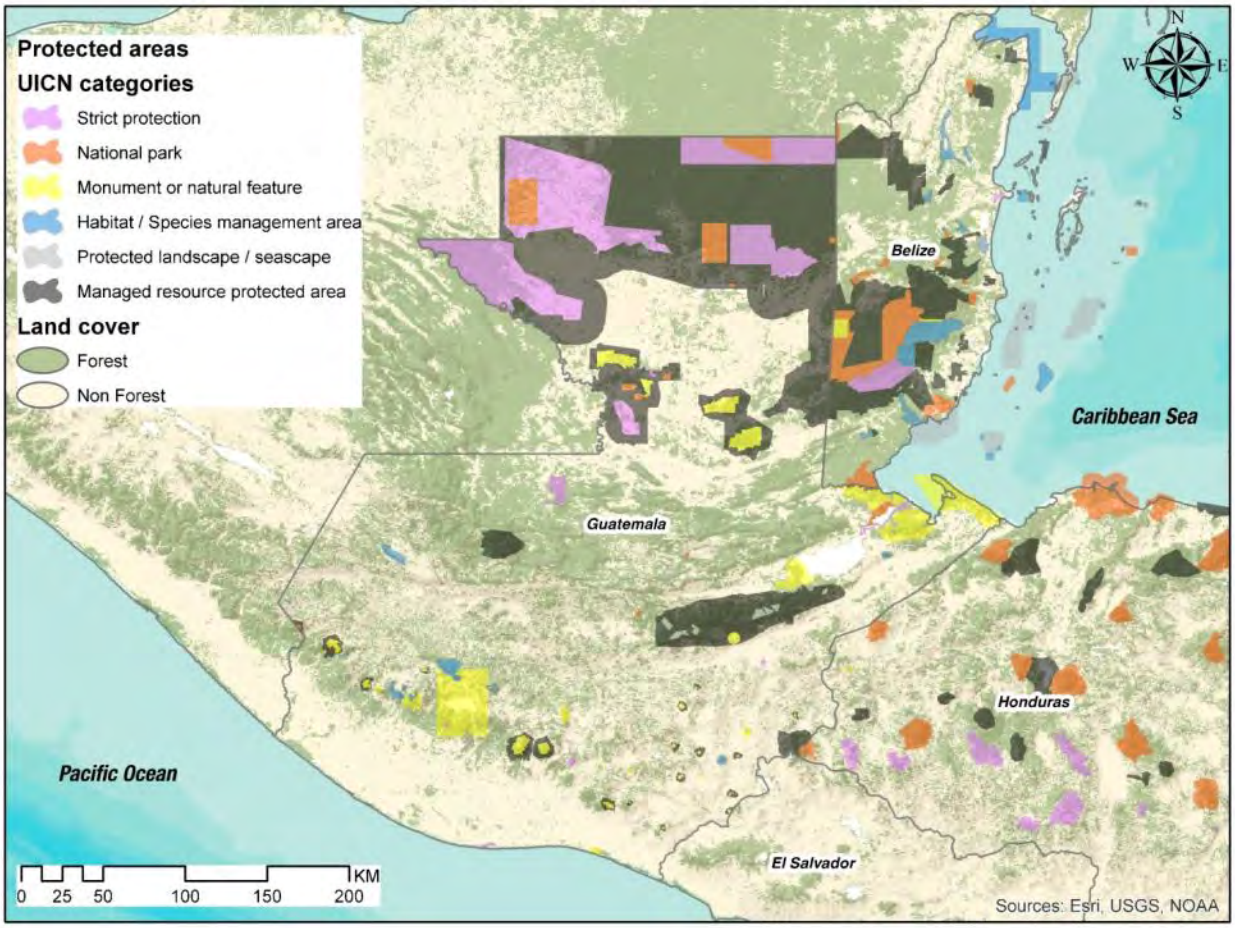
ANNEX E: MAPS OF PROTECTED AREAS

Figure 28: Map of Protected Areas –Central America



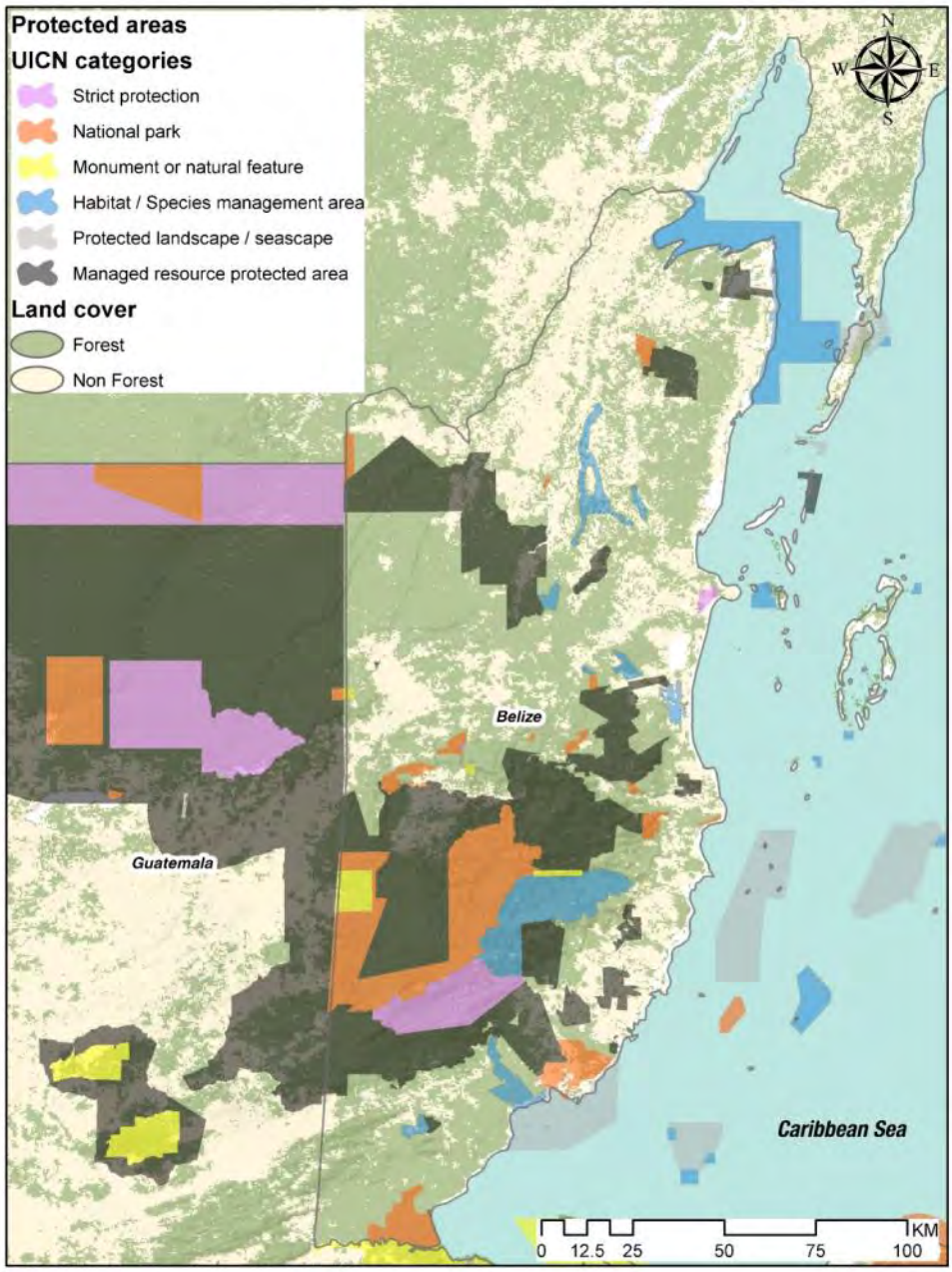
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 29: Map of Protected Areas - Guatemala



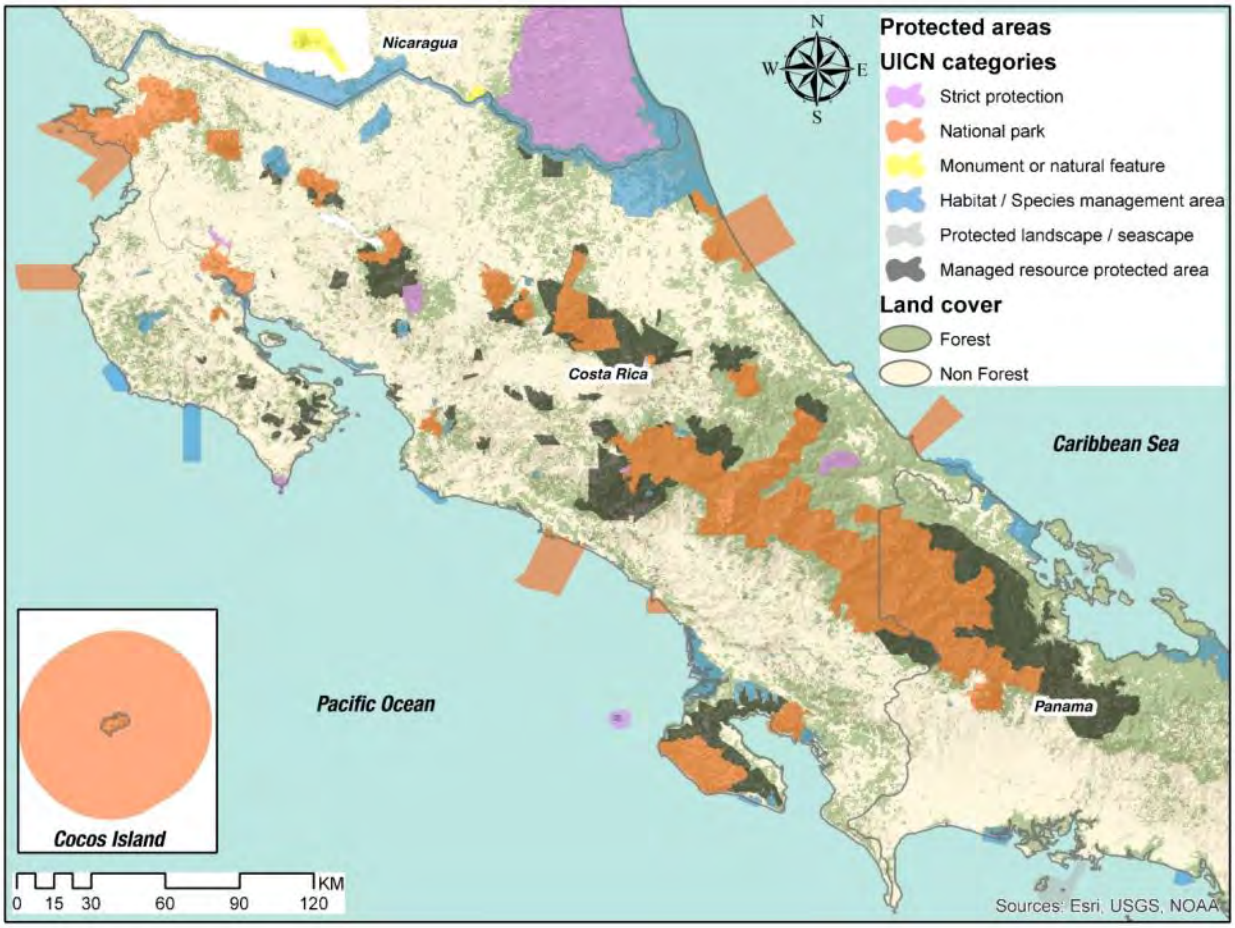
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 30: Map of Protected Areas - Belize



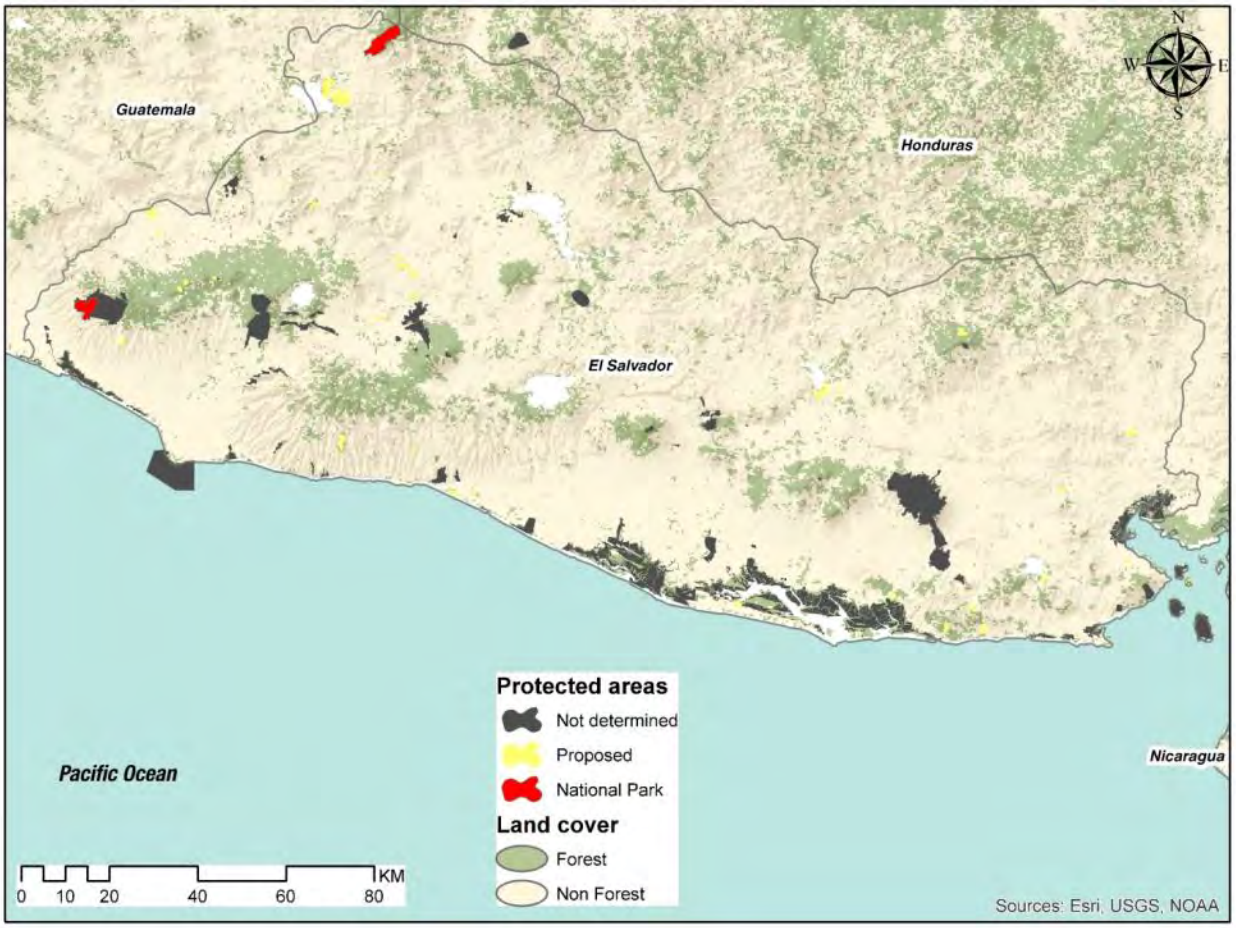
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 31: Map of Protected Areas –Costa Rica



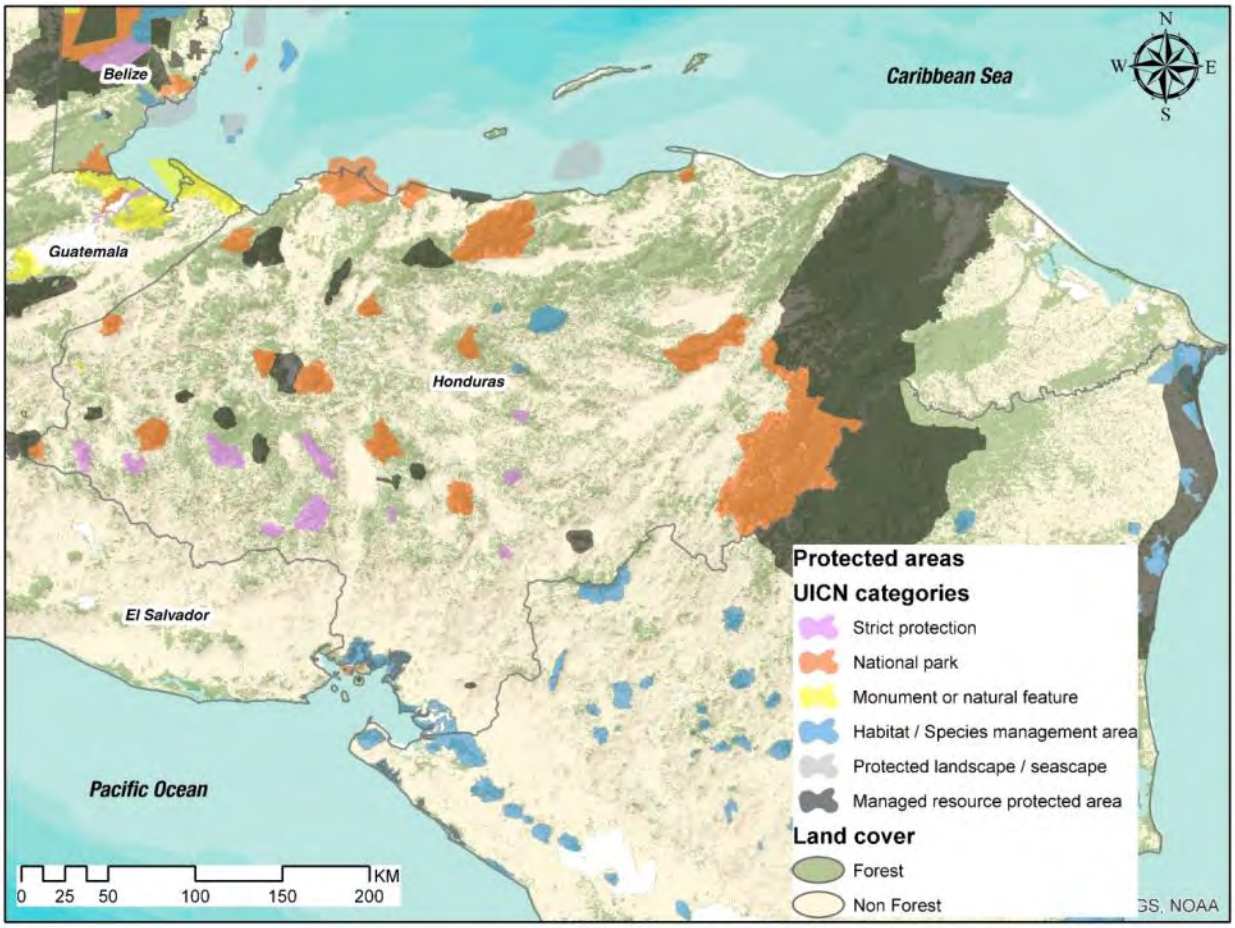
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 32: Map of Protected Areas – El Salvador



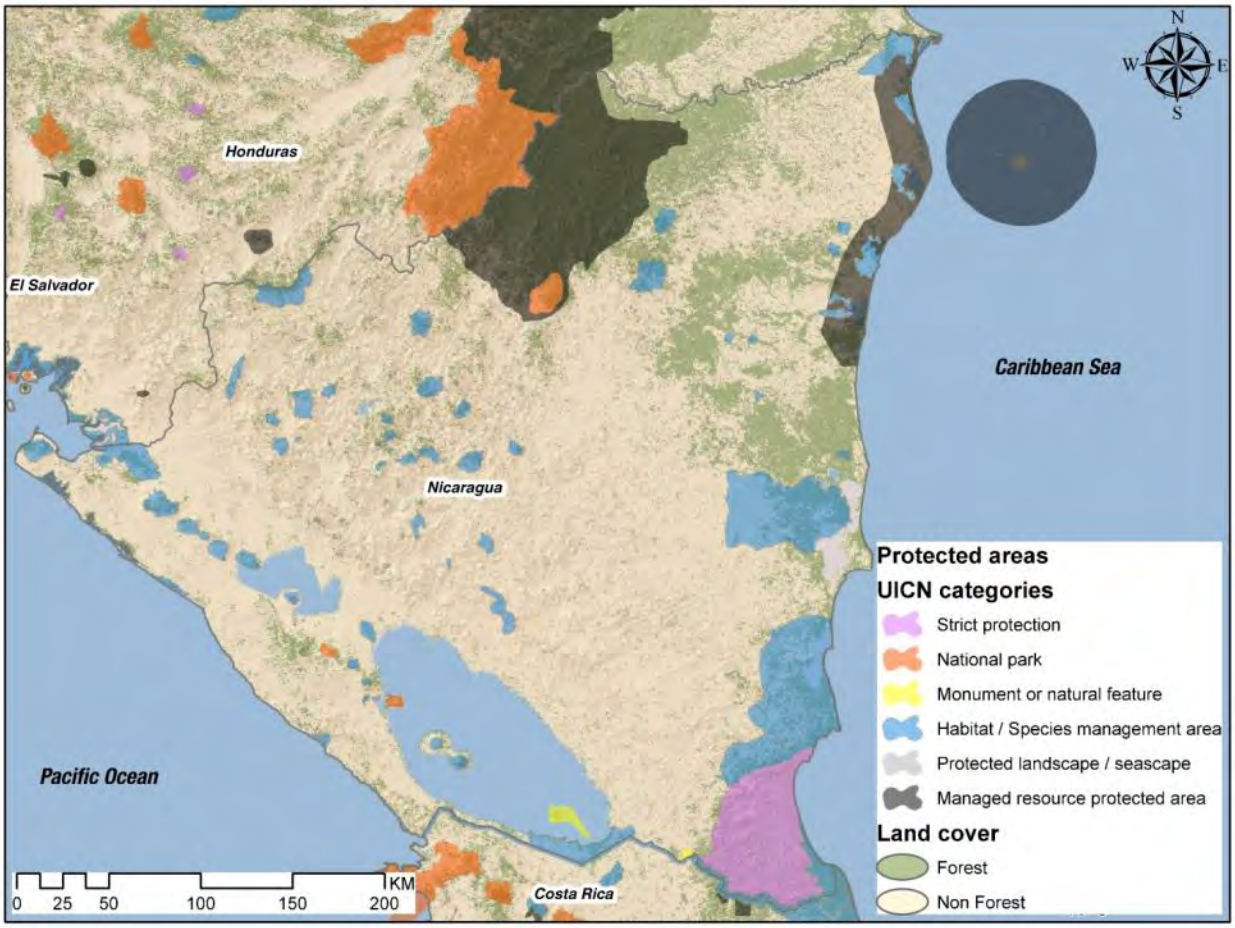
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 33: Map of Protected Areas - Honduras



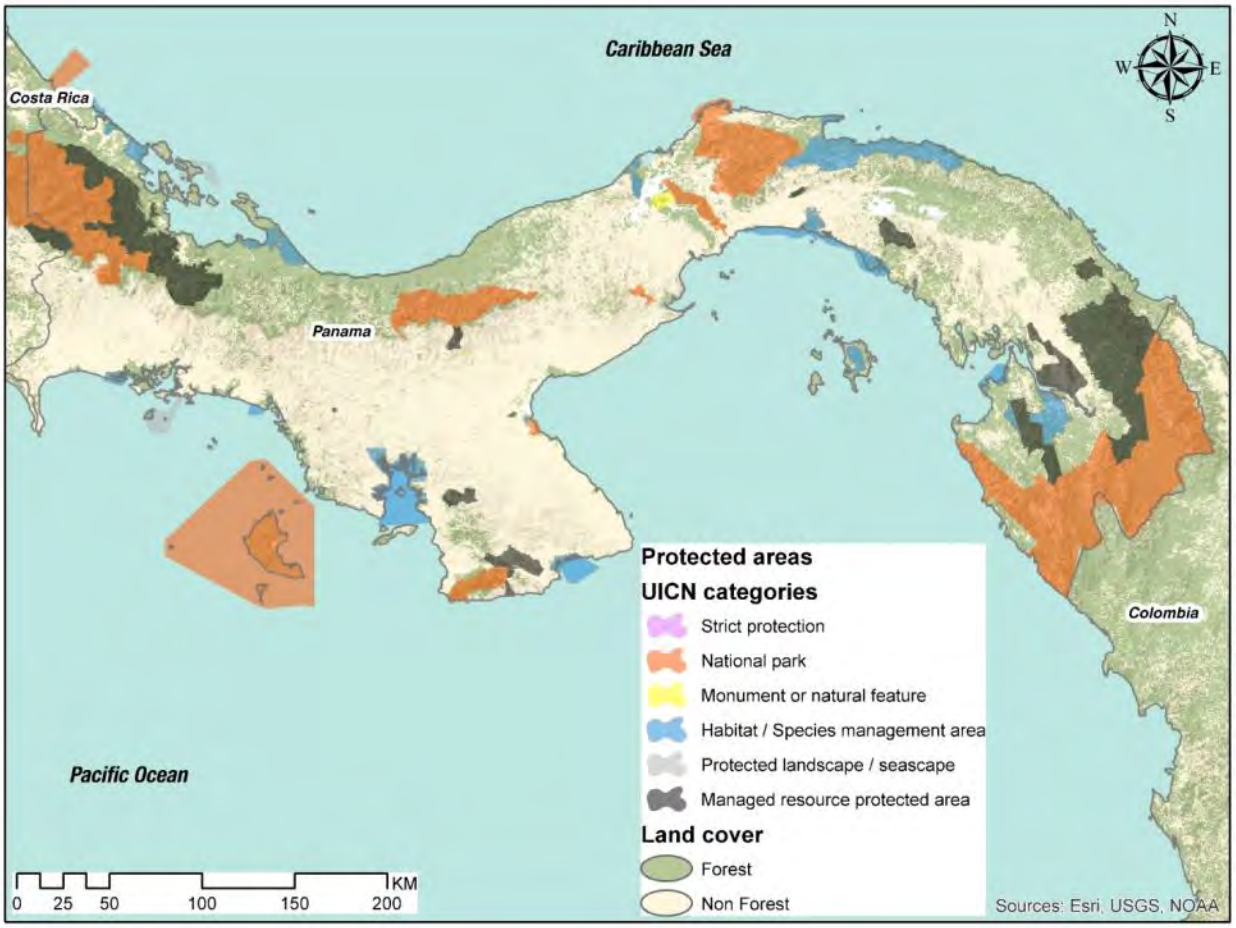
Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 34: Map of Protected Areas - Nicaragua



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

Figure 35: Map of Protected Areas - Panama



Source: Prepared by ECODIT for USAID/CAM under this Task Order (2016) – Data, see map.

ANNEX F: LISTS OF ROAD PROJECTS

Country	Project	$ million
Costa Rica	supervise the construction of the new road to San Carlos	4
Costa Rica	road maintenance throughout country	151
Costa Rica	municipalities construction and maintenance of cantonal roads	200
Costa Rica	pre-design work, design and the necessary technical studies	21
Costa Rica	highway between Bajos de Chilamate and Vuelta Kopper.	20
Costa Rica	expansion of the Section Barranca - Limonal on the Interamerican Highway	200
Costa Rica	expanding the road from San Ramon to San Jose.	436
Costa Rica	road renovation, widening, of overpasses and breakwater at berths	450
Costa Rica	extension of the road to Limón.	485
Costa Rica	municipal road infrastructure	200
Total		2167
Panama	22 kilometers of road from Garachiné to Sambu in Darien	21
Panama	22 kilometers of road between the provinces of Herrera and Los Santos	13
Panama	access to the international airport of Tocumen	14
Panama	extension of the taxiway; build El Guabal Calovébora highway	38
Panama	construction of roads, housing and medical units	141
Panama	Construction Cerro Sombrero & Chichica - Cerro Miel - Peña Banca- Tugri	20
Panama	maintenance for road between Plaza Agora in Pueblo Nuevo & Los Andes	15
Panama	expansion project of the Southern Corridor route	509
Total		771
Honduras	construction of the Palmerola airport, and roads in different parts of the country	1,600
Honduras	finance road infrastructure through public-private partnerships	150
Honduras	build the Suyapa-Trapiche and Altos del Trapiche bridges	5.3
Honduras	construction of Logistics Corridor to link Puerto Cortés with El Amatillo	2,000
Honduras	105 kilometers with four lanes in the departments of Cortés, Yoro and Atlantis.	260
Honduras	renovate road La Entrada-Copán -El Florido& Entrada Santa Rosa de Copán.	62.3
Total		4,078
Guatemala	Atlantic Highway, between Sanarate and El Rancho	131
Guatemala	improvement of two Sections of the CA12 and CA10 roads, in Chiquimula	38.7
Guatemala	renovation of the CA-2 East route, Escuintla - Ciudad Pedro de Alvarado.	258
Total		427.7
El Salvador	expand road Puerto La Libertad & build two bridges in La Hachadura & Anguiatú	144
El Salvador	protection works, dredging of rivers and streams & oad maintenance nationwide	45
El Salvador	overpass in the city of San Miguel	122
Total		311
Nicaragua	construction 26 kilometers of the road between Bluefields and San Francisco	27
NIcaragua	construction of 126 miles of road between the towns of Mulukukú and Siuna.	149
Nicaragua	hydraulic cement paving of 45 kms of road La Gateada- - Bluefields.	62
Total		238
TOTAL		7,992

ANNEX G: INFORMATION ON SELECTED COUNTRY AND REGIONAL DONOR-FUNDED CONSERVATION PROJECTS

Agency	Project Name	Country / Region	Description	Value	Start	End
USAID	Regional Program for the Management of Aquatic Resources and Economic Alternatives (MAREA).	Central America (emphasis in the Gulf of Honduras, Miskito Coast, Cahuita – Bocas del Toro and Gulf of Fonseca)	The focus of MAREA is to target both fisheries and the conservation of important species, as well as promote viable opportunities and best management practices in four marine-coastal sites that cross the boundaries between CAFTA-DR member countries: Gulf of Honduras (Belize, Guatemala, Honduras); Mosquito Coast (Honduras, Nicaragua); Cahuita-Bocas del Toro (Costa Rica, Panama); and Gulf of Fonseca (El Salvador, Honduras, Nicaragua) (see H.l). In order to accomplish these goals, MAREA promotes the effective enforcement, compliance, and monitoring of policies and legislation regarding marine-coastal resources, as well as ways of managing marine-coastal resources that encourage their conservation and sustainable use.	US$ 13.9 million	2010	2015
USAID	Clean Energy Finance Facility for the Caribbean and Central America (CEFF-CCA)	Central America and the Caribbean	CEFF-CCA intends to provide $10 million in grant funds to address an urgent need to enhance energy security and lower energy costs in both regions, as more reliable and less costly energy is a critical factor for both regions' economic prosperity and competitiveness. It is a whole-of-government initiative leveraging the resources of USAID, the US Trade and Development Agency (USTDA), and the Overseas Private Investment Corporation (OPIC). CEFF-CCA grants will provide targeted assistance to help promising but undercapitalized renewable energy and energy efficiency projects answer core technical, business/financing model strategy and structuring, and other feasibility questions in order to enable them to reach financial close. This assistance will contribute to governments in the regions achieving their established targets for enhancing energy security and reducing greenhouse gas (GHG) emissions. Facility funding is available to investors and project developers, and to host country public and private sector project and investment program sponsors, as well as to private-public partnership projects (PPP).	12 million	2015	2017
USAID	Regional Climate Change Program (RCCP).	Central America and the Dominican Republic.	The RCCP will enable Central American countries to jointly reduce emissions from deforestation and forest degradation (REDD+) through the implementation of key interventions aimed at promoting the development and strengthening of "climate-smart" landscapes that serve a dual purpose of satisfying mitigation and adaptation needs of vulnerable local communities, and facilitating the establishment of national and regional elements required to facilitate access to international financial and economic incentives for the conservation of tropical forest ecosystems. The RCCP's "climate-smart" interventions follow a "no regret" philosophy: whether or not an international, legally-binding REDD+ agreement is reached, the innovative policies, enhanced capacities, and targeted interventions developed and implemented by the RCCP to achieve sustainable natural resources management at the landscape scale will be beneficial in and of themselves. The	US$ 18.5 million	2013	2018

Agency	Project Name	Country / Region	Description	Value	Start	End
			RCCP's goal will be achieved through five main objectives: 1. Facilitating investments for developing local, national and/or trans-boundary carbon credit marketing proposals; 2. Developing cross-scale integrated mitigation interventions to address climate change stressors and vulnerabilities; 3. Establishing regionally integrated and harmonized REDD+ strategies and protocols, and monitoring, reporting, and verification (MRV) protocols; 4. Facilitating the generation of data systems to support decision-making; and 5. Distributing climate change data for a wide range of relevant users			
USAID	Promoting Food Security and Trade Integration through Sanitary and Phytosanitary Standards (SPS) and Other Agriculture-Related Capacity Building,	Central America and the Dominican Republic.	A regional agreement that plans to support Feed the Future by building government and producer capacity to enhance food security and promote regional agricultural trade among participating Central American nations. Technical assistance and capacity building will target governments and small farmers to improve productivity, market linkages, information systems and food safety compliance.	31 million	2011	2016
USAID	Sea Turtle Conservation and Improvement of Coastal Communities Livelihoods Program	El Salvador	Though the program was originally run by a U.S. organization, the transition to FUNZEL is part of USAID's new vision under the USAID Forward initiative to build capacity for local organizations. The goal of the conservation program is to support coastal communities' shift from the traditional sea turtle egg harvest and trade for consumption to sea turtle egg protection, incubation and release into the sea and beach protection. FUNZEL is successfully convincing local fishery communities of the benefits of conservation by empowering them to manage turtle hatcheries as a sustainable eco-tourism business.		2011	2014
USAID	Improved Management and Conservation of Critical Watersheds	El Salvador	El Salvador has lost much of its biodiversity and natural resources, a fact which affects the health of Salvadorans, leaves the country vulnerable to natural disasters, complicates important services such as water supply and erosion control, and affects the livelihood of populations who directly depend on these natural resources. Implementing environmentally sustainable practices is a crucial step in reversing the loss of biodiversity and economically important natural resources. This project works with our partners to improve sustainable management of natural resources in protected areas, biological corridors connecting these areas, and along the Salvadoran coastline. Select Results: The formal declaration of El Salvador's first marine and coastal protected area, Los Cobanos, on the western coast, took place in November 2007. This area represents 20,732 hectares of ocean and 580 terrestrial hectares (mostly high-priority mangroves); Provided training in natural resource management and biodiversity conservation to 768 residents in the targeted watershed areas; Assisted 50 new farms in the targeted watersheds to achieve specialty coffee certification under Rainforest Alliance norms; Signed up 365 new smaller-scale producers to implement conservation measures and clean technology while expanding production, mostly for the domestic market; Promoted tourism in the project area by assisting two town festivals.	0.5 million	2006	2011
USAID	Agroforestry for Biodiversity and Ecosystem Services (ABES) Project	El Salvador	The ABES Project is working with farmers to develop an agroforestry strategy appropriate for steep hillsides that maximize farm profit and protects natural resources. The project will contribute to the restoration and conservation of hillside ecosystems of El Salvador by		2012	2016

Agency	Project Name	Country / Region	Description	Value	Start	End
			adapting and disseminating agroforestry-based production systems as climate-smart, eco-efficient agricultural options to improve the livelihoods of farmers. This will be achieved through adaptive research and dissemination activities that will contribute to four major project objectives. The results of this project will help develop national level strategies for extension and agricultural development that will: Increase long-term crop yields and farm profitability; Improve food security; Provide secondary products (i.e., fuelwood); Reduce air pollution; Mitigate biodiversity loss; Control erosion; Improve water quality; Protect against drought and floods.			
USAID	Strengthening Governance in the Maya Biosphere Reserve	Guatemala	The three objectives under the Strengthening of Governance in the MBR Project are: 1) multi-sector and cross-border communication and collaboration strengthened; 2) governance and enforcement capabilities strengthened; and, 3) implementing tools for long-term sustainability established. Work towards the achievement of these three objectives will help to improve the overall goal of increased conservation of biodiversity within the MBR, as weak governance in the area contributes to the loss of biodiversity.	2 million	2010	2020
USAID	Low Emission Development Strategy (LEDS) Project	Guatemala	The LEDS Project will support USAID/Guatemala and the Government of Guatemala in the development and implementation of a Low Emission Development Strategy to reduce greenhouse gas (GHG) emissions from priority sectors in the Guatemalan economy. The overall objective is to partner with the GOG to develop and implement this LEDS Project and build institutional capacity in order to reduce the effects of climate change and mitigate GHG emissions. The project will also promote participatory processes with the private sector and civil society.	3.7 million	2014	2019
USAID	Climate, Nature and Communities in Guatemala (CNCG)	Guatemala	The project will mitigate impacts of climate change through an integrated approach, including improved management of natural resources and conservation of biodiversity. Build institutional and technical capacity. Establish and fortify policies and legal frameworks related to climate change. The project will play a critical role in advancing Guatemala's efforts to develop and implement a Reducing Emissions from Deforestation and Forest Degradation (REDD+) Strategy and facilitate a Low Emission Development Strategy (LEDS), while also working to increase resilience to climate change impacts.	25 million	2013	2018
USAID	Western Highlands Integrated Program of Integrated Actions for Food Security and Nutrition (PAISANO)	Guatemala	In target municipalities with the highest chronic childhood malnutrition, the program integrates income generation and maternal/child health interventions that reduce food insecurity while improving the family's livelihood and health. USAID implementing partners use food aid rations for targeted supplementary feeding for 6 to 36 month-old children and pregnant/lactating women, while they work with families to improve and diversify agricultural production (i.e., soil management and conservation practices), micro-enterprise, and marketing activities that augment farm income sources.	17.5 million	2012	2018
USAID	Participating Agency Program Agreement (PAPA) with the U.S. Forest Service	Guatemala	The project will provide ongoing capacity building and institutional strengthening to the GOG in natural resources management. The USFS has supported the Guatemalan forestry sector by bringing USFS expertise and creating technical exchanges in the following areas: forest inventory, fire management, reduced impact logging, protected area management, and forest health. Activities under this buy-in will		2015	2017

Agency	Project Name	Country / Region	Description	Value	Start	End
			support the implementation of USAID's initiative under the Climate, Nature, and Communities in Guatemala (CNCG) Program, Guatemala's National Forest Fire Prevention and Control System (SIPECIF in Spanish), and work to reinforce and improve forestry management at institutional, academic, and community levels.			
USAID	Sustainable Water Management in the Cuchumatanes	Guatemala	Support a series of investments for improved water access and use in the Cuchumatanes Plateau in the department of Huehuetenango. Participants will learn to utilize rain water for both irrigation and potable water, thus improving agricultural production, nutrition and sanitation.	1 million	2013	2016
USAID	Global Food Security PAPA	Guatemala	To support a cadre of Peace Corps Response Volunteers who can provide targeted technical assistance in food production, nutrition, and monitoring and evaluation to FTF implementing partners, thus facilitating implementation of FTF activities in the Western Highlands	0.45 million	2011	2016
USAID	Small Project Assistance Program	Guatemala	Through Small Projects Assistance (SPA), USAID is funding various U.S. Peace Corps (PC) activities. In Guatemala, PC is an integral part of USAID's whole-of-government approach to foreign assistance. With USAID FY 2012 funding, PC will be involved in the implementation of Global Climate Change Initiative activities in support of the environment, including adaptation to climate change. Illustrative activities under this implementing mechanism could include: workshops on best practices for climate change adaptation, training on environmental education, training on best practices in sustainable community tourism, the installation of more efficient wood burning stoves accompanied by training in the hazardous effects of indoor smoke inhalation, and training in the importance of forest conservation.	0.14 million	2011	2016
USAID	Central America Regional Clean Energy Initiative	Guatemala, El Salvador and Honduras	This initiative seeks to achieve a balance between the environment and society, favoring their integrated development. It also aims to bring about improved quality of life for the people of Central America while contributing to electrical supply security, job creation, economic growth, and the stability of energy prices. Work includes: Reviewing national and regional policies and regulations for the Regional System Operator and identifying barriers and improvements; Developing strategic plans for key institutions associated with the regulatory market and policy and oversight; Studying national and regional regulations on taxation, treaties under the Central American Integration System, and the regional regulator's internal procedures that will improve the investment climate in renewable energy generation; Developing an integrated institutional and procedural flowchart for development and approval of new energy projects including contractual, financial, and installation information; Providing technical assistance to develop efficient public lightning programs with municipalities in coordination with Consejo Nacional de Energía (CNE) in El Salvador	31 million	2011	2016
USAID	Sustainable Agriculture and Food Security Program	Guatemala, Honduras, El Salvador, Belize, Nicaragua, Costa	Support a regional agenda for food security with the political commitment and mandate of the Central America governments, through the Central American Council of Agriculture (CAC), to engage with regional, multilateral organizations and donors in dialogue, accountability and the development of partnerships to formulate and analyze Food and	5 million	2012	2017

Agency	Project Name	Country / Region	Description	Value	Start	End
		Rica, Panama and the Dominican Republic	Nutritional Security policies, strategies and programs. Consolidate a regional platform for research and innovation of sustainable agriculture practices to support dissemination for farm level application and consolidation of national efforts at a regional level, in partnership with international, regional and local agencies and centers of excellence.			
USAID	ProParque	Honduras	An economic growth and natural resources project that seeks to realign Honduras's economic and social development trajectory with the sound management of its rich natural resource base. Its main objective is to achieve sustainable economic growth while focusing on the protected areas of Honduras and its communities. This will be achieved by working simultaneously in three different areas: biodiversity and natural resource management, rural enterprise growth, and climate change/natural disaster risk reduction. Expected results include: US$30 million in new net sales in the tourism and forestry/agroforestry sectors, working with micro, small and medium-size enterprises (MSMEs) in and around protected areas; 5,000 new full time jobs; Improved ecological monitoring in all 10 targeted protected areas.; 1,500 new hectares under legal protection on private lands protecting forests or other high-priority habitat in geographic areas defined as conservation priorities for SINAPH; 19,000,000 metric tons of greenhouse gas emissions reduced or sequestered. Carbon sequestration will be achieved through private reserves, pilot REDD+ activities, agroforestry/ reforestation efforts, and protected areas; and 30 megawatts of clean/renewable energy generated.	20 million	2011	2016
USAID	Adaptation to Climate change through Rainwater Harvesting	Honduras	Construction of 10 reservoirs "water harvesting" where directly 200 families will benefit 1,940 farmers beneficiaries and 188 families of the 9 existing reservoirs, and 200 additional families receive at least productive technical assistance. In addition to being a productive project that significantly improves the incomes of families and communities it is also a scientific research project that allows rigorously measure the environmental impact of technology "Harvests Rainwater" on household income and food security small farmers, crops provide evidence of how water harvesting, along with drip irrigation and improved agronomic practices, increase household incomes and provide social and environmental benefits, Honduras could become the country concerning the regional level Central validation of an agricultural technology impact and general application in the rest of the dry regions of the world.	1 million	2010	2015
USAID	ACCESO	Honduras	ACCESO is a comprehensive, market-based, agriculture-led project focused on the most food insecure areas of western Honduras; specifically, on the poorest municipalities in the departments of Intibucá, Lempira, La Paz, Copán, Ocotepeque, and Santa Bárbara. There are six key components being implemented to enable economic development and nutrition improvements at the household level: Technical assistance and training to enhance the capacity of Honduras's poorest households in production, postharvest, management, and marketing skills; Market access focus, linking farmers to market opportunities; Rural financial services through existing rural financial intermediaries, village banks, commercial banks, and other service and input providers; Assistance in eliminating policy barriers that		2011	2015

Agency	Project Name	Country / Region	Description	Value	Start	End
			impede rural household access to market opportunities; Malnutrition prevention to enhance the capacity of rural households to improve utilization and consumption of food; and Sound environmental and natural resource management.			
USAID	Integration of Climate Change Adaptation in Twenty Communities in the Darien Region	Panama	To build the capacity at the community and national level to support climate change adaptation in the Darien through training programs to prepare for and respond to the impacts of climate change.	0.9 million	2011	2012
Adaptation fund, World Bank	Belize Marine Conservation and Climate Adaptation Project	Belize	to implement priority ecosystem-based marine conservation and climate adaptation measures to strengthen the climate resilience of the Belize Barrier Reef System. The project will take a two-pronged approach – both enhancing ecosystem function and therefore resilience through recovery and restoration, and reducing degradation caused by overexploitation and pollution. Specifically, the project will support (i) the improvement of the reef's protection regime including an expansion and enforcement of the Marine Protected Areas (MPAs) and replenishment (no-take) zones in strategically selected locations to climate resilience, (ii) promotion of sustainable alternative livelihoods for affected users of the reef, and (iii) building local capacity and raising awareness regarding the overall health of the reef ecosystem and the climate resilience of coral reefs.	6 Million	2015	2020
Adaptation fund, World Bank	Reducing the vulnerability by focusing on critical sectors (agriculture, water resources, and coastlines) in order to reduce the negative impacts of climate change and improve the resilience of these sectors	Costa Rica	to reduce climate vulnerability by focusing on critical sectors (agriculture, water resources, and coastal zones) in order to reduce the negative impacts of climate change, and improve the resilience of those populations. This program will seek to increase climate resilience by working directly with local stakeholders and anticipated beneficiaries through the implementation of adaptation projects in each of the geographical areas selected. Projects submitted by local organizations have been screened and the preselected proposals went through an in-depth assessment of their potential for the enhancement of climate resilience, which involves an analysis of the actions' appropriateness, based on the local biophysical and socioeconomic context. The support will consist of investment in interventions, technical assistance, and training related to this plan.	10 Million	2014	2019
BID-Nordic Development Fund (NDF)	Environmental Program for Disaster Risk and Climate Change Management Progrma Ambiental de Gestión ante desastres y cambio climático	Nicaragua	Reduce the vulnerability of rural populations in Nicaragua to phenomena associated with climate change through management actions based risk management and conservation of natural resources in watersheds prioritized by their vulnerability. Goals: Set out 821 hectares with forest grazing systems, representing 25% of the free area of pasture. Restored 511 hectares of gallery forest biological corridors that facilitate forming ecological connectivity. Established 150 hectares of forest plantations management and commercial exploitation. Set 5 butterfly farms, orchid farms 10 10 farms and 10 farms frogs iguanas in the Private Wildlife Reserves with the support of local conservation activities and their management plans. 75 circuits established in the eco-tourism with tour operators and management plans operating in the area. Established payment scheme for environmental services initially with 75 contracts with producers, owners of Wild Private Reserves and eco tourist farms to protect 2,822 hectares	13 million	2011	2015

Agency	Project Name	Country / Region	Description	Value	Start	End
			of forest in the area of the watershed of Lake Apanás.			
EU	EUROCLIMA.	Latin America	To facilitate the integration of strategies and plans for mitigation and adaptation to climate change in public policy development in Latin America.	US$ 15.7 million (€ 14.4 million)	2010	2016
EUROPEAID	WATERCLIMA – LAC (DeCuencas Regional Program Management and Coastal Areas in the context of Climate Change in Latin America and the Caribbean).	El Salvador	Pilot Project C. BajoLempa, Coastal Zone of El Salvador (Pacific). The problems to be solved in this area include: Swamps recovery; Decontamination of waste: control the use of agrochemical products; Protection against floods: control of sediments that come from the upper part of Lempa river's watershed; Water quality improvement and protection against drought; Organizational empowerment and environmental education			
GEF-IDB	Integrated Watershed Management of the Amanas-Asturias Basin	Nicaragua	To promote the conservation of biodiversity and voluntary adaptation and mitigation of climate change in the basin of Asturias Apanás and lakes.	4 million	2012	2016
GIZ	Fondo para el Sistema arrecifal mesoamericano (Fondo SAM).	Belice, Guatemala, Honduras y México	Fund for Mesoamerican Barrier Reef System (MBRS Fund).	US$ 18.6 million (€ 17 million)		
GIZ	Conservation and Sustainable Use of the Selva Maya	Belize, Guatemala and Mexico	Objective: Governmental and non-governmental actors of all three countries have implemented coordinated measures to protect and sustainably use the Selva Maya. Approach: The project supports efforts by national partner institutions to improve the legal framework governing management of nature conservation areas. At the same time it identifies ways and means for combining resource conservation with sustainable use, thereby creating alternative sources of income for local inhabitants from wood and non-wood forest products, and in suitable areas also from sustainable agricultural and livestock production. At regional level, the project supports work to develop common strategies aimed at fostering local and transnational cooperation between Belize, Guatemala and Mexico. In addition, the project promotes efforts to spread good practices that contribute to preserving while sustainably using the Selva Maya.	US$ 6.6 million (€ 6 million)	2010	2014
GIZ	Establecimiento de un sistema de monitoreo de la diversidad biológica y del cambio climático en la región de la Selva Maya.	Belize, Guatemala and Mexico	Establishment of a monitoring system of biodiversity and climate change in the region of the Maya Forest.	US$ 5.5 million (€ 5 million)		
GIZ	Iniciativa centroamericana y caribeña para aseguramiento contra riesgos catastróficos (Iniciativa CCRIF).	Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama	Central American and Caribbean Initiative for insurance against catastrophic risks (Initiative CCRIF).	US$ 16.4 million (€ 15 million)		

Agency	Project Name	Country / Region	Description	Value	Start	End
GIZ	Programa de agro-biodiversidad en Centroamérica.	Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama	Program agro-biodiversity in Central America.	US$ 10.9 million (€ 10 million)		
GIZ	Establishing the Biodiversity Partnership Mesoamerica	Central America and Dominican Republic	Objective: The private sector engages more actively in the sustainable use of biodiversity within the Biodiversity Partnership Mesoamerica. Approach: The regional platform Biodiversity Partnership Mesoamerica (BPM) was established in April 2012 in the context of a development partnership between REWE, Chiquita and Corbana as well as the German Federal Ministry for Economic Cooperation and Development (BMZ). The aim of the platform is to involve the private sector more systematically in biodiversity conservation efforts and to promote networking between the various actors. The platform members are international corporations, regional companies, civil society organisations, financing funds as well as research and government institutions. The regional programme supports the platform in the following areas: (1) promoting organisational development: BPM is creating a range of services that are used by the private sector to develop and coordinate projects for the sustainable use of biodiversity; (2) identifying and developing financing mechanisms: BPM members receive access to financing mechanisms; (3) developing quality criteria: BPM is developing quality criteria that are in line with international standards; (4) monitoring and knowledge management: BPM is developing a knowledge management system for its members, and is establishing itself in Central America as a reference center for exchanging ideas and lessons learned in the sustainable use of biodiversity.	US$ 4.9 million (€ 4.5 million)	2014	2018
GIZ	Gestión de recursos y paisajes dirigida a la captación de carbono en América Central REDD LANDSCAPE.	Central America and the Dominican Republic	Support in the preparation of national strategies and pilot landscape restoration	US$ 13.1 million (€ 12 million)	2015	2019
GIZ	Reducing emissions from deforestation and forest degradation in Central America and the Dominican Republic	Central America and the Dominican Republic	Objective: In CCAD member states, conditions have improved for the effective implementation of sustainable compensation mechanisms to reduce CO_2emissions from deforestation and forest degradation. Approach: At the national level, the programme backs the implementation of measures designed to avoid forest destruction and promotes the development of REDD strategies and intersectoral policy dialogue. REDD stands for Reducing Emissions from Deforestation and Degradation. In regional terms, the programme supports the technical and political coordination processes between the eight countries of Belize, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama, in order to strengthen their regional position in international negotiations. The programme comprises three components with the following objectives:1. Policy coherence between sectors and levels (national, regional, international) is improved for the good of forest conservation; 2. Institutional and regulatory framework conditions are created in	US$ 13.1 million (€ 12 million)	2010	2016

Agency	Project Name	Country / Region	Description	Value	Start	End
			CCAD member countries to implement sustainable compensation mechanisms that reduce CO2 emissions due to deforestation and forest degradation; and 3. Decision-makers and institutions that are required to report to the United Nations Framework Convention on Climate Change (UNFCC) have access to the data material they need to monitor CO2 emissions from deforestation and forest degradation.			
GIZ	Protección del clima mediante la conservación de bosques.	Central America and the Dominican Republic	Climate protection through forest conservation.	US$ 6 million (€ 5.5 million)		
GIZ	Promotion of economic potentials of biodiversity in an equitable and sustainable way for the implementation of the Nagoya Protocol in Central America (access and benefit-sharing, ABS)	Central America and the Dominican Republic (emphasis in Guatemala, El Salvador and Costa Rica)	Member states of the Central American Integration System (SICA) are implementing initial measures that promote the fair and equitable sharing of benefits derived from the sustainable use of genetic resources and the traditional knowledge associated with them.	US$ 5.5 million (€ 5 million)	2015	2020
GIZ	Tropical forest protection and watershed management in the Trifinio region	Guatemala, Honduras and El Salvador	Objective: The transnational promotion and implementation of natural resource management in the Trifinio region has improved. Approach: The programme supports the implementation of the strategy agreed upon between the three participating countries to work together for the joint development of the region. In 400 agricultural and forestry enterprises production methods are being developed to facilitate land cover and the percolation of rainwater, which reduces the surface runoff that leads to erosion. These new methods also help to increase rural income. To ensure that local institutions continue to refine and disseminate these methods even after termination of the programme, they are given advisory support and training to help them work more effectively and efficiently, to develop their management capacity and human resources, and to be able to share information at international level. The programme comprises: (A) Development of models for the sustainable management of agricultural and forestry resources; and (B) Building the organisational and management capacity of state partner institutions and non-governmental organisations	US$ 13.1 million (€ 12 million)	2009	2014
GIZ	Protección de la Reserva Trinacional de la Biósfera Trifinio.	Guatemala, Honduras and El Salvador	Protection of the Tri-national Trifinio Biosphere Reserve.	US$ 12 million (€ 11 million)		
GIZ	Cliford. Community Forestry Project	Honduras	ForestryThis covers all aspects related to forest management and forest due lasáreas organization that have beneficial contracts between ICF and communities of the local population. It aims to improve the socioeconomic situation of communities and producers; where hard work is done for producers (wood, non-wood or other agricultural products), can add value to their products, can form cooperatives, small businesses, community organizations second floor and work strings favorable value for them. The project will establish a system of micro credit and micro finance through banks and stimulate		2014	2018

Agency	Project Name	Country / Region	Description	Value	Start	End
			alternatives Forest family or cooperative production with a focus on women. Energy being an important issue, the project will work to improve the energy efficiency of the use of firewood, biodigesters, dentroenergéticos systems and micro hydropower plants according to the local situation and demand. Is expected to reach 72,000 beneficiaries, equivalent to 20,000 families distributed in rural areas of the departments of Francisco Morazan, Comayagua, El Paraíso, Gracias a Dios, Olancho and Yoro.			
GIZ	Conservación de la diversidad biológica y desarrollo local en el Corredor Biológico Mesoamericano.	Honduras and Nicaragua	Conservation of biodiversity and local development in the Mesoamerican Biological Corridor.	US$ 6.6 million (€ 6 million)		
GIZ	Protección del Corredor Biológico Mesoamericano.	Honduras and Nicaragua	Protection of the Mesoamerican Biological Corridor.	US$ 10.9 million (€ 10 million)		
GIZ	Protección de recursos marinos en Centroamérica.	Jamaica, El Salvador y México (Honduras, Guatemala, Honduras, México)	Protection of marine resources in Central America.	US$ 11 million (€ 10 million)		
GIZ	REDD Early Movers	Regional	The provision of support for REDD bridging finance – in accordance with UNFCCC provisions – promotes forest conservation and thereby contributes to climate change mitigation. REM supports REDD pioneers, also called Early Movers, who are already taking the initiative themselves in forest conservation for climate change mitigation. The programme rewards the climate change mitigation performance of Early Movers and promotes sustainable development for the benefit of small-scale farmers as well as forest-dependent and indigenous communities through fair benefit sharing. REM works in accordance with international social and environmental safeguards, in particular the Cancun Safeguards and international standards for measurement, reporting and verification (MRV) of CO2 emissions. The programme is one of the first mechanisms for results-based REDD financing. It provides bridging finance until a REDD finance mechanism is agreed upon within the United Nations negotiation process.		2012	2019
MDG Achievement Fund, UNICEF, UNDP, FAO,	Strengthening Environmental Governance in the face of Climate Change Risks in Guatemala	Guatemala	The purpose of the Joint Programme was to develop environmental governance mechanisms to strengthen the capacity for adaptation to climate change in Guatemala, especially for the most vulnerable and poorest of the population. To achieve this, the Programme focused on strengthening those mechanisms that allow for the proper administration of environmental interests, and that foster adaptability to climate changes: At the national level, through inter-institutional coordination and strategic implementation of three relevant national policies (social, environmental and water resources); At the subnational level, focusing primarily on the strengthening of financial and administrative environmental management, specifically of the drought corridor of Guatemala; and At the local level, through pilot project interventions in communities and municipalities.	3.6 million	2008	2011
Millenium Development	Integration of Climate Change Adaptation and	Panamá	The programme focused on areas with high levels of land degradation, pressure on land and water resources, vulnerability to climate change and poverty. The overall aim of the	4 million	2008	2012

Agency	Project Name	Country / Region	Description	Value	Start	End
Goals Achievement Fund(MDGF)	Mitigation Measures in the Management of Natural Resources in Four Priority Watersheds of Panama		programme was to build the capacity to adapt to, and mitigate climate change in order to contribute to environmental sustainability and poverty reduction in four priority watersheds in Panama. This was achieved through the development of an Adaptation and Mitigation Strategy and a Pilot Climate Monitoring System, improvement of local management of land and water resources, and increased access to sources of funding.			
IUCN	Ecosystem Based Adaptation Through cultivation of organic cacao in two sub water sheds of the Río Sixaola	Costa Rica y Panamá	The ecosystem based adaptation approach in two different sub watersheds of the Río Sixaola integrates the local indigenous Bribri communities of the Middle Sixaola and the lower Yorkín area into the activities. The pilote sites had been chosen using the CRiSTAL tool (Community-Based Risk Screening Tools-Adaptation & Livelihoods). The adaptation approach consists of two different components: - Cultivation of organic cacao trees (Agrodiversification) as a matter to prevent high plague populations in traditional plantations; - Strengthening and promotion of micro basin water management		2010	on-going
UNEP, Spain	Integrated management of coastal areas and sustainable management of mangroves in Guatemala, Honduras and Nicaragua	Guatemala, Honduras and Nicaragua	1. To promote the sustainable use of marine and coastal resources through the integration of ecosystem services concerns in integrated coastal management plans and land-use planning processes at the national and local levels, 2. To strengthen national and local capacities for implementing integrated ecosystem-based coastal management, including the sustainable management of mangroves, 3. To support in a sustainable manner the livelihoods of coastal communities that depend on coastal ecosystems, including mangroves, coral reefs and seagrass beds, 4. To protect coastlines against erosion and extreme weather events, 5. To protect coral reefs and seagrass beds from siltation, and to enhance the role of mangroves in trapping sediments, 6. To maintain mangroves as nurseries for fisheries and habitats for biodiversity.	1.4 million	2011	2013
UNEP/GEF	Building climate resilience in urban systems through Ecosystem-based Adaptation (EBA) in Latin America and the Caribbean.	Jamaica, El Salvador y México	Implement pilot projects in three medium-sized cities in the region to demonstrate that EBA is a viable option in the urban context, home, urban landscape and watershed scale.	US$ 6 million	2016	2021
WB Special Climate Change Fund (SCCF)	Climate Change Adaptation Program in drinking-water and sanitation sectors	Nicaragua	Drilling and new aqueducts and rehabilitation. Works and storage tanks, harvesting rainwater or from different types of sources. "Ojos de Agua", springs and streams increase tree cover and conservation areas of soil in 3,000 hectares allowing the adoption of systems environmental restoration to preserve and / or restore natural resources in critical areas in Corn Island the implementation of the management plan and support wetland restoration to reduce vulnerability to climate change in Corn Island	6 Million	2013	2016
World Bank, MCC, USAID	Alianza para el Corredor Seco	Honduras	providing technical assistance and training on good agriculture and management practices; facilitating rural financial services; linking farmers to markets; providing training to families on nutrition and health care practices; upgrading sanitary conditions of homes; and adapting to climate change effects, in order to address food insecurity and malnutrition in the Dry Corridor of Honduras.	30 million	2015	2018

ANNEX H: FOCAL POINTS AND AUTHORITIES FOR CBD, CITES AND RAMSAR CONVENTIONS

Table 17: Focal points and authorities for CBD, CITES and Ramsar Conventions

Parties	CBD National Focal Point	CITES Administrative (1) & Scientific (2) Authorities	Ramsar Authority
Belize			
Costa Rica	Ministry of the Environment and Energy	1) Ministry of Environment and Energy 2) University of Costa Rica, National University, other academic, NGO and national institutions	Ministry of the Environment and Energy
Dominican Republic	Ministry of Environment and Natural Resources	1) Ministry of Environment and Natural Resources 2) Ministry of Environment and Natural Resources, National Aquarium, National Botanical Garden, NGO.	Ministry of Environment and Natural Resources
El Salvador	Ministry of the Environment and Natural Resources	1) Ministry of Agriculture and Livestock 2) Ministry of the Environment and Natural Resources	Ministry of the Environment and Natural Resources
Guatemala	Protected Areas National Council	1) Protected Areas National Council 2) Protected Areas National Council	Protected Areas National Council
Honduras	Energy, Natural Resources, Environment and Mines Secretariat	1) Agriculture and Livestock Secretariat 2) Autonomous National University of Honduras, El Zamorano Agricultural School, Energy, Natural Resources, Environment and Mines Secretariat, Institute of Forest Conservation and Development, other institutions	Energy, Natural Resources, Environment and Mines Secretariat
Nicaragua	Ministry of the Environment and Natural Resources	1) Ministry of the Environment and Natural Resources 2) Ministry of the Environment and Natural Resources	Ministry of the Environment and Natural Resources
Panama	Ministry of Exterior Relationships Ministry of Environment	1) Ministry of Environment 2) University of Panama	Ministry of Environment

ANNEX I: OVERVIEW AND SUMMARY OF SELECTED INTERNATIONAL TREATIES AND AGREEMENTS

In 1940, under the auspices of the Organization of the American States (OAS), all the Central American countries signed the "Convention for the Protection of Wildlife and Natural Scenic Beauty in America". From then on, Central America as a region has moved forward signing International agreements, treaties and protocols which have generally been incorporated into the legal framework of each country. International conventions take precedence over the laws of the states that have signed them and as such, become legal tools if a country does not have associated specific regulations (Jose Pablo Gonzalez, Environment Prosecutor, Costa Rica, 2016).

The Central American countries have also all signed Multilateral Environmental Agreements (MEA), and have incorporated the provisions of the MEAs into their national conservation laws and regulations. These MEAs establish a legal framework for regional and national conservation treaties and laws. (UNDP, DELC[11]) More recently also, sub-national, municipal and community governments have begun to promulgate conservation and environmental regulations and ordinances. An example of sub regional regulation was the agreement to ban the fishing of the Nassau Grouper, *Epinephelus striatus*, at the Gulf of Honduras with the concurrence of fisheries, environmental and fishermen organizations from Belize, Honduras and Guatemala.

CENTRAL AMERICA FREE TRADE AGREEMENT

Chapter XVII of the Central America Free Trade Agreement (CAFTA) with the United States of America has environmental requirements that each signatory must meet. Under the DR CAFTA Regional Environmental and Labor Excellence (ELE) Program, USAID/CAM has been assisting the CA/DR countries to comply with these requirements. The ELE program has provided technical assistance and training to private sectors enterprises with technical assistance in clean production, environmental management systems and environmental auditing, and energy efficiency.

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, www.cites.org), is an important framework to control transboundary traffic of globally endangered and threatened species. The treaties specify that each signatory must designate administrative and scientific "national authorities" for the treaty, meaning an official institution that is responsible for keeping track of the country's compliance with and communications about the treaty in their scientific and administrative aspects. Countries have adapted legislation to fulfill this Convention's mandates, that are usually are included within Wildlife or Forestry regulations. Recently, common procedures were established due to hammerhead sharks inclusion in Appendix Two. The United States supported this compromise through CAFTA-DR[12].

CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE (RAMSAR CONVENTION)

The Convention on Wetlands of International Importance (Ramsar Convention, www.ramsar.org) "provides the framework for national action and international cooperation for the conservation and

[11] Division of Environmental and Conventions: Montevideo Program 2009.
12 https://cites.org/sites/default/files/esp/prog/sharks/Relator%C3%ADa%20-%20Taller%20CITES%20Tiburones.pdf

wise use of wetlands and their resources" (Ramsar (a) 2016). There are 55 Ramsar sites in CA/DR, with a total area of 2,425,478 ha. The Ramsar Secretariat promotes coordination between Ramsar sites, and for example, has implemented the Regional Initiative for Conservation and Rational Use of Mangroves and Corals (RICRUMC). The designation of a wetland as a Ramsar site often encourages national governments to provide financing for their protection and management, usually through international sources of funding. In 2012, for example, the Japanese International Cooperation Agency (JICA) signed a memorandum of cooperation with the Ramsar Secretariat for financing the management of Ramsar sites in Costa Rica and El Salvador (JICA 2016). Every two or three years, the Ramsar Secretariat evaluates compliance of each site with Ramsar criteria. (KI). Recent National Ramsar reports reveal that countries are complying with only about 50% of their obligations under the Convention (Ramsar(b) 2016).

The Convention also provides important recommendations to the CA/DR countries. These recommendations include guidelines for Environmental Impact Assessments (EIA, based on CBD Decision VIII/28) as well as ecological impact criteria requirements for energy projects that ensure the survival of endemic and rare species (Ramsar Resolution XI.10, number 17). Salvadoran authorities considered the latter within an EIA presented by the National Electrical Authority to obtain a permit for a hydro electrical power plant modification where rare freshwater clams occur (Cruz-Pérez, 2014). Other support from the Ramsar Secretariat includes inspections related to border and environmental issues associated with the San Juan River for Nicaragua and Costa Rica (Secretaría de la Convención Ramsar, 2011), as well as meetings with personnel and officers associated to the construction of Nicaragua Transoceanic channel[13] which encompasses a Ramsar site. USAID/CAM should consider supporting Ramsar sites as part of regional conservation activities it may finance.

UNESCO'S MAN AND THE BIOSPHERE (MAB) PROGRAMME

Since 1971, the United Nations Environment, Science and Culture Organization (UNESCO) have operated the Man and the Biosphere Programme (MAB). MAB's World Network of Biosphere Reserves (WNBR) has 651 biosphere reserves in 120 countries. Biosphere reserves are intended to integrate protected areas into their surrounding landscapes, contribute to the conservation of landscapes, ecosystems, species and genetic variation, foster economic and human development, and support research, monitoring, education and information exchange related to conservation (UNESCO 2016). CA/DR has 20 biosphere reserves with a total area of 10,774,899 ha. Fourteen of the reserves are entirely terrestrial; six are terrestrial, coastal and marine (see **Annex E**). There are three multi-country biosphere reserves in CA/DR: La Amistad Biosphere Reserve is in both Costa Rica and Panama; the Corazón Biosphere Reserve includes parts of Nicaragua and Honduras; and the Trifinio Biosphere Reserve includes parts of Guatemala, Honduras and El Salvador. MAB National Committees, or Focal Points, oversee national compliance with MAB criteria for biosphere reserves.[14] Every ten years, UNESCO prepares independent evaluations of each biosphere reserve's compliance. CA/DR's biosphere reserves are an important regional effort to combine conservation and economic growth outside of protected areas (KI).

THE FRAMEWORK CONVENTION ON THE LAW OF THE SEA

The Framework Convention on the Law of the Sea relates to the artisanal and industrial fisheries which have direct effects on the management of coastal marine resources, access right mechanisms and regulations of the three nautical miles. It is part of the five clusters of Multilateral Environment

13http://latino.foxnews.com/latino/espanol/2015/01/14/delegacion-de-ramsar-estudia-proyecto-de-canal-interoceanico-en-nicaragua/

[14] The Statutory Framework for Biosphere Reserves establishes these criteria.

Agreements, MEAS[15]. However, it is at present, one example of the treaties which have not been signed for political reasons such as is the case for El Salvador, due to transboundary issues with Honduras in Gulf of Fonseca.

UNITED NATION FRAMEWORK CONVENTION ON CLIMATE CHANGE

The United Nation Framework Convention on Climate Change (UNFCCC, 1992) has been linked to: the Kyoto Protocol (1997) which commits its parties by setting international binding emission reduction targets; and Agenda 2030 to achieve the new sustainable development goals (UNDP, Sept. 2015). New initiatives within the area, such as the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REED) and other related initiatives such as REDD-plus (REDD+) have been implemented by Guatemala, Honduras, El Salvador, Costa Rica and Panama.

THE UNITED NATIONS CONVENTION ON BIODIVERSITY

The Convention on Biological Diversity (CBD, 1992) has significant financial support and implies significant responsibilities including for compliance. Countries in the region have presented their Fifth Biodiversity Report (2015) and are working on their National Strategies to be presented in 2016. CBD has two annexes:

- Cartagena Protocol on Biosafety (2003) ensure the safe, handling and transport of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effect in biodiversity or human health.
- Nagoya Protocol (2011) related to access to genetic resources and the fair and equitable sharing of benefits arising of their utilization.

OTHER INTERNATIONAL GUIDELINES AND POLICIES

Along with the signing of treaties, there have been conferences, regional meetings and initiatives where attending countries sign declarations of good will. These have resulted in a series of International guidelines and policies (Aguilar & Iza, 2009) known as "soft law", or not binding agreements. Even though these are not mandatory, they are guidelines to apply and help reinforce treaties. These include:

- The Stockholm Conference, 1972
- The World Charter for Nature, 1982
- World Commission on Environment and Development, 1983
- Rio Declaration and Agenda 21, 1992
- Code of Conduct for Responsible Fisheries FAO, 1995
- Sustainable Forest Management, 2000
- World Summit on Sustainable Development, 2002

[15] Multilateral Environment Agreements: Biodiversity, Atmosphere, Earth, Chemical and Hazardous waste and regional oceans.

ANNEX J: PRINCIPAL NATIONAL CONSERVATION NGOS IN CA/DR

NGO	Country	Category	Topics	Website
Green Reef (Coral Verde)	Belize	L	Environmental education	http://ambergriscaye.com/
Belize Audubon Society	Belize	I	Environmental education, research	http//www.belizeaudubon.org/
Protected Areas Conservation Trust-PACT	Belize	N	Protected areas system	http//www.pactbelize.org
The Belize Zoo and Tropical Education Centre (TEC)	Belize	L	Environmental education and awareness	http//www.belizezoo.org
Toledo Institute for Development and Environment (TIDE)	Belize	N	Protected coastal marine areas, sustainable development	http://www.tidebelize.org/
Association SHARE	Guatemala	N	Sustainable development and conservation of natural resources	http//www.asociacionshare.org
Mesoamerican Reef Fund /MARFUND)	Guatemala	R	Oriented to the Central American Caribbean Corridor for Reef Management conservation activities	http://www.marfund.org
Centro de Acción Legal y Ambiental CALAS	Guatemala	N	Complaints and legal actions	http//www.calas.org.gt
FUNDAECO Fundación para el Ecodesarrollo y la Conservación	Guatemala	N	Protected areas and sustainable development	http://www.fundaeco.org.gt/
Centro de Protección para los Desastres CEPRODE	El Salvador	N	Protected vulnerable areas – natural disasters	http://ceprode.org.sv/
SALVANATURA – Fundación Ecológica	El Salvador	N	Protected areas and green certification	http://www.salvanatura.org/
Fundación Zoológica de El Salvador FUNZEL	El Salvador	N	Endangered wildlife	http://www.funzel.org/
Fundación PRISMA	El Salvador	N	Encourages	http://www.prisma.org.sv/

NGO	Country	Category	Topics	Website
			environmental policy dialogues: sustainable development, climate change, gender among others.	
Unidad Ecológica Salvadoreña (UNES)	El Salvador	N	A group of conservation NGOs concerned with access rights to natural resources	http://unes.org.sv/es/unes/
Fundación Parque Nacional Pico Bonito	Honduras	L	Management and protection for Parque Pico Bonito protected area	https://mocaph.wordpress.com/
Asociación para el Desarrollo Ecológico y Socioeconómico ASIDE	Honduras	N	Social Scientific research investigation focus on environmental crosscutting issues.	http://asidehonduras.org/
CEM Centro de Estudios Marinos	Honduras	N	Gulf of Honduras, mostly with coastal marine resources.	http://www.utilaecology.org/eng/about/
Instituto Regional de Biodiversidad para C.A y República Dominicana	Honduras	R	Focus on scientific research for the northern part of the Central American Region.	www.irbioccad.org/
Club de Jóvenes Ambientalistas	Nicaragua	N	Youth network for environmental issues	http://www.rimd.org/
Fundación Nicaragüense para el Desarrollo Sostenible. FUNDENIC-SOS	Nicaragua	N	Watershed management	www.fundenic.org.ni/
Centro Humboldt	Nicaragua	R	Social and local development, integration of sector and sustainable practices.	http://www.humboldt.org.ni/
Instituto de Capacitación, Investigación y Desarrollo Ambiental (UCA)	Nicaragua	R	Academic research for social, environmental aspects in Gulf of Fonseca and Nicaragua	http://cidea.uca.edu.ni/

NGO	Country	Category	Topics	Website
Paso Pacífico	Nicaragua	R	Biological corridor in Gulf of Fonseca protected areas and landscape restoration	http://www.pasopacifico.org/
Flora y Fauna Internacional (FFI)	Nicaragua Internacional	I	Wildlife species conservation and ecosystem management	http://www.fauna-flora.org/
Red de Reservas Silvestres Privadas	Nicaragua	N	Private protected natural forest	direccion.ejecutiva@reservasilvestres.com
Fundación Reserva, Esperanza Verde FUNDEVERDE	Nicaragua	L	Conservación y manejo de sitio Ramsar	http://www.fundeverde.org/
Instituto Nacional de Biodiversidad INBIO	Costa Rica	R	Research and data base for biodiversity in Costa Rica and Central America	http://www.inbio.ac.cr/
Pretoma	Costa Rica	National	Coastal Marine Resources specially Marine turtles and sharks	http://www.pretoma.org/es/
Asociación Corredor Biológico Talamanca - Caribe	Costa Rica	Local	Protection of this Corridor as a highlight biodiversity spot in Costa Rica	www.corredortalamanca.org
Asociación conservacionista Monte Verde ACM	Costa Rica	Local	First Ecological Private Reserve, hot biodiversity spot	http://www.acmcr.org/
Fundación Manatí	Costa Rica	Local	Preserve habitat and coastal marine areas where Manaties inhabit	http://www.fundaciontrichechus.org/
Organización de Estudios Tropicales	Costa Rica	Regional	Academic Institution / Special courses in tropical forest management	http://www.ots.ac.cr/
Centro Agronómico de Investigación y Enseñanza CATIE	Costa Rica – Regional	Regional	Research and teaching for sustainable development management	http://www.catie.ac.cr/
ANCÓN	Panamá	National	Biodiversity and natural resources conservation	http//www.ancon.org
NATURA	Panamá	National	Fund (Trust) for conservation	http//www.naturapanama.org

NGO	Country	Category	Topics	Website
			projects	
Centro de Estudios de Medio Ambiente y Desarrollo (CEMAD)	Panamá	Local	Poverty and sound natural resources management	http//www.cemadpanama.org
AVINA	Panamá	Regional	Private and social alliances for sustainable development	http//www.avina.net
Grupo Jaragua	Dominican Republic	Local	Protected areas and wildlife conservation	http//www.rupojaragua.org.do
Conservacion Sociedad Ornitologica de Hispaniola (SOH)	Dominican Republic	Local	Bird and natural resources conservation	https://www.facebook.com/SOH-CONSERVACION-214387288594327/
Fundacion Punta Cana	Dominican Republic	Local	Biodiversity conservation and sustainable tourism / development	http://www.puntacana.com
Centro para el Desarrollo Agropecuario y Forestal, Inc. (CEDAF)	Dominican Republic	Local	Agroforestry, sustainable agriculture and management of natural resources	http://www. Cedaf.org.do
Centro para la Conservación y Ecodesarrollo de la Bahía de Samaná y su Entorno (CEBSE)	Dominican Republic	Local	Protected Areas and Wildlife Conservation Focused on Marine Ecosystems	http://www.samana.org
Reef Check	Dominican Republic	Regional	Coral Reef Conservation, Management and Research	http://reefcheckdr.org/
PRONATURA	Dominican Republic	National	Environment, biodiversity and natural resources conservation	http://www.pronatura.org.do

NGOs have been identified as: L= local; N=National; R= Regional; I= International.[16]

[16] O. Bermudez y M. Lombana 2010. Organismos No Gubernamentales que trabajan en Educación para el Desarrollo Sostenible y en Educación Ambiental en América Latina y el Caribe; OREALC / UNESCO Santiago, Marzo 2009.

ANNEX K: REVIEW OF LESSONS LEARNED FROM VARIOUS USAID CONSERVATION PROGRAMS IN THE REGION

LESSONS LEARNED IN RELATION TO STRATEGIES FOR REGIONAL COOPERATION IN CONSERVATION

- The final evaluation of the USAID MAREA project (Kernan et al., 2015) reviewed the lessons learned from **RENARM, PROARCA, and CCAW**. Lessons learned included: (1) focus on synergies for common objectives by using participation to build inter-organizational coalitions at the local level; (2) concentrate policy on mitigating threats to defined geographic areas; (3) create precedents with widespread application throughout CA; (4) work closely with SICA in the design and implementation of programs to support SICA's principal purpose of furthering the integration of the CA countries. Other lessons included: (5) ensure research is directly pertinent to problems; (6) emphasize environmentally sound productive activities using best practices; and (7) incorporate markets for commercial products from marine and coastal natural resources into program design and implementation;

- An Assessment of the U**SAID Environmental Cooperation Program to Promote Compliance with CAFTA-DR** (Barnes, Kernan, Hansen and Najera, 2011) identified the following lessons learned: (1) taking on too many objectives at once in a project can stretch the absorptive capacity of the beneficiary countries too thinly; (2) although CCAD has limitations as an implementing agency because of its nature as a multilateral political institution, this gives it the advantage of having political support and buy-in for its activities, offers an institutional platform and continuity, backed by the ministers of environment, to implement, monitor, and follow up on programs in process; (3) the application of science and technology is the principal means by which CA countries will be able to combine economic growth with the protection of their natural environments; (4) process is often as important as product, because it requires people and institutions to work together to solve environmental problems through collaborative relationships across sectors, within a country, and across international borders, and also that (5) a public education component in a project can promote more responsible public behavior, reduce tolerance for environmental abuses, and increase reporting and prosecution of environmental transgressions.

LESSONS LEARNED IN RELATION TO BIODIVERSITY AND COASTAL PROGRAMS

- The Final Evaluation of the **Marine Resources and Economic Alternatives (MAREA)** Project (Kernan et al.) identified the following lessons learned from that project's design and implementation: (1) Focus on the conservation of marine and coastal biodiversity; (2) establish a results framework for the program that defines a clear strategic objective for the conservation of marine and coastal biodiversity; (3) establish useful, systematic monitoring and evaluation processes that can be used for adaptive management of the program; (4) implement the program through flexible, simple mechanisms; (5) make the design process participatory by engaging local coalitions that can formulate joint conservation and development plans; (6) combine activities to conserve marine and coastal biodiversity with those to increase adaptation and resilience to climate change; (7) match the available budget and time frame with the scale of the proposed activities; (8) maintain the regional character of the biodiversity conservation program by systematically sharing local experiences within Central America and Mexico; (9) base project design on realistic assumptions but clearly differentiate the situation of these assumptions in the different Central American countries and substitute commitments for assumptions; design the program with the full participation of SICA; (10) confine field activities circumscribed sites with reef-sea grass-beach continuums; choose field

sites where operations are not excessively difficult, expensive, and time-consuming; (11) emphasize equity in the use of coastal and marine resources among different social groups; (12) support the introduction and widespread adoption of effective management and conservation practices for marine and coastal biodiversity, in particular species that have commercial value; (13) support applied scientific research that will provide a sound basis for effective management and protection of marine and coastal biodiversity; (14) finance systematic, targeted communication of improved management practices and conservation policies, laws, and regulations; (15) incorporate lessons learned in prior regional conservation programs into a future regional conservation program; and (16) establish specific objectives for including women in the design of the program.

- The **USAID/El Salvador Improved Management and Conservation of Critical Watersheds Project (IMCCW)**, implemented from 2006 to 2011, introduced cost-effective and environmentally sustainable farming practices that increased income as an incentive for conserving biodiversity and strengthened human capital through environmental education and technical assistance programs in six watersheds. The principal lessons learned from this project were: (1) The project design should establish mechanisms for the participation of partners and stakeholders and for the transfer to them of watershed management responsibilities on the basis of their respective competences; (2) rather than operate autonomously, watershed management projects should be well-coordinated with government and NGO partners so as to ensure continuity of watershed management actions after the project itself ends; (3) systematically implemented capacity-building activities serve to consolidate skills, technical capabilities, knowledge, and know-how, and to ensure continuity of conservation actions; (4) activities to encourage changes in knowledge, attitudes, and practices can contribute to conservation when they increase general awareness of biodiversity issues, threats to natural resources, and the usefulness of conservation measures; (5) indicators for changes in knowledge, attitudes, and practices should be established in order to permit measurement of these changes and link them to application of conservation practices; (6) economically viable alternatives that respond to the target population's immediate needs and culture should contribute to watershed conservation; (7) the success of an intervention will largely depend on the involvement of project partners and their participation in the decision-making processes during the whole project cycle; and (8) cross-sector coordinated efforts are crucial to achieving the best results and the highest impacts.
- Kernan et al. (2012) evaluated the five biodiversity projects that were financed between 2007 and 2012 by **USAID/Dominican Republic: Living Museums of the Sea (LMS), Sustainable Fisheries in Miches (SFM), Dominican Sustainable Tourism Alliance (DSTA), Participating Agency Program Agreements (PAPA) with the US Forest Service (USFS), and the Environmental Protection Project (EPP)**. The evaluation identified the following lessons learned: (1) The introduction of best conservation practices is most successful when they provide practical solutions to people's problems, as well as those related to conservation; (2) conservation and tourism can benefit each other since conservation protects the reefs, wildlife, beaches, water, and landscapes that tourists pay to enjoy, and tourism can provide revenues to implement conservation practices; (3) the agriculture industry and energy sectors have powerful financial reasons to support conservation of biodiversity and renewable natural resources; (4) best practices must be constantly adapted to meet the needs of different and constantly changing biological, institutional, and socioeconomic situations; (5) the participatory preparation of integrated territorial land-use plans underlies large-scale conservation within and outside of protected areas; (6) proper attention to gender issues can greatly contribute to conserving biodiversity; (7) systematic research into conservation problems is required to achieve conservation solutions, and climate change makes such research even more necessary; (8) territorial planning is required in order to extend biodiversity conservation best practices to larger geographic areas over long periods of time; (9) to achieve sustainability and adoption, conservation programming and strategy

must provide financial benefits to large private sector enterprises within the context of international competition; (10) local institutions must be centrally involved in organizing, supporting, and financing conservation actions; (11) synergy-building guidelines should be incorporated into the design of USAID conservation projects; (12) achievable, measurable biodiversity outcomes and results should be established for conservation projects based on reliable baseline biological, economic, institutional, and social data; (13) biodiversity programming should be linked to the financial interests of important economic sectors; (14) USAID should finance research and educational institutions to do conservation research; (15) biodiversity funds should be programmed in adherence with USAID biodiversity criteria, while ensuring that the proposed conservation activities are feasible given the socioeconomic, institutional, and financial context; and (16) biodiversity conservation projects should measure the actual effects of the design and implementation on biodiversity.

LESSONS LEARNED IN RELATION TO FORESTS MANAGEMENT

- The document **Review of USAID's Natural Forest Management Programs in Latin America and the Caribbean** (Poole et al., 2002) identified the following lessons learned about natural forest management: (1) Windows of opportunity in situations presenting favorable political and economic conditions to implement NRM should be seized; (2) local participation is key in decision-making for the design and implementation stages of NFM activities; (3) training for local people, especially local official, as a key priority to achieve NRM; (4) watershed management is central to NRM to maintain stable water flows and mitigate disasters; and (5) support for knowledge management and dissemination of NFM information and lessons learned needs to be continued.
- An audit of **USAID/Guatemala's Climate, Nature and Communities in Guatemala (CNCG)** made the following observation: (1) The sub-awards to 11 local organizations have enabled them to gain valuable conservation experiences; (2) a sustainability plan prepared at the outset of the project would have explained how the organizations and businesses receiving program support would be self-sustaining and carry on program efforts after the project ends; (3) a project should clearly define, develop, and implement data quality standards including the method of data collection, frequency of data collection, and who is responsible for data collection (OIG, 2016).
- The **Panama Canal Integrated Watershed Management Project** promoted participation through partnerships and alliance building and improved technical and operational capacities of local governments, civil society, and private sector companies. It transferred knowledge and practical know-how and promoted economically viable and environmentally sound best practices for watershed management, providing technical assistance to support local, sub-watershed planning and actions and to demonstrate watershed management actions on the ground. The project involved local governments in land-use planning, regulation, and monitoring, and built the capacity of local stakeholders to establish and replicate best practice models for integrated watershed management and to implement local watershed management initiatives. The lessons learned include: (1) scale up pilot projects into programs; (2) demonstrate and promote cost-effective market-based approaches to specific problems; (3) enable the analysis of financial and economic costs and benefits for specific watershed management interventions; (4) demonstrate technologies and practices that demonstratively improve peoples' lives; (5) prioritize demonstration activates to improve watershed management; (5) analyze watershed management experience to learn what motivates farmers to replicate certain practices, and what it will cost to induce farmers and watershed residents to adopt more sustainable watershed management practices; (6) widely share experiences about watershed management; (7) recognize that the protection of existing natural resources is the best option for any watershed management program because rehabilitation of landscapes requires far more resources and is less likely to be effective; and (8) build strong local support through participatory community involvement.

- Between 2009 and 2013, the global USAID **Forest, Climate, and Communities Alliance (FCCA)** was implemented mostly in Honduras. Lessons learned from FCCA activities in Honduras include: (1) Drug trafficking is a key underlying driver of conversion for livestock operations, palm oil cultivation, and illegal logging; (2) these illegal, lucrative practices are difficult to combat with law enforcement alone; (3) community forestry cannot compete with these land uses by higher financial returns but forest management and local enterprise create the social capital and resilience necessary to resist the influence of drug trafficking.
- USAID/Costa Rica financed the **BOSCOSA Project** in order slow deforestation on the Osa Peninsula by providing local residents with education and economic alternatives that contribute to the maintenance of forest cover. An evaluation identified the following lessons learned: (1) communication with grassroots organizations facilitate networking among groups; (2) local leaders and trainers need to be trained; (3) activities need to meet needs for food and income; (4) technicians need to be accountable to grassroots organizations; (5) forestry practices should be introduced on smaller rather than larger tracts; and (6) evaluations should measure effectiveness not just compliance with numerical targets (Hitz, 1994).

ANNEX L: EXCERPTS FROM THE NEW USAID/CAM RDCS

Development Hypothesis

A regional program can both complement and enhance work done by USAID bilateral missions in the region, and through a concerted and coordinated effort, can tackle transnational issues for a more inclusive, prosperous, transparent, and safe Central America region.

Applying the criteria for a regional program, as described above, truly regional interventions will be identified in the various sectors covered by this strategy. Projects and activities will be in alignment with the CEN strategy and USG priorities for the region, and adapt to the ever-changing situation in the region. The RDCS is based on the philosophy that overall region-wide development results can be enhanced when regional programs complement country-specific bilateral efforts.

Specifically, by strengthening regional economic integration, enabling improved movement of goods and services across the borders, while ensuring environmentally conscious and sustainable practices are adhered to, Central America's development will advance and create space for economic growth and increase opportunities for employment. By testing new climate-smart approaches and scaling up proven best practices, USAID/CAM will increase economic growth and good governance across the region that reduces emissions, builds resiliency to climate change, and conserves and strengthens management of Central America's biodiversity. Further, through targeted programming that leverages interagency and intra-agency collaboration, USAID will promote safer communities in which citizens have fewer incentives to leave their communities and can productively contribute to their country. USAID/CAM will also promote a regional learning community among security, legal and judicial practitioners from across the region to inform and provide opportunities for smarter development of crime prevention and human rights related programming. Moreover, by promoting increased transparency in government, USAID/CAM will help generate trust between citizens and their government officials, in addition to creating greater accountability and improved governance. Through enhanced regional cooperation and harmonization of the technical assistance provided, CAM's work in the HIV/AIDS sector will enable governments in the region to effectively contain the epidemic in the future.

DO 1: Regional economic integration increased.

- **IR. 1.1 Regional trade expanded.** Central America will expand trade to create jobs and economic opportunities by improving the movement of goods across borders, by optimizing facilities connectivity and infrastructure, and simplifying international trade controls and procedures. Transparency and simplification in laws, regulations and procedures will allow businesses to formally comply with controls and promote increased access to regional and international markets.

  Illustrative Activities:

  - Improve, through technical assistance, border facilities, traffic flows, power generation and connectivity at border crossings.
  - Improve information technology to allow for interconnectivity and information sharing among border control agencies.
  - Update and modernize import and export procedures, and regulatory or legal national and regional Central America Customs Union (CACU) frameworks if necessary to ensure consistency with the World Trade Organization Trade Facilitation Agreement and international best practices.
  - Develop and promote a regional market information exchange system of certified land

transportation, services, promoting integration of small and medium transport service providers in regional value chains.

Sub-IR 1.1.1 Trade facilitation improved. Central American countries will advance trade facilitation through improved policy formulation; effective coordination of border control agencies, including customs administration, agriculture, immigration, and security; improved procedures and management; and improved quality and border facilities, while ensuring effective controls for citizen security. The RDCS activities under this Sub-IR will consider the large number of women involved in cross-border trade, working in informal trade and as small-volume traders at the border, many of whom suffer from invisibility, stigmatization, violence, harassment, poor working conditions, inadequate transport and funding, and lack of recognition of their economic contribution.

Sub-IR 1.1.2 Transportation modernized and logistics efficiency improved. The modernization of land cargo transportation regulations and standards and the efficiency of operations are necessary to reduce the costs of trading goods across borders, and contribute to streamlining logistics and border controls. Harmonized regulations for transport, including weights and dimensions, technical and mechanical standards, certifications for drivers, regional agreements to promote increased use of cargo capacity, and service information exchange, would promote a more efficient and modern land transportation service supply in Central America. USAID will support host country governments in their efforts to improve the coverage and quality of multi-modal transport infrastructure (roads, ports, airports and railways), focusing on projects that strengthen regional integration.

Sub-IR 1.1.3 Technical barriers to trade reduced. The consolidation of an expanded market and access to global production networks depend on improved quality systems that comply with international standards. An expanded Central American market for goods and services will benefit from industry and science-based standards, certifications and compliance audits that are standardized throughout the region. Sanitary registries, sanitary and phytosanitary standards and other technical requirements for goods and services shall be science-based and standardized, and not constitute unnecessary barriers to trade. With the advent of stricter food safety laws in the U.S. and other key markets for food exports from the region, USAID will support governments and regional production associations to meet food safety standards and maintain vital export markets.

- **IR. 1.2 Regional markets and investment in key sectors increased.** Regional market linkages in key sectors, including but not limited to agriculture value chains will increase through public and private investments in infrastructure, knowledge management, and institutional capacity to support business innovation and compliance with standards to compete in international markets. The rapidly changing international environment has placed greater pressure on producers to introduce technological and management improvements in farming techniques in order to compete. Work under this IR will be cognizant of women who represent small and subsistence farming families, as they are among the least able to benefit from the opening of new market opportunities. Activities will include but are not limited to improved productivity, quality compliance, product innovation and linkages to markets, increased private investment in key value chains for improved processing, product innovation, trade logistics, and well established market linkages that will promote increased economic opportunities and job creation.

  Illustrative Activities:

  - Improve regional producers' capacity through support to producer organizations in complying with international market standards and specifications, through investments in product and packaging innovation, new processing equipment, quality assurance systems and organizational capacity strengthening.

- Establish regional and international producer-buyers alliances; continue promotion of buyer-producer alliances and identification of international market opportunities for agriculture value chains (cacao, red and black beans, plantains, cacao and other horticulture).
- Ensure continued export market access from fruit and vegetable producers in support of the Food Safety Modernization Act.
- Promote private investment through business models that support regional trade logistics, such as short route maritime transport, improved borders, airports, and ports management.

Sub-IR 1.2.1 Agriculture value chains enhanced. USAID will facilitate technical assistance to regional producer organizations to improve compliance with international market standards and specifications. Investments in product and packaging innovation, new processing equipment, quality assurance systems and organizational capacity strengthening are critical for maintaining regional and global competitiveness, and USAID will work with organizations to ensure they are equipped to trade internationally. By focusing on standardization and export readiness, CAM efforts will align with farm-level assistance provided by bilateral missions. CAM will promote buyer-producer alliances and identification of regional and international market opportunities for agriculture value chains, including coffee, cacao, red and black beans, plantains, and other horticulture. Moreover, CAM will support host governments to develop and verify production partnerships across borders and support regional value chains to scale-up production networks.

Recognizing the dependency of agriculture value chains on a healthy climate, this Sub-IR's work in the promotion of value chains will consider regional climate change impacts, looking to the 118, 119 Tropical Forestry and Biodiversity analysis, as guides. Further, CAM will seek information from bilateral counterparts to ensure that programs consider country-specific knowledge and expertise in climate impacts.

Sub-IR 1.2.2 Private sector productive and competitive capabilities strengthened. USAID will support Central American businesses by linking regional goods and services to global value chains and promote greater diversification and value-added elements. Assistance will promote greater innovation and technology in key economic sectors such as textiles and apparel, electronics and other value-added activities. USAID will promote partnerships and introduce best practices in business modeling, and coordinate with activities in the energy and workforce development sectors to foster sustainable economic growth opportunities in the region. Activities will develop public-private investment models that not only create economic opportunities but also expand regional trade through more efficient logistics, such as short route maritime transport, and other interventions that help develop the productive and competitive capabilities in the private sector. Work under this Sub-IR will be closely coordinated with the IR 1.1 focus on USAID technical assistance in trade facilitation and logistics, seeking value chain integration that will support new and innovative business models for profitable and sustainable solutions to existing constraints to growth.

DO 2: Regional climate-smart economic growth enhanced.

- **IR 2.1: Low-carbon development increased.** USAID will continue to work across the region to promote low-carbon growth that stimulates the economy and reduces greenhouse gas emissions, by assisting regional institutions, governments, and key stakeholders to support Central America in making this transition. By promoting sustainable land use practices and policies and continuing support to increase renewable energy and energy efficiency, CAM will help reduce emissions, increase incomes, and diversify economic opportunities that will lead to more sustainable regional development in Central America.

Illustrative Activities:

- Promote and expand the use of climate-smart agricultural practices throughout the region that sequester or reduce emissions, such as expanded agroforestry practices, and provide links to regional markets for these improved practices.
- Build regional capacity on Reducing Emissions from Deforestation and Forest Degradation (REDD+) policies and, where possible, leverage expertise from countries, such as Mexico, that have already developed and are currently implementing similar policies and procedures.
- Support regional and national energy institutions to fully develop the Regional Energy Market and improve the business environment for investment in renewable energy.
- Develop improved regulatory approaches and financial incentives for energy efficiency projects, both public and private.

Sub-IR 2.1.1: Regional climate-smart land use practices scaled-up. In an emerging field like climate change, several climate-smart activities have been piloted and shown to be successful in reducing or sequestering emissions while increasing economic growth. CAM will scale-up these successful, evidence-based approaches across the region and in different landscapes, potentially connecting community-based mangrove conservation to carbon markets. CAM will also continue to support Central American countries in developing and implementing policies at the regional, national, and local level, such as REDD+ strategies, that reduce emissions from deforestation, forest degradation, agriculture, and land use changes.

Sub-IR 2.1.2: Investment in low-emissions solutions expanded. Low-emissions activities will promote investment in renewable energy generation and energy efficiency standards to reduce greenhouse gas emissions in Central America. Noting that women and men play different roles in energy production, distribution, and utilization, CAM's work in this sector will be mindful of the varying ways in which support of renewable energy technologies to reduce greenhouse gas emission affects men and women.

- **IR 2.2: Resiliency of humans and the environment to climate change impacts increased.** USAID will contribute to climate-resilient economic growth in Central America by reducing the vulnerability of people and ecosystems to climate change. Regional institutions, national governments, private sector institutions, and small and medium-sized businesses throughout Central America are at varying stages in terms of their respective access to information, integration of climate change data into multi-sectorial strategic planning, identification of priority actions, and implementation of these actions to effectively become more resilient to climate change. CAM will provide regional institutions, governments, businesses, and individuals with the means to make decisions and implement actions that avoid, adapt to, or better manage climate change impacts.

  Illustrative Activities:

  - Support the development of research, technology, and innovation centers that create solutions to common regional climate change challenges.
  - Facilitate information exchanges and develop tools to help predict, analyze, and prepare end-users, including women, for future climate-related impacts in the region.
  - Identify and disseminate new technologies and innovations for climate-smart practices in agriculture, integrated water resources management, watershed conservation, and biodiversity conservation that reduce the impacts of climate change on economic growth and regional stability.

Sub-IR 2.2.1: Access to quality climate data for decision-making increased. Although climate change data in Central America are currently generated and shared, information that is most needed is not properly disseminated. CAM will provide evidence-based, demand-driven climate change data, analyses, and tools to end users such as government officials, agricultural fishing cooperatives, or civil society groups. USAID/CAM will rely on technology and innovation to ensure activities provide information products that are both accessible and appropriate for the end user. With access to this user-friendly information and better capacity to apply it, Central American institutions, communities, and citizens will be able to make informed decisions in real time that reduces their vulnerability to climate change impacts. Moreover, because women have proven to be a driving force in preserving natural resources and preventing land degradation, activities will promote women as change agents of climate change mitigation, disaster reduction and adaptation strategies.

Sub-IR 2.2.2: Evidence-based climate-resilient practices adopted. USAID will assist regional institutions, businesses, and individuals in identifying and implementing actions that help the region better manage ecosystems, create and enforce climate-smart policies, and become more resilient to economic shocks from climate change impacts. For example, CAM will support climate-smart agriculture that restores soils and is more resilient to droughts and extreme rain events. CAM will stimulate the emergence, development, and implementation of climate-smart practices in many sectors, including agriculture, integrated water resources management, and biodiversity conservation.

- **IR 2.3: Transboundary natural resource management strengthened.** Central America's biodiversity is one of its most abundant and most valuable assets. Biodiversity hot spots, such as forests and coastal marine ecosystems, are often found in transboundary zones shared by two or more countries, and are increasingly under threat by human and natural activities. As a result, conservation and management of these resources is complex and difficult to manage solely through bilateral support. Moreover, illegal, unreported, and unregulated fishing has contributed to ecosystem decline and threatens the livelihoods of many of Central America's poorest citizens. CAM will help build regional capacity to improve sustainable management of natural resources found in these transboundary ecosystems, including improving governance and economic incentives for conservation, to increase regional biodiversity on which many Central Americans depend.

  Illustrative Activities:

  - Establish community-based cooperative management of protected areas or diverse biological resources through community enforcement, for example, women-only patrolling groups or resource management councils, to ensure better management through use of local practices, rights, and buy-in.
  - Create alternative economic and sustainable opportunities for local communities through the diversification of products extracted from transboundary ecoregions, including non-traditional resources and environmentally sustainable aquaculture opportunities.
  - Pilot the development of a seafood traceability system that utilizes technology to improve trade in seafood across the region.

  Sub-IR 2.3.1: Regional environmental governance improved. In Central America, weak institutional management of natural resources can damage the environment and lead to effects on human health and the economy. CAM will support Central American countries to develop, implement, and enforce environmental laws, regulations, and policies. RDCS activities will also

promote improved harmonization of policies and coordination among countries and key stakeholders for successful management of these transboundary natural resources.

Sub-IR 2.3.2: Environmentally sustainable livelihoods expanded. CAM will address threats to biodiversity and decrease illegal and unsustainable trade in natural resources by promotion of safe, legal, and environmentally-friendly alternative livelihoods that reduce poverty. CAM will work in transboundary areas within the region to expand sustainable economic alternatives to improve livelihoods through best management and development practices.

DO 3: Regional human rights and citizen security improved.

- **IR 3.1 Regional capacity to address citizen security through more coordinated governance systems improved.** Crime and violence do not respect borders, and transnational problems require a collaborative, regional approach to ensure consistency and prevent "weak links" that can negatively impact across borders. While myriad site and country-specific approaches and models are underway, as missions tackle these complex problems that have governance implications, a concise, region-specific approach is needed. CAM programming will help share successes across the region to ensure stakeholders have information and are aware of responsive governance practices available to address these challenges.

  Illustrative Activities:

  - Develop regional citizen security indicators that are comparable within the region and disaggregated to be tracked, disseminated and analyzed to inform both national and regional challenges.
  - Develop a clearinghouse for regional information to be made available broadly, including publicly available research, publications, and key citizen security indicators.
  - Assess and promote comparative best practices and approaches across key institutions, including regional exchanges with Colombia, Brazil, Chile, and Mexico, to share lessons learned and expertise in citizen security-related issues.
  - Strengthen regional youth advocacy and networks for crime and violence prevention.
  - Identify, test, and disseminate new and innovative approaches to citizen security strategies and adapt various crime prevention models region wide.
  - Develop youth leadership initiatives, such as forums and trainings, to foster their capacity to advocate on issues most pertinent to their positive development and advancement, such as civic participation and citizen security.

  Sub-IR 3.1.1 Increased regional capacity for citizen security data collection and analysis. The region still lacks comprehensive data collection in the area of citizen security and governance, including sex disaggregated data, due to limited capacity and resources, and a dearth of detail in statistical records. Activities will improve the quality, comparability, reliability, and timeliness of citizen security, governance, and transparency data in the region, followed by increased capacity to undertake comparative analysis that enables informed policy decision-making. They will also seek to strengthen both analysis and institutional capacity of select public institutions and civil society networks at the national and regional levels to provide evidence-based analysis and policy recommendations.

  Regional programming will support governments and civil society organizations, including women-led NGOs, to improve the collection, monitoring, and systematization of crime data,

sex and age disaggregated, at the national and regional level to provide evidence-based analysis and policy recommendations. This programming will further enhance analysis and dialogue of cross-border issues that impact citizen security and governance in the region. Activities will also complement existing studies and conduct further in-depth research on specific citizen security issues.

Sub-IR 3.1.2 Dissemination of citizen security best practices through regional networks expanded. Regional programming will analyze and document successful practices and solutions to systemic, transnational issues affecting the region with respect to crime and violence, including femicides, and gender-based violence. Additionally, programming will disseminate evidence-based approaches, best practices, tools, and successful models throughout the region, sharing information across Central American countries. Best governance practices in crime prevention through municipal crime prevention councils, for example, will be assessed and shared among the community of civic and policy making practitioners to help identify successful interventions that may be applied throughout the region. Activities will encourage replication and scale-up of successes, emphasizing the application of technology and innovation as much as possible. Additionally, trilateral cooperation will be emphasized as a method to share successful regional experiences and knowledge.

Sub-IR. 3.1.3 Sustainable regional capacity for violence prevention and interruption increased. A critical element of USAID's regional citizen security efforts is to enhance the ability of key stakeholders (individuals, groups, organizations) to identify and meet the challenges the region faces in terms of crime, violence, and governance. Capacity is a key determinant of government and organizations performance. Regional programming will develop the region's capacity for the prevention and interruption of violence by promoting assessment of best practices, leadership models, actions planning, evaluation, and learning. In order to foster regional learning and exchange on citizen security and best practices, activities will provide training and exposure on regional and international best practices for policy makers, elected national and local authorities, civil society, private sector, and other stakeholders involved in primary, secondary, and tertiary prevention efforts across the region. Also, activities will promote youth development by providing support to improve the capacity of youth to actively participate in violence prevention initiatives, and enhance regional youth leadership and participation. A key element will be the development of a regional training academy-like network, wherein crime prevention experts and violence interrupters share and learn about international and regional comparative evidence-based practices on citizen security-related topics, providing civil society organizations, social service providers, police, journalists, youth and other stakeholders with enhanced knowledge of what is working internationally and regionally.

- **IR 3.2 Human rights standards and protection systems strengthened.** The Northern Triangle countries of Central America have made efforts to establish elements of national human rights protection systems, such as ratifying core human rights conventions, accepting the jurisdiction of the human rights international and regional mechanisms and adopting constitutions and human rights-specific laws and policies.

  Illustrative Activities:

  - Facilitate a regional advisory network or working group of leading experts in human rights education and awareness-raising to establish goals, standards, protocols, themes, and content for education, training, and strategic communications.
  - Engage with regional networks to adopt and replicate a non-discrimination campaign

especially regarding groups such as LGTBI, youth, migrants, internally displaced persons, women, children and other traditionally excluded groups.

- Generate improved information systems on migrants and internally displaced persons to contribute to decisions involved in the reception, assistance, and reintegration process.
- Provide standardized protocols and best practices to assist in the introduction, and/or management of victim registries related to disappearances, trafficking, migration, and internally displaced persons.
- Provide technical assistance to establish a regional registry to track disappearances as well as genetic database to help identify persons both deceased and living.
- Design special mechanisms to track violations against vulnerable groups regionally, in particular women, LGBTI, children and indigenous groups.

Sub-IR. 3.2.1 Enabling environments for prevention of human rights violations strengthened. USAID will work to improve enabling environments for guaranteeing human rights protections and preventing violations in a manner appropriate to national as well as regional contexts. This will be achieved by improving human rights education and awareness, and public policy research and data collection. To improve the enabling environment, USAID/CAM will work with partners to elevate human rights awareness and increase the understanding of society at large, as well as among government officials and the larger human rights community of practice.

Sub-IR. 3.2.2 Responsive actions to address human rights violations expanded. Because efforts to prevent human rights violations can sometimes be ineffective and unsuccessful, USAID/CAM will provide assistance to improve the ability of human rights institutions and actors, both government and civil society, that make up national human rights protection systems in the region to respond to and mitigate the immediate effect and harm of these violations. Countries in the region share a number of at-risk populations and individuals whose rights have been violated. In addition to human rights defenders and journalists, the rights of migrants and internally displaced persons, of women and youth, labor organizers, of indigenous peoples and ethnic minorities, LGBTI persons, and pre-trial detainees and prisoners are imperiled. Labor and land rights are also tenuous for many throughout the region.

Sub-IR 3.2.3 Sustainable early warning and protection systems for key vulnerable groups developed. Work under this Sub-IR will support partners in the region to develop and institutionalize measures to prevent systematic, along with more individualized and localized, forms of human rights violations in the region and reduce to a minimum the harm they cause through early warning and threat assessment.

DO 4: HIV prevalence in Central America contained.

- **IR 4.1: Effectiveness of comprehensive prevention, care, and treatment services increased.** USAID will strengthen HIV prevention practices and services directed to key populations, including men who have sex with men (MSM), sex workers, and transgender populations, and interventions in Honduras will also target the Garifuna population. The activities will promote behavior change to decrease infection rates and enhance detection, care, and treatment in some specific sub-national units. The geographical focus will allow for saturation of services in each area to have a major impact on the epidemic. The program will support host country governments to effectively and efficiently lead national and regional responses to achieve the national goals set by the countries as part of the continuum of care concept. Under the worldwide

goals of 90-90-90 which lays out an ambitious treatment target that by 2020, 90 percent of all people living with HIV will know their HIV status, 90 percent of all people with diagnosed HIV infection will receive sustained antiretroviral therapy, and 90 percent of all people receiving antiretroviral therapy will have viral suppression. USAID efforts will support the countries' endeavors to accelerate control of the epidemic in the most affected areas and with the most affected populations in future years.

Activities will also support health system strengthening, building the capacity of countries to more effectively reach key populations and monitor and use information to make sustainable evidence-based decisions in close coordination with all key stakeholders in the region.

Illustrative Activities:

- Prevention programs targeted for key populations, including peer outreach, small group prevention activities and prevention activities in "hot spots", mainly focused on promoting behavioral change.
- Service provision related to the procurement, distribution, and marketing of condoms and lubricants.
- Establishment of NGO networks to provide high quality prevention services; build the capacity of local NGOs to support the implementation of evidence-based, quality HIV prevention services for key populations in compliance with new ministry of health (MOH) funding mechanisms.
- Provision of HIV testing and counseling across the range of community and facility-based settings, including mobile units to increase key populations' ability to access the HIV test.
- Support for programs that provide timely entry into medical care and retention, after HIV positive diagnosis.
- Strengthen reference systems between community services, local clinics and HIV Comprehensive Units.

Sub IR 4.1.1 HIV prevention and diagnosis services focused on key populations increased. Activities will include diverse types of modalities to increase the coverage of people tested, such as mobile units, HIV testing days, online references and vouchers, private clinic enrollment, among others. Besides increasing the availability of service offerings, it is important to simultaneously accelerate the sensitization and training of health workers. All of these will result in an enabling environment for key populations that facilitates the diagnosis process, as well as supports an effective system for reference from the places where they are reached to the places where HIV tests are taken. New cases will be tracked through the input of the data collected into the national and homogenous system to track new cases.

Sub IR 4.1.2 Positive populations' enrollment, retention, and treatment in HIV qualified health care centers and community services improved. USAID will help countries to improve the quality, coverage, and linkages to comprehensive HIV services, bringing HIV positive people to viral suppression. These activities will be complemented with health systems strengthening interventions, including capacity building in laboratory services, supply chain management, human resources, and quality improvement.

- **IR 4.2: Health systems strengthened and sustained.** Most countries in the region have supportive legal frameworks and national strategic plans are in place to respond to the HIV epidemic. However, the poor implementation of HIV laws and national policies, as well as the lack of sanctions for non-compliance, greatly reduce the efficacy of these laws. In addition, non-health

sectors are not meaningfully engaged in HIV policy design or implementation, and this greatly constrains the impact of HIV laws and policies.

For example, conservative cultural norms about sexuality and a strong normative preference towards heterosexuality are reflected in the lack of political leadership to implement human rights laws to guarantee the protection and equality of key populations. Reflecting broad public intolerance for sexual diversity, policies do not adequately address gender-based violence against transgender women and MSM.

HIV policies are often not well linked to other larger national policies, such as a country's national development strategy or poverty reduction strategy, which reduces their impact, isolating them as stand-alone policies, with isolated financing. USAID will support NGOs and advocacy groups to play a critical role in holding governments accountable for their policies and financial commitments related to HIV/AIDS.

Illustrative Activities:

- Development and implementation of policy, advocacy, guidelines, and tools (including developing national adherence strategies).
- Capacity building activities that strengthen national, departmental and municipal health systems to increase quality of HIV services for key populations or patients.
- Strengthen the national HIV/AIDS monitoring and evaluation system based on the Joint United Nations Programme on HIV and AIDS (UNAIDS) 12 components model.
- Share among key actors methods, tools, best practices, and lessons learned focused on the HIV cascade to monitor the HIV epidemic.
- Technical assistance to develop and implement HIV and GBV prevention policies.
- Increase the organizational capacity within ministries of health to establish and carry out effective funding mechanisms, management and stewardship of local NGOs to provide HIV prevention services.

Sub IR 4.2.1: Capacity and competency of governmental and non-governmental health organizations to respond to the increased demand built. The strengthening of governmental and non-governmental health organizations is a critical factor for improving uptake of health services to respond to the increased demand. It is important to address the barriers that limit access for vulnerable people, and ensure provision of relevant information and skills, client-friendliness, and accessibility to services. This capacity building will include mapping the locations and capacity of all service organizations working on the HIV response, and developing their capacity through training and tools such as protocols, manuals, and norms. USAID programs will prioritize capacity building and systems strengthening interventions that build strong leadership and governance, particularly those that strengthen the social service workforce and system.

Sub IR 4.2.2: Non-health sector organizations involved in the HIV response increased and strengthened. There is a general consensus that a true multi-sector response is required to achieve more effective implementation of national and regional HIV policies. USAID will work to involve stakeholders from a wide range of sectors and at various levels of government in the policy process to ensure more effective implementation of policies and continuity, particularly during periods of political transition.

Sub IR 4.2.3: Sustainable national investments in HIV increased. Governments in Central America currently finance HIV programs at varying levels. While countries demonstrate increased ownership of specific components of the HIV response (particularly in relation to

treatment, care, and support activities), prevention activities remain quite dependent on international cooperation. USAID will strengthen country capabilities and ownership to establish leadership and improve skills and performance to manage the limited resources available and, in the near future, lead the response to the epidemic.

In a joint effort, the Central American countries and USAID developed a Regional Sustainability Strategy which is being adopted by each country to progressively absorb the cost of the epidemic. USAID will continue to support the development and implementation of the national and regional strategies to ensure the appropriate national investments in combatting the epidemic.

- **IR 4.3: Knowledge management system adopted.** USAID will continue investing in the generation, dissemination, and use of HIV strategic information for evidence-based decision making. Despite the progress made in managing knowledge, it is still a challenge to generate, disseminate, and use the right knowledge at the right time, in the right places. USAID will develop and adopt a comprehensive knowledge management framework in Central America. USAID has the opportunity to be more efficient and effective at improving the strategic information strategy focusing on streamlining processes, increasing external generation, improving knowledge transfer quality, and creating local capacity and sustainability. Overall, this IR will endeavor to strengthen the generation, dissemination and efficient use of strategic information, knowledge about the epidemic, and the registry of national response actions for decision-making.

  Illustrative Activities:

  - Technical assistance to improve key population size estimation in coordination with UNAIDS and the Global Fund.
  - Technical assistance to develop coverage assessments for HIV services among key populations and identify current service provision gaps.
  - Technical assistance to develop local capacity for rigorous evaluation methods; activities may include virtual training on HIV, applied research for local partners, and virtual support to develop research products.

  Sub IR 4.3.1 Geographic and population focused planning strengthened. To improve HIV strategic planning in support of the continuum of care, USAID will strengthen the methodologies for estimating key populations size and the providers of services to key populations to identify gaps in the access of these people to critical HIV services. Priority areas for these interventions are based on the 2013 PEPFAR evaluation in Central America and include strengthening local capacities to perform and use epidemic data on key populations for decision making, and promoting the integration of HIV information systems.

  Sub IR 4.3.2 Innovation and research on interventions for key populations and people living with HIV/AIDS developed. The purpose of this sub-IR is to harmonize reporting methods, frequency, and content, as well as support the identification of barriers and major factors that are preventing the priority areas for these interventions are based on the 2013 PEPFAR evaluation in Central America. Activities under this Sub-IR will strengthen local capacities to improve data collection and use for decision making, and conduct sociological and anthropological studies among key populations and people living with HIV/AIDS.

ANNEX M: TASK ORDER STATEMENT OF WORK (REGIONAL TROPICAL FOREST AND BIOLOGICAL DIVERSITY ASNALYSIS COMPONENT)

SECTION C – OF THE TASK ORDER

I. Background

USAID/El Salvador's Central America Regional Program (USAID/ECAM) is currently developing a new Regional Development Cooperation Strategy (RDCS) to inform its assistance efforts in Central America. As a part of the documentation for the new, five-year RDCS, USAID/ECAM is required by Sections 118(e) and 119(d) of the Foreign Assistance Act of 1961, as amended (FAA), and USAID's Automated Directives Systems (ADS) 201.3.4.2(1)(a) to complete an analysis of tropical forests and biological diversity in Central America. Selected text from FAA 118(e), FAA 119(d), and ADS 201 is provided in Annex A. In addition, given Central America's vulnerability to global climate change and the clear links between tropical forests, biological diversity, and climate change, USAID/ECAM will also complete a regional climate change vulnerability assessment to better inform its future development activities. Many other documents, studies, and research on Central America's tropical forests, biological diversity, and vulnerability to climate change have been completed by several organizations at both an individual country level as well as at the regional level. This work will primarily consist of an initial compilation, review, and synthesis of existing information on the current state of tropical forests, biological diversity, and climate change throughout Central America. Based on this information, recommendations will be provided on how to direct future funding and efforts in order to conserve biodiversity and to reduce the impacts of climate change. A list of reference documents is included as annexes to the Statement of Work.

II. Statement of Work

The Central America Regional Environment and Climate Change Analysis will include:

1. A regional analysis of tropical forests and biological diversity in Central America, including a review of their current status and incorporation of existing tropical forest and biological diversity analyses in bilateral Missions; and

2. A regional climate change vulnerability assessment, including a review of the impacts of climate change on priority development sectors.

The analysis will be limited to the Central American region, defined as Central American Integration System (SICA) member countries: Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, and the Dominican Republic.

A. Regional Tropical Forest and Biological Diversity Analysis (FAA Sections 118 and 119)

The Contractor will conduct an analysis of the current status of tropical forests and biological diversity in the Central America region, beginning with a study of existing individual country analyses and consolidating information to inform a regional perspective. Tropical forests (which include mangrove forests) and biological diversity shall be considered through an ecosystem- based approach focused on ecoregions (such as vegetative communities or Large Marine Ecosystems) rather than limited to geo-political boundaries of individual countries. With this perspective, the Contractor shall focus primarily on issues and opportunities that are trans- boundary, affecting two or more Central American countries, while including national-level data and stakeholders in the analysis as they are related to regional issues. Furthermore, in order to prioritize interventions, the Contractor should identify where key biodiversity areas provide important ecosystem services crucial to communities or the economy – such as biodiversity that leads to high yields for agriculture

or commercial fisheries, eco-tourism, significant resilience to extreme weather events - rather than protecting biodiversity solely for the sake of conservation. The Contractor shall:

1. Compile and present information that describes the current status and trends of tropical forests and biological diversity of Central America.
2. Describe the factors affecting the management of these natural resources, including the principal threats and impediments to conservation and sustainable management of tropical forests and biodiversity in Central America, and identify commonalities, if any exist, across individual countries.
3. Review the regional institutional structure for the management of tropical forests and biodiversity, including a description of major public and private organizations, including important national or sub-national institutions that have a role in this process. Interview critical staff of these institutions.
4. Review the legal framework for the protection of biological resources in the region, including tropical forests and areas of high biodiversity. The review should include an assessment of the laws and policies at the national level and at the international level. Relevant domestic, regional, and/or international treaties and agreements should be described, and their effectiveness of implementation throughout the region should be assessed. Include important national-level legislation as applicable to the regional context.
5. Identify and prioritize cost-effective and implementable actions necessary to achieve sustainable management of tropical forests and the conservation of biological diversity in Central America, with a special focus on potential activities and partnerships to support the conservation of coastal/marine biodiversity.
6. Identify and describe the extent to which the actions proposed for support by USAID/ECAM meet the identified needs, and recommend any further actions not described or outlined in existing or planned projects. Analyze the effects of activities discussed in the RDCS concept paper, both positive and negative, on tropical forests and biodiversity in the region. Provide recommendations on potential ways to improve benefits and address negative or detrimental effects.
7. Review the role of women, youth, and other groups relevant to but commonly ignored or discriminated in the conservation of tropical forests and biodiversity. Further identify specific gender gaps in the tropical forest and biological diversity conservation sector and provide recommendations on how to reduce gender disparities in access to, control over, and benefit from tropical forests and biodiversity.

B. Regional Climate Change Vulnerability Assessment

(See Regional Climate Change Vulnerability Assessment Report Annex)

III. Central America Regional Environment and Climate Change Vulnerability Assessment Outline and Description

A. Regional Tropical Forest and Biological Diversity Analysis (FAA Sections 118 and 119)

i. Title page

ii. Table of contents

iii. List of appendices

iv. List of tables and figures

v. Executive summary

1. Introduction

This section of the assessment will provide an overview of the information available and used in the assessment. It should identify and communicate significant gaps in information on the status and management of tropical forests and biological diversity in Central America, including resources in coastal and marine ecosystems.

2. Legal framework and institutional structure affecting tropical forests and biological diversity

The assessment should include a review of the current legal framework and institutional structure for the management of biological diversity and tropical forests. This review should include a description of major organizations, both public and private, which play a role in this process.

(a) Regional institutions and national governments

The assessment should include a review of the legal basis – regional, national, and sub- national – for the protection and management of tropical forests and biological resources in the region. This should include a review of international treaties and agreements ratified by Central American countries (e.g., CBD, CITES, RAMSAR) and the effectiveness of their implementation in order to provide specific recommendations for changing key policies or strengthening current implementation practices that could result in transformative conservation of biodiversity. A description of the institutions within the region responsible for management of tropical forests, biological diversity, and natural resources should be provided. This information should then be utilized to assess the interest and commitment of regional institutions and national governments to preserve biological diversity and tropical forests, as well as their institutional capacities to execute their mandates and commitments, and summarize whether environmental profiles or conservation strategies have been produced or are currently underway at a regional and/or national level.

(b) Non-governmental organizations (NGOs)

This section should include a description of the NGOs that are active in the region, including public, private, indigenous, and local and international NGOs, which play a significant role in conserving biological diversity and tropical forests. Current environmental programs/activities and their level of funding should be described.

(c) Bilateral donors, multilateral donors, and international organizations

This section should include a description of other bilateral and multilateral donors as well as international organizations that play a significant role in conserving biological diversity and tropical forests. Current environmental programs and/or the level of funding contributed should be described and areas for potential synergies or overlaps with existing or planned USAID funding should be highlighted. Information on these organizations' principal programs, membership policies, and relationship with the national government and/or other regional institutions should also be identified.

3. Status and management of tropical forests and biodiversity: protected areas (terrestrial and marine) and endangered species

This section should include an inventory of declared and proposed national parks, wildlife refuges, marine protected areas, forest reserves, sanctuaries, hunting preserves, and other types of protected areas. The government agency or NGO managing each protected area should be identified, including all partners in cases of co-management, and the responsibilities of these parties as well as the legal framework for the management arrangement (e.g., MOU, statutes, or other legal document) should be described. This section should include a map of the region that features the location of all existing and proposed protected areas. Proposed protected areas should also include a roadmap of the process and current status towards finalizing legal establishment and implementation. A description of threats to biodiversity and endangered species in protected areas, including their main causes, should be provided. A brief review should be made of the effectiveness of these areas in protecting biological resources, and of their importance to the economy (e.g., providing tourist opportunities, providing local food sources, providing protection from large storms, etc.),

including of the effectiveness of groups managing these areas and the degree to which local communities participate in its management. Furthermore, in line with an ecosystem-based approach, this section should include an assessment of connectivity of protected areas across the region and their effectiveness in preserving biodiversity on a regional level. To the extent practicable, this information may be summarized with weblinks to detailed information, maps, and other resources.

This section should also include an inventory of rare and endangered species found in Central America by ecoregion, both for terrestrial and coastal/marine ecoregions. It should identify the critical habitats of these endangered species and evaluate natural and human-induced pressures on these habitats and the organisms therein. It should review efforts such as species-specific management or action plans and assess their effectiveness.

A list of biodiversity-related projects by governments, donors, or other organizations that have recently been implemented, are currently being implemented, and/or are being planned for future implementation should be included. This includes past, present, and planned future USAID activities. A short description of the projects should be included. This section will also identify gaps in regional conservation efforts and prioritize regional issues needing most immediate attention.

4. Status and management of biodiversity: other managed natural systems

This section should include a description of conservation activities in the region which are being undertaken outside designated protected areas by governments, donors, or other implementing organizations (including USAID) that have recently been implemented, are currently being implemented, and/or are being planned for future implementation. This section will also identify gaps in regional conservation efforts outside of protected areas and prioritize those regional issues that require the most immediate attention.

(a) Description of other managed natural systems (e.g., coastal and marine ecosystems, forest resources, rangeland resources, wetlands, agricultural systems, etc.)

This sub-section should include a description of the region's major ecosystems and an analysis of their present conservation status. Detailed maps, scaled to the size of the protected area, of the region's natural vegetation or habitat types should be included. The text should review the status of managed natural ecosystems including, but not limited to, coastal and marine ecosystems, forests, rangelands, wetlands, and agricultural systems. This section should discuss the economic, ecological, and social importance of these ecosystems to Central America, and address their role in the regulation of erosion, the management of water flow, and the maintenance of productive soils. The relationship between the distribution of established property rights (i.e., land ownership) and trends in in the effectiveness of conservation efforts should be addressed. The assessment should place special emphasis on coastal and marine ecosystems and describe their current status and threats.

(b) Threats and obstacles to sustainable management, including impact of development projects

This sub-section should include a review, by major ecosystem, of existing information on the impacts of internationally and locally funded major development projects on tropical forest and biological diversity resources. The text should review the regulatory framework concerning the implementation of development projects as they affect biological diversity, with emphasis on tropical forests and coastal/marine ecosystems. The text should specify the environmental review and permitting requirements of Central American Governments as they concern major projects. This sub-section may also include a summary of the availability of tools, information portals, and networks that provide access to accurate and updated critical information required for supporting effective sustainable management as well as the technical capacity to utilize this information. To the extent practicable, this information may be summarized with weblinks to detailed information, existing impact evaluations, and other resources.

5. Status and management of forest resources

This section should include a description of the different types of forests in Central America. An assessment should be made of these forests' economic importance to the region, including values for wood, non-timber forest products, tourism, ecosystem services, etc. Existing management structures should be described, including those of the private forest industry and of rural communities. An assessment should also be made of the status of forest certification programs in the region and their impacts (if any) on the region's forests. An analysis of threats to tropical forests should also be included.

A list of forest management-related project by governments, donors, or other implementing organizations (including USAID) that have recently been implemented, are currently being implemented, and/or are planned for future implementation with a short description of the projects should be included.

6. Major issues and impacts to tropical forest and biological diversity conservation

This section of the assessment should provide a summary of significant direct and indirect threats, major issues requiring attention, and obstacles to improving conservation of tropical forests and biological resources of Central America, including in coastal and marine ecosystems. For example, the assessment should explore issues such as illegal logging, overfishing, point- and non-point source pollution, regulatory environment, institutional capacity for regulation, and others as identified. The present and future requirements for the development of local institutions and training, both government and non-governmental, should be addressed. Issues concerning the management of protected areas should be reviewed. Public participation on terrestrial and marine biodiversity and forestry conservation should be explored. Special attention should be given to the problems of assuring adequate protection of tropical forests and wetlands with a particular focus on coastal/marine ecosystems (e.g. Which eco-regions should be prioritized for conservation? Do existing protected areas encompass most significant biological resources? How are local communities involved in their protection?). Most importantly, this section should consider trans-boundary issues facing key ecosystems formed in order to conserve biodiverse habitats that stretch across national boundaries. Finally, this section should prioritize issues needing most immediate attention and identify gaps where action is needed.

7. Recommendations and proposed actions, including review of actions proposed for support by USAID/ ECAM

This section should provide recommendations for proposed trans-boundary and regional actions to address priority biological diversity and tropical forest conservation issues in Central America that may be implemented with support from USAID, regional institutions, national governments, international development organizations, and local and international NGOs. A special focus should be placed on recommendations for potential regional coastal/marine activities, with justification regarding the priority and added value of proposed activities in Central America.

Recommendations should be identified with regard to their relative priority, geographic location, and length of implementation period. These recommendations for proposed actions shall include a brief description of their objective and anticipated benefits, concise analysis of cost (foreign and local currency), identification of the appropriate institution(s) for implementation, estimated implementation period, and outline requirements for institutional development and training to assure the sustainability of the proposed program. A viable sustainability plan should be included in the recommendations, including expected essential SICA, national government, and/or sub-national government commitments. A theory of change should be developed for all proposed actions that directly demonstrates how potential activities lead to a measureable positive change in the conservation of tropical forests and biological resources.

This section should also include the identification and assessment of existing education and training programs hosted by regional institutions, national governments, and/or NGOs to preserve biological diversity and tropical forests, especially where endangered species are apparent. The assessment will address program constraints, including the need to consider conditioning certain assistance upon legislative or administrative

actions in order to officially designate and strengthen governments' commitments for protected areas and tropical forest conservation.

Moreover, this section will identify the extent to which the actions proposed for support by USAID/ECAM meet the needs thus identified, and recommend any further actions not described or outlined in the RDCS concept paper (taking into account likely budgetary constraints). This section will analyze the effects, including potential negative impacts, of the proposed RDCS concept paper on Central America's tropical forests and biodiversity. In particular, the proposed program areas of Regional Security, Regional Trade, Global Climate Change, and HIV/AIDS Prevalence should be carefully reviewed and discussed.

8. Appendices

(a) Bibliography

(b) Biodata of team members

(c) List of persons contacted

(d) Map(s) of eco-regions in Central America

(e) Map(s) of protected areas in Central America

(f) Other appendices as appropriate

B. Regional Climate Change Vulnerability Assessment

(See Regional Climate Change Vulnerability Assessment Report Annex)

ANNEX N: BIODATA OF TEAM MEMBERS

BRUCE KERNAN

Team Leader/Tropical Forest Management Specialist

Bruce Kernan has 32 years of professional experience in the design, management, assessment, monitoring, and evaluation of the climate change, environmental, biodiversity, and forestry aspects of international development projects. He has served as a team leader or participant for over 50 short-term consulting assignments in 26 countries, and has accumulated extensive experience in designing and implementing short-term training courses and public consultations. He was team leader for USAID climate change analyses of eight Eastern Caribbean countries, Guyana, Surinam and Bolivia and evaluation of the climate change aspects USAID environmental programs in the Dominican Republic and Central America. He managed several large and complex USAID/Ecuador rural development and natural resource projects, and is fluent in Spanish.

MPS	Natural Resources, Cornell University, USA
MFS	Silviculture and Forestry Economics, Yale University, USA
BA	Geology, Hamilton College, USA

MIGUEL CIFUENTES

Senior Climate Change Specialist

Dr. Miguel Cifuentes is a research professor and climate change specialist at the Tropical Agricultural Research and Higher Education Center (CATIE) in Costa Rica. He has proven scientific research and consulting experience in climate change mitigation and adaptation, forest governance, carbon assessments, forest monitoring, blue carbon, and REDD+. He is leading the conceptual development and construction of analytical tools to promote synergies between adaptation and mitigation to climate change in sustainable landscapes. He has developed analytical indicators to quantify the degree of success of adaptation initiatives at regional, national, and local scales. He has also developed and implemented methodologies to determine the potential of ecosystems (including coastal-marine ecosystems) to mitigate climate change, and leads blue carbon science and policy development in Central America. Dr. Cifuentes currently teaches CATIE graduate programs and 4-10 international courses per year, and has been a speaker, participant or facilitator in many national and international climate change fora. He is a permanent member of the International Blue Carbon Initiative Science Working Group, and IUCN's Commission on Ecosystem Management. Dr. Cifuentes has consulted for FAO, IFAD, the World Bank, IADB, CIRAD, EUROCLIMA, ECLAC, and GIZ. Dr. Cifuentes is a highly effective team member and trainer with excellent interpersonal qualities, strong multi-lingual communication skills, and the ability to work with people from diverse backgrounds in a variety of situations.

PhD	Environmental Sciences, Oregon State University, USA
MS	Forestry, North Carolina State University, USA
BS	Forest Engineering, Instituto Tecnológico de Costa Rica

JUAN PABLO DOMÍNGUEZ MIRANDA

Biological Diversity Specialist

Juan Pablo Miranda has 19 years of experience as an environment and biodiversity specialist in Central America and the Caribbean. He has been a team member and team leader for numerous environmental

impact assessments, protected area studies, advisory assignments, and land use planning projects. Mr. Domínguez's expertise includes natural protected areas, biodiversity, biological corridors, ecotourism, sustainable agriculture, land restoration, and climate change. He has worked on a number of international donor projects, for USAID, IDB, IADB, GIZ, UN-HABITAT, and GEF/WB. Mr. Domínguez has strong communication skills in English, Spanish, Portuguese, and German, enabling him to liaise between team members and stakeholders and produce high-quality reports and other deliverables. Mr. Domínguez was the Natural Protected Areas and Biodiversity Specialist within the team that designed the Salvadoran Ministry of Environment's Climate Change Mitigation Strategy based on Adaptation which was endorsed by the UNFCCC and the German Ministry of Environment. He also lead the team that evaluated the impacts and sustainability of projects funded by the Salvadoran Initiative for the America's Fund and designed their 2015 – 2020 territorial intervention strategy based on the principles of the aforementioned Climate Change Mitigation Strategy based on Adaptation. On USAID projects, Mr. Domínguez was responsible for inventories, assessments, technical studies and legislation proposals that lead to the establishment of the first Salvadoran Marine Protected Area. He also conducted a biophysical characterization and proposal for the protection of the southeastern marine area of El Salvador's oceanic coast. With the USFS, Mr. Domínguez conducted an assessment on marine ecosystems of Nicaragua's La Flor – Ostional Marine Refuges, their status and potential uses. He conducted a similar assessment and participated in the design of *La Caleta* Marine Park in the Dominican Republic. As an advanced certified diver, Mr. Domínguez was personally involved in most field activities.

BS	Biology School, Universidad de El Salvador
Licentiate	Biology School, Universidad de El Salvador

ZULMA RICORD DE MENDOZA

Coastal Resource Management/Institutional Development and Gender Specialist

Zulma Ricord de Mendoza has 25 years of professional experience in leading and implementing projects involving biodiversity conservation, biological corridors, biosphere reservations, and protected areas in El Salvador and the Central American region. She has been on regional teams with the CCAD (Central American Commission of Environment) and interacted with OSPESCA, the regional Authority for Fisheries. From 2010 – 2015, she served as the Deputy Chief of Party for the USAID *Regional Program Management of Aquatic Resources and Economic Alternatives*. Mrs. Mendoza has a record of successful interaction with diverse consulting teams and high-level public and private officials. She has a demonstrated facility for fostering and coordinating innovative relationships among government agencies, local communities, and the private sector. She has excellent communication capabilities and is a recognized specialist and regional representative for biodiversity in different countries in the region. Mrs. Mendoza also is a founding member of two National level NGOs that pursue conservation of biodiversity and ecosystems (SalvaNatura) and endangered wildfauna (FUNZEL).

MS	Natural Sciences, Zoology Major, University of Idaho, Moscow, Idaho
BA	Biology, Lewis and Clark College, Portland, Oregon, USA

PABLO IMBACH

Ecosystems/GIS Specialist

Dr. Pablo Imbach has over 15 years of experience working in Latin America, as a GIS specialist working on development-oriented aid, environmental conservation, and scientific research on the biophysical aspects of climate change, biodiversity conservation, and ecosystem services. He has extensively made use of modeling tools at different geographical scales for land use change, hydrology, ecosystem

dynamics, atmospheric monitoring, species modeling, and climate change impact assessments on forests and ecosystems. Dr. Imbach has coordinated and participated in several interdisciplinary research groups and capacity building activities, including technical support to institutions and organizations at the national, regional, and local levels. Since 2005, he has worked with CATIE's Climate Change & Watersheds Program, where he coordinates the Environmental Modeling Laboratory, an interdisciplinary group focused on research and technical assistance for ecosystems and global change issues through the use of modeling tools.

PhD Climate and Environmental Sciences, University Pierre Marie Curie, France
- Modeling equilibrium states of vegetation and hydrology in Central America
- Climate change impact assessment on ecosystems and hydrology in Central America
- Assessing species dispersal pathway under climate change for the Mesoamerica Biological Corridor

MS Integrated Watersheds Management, Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica

BS Agricultural Engineering, emphasis in Plant Science, University of Costa Rica

JOSE ENRIQUE BARRAZA

Regional Coastal Resources Management Specialist Ecosystems/GIS Specialist

Dr. Jose Enrique Barraza has nearly 23 years of experience in marine biodiversity and habitat conservation, and sustainable management of natural resources in El Salvador and Central America. As the Marine Ecology Specialist at the Ministry of Environment and Natural Resources, Dr. Barraza sought to preserve wetland resources, surveyed marine biota and monitored freshwater and coastal pollutants. He was also the Wetlands Unit Chief, and as the Ramsar focal point, helped to successfully oversee Ramsar Convention implementation in El Salvador. He also participated in the implementation and monitoring of other international treaties in the region. He has carried out and published numerous research activities related to marine and coastal resources management, and has lectured in biology and ecology in Central America, the US, and Spain.

Ph.D. Biological Sciences, Ecosystems and Zoological Resources (Spanish Agency for International Cooperation Scholarship), Universidad de Santiago de Compostela, Spain, 2000

MSc Zoology (Fulbright Scholarship), Texas A&M University, USA, 1993

BSc Biology, Universidad de El Salvador, El Salvador, 1988

VIRGINIA REYES

Policy/Economics Specialist & Logistics Support

Virginia Reyes is an economist with 15 years of experience working in Costa Rica and Mesoamerica. She has worked on the development, implementation, and evaluation of environmental projects; design of eco-environmental devices; and studies of natural resource economic assessment, including economic and financial analysis. Ms. Reyes has worked to strengthen public-private alliances, working with governments, local communities, and non-government organizations. She has worked for the IABD, UNDP, the Center for Environmental Law and Natural Resources (CEDARENA), The Nature Conservancy (TNC), International Conservation, World Wildlife Fund (WWF), Global Water Partnership (GWP).

Post Graduate Economics, emphasis in International Finances, National University of Costa Rica

Masters Economics and Political Economy, emphasis on Ecological Economy and Sustainable Development, National University of Costa Rica

BA Economics, National University of Costa Rica

CHARLES HATCH

ECODIT Home Office Support: REPLACEE IDIQ Manager

Dr. Hatch is an experienced educator, researcher, university administrator, and international development professional with more than 35 years of experience. Dr. Hatch has proven experience identifying public policies and market-driven approaches that ensure and sustain the management and conservation of natural resources. He recognizes the importance of integrated, interdisciplinary agriculture and natural resources systems and has developed programs and policies that are sustainable because they capitalized on the interdependencies of these systems. Dr. Hatch has proven experience building the capacity of governments, local communities, and NGOs to manage natural resource systems and to train employees and stakeholders in the use and management of these systems. He served as ECODIT's Chief of Party (COP) for the USAID/ECODIT BSP/NEPA project in Afghanistan, as well as COP for the USAID/Winrock US$27.5M Forestry Planning and Development Project in Pakistan and Vice President of the University of Idaho. These positions involved significant project management, program institutional capacity building, HR, performance improvement, project assessment and design, and adult learning methodologies. Dr. Hatch also has a demonstrated commitment to natural resources conservation and strong interpersonal skills with a record of accomplishment by conveying a vision, planning strategically, building collaborative partnerships and alliances, and establishing effective, ongoing working relationships with both internal and external groups.

PhD Forest Measurements, University of Minnesota

Master of Forestry Oregon State University

OSAMA A. ABU-RAYYAN

ECODIT Home Office Support: Project Manager

Mr. Abu-Rayyan has managed and/or was the principal coordinator on several different projects during his 17 years of experience in international environmental consulting. After working for ERM International based out of London, he joined ECODIT in 2004 as the Technical Coordinator / Environmental Economist on the Small Communities Project in Jordan. As the de-facto Deputy COP, assuming the role of Acting COP on several occasions during his first 5.5 years on the project, he is also versed in USAID procedures, rules and regulations. In April 2010, he became the COP and took charge of this project which came to a close in April 2012. Since then, he has been supporting the management of ECODIT's project portfolio, including as Project Manager for the 2015 Uganda ETOA, and was the economic/finance specialists for a project developing National Appropriate Mitigation Action (NAMA) for Lebanon's of GHG emissions. He managed the 1991 Gulf War Environmental Damages Claims for the Government of Jordan, a cost recovery project for the water sector in Scotland, and a World Bank water quality study in the Nile Delta. He was also the principal coordinator on a World Bank reuse strategy for the West Bank-Gaza and was the assistant project manager for a 4-year, 7.5 million USD rural water project for DfID in Hebron. His practical also experience includes conducting and managing several EIAs, including for tourism and industrial master plans, pipelines and roads. He has provided expertise in economics and cost recovery, insights to the operations of water and wastewater utilities, environment, and institutional development and strengthening for local governments, USAID, the ADB, the EC, JICA and oil and gas companies such as BP and Shell.

M.Sc. Applied Environmental Economics, Imperial College, Wye, UK, 2001

B.Sc. Resource Conservation, McGill University, Montreal, Canada, 1997

ANNEX O: REGIONAL BIOMES AND ECOSYSTEMS - OCCURRENCE AND DETAILED STATUS

Table 18: Detailed information on terrestrial ecoregions – regional

BIOMES / ECOREGIONS	ORIGINAL EXTENSION (hectares)	REMAINING Hectares	REMAINING %	WITHIN NPA's Hectares	WITHIN NPA's %	ASSIGNED CONSERVATION STATUS	COMBINED AREA (% Remaining x % within NPAs)	ESTIMATED CONSERVATION STATUS	OCURRENCE: Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Dominican Republic	MAIN THREATS: Loss and Degradation of Natural Habitat: Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Contamination /Pollution: Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Over-exploitation: Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Nº of Threats by Ecoregion
I.A. Tropical and Subtropical Moist Broadleaf Forests	**33,795,525**	**18,629,225**	**55.12%**	**8,590,301**	**46.11%**		**25.42%**	**V**									**13**	**12**		**6**	**3**	**7**	**3**							**1**					**9**	**5**	**4**		**1**	**11**
I.A.1. Petén – Veracruz Moist Forests	6,426,402	4,243,212	66.03%	2,446,020	57.65%	CR	38.06%	V									X						X												X					2
I.A.2. Yucatán Moist Forests	18,562	8,235	44.37%	7,461	90.60%	V	40.20%	V									X	X		X			X																	4
I.A.3. Central American Atlantic Moist Forests	8,967,971	5,403,744	60.26%	2,291,589	42.41%	V	25.55%	V									X	X			X														X	X	X			6
I.A.4. Central American Montane Forests	1,484,468	1,132,794	76.31%	504,513	44.54%	V	33.99%	V									X	X																						2
I.A.5. Chiapas Montane Forests	23,667	16,182	68.37%	0	0.00%	CR	0.00%	MIA									X	X																						2
I.A.6. Sierra Madre de Chiapas Moist Forests	1,269,576	588,690	46.37%	59,292	10.07%	CR	4.67%	MIA									X	X			X	X														X	X	X			7
I.A.7. Cayos Miskitos – San Andrés - Providencia Moist Forests	5,561	1,773	31.88%	1,548	87.31%	CR	27.84%	V										X				X	X																	3
I.A.8. Costa Rican Seasonal Moist Forests	756,456	185,499	24.52%	32,238	17.38%	CR	4.26%	MIA									X	X				X																		3
I.A.9. Isthmian-Atlantic Moist Forests	4,498,003	2,406,744	53.51%	916,254	38.07%	V	20.37%	EN									X			X		X													X					4
I.A.10. Isthmian-Pacific Moist Forest	4,247,519	1,505,250	35.44%	449,289	29.85%	CR	10.58%	CR									X	X		X		X													X					5
I.A.11. Cocos Island Moist Forests	2,474	2,474	100.00%	2,474	100.00%	RS	100.00%	ST																																X	1
I.A.12. Talamancan Montane Forests	2,000,269	1,603,233	80.15%	1,009,593	62.97%	RS	50.47%	RS									X	X																		X	X				4
I.A.13. Chocó-Darién Moist Forests	1,020,674	922,428	90.37%	581,121	63.00%	RS	56.94%	RS									X	X		X		X								X						X	X	X			8
I.A.14. Eastern Panamanian Montane Forests	189,978	174,969	92.10%	146,727	83.86%	RS	77.23%	ST									X	X		X																X	X	X			6
I.A.15. Hispaniolan Moist Forests	2,883,945	433,998	15.05%	142,182	32.76%	CR	4.93%	MIA									X	X		X	X	X	X													X					7
I.B. Tropical and Subtropical Dry Broadleaf Forests	**8,428,077**	**968,148**	**11.49%**	**159,786**	**16.50%**		**1.90%**	**MIA**									**3**	**2**	**3**	**1**	**1**	**3**	**1**		**1**											**3**	**2**	**1**			**11**
I.B.16. Central American Dry Forests	6,908,402	633,276	9.17%	50,103	7.91%	CR	0.73%	MIA									X	X	X	X	X	X			X											X	X	X			10
I.B.17. Chiapas Depression Dry Forests	55,492	5,715	10.30%	0	0.00%	CR	0.00%	MIA									X	X	X			X														X					5
I.B.18. Panamanian Dry Forests	506,024	32,409	6.40%	882	2.72%	CR	0.17%	MIA									X		X																		X					3
I.B.19. Hispaniolan Dry Forests	958,159	296,748	30.97%	108,801	36.66%	CR	11.36%	CR														X	X													X					3
I.C. Tropical and Subtropical Coniferous Forests	**11,114,533**	**4,590,783**	**41.30%**	**904,338**	**19.70%**		**8.14%**	**CR**									**3**	**4**	**3**	**1**	**1**	**2**	**1**													**4**					**8**
I.C.20. Belizean Pine Forests	281,492	211,572	75.16%	76,194	36.01%	RS	27.07%	V										X																		X					2
I.C.21. Central American Pine-Oak Forests	8,259,912	3,400,020	41.16%	449,226	13.21%	CR	5.44%	MIA									X	X	X	X		X	X													X					7
I.C.22. Miskito Pine Forests	1,739,711	572,823	32.93%	85,482	14.92%	V	4.91%	MIA									X	X	X		X	X														X					6
I.C.23. Hispaniolan Pine Forests	833,418	406,368	48.76%	293,436	72.21%	V	35.21%	V									X	X	X																	X					4
I.D. Montane Grasslands and Shrublands	**9,898**	**7,047**	**71.20%**	**6,732**	**95.53%**		**68.01%**	**RS**															**1**					**1**												**2**
I.D.24. Talamanca, Costa Rican or Isthmian Paramo	9,898	7,047	71.20%	6,732	95.53%	V	68.01%	RS															X					X												2
I.E. Flooded Grasslands and Savannas	**42,058**	**15,246**	**36.25%**	**14,337**	**94.04%**		**34.09%**	**V**									**1**	**1**				**1**									**1**	**1**				**1**					**6**
I.E.25. Enriquillo Wetlands	42,058	15,246	36.25%	14,337	94.04%	V	34.09%	V									X	X				X									X	X				X					6
I.F. Deserts and Xeric Shrublands	**219,681**	**41,112**	**18.71%**	**18,342**	**44.61%**		**8.35%**	**CR**									**1**	**1**	**1**			**1**			**1**																**1**	**6**
I.F.26. Motagua Valley Thornscrub	219,681	41,112	18.71%	18,342	44.61%	CR	8.35%	CR									X	X	X			X			X																X	6
I.G. Mangroves	**2,041,340**	**1,085,859**	**53.19%**	**506,610**	**46.66%**		**24.82%**	**EN**									**4**	**7**	**1**		**3**	**8**	**6**	**1**		**4**	**13**		**13**	**2**	**12**	**11**	**7**	**11**	**9**	**4**	**6**	**5**	**1**	**20**
I.G.27. Belizean Coast Mangroves	255,802	178,776	69.89%	45,882	25.66%	V	17.94%	EN															X				X		X		X	X	X	X				X		8
I.G.28. Belizean Reef Mangroves	15,889	10,944	68.88%	2,376	21.71%	V	14.95%	EN															X	X			X		X								X		X	6
I.G.29. Northern Honduras Mangroves	128,050	69,282	54.11%	49,617	71.62%	V	38.75%	V									X	X	X			X					X		X		X	X			X	X	X	X		12
I.G.30. Tehuantepec – El Manchón Mangroves	123,418	33,804	27.39%	2,637	7.80%	?	2.14%	MIA														X	X				X		X		X	X	X	X		X	X			10
I.G.31. Northern Dry Pacific Coast Mangroves	74,693	45,972	61.55%	27,549	59.93%	CR	36.88%	V									X	X			X	X	X			X	X		X		X	X	X	X	X		X	X		15
I.G.32. Southern Dry Pacific Coast Mangroves	91,796	32,814	35.75%	9,369	28.55%	CR	10.21%	CR										X			X	X				X	X		X		X	X	X	X	X					11
I.G.33. Gulf of Fonseca Mangroves	170,953	88,848	51.97%	57,213	64.39%	CR	33.47%	V														X				X	X		X		X	X	X	X	X		X	X		11
I.G.34. Mosquitia – Nicaraguan Caribbean Coast Mangroves	446,017	198,738	44.56%	91,863	46.22%	RS	20.60%	EN																			X		X	X	X	X		X	X					7
I.G.35. Río Negro – Río San Sun Mangroves	202,969	142,380	70.15%	102,609	72.07%	CR	50.55%	RS										X				X	X				X		X	X	X		X		X					10
I.G.36. Moist Pacific Coast Mangroves	150,747	87,291	57.91%	36,927	42.30%	V	24.50%	EN										X				X					X		X		X	X		X		X				9
I.G.37. Bocas del Toro–San Bastimentos–San Blas mangroves	72,798	59,508	81.74%	37,611	63.20%	V	51.66%	RS									X	X									X		X		X	X		X	X	X		X		10
I.G.38. Gulf of Panama or Panama Bight Mangroves	191,173	98,352	51.45%	22,563	22.94%	CR	11.80%	CR									X	X				X				X	X		X		X	X		X	X					10
I.G.39. Greater Antilles or Bahamian – Antilles Mangroves	117,034	39,150	33.45%	20,394	52.09%	?	17.43%	EN													X		X				X		X		X	X	X	X	X					9
TOTAL	**55,651,111**	**25,337,420**	**45.53%**	**10,200,446**	**40.26%**		**18.33%**	**EN**									**25**	**27**	**8**	**8**	**8**	**22**	**11**	**2**	**2**	**4**	**13**	**1**	**13**	**3**	**13**	**12**	**7**	**11**	**26**	**11**	**11**	**5**	**3**	**23**

Table 19: Detailed information on Freshwater ecoregions - regional

BIOMES / ECOREGIONS	CONSIDERED EXTENSION (hectares)	WITHIN NPA's Hectares	WITHIN NPA's %	ASSIGNED CONSERVATION STATUS	ESTIMATED CONSERVATION STATUS	OCURRENCE: Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Dominican Republic	MAIN THREATS: Loss and Degradation of Natural Habitat: Inadequate Agri-culture and Ran-ching Practices	Loss of Riparian Vegetation	Roads & Canals Construction / Improvement	Construction of Dams	Urbanization	Tourism Development	Reduction of Water Flow	Droughts	Mining	Contamination/Pollution: Siltation	Eutrophication	Untreated Sewage	Solid Wastes	Industrial Waste Waters	Agrochemicals Runoff	Over-exploitation: Use of Poison / Explosives	Poaching	Overfishing	Crops Irrigation	Invasive Species	Nº of Threats by Ecoregion
II.H. Tropical and subtropical coastal rivers	**46,886,312**	**10,246,999**	**21.85%**		**EN**									**11**	**7**	**7**	**2**	**10**	**7**	**4**	**5**	**2**	**9**	**6**	**7**	**4**	**5**	**9**	**1**	**1**	**3**	**5**	**5**	**21**
II.H.40. Quintana Roo - Motagua	5,824,039	2,023,952	34.75%	EN	V									X				X	X															3
II.H.41. Grijalva - Usumacinta	725,814	183,154	25.23%	CR	V									X	X								X					X						4
II.H.42. Chiapas - Fonseca	6,175,145	452,905	7.33%	CR	CR									X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	19
II.H.43. Mosquitia	12,117,587	3,078,538	25.41%	EN	V									X	X	X	X	X	X	X	X	X	X		X		X	X				X	X	16
II.H.44. Estero Real - Tempisque	2,949,152	367,735	12.47%	CR	CR									X	X	X		X	X	X	X		X	X	X	X		X				X	X	14
II.H.45. San Juan (Nicaragua/Costa Rica)	10,381,914	1,792,535	17.27%	V	EN									X	X	X		X	X		X	X	X	X	X		X	X					X	14
II.H.46. Isthmus Caribbean	1,065,386	514,466	48.29%	V	V									X				X	X				X	X	X			X						7
II.H.47. Chiriquí	2,499,900	392,068	15.68%	EN	EN									X	X			X					X	X				X						6
II.H.48. Santa María	1,604,328	173,206	10.80%	CR	CR									X	X	X		X		X	X		X	X	X	X		X				X		12
II.H.49. Chagres	1,152,829	339,631	29.46%	V	V									X		X		X	X								X						X	6
II.H.50. Tuira River	2,390,218	928,808	38.86%	V	V									X		X		X					X		X	X	X	X					X	9
II.I. Tropical and subtropical upland rivers	**4,313,346**	**1,626,109**	**37.70%**		**V**									1		1		1					1	1	1	1		1		1		1	1	11
II.I.51. Upper Usumacinta	4,313,346	1,626,109	37.70%	CR	V									X		X		X					X	X	X	X		X		X		X	X	11
II.J. Greater Antillean Freshwater	**4,842,502**	**980,982**	**20.26%**		**EN**									1	1	1		1	1	1			1	1	1	1	1	1				1		13
II.J.52. Hispaniola	4,842,502	980,982	20.26%	CR	EN									X	X	X		X	X	X			X	X	X	X	X	X				X		13
TOTAL	**56,042,160**	**12,854,089**	**22.94%**		**EN**									**13**	**8**	**9**	**2**	**12**	**8**	**5**	**5**	**2**	**11**	**8**	**9**	**6**	**6**	**11**	**1**	**2**	**3**	**7**	**6**	**21**

Table 20: Detailed information on Marine ecoregions - regional

BIOMES / ECOREGIONS	CONSIDERED EXTENSION (hectares)	WITHIN NPA's Hectares	WITHIN NPA's %	CONSERVATION STATUS	OCURRENCE: Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Dominican Republic	MAIN THREATS: Loss and Degradation of: Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Contamination / Pollution: Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Over-exploitation: Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	Nº of Threats by Ecoregion
III.K. Tropical Northwestern Atlantic	**269,412,479**	**2,160,379**	**0.80%**										**1**	**1**	**1**	**2**	**1**	**2**	**2**	**2**	**3**	**2**				**1**	**1**	**3**	**13**
III.K.53. Western Caribbean	24,509,845	360,838	1.47%	V											X	X	X	X	X	X	X	X					X	X	10
III.K.54. Southwestern Caribbean	81,077,427	645,116	0.80%	?														X	X	X	X	X				X		X	7
III.K.55. Greater Antillean Marine	163,825,207	1,154,425	0.70%	CR									X	X		X					X							X	5
III.L. Tropical East Pacific	**153,042,543**	**925,260**	**0.60%**										**1**	**2**	**3**			**2**	**1**	**2**	**2**	**1**	**3**	**1**	**1**	**3**	**1**		**13**
III.L.56. Chiapas-Nicaragua	39,172,403	88,577	0.23%	V									X	X	X			X	X	X	X	X	X	X	X	X	X		13
III.L.57. Nicoya	28,402,023	577,810	2.03%	?											X														1
III.L.58. Cocos Island	33,544,527	198,672	0.59%	RS																			X			X			2
III.L.59. Panama Bight	51,923,590	60,202	0.12%	V										X	X			X		X	X		X			X			7
	422,455,022	**3,085,639**	**0.73%**										**2**	**3**	**4**	**2**	**1**	**4**	**3**	**4**	**5**	**3**	**3**	**1**	**1**	**4**	**2**	**3**	**16**

ANNEX P: LIST OF OFFICIALLY RECOGNIZED PROTECTED AND PROPOSED NATURAL AREAS (DATABASE)

Table 21: Summary of PAs by Category and Country

SUMMARY, NATURAL PROTECTED AREAS BY CATEGORY AND COUNTRY		NATIONAL PARKS	MARINE / SUB-MARINE NATIONAL PARKS	NATURE / NATIONAL MONUMENTS	NATURE RESERVES	WILDLIFE REFUGES / SANCTUARIES	MARINE MAMMALS SANCTUARIES	MARINE SANCTUARIES	FOREST RESERVES	MARINE RESERVES	MARINE PROTECTED LANDSCAPES	PRIVATE RESERVES	MULTIPLE USE AREAS	BIOTOPES	ARCHEOLOGIC RESERVES / CULTURAL/HISTORIC MONUMENTS	BIOLOGIC RESERVES	SCIENTIFIC RESERVES	WATER PROTECTION AREAS / SPRING / HIDROLOGIC RESERVES	DEFINITIVE BAN ZONES	PROTECTION AND RESTORATION AREAS	PROTECTED AREAS WITH MANAGED RESOURCES	PROTECTION LANDSCAPES	HABITAT MANAGEMENT BY SPECIES AREAS	BOTANICAL GARDENS	BIOSPHERE RESERVES	RAMSAR SITES	ANTHROPOLOGIC RESERVES	RESOURCES RESERVES	WETLANDS	NATURAL AREAS	(NATURE) RECREATIONAL AREAS / MUNICIPAL PARKS	WILDERNESS AREAS (IUCN IV)	PROTECTION FORESTS	BIOLOGIC / ECOLOGIC CORRIDORS	SPECIAL PROTECTION ZONES	PANORAMIC ROUTES	UNDETERMINED	TOTALS
BELIZE	NUMBER	16		5	3	12			14	19		12			12																						93
	MARINE EXTENSION (km2)	50		44	0	701			0	1,620		1			0																						2,417
	TERRESTRIAL EXTENSION (km2)	573		27	450	735			4,091	2		1,386			118																						7,382
	% OF TERRITORY	2.51%		0.12%	1.97%	3.22%			17.94%	0.01%		6.08%			0.52%																						32.38%
GUATEMALA	NUMBER	20			6						102	4	6	7	1		2	29							5						25					0	207
	MARINE EXTENSION (km2)	0			293						2	8	0	0	0		2	11							0						0					0	315
	TERRESTRIAL EXTENSION (km2)	7,309			1,090						452	1,412	1,225	84	187.69		483.34	910.24							15,453.9						332.69					0.00	28,941
	% OF TERRITORY	6.71%			1.00%						0.42%	1.30%	0.01%	0.08%	0.17%		0.44%	0.84%							14.19%						0.31%					0.00%	26.58%
HONDURAS	NUMBER	19	4	1	14				1	0			5	2	14		6						8	1	1			3	1								80
	MARINE EXTENSION (km2)	336	6,657	0	222				0	0			0	0	489		0						184	0	345			0	0								8,233
	TERRESTRIAL EXTENSION (km2)	8,674	14	0.46	1,127				27	0			554	2,564	1,415		1,483						540	23	7,816			2,564	481								27,282
	% OF TERRITORY	7.71%	0.01%	0.00%	1.00%				0.02%	0.00%			0.49%	2.28%	1.26%		1.32%						0.48%	0.02%	6.95%			2.28%	0.43%								24.25%
EL SALVADOR	NUMBER	7			1						1	2								8	0				1	3										34	57
	MARINE EXTENSION (km2)	0			0						207	0								0	0				0	0										0	207
	TERRESTRIAL EXTENSION (km2)	110			16						9	1								29	0				581	1,237										46	2,030
	% OF TERRITORY	0.53%			0.08%						0.04%	0.01%								0.14%	0.00%				2.78%	5.93%										0.22%	9.73%
NICARAGUA	NUMBER	3		1	61	4									1	2									1				1								74
	MARINE EXTENSION (km2)	0		0	80	21									0	5,031									0				0								5,132
	TERRESTRIAL EXTENSION (km2)	372		175	9,496	904									33	6,090									7,472				45								24,587
	% OF TERRITORY	0.29%		0.13%	7.28%	0.69%									0.03%	4.67%									5.73%				0.03%								18.86%
COSTA RICA	NUMBER	27		1	2	61			13							8				34									10							10	166
	MARINE EXTENSION (km2)	3,809		0	11	357			51							57				2									2							12	4,301
	TERRESTRIAL EXTENSION (km2)	5,296		2	11	1,232			2,260							190				1,236									22							43	10,292
	% OF TERRITORY	10.36%		0.00%	0.02%	2.41%			4.42%							0.37%				2.42%									0.04%							0.08%	20.14%
PANAMA	NUMBER	16		3		6			7				1				6					1					6				1	2	1	3	1	1		55
	MARINE EXTENSION (km2)	2,602		0		266			16				0				1					1					930				0	0	16	0	0	1,794		5,625
	TERRESTRIAL EXTENSION (km2)	11,543		45		82			1,345				9.42			57	580			6							938				2.55	9.74	993.86	3,946.53	442.71	0.03			19,944
	% OF TERRITORY	15.56%		0.06%		0.11%			1.81%				0.01%				0.78%					0.01%					1.26%				0.00%	0.01%	1.34%	5.32%	0.60%	0.00%			26.89%
DOMINICAN REPUBLIC	NUMBER	30	2	31		17	3	2	15							2	8															4				3		10		127
	MARINE EXTENSION (km2)	1,556	256	24		308	33,168	10,562	0							0	0															37				0		12		45,923
	TERRESTRIAL EXTENSION (km2)	8,968	1	664		435	25.71	0	1,650							178	226															67				14		289		12,518
	% OF TERRITORY	18.51%	0.00%	1.37%		0.90%	0.05%	0.00%	3.41%							0.37%	0.47%															0.14%				0.03%		0.60%		25.84%
TOTALS	NUMBER	138	6	42	66	121	3	2	50	19	1	116	10	6	22	27	8	14	29	42	0	1	8	1	8	9	3	2	10	1	31	1	3	4	1	10	44	859
	MARINE EXTENSION (km2)	8,353	6,913	67	91	2,167	33,168	10,562	66	1,620	207	3	8	0	0	5,577	0	3	11	2	0	1	184	0	345	930	0	0	2	0	37	16	0	0	1,794	12	12	72,154
	TERRESTRIAL EXTENSION (km2)	42,847	16	912	9,957	5,622	26	0	9,373	2	9	1,840	1,975	1,225	2,799	8,060	226	2,546	910	1,265	0	6	540	23	31,323	2,175	2,564	526	22	3	409	994	3,947	456	0	289	89	132,976
	% OF TERRITORY	7.53%	0.00%	0.16%	1.75%	0.99%	0.00%		1.65%			0.32%	0.35%	0.22%	0.49%	1.42%	0.04%	0.45%	0.16%	0.22%	0.00%	0.00%	0.09%	0.00%	5.50%	0.38%	0.45%	0.09%	0.00%	0.00%	0.07%	0.17%	0.69%	0.08%	0.00%	0.05%	0.02%	23.36%

Threats Frequency of Occurrence			
Logging	0.847	Industrial Pollution	1.025
Cattle Grazing	0.853	Siltation	0.900
Agriculture	0.743	Solid Wates	0.900
Human Settlements	0.586	Tourism Development	0.870
Roads Construction / Improvement	0.407	Untreated Sewage	0.853
Land Usurpation	0.355	Agrochemicals Runoff	0.853
Uncontrolled Hunting	0.325	Invasive Species	0.697
Poaching	0.295	Selective Overfishing	0.696
Recurent Fires	0.267	Overfishing	0.643
Tourism Developments	0.253	Dredge-and-Fill Operations	0.608
Siltation	0.146	Use of Bottom Trawls	0.871
Reduction of Rivers' Flow	0.142	Non-responsible Tourism	0.540
Climate Extre-me Events	0.142	Poaching	0.640
Industrial Development	0.141	Undersized Fishing	0.436
Eutrophication	0.141	Capture of Untargeted Species	0.436
Agrochemicals	0.139	Coral Bleaching Disease	0.415
Untreated Sewage	0.102		
Overfishing	0.075		
Salt and Shrimp Ponds	0.058		
Mining	0.030		
Uncontrolled Visitation	0.013		
Volcanic Eruptions	0.013		
Invasive Species	0.013		

Table 22: Detailed Data on PAs - Belize

	Belize								MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																	
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	MANAGED BY	COMMENTS
16	NATIONAL PARKS (IUCN II, unless stated otherwise)		62,381.73	0.00	5,043.23	57,338.50		57,592.33	13	3	0	0	1	0	4	0	0	0	4	0	4	0	4	4	4	4	15	1	1	4	0	0	0	4	4	4	4	4	4	4	4	0	0	0	0	4	4		
1	St. Herman's Blue Hole	1986	268.90			268.90	Peten-Veracruz moist forests	268.90	X																		X																					Belize Audubon Society	
2	Aguas Turbias	1994	3,801.09		484.59	3,316.50	Western Caribbean	484.59																										X	X	X	X	X	X	X	X					X	X		
							Peten-Veracruz moist forests	3,316.50	X																		X																						
3	Five Blues Lake	1994	1,643.50			1,643.50	Peten-Veracruz moist forests	1,643.50	X																		X																					Friends of Five Blues Lake National Park	
4	Guanacaste	1994	23.30			23.30	Peten-Veracruz moist forests	23.30	X																		X																					Belize Audubon Society	
5	Monkey Bay	1994	859.00			859.00	Peten-Veracruz moist forests	859.00	X																		X																					Guardians of the Jewel [note 2]	
6	Payne's Creek	1994	14,791.50		302.60	14,488.90	Western Caribbean	302.60																										X	X	X	X	X	X	X	X					X	X	Toledo Institute for Development and Environment	
							Belizean pine forests	1,840.80		X																	X																						
							Belizean coast mangroves	6,580.80							X				X		X		X	X	X	X				X																			
							Peten-Veracruz moist forests	6,067.30	X																		X																						
7	Río Blanco	1994	38.20			38.20	Peten-Veracruz moist forests	38.20	X																		X																					Río Blanco Mayan Association	
8	Sarstoon-Temash	1994	16,622.54		160.74	16,461.80	Western Caribbean	160.74																										X	X	X	X	X	X	X	X					X	X	Sarstoon Temash Institute for Indigenous Management	
							Central American Atlantic moist for	209.40	X	X			X														X	X	X																				
							Belizean coast mangroves	5,714.70							X				X		X		X	X	X	X				X																			
							Peten-Veracruz moist forests	10,537.70	X																		X																						
9	Bacalar Chico (IUCN V)	1996	2,803.30			2,803.30	Belizean Coast Mangroves	2,803.30							X				X		X		X	X	X	X				X																		Green Reef Environmental Institute [note 2]	
10	Laughing Bird Caye	1996	4,095.30		4,095.30		Western Caribbean	4,095.30																										X	X	X	X	X	X	X	X					X	X	Southern Environmental Association	
11	Billy Barquedier	2001	663.30			663.30	Peten-Veracruz moist forests	663.30	X																		X																					Steadfast Tourism and Conservation Association	
12	Honey Camp	2001	3,145.20			3,145.20	Peten-Veracruz moist forests	3,145.20	X																		X																					Association of Friends of Freshwater Creek [note 3]	
13	Mayflower Bocawina	2001	3,178.40			3,178.40	Peten-Veracruz moist forests	3,178.40	X																		X																					Friends of Mayflower Bocawina National Park	
14	Nojkaaxmeen Elijio Panti	2001	5,654.10			5,654.10	Belizean pine forests	4.70		X																	X																					Belize Development Foundation [note 4]	
							Peten-Veracruz moist forests	5,120.00	X																		X																						
15	Gra Gra Lagoon	2002	534.10			534.10	Belizean Coast Mangroves	534.10							X				X		X		X	X	X	X				X																		Friends of Gra Gra Lagoon	
16	Peccary Hills	2007	4,260.00			4,260.00																																										Gracie Rock Reserve for Adventure, Culture and Ecotourism	
5	NATURAL MONUMENTS (IUCN III, unless stated otherwi		7,034.37	0.00	4,368.17	2,666.20		7,034.37	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	2	2	2	2	2	2	2	2	0	0	0	0	2	2		
17	Half Moon Caye (IUCN II)	1982	3,954.17		3,954.17		Western Caribbean	3,954.17																										X	X	X	X	X	X	X	X					X	X	Belize Audubon Society	
18	Blue Hole	1996	414.00		414.00		Western Caribbean	414.00																										X	X	X	X	X	X	X	X					X	X	Belize Audubon Society	
19	Victoria Peak	1998	1,958.90			1,958.90	Peten-Veracruz moist forests	1,958.90	X																		X																					Belize Audubon Society	
20	Actun Tunichil Muknal (IUCN Ia)	2004	185.10			185.10	Belizean pine forests	185.10		X																	X																					Belize Audubon Society; Institute of Archaeology	
21	Thousand Foot Falls	2004	522.20			522.20	Belizean pine forests	522.20		X																	X																					Forest Department	
12	ARCHEOLOGICAL RESERVES		11,769.70	0.00	0.00	11,769.70		11,769.70	9	2	0	0	0	0	1	0	0	0	1	0	1	0	1	1	1	1	11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
22	Altun Ha		15.60			15.60	Belizean pine forests	15.60		X																	X																						
23	Barton Creek		0.20			0.20	Peten-Veracruz moist forests	0.20	X																		X																						
24	Cahal Pech		9.10			9.10	Peten-Veracruz moist forests	9.10	X																		X																						
25	Caracol		10,518.70			10,518.70	Peten-Veracruz moist forests	10,518.70	X																		X																						
26	Caves Branch		6.20			6.20	Peten-Veracruz moist forests	6.20	X																		X																						
27	Cerros Maya		9.10			9.10	Belizean Coast Mangroves	9.10							X				X		X		X	X	X	X				X																			
28	El Pilar		780.80			780.80	Peten-Veracruz moist forests	780.80	X																		X																						
29	Lamanai		396.50			396.50	Belizean pine forests	396.50		X																	X																						
30	Lubaantun		13.50			13.50	Peten-Veracruz moist forests	13.50	X																		X																						
31	Nimli Punit		16.90			16.90	Peten-Veracruz moist forests	16.90	X																		X																						
32	Santa Rita		0.00			0.00	Peten-Veracruz moist forests	0.00	X																		X																						
33	Xunantunich		3.10			3.10	Peten-Veracruz moist forests	3.10	X																		X																						
3	NATURE RESERVES (IUCN Ia)		45,013.00	0.00	0.00	45,013.00		45,013.00	2	1	0	0	0	0	1	0	0	0	1	0	1	0	1	1	1	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
34	Bladen	1990	40,337.00			40,337.00	Peten-Veracruz moist forests	40,337.00	X																		X																					Ya'axché Conservation Trust; Bladen Management Consortium	
35	Burdon Canal	1992	2,126.60			2,126.60	Belizean coast mangroves	2,126.60							X				X		X		X	X	X	X				X																		Forest Department	
36	Tapir Mountain	1994	2,549.40			2,549.40	Belizean pine forests	2,010.70		X																	X																					Belize Audubon Society	
							Peten-Veracruz moist forests	538.70	X																		X																						
7	WILDLIFE SANCTUARIES (IUCN IV)		143,565.87	0.00	70,092.47	73,473.40		143,565.87	5	2	0	0	0	0	2	0	0	0	2	0	2	0	2	2	2	2	7	0	0	2	0	0	0	2	2	2	2	2	2	2	2	0	0	0	0	2	2		
37	Crooked Tree	1984	14,762.70			14,762.70	Belizean pine forests	6,595.90		X																	X																					Belize Audubon Society	Ramsar site
							Peten-Veracruz moist forests	8,166.80	X																		X																						
38	Cockscomb Basin	1997	49,476.90			49,476.90	Peten-Veracruz moist forests	49,476.90	X																		X																					Belize Audubon Society	
39	Aguacaliente	1998	2,212.80			2,212.80	Peten-Veracruz moist forests	2,212.80	X																		X																					Aguacaliente Management Team	
40	Corozal Bay	1998	67,465.66		66,554.76	910.90	Western Caribbean	66,554.76																										X	X	X	X	X	X	X	X					X	X	Sarteneja Alliance for Conservation and Development	
							Belizean coast mangroves	848.40							X				X		X		X	X	X	X				X																			
							Peten-Veracruz moist forests	62.50	X																		X																						
41	Gales Point	1998	3,681.40			3,681.40	Belizean pine forests	8.3		X																	X																					Gales Point Wildlife Sanctuary Community Management Committee	
							Belizean coast mangroves	3,673.10							X				X		X		X	X	X	X				X																			
42	Spanish Creek	2002	2,428.70			2,428.70	Peten-Veracruz moist forests	2,428.70	X																		X																					Rancho Dolores Development Group	
43	Swallow Caye	2002	3,537.71		3,537.71		Western Caribbean	3,537.71																										X	X	X	X	X	X	X	X					X	X	Friends of Swallow Caye	

Belize									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																	
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	MANAGED BY	COMMENTS
5	BIRD SANCTUARIES		5.00	0.00	0.00	5.00		5.00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
44	Bird Caye		0.50			0.50	Belizean Reef Mangroves	0.50																																									
45	Doubloon Bank		1.50			1.50	Peten-Veracruz moist forests	1.50	X																		X																						
46	Little Guana Caye		1.00			1.00	Belizean Reef Mangroves	1.00																																									
47	Los Salones		1.20			1.20	Belizean Reef Mangroves	1.20																																									
48	Man of War Caye		0.80			0.80	Belizean Reef Mangroves	0.80																																									
16	FOREST RESERVES (IUCN VI)		409,117.80	64,591.20	0.00	409,117.80		473,651.80	14	9	0	0	0	0	4	0	0	0	4	0	4	0	4	4	4	4	23	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
49	Deep River	Proposed		27,232.00			Belizean pine forests	9,327.50		X																	X																						
							Peten-Veracruz moist forests	17,755.20	X																		X																						
							Belizean coast mangroves	130.10							X				X		X		X	X	X	X				X																			
50	Sittee River	Proposed		37,359.20			Peten-Veracruz moist forests	37,359.20	X																		X																						
51	Fresh Water Creek	1926	13,513.70			13,513.70	Peten-Veracruz moist forests	2,018.10	X																		X																						
							Belizean Coast Mangroves	11,495.60							X				X		X		X	X	X	X				X																			
52	Mountain Pine Ridge	1944	43,391.00			43,391.00	Belizean pine forests	19,801.80		X																	X																						
							Peten-Veracruz moist forests	23,589.20	X																		X																						
53	Manatee	1959	36,542.60			36,542.60	Belizean pine forests	3,533.60		X																	X																						
							Belizean Coast Mangroves	428.80							X				X		X		X	X	X	X				X																			
							Peten-Veracruz moist forests	32,580.20	X																		X																						
54	Sibun	1959	32,848.90			32,848.90	Belizean pine forests	12,869.10		X																	X																						
							Peten-Veracruz moist forests	19,979.80	X																		X																						
55	Grants Work	1989	3,199.50			3,199.50	Belizean pine forests	1,293.70		X																	X																						
							Peten-Veracruz moist forests	1,905.80	X																		X																						
56	Mango Creek	1989	12,090.00			12,090.00	Belizean pine forests	9,974.40		X																	X																						
							Belizean Coast Mangroves	0.50							X				X		X		X	X	X	X				X																			
							Peten-Veracruz moist forests	2,115.10	X																		X																						
57	Swasey Bladen	1989	5,980.70			5,980.70	Belizean pine forests	1,583.30		X																	X																						
							Peten-Veracruz moist forests	4,397.40	X																		X																						
58	Vaca	1991	14,275.30			14,275.30	Peten-Veracruz moist forests	14,275.30	X																		X																						
59	Chiquibul	1995	167,563.70			167,563.70	Belizean pine forests	10,834.60		X																	X																						
							Peten-Veracruz moist forests	156,729.10	X																		X																						
60	Monkey Caye	1996	685.50			685.50	Belizean Reef Mangroves	685.50																																									
61	Columbia River	1997	60,847.50			60,847.50	Peten-Veracruz moist forests	60,847.50	X																		X																						
62	Maya Mountain	1997	16,888.40			16,888.40	Belizean pine forests	17.60		X																	X																						
							Peten-Veracruz moist forests	16,870.80	X																		X																						
63	Caye Caulker	1998	38.00			38.00																																											
64	Machaca	1998	1,253.00			1,253.00	Peten-Veracruz moist forests	1,253.00	X																		X																						
9	MARINE RESERVES (IUCN IV, unless stated otherwise)		155,779.12	0.00	155,583.02	196.10		155,779.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9	9	9	9	9	0	0	0	0	9	9		
65	Hol Chan (IUCN II)	1987	1,490.74		1,490.74		Western Caribbean	1,490.74																										X	X	X	X	X	X	X	X					X	X	Hol Chan Trust Fund	Divided into four zones: Mangrove,[88] Seagrass,[89] Shark Ray Alley,[90] and Coral Reef.[91][92]
66	Glover's Reef	1993	34,395.80		34,395.80		Western Caribbean	34,395.80																										X	X	X	X	X	X	X	X					X	X	—	In 2001, the reserve was divided into four zones: a general use zone,[84] a conservation zone,[85] a seasonal closure zone,[86] and a wilderness zone.[87] A spawning aggregation zone was broken off in 2003 and comes under separate management (see below).
67	Bacalar Chico	1996	6,380.79		6,380.79		Western Caribbean	6,380.79																										X	X	X	X	X	X	X	X					X	X	Green Reef Environmental Institute [note 2]	Excludes adjacent national park. Divided into two zones: a conservation zone,[77] and a general use zone.[78][4]
68	Sandbore	?	521.40		521.40		Western Caribbean	521.40																										X	X	X	X	X	X	X	X					X	X		
69	Sapodilla Cayes	1996	14,162.42		14,162.42		Western Caribbean	14,162.42																										X	X	X	X	X	X	X	X					X	X	Southern Environmental Association	[95]
70	South Water Caye	1996	47,443.44		47,443.44		Western Caribbean	47,443.44																										X	X	X	X	X	X	X	X					X	X	—	[96][97]
71	Caye Caulker (IUCN VI)	1998	3,244.94		3,244.94		Western Caribbean	3,244.94																										X	X	X	X	X	X	X	X					X	X	Forest & Marine Reserves Association of Caye Caulker	Excludes adjacent forest reserve.[79]
72	Gladden Spit and Silk Cayes	2000	10,345.52		10,345.52		Western Caribbean	10,345.52																										X	X	X	X	X	X	X	X					X	X	Southern Environmental Association	Divided into two zones: a general use zone,[80] and a conservation zone.[81][82][83]
73	Port Honduras	2000	37,794.07		37,597.97	196.10	Western Caribbean	37,597.97																										X	X	X	X	X	X	X	X					X	X	Toledo Institute for Development and Environment	Divided into two zones: a general use zone,[93] and a conservation zone.[94]
							Belizean Reef Mangroves	196.10																																									
10	FISHERIES NO TAKE ZONES		6,463.80	0.00	6,463.80	0.00		6,463.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	10	10	10	10	10	10	0	0	0	0	10	10		
74	Dog Flea		576.40		576.40		Western Caribbean	576.40																										X	X	X	X	X	X	X	X					X	X		
75	Emily or Caye Glory		546.70		546.70		Western Caribbean	546.70																										X	X	X	X	X	X	X	X					X	X		
76	Gladden Spit		15.70		15.70		Western Caribbean	15.70																										X	X	X	X	X	X	X	X					X	X		
77	Nicholas Caye		673.10		673.10		Western Caribbean	673.10																										X	X	X	X	X	X	X	X					X	X		
78	Northern Glovers Reef		621.70		621.70		Western Caribbean	621.70																										X	X	X	X	X	X	X	X					X	X		
79	Rise and Fall Bank		1,720.80		1,720.80		Western Caribbean	1,720.80																										X	X	X	X	X	X	X	X					X	X		
80	Rocky Point		570.90		570.90		Western Caribbean	570.90																										X	X	X	X	X	X	X	X					X	X		
81	Seal Caye		647.80		647.80		Western Caribbean	647.80																										X	X	X	X	X	X	X	X					X	X		
82	South Point Lighthouse		532.80		532.80		Western Caribbean	532.80																										X	X	X	X	X	X	X	X					X	X		
83	South Point Turneffe-Caye Bo		557.90		557.90		Western Caribbean	557.90																										X	X	X	X	X	X	X	X					X	X		

Belize									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																	
									Loss and Degradation of Natural Habitat													Pollution					Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	MANAGED BY	COMMENTS
15	PRIVATE RESERVES (IUCN IV)		132,513.50	64,052.00	104.40	138,637.10		132,513.50	7	3	0	0	0	0	3	0	0	0	3	0	3	0	3	3	3	3	10	0	0	3	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1	1		
84	Community Baboon Sanctuary	1985	5,252.90			5,252.90	Peten-Veracruz moist forests	5,252.90	X																		X																					Women's Conservation Group	
85	Aguacate Lagoon	1987	114.90			114.90	Peten-Veracruz moist forests	114.90	X																		X																					Aguacate Park	
86	Monkey Bay	1987	1,324.20			1,324.20	Peten-Veracruz moist forests	1,324.20	X																		X																					Monkey Bay Wildlife Sanctuary	Formally known as Monkey Bay Wildlife Sanctuary
87	Shipstern	1987	8,249.70			8,249.70	Belizean coast mangroves	8,249.70							X				X		X		X	X	X	X				X																		International Tropical Conservation Foundation; Papiliorama-Nocturama Foundation	Formally known as Shipstern Nature Reserve
88	Río Bravo	1988	104,870.80			104,870.80	Belizean pine forests	9,625.70		X																	X																					Programme for Belize	Formally known as Río Bravo Conservation and Management Area
							Peten-Veracruz moist forests	95,245.10	X																		X																						
89	Golden Stream	1998	6,085.70			6,085.70	Belizean pine forests	374.10		X																	X																					Ya'axché Conservation Trust; Fauna & Flora International	Formally known as Golden Stream Corridor Preserve
							Belizean coast mangroves	168.00							X				X		X		X	X	X	X				X																			
							Peten-Veracruz moist forests	5,543.60	X																		X																						
90	Runaway Creek	1998	2,882.90			2,882.90	Belizean pine forests	727.70		X																	X																					Foundation for Wildlife Conservation; Birds Without Borders	
							Peten-Veracruz moist forests	2,155.20	X																		X																						
91	TIDE Crown Block Reserves	2001	3,732.40		104.40	3,628.00	Belizean coast mangroves	3,262.80							X				X		X		X	X	X	X				X																		Toledo Institute for Development and Environment	Forms one block of the TIDE Private Protected Lands, which totals 12,000 hectares
							Peten-Veracruz moist forests	365.20	X																		X																						
							Western Caribbean	104.40																										X	X	X	X	X	X	X	X					X	X		
92	Fireburn	Proposed		745.00																																												Wildtracks; Fireburn Community	
93	Gallon Jug	Proposed		54,154.00																																												Gallon Jug Estate	
94	Hidden Valley	Proposed		2,925.00																																												Hidden Valley Institute	
95	BFREE	1995		572.00		572.00																																										Belize Foundation for Research & Environmental Education	
96	Green Hills	1996		43.00		43.00																																										Meerman, Jan	Formally known as Green Hills Private Conservation Management Area
97	Boden Creek	1998		5,447.00		5,447.00																																										Belize Lodge and Excursions	Formally known as Boden Creek Ecological Preserve
98	Balam Na	2000		166.00		166.00																																										Wildtracks; Tropical Rainforest Coalition	
	Established:	93	973,643.88	128,643.20	241,655.08	738,216.80	124	1,033,388.48	52	22	0	0	1	0	15	0	0	0	15	0	15	0	15	15	15	15	73	1	1	15	0	0	0	28	28	28	28	28	28	28	28	0	0	0	0	28	28		
	Proposed:	5		% of Country Territory:		32.38%			0.55	0.23	0.00	0.00	0.01	0.00	0.16	0.00	0.00	0.00	0.16	0.00	0.16	0.00	0.16	0.16	0.16	0.16	0.78	0.01	0.01	0.16	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00		

IUCN's categories: 1,102,287.08

I. strict protection 48.35

Ia. strict nature reserve

Ib. wilderness area

II. ecosystem conservation and protection (i.e., national park)

III. conservation of natural features (i.e., natural monument)

IV. conservation through active management (i.e., habitat/species management area)

V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)

VI. sustainable use of natural resources (i.e., managed resource protected area)

Table 23: Detailed Data on PAs - Guatemala

Guatemala									MAIN THREATS TERRESTRIAL																											MAIN THREATS MARINE														MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat												Pollution				Over-exploitation					Habitat Degradation					Pollution						Over-exploitation										
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurrent Fires	Roads Construction/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
4	**MULTIPLE USE AREAS**		**141,976.90**	**0.00**	**796.40**	**141,180.50**			**8**	**7**	**3**	**3**	**4**	**5**	**4**	**0**	**1**	**1**	**2**	**0**	**2**	**0**	**2**	**2**	**2**	**2**	**7**	**3**	**4**	**2**	**0**	**1**	**1**	**2**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**2**	**1**		
1	Cuenca de Atitlán		104,726.90			104,726.90	Central American montane forests	29,386.10	X	X																																							
							Central American pine-oak forests	56,763.80	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas moist forests	18,577.00	X	X			X	X												X	X	X																					
2	Monterrico		2,726.20		136.50	2,589.70	Chiapas-Nicaragua Marine	136.50																								X	X	X			X	X	X	X	X	X	X	X	X			
							Central American dry forests	1,061.30	X	X	X	X	X	X			X									X	X	X																				
							Northern dry Pacific coast mangroves	1,528.40	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																	
3	Río Sarstun		32,224.70		659.90	31,564.80	Western Caribbean	659.90																											X	X	X	X	X	X	X	X				X	X		
							Central American Atlantic moist forests	25,958.30	X	X			X														X	X	X																				
							Belizean Coast mangroves	3,874.70							X				X		X			X	X	X	X				X																	
							Petén-Veracruz moist forests	1,731.80	X																		X																						
4	Volcán y Laguna de Ipala		2,299.10			2,299.10	Central American pine-oak forests	2,299.10	X	X	X	X		X	X												X																						
6	**BIOTOPES**		**122,513.70**	**0.00**	**0.00**	**122,513.70**			**7**	**3**	**1**	**1**	**1**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**1**	**6**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
5	Mario Dary		1,154.20			1,154.20	Central American montane forests	113.30	X	X																																						
							Central American pine-oak forests	1,040.90	X	X	X	X		X	X												X																						
6	Chocón Machacas		7,655.50			7,655.50	Central American Atlantic moist forests	7,574.80	X	X			X														X	X	X																				
							Belizean Coast mangroves	80.70							X				X		X			X	X	X	X				X																	
7	Dos Lagunas **		29,878.10			29,878.10	Petén-Veracruz moist forests	29,878.10	X																		X																						
8	Laguna del Tigre **		47,671.30			47,671.30	Petén-Veracruz moist forests	47,671.30	X																		X																						
9	San Miguel la Palotada **		35,467.90			35,467.90	Petén-Veracruz moist forests	35,467.90	X																		X																						
10	Cerro Cahui **		686.70			686.70	Petén-Veracruz moist forests	686.70	X																		X																						
7	**CULTURAL MONUMENTS (ARCHAEOLOGICAL RESERVES)**		**8,388.00**	**0.00**	**0.00**	**8,388.00**			**7**	**2**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
11	Aguateca		1,703.60			1,703.60	Petén-Veracruz moist forests	1,703.60	X																		X																						
12	Ceibal		1,508.40			1,508.40	Petén-Veracruz moist forests	1,508.40	X																		X																						
13	Dos Pilas		3,124.00			3,124.00	Petén-Veracruz moist forests	3,124.00	X																		X																						
14	El Pilar		1,044.30			1,044.30	Petén-Veracruz moist forests	1,044.30	X																		X																						
15	Iximché		10.60			10.60	Central American pine-oak forests	10.60	X	X	X	X		X	X												X																						
16	Quiriguá		32.80			32.80	Central American Atlantic moist forests	32.80	X	X			X														X	X	X																				
17	Semuc Champey		964.30			964.30	Petén-Veracruz moist forests	964.30	X																		X																						
20	**NATIONAL PARKS**		**730,947.60**	**0.00**	**0.00**	**730,947.60**			**19**	**11**	**8**	**8**	**3**	**8**	**8**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**1**	**18**	**3**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
18	Cerro Miramundo		896.10			896.10	Motagua Valley thornscrub	896.10																																								
19	Cuevas de Silvino		7.90			7.90	Central American Atlantic moist forests	7.90	X	X			X														X	X	X																				
20	El Reformador		59.70			59.70	Central American pine-oak forests	14.30	X	X	X	X		X	X												X																						
							Motagua Valley thornscrub	45.40																																										
21	El Rosario		1,111.10			1,111.10	Petén-Veracruz moist forests	1,111.10	X																		X																						
22	Grutas de Lanquín		10.90			10.90	Petén-Veracruz moist forests	10.90	X																		X																						
23	Laguna El Pino		429.60			429.60	Central American pine-oak forests	429.60	X	X	X	X		X	X												X																						
24	Laguna Lachuá		14,248.00			14,248.00	Petén-Veracruz moist forests	14,248.00	X																		X																						
25	Las Victorias		81.70			81.70	Central American pine-oak forests	81.70	X	X	X	X		X	X												X																						
26	Los Aposentos		15.00			15.00	Central American pine-oak forests	15.00	X	X	X	X		X	X												X																						
27	Naciones Unidas		351.60			351.60	Central American pine-oak forests	351.60	X	X	X	X		X	X												X																						
28	Río Dulce		6,045.20			6,045.20	Central American Atlantic moist forests	3,206.50	X	X			X														X	X	X																				
							Belizean Coast mangroves	2,838.70							X				X		X			X	X	X	X				X																	
29	Riscos de Momostenango		239.90			239.90	Central American dry forests	239.90	X	X	X	X	X	X			X										X	X	X																				
30	Sipacate Naranjo		1,912.80			1,912.80	Tehuantepec-El Manchon mangroves	1,912.80																																								
31	Tikal **		57,603.90			57,603.90	Petén-Veracruz moist forests	57,603.90	X																		X																						
32	Sierra Lacandón **		201,044.30			201,044.30	Petén-Veracruz moist forests	201,044.30	X																		X																						
33	Laguna del Tigre **		290,427.60			290,427.60	Petén-Veracruz moist forests	290,427.60	X																		X																						
34	Mirador Rio Azul **		117,613.00			117,613.00	Petén-Veracruz moist forests	117,613.00	X																		X																						
35	Volcán Pacaya		2,051.20			2,051.20	Central American montane forests	1,810.00	X	X																																						
							Central American pine-oak forests	241.20	X	X	X	X		X	X												X																						
36	San José La Colonia		53.80			53.80	Central American pine-oak forests	53.80	X	X	X	X		X	X												X																						
37	Yaxhá - Nak-m - Naranjo		36,744.30			36,744.30	Petén-Veracruz moist forests	36,744.30	X																		X																						
6	**WILDLIFE REFUGES**		**138,343.80**	**0.00**	**29,308.70**	**109,035.10**			**6**	**2**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**1**	**6**	**2**	**2**	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**1**		
38	Bocas del Polochic		14,788.30			14,788.30	Central American Atlantic moist forests	14,788.30	X	X			X														X	X	X																				
39	El Puctú		16,775.40			16,775.40	Petén-Veracruz moist forests	16,775.40	X																		X																						
40	Machaquilá		14,694.70			14,694.70	Petén-Veracruz moist forests	14,694.70	X																		X																						
41	Petexbatun		4,013.80			4,013.80	Petén-Veracruz moist forests	4,013.80	X																		X																						
42	Xutilhá		18,966.60			18,966.60	Petén-Veracruz moist forests	18,966.60	X																		X																						
43	Punta de Manabique		69,105.00		29,308.70	39,796.30	Western Caribbean	29,308.70																											X	X	X	X	X	X	X	X				X	X		
							Central American Atlantic moist forests	26,070.90	X	X			X														X	X	X																				
							Belizean Coast mangroves	13,725.40							X				X		X			X	X	X	X				X																	

Guatemala									MAIN THREATS TERRESTRIAL																												MAIN THREATS MARINE																		MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat															Pollution					Over-exploitation						Habitat Degradation					Pollution							Over-exploitation										
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Travls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
1	**BIOLOGICAL RESERVES**		**18,769.20**	**0.00**	**0.00**	**18,769.20**			**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
44	San Román		18,769.20			18,769.20	Petén-Veracruz moist forests	18,769.20	X																		X																						
5	**BIOSPHERE RESERVES**		**1,668,992.00**	**0.00**	**0.00**	**1,545,393.00**			**12**	**8**	**3**	**4**	**1**	**3**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
45	Maya		1,267,375.40			1,267,375.40																																										
	Zona de Uso Múltiple		801,543.60			801,543.60	Petén-Veracruz moist forests	790,155.90	X																		X																						
							Yucatán moist forests	11,387.70	X	X		X			X																																		
	Zona Amortiguamiento		465,831.80			465,831.80	Petén-Veracruz moist forests	465,831.80	X																		X																						
	Areas included in other categories, marked: **		780,392.80				NA																																										
46	Sierra de las Minas		220,952.90			220,952.90	Central American Atlantic moist forests	62,203.00	X	X			X															X	X	X																				
							Central American montane forests	116,839.20	X	X																																							
							Central American pine-oak forests	15,966.80	X	X	X	X		X	X												X																						
							Motagua Valley thornscrub	25,943.90																																								
47	Trifinio		22,640.70			22,640.70	Central American montane forests	8,123.30	X	X																																						
							Central American pine-oak forests	14,517.40	X	X	X	X		X	X												X																						
48	Visis-Cabá		34,424.00			34,424.00	Central American montane forests	13,170.30	X	X																																						
							Central American pine-oak forests	10,809.60	X	X	X	X		X	X												X																						
							Petén-Veracruz moist forests	10,444.10	X																		X																						
49	Montañas Mayas Chiquibul		123,599.00				Petén-Veracruz moist forests	60,300.60	X																		X																						
2	**SPRINGS RESERVE**		**48,536.60**	**0.00**	**202.30**	**48,334.30**			**3**	**3**	**1**	**1**	**1**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**1**		
50	Cerro Alux		4,578.00			4,578.00	Central American pine-oak forests	4,578.00	X	X	X	X		X	X												X																						
51	Cerro San Gil		43,958.60		202.30	43,756.30	Western Caribbean	202.30																											X	X	X	X	X	X	X	X					X	X			
							Central American Atlantic moist forests	32,233.70	X	X			X														X	X	X																						
							Central American montane forests	4,345.40	X	X																																							
							Belizean Coast mangroves	7,177.20						X					X		X			X	X	X	X				X																				
25	**REGIONAL MUNICIPAL PARKS**		**33,269.40**	**0.00**	**0.00**	**33,269.40**			**29**	**25**	**13**	**13**	**3**	**13**	**11**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
52	Las Conchas		41.30			41.30	Petén-Veracruz moist forests	41.30	X																		X																						
53	Astillero Municipal San Pedro Sacatepequez		286.30			286.30	Central American montane forests	286.30	X	X																																						
54	Astillero Municipal de San Marcos		786.50			786.50	Central American montane forests	786.50	X	X																																						
55	Astillero Municipal de Tecpán		1,604.10			1,604.10	Central American montane forests	1,275.60	X	X																																						
							Central American pine-oak forests	328.50	X	X	X	X		X	X												X																						
56	Cerro de Jesús		89.50			89.50	Motagua Valley thornscrub	89.50																																							
57	La Vega del Zope		136.70			136.70	Central American pine-oak forests	136.70	X	X	X	X		X	X												X																						
58	Lo de China		39.30			39.30	Motagua Valley thornscrub	39.30																																							
59	Los Altos de San Miguel Totonicapán		12,105.90			12,105.90	Central American dry forests	22.60	X	X	X	X	X	X			X										X	X	X																			
							Central American montane forests	10,004.10	X	X																																						
							Central American pine-oak forests	2,079.20	X	X	X	X		X	X												X																						
60	Los Cerritos - El Postezuelo		77.50			77.50	Central American pine-oak forests	77.50	X	X	X	X		X	X												X																						
61	Montaña Chiclera						Central American Atlantic moist forests	1,484.10	X	X			X														X	X	X																					
62	Municipal Canjulá		128.70			128.70	Central American pine-oak forests	70.40	X	X	X	X		X	X												X																					
							Motagua Valley thornscrub	58.30																																								
63	Municipal El Caracol						Central American montane forests	32.70	X	X																																						
64	Municipal El Chicozapote		22.90			22.90	Petén-Veracruz moist forests	22.90	X																		X																						
65	Municipal El Copoito		68.10			68.10	Petén-Veracruz moist forests	68.10	X																		X																						
66	Municipal Los Maijones		34.00			34.00	Central American pine-oak forests	34.00	X	X	X	X		X	X												X																						
67	Municipal Mirasol		6.50			6.50	Central American montane forests	6.50	X	X																																						
68	Municipal Tizate		3.00			3.00	Central American montane forests	3.00	X	X																																						
69	Municipal Tocapote		59.70			59.70	Central American pine-oak forests	0.10	X	X	X	X		X	X												X																						
							Motagua Valley thornscrub	59.60																																								
70	Municipal Venus Verdoso		12.90			12.90	Petén-Veracruz moist forests	12.90	X																		X																						
71	Niño Dormido		164.80			164.80	Motagua Valley thornscrub	164.8																																							
72	Quetzaltenango Saqbé		5,634.40			5,634.40	Central American montane forests	5,402.20	X	X																																					
							Central American pine-oak forests	232.20	X	X	X	X		X	X												X																						
73	Tewancarnero		502.90			502.90	Central American montane forests	502.90	X	X																																					
74	Volcán Suchitán		2,543.50			2,543.50	Central American dry forests	128.90	X	X	X	X	X	X			X										X	X	X																				
							Central American pine-oak forests	2,414.60	X	X	X	X		X	X												X																						
75	Zunil		1,630.20			1,630.20	Central American montane forests	1,530.70	X	X																																						
							Central American pine-oak forests	99.50	X	X	X	X		X	X												X																						
76	Todos los Santos Cuchumatán		7,290.70			7,290.70	Central American montane forests	6,517.40	X	X																																					
							Central American pine-oak forests	773.30	X	X	X	X		X	X												X																						
102	**PRIVATE NATURE RESERVES**		**44,793.30**	**0.00**	**156.70**	**45,235.30**			**127**	**108**	**22**	**19**	**46**	**45**	**24**	**2**	**5**	**2**	**7**	**2**	**7**	**2**	**7**	**7**	**7**	**7**	**80**	**47**	**47**	**6**	**5**	**6**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**4**	**2**	**2**	**2**	**3**	**3**		
77	Bandurria		133.00			133.00	Sierra Madre de Chiapas Moist Forests	133.00	X	X			X	X													X	X	X																				
78	Biotopín		30.10			30.10	Central American montane forests	29.00	X	X																																					
							Central American pine-oak forests	1.10	X	X	X	X		X	X												X																						
79	Buenos Aires		880.00			880.00	Sierra Madre de Chiapas Moist Forests	880.00	X	X			X	X													X	X	X																				
80	Canaima		24.90			24.90	Tehuantepec-El Manchon mangroves	24.90																																							
81	Candilejas		69.80			69.80	Central American Atlantic moist forests	69.80	X	X			X														X	X	X																				

Guatemala									MAIN THREATS TERRESTRIAL																											MAIN THREATS MARINE														MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat																Pollution					Over-exploitation							Habitat Degradation					Pollution							Over-exploitation								
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Travls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
82	Cascadas de Tatasirire		15.60			15.60	Central American montane forests	15.60	X	X																																							
83	Cástulo		358.80			358.80	Central American Atlantic moist forests	358.80	X	X			X														X	X	X																					
84	Catalji o Sacataljí		179.40			179.40	Petén-Veracruz moist forests	179.40	X																		X																					
85	Ceibo Mocho-Flor de Pasión		451.90			451.90	Petén-Veracruz moist forests	451.90	X																		X																					
86	Cerro Verde		751.70			751.70	Central American montane forests	751.70	X	X																																							
87	Chabiland Cerro		38.30			38.30	Central American Atlantic moist forests	38.30	X	X			X														X	X	X																					
88	Chajmaik		279.20			279.20	Central American Atlantic moist forests	279.20	X	X			X														X	X	X																					
89	Chajumpec		831.90			831.90	Petén-Veracruz moist forests	831.90	X																		X																					
90	Chelemha		363.60			363.60	Central American montane forests	363.60	X	X																																						
91	Chicacnab		45.70			45.70	Central American montane forests	45.70	X	X																																						
92	Chinajux y Sechinaux		619.00			619.00	Central American montane forests	619.00	X	X																																						
93	Chusita		83.00			83.00	Central American montane forests	18.40	X	X																																						
							Sierra Madre de Chiapas Moist Forests	64.60	X	X			X	X													X	X	X																					
94	Concepción Chuitó		36.40			36.40	Central American pine-oak forests	36.40	X	X	X	X		X	X												X																					
95	Concepción		2,500.70			2,500.70	Central American montane forests	2,500.70	X	X																																						
96	Corral Viejo		160.10			160.10	Central American pine-oak forests	160.10	X	X	X	X		X	X												X																					
97	Dolores Hidalgo		67.10			67.10	Sierra Madre de Chiapas Moist Forests	67.10	X	X			X	X													X	X	X																					
98	Doña Chanita-Flor del Pasión		534.00			534.00	Petén-Veracruz moist forests	534.00	X																		X																					
99	Dulce Nombre		437.00			437.00	Sierra Madre de Chiapas Moist Forests	437.00	X	X			X	X													X	X	X																					
100	E.C.A. Xejeyu		101.10			101.10	Central American montane forests	101.10	X	X																																						
101	E.C.A. Xejeyu		155.50			155.50	Sierra Madre de Chiapas Moist Forests	155.50	X	X			X	X													X	X	X																					
102	El Bosque		839.80			839.80	Central American montane forests	839.80	X	X																																						
103	El Ciruelo, Country Delight		18.60			18.60	Central American montane forests	18.60	X	X																																						
104	El Espino		80.70			80.70	Central American pine-oak forests	80.70	X	X	X	X		X	X												X																					
105	El Higuerito		45.70			676.30	Central American Atlantic moist forests	484.10	X	X			X														X	X	X																					
							Belizean Coast mangroves	192.20							X					X		X			X	X	X	X				X																	
106	El Naranjo		47.70			15.80	Central American montane forests	3.00	X	X																																						
							Central American pine-oak forests	12.80	X	X	X	X		X	X												X																					
107	El Pollo		79.10			79.10	Petén-Veracruz moist forests	79.10	X																		X																					
108	El Retiro		293.50			293.50	Sierra Madre de Chiapas Moist Forests	293.50	X	X			X	X													X	X	X																					
109	El Roble		25.90			25.90	Central American montane forests	25.60	X	X																																						
							Central American pine-oak forests	0.30	X	X	X	X		X	X												X																					
110	El Vesubio		286.40			286.40	Central American montane forests	218.30	X	X																																						
							Sierra Madre de Chiapas Moist Forests	68.10	X	X			X	X													X	X	X																					
111	Entre Ríos		495.40			495.40	Petén-Veracruz moist forests	495.40	X																		X																					
112	Finca AA		454.60			454.60	Petén-Veracruz moist forests	454.60	X																		X																					
113	Finca Asturias		303.60			303.60	Central American montane forests	125.80	X	X																																						
							Sierra Madre de Chiapas Moist Forests	177.80	X	X			X	X													X	X	X																					
114	Finca Chaca		165.90			165.90	Petén-Veracruz moist forests	165.90	X																		X																					
115	Finca Fernando Paiz		61.80			61.80	Motagua Valley thornscrub	61.80	X	X	X			X			X														X																	
116	Finca La Bohemia		65.50			65.50	Sierra Madre de Chiapas Moist Forests	65.50	X	X			X	X													X	X	X																					
117	Finca La Gloria		202.40			202.40	Central American montane forests	18.80	X	X																																						
							Petén-Veracruz moist forests	183.60	X																		X																					
118	Finca la Travesia		105.30			105.30	Central American montane forests	105.30	X	X																																						
119	Finca Los Cedros		120.80			120.80	Sierra Madre de Chiapas Moist Forests	120.80	X	X			X	X													X	X	X																					
120	Finca Rústica Chimel		1,977.70			1,977.70	Central American montane forests	1,596.90	X	X																																						
							Petén-Veracruz moist forests	380.80	X																		X																					
121	Finca San José		64.60			64.60	Petén-Veracruz moist forests	64.60	X																		X																					
122	Hacienda Los Jose Luises		579.80			579.80	Motagua Valley thornscrub	579.80	X	X	X			X			X														X																	
123	Hacienda Pastores		35.70			35.70	Central American montane forests	25.60	X	X																																						
							Central American pine-oak forests	10.10	X	X	X	X		X	X												X																					
124	K'anti Shul		1,355.30			1,355.30	Central American montane forests	1,355.30	X	X																																						
125	La Chorrera - Manchón Guamuchal		1,275.20			1,275.20	Tehuantepec-El Manchon mangroves	1,275.20						X	X					X		X			X	X	X	X			X	X																
126	La Cumbre - Flor de la Pasión		627.40			627.40	Petén-Veracruz moist forests	627.40	X																		X																					
127	La Democracia		148.00			148.00	Petén-Veracruz moist forests	148.00	X																		X																					
128	La Palmilla		917.60			917.60	Central American Atlantic moist forests	917.60	X	X			X														X	X	X																					
129	Laguna Perdida		60.80			60.80	Petén-Veracruz moist forests	60.80	X																		X																					
130	Las Cuevas		73.50			73.50	Central American Atlantic moist forests	73.50	X	X			X														X	X	X																					
131	Las Flores		44.80			44.80	Motagua Valley thornscrub	44.80	X	X	X			X			X														X																	
132	Las Maravillas		31.00			31.00	Sierra Madre de Chiapas Moist Forests	31.00	X	X			X	X													X	X	X																					
133	Las Palmas		241.10			241.10	Central American Atlantic moist forests	241.10	X	X			X														X	X	X																					
134	Los Alpes		72.70			72.70	Central American pine-oak forests	72.70	X	X	X	X		X	X												X																					
135	Los Andes		498.40			498.40	Central American montane forests	58.80	X	X																																						
							Sierra Madre de Chiapas Moist Forests	439.60	X	X			X	X													X	X	X																					
136	Los Castaños		40.20			40.20	Sierra Madre de Chiapas Moist Forests	40.20	X	X			X	X													X	X	X																					
137	Los Tarrales		647.30			647.30	Sierra Madre de Chiapas Moist Forests	647.30	X	X			X	X													X	X	X																					
138	Lote "9"		1,095.10			1,095.10	Central American montane forests	1,095.10	X	X																																						

Guatemala									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
139	Lote 10		1,305.80			1,305.80	Central American montane forests	1,305.80	X	X																																								
140	Lote 6		1,380.80			1,380.80	Central American Atlantic moist forests	544.00	X	X			X														X	X	X																				
							Central American montane forests	836.80	X	X																																								
141	Lote 8		1,618.90			1,618.90	Central American Atlantic moist forests	106.80	X	X			X														X	X	X																				
							Central American montane forests	1,512.10	X	X																																								
142	Luisiana		2,296.30			2,296.30	Central American montane forests	2,296.30	X	X																																								
143	Manila		205.10			205.10	Central American montane forests	57.30	X	X																																								
							Sierra Madre de Chiapas Moist Forests	147.80	X	X			X	X													X	X	X																				
144	María del Mar		140.90			140.90	Sierra Madre de Chiapas Moist Forests	140.90	X	X			X	X													X	X	X																				
145	Matriz Chocón		589.00			589.00	Central American Atlantic moist forests	589.00	X	X			X														X	X	X																				
146	Medio Día		590.50			590.50	Sierra Madre de Chiapas Moist Forests	590.50	X	X			X	X													X	X	X																				
147	Milán y Anexos		845.50			845.50	Central American montane forests	301.50	X	X																																								
							Sierra Madre de Chiapas Moist Forests	544.00	X	X			X	X													X	X	X																				
148	Molino Helvetia		216.10			216.10	Central American pine-oak forests	216.10	X	X	X	X		X	X												X																						
149	Montaña Larga		895.70			895.70	Central American montane forests	895.70	X	X																																								
150	Monte Alto		64.30			64.30	Central American pine-oak forests	64.30	X	X	X	X		X	X												X																						
151	Montebello		46.50			46.50	Central American montane forests	46.50	X	X																																								
152	Ona		1,951.90			1,951.90	Sierra Madre de Chiapas Moist Forests	1,951.90	X	X			X	X													X	X	X																				
153	Pachuj		249.70			249.70	Central American montane forests	113.40	X	X																																								
							Central American pine-oak forests	2.50	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	133.80	X	X			X	X													X	X	X																				
154	Pampojilá Peña Flor		157.10			157.10	Central American montane forests	20.80	X	X																																								
							Central American pine-oak forests	134.90	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	1.40	X	X			X	X													X	X	X																				
155	Pataxte		676.50			676.50	Central American Atlantic moist forests	676.50	X	X			X														X	X	X																				
156	Peña de Angel		53.70			53.70	Central American montane forests	53.70	X	X																																								
157	Posada Montaña del Quetzal		150.60			150.60	Central American montane forests	139.30	X	X																																								
							Central American pine-oak forests	11.30	X	X	X	X		X	X												X																						
158	Quebrada Azul		652.00			652.00	Central American Atlantic moist forests	652.00	X	X			X														X	X	X																				
159	Quebrada Seca		439.10			439.10	Central American Atlantic moist forests	381.50	X	X			X														X	X	X																				
							Central American montane forests	57.60	X	X																																								
160	Ram Tzul		78.50			78.50	Central American montane forests	78.50	X	X																																								
161	Reserva Santuario de las Aves		449.70			449.70	Central American Atlantic moist forests	58.50	X	X			X														X	X	X																				
							Belizean Coast mangroves	391.20							X				X		X		X	X	X	X				X																			
162	Río Azul		492.80			492.80	Central American Atlantic moist forests	492.80	X	X			X														X	X	X																				
163	Río Bonito		1,080.50			1,080.50	Central American Atlantic moist forests	1,034.10	X	X			X														X	X	X																				
							Central American montane forests	46.40	X	X																																								
164	Río Zarco Chiquito		63.40			63.40	Central American Atlantic moist forests	63.40	X	X			X														X	X	X																				
165	San Isidro		837.70			837.70	Central American montane forests	837.70	X	X																																								
166	Santa Catalina y Anexo Joya Carbonera		155.80			155.80	Central American montane forests	155.80	X	X																																								
167	Santa Elena		140.40			140.40	Belizean Coast mangroves	140.40							X				X		X		X	X	X	X				X																			
168	Santa Isabel		471.50			471.50	Central American montane forests	455.00	X	X																																								
							Central American pine-oak forests	16.50	X	X	X	X		X	X												X																						
169	Santa Rosa y Llano Largo		1,481.20			1,481.20	Central American montane forests	46.50	X	X																																								
							Central American pine-oak forests	1,434.70	X	X	X	X		X	X												X																						
170	Santa Rosa		507.80			507.80	Central American Atlantic moist forests	507.80	X	X			X														X	X	X																				
171	Selempin		35.50			35.50	Central American Atlantic moist forests	35.50	X	X			X														X	X	X																				
172	Xecanac		17.00			17.00	Central American montane forests	13.10	X	X																																								
							Central American pine-oak forests	3.90	X	X	X	X		X	X												X																						
173	Yaxhß		198.30			198.30	Petén-Veracruz moist forests	198.30	X																		X																						
174	Zavala		657.00			657.00	Central American Atlantic moist forests	657.00	X	X			X														X	X	X																				
175	Tapon Creek		930.00		156.70	773.30	Western Caribbean	156.70																										X	X	X	X	X	X	X	X					X	X		
							Central American Atlantic moist forests	658.50	X	X			X														X	X	X																				
							Belizean Coast mangroves	114.80							X				X		X		X	X	X	X				X																			
176	Antigua Estancia de los Leones		43.50			43.50	Central American pine-oak forests	43.50	X	X	X	X		X	X												X																						
29	DEFINITIVE BAN ZONES		92,256.60	0.00	1,080.20	91,024.00			51	49	26	25	16	36	21	1	7	1	2	1	2	1	2	2	2	2	36	16	16	2	2	4	2	3	2	2	3	3	3	3	3	3	2	2	2	3	2		
177	Bahia de Santo Tomás		1,083.40		901.50	181.90	Western Caribbean	901.50																										X	X	X	X	X	X	X	X					X	X		
							Belizean Coast mangroves	181.90							X				X		X		X	X	X	X				X																			
178	Santa Rosalía		4,036.40			4,036.40	Central American montane forests	158.00	X	X																																								
							Central American pine-oak forests	996.20	X	X	X	X		X	X												X																						
							Motagua Valley thornscrub	2,882.20	X	X	X			X			X														X																		
179	Volcán Acatenango		942.80			942.80	Central American pine-oak forests	183.70	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	759.10	X	X			X	X													X	X	X																				
180	Volcán Agua		13,507.80			13,507.80	Central American montane forests	9,908.00	X	X																																								
							Central American pine-oak forests	123.40	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	3,476.40	X	X			X	X													X	X	X																				
181	Volcán Alzatate		2,245.40			2,245.40	Central American pine-oak forests	2,245.40	X	X	X	X		X	X												X																						

Guatemala									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
182	Volcán Amayo		2,679.40			2,679.40	Central American pine-oak forests	2,679.40	X	X	X	X		X	X												X																						
183	Volcán Cerro Redondo		374.40			374.40	Central American pine-oak forests	374.40	X	X	X	X		X	X												X																						
184	Volcán Chicabal		1,260.50			1,260.50	Central American montane forests	1,260.50	X	X																																							
185	Volcán Chingo		1,206.40			1,206.40	Central American dry forests	18.00	X	X	X	X	X	X			X										X	X	X																				
							Sierra Madre de Chiapas Moist Forests	1,188.40	X	X			X	X													X	X	X																				
186	Volcán Cruz Quemada		878.70			878.70	Central American pine-oak forests	878.70	X	X	X	X		X	X												X																						
187	Volcán Culma		453.00			453.00	Central American pine-oak forests	453.00	X	X	X	X		X	X												X																						
188	Volcán Cuxliquel		1,698.00			1,698.00	Central American dry forests	19.10	X	X	X	X	X	X			X										X	X	X																				
							Central American montane forests	970.20	X	X																																							
							Central American pine-oak forests	708.70	X	X	X	X		X	X												X																						
189	Volcán Fuego		13,935.30			13,935.30	Central American montane forests	6,020.20	X	X																																							
							Sierra Madre de Chiapas Moist Forests	7,915.10	X	X			X	X													X	X	X																				
190	Volcán Ixtepeque		1,864.90			1,864.90	Central American dry forests	554.10	X	X	X	X	X	X			X										X	X	X																				
							Central American pine-oak forests	1,310.80	X	X	X	X		X	X												X																						
191	Volcán Jumay		2,765.30			2,765.30	Central American pine-oak forests	2,765.30	X	X	X	X		X	X												X																						
192	Volcán Jumaytepeque		848.10			848.10	Central American pine-oak forests	848.10	X	X	X	X		X	X												X																						
193	Volcán Lacandón		4,869.50			4,869.50	Central American montane forests	3,575.00	X	X																																							
							Sierra Madre de Chiapas Moist Forests	1,294.50	X	X			X	X													X	X	X																				
194	Volcán Las Víboras		2,147.50			2,147.50	Central American dry forests	1,694.30	X	X	X	X	X	X			X										X	X	X																				
							Central American pine-oak forests	453.20	X	X	X	X		X	X												X																						
195	Volcán Santo Tomás		4,614.00			4,614.00	Central American montane forests	4,056.20	X	X																																							
							Central American pine-oak forests	240.50	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	317.30	X	X			X	X													X	X	X																				
196	Volcán Moyuta		1,043.40			1,043.40	Sierra Madre de Chiapas Moist Forests	1,043.40	X	X			X	X													X	X	X																				
197	Volcán Quetzaltepeque		1,097.10			1,097.10	Central American montane forests	600.60	X	X																																							
							Central American pine-oak forests	496.50	X	X	X	X		X	X												X																						
198	Volcán San Antonio o Saquibutz		101.60			101.60	Central American montane forests	101.60	X	X																																							
199	Volcán Tacaná		2,958.50		178.70	2,779.80	Chiapas-Nicaragua Marine	178.70																								X	X	X			X	X	X	X	X	X	X	X	X	X			
							Central American montane forests	2,779.80	X	X																																							
200	Volcán Tahual		3,038.00			2,885.60	Central American dry forests	556.90	X	X	X	X	X	X			X										X	X	X																				
							Central American pine-oak forests	2,328.70	X	X	X	X		X	X												X																						
201	Volcán Tajumulco		12,913.20			12,913.20	Central American montane forests	10,732.20	X	X																																							
							Sierra Madre de Chiapas Moist Forests	2,181.00	X	X			X	X													X	X	X																				
202	Volcán Tecuamburro		5,136.20			5,136.20	Central American montane forests	1,090.80	X	X																																							
							Central American pine-oak forests	1,802.40	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	2,243.00	X	X			X	X													X	X	X																				
203	Volcán Tobón		906.20			906.20	Central American pine-oak forests	906.20	X	X	X	X		X	X												X																						
204	Volcán Zunil		3,651.60			3,651.60	Central American montane forests	3,255.20	X	X																																							
							Central American pine-oak forests	250.30	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	146.10	X	X			X	X													X	X	X																				
1	UNDETERMINED		0.00	1,676.10	0.00	0.00			2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
205	Las Nubes			1,676.10			Central American montane forests	1,153.50	X	X																																							
							Sierra Madre de Chiapas Moist Forests	522.60	X	X			X	X													X	X	X																				
	Established:	204	3,048,787.10	1,676.10	31,544.30	2,894,090.10	296		272	220	78	75	79	114	78	3	16	4	15	3	15	3	15	15	15	15	190	79	80	14	7	11	5	10	8	8	10	10	10	10	10	8	5	5	5	10	8		
	Proposed:	1			% of Country Territory:	26.58%			0.95	0.77	0.27	0.26	0.28	0.40	0.27	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	0.05	0.05	0.05	0.67	0.28	0.28	0.05	0.02	1.57	0.71	1.43	1.14	1.14	1.43	1.43	1.43	1.43	1.43	1.14	0.71	0.71	0.71	1.43	1.14		

** Áreas que integran la Reserva de la Biósfera Maya

IUCN's categories:
I. strict protection
Ia. strict nature reserve
Ib. wilderness area
II. ecosystem conservation and protection (i.e., national park)
III. conservation of natural features (i.e., natural monument)
IV. conservation through active management (i.e., habitat/species management area)
V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)
VI. sustainable use of natural resources (i.e., managed resource protected area)

Table 24: Detailed Data on PAs - Honduras

| Honduras | | | | | | | | | MAIN THREATS TERRESTRIAL | | | | | | | | | | | | | | | | | | | | | | | MAIN THREATS MARINE | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Loss and Degradation of Natural Habitat | | | | | | | | | | | | | | Pollution | | | | Over-exploitation | | | | | Habitat Degradation | | | | | Pollution | | | | | Over-exploitation | | | | | | | |
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	MANAGED BY	COMMENTS
6	WATER PROTECTION ÁREAS		148,254.00	0.00	0.00	148,254.00			6	6	4	4	2	4	3	0	1	0	0	0	0	0	0	0	0	0	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	San Pedro Sula, Cofradía y Naco	1990	35,182.00			35,182.00	?																																											
2	Danlí	1992	16,187.30			16,187.30	Central American pine-oak forests	16,187.30	X	X	X	X		X	X												X																						
3	El Coyolar	1991	15,245.00			15,245.00	?																																											
4	El Jilguero	2006	43,947.00			43,947.00	?																																											
5	El Guanacaure	1999	1,976.60			1,976.60	Central American pine-oak forests	1,976.60	X	X	X	X		X	X												X																					CODDEFFAGOLF	
6	Merendón	?	35,716.10			35,716.10	Central American Atlantic moist forests	1,257.70	X	X			X														X	X	X																				
							Central American dry forests	8,886.00	X	X	X	X	X	X			X										X	X	X																				
							Central American montane forests	787.90	X	X																																							
							Central American pine-oak forests	24,784.50	X	X	X	X		X	X												X																					
5	MULTIPLE USES AREAS		55,357.40	0.00	0.00	55,357.40			6	6	3	3	2	4	3	0	1	0	0	0	0	0	1	1	1	1	4	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7	Carías Bermudez	1992	5,081.40			5,081.40	Central American pine-oak forests	5,081.40	X	X	X	X		X	X												X																					
8	Isla del Tigre	1999	601.00			601.00	Central American dry forests	601.00	X	X	X	X	X	X			X										X	X	X																			CODDEFFAGOLF	
9	Lago Yojoa	1971	30,152.00			30,152.00	Central American Atlantic moist forests	14,677.40	X	X			X														X	X	X																			AMUPROLAGO	
							Central American montane forests	3,329.50	X	X																																						
							Central American pine-oak forests	4,039.70	X	X	X	X		X	X												X																					
							Grijalva - Usumacinta (Lake) freshwater	8,105.40	X	X				X	X								X	X	X	X					X																		
10	Laguna Ticamaya	1999	443.00			443.00	?																																											
11	Montaña la Botija	2005	19,080.00			19,080.00	?																																											
8	HABITAT MANAGEMENT BY SPECIES AREAS		72,413.30	0.00	18,422.10	53,991.20			3	3	3	3	3	10	0	0	3	7	7	0	7	0	7	7	7	7	10	3	10	7	0	5	5	5	0	0	5	5	5	5	5	5	5	5	5	5	0		
12	Bahía de Chismuyo	1999	25,650.80		8,953.60	16,697.20	Chiapas-Nicaragua marine	8,953.60																								X	X	X			X	X	X	X	X	X	X	X	X	X		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
							Central American dry forests	1,842.10	X	X	X	X	X	X			X										X	X	X																				
							Gulf of Fonseca mangroves	14,855.10						X				X	X		X		X	X	X	X	X		X	X																			
13	Colibrí Esmeralda Hondureño	2005	4,856.00			4,856.00	?																																											
14	El jicarito	1999	6,626.10			6,626.10	Central American dry forests	1,806.10	X	X	X	X	X	X			X										X	X	X																			CODDEFFAGOLF	
							Gulf of Fonseca mangroves	4,820.00						X				X	X		X		X	X	X	X	X		X	X																			
15	La Berbería	1999	5,723.10			5,723.10	Gulf of Fonseca mangroves	5,723.10						X				X	X		X		X	X	X	X	X		X	X																		CODDEFFAGOLF	
16	Las Iguanas y Punta Condega	1999	3,759.60		484.00	3,275.60	Chiapas-Nicaragua marine	484.00																								X	X	X			X	X	X	X	X	X	X	X	X	X		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
							Gulf of Fonseca mangroves	3,275.60						X				X	X		X		X	X	X	X	X		X	X																			
17	Los Delgaditos	1999	1,460.80		485.20	975.60	Chiapas-Nicaragua marine	485.20																								X	X	X			X	X	X	X	X	X	X	X	X	X		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
							Gulf of Fonseca mangroves	975.60						X				X	X		X		X	X	X	X	X		X	X																			
18	San Bernardo	1999	9,512.50		1,691.60	7,820.90	Chiapas-Nicaragua marine	1,691.60																								X	X	X			X	X	X	X	X	X	X	X	X	X		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
							Gulf of Fonseca mangroves	7,820.90						X				X	X		X		X	X	X	X	X		X	X																			
19	Bahía de San Lorenzo	1999	14,824.40		6,807.70	8,016.70	Chiapas-Nicaragua marine	6,807.70																								X	X	X			X	X	X	X	X	X	X	X	X	X		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
							Central American dry forests	136.20	X	X	X	X	X	X			X										X	X	X																				
							Gulf of Fonseca mangroves	7,880.50						X				X	X		X		X	X	X	X	X		X	X																			
1	BOTANICAL GARDENS		2,256.00	0.00	0.00	2,256.00			1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	Lancetilla	1990	2,256.00			2,256.00	Central American Atlantic moist forests	2,256.00	X	X			X														X	X	X																				
3	CULTURAL MONUMENTS		5,186.90	0.00	0.00	5,186.90			1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
21	Cuevas de Talgua	1987	105.00			105.00	?																																											
22	Ruinas de Copán	1982	1,297.90			1,297.90	Central American pine-oak forests	1,297.90	X	X	X	X		X	X												X																					
23	Ruinas de Tenanpúa	1992	3,784.00			3,784.00	?																																											
4	NATURAL MONUMENTS		46.00	4,388.00	0.00	46.00			1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
24	Boquerón	Proposed		4,371.00			?																																											
25	Congolón, Piedra Parada y Coyocutena	1992	46.00			46.00	?																																											
26	Cuevas de Taulabé	Proposed		1.00			?																																											
27	Río Toco	Proposed		16.00			Central American pine-oak forests	16.00	X	X	X	X		X	X												X																					
22	NATIONAL PARKS		901,055.40	226,030.00	33,631.00	867,424.40			44	42	20	18	18	20	11	1	8	1	3	1	3	1	3	3	1	1	31	20	20	3	1	3	1	3	3	3	3	3	3	3	3	2	1	1	1	3	3		
28	Sierra de Agalta	1987	72,503.80			72,503.80	Central American Atlantic moist forests	29,862.70	X	X			X														X	X	X																				
							Central American dry forests	2,208.10	X	X	X	X	X	X			X										X	X	X																				
							Central American montane forests	27,913.10	X	X																																						
							Central American pine-oak forests	12,519.90	X	X	X	X		X	X												X																					
29	Azul Meambar	1987	31,339.10			31,339.10	Central American dry forests	886.80	X	X	X	X	X	X			X										X	X	X																				
							Central American montane forests	4,486.10	X	X																																						
							Central American pine-oak forests	25,966.20	X	X	X	X		X	X												X																					

Honduras									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																	
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	MANAGED BY	COMMENTS
30	Capiro y calentura	1992	4,858.30			4,858.30	Central American Atlantic moist forests	4,858.30	X	X			X														X	X	X																			FUCAGUA y Municipalidades de Trujillo y Santa Fe	
31	Celaque	1987	26,270.50			26,270.50	Central American montane forests	21,206.20	X	X																																						COLAP	
							Central American pine-oak forests	5,064.30	X	X	X	X		X	X												X																						
32	Cerro Azul Copán	1987	12,390.80			12,390.80	Central American Atlantic moist forests	516.80	X	X			X														X	X	X																			COPROCA, DIA, FUNBANHCAFE	
							Central American montane forests	11,874.00	X	X																																							
33	Cusuco	1987	17,731.50			17,731.50	Central American Atlantic moist forests	2,882.70	X	X			X														X	X	X																			Mancomunidad de Omoa, San Pedro Sula y Quimistan	
							Central American montane forests	4,306.30	X	X																																							
							Central American pine-oak forests	10,542.50	X	X	X	X		X	X												X																						
34	Cuyamel Omoa	2011	30,031.00			30,031.00	?																																									Municipalidad de Omoa y la Organización Cuerpos de Conservación de Omoa	
35	Jeannette Kawas (Punta Sal)	1994	75,808.90		29,330.70	46,478.20	Western Caribbean	29,330.70																										X	X	X	X	X	X	X	X					X	X	Municipalidad de Tela y Fundación PROLANSATE	Sitio Ramsar
							Central American Atlantic moist forests	33,006.30	X	X			X														X	X	X																				
							Northern Honduras mangroves	13,471.90	X	X	X			X					X		X		X	X			X	X	X	X																			
36	La Tigra	?	24,340.60			24,340.60	Central American dry forests	3,219.30	X	X	X	X	X	X			X										X	X	X																			AMITIGRA	
							Central American montane forests	11,491.20	X	X																																							
							Central American pine-oak forests	9,630.10	X	X	X	X		X	X												X																						
37	Montaña de Botaderos	Proposed		100,626.00			?																																										
38	Montaña de Comayagua	1987	29,749.80			29,749.80	Central American dry forests	11.20	X	X	X	X	X	X			X										X	X	X																			ECOSIMCO	
							Central American montane forests	15,857.70	X	X																																							
							Central American pine-oak forests	13,880.90	X	X	X	X		X	X												X																						
39	Montaña de Yoro	1987	15,352.90			15,352.90	Central American Atlantic moist forests	2,414.50	X	X			X														X	X	X																				
							Central American montane forests	12,938.40	X	X																																							
40	Montecristo / Trifinio	1987	6,886.00			6,886.00	Central American montane forests	3,955.70	X	X																																							
							Central American pine-oak forests	2,930.30	X	X	X	X		X	X												X																						
41	Nombre de Dios	2006	26,757.00			26,757.00	?																																									Fundación Parque Nacional Nombre de Dios - FUPNAND	
42	Patuca	1999	375,593.00			375,593.00	Central American Atlantic moist forests	281,723.60	X	X			X														X	X	X																			Asociación Patuca	
							Central American pine-oak forests	93,869.40	X	X	X	X		X	X												X																						
43	Pico Bonito	1987	106,750.90			106,750.90	Central American Atlantic moist forests	54,207.60	X	X			X														X	X	X																			FUPNAPIB	
							Central American dry forests	1,041.70	X	X	X	X	X	X			X										X	X	X																				
							Central American montane forests	18,645.90	X	X																																							
							Central American pine-oak forests	32,855.70	X	X	X	X		X	X												X																						
44	Pico Pijol	1987	11,508.20			11,508.20	Central American dry forests	2,418.20	X	X	X	X	X	X			X										X	X	X																			AECOPIJOL	
							Central American montane forests	4,422.40	X	X																																							
							Central American pine-oak forests	4,667.60	X	X	X	X		X	X												X																						
45	Punta Izopo	2001	19,241.10		4,300.30	14,940.80	Western Caribbean	4,300.30																										X	X	X	X	X	X	X	X					X	X	Municipalidades de Tela, Arizona y Esparta y PROLANSATE	Sitio Ramsar
							Central American Atlantic moist forests	7,102.00	X	X			X														X	X	X																				
							Northern Honduras mangroves	7,838.80	X	X	X			X					X		X		X	X			X	X	X	X																			
46	Río Kruta	Proposed		60,093.00			?																																										
47	Santa Bárbara	1987	13,942.00			13,942.00	Central American Atlantic moist forests	3,998.60	X	X			X														X	X	X																				
							Central American dry forests	34.70	X	X	X	X	X	X			X										X	X	X																				
							Central American montane forests	9,908.70	X	X																																							
48	Warunta	Proposed		65,311.00			?																																										
5	MARINE NATIONAL PARKS		667,092.70	27,966.00	665,660.10	1,432.60			1	1	1	1	1	2	0	0	1	1	1	0	1	0	1	1	1	1	2	1	2	1	0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0		
49	Archipielago Golfo de Fonseca	2000	5,015.70		3,583.10	1,432.60	Chiapas-Nicaragua Marine	3,583.10																								X	X	X			X	X	X	X	X	X	X	X	X	X		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
							Central American dry forests	1,425.30	X	X	X	X	X	X			X										X	X	X																				
							Gulf of Fonseca mangroves	7.30						X				X	X		X		X	X	X	X	X		X	X																			
50	Cayos Miskitos	Proposed		27,966.00			?																																										
51	Guanaja 1	1997	14,566.00		14,566.00		?																																									Bay Islands Conservation Association - BICA	
52	Islas de la Bahía	2010	647,152.00		647,152.00		?																																									Roatan Marine Park, Healthy Reefs Iniciative, Bay Islands Conservation Association	
53	Islas del Cisne	1994	359.00		359.00		?																																										Presencia de Fuerza Naval
16	WILDLIFE REFUGES		133,564.60	8,893.00	22,153.40	112,726.10			22	20	9	8	4	9	8	1	1	1	2	1	2	1	2	2	1	1	13	5	5	2	1	3	1	2	2	2	2	2	2	2	2	2	1	1	1	2	2		
54	Barras de Cuero y Salado	1987	13,027.00		5,908.40	8,433.50	Western Caribbean	5,908.40																										X	X	X	X	X	X	X	X					X	X	Municipalidades de El Porvenir, San Francisco, La Masica y Esparta y FUCSA	Sitio Ramsar
							Central American Atlantic moist forests	55.20	X	X			X														X	X	X																				
							Northern Honduras mangroves	8,378.30	X	X	X			X					X		X		X	X			X	X	X	X																			
55	Cayos de Utila	1992	8,982.00		8,982.00		?																																										
56	Corralitos	1987	6,921.70			6,921.70	Central American montane forests	6,633.60	X	X																																							
							Central American pine-oak forests	288.10	X	X	X	X		X	X												X																						
57	El Armado	1987	3,572.10			3,572.10	Central American Atlantic moist forests	1,202.60	X	X			X														X	X	X																				
							Central American montane forests	2,369.50	X	X																																							

Honduras									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																	
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wastes	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species	MANAGED BY	COMMENTS
58	Erapuca	1987	6,522.20			6,522.20	Central American montane forests	5,408.80	X	X																																						AESMO	
							Central American pine-oak forests	1,113.40	X	X	X	X		X	X												X																						
59	La Muralla	1987	24,626.50			24,626.50	Central American montane forests	12,967.30	X	X																																							
							Central American pine-oak forests	11,659.20	X	X	X	X		X	X												X																						
60	Laguna de Bacalar	2011	7,263.00		7,263.00		?																																										
61	Laguna de Guaymoreto	Proposed		8,019.00			?																																									Fundación Calentura y Guaymoreto (FACAGUA) y la Municipalidad de Trujillo	
62	Mixcure	1987	12,689.60			12,689.60	Central American montane forests	1,681.60	X	X																																							
							Central American pine-oak forests	11,008.00	X	X	X	X		X	X												X																						
63	Montaña Verde	1987	12,407.40			12,407.40	Central American montane forests	8,733.60	X	X																																							
							Central American pine-oak forests	3,673.80	X	X	X	X		X	X												X																						
64	Port Royal	Proposed		874.00			?																																									BICA	
65	Puca	1987	5,466.50			5,466.50	Central American montane forests	973.80	X	X																																							
							Central American pine-oak forests	4,492.70	X	X	X	X		X	X												X																						
66	Santa Elena	1982	1,422.00			1,422.00	?																																										
67	Texiguat	1987	29,730.60			29,730.60	Central American Atlantic moist forests	16,713.70	X	X			X														X	X	X																			PROLANSATE	
							Central American montane forests	3,795.50	X	X																																							
							Central American pine-oak forests	9,221.40	X	X	X	X		X	X												X																						
68	Turtle Harbour	1992	934.00			934.00	?																																									Bay Islands Conservation Association (BICA-Utila)	
3	ANTHROPOLOGIC RESERVES		256,426.60	35,513.00	0.00	256,426.60			1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
69	El Carbón	Proposed		35,513.00			?																																										
70	Montaña de La Flor	1992	4,997.00			4,997.00	?																																										
71	Tawahka Asangni	1999	251,429.60			251,429.60	Central American Atlantic moist forests	251,429.60	X	X			X														X	X	X																			ICAE, FITH, ACOCODE/BTA	
19	BIOLOGIC RESERVES		190,307.20	262,040.30	48,925.20	141,465.80			28	28	12	12	3	12	12	0	0	0	0	0	0	0	0	0	0	0	15	3	3	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1	1		
72	Cayos Zapotillos	Proposed		1,063.00			?																																										
73	Cerro de Uyuca	1985	772.00			772.00	Central American montane forests	730.80	X	X																																							
							Central American pine-oak forests	41.20	X	X	X	X		X	X												X																						
74	El Chile	1987	6,452.60			6,452.60	Central American montane forests	4,120.20	X	X																																						Compañía Azucarera Tres Valles (CATV)	
							Central American pine-oak forests	2,332.40	X	X	X	X		X	X												X																						
75	El Cipresal	Proposed		2,034.30			Central American Atlantic moist forests	1,333.10	X	X			X														X	X	X																				
							Central American montane forests	701.20	X	X																																							
76	El Pital	1987	2,677 ?			83.80	Central American montane forests	17.30	X	X																																							
							Central American pine-oak forests	66.50	X	X	X	X		X	X												X																						
77	Guajiquiro	1987	28,143.10			28,143.10	Central American montane forests	4,835.90	X	X																																						AESMO	
							Central American pine-oak forests	23,307.20	X	X	X	X		X	X												X																						
78	Güisayote	1987	13,458.00			13,458.00	Central American montane forests	7,585.00	X	X																																							
							Central American pine-oak forests	5,873.00	X	X	X	X		X	X												X																						
79	Laguna de Karatasca	Proposed		133,750.00			?																																										
80	Misoco	1987	4,572.30			4,572.30	Central American montane forests	2,672.10	X	X																																						COLAP, MISOCO, UNEMADIH	
							Central American pine-oak forests	1,900.20	X	X	X	X		X	X												X																						
81	Montecillos	1987	20,333.30			20,333.30	Central American montane forests	8,929.20	X	X																																							
							Central American pine-oak forests	11,404.10	X	X	X	X		X	X												X																						
82	Omoa (Barras del Río Motagua)	Proposed		8,844.00			?																																										
83	Opalaca	1987	25,892.80			25,892.80	Central American montane forests	14,018.00	X	X																																							
							Central American pine-oak forests	11,874.80	X	X	X	X		X	X												X																						
84	Rus Rus	Proposed		116,349.00			?																																										
85	Sabanetas	1987	8,198.00			8,198.00	Central American montane forests	1,434.20	X	X																																							
							Central American pine-oak forests	6,763.80	X	X	X	X		X	X												X																						
86	Volcán Pacayita	1987	10,249.30			10,249.30	Central American montane forests	8,567.50	X	X																																							
							Central American pine-oak forests	1,681.80	X	X	X	X		X	X												X																						
87	Yerba Buena	1987	3,522.40			3,522.40	Central American montane forests	1,278.90	X	X																																							
							Central American pine-oak forests	2,243.50	X	X	X	X		X	X												X																						
88	Yuscarán	1987	3,936.10			3,936.10	Central American montane forests	930.50	X	X																																						Fundación Yuscarán	
							Central American pine-oak forests	3,005.60	X	X	X	X		X	X												X																						
89	Montaña de Mico Quemado y las Guanchias	1994	15,621.30			15,621.30	Central American Atlantic moist forests	15,621.30	X	X			X														X	X	X																				
90	Archipiélago Cayos Cochinos	1993	49,156.00		48,925.20	230.80	Western Caribbean	48,925.20																										X	X	X	X	X	X	X	X					X	X	Fundación Hondureña para la Protección y Conservación de Cayos Cochinos	
							Central American Atlantic moist forests	230.80	X	X			X														X	X	X																				
1	BIOSPHERE RESERVES		816,171.80	0.00	34,529.20	781,642.60			4	4	3	1	2	3	1	0	0	0	1	0	1	0	1	1	0	0	4	2	2	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	0	1		
91	Río Plátano	1980	816,171.80		34,529.20	781,642.60	Southwestern Caribbean	34,529.20																													X	X	X	X	X				X		X		Reserva del Hombre (UNESCO)
							Central American Atlantic moist forests	648,713.10	X	X			X														X	X	X																				
							Central American pine-oak forests	11,592.60	X	X	X	X		X	X												X																						
							Northern Honduras mangroves	43,182.40	X	X	X			X					X		X		X	X			X	X	X	X																			
							Moskitia pine forests	78,154.50	X	X	X		X	X													X																						

	Honduras NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	MANAGED BY	COMMENTS
1	RESOURCES RESERVES		48,075.00	0.00	0.00	48,075.00				
92	El Cajón	1986	48,075.00			48,075.00	?			
3	FOREST RESERVES		2,703.00	137,633.00	0.00	2,703.00				
93	Guanala 2	1961	2,703.00			2,703.00	?		Bay Islands Conservation Association - BICA	
94	Mocorón	Proposed		68,167.00			?			
95	Sierra de Río Tinto	Proposed		69,466.00			?			
2	MARINE RESERVES		0.00	17,865.00	0.00	0.00				
96	La Berbería	Proposed		10,108.00			?		Comité para la Defensa y Desarrollo de la Flora y Fauna del Golfo de Fonseca (CODDEFFAGOLF), en conjunto con la Municipalidad de Amapala	
97	Sandy Bay-West-End	Proposed		7,757.00			?		Roatán Marine Park & BICA	
	Established:	81	3,298,909.90	720,328.30	823,321.00	2,476,987.60		134		
	Proposed:	19		% of Country Territory:		22.02%				

MAIN THREATS TERRESTRIAL

	NAME	Loss and Degradation of Natural Habitat: Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Pollution: Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Over-exploitation: Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species
1	RESOURCES RESERVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	El Cajón																							
3	FOREST RESERVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Guanala 2																							
94	Mocorón																							
95	Sierra de Río Tinto																							
2	MARINE RESERVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	La Berbería																							
97	Sandy Bay-West-End																							
	Established:	118	114	57	52	37	66	40	2	15	10	14	2	14	2	15	15	11	11	88	40	48	14	3
	Proposed:	0.98	0.95	0.48	0.43	0.31	0.55	0.33	0.02	0.13	0.08	0.12	0.02	0.12	0.02	0.13	0.13	0.09	0.09	0.73	0.33	0.40	0.12	0.03

MAIN THREATS MARINE

	NAME	Habitat Degradation: Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Pollution: Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Over-exploitation: Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species
1	RESOURCES RESERVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	El Cajón																
3	FOREST RESERVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Guanala 2																
94	Mocorón																
95	Sierra de Río Tinto																
2	MARINE RESERVES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	La Berbería																
97	Sandy Bay-West-End																
	Established:	12	8	12	6	6	13	13	13	13	13	10	8	8	9	12	7
	Proposed:	1.09	0.73	1.09	0.55	0.55	1.18	1.18	1.18	1.18	1.18	0.91	0.73	0.73	0.82	1.09	0.64

IUCN's categories:
I. strict protection
- **Ia**. strict nature reserve
- **Ib**. wilderness area

II. ecosystem conservation and protection (i.e., national park)
III. conservation of natural features (i.e., natural monument)
IV. conservation through active management (i.e., habitat/species management area)
V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)
VI. sustainable use of natural resources (i.e., managed resource protected area)

Table 25: Detailed Data on PAs - El Salvador

El Salvador									MAIN THREATS TERRESTRIAL — Loss and Degradation of Natural Habitat															Pollution				Over-exploitation					MAIN THREATS MARINE — Habitat Degradation					Pollution					Over-exploitation						MANAGED BY	COMMENTS
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events		Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
8	NATIONAL PARKS		11,049.15	3,701.91	0.00	11,049.15			41	41	11	11	38	39	1	0	10	0	0	0	0	0	0	0	0	0	0	39	38	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	Complejo San Marcelino	proposed		1,696.70																																														
	(La Presa - Los Pinos)	proposed		1,200.05			Central American dry forests	153.10	X	X	X	X	X	X			X											X	X	X																				
							Sierra Madre de Chiapas Moist Forests	1,046.95	X	X			X	X														X	X	X																				
	(Las Lajas - 4 porciones)	proposed		396.65			Sierra Madre de Chiapas Moist Forests	396.65	X	X			X	X														X	X	X																				
	(Nueva porción Las Lajas)	proposed		100.00			Central American dry forests	100.00	X	X	X	X	X	X			X											X	X	X																				
2	El Imposible	2010	3,111.90	908.49		3,111.90																																												
	(El Balsamero)	proposed		410.01			Central American dry forests	410.01	X	X	X	X	X	X			X											X	X	X																				
	(El Cortijo Aguachapío)	proposed		22.17			Central American dry forests	22.17	X	X	X	X	X	X			X											X	X	X																				
	(Entre Ríos)	proposed		90.85			Sierra Madre de Chiapas Moist Forests	90.85	X	X			X	X														X	X	X																				
	(Hda. El Imposible)	2010	868.55			868.55	Central American dry forests	868.55	X	X	X	X	X	X			X											X	X	X																				
	(Hoja de Sal)	2011	87.32			87.32	Central American dry forests	87.32	X	X	X	X	X	X			X											X	X	X																				
	(Las Colinas)	2007	35.33			35.33	Sierra Madre de Chiapas Moist Forests	35.33	X	X			X	X														X	X	X																				
	(El Salto)	2008	39.13			39.13	Sierra Madre de Chiapas Moist Forests	39.13	X	X			X	X														X	X	X																				
	(Monte Hermoso)			82.88			Sierra Madre de Chiapas Moist Forests	82.88	X	X			X	X														X	X	X																				
	(San Benito 1)	2010	1,041.01			1,041.01	Sierra Madre de Chiapas Moist Forests	1,041.01	X	X			X	X														X	X	X																				
	(San Benito 2)	2010	981.16			981.16	Sierra Madre de Chiapas Moist Forests	981.16	X	X			X	X														X	X	X																				
	(Los Laureles)	2012	59.40			59.40	Sierra Madre de Chiapas Moist Forests	59.40	X	X			X	X														X	X	X																				
	(Total 9 porciones FANTEL)			302.58			Sierra Madre de Chiapas Moist Forests	302.58	X	X			X	X														X	X	X																				
3	Los Volcanes	2007-2009	2,249.80	1,096.72		2,249.80																																												
	(Buenos Aires)	proposed		77.49			Sierra Madre de Chiapas Moist Forests	77.49	X	X			X	X														X	X	X																				
	(Cerro Verde)	proposed		206.12			Central American montane forests	206.12	X	X																																								
	(El Paraíso)	proposed		373.44			Sierra Madre de Chiapas Moist Forests	373.44	X	X			X	X														X	X	X																				
	(Los Andes)	proposed		75.46			Sierra Madre de Chiapas Moist Forests	75.46	X	X			X	X														X	X	X																				
	(Ojo de Agua)	proposed		41.91			Sierra Madre de Chiapas Moist Forests	41.91	X	X			X	X														X	X	X																				
	(Cooperativa ATAISI)	proposed		135.20			Sierra Madre de Chiapas Moist Forests	135.20	X	X			X	X														X	X	X																				
	(María Auxiliadora)	proposed		110.70			Sierra Madre de Chiapas Moist Forests	110.70	X	X			X	X														X	X	X																				
	San Blas (Casa de Cristal)	proposed		76.40			Sierra Madre de Chiapas Moist Forests	76.40	X	X			X	X														X	X	X																				
	(San Blas o Las Brumas)	2007	234.25			234.25	Sierra Madre de Chiapas Moist Forests	234.25	X	X			X	X														X	X	X																				
	(San Isidro)	2008	432.04			432.04	Sierra Madre de Chiapas Moist Forests	432.04	X	X			X	X														X	X	X																				
	(San José miramar)	2008	57.10			57.10	Sierra Madre de Chiapas Moist Forests	57.10	X	X			X	X														X	X	X																				
	(Volcán de Izalco)	2008	1,526.41			1,526.41	Central American dry forests	85.80	X	X	X	X	X	X			X											X	X	X																				
							Sierra Madre de Chiapas Moist Forests	1,440.61	X	X			X	X														X	X	X																				
4	Montecristo	2008	1,973.47			1,973.47	Central American montane forests	400.00	X	X																																						MARN	
							Central American pine-oak forests	800.00	X	X	X	X		X	X													X																					
							Sierra Madre de Chiapas Moist Forests	773.47	X	X			X	X														X	X	X																				
5	San Diego – La Barra	2009	1,866.55			1,866.55	Central American dry forests	1,866.55	X	X	X	X	X	X			X											X	X	X																			CEPRODE	
6	Parque W. T. Deininger	1975	732.00			732.00	Central American dry forests	732.00	X	X	X	X	X	X			X											X	X	X																			ISTU	Propiedad ISTU
7	La Magdalena	2014	726.06			726.06	Sierra Madre de Chiapas Moist Forests	726.06	X	X			X	X														X	X	X																			Co-manejo	Transferida al Estado
8	Complejo Volcánico San Salvador	2009	389.37			389.37																																												
	(El Jabalí)	2007	49.81			49.81	Central American dry forests	49.81	X	X	X	X	X	X			X											X	X	X																				
	(Las Granadillas)	2007	26.64			26.64	Sierra Madre de Chiapas Moist Forests	26.64	X	X			X	X														X	X	X																				
	(Cráter Volcán de San Salvador)	2008	205.13			205.13	Sierra Madre de Chiapas Moist Forests	205.13	X	X			X	X														X	X	X																				
	(Santa María)	2009	71.62			71.62	Sierra Madre de Chiapas Moist Forests	71.62	X	X			X	X														X	X	X																				
	(Las Mercedes)	2009	24.28			24.28	Sierra Madre de Chiapas Moist Forests	24.28	X	X			X	X														X	X	X																				
	(El Mirador)	2009	11.89			11.89	Sierra Madre de Chiapas Moist Forests	11.89	X	X			X	X														X	X	X																			Co-manejo	Decretada ANP
8	PROTECTION AND RESTORATION AREAS		2,914.80	856.09	0.00	2,914.80			23	23	18	18	23	23	3	0	18	3	3	0	3	0	0	3	3	3	3	23	20	23	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9	Complejo Los Farallones	2007-2009	405.29	136.63		405.29																																												
	(Las Trincheras)	2007	100.68			100.68	Central American dry forests	100.68	X	X	X	X	X	X			X											X	X	X																				
	(Las Victorias)	2008	186.65			186.65	Central American dry forests	186.65	X	X	X	X	X	X			X											X	X	X																				
	(Los Lagartos)	2009	117.96			117.96	Central American dry forests	102.20	X	X	X	X	X	X			X											X	X	X																				
							Sierra Madre de Chiapas Moist Forests	15.76	X	X			X	X														X	X	X																				
	(Plan de Amayo)	proposed		136.63			Central American dry forests	136.63	X	X	X	X	X	X			X											X	X	X																				
10	Complejo Santa Rita	2009 - 2010	601.33	95.36		601.33																																												
	(Laguna Gamboa)			25.36			Central American dry forests	25.36	X	X	X	X	X	X			X											X	X	X																				
	(Santa Rita)	2007	237.71			237.71	Central American dry forests	237.71	X	X	X	X	X	X			X											X	X	X																				
	(El Chino)	2008	24.00			24.00	Central American dry forests	12.30	X	X	X	X	X	X			X											X	X	X																				
							Northern dry Pacific coast mangroves	11.70	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Porción 1 de El Chino)	2011	302.00			302.00	Northern dry Pacific coast mangroves	302.00	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Palmar de El Chino)			70.00			Northern dry Pacific coast mangroves	70.00	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Cara Sucia)	2010	37.62			37.62	Central American dry forests	37.62	X	X	X	X	X	X			X											X	X	X																				
11	Taquillo	?	222.04			222.04	Central American dry forests	222.04	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Transferida al Estado
12	Colima y Colimita	2007 y 2010	652.99			652.99	Central American dry forests	652.99	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
13	Paraje Galán	2007	24.35			24.35	Central American dry forests	24.35	X	X	X	X	X	X			X											X	X	X																			Ninguno	Decretada ANP
14	San Juan Buena Vista	2007	193.04			193.04	Central American dry forests	193.04	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
15	Complejo El Playón	2007-2009	731.89	624.10		731.89																																												
	(14 de Marzo)	2009	42.83			42.83	Central American dry forests	42.83	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
	(Colombia)	2007	181.89			181.89	Central American dry forests	181.89	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
	(La Argentina)	proposed		624.10			Central American dry forests	507.70	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Transferida al Estado
							Sierra Madre de Chiapas Moist Forests	116.40	X	X			X	X														X	X	X																				
	(La Isla)	2007	51.97			51.97	Central American dry forests	51.97	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
	(Laguna Chanmico)	2007	455.20			455.20	Central American dry forests	455.20	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
16	San Andrés	2007	83.87			83.87	Central American dry forests	83.87	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP

El Salvador									MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat															Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events		Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
2	MARINE PROTECTED LANDSCAPES		21,650.48	2,600.00	20,732.51	917.97			6	6	1	1	6	6	5	0	1	5	5	0	5	0	0	5	5	5	5	6	1	6	5	0	2	2	2	0	0	2	2	2	2	2	2	2	2	2	2	0		
17	Complejo Los Cóbanos	2007	21,650.48		20,732.51	917.97																																												
	(Área Marina Los Cóbanos)	2007	20,732.51		20,732.51		Chiapas-Nicaragua Marine	20,732.51																									X	X	X			X	X	X	X	X	X	X	X	X	X			
	(Barra Dulce)	2007	36.57			36.57	Northern dry Pacific coast mangroves	36.57	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Barra Salada)	2007	465.44			465.44	Northern dry Pacific coast mangroves	465.44	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Bocana R. Banderas o Barra Ciega)	2007	11.22			11.22	Northern dry Pacific coast mangroves	11.22	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Bocana San Juan)	2007	352.37			352.37	Northern dry Pacific coast mangroves	352.37	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Santa Águeda)	2007	34.74			34.74	Central American dry forests	34.74	X	X	X	X	X	X			X											X	X	X																				
	(Otras 8 porciones)	2007	17.63			17.63	Northern dry Pacific coast mangroves	17.63	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
18	Reserva Marina Las Tunas - Maculís	proposed		2,600.00			Chiapas-Nicaragua Marine	2,600.00																									X	X	X			X	X	X	X	X	X	X	X	X	X			
1	WILDLIFE REFUGES		1,571.89	0.00	0.00	1,571.89			1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
19	Laguna El Jocotal (Refugio de Vida Silvestre y Sitio Ramsar)	1996	1,571.89			1,571.89	Central American dry forests	1,571.89	X	X	X	X	X	X			X											X	X	X																			MARN y Co-manejo	Decretada ANP
1	PROTECTED AREAS WITH MANAGED RESOURCES		0.00	200.00	0.00	0.00			1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	El Amatal	proposed		200.00			Central American dry forests	200.00	X	X	X	X	X	X			X											X	X	X																			ONG	Propiedad Privada
3	RAMSAR SITES		123,711.99	0.00	0.00	123,711.99			4	4	3	3	4	4	1	0	3	1	1	0	1	0	0	1	1	1	1	4	3	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
21	Embalse Cerrón Grande	2005	59,987.80			59,987.80	Central American dry forests	59,862.00	X	X	X	X	X	X			X											X	X	X																			Ninguno	Decretada ANP
22	Estero de Jaltepeque	2011	56,248.60			56,248.60	Central American dry forests	125.80	X	X	X	X	X	X			X											X	X	X																			Ninguno	Propiedad Mixta
							Northern dry Pacific coast mangroves	56,122.80	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
23	Laguna de Olomega	2009	7,475.59			7,475.59	Central American dry forests	7,475.59	X	X	X	X	X	X			X											X	X	X																			Ninguno	Decretada ANP
1	BIOSPHERE RESERVES		58,066.20	0.00	0.00	58,066.20			10	10	5	5	10	10	5	0	5	5	5	0	5	0	0	5	5	5	5	10	5	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
24	Complejo de la Bahía de Jiquilisco	2005-2010	58,066.20			58,066.20																																											MARN y Co-manejo (ciertas áreas)	Decretada ANP
	(Puerto Caballo 1)	proposed	75.00			75.00	Central American dry forests	75.00	X	X	X	X	X	X			X											X	X	X																			ninguno	Propiedad ISTA
	(Isla San Sebastián)	2007	161.95			161.95	Northern dry Pacific coast mangroves	161.95	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																		Co-manejo	Decretada ANP
	(La Esperanza o Ceiba Doblada)	proposed	8.14			8.14	Northern dry Pacific coast mangroves	8.14	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																		Ninguno	Propiedad ISTA
	(Normandía)	proposed	495.29			495.29	Central American dry forests	495.29	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Transferida al Estado
	(Chaguantique)	2008	53.80			53.80	Central American dry forests	19.50	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
							Northern dry Pacific coast mangroves	34.30	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(El Tercio)	2008	33.01			33.01	Central American dry forests	1.50	X	X	X	X	X	X			X											X	X	X																			ONG	Propiedad Privada
							Northern dry Pacific coast mangroves	31.51	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(El Caballito)	2010	205.53			205.53	Central American dry forests	205.53	X	X	X	X	X	X			X											X	X	X																			Ninguno	Transferida al Estado
	(Cuerpo principal)	2010	57,033.48			57,033.48	Northern dry Pacific coast mangroves	57,033.48	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
3	PRIVATE NATURE RESERVES		147.64	10,002.80	0.00	147.64			9	9	9	9	7	9	2	0	7	0	0	0	0	0	0	0	0	0	0	9	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
25	Cinquera	2014	18.39	4,002.80		18.39																																												
	(Mango Niño de Cinquera)	2014	3.77			3.77	Central American dry forests	3.77	X	X	X	X	X	X			X											X	X	X																				
	(El Mirador)	2014	3.35			3.35	Central American dry forests	3.35	X	X	X	X	X	X			X											X	X	X																				
	(El Polvorín)	2014	3.92			3.92	Central American dry forests	3.92	X	X	X	X	X	X			X											X	X	X																				
	(Peñón del Zapote)	2014	4.82			4.82	Central American dry forests	4.82	X	X	X	X	X	X			X											X	X	X																				
	(Entre punto 50 y torre de control)	2014	2.53			2.53	Central American dry forests	2.53	X	X	X	X	X	X			X											X	X	X																				
	(Cuerpo principal)	proposed		1,002.80			Central American dry forests	1,002.80	X	X	X	X	X	X			X											X	X	X																				Propiedad Privada
	(Others)	proposed		3,000.00			Central American dry forests	3,000.00	X	X	X	X	X	X			X											X	X	X																				
26	Río Sapo	proposed		6,000.00			Central American pine-oak forests	6,000.00	X	X	X	X		X	X													X																					ONG	Propiedades Privadas
27	12 propiedades privadas en San Ignacio y La Palma	2013	129.25			129.25	Central American pine-oak forests	129.25	X	X	X	X		X	X													X																						Propiedades privadas
102	UNDETERMINED		4,584.70	27,433.64	0.00	4,584.70			128	124	86	86	118	124	23	2	81	19	19	2	19	2	2	19	19	19	19	126	102	119	19	2	9	5	5	2	2	5	5	5	5	5	7	5	5	5	5	2		
28	Complejo Barra de Santiago	proposed		2,829.00	0.00	0.00																																												
	(Barra de Santiago)	proposed		2,558.00			Chiapas-Nicaragua Marine	200.00																									X	X	X			X	X	X	X	X	X	X	X	X	X			
							Northern dry Pacific coast mangroves	2,358.00	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Bola de Monte)	proposed		135.00			Northern dry Pacific coast mangroves	135.00	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
	(Garita Palmera)	proposed		136.00			Northern dry Pacific coast mangroves	136.00	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X																			
29	Nancuchiname	2008	797.00			797.00																																												
	(Nancuchiname La Maroma)	2008	167.00			167.00	Central American dry forests	167.00	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
	(Nancuchiname Mata de Piña)	2008	276.00			276.00	Central American dry forests	276.00	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
	(Nancuchiname porción 5)	2009	177.00			177.00	Central American dry forests	177.00	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
	(Nancuchiname porción 6)	2008	177.00			177.00	Central American dry forests	177.00	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Decretada ANP
30	La Montañita	2010	42.78			42.78	Central American dry forests	42.78	X	X	X	X	X	X			X											X	X	X																				
31	El Pital	proposed		1,344.70			Central American montane forests	109.00	X	X																																								Estado Incierto
							Central American pine-oak forests	1,235.70	X	X	X	X		X	X													X																						
32	San José Los Amates	proposed		27.42			Central American dry forests	27.42	X	X	X	X	X	X			X											X	X	X																				
33	Tahuapa	2011	15.63			15.63	Central American dry forests	15.63	X	X	X	X	X	X			X											X	X	X																				Propiedad ISTA
34	Pañanalapa	proposed		600.61			Central American dry forests	600.61	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Propiedad ISTA
35	Bolivar	proposed		18.37			Central American dry forests	18.37	X	X	X	X	X	X			X											X	X	X																			Ninguno	Transferida al Estado
36	San Francisco Dos Cerros	2014	65.70			65.70	Central American dry forests	65.70	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Transferida al Estado
37	Santa Bárbara	proposed		176.58			Central American dry forests	176.58	X	X	X	X	X	X			X											X	X	X																			Co-manejo	Transferida al Estado
38	Piedras Tontas	proposed		190.00			Central American dry forests	190.00	X	X	X	X	X	X			X											X	X	X																			Ninguno	Propiedad ISTA
39	San Jerónimo	2013	39.77			39.77	Central American dry forests	39.77	X	X	X	X	X	X			X											X	X	X																			Ninguno	Transferida al Estado
40	Agua Caliente	proposed		100.00			Central American dry forests	100.00	X	X	X	X	X	X			X											X	X	X																			Ninguno	Propiedad ISTA
41	Las Tablas	proposed		27.99			Central American dry forests	27.99	X	X	X	X	X	X			X											X	X	X																			Ninguno	Propiedad ISTA
42	Rancho Grande (El Junquillo) y Tahuapa	proposed		402.09			Central American dry forests	402.09	X	X	X	X	X	X			X											X	X	X																			Ninguno	Transferida al Estado
43	El Potosí	proposed		43.00			Sierra Madre de Chiapas Moist Forests	43.00	X	X			X	X														X	X	X																			Ninguno	Propiedad ISTA
44	La Criba porción Caliche	proposed		26.00			Sierra Madre de Chiapas Moist Forests	26.00	X	X			X	X														X	X	X																			Ninguno	Propiedad ISTA
45	Los Doce Robles	proposed		256.00			Central American dry forests	256.00	X	X	X	X	X	X			X											X	X	X																			Ninguno	Propiedad ISTA
46	El Chaparrón / San Cayetano	2011	127.36			127.36	Central American dry forests	127.36	X	X	X	X	X	X			X											X	X	X																			Ninguno	Transferida al Estado
47	Chiquileca	2010	147.90			147.90	Central American dry forests	147.90	X	X	X	X	X	X			X											X	X	X																			Ninguno	Decretada ANP

El Salvador									MAIN THREATS TERRESTRIAL																							MAIN THREATS MARINE																MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution				Over-exploitation					Habitat Degradation					Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
48	Comaesland	2007	63.16			63.16	Central American dry forests	63.16	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
49	Talcualhuya	proposed		692.08			Central American dry forests	692.08	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
50	Las Termópilas	proposed		200.00			Central American dry forests	5.40	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad Privada
							Sierra Madre de Chiapas Moist Forests	194.60	X	X			X	X													X	X	X																				
51	El Sitio	proposed		69.90			Central American dry forests	69.90	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
52	El Socorro	2011	575.95			575.95	Central American dry forests	575.95	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
53	El Socorro II	proposed		343.00			Central American dry forests	343.00	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Propiedad de ISTA
54	El Espíritu Santo	proposed		66.53			Central American dry forests	66.53	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
55	San Arturo	proposed		49.91			Central American dry forests	49.91	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
56	Melara	proposed		31.00			Central American dry forests	31.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
57	Las Marías	proposed		11.00			Central American dry forests	11.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
58	Santa Clara	2008	102.21			102.21	Central American dry forests	102.21	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
59	San Francisco El Triunfo	2007	23.42			23.42	Sierra Madre de Chiapas Moist Forests	23.42	X	X			X	X													X	X	X																				
60	San Rafael Los Naranjos (Cerro El Águila	2008	33.31			33.31	Sierra Madre de Chiapas Moist Forests	33.31	X	X			X	X													X	X	X																				
61	Bocana Sunza San Pedro Sensunapán	proposed		72.97			Northern dry Pacific coast mangroves	72.97	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																			
62	El Balsamar	proposed		44.56			Central American dry forests	42.06	X	X	X	X	X	X			X										X	X	X																				Propiedad ISTA
							Sierra Madre de Chiapas Moist Forests	2.50	X	X			X	X													X	X	X																				
63	El Cacao	proposed		16.10			Central American dry forests	16.10	X	X	X	X	X	X			X										X	X	X																				Propiedad ISTA
64	La Chapina	proposed		24.04			Central American dry forests	24.04	X	X	X	X	X	X			X										X	X	X																				Propiedad ISTA
65	Laguna Las Ninfas	proposed		18.26			Sierra Madre de Chiapas Moist Forests	18.26	X	X			X	X													X	X	X																				incierto
66	Laguna Verde	proposed		14.87			Sierra Madre de Chiapas Moist Forests	14.87	X	X			X	X													X	X	X																				incierto
67	Manglar Metalío	proposed		285.01			Central American dry forests	9.10	X	X	X	X	X	X			X										X	X	X																				
							Northern dry Pacific coast mangroves	275.91	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																			
68	Los Abriles	2009	233.26			233.26	Sierra Madre de Chiapas Moist Forests	233.26	X	X			X	X													X	X	X																			Co-manejo	Decretada ANP
69	San Lorenzo	2007	104.63			104.63	Central American dry forests	104.63	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
70	El Espino / Bosque Los Pericos	2009	89.09			89.09	Sierra Madre de Chiapas Moist Forests	89.09	X	X			X	X													X	X	X																			Municipal	Decretada ANP
71	El Ángel	proposed		806.94			Sierra Madre de Chiapas Moist Forests	806.94	X	X			X	X													X	X	X																			Ninguno	Propiedad ISTA
72	Volcán de San Vicente	proposed		150.00			Sierra Madre de Chiapas Moist Forests	150.00	X	X			X	X													X	X	X																			Ninguno	Propiedades Privadas
73	Tehuacán	2008	70.06			70.06	Central American dry forests	70.06	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
74	La Joya	proposed		954.54			Central American dry forests	327.40	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Propiedad ISTA
							Sierra Madre de Chiapas Moist Forests	627.14	X	X			X	X													X	X	X																				
75	Barranca del Sisimico	proposed		107.20			Central American dry forests	107.20	X	X	X	X	X	X			X										X	X	X																			Ninguno	Estado Incierto
76	Nuevo Oriente	proposed		92.00			Central American dry forests	92.00	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Propiedad ISTA
77	Parras Lempa	proposed		21.05			Central American dry forests	21.05	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
78	El Astillero	2007	253.49			253.49	Central American dry forests	188.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
							Northern dry Pacific coast mangroves	65.49	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																			
79	Nahualapa	proposed		17.00			Central American dry forests	17.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
80	Isla Tasajera	proposed		733.50			Northern dry Pacific coast mangroves	733.50	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																		Ninguno	En Proceso de Transferencia
81	Escuintla	proposed		872.72			Central American dry forests	812.92	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Transferida al Estado
							Northern dry Pacific coast mangroves	59.80	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																			
82	La Calzada	proposed		27.00			Central American dry forests	3.00	X	X	X	X	X	X			X										X	X	X																			ninguno	Propiedad ISTA
							Northern dry Pacific coast mangroves	24.00	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																			
83	La Redención	proposed		139.78			Central American dry forests	139.78	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
84	Laguna de Alegría	proposed		303.17			Sierra Madre de Chiapas Moist Forests	303.17	X	X			X	X													X	X	X																			Co-manejo	Municipal
85	Chilanguera	proposed		371.35			Central American dry forests	371.35	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
86	Casamota y La Pezota	2011	195.60			195.60	Central American dry forests	195.60	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Transferida al Estado
87	Volcán de San Miguel	proposed		1,200.00			Central American dry forests	1,000.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedades Privadas
							Sierra Madre de Chiapas Moist Forests	200.00	X	X			X	X													X	X	X																				
88	Tierra Blanca	proposed		81.41			Central American dry forests	81.41	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
89	El Joco	proposed		182.00			Central American dry forests	182.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
90	El Paso Las Iguanas	2010	9.00			9.00	Central American dry forests	9.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
91	San Antonio La Pupusa	2010	8.00			8.00	Central American dry forests	8.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Decretada ANP
92	San Antonio Silva	2011	34.25			34.25	Central American dry forests	34.25	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
93	El Obrajuelo	proposed		259.06			Central American dry forests	259.06	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
94	La Ortega	2012	21.00			21.00	Sierra Madre de Chiapas Moist Forests	21.00	X	X			X	X													X	X	X																			Ninguno	Propiedad ISTA
95	San Juan Mercedes Silva	2012	47.82			47.82	Central American dry forests	47.82	X	X	X	X	X	X			X										X	X	X																				
96	El Tamarindo y El Tecomatal	2014	189.00			189.00	Central American dry forests	189.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad de ISTA
97	Cerro Cacahuatique	proposed		876.22			Central American pine-oak forests	876.22	X	X	X	X		X	X												X																					Co-manejo	Propiedades Privada
98	San Carlos	2014	120.43			120.43	Central American pine-oak forests	120.43	X	X	X	X		X	X												X																					Co-manejo	Transferida al Estado
99	La Ermita	2010	169.87			169.87	Central American pine-oak forests	169.87	X	X	X	X		X	X												X																					Ninguno	Decretada ANP
100	Complejo Conchagua	2008	727.65	17.41		727.65																																												
	(El Faro Yologual y Suravaya)	2007	462.37			462.37	Central American dry forests	342.47	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Decretada ANP
							Central American pine-oak forests	0.10	X	X	X	X		X	X												X																						
							Sierra Madre de Chiapas Moist Forests	119.80	X	X			X	X													X	X	X																				
	(El Faro Yologual, dación)	2008	77.93			77.93	Sierra Madre de Chiapas Moist Forests	77.93	X	X			X	X													X	X	X																			Co-manejo	Decretada ANP
	(Maquigüe I)	proposed		17.41			Central American dry forests	17.41	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
	(Maquigüe III)	2007	187.35			187.35	Central American dry forests	187.35	X	X	X	X	X	X			X										X	X	X																			Co-manejo	Decretada ANP
101	El Once y La Paz o El Güisquil	proposed		18.93			Central American dry forests	18.93	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
102	Sirama Lourdes	proposed		98.00			Central American dry forests	70.40	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
							Northern dry Pacific coast mangroves	27.60	X	X			X	X	X			X	X		X		X	X	X	X	X		X	X																			
103	San Francisco Gualpirque	proposed		250.00			Central American dry forests	250.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
104	El Ciprés	proposed		145.00			Central American dry forests	145.00	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA
105	San Lucas o Palo Galán	2010	59.61			59.61	Central American dry forests	59.61	X	X	X	X	X	X			X										X	X	X																			Ninguno	Transferida al Estado
106	El Retiro	2010	72.69			72.69	Central American dry forests	72.69	X	X	X	X	X	X			X										X	X	X																			Ninguno	Propiedad ISTA

El Salvador

	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	MANAGED BY	COMMENTS
107	Isla Martín Pérez	proposed		95.20			Chiapas-Nicaragua Marine	85.70	Fuerza Naval	Propiedad Municipal
							Central American dry forests	9.50		
108	Isla Pirigallo	proposed		27.17			Chiapas-Nicaragua Marine	25	Ninguno	Propiedad Municipal
							Central American dry forests	2.17		
109	El Carmen Bosque Nuevo	2012	7.09			7.09	Central American dry forests	7.09		
110	Copinolapa	2012	44.89			44.89	Central American dry forests	44.89		
111	Las Nieves	2013	93.08			93.08	?			
112	El Icacal	proposed		241.70			Central American dry forests	2.10		
							Northern dry Pacific coast mangroves	239.60		
113	El Tamarindo (manglar)	proposed		528.30			Central American dry forests	22.20		
							Northern dry Pacific coast mangroves	506.10		
114	Estero San Diego	proposed		78.30			Northern dry Pacific coast mangroves	78.3		
115	Manglar Golfo de Fonseca	proposed		6,578.30			Gulf of Fonseca mangroves	6578.3		
116	Manglar Portezuelo	proposed		20.80			Northern dry Pacific coast mangroves	20.80		
117	Manglar Toluca	proposed		222.90			Northern dry Pacific coast mangroves	222.90		
118	Isla Conchagüita	proposed		802.50			Central American dry forests	802.50		
119	Isla Meanguera	proposed		1,573.90			Central American dry forests	1,573.90		
120	Isla Zacatillo	proposed		438.40			Central American dry forests	438.40		
121	San Juan Quezaltepeque	proposed		845.00			Central American dry forests	517		
							Sierra Madre de Chiapas Moist Forests	328.00		
122	ISTU - CORSATUR	proposed		32.30			Sierra Madre de Chiapas Moist Forests	32.30		
123	La Criba	proposed		3.00			Sierra Madre de Chiapas Moist Forests	3.00		
124	La Estancia	proposed		2.10			Central American dry forests	2.10		
125	Las Hojas	proposed		1.50			Central American dry forests	1.50		
126	Las Marias	proposed		18.40			Central American dry forests	18.40		
127	Manglar Las Tunas	proposed		218.60			Central American dry forests	3.80		
							Northern dry Pacific coast mangroves	214.80		
	Established:	**55**	**223,696.85**	**44,794.44**	**20,732.51**	**202,964.34**		**226**		
	Proposed:	**72**			**% of Country Territory:**	**10.73%**				

MAIN THREATS TERRESTRIAL (Loss and Degradation of Natural Habitat: Cattle Grazing – Mining; Pollution: Siltation – Agrochemicals; Over-exploitation: Logging * – Overfishing)

	ECOREGION	Cattle Grazing	Agriculture	Recurent Fires	Roads Construc-tion/Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining		Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species
107	Chiapas-Nicaragua Marine																								
107	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
108	Chiapas-Nicaragua Marine																								
108	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
109	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
110	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
111	?																								
112	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
112	Northern dry Pacific coast mangroves	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X	
113	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
113	Northern dry Pacific coast mangroves	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X	
114	Northern dry Pacific coast mangroves	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X	
115	Gulf of Fonseca mangroves						X				X	X		X			X	X	X	X	X		X	X	
116	Northern dry Pacific coast mangroves	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X	
117	Northern dry Pacific coast mangroves	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X	
118	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
119	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
120	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
121	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
121	Sierra Madre de Chiapas Moist Forests	X	X			X	X														X	X	X		
122	Sierra Madre de Chiapas Moist Forests	X	X			X	X														X	X	X		
123	Sierra Madre de Chiapas Moist Forests	X	X			X	X														X	X	X		
124	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
125	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
126	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
127	Central American dry forests	X	X	X	X	X	X			X											X	X	X		
127	Northern dry Pacific coast mangroves	X	X			X	X	X			X	X		X			X	X	X	X	X		X	X	
	Established:	**223**	**219**	**135**	**135**	**208**	**217**	**40**	**2**	**127**	**33**	**33**	**2**	**33**	**2**	**2**	**33**	**33**	**33**	**33**	**219**	**178**	**209**	**33**	**2**
	Proposed:	**1.02**	**1.00**	**0.62**	**0.62**	**0.95**	**1.00**	**0.18**	**0.01**	**0.58**	**0.15**	**0.15**	**0.01**	**0.15**	**##**	**##**	**0.15**	**0.15**	**0.15**	**0.15**	**1.00**	**0.82**	**0.96**	**0.15**	**0.01**

MAIN THREATS MARINE (Habitat Degradation: Use of Bottom Trawls – Coral Bleaching Disease; Pollution: Siltation – Agrochemicals Runoff; Over-exploitation: Poaching – Selective Overfishing)

	ECOREGION	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species
107	Chiapas-Nicaragua Marine	X	X	X				X	X	X	X	X	X	X	X	X	X	
107	Central American dry forests																	
108	Chiapas-Nicaragua Marine	X	X	X				X	X	X	X	X	X	X	X	X	X	
108	Central American dry forests																	
109	Central American dry forests																	
110	Central American dry forests																	
111	?																	
112	Central American dry forests																	
112	Northern dry Pacific coast mangroves																	
113	Central American dry forests																	
113	Northern dry Pacific coast mangroves																	
114	Northern dry Pacific coast mangroves																	
115	Gulf of Fonseca mangroves																	
116	Northern dry Pacific coast mangroves																	
117	Northern dry Pacific coast mangroves																	
118	Central American dry forests																	
119	Central American dry forests																	
120	Central American dry forests																	
121	Central American dry forests																	
121	Sierra Madre de Chiapas Moist Forests																	
122	Sierra Madre de Chiapas Moist Forests																	
123	Sierra Madre de Chiapas Moist Forests																	
124	Central American dry forests																	
125	Central American dry forests																	
126	Central American dry forests																	
127	Central American dry forests																	
127	Northern dry Pacific coast mangroves																	
	Established:	**11**	**7**	**7**	**2**	**2**		**7**	**7**	**7**	**7**	**7**	**9**	**7**	**7**	**7**	**7**	**2**
	Proposed:	**2.20**	**1.40**	**1.40**	**0.40**	**0.40**		**1.40**	**1.40**	**1.40**	**1.40**	**1.40**	**1.80**	**1.40**	**1.40**	**1.40**	**1.40**	**0.40**

Table 26: Detailed Data on PAs - Nicaragua

	Nicaragua								MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution					Over-exploitation					Habitat Degradation					Pollution						Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining		Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
1	**HISTORIC MONUMENTS (IUCN III)**		**3,285.70**	**0.00**	**0.00**	**3,285.70**			1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	Fortaleza La Inmaculada	1990	3,285.70			3,285.70	Isthmian-Atlantic moist forests	3,285.70	X			X		X														X																							
1	**NATIONAL MONUMENTS (IUCN III)**		**17,455.54**	**0.00**	**0.00**	**17,455.54**			1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2	Archipielago de Solentiname	1990	17,455.54			17,455.54	Costa Rican seasonal moist forests	3,268.80	X	X				X																																					
							San Juan freshwater ecoregion (lake)	14,186.74																																													
3	**NATIONAL PARKS (IUCN II)**		**37,249.10**	**0.00**	**0.00**	**37,249.10**			4	4	1	1	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	Archipielago de Zapatera	1983	5,303.46			5,303.46	Central American dry forests	5,037.80	X	X	X	X	X	X			X											X	X	X																					
							San Juan freshwater ecoregion (lake)	265.66																																													
4	Cerro Saslaya	1971	27,317.24			27,317.24	Central American Atlantic moist forests	22,259.80	X	X			X															X	X	X																					
							Central American montane forests	5,057.44	X	X																																								
5	Volcán Masaya	1978	4,628.40			4,628.40	Costa Rican seasonal moist forests	4,628.40	X	X				X																																					
4	**WILDLIFE REFUGES (IUCN IV)**		**92,567.80**	**0.00**	**2,149.40**	**90,418.40**			4	4	2	4	3	6	1	0	2	1	2	0	2	1	0	2	1	2	2	5	3	2	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	0	1		
6	La Flor	1983	780.80			780.80	Central American dry forests	780.80	X	X	X	X	X	X			X											X	X	X																					
7	Los Guatuzos	1990	42,119.40			42,119.40	Isthmian-Atlantic moist forests	42,119.40	X			X		X														X																							
8	Río Escalante - Chacocente	1983	3,722.70			3,722.70	Central American dry forests	3,362.60	X	X	X	X	X	X			X											X	X	X																					
							Southern Dry Pacific Coast mangroves	360.10		X			X	X				X	X		X			X	X	X	X	X																							
9	Río San Juan	1990	45,944.90		2,149.40	43,795.50	Southwestern Caribbean	2,149.40																															X	X	X	X	X				X		X		
							Isthmian-Atlantic moist forests	25,573.20	X			X		X														X																							
							Rio Negro-Rio San Sun mangroves	18,222.30		X				X	X				X		X	X		X		X	X		X																						
2	**BIOLOGIC RESERVES**		**1,112,064.60**	**0.00**	**503,097.20**	**608,967.40**			3	4	1	1	2	4	2	0	0	0	2	0	2	2	0	2	1	1	2	4	2	1	0	0	0	0	0	0	0	0	2	2	2	2	2	0	0	0	2	0	2		
10	Cayos Miskitos (IUCN VI)	1991	789,337.50		501,467.80	287,869.70	Southwestern Caribbean	501,467.80																															X	X	X	X	X				X		X		
							Central American Atlantic moist forests	14,897.40	X	X			X															X	X	X																					
							Mosquita-Nicaraguan Caribbean Coast mangroves	92,149.00											X		X	X		X	X		X	X																						
							Miskitos Cay, San Andres, Providence moist forest	3,701.60		X				X	X																																			
							Moskitia pine forests	177,121.70	X	X	X		X	X														X																							
11	Río Indio Maiz (IUCN I)	1990	322,727.10		1,629.40	321,097.70	Southwestern Caribbean	1,629.40																															X	X	X	X	X				X		X		
							Isthmian-Atlantic moist forests	316,275.90	X			X		X														X																							
							Rio Negro-Rio San Sun mangroves	4,821.80		X				X	X				X		X	X		X		X	X		X																						
1	**BIOSPHERE RESERVES (IUCN VI)**		**747,194.90**	**0.00**	**0.00**	**747,194.90**			2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12	Bosawas	1991	747,194.90			747,194.90	Central American Atlantic moist forests	747,005.60	X	X			X															X	X	X																					
							Central American montane forests	189.30	X	X																																								
1	**RESOURCES RESERVES (IUCN IV)**		**4,495.82**	**0.00**	**0.00**	**4,495.82**			1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
13	Yucul	1990	4,495.82			4,495.82	Central American pine-oak forests	4,495.82	X	X	X	X		X	X													X																							
61	**NATUR RESERVES (IUCN IV)**		**957,556.62**	**0.00**	**7,971.30**	**949,585.32**			82	79	45	37	48	55	16	1	20	4	12	1	12	9	1	12	12	4	12	76	37	39	3	1	6	4	4	1	1	1	7	7	7	7	7	5	4	4	7	4	4		
14	Alamikamba	1991	1,999.35			1,999.35	Central American Atlantic moist forests	7.25	X	X			X															X	X	X																					
							Moskitia pine forests	1,992.10	X	X	X		X	X														X																							
15	Cabo Viejo -Tala Sulamas	1991	37,112.80		752.60	36,360.20	Southwestern Caribbean	752.60																															X	X	X	X	X				X		X		
							Central American Atlantic moist forests	18,484.20	X	X			X															X	X	X																					
							Mosquita-Nicaraguan Caribbean Coast mangroves	6,025.50											X		X	X		X	X		X	X																						
							Moskitia pine forests	11,850.50	X	X	X		X	X														X																							
16	Cerro Apante	1991	1,231.70			1,231.70	Central American pine-oak forests	1,231.70	X	X	X	X		X	X													X																							
17	Cerro Bana Cruz	1991	24,790.02			24,790.02	Central American Atlantic moist forests	24,790.02	X	X			X															X	X	X																					
18	Cerro Cola Blanca	1991	11,092.70			11,092.70	Central American Atlantic moist forests	11,092.70	X	X			X															X	X	X																					
19	Cerro Cumaica-Cerro Alegre	1991	5,117.90			5,117.90	Central American dry forests	5,117.90	X	X	X	X	X	X			X											X	X	X																					
20	Cerro Datanli - El Diablo	1991	2,179.80			2,179.80	Central American montane forests	1,777.70	X	X																																								
							Central American pine-oak forests	402.10	X	X	X	X		X	X													X																							
21	Cerro El Arenal	1991	554.70			554.70	Central American montane forests	358.10	X	X																																								
							Central American pine-oak forests	196.60	X	X	X	X		X	X													X																							
22	Cerro Guabule	1991	5,534.51			5,534.51	Central American pine-oak forests	5,534.51	X	X	X	X		X	X													X																							
23	Cerro Kilambe	1991	12,571.50			12,571.50	Central American Atlantic moist forests	7,150.50	X	X			X															X	X	X																					
							Central American montane forests	5,421.00	X	X																																								
24	Cerro Kuskawas	1991	5,194.14			5,194.14	Central American Atlantic moist forests	5,194.14	X	X			X															X	X	X																					
25	Cerro Mombachito - La Vieja	1991	952.70			952.70	Central American dry forests	952.70	X	X	X	X	X	X			X											X	X	X																					
26	Cerro Musum	1991	4,614.60			4,614.60	Central American Atlantic moist forests	4,614.60	X	X			X															X	X	X																					
27	Cerro Pancasan	1991	237.84			237.84	Central American Atlantic moist forests	204.60	X	X			X															X	X	X																					
							Central American pine-oak forests	33.24	X	X	X	X		X	X													X																							
28	Cerro Quiabuc - Las Brisas	1991	3,442.30			3,442.30	Central American montane forests	998.90	X	X																																								
							Central American pine-oak forests	2,443.40	X	X	X	X		X	X													X																							
29	Cerro Silva	1991	255,563.40		4,095.40	251,468.00	Southwestern Caribbean	4,095.40																															X	X	X	X	X				X		X		
							Central American Atlantic moist forests	506.80	X	X			X															X	X	X																					
							Isthmian-Atlantic moist forests	181,985.70	X			X		X														X																							
							Mosquita-Nicaraguan Caribbean Coast mangroves	68,975.50											X		X	X		X	X		X	X																						
30	Cerro Tisey - Estanzuela	1991	6,204.16			6,204.16	Central American montane forests	1,133.86	X	X																																								
							Central American pine-oak forests	5,070.30	X	X	X	X		X	X													X																							
31	Cerro Tomabu	1991	569.60			569.60	Central American pine-oak forests	569.60	X	X	X	X		X	X													X																							
32	Complejo Volcanico Momotombo	1983	7,803.70			7,803.70	Central American dry forests	7,803.70	X	X	X	X	X	X			X											X	X	X																					
33	Complejo Volcánico Pilas - El Hoyo	1991	8,441.10			8,441.10	Central American dry forests	8,441.10	X	X	X	X	X	X			X											X	X	X																					
34	Complejo Volcánico San Cristobal	1991	16,914.10			16,914.10	Central American dry forests	16,914.10	X	X	X	X	X	X			X											X	X	X																					
35	Complejo Volcánico Telica - Rota	1991	9,994.40			9,994.40	Central American dry forests	9,994.40	X	X	X	X	X	X			X											X	X	X																					
36	Cordillera Dipilto y Jalapa	1991	31,655.30			31,655.30	Central American montane forests	9,055.80	X	X																																								
							Central American pine-oak forests	22,599.50	X	X	X	X		X	X													X																							

Nicaragua								MAIN THREATS TERRESTRIAL																																MAIN THREATS MARINE																MANAGED BY	COMMENTS
								Loss and Degradation of Natural Habitat														Pollution					Over-exploitation													Habitat Degradation					Pollution						Over-exploitation									
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	VolCanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
37	Delta del Estero Real	1976	38,101.50		25.90	38,075.60	Chiapas-Nicaragua Marine	25.90																								X	X	X			X	X	X	X	X	X	X	X	X	X			
							Central American dry forests	5,662.20	X	X	X	X	X	X			X										X	X	X																				
							Gulf of Fonseca mangroves	32,413.40						X				X	X		X			X	X	X	X	X		X	X																	
38	Estero Padre Ramos	1991	10,506.60		2,757.50	7,749.10	Chiapas-Nicaragua Marine	2,757.50																								X	X	X			X	X	X	X	X	X	X	X	X	X			
							Central American dry forests	236.30	X	X	X	X	X	X			X										X	X	X																				
							Gulf of Fonseca mangroves	7,512.80						X				X	X		X			X	X	X	X	X		X	X																	
39	Fila Cerro Frío - La Cumplida	1991	2,551.20			2,551.20	Central American montane forests	1,212.30	X	X																																						
							Central American pine-oak forests	1,338.90	X	X	X	X		X	X													X																				
40	Fila Masigue	1991	5,668.30			5,668.30	Central American Atlantic moist forests	5,668.30	X	X			X														X	X	X																				
41	Isla Juan Venado	1991	4,291.70			4,291.70	Central American dry forests	570.10	X	X	X	X	X	X			X										X	X	X																				
							Southern Dry Pacific Coast mangroves	3,721.60		X			X	X				X	X		X			X	X	X	X	X																				
42	Kligna	1991	3,571.50			3,571.50	Central American Atlantic moist forests	2,364.70	X	X			X														X	X	X																				
							Moskitia pine forests	1,206.80	X	X	X		X	X													X																				
43	Laguna Bismuna - Raya	1991	8,540.70			8,540.70	Mosquita-Nicaraguan Caribbean Coast mangroves	5,503.10											X		X	X		X	X		X	X																				
							Moskitia pine forests	3,037.60	X	X	X		X	X													X																				
44	Laguna de Apoyo	1991	2,026.00			2,026.00	Central American dry forests	1,977.70	X	X	X	X	X	X			X										X	X	X																				
							Costa Rican seasonal moist forests	48.30	X	X				X																																		
45	Laguna de Asososca	1991	60.10			60.10	Central American dry forests	60.10	X	X	X	X	X	X			X										X	X	X																				
46	Laguna de Mecatepe	1991	813.90			813.90	Costa Rican seasonal moist forests	813.90	X	X				X																																	
47	Laguna de Nejapa	1991	163.40			163.40	Central American dry forests	163.40	X	X	X	X	X	X			X										X	X	X																				
48	Laguna de Tisma	1983	6,263.40			6,263.40	Central American dry forests	6,263.40	X	X	X	X	X	X			X										X	X	X																				
49	Laguna Kukalaya	1991	4,343.50			4,343.50	Central American Atlantic moist forests	705.00	X	X			X														X	X	X																				
							Mangroves	594.60																																								
							Moskitia pine forests	3,043.90	X	X	X		X	X													X																				
50	Laguna Layasiksa	1991	6,032.20			6,032.20	Mosquita-Nicaraguan Caribbean Coast mangroves	610.20											X		X	X		X	X		X	X																				
							Moskitia pine forests	5,422.00	X	X	X		X	X													X																				
51	Laguna Pahara	1991	10,031.70			10,031.70	Mosquita-Nicaraguan Caribbean Coast mangroves	1,485.00											X		X	X		X	X		X	X																				
							Moskitia pine forests	8,546.70	X	X	X		X	X													X																				
52	Laguna Tiscapa	1991	116.70			116.70	Central American dry forests	116.70	X	X	X	X	X	X			X										X	X	X																				
53	Laguna Yulu Karat	1991	18,411.40		335.70	18,075.70	Southwestern Caribbean	335.70																													X	X	X	X	X			X		X	
							Mosquita-Nicaraguan Caribbean Coast mangroves	10,321.40											X		X	X		X	X		X	X																				
							Moskitia pine forests	7,754.30	X	X	X		X	X													X																				
54	Limbaika	1991	1,795.50			1,795.50	Moskitia pine forests	1,795.50	X	X	X		X	X													X																				
55	Llanos de Karawala	1991	2,577.10			2,577.10	Central American Atlantic moist forests	2,451.20	X	X			X														X	X	X																				
							Mosquita-Nicaraguan Caribbean Coast mangroves	125.90											X		X	X		X	X		X	X																				
56	Macizo de Peñas Blancas	1991	11,554.70			11,554.70	Central American Atlantic moist forests	5,877.90	X	X			X														X	X	X																				
							Central American montane forests	5,676.80	X	X																																								
57	Makantaka	1991	1,479.30			1,479.30	Central American Atlantic moist forests	1,479.30	X	X			X														X	X	X																				
58	Mesas de Moropotente	1991	8,016.40			8,016.40	Central American pine-oak forests	8,016.40	X	X	X	X		X	X												X																				
59	Miraflor	1983	5,818.10			5,818.10	Central American montane forests	1,344.70	X	X																																						
							Central American pine-oak forests	4,473.40	X	X	X		X	X													X																				
60	Península de Chiltepe	1991	3,630.00			3,630.00	Central American dry forests	3,630.00	X	X	X	X	X	X			X										X	X	X																				
61	Punta Gorda	1990	60,376.60			60,376.60	Isthmian-Atlantic moist forests	60,376.60	X			X		X													X																				
62	Río Manares	1991	1,017.80			1,017.80	Central American dry forests	974.60	X	X	X	X	X	X			X										X	X	X																				
							Costa Rican seasonal moist forests	43.20	X	X				X																																		
63	Salto Río Yasica	1991	236.20			236.20	Central American pine-oak forests	236.20	X	X	X	X		X	X												X																				
64	Sierra Amerisque	1991	16,271.10			16,271.10	Central American dry forests	16,271.10	X	X	X	X	X	X			X										X	X	X																				
65	Sierra Quiragua	1991	11,185.30			11,185.30	Central American Atlantic moist forests	11,185.30	X	X			X														X	X	X																				
66	Tepesomoto - Pataste	1991	8,786.90			8,786.90	Central American montane forests	4,490.20	X	X																																						
							Central American pine-oak forests	4,296.70	X	X	X	X		X	X												X																				
67	Volcán Cosiguina	1976	12,888.40		4.20	12,884.20	Chiapas-Nicaragua Marine	4.20																								X	X	X			X	X	X	X	X	X	X	X	X	X			
							Central American dry forests	12,816.50	X	X	X	X	X	X			X										X	X	X																				
							Mangroves	67.70																																							
68	Volcán Concepción	1991	3,378.60			3,378.60	Costa Rican seasonal moist forests	3,378.60	X	X				X																																	
69	Volcán Maderas	1991	5,325.40			5,325.40	Costa Rican seasonal moist forests	5,325.40	X	X				X																																	
70	Volcán Mombacho	1983	1,290.40			1,290.40	Central American dry forests	1,290.40	X	X	X	X	X	X			X										X	X	X																				
71	Volcán Yali	1991	3,575.30			3,575.30	Central American montane forests	1,479.70	X	X																																					
							Central American pine-oak forests	2,095.60	X	X	X	X		X	X												X																				
72	Wawashan	1991	219,135.40			219,135.40	Central American Atlantic moist forests	206,352.20	X	X			X														X	X	X																				
							Mosquita-Nicaraguan Caribbean Coast mangroves	12,783.20											X		X	X		X	X		X	X																				
73	Yulu	1991	3,952.00			3,952.00	Moskitia pine forests	3,952.00	X	X	X		X	X													X																				
	Established:	**73**	**2,971,870.08**	**0.00**	**513,217.90**	**2,458,652.18**		**125**	**98**	**95**	**50**	**45**	**56**	**70**	**20**	**1**	**23**	**5**	**16**	**1**	**16**	**12**		**16**	**14**	**7**	**16**	**90**	**45**	**45**	**3**	**1**	**6**	**4**	**4**	**1**	**1**	**1**	**10**	**10**	**10**	**10**	**10**	**5**	**4**	**4**	**10**	**4**	**7**		
	Proposed:	**0**		**% of Country Territory:**		**18.86%**			**0.85**	**0.83**	**0.43**	**0.39**	**0.49**	**0.61**	**0.17**	**0.01**	**0.20**	**0.04**	**0.14**	**0.01**	**0.14**	**0.10**		**0.14**	**0.12**	**0.06**	**0.14**	**0.78**	**0.39**	**0.39**	**0.03**	**0.01**	**0.67**	**0.44**	**0.44**	**0.11**	**## ##**	**1.11**	**1.11**	**1.11**	**1.11**	**1.11**	**0.56**	**0.44**	**0.44**	**1.11**	**0.44**	**0.78**		

6

IUCN's categories: 3

I. strict protection 9

Ia. strict nature reserve

Ib. wilderness area

II. ecosystem conservation and protection (i.e., national park)

III. conservation of natural features (i.e., natural monument)

IV. conservation through active management (i.e., habitat/species management area)

V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)

VI. sustainable use of natural resources (i.e., managed resource protected area)

Table 27: Detailed Data on PAs - Costa Rica

Costa Rica									MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat															Pollution				Over-exploitation					Habitat Degradation						Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining		Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
10	WETLANDS (IUCN IV)		2,337.52	0.00	177.00	2,160.52			6	4	1	5	2	7	0	0	1	1	1	0	1	0	0	1	1	1	1	6	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	De San Vito	1994	34.69			34.69	?																																											Public Nation	
2	Lacustrino Bonilla Bonillita	1994	18.00			18.00	Isthmian-Atlantic moist forests	18.00	X			X		X														X																						Public Nation	
3	Lacustrino de Tamborcito	1994	1,098.00			1,098.00	Isthmian-Atlantic moist forests	1,098.00	X			X		X														X																						Public Nation	
4	Laguna Madrigal	1994	46.83			46.83	?																																											Public Nation	
5	Marino de Playa Blanca	1994	9.30		9.30		Nicoya Marine Ecoregion	9.30																											X															Public Nation	
6	Palustrino Corral de Piedra	1994	680.70		167.70	513.00	Nicoya Marine Ecoregion	167.70																											X															Public Nation	
							Southern Dry Pacific Coast mangroves	513.00		X			X	X				X	X		X			X	X	X	X	X																							
7	Palustrino Laguna del Paraguas	1994	27.00			27.00	Isthmian-Pacific moist forests	27.00	X	X		X		X														X																						Public Nation	
8	Palustrino Laguna Maquenque	1994	216.00			216.00	Isthmian-Atlantic moist forests	216.00	X			X		X														X																						Public Nation	
9	Riberino Zapandi	1985	9.00			9.00	Central American dry forests	9.00	X	X	X	X	X	X			X											X	X	X																				Public Nation	
10	Río Cañas	1994	198.00			198.00	Costa Rican seasonal moist forests	198.00	X	X				X																																				Public Nation	
1	NATIONAL MONUMENTS (IUCN II)		230.62	0.00	0.00	230.62			1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11	Guayabo	1973	230.62			230.62	Talamancan montane forests	230.62	X	X																		X	X																					Public Nation	
27	NATIONAL PARKS (IUCN II, unless stated otherwise)		910,439.37	0.00	380,864.60	529,574.77			39	35	5	18	7	27	1	3	5	2	4	3	4	1	0	4	3	3	4	35	21	5	1	1	1	1	7	0	0	0	3	3	3	3	3	2	1	1	4	1	2		
12	Arenal	1991	10,269.00			10,269.00	Talamancan montane forests	10,269.00	X	X																		X	X																					Public Nation	
13	Barbilla	1982	11,952.00			11,952.00	Isthmian-Atlantic moist forests	5,427.00	X			X		X														X																						Public Nation	
							Talamancan montane forests	6,525.00	X	X																		X	X																						
14	Barra Honda	1974	522.00			522.00	Central American dry forests	522.00	X	X	X	X	X	X			X											X	X	X																				Public Nation	
15	Bosque Nacional Diria (IUCN IV)	1991	2,601.00			2,601.00	Costa Rican seasonal moist forests	2,601.00	X	X				X																																				Public Nation	
16	Braulio Carrillo	1978	47,241.00			47,241.00	Isthmian-Atlantic moist forests	9,333.00	X			X		X														X																						Public Nation	
							Talamancan montane forests	37,908.00	X	X																		X	X																						
17	Cahuita	1970	24,390.60		23,796.60	594.00	Southwestern Caribbean	23,796.60																															X	X	X	X	X				X		X	Public Nation	
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	405.00	X	X									X		X			X	X		X	X	X		X																				
							Isthmian-Atlantic moist forests	189.00	X			X		X														X																						
18	Carara	1978	5,238.00			5,238.00	Central American dry forests	810.00	X	X	X	X	X	X			X											X	X	X																				Public Nation	
							Isthmian-Pacific moist forests	4,428.00	X	X		X		X														X																						
19	Chirripo	1975	50,346.00			50,346.00	Isthmian Paramo	3,861.00								X				X																														Public Nation	
							Talamancan montane forests	46,485.00	X	X																		X	X																						
20	Corcovado	1975	42,219.70		216.70	42,003.00	Isthmian-Pacific moist forests	39,924.00	X	X		X		X														X																						
							Moist Pacific Coast mangroves	2079																																										Public Nation	
							Nicoya Marine Ecoregion	216.70																											X															
21	Guanacaste	1991	9,045.00			9,045.00	Central American dry forests	2,457.00	X	X	X	X	X	X			X											X	X	X																				Public Nation	
							Costa Rican seasonal moist forests	1,611.00	X	X				X																																				
							Isthmian-Atlantic moist forests	189.00	X			X		X														X																						
							Talamancan montane forests	4,788.00	X	X																		X	X																						
22	Internacional La Amistad	1982	197,469.00			197,469.00	Isthmian Paramo	1,080.00								X				X																														Public Nation	
							Isthmian-Atlantic moist forests	5,328.00	X			X		X														X																						
							Isthmian-Pacific moist forests	153.00	X	X		X		X														X																						
							Talamancan montane forests	190,908.00	X	X																		X	X																						
23	Isla del Coco	2001	202,196.47		198,671.70	3,524.77	Cocos Islands Marine	198,671.70																																				X			X			Public Nation	
							Cocos Island Moist Forests	3,524.77																								X																			
24	Juan Castro Blanco	1968	11,970.00			11,970.00	Talamancan montane forests	11,970.00	X	X																		X	X																					Public Nation	
25	Los Quetzales	2006	4,122.00			4,122.00	Talamancan montane forests	4,122.00	X	X																		X	X																					Public Nation	
26	Manuel Antonio	1972	39,890.60		38,981.60	909.00	Nicoya Marine Ecoregion	38,981.60																											X															Public Nation	
							Isthmian-Pacific moist forests	549.00	X	X		X		X														X																						
							Moist Pacific Coast mangroves	360.00																																										
27	Marino Ballena	1990	4,255.70		4,201.70	54.00	Isthmian-Pacific moist forests	54	X	X		X		X														X																						Public Nation	
							Nicoya Marine Ecoregion	4,201.70																											X															
28	Marino Las Baulas	1995	25,388.60		25,379.60	9.00	Nicoya Marine Ecoregion	25,379.60																											X															Public Nation	
							Costa Rican seasonal moist forests	9.00	X	X				X																																				
29	Palo Verde	1982	2,555.80		80.80	2,475.00	Central American dry forests	945.00	X	X	X	X	X	X			X											X	X	X																				
							Southern Dry Pacific Coast mangroves	1530		X			X	X				X	X		X			X	X	X	X	X																						Public Nation	
							Nicoya Marine Ecoregion	80.80																											X															
30	Piedras Blancas	1991	14,179.20		1,192.20	12,987.00	Nicoya Marine Ecoregion	1,192.20																											X															Public Nation	
							Isthmian-Pacific moist forests	12,636.00	X	X		X		X														X																						
							Moist Pacific Coast mangroves	351.00																																										
31	Rincon de la Vieja	1973	10,269.00			10,269.00	Costa Rican seasonal moist forests	1,539.00	X	X				X																																				Public Nation	
							Talamancan montane forests	8,730.00	X	X																		X	X																						
32	Santa Rosa	1971	45,192.60		41,637.60	3,555.00	Chiapas-Nicaragua Marine	41,637.60																									X	X	X				X	X	X	X	X	X	X	X	X	X		Public Nation	
							Central American dry forests	3,348.00	X	X	X	X	X	X			X											X	X	X																				
							Southern Dry Pacific Coast mangroves	207.00		X			X	X				X	X		X			X	X	X	X	X																						
33	Tapanti-Macizo Cerro de la Mue	1982	58,401.00			58,401.00	Costa Rican seasonal moist forests	54.00	X	X				X																																				Public Nation	
							Isthmian Paramo	279.00								X				X																														
							Talamancan montane forests	58,068.00	X	X																		X	X																						
34	Tortuguero	1975	72,626.10		46,706.10	25,920.00	Southwestern Caribbean	46,706.10																															X	X	X	X	X				X		X	Public Nation	
							Isthmian-Atlantic moist forests	7,668.00	X			X		X														X																						
							Rio Negro-Rio San Sun mangroves	18,252.00		X				X	X				X		X	X		X		X	X		X																						
35	Volcan Irazu	1955	1,737.00			1,737.00	Talamancan montane forests	1,737.00	X	X																		X	X																					Public Nation	
36	Volcan Poas	1971	6,165.00			6,165.00	Talamancan montane forests	6,165.00	X	X																		X	X																					Public Nation	
37	Volcan Tenorio	1976	9,441.00			9,441.00	Costa Rican seasonal moist forests	45.00	X	X				X																																				Public Nation	
							Isthmian-Atlantic moist forests	189.00	X			X		X														X																						
							Talamancan montane forests	9,207.00	X	X																		X	X																						
38	Volcan Turrialba	1955	756.00			756.00	Talamancan montane forests	756.00	X	X																		X	X																					Public Nation	

Costa Rica								MAIN THREATS TERRESTRIAL																														MAIN THREATS MARINE														MANAGED BY	COMMENTS
								Loss and Degradation of Natural Habitat															Pollution					Over-exploitation										Habitat Degradation						Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontroled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wastes	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
61	WILDLIFE REFUGES (IUCN IV)		159,366.89	0.00	35,705.40	123,247.27			62	62	10	41	15	57	4	1	10	6	14	1	14	4	1	14	11	9	14	62	26	12	4	1	6	4	17	1	1	1	11	11	11	11	5	4	4	11	4	8		
39	Agua Buena	1995	45.00			45.00	Isthmian-Pacific moist forests	45.00	X	X		X		X														X																					Private	
							Southwestern Caribbean	39.50																																										
40	Aviarios del Caribe	1996	57.50		39.50	18.00	Bocas del Toro-San Bastimentos Island-San Blas mangroves	9.00	X	X									X		X			X	X		X	X	X		X																Private	
							Isthmian-Atlantic moist forests	9.00	X			X		X														X																					
41	Bahia Junquillal	1995	95.00		41.00	54.00	Central American dry forests	54	X	X	X	X	X	X			X											X	X	X																	Public Nation	
							Chiapas-Nicaragua Marine	41.00																								X	X	X			X	X	X	X	X	X	X	X	X			
42	Bancas	1995	54.00			54.00	Isthmian-Pacific moist forests	54.00	X	X		X		X														X																				Private	
							Isthmian-Atlantic moist forests	13,149.00	X			X		X														X																					
43	Barra del Colorado	1985	71,442.00		1,314.00	70,128.00	Rio Negro-Rio San Sun mangroves	56,979.00		X				X	X				X		X	X		X		X	X			X																Public Nation	
							Southwestern Caribbean	1,314.00																																								
44	Bosque Alegre	1994	693.00			693.00	Talamancan montane forests	693.00	X	X																		X	X																		Public Nation	
45	Caño Negro	1983	6,057.00			6,057.00	Isthmian-Atlantic moist forests	6,057.00	X			X		X														X																				Public Nation	
46	Cacyra	1995	36.00			36.00	Isthmian-Pacific moist forests	36.00	X	X		X		X														X																				Private	
47	Caletas	2006	16,155.51		15,802.20	353.31	Nicoya Marine Ecoregion	15,802.20																										X												Public Nation	
							?	353.31																																						
48	Camaronal	1994	117.00			117.00	Costa Rican seasonal moist forests	117.00	X	X				X																																Public Nation	
49	Carate	?	126.00			126.00	Isthmian-Pacific moist forests	126.00	X	X		X		X														X																				Public Nation	
50	Cataratas de Cerro Redondo	1997	576.00			576.00	Isthmian-Pacific moist forests	63.00	X	X		X		X														X																				Private	
							Talamancan montane forests	513.00	X	X																		X	X																					
51	Cerro Dantas	1998	27.00			27.00	Talamancan montane forests	27.00	X	X																		X	X																		Private	
52	Cipanci	2001	2,411.40		1,304.40	1,107.00	Nicoya Marine Ecoregion	1,304.40																										X												Public Nation	
							Central American dry forests	90.00	X	X	X	X	X	X			X											X	X	X																	Public Nation	
							Southern Dry Pacific Coast mangroves	1,017.00		X			X	X				X	X		X			X	X	X	X	X																					
53	Corredor Fronterizo	1961	25,981.10		88.10	25,893.00	Central American dry forests	405	X	X	X	X	X	X			X											X	X	X																	Public Nation	
							Isthmian-Atlantic moist forests	18,234.00	X			X		X														X																					
							Rio Negro-Rio San Sun mangroves	7,254.00		X				X	X				X		X	X		X		X	X			X																					
							Southwestern Caribbean	88.10																																										
54	Costa Esmeralda	1994	15.10		15.10		Chiapas-Nicaragua Marine	15.10																										X	X	X			X	X	X	X	X	X	X	X	X	X	Private	
55	Cueva del Murcielago	1998	82.30		10.30	72.00	Nicoya Marine Ecoregion	10.30																										X												Private	
							Costa Rican seasonal moist forests	72.00	X	X				X																																			
56	Curi Cancha	1997	63.33			63.33	Talamancan montane forests	63.33	X	X																		X	X																		Private	
57	Curu	1983	43.20		7.20	36.00	Nicoya Marine Ecoregion	7.20																										X												Public Nation	
							Central American dry forests	36.00	X	X	X	X	X	X			X											X	X	X																	Public Nation	
58	Donald Peter Hayes	1998	216.00			216.00	Isthmian-Pacific moist forests	216.00	X	X		X		X														X																				Private	
59	Dr. Archie Carr	1975	50.56		17.80	32.76	Southwestern Caribbean	17.80																																								
							?	32.76																																								
60	Fernando Castro Cervantes	1994	1,377.00			1,377.00	Central American dry forests	171.00	X	X	X	X	X	X			X											X	X	X																	Public Nation	
							Isthmian-Pacific moist forests	657.00	X	X		X		X														X																					
							Talamancan montane forests	549.00	X	X																		X	X																					
61	Finca Baru del Pacifico	1995	306.00			306.00	Isthmian-Pacific moist forests	306.00	X	X		X		X														X																				Public Nation	
62	Finca Hacienda La Avellana	1988	198.00			198.00	Central American dry forests	198.00	X	X	X	X	X	X			X											X	X	X																	Private	
63	Forestal Golfito S.A.	1995	108.00			108.00	Isthmian-Pacific moist forests	108.00	X	X		X		X														X																				Private	
64	Gandoca Manzanillo	1985	9,724.00		5,602.00	4,122.00	Southwestern Caribbean	5,602.00																																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	1,710.00	X	X									X		X			X	X		X	X	X		X																	Public Nation	
							Isthmian-Atlantic moist forests	2,412.00	X			X		X														X																					
65	Golfito	1985	2,667.40		75.40	2,592.00	Isthmian-Pacific moist forests	2,592.00	X	X		X		X														X																				Public Nation	
							Nicoya Marine Ecoregion	75.40																										X													
66	Hacienda Copano	1995	252.00			252.00	Isthmian-Pacific moist forests	252.00	X	X		X		X														X																				Private	
67	Humedal Nacional Cariari	1995	464.40		158.40	306.00	Isthmian-Atlantic moist forests	27	X			X		X														X																				Public Nation	
							Rio Negro-Rio San Sun mangroves	279.00		X				X	X				X		X	X		X		X	X																					
							Southwestern Caribbean	158.40																																										
68	Iguanita	1994	67.20		13.20	54.00	Chiapas-Nicaragua Marine	13.20																										X	X	X			X	X	X	X	X	X	X	X	X	X		
							Central American dry forests	54.00	X	X	X	X	X	X			X											X	X	X																	Public Nation	
69	Isla Chora	2002	5.40		5.40		Nicoya Marine Ecoregion	5.40																										X												Public Nation	
70	Jaguarundi	?	135.00			135.00	Talamancan montane forests	135.00	X	X																		X	X																		Private	
71	Joseph Steve Friedmen	1997	18.00			18.00	Talamancan montane forests	18.00	X	X																		X	X																		Private	
72	La Ceiba	1995	90.00			90.00	Costa Rican seasonal moist forests	90.00	X	X				X																																	Private	
73	La Ensenada	1998	135.00			135.00	Central American dry forests	9.00	X	X	X	X	X	X			X											X	X	X																	Public Nation	
							Southern Dry Pacific Coast mangroves	126.00		X			X	X				X	X		X			X	X	X	X	X																					
74	La Marta	1993	1,368.00			1,368.00	Talamancan montane forests	1,368.00	X	X																		X	X																		Private	
75	La Tirimbina	2001	243.00			243.00	Isthmian-Atlantic moist forests	243.00	X			X		X														X																				Private	
76	Lacustrino Pejeperrito	1996	57.60			57.60	?	57.60																																							Public Nation	
77	Laguna Las Camelias	1994	57.77			57.77	?	57.77																																							Public Nation	
78	Limoncito	1994	873.70		72.70	801.00	Southwestern Caribbean	72.70																																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	117.00	X	X									X		X			X	X		X	X	X		X																	Public Nation	
							Isthmian-Atlantic moist forests	684.00	X			X		X														X																					
79	Los Cusingos	1993	63.00			63.00	Isthmian-Pacific moist forests	63.00	X	X		X		X														X																				Private	
80	Mata Redonda	1994	36.00			36.00	Southern Dry Pacific Coast mangroves	36.00		X			X	X				X	X		X			X	X	X	X	X																				Public Nation	
81	Osa	1835	1,449.00			1,449.00	Isthmian-Pacific moist forests	1,449.00	X	X		X		X														X																				Public Nation	
82	Ostional	1983	7,505.10		7,415.10	90.00	Nicoya Marine Ecoregion	7,415.10																										X												Public Nation	
							Costa Rican seasonal moist forests	90.00	X	X				X																																		
83	Peñas Blancas	1992	1,035.00			1,035.00	Central American dry forests	99.00	X	X	X	X	X	X			X											X	X	X																	Public Nation	
							Talamancan montane forests	936.00	X	X																		X	X																					

Costa Rica									MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat															Pollution				Over-exploitation					Habitat Degradation						Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events		Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
84	Pejeperro	2002	180.00			180.00	Isthmian-Pacific moist forests	135.00	X	X		X		X														X																							Public Nation	
							Isthmian-Pacific moist forests	45.00	X	X		X		X														X																								
85	Playa Hermosa	2002	3,525.90		3,489.90	36.00	Southern Dry Pacific Coast mangroves	36		X			X	X				X	X		X			X	X	X	X	X																							Public Nation	
							Nicoya Marine Ecoregion	3,489.90																											X																	
86	Portalon	1996	297.00			297.00	Isthmian-Pacific moist forests	225.00	X	X		X		X														X																							Public Nation	
							Moist Pacific Coast mangroves	72.00		X				X					X		X			X	X		X	X		X																							
87	Preciosa Platanares	1998	195.90		51.90	144.00	Isthmian-Pacific moist forests	126.00	X	X		X		X														X																								
							Moist Pacific Coast mangroves	18.00		X				X					X		X			X	X		X	X		X																							
							Nicoya Marine Ecoregion	51.90																											X																	
88	Punta Leona	1994	27.00			27.00	Isthmian-Pacific moist forests	27.00	X	X		X		X														X																							Private	
89	Punta Rio Claro	1997	215.90		116.90	99.00	Nicoya Marine Ecoregion	116.90																											X															Public Nation	
							Isthmian-Pacific moist forests	99.00	X	X		X		X														X																								
90	Quillotro	?	47.80		20.80	27.00	Nicoya Marine Ecoregion	20.80																											X															Public Nation	
							Isthmian-Pacific moist forests	27.00	X	X		X		X														X																								
91	Rancho La Merced	1995	414.22				Isthmian-Pacific moist forests	297.00	X	X		X		X														X																							Private	
92	Rio Oro	?	1,200.50			1,200.50	Nicoya Marine Ecoregion	1,200.50																											X															Public Nation	
93	Rio Piro	?	36.00			36.00	Isthmian-Pacific moist forests	36.00	X	X		X		X														X																							Private	
94	Romelia	1997	99.00			99.00	Costa Rican seasonal moist forests	99.00	X	X				X																																					Public Nation	
95	Sutubal	2002	117.00			117.00	Talamancan montane forests	117.00	X	X																		X	X																						Private	
96	Tamarindo	1985	377.10		44.10	333.00	Nicoya Marine Ecoregion	44.10																											X															Public Nation	
							Southern Dry Pacific Coast mangroves	333.00		X			X	X				X	X		X			X	X	X	X	X																								
97	Transilvania	1998	45.00			45.00	Isthmian-Pacific moist forests	45.00	X	X		X		X														X																							Private	
98	Werner Sauter	1995	9.00			9.00	Costa Rican seasonal moist forests	9.00	X	X				X																																					Public Nation	
8	BIOLOGIC RESERVES (IUCN I)		24,713.37	0.00	5,705.30	19,008.07			5	4	1	2	1	2	0	1	1	0	0	1	0	0	0	0	0	0	0	5	4	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
99	Cerro Las Vueltas	1994	810.00			810.00	Isthmian Paramo	90.00							X				X																																Public Nation	
							Talamancan montane forests	720.00	X	X																		X	X																							
100	Hitoy Cerere	1978	9,945.00			9,945.00	Isthmian-Atlantic moist forests	8,730.00	X			X		X														X																							Public Nation	
							Talamancan montane forests	1,215.00	X	X																		X	X																							
101	Isla del Caño	1978	5,856.67		5,559.60	297.07	Nicoya Marine Ecoregion	5,559.60																											X															Public Nation	
							?	297.07																																												
102	Isla Guayabo	1982	4.20		4.20		Nicoya Marine Ecoregion	4.20																											X															Public Nation	
103	Isla Pajaros	1973	2.00		2.00		Nicoya Marine Ecoregion	2.00																											X															Public Nation	
104	Islas Negritos	1973	139.50		139.50		Nicoya Marine Ecoregion	139.50																											X															Public Nation	
105	Lomas de Barbudal	1986	99.00			99.00	Central American dry forests	99.00	X	X	X	X	X	X			X											X	X	X																						Public Nation	
106	Manuel Alberto Brenes	1975	7,857.00			7,857.00	Talamancan montane forests	7,857.00	X	X																		X	X																						Public Nation	
13	FOREST RESERVES (IUCN VI)		231,115.40	0.00	5,080.40	226,035.00			15	13	1	9	1	12	1	1	1	0	3	1	3	1	0	3	2	1	3	17	8	3	0	0	0	0	2	0	0	0	1	1	1	1	1	0	0	0	1	0	1		
107	Cerro El Jardin	1994	1,440.00			1,440.00	Isthmian-Atlantic moist forests	1,440.00	X			X		X														X																							Public Nation	
108	Cordillera Volcanica Central	1975	8,892.00			8,892.00	Isthmian-Atlantic moist forests	8,892.00	X			X		X														X																							Public Nation	
109	Cordillera Volcanica Central	1975	50,643.00			50,643.00	Talamancan montane forests	50,643.00	X	X																		X	X																						Public Nation	
110	Golfo Dulce	1978	53,668.80		136.80	53,532.00	Nicoya Marine Ecoregion	136.80																											X															Public Nation	
							Isthmian-Pacific moist forests	53,469.00	X	X		X		X														X																								
							Moist Pacific Coast mangroves	63.00		X				X					X		X			X	X		X	X		X																							
111	Grecia	1973	2,106.00			2,106.00	Talamancan montane forests	2,106.00	X	X																		X	X																						Public Nation	
112	La Cureña	1994	5,760.00			5,760.00	Isthmian-Atlantic moist forests	5,760.00	X			X		X														X																							Public Nation	
113	Los Santos	1975	50,760.00			50,760.00	Isthmian Paramo	216.00							X				X																																Public Nation	
							Isthmian-Pacific moist forests	2,637.00	X	X		X		X														X																								
							Talamancan montane forests	47,907.00	X	X																		X	X																							
114	Pacuare-Matina	1973	479.80		272.80	207.00	Southwestern Caribbean	272.80																															X	X	X	X	X				X		X	Public Nation	
							Rio Negro-Rio San Sun mangroves	207.00		X				X	X				X		X	X		X		X	X		X																								
115	Rio Macho	1964	21,807.00			21,807.00	Isthmian-Atlantic moist forests	9.00	X			X		X														X																							Public Nation	
							Talamancan montane forests	21,798.00	X	X																		X	X																							
116	Rio Pacuare	1985	12,213.00			12,213.00	Isthmian-Atlantic moist forests	11,664.00	X			X		X														X																							Public Nation	
							Talamancan montane forests	549.00	X	X																		X	X																							
117	Taboga	1978	90.00			90.00	Central American dry forests	90.00	X	X	X	X	X	X			X											X	X	X																						Public Nation	
118	Terraba-Sierpe	1994	23,210.80		4,670.80	18,540.00	Nicoya Marine Ecoregion	4,670.80																											X															Public Nation	
							Isthmian-Pacific moist forests	4,464.00	X	X		X		X														X																								
							Moist Pacific Coast mangroves	14,076.00		X				X					X		X			X	X		X	X		X																							
119	Zona de Emergencia Volcan Aren	1969	45.00			45.00	Talamancan montane forests	45.00	X	X																		X	X																						Public Nation	
2	NATURE ABSOLUT RESERVES (IUCN I)		2,250.32	0.00	1,134.20	1,116.12			2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
120	Cabo Blanco	1963	2,191.76		1,134.20	1,057.56	Nicoya Marine Ecoregion	1,134.20																											X															Public Nation	
							Costa Rican seasonal moist forests	999.00	X	X				X																																						
121	Nicolas Wessberg	1994	58.56			58.56	Costa Rican seasonal moist forests	58.56	X	X				X																																					Public Nation	
34	PROTECTION ZONES (IUCN VI)		123,799.35	0.00	199.90	123,599.45			53	48	10	17	11	30	1	1	10	2	2	1	2	1	1	2	2	2	2	41	32	10	1	1	3	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1		
122	Acuiferos Guacimo y Pococi	1987	4,149.00			4,149.00	Isthmian-Atlantic moist forests	1,800.00	X			X		X														X																							Public Nation	
							Talamancan montane forests	2,349.00	X	X																		X	X																							
123	Arenal-Monteverde	1976	26,874.00			26,874.00	Talamancan montane forests	26,874.00	X	X																		X	X																						Public Nation	
124	Caraigres	1976	2,637.00			2,637.00	Costa Rican seasonal moist forests	18.00	X	X				X																																					Public Nation	
							Talamancan montane forests	2,619.00	X	X																		X	X																							
125	Cerro Atenas	1976	108.00			108.00	Central American dry forests	108.00	X	X	X	X	X	X			X											X	X	X																						Public Nation	
126	Cerro de la Cangreja	1984	1,611.00			1,611.00	Isthmian-Pacific moist forests	540.00	X	X		X		X														X																							Public Nation	
							Talamancan montane forests	1,071.00	X	X																		X	X																							
127	Cerro El Chompipe	?	27.00			27.00	Central American dry forests	27.00	X	X	X	X	X	X			X											X	X	X																						Public Nation	
128	Cerro La Cruz	1994	199.37			199.37	?	199.37																																										Public Nation	
129	Cerro Nara	1984	1,908.00			1,908.00	Isthmian-Pacific moist forests	1,332.00	X	X		X		X														X																							Public Nation	
							Talamancan montane forests	576.00	X	X																		X	X																							

Costa Rica									MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution					Over-exploitation					Habitat Degradation					Pollution						Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events		Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
130	Cerros de Escazu	1976	6,516.00			6,516.00	Costa Rican seasonal moist forests	1,017.00	X	X				X																																				Public Nation	
							Talamancan montane forests	5,499.00	X	X																		X	X																						
131	Cerros de la Carpintera	1976	1,530.00			1,530.00	Costa Rican seasonal moist forests	1,476.00	X	X				X																																				Public Nation	
							Talamancan montane forests	54.00	X	X																		X	X																						
132	Cerros de Turrubares	1983	2,799.00			2,799.00	Central American dry forests	324.00	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Isthmian-Pacific moist forests	1,080.00	X	X		X		X														X																								
							Talamancan montane forests	1,395.00	X	X																		X	X																						
133	Cuenca del Rio Abangares	1995	1,170.00			1,170.00	Central American dry forests	1,134.00	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Talamancan montane forests	36.00	X	X																		X	X																						
134	Cuenca del Rio Banano	1990	9,162.00			9,162.00	Isthmian-Atlantic moist forests	5,193.00	X			X		X														X																							Public Nation	
							Talamancan montane forests	3,969.00	X	X																		X	X																						
135	Cuenca del Rio Siquirres	1995	567.00			567.00	Isthmian-Atlantic moist forests	567.00	X			X		X														X																							Public Nation	
136	Cuenca del Rio Tuis	1986	3,870.00			3,870.00	Talamancan montane forests	3,870.00	X	X																		X	X																					Public Nation	
137	El Chayote	1984	360.00			360.00	Talamancan montane forests	360.00	X	X																		X	X																					Public Nation	
138	El Rodeo	1976	1,683.00			1,683.00	Costa Rican seasonal moist forests	1,683.00	X	X				X																																				Public Nation	
139	La Selva	1982	2,214.00			2,214.00	Isthmian-Atlantic moist forests	1,998.00	X			X		X														X																							Public Nation	
							Talamancan montane forests	216.00	X	X																		X	X																						
140	Las Tablas	1981	21,888.00			21,888.00	Talamancan montane forests	21,888.00	X	X																		X	X																					Public Nation	
141	Miravalles	1976	522.00			522.00	Central American dry forests	36.00	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Costa Rican seasonal moist forests	180.00	X	X				X																																					
							Talamancan montane forests	306.00	X	X																		X	X																						
142	Montes de Oro	1994	1,269.00			1,269.00	Central American dry forests	54.00	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Talamancan montane forests	1,215.00	X	X																		X	X																						
143	Nosara	1994	144.00			144.00	Costa Rican seasonal moist forests	144.00	X	X				X																																				Public Nation	
144	Peninsula de Nicoya	1994	10,782.00			10,782.00	Central American dry forests	549.00	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Costa Rican seasonal moist forests	10,233.00	X	X				X																																					
145	Quebrada Rosario	1997	27.00			27.00	Talamancan montane forests	27.00	X	X																		X	X																					Public Nation	
146	Quitirrisi	1982	117.00			117.00	Costa Rican seasonal moist forests	117.00	X	X				X																																				Public Nation	
147	Rio Grande	1976	648.00			648.00	Central American dry forests	306.00	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Costa Rican seasonal moist forests	342.00	X	X				X																																					
148	Rio Navarro y Rio Sombrero	1984	5,283.00			5,283.00	Costa Rican seasonal moist forests	2,430.00	X	X				X																																				Public Nation	
							Talamancan montane forests	2,853.00	X	X																		X	X																						
149	Rio Tiribi	1976	549.00			549.00	Talamancan montane forests	549.00	X	X																		X	X																					Public Nation	
150	Rio Toro	1994	3,150.00			3,150.00	Talamancan montane forests	3,150.00	X	X																		X	X																					Public Nation	
151	Tenorio	1976	3,420.00			3,420.00	Costa Rican seasonal moist forests	18.00	X	X				X																																				Public Nation	
							Talamancan montane forests	3,402.00	X	X																		X	X																						
152	Tivives	1986	1,081.90		199.90	882.00	Central American dry forests	522	X	X	X	X	X	X			X											X	X	X																					Public Nation	
							Southern Dry Pacific Coast mangroves	360		X			X	X				X	X		X			X	X	X	X	X																							
							Nicoya Marine Ecoregion	199.90																											X																
153	Tortuguero	1990	937.08			937.08	?	937.08																																										Public Nation	
154	Volcan Miravalles	1976	6,597.00			6,597.00	Costa Rican seasonal moist forests	9.00	X	X				X																																				Public Nation	
							Talamancan montane forests	6,588.00	X	X																		X	X																						
10	UNDETERMINED (IUCN IV)		5,512.00	0.00	1,237.00	4,275.00			10	12	3	8	5	11	0	0	3	2	3	0	3	0	0	3	3	2	3	13	5	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
155	Boracayan	?	126.00			126.00	Isthmian-Pacific moist forests	126.00	X	X		X		X														X																							Private	
156	Duaru	?	36.00			36.00	Isthmian-Atlantic moist forests	36.00	X			X		X														X																							Private	
157	Lacustrino Pejeperrito	?	36.00			36.00	Isthmian-Pacific moist forests	36.00	X	X		X		X														X																							Public Nation	
158	Las Nubes	?	45.00			45.00	Talamancan montane forests	45.00	X	X																		X	X																					Private	
159	Manglares	?	1,495.10		730.10	765.00	Nicoya Marine Ecoregion	730.10																											X															Public Nation	
							Central American dry forests	36.00	X	X	X	X	X	X			X											X	X	X																						
							Southern Dry Pacific Coast mangroves	729.00		X			X	X				X	X		X			X	X	X	X	X																							
160	Montaza El Tigre	?	162.00			162.00	Isthmian-Pacific moist forests	162.00	X	X		X		X														X																							Private	
161	Santuario Ecologico	?	313.60		16.60	297.00	Nicoya Marine Ecoregion	16.60																											X															Private	
							Isthmian-Pacific moist forests	279.00	X	X		X		X														X																								
							Moist Pacific Coast mangroves	18.00		X				X					X		X			X	X		X	X		X																					
162	Isla San Lucas	?	515.80		452.80	63.00	Nicoya Marine Ecoregion	452.80																											X															Public Nation	
							Central American dry forests	63.00	X	X	X	X	X	X			X											X	X	X																						
163	Manglares Puntarenas	?	2,224.50		37.50	2,187.00	Nicoya Marine Ecoregion	37.50																											X															Public Nation	
							Central American dry forests	54.00	X	X	X	X	X	X			X											X	X	X																						
							Southern Dry Pacific Coast mangroves	2,133.00		X			X	X				X	X		X			X	X	X	X	X																							
164	Paramo	?	558.00			558.00	Talamancan montane forests	558.00	X	X																		X	X																					Private	
	Established:	151	1,459,764.84	0.00	430,103.80	1,029,246.82		275	193	181	31	100	42	148	7	7	31	13	27	7	27	7	2	27	22	18	27	180	98	36	6	3	10	6	39	2	2	2	16	16	16	16	16	9	6	6	17	6	12		
	Proposed / Uncertain:	16		% of Country Territory:		20.14%			0.90	0.84	0.14	0.47	0.20	0.69	0.03	0.03	0.14	0.06	0.13	0.03	0.13	##	##	0.13	0.10	0.08	0.13	0.84	0.46	0.17	0.03	0.01	0.21	0.13	0.81	0.04	##	##	0.33	0.33	0.33	0.33	0.33	0.19	0.13	0.13	0.35	0.13	0.25		
							33
IUCN's categories:							10
I. strict protection							4
	Ia. strict nature reserve						1
	Ib. wilderness area						48
II. ecosystem conservation and protection (i.e., national park)
III. conservation of natural features (i.e., natural monument)
IV. conservation through active management (i.e., habitat/species management area)
V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)
VI. sustainable use of natural resources (i.e., managed resource protected area)

Table 28: Detailed Data on PAs - Panama

Panama									MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat															Pollution				Over-exploitation					Habitat Degradation						Pollution					Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining		Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
1	MULTIPLE USE AREAS (IUCN VI)		942.40	0.00	0.00	942.40			2	1	1	0	0	1	0	0	0	1	1	0	1	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	Cienaga de las Macanas	1996	942.40			942.40	Gulf of Panama mangroves	169.10	X	X				X				X	X		X			X	X		X	X																							
							Panamanian dry forests	773.30	X		X																		X																						
1	NATURAL AREAS (IUCN II)		255.20	0.00	0.00	255.20			2	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2	Metropolitan Natural Park	1985	255.20			255.20	Isthmian-Pacific moist forests	226.80	X	X		X		X														X																							
							Panamanian dry forests	28.40	X		X																		X																						
2	RECREATIONAL AREAS		974.10	0.00	0.00	974.10			2	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	El Salto de las Palmas (IUCN VI)	1994	621.70			621.70	Isthmian-Pacific moist forests	621.70	X	X		X		X														X																							
4	Lago Gatún (IUCN II)	1985	352.40			352.40	Isthmian-Atlantic moist forests	352.40	X			X		X														X																							
1	WILDERNESS AREAS (IUCN IV)		100,990.70	0.00	1,605.00	99,385.70			3	2	0	2	0	2	0	0	0	0	1	0	1	1	0	1	1	0	1	3	2	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	0	1		
5	Nargana	1994	100,990.70		1,605.00	99,385.70	Southwestern Caribbean	1,605.00																															X	X	X	X	X				X		X		
							Chocó-Darién moist forests	75,331.60	X	X		X		X								X						X	X	X																					
							Isthmian-Atlantic moist forests	22,364.70	X			X		X														X																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	1,689.40	X	X									X		X			X	X		X	X	X		X																				
3	PROTECTION FORESTS (IUCN VI)		394,652.80	0.00	0.00	394,652.80			6	4	0	5	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	6	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6	Alto Darien	1972	221,459.50			221,459.50	Chocó-Darién moist forests	86,472.60	X	X		X		X								X						X	X	X																					
							Eastern Panamanian montane forests	5,499.70	X	X		X																X	X	X																					
							Isthmian-Pacific moist forests	129,487.20	X	X		X		X														X																							
7	Palo Seco	1983	164,275.50			164,275.50	Isthmian-Atlantic moist forests	81,970.50	X			X		X														X																							
							Talamancan montane forests	82,305.00	X	X																		X	X																						
8	San Lorenzo	1997	8,917.80			8,917.80	Isthmian-Atlantic moist forests	8,917.80	X			X		X														X																							
1	BIOLOGICAL CORRIDORS (IUCN VI)		44,270.90	0.00	0.00	44,270.90			2	2	0	2	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9	Serrania de Bagre	1995	44,270.90			44,270.90	Chocó-Darién moist forests	11,185.70	X	X		X		X								X						X	X	X																					
							Isthmian-Pacific moist forests	33,085.20	X	X		X		X														X																							
6	RAMSAR SITES (IUCN IV)		186,756.10	0.00	92,976.10	93,780.00			12	9	2	5	0	8	0	0	0	2	5	0	5	0	0	5	5	0	5	11	5	1	2	0	0	2	3	0	0	0	4	2	4	4	2	2	0	0	4	0	2		
10	Bahia de Panama	2003	45,262.50		27,229.50	18,033.00	Panama Bight	27,229.50																									X	X				X		X	X		X			X				
							Isthmian-Pacific moist forests	261.80	X	X		X		X														X																							
							Gulf of Panama mangroves	17,767.40	X	X				X				X	X		X			X	X		X	X																							
							Panamanian dry forests	3.80	X		X																		X																						
11	Damani-Guariviara	2004	23,881.00		323.10	23,557.90	Southwestern Caribbean	323.10																															X	X	X	X	X				X		X		
							Isthmian-Atlantic moist forests	1,969.10	X			X		X														X																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	21,588.80	X	X									X		X			X	X		X	X	X		X																				
12	Golfo de Montijo	1994	86,690.00		55,530.00	31,160.00	Nicoya Marine	55,530.00																										X																
							Isthmian-Pacific moist forests	13,776.60	X	X		X		X														X																							
							Moist Pacific Coast mangroves	17,383.40		X				X					X		X			X	X		X	X		X																					
13	Lagunas del Volcan	1994	135.00			135.00	Talamancan montane forests	135.00	X	X																		X	X																						
14	Punta Patiño	1994	13,306.60		8,875.60	4,431.00	Panama Bight	8,875.60																									X	X				X		X	X		X			X				
							Isthmian-Pacific moist forests	470.10	X	X		X		X														X																							
							Gulf of Panama mangroves	3,094.80	X	X				X				X	X		X			X	X		X	X																							
							Panamanian dry forests	866.10	X		X																		X																						
15	San San Pond Sak	1994	17,481.00		1,017.90	16,463.10	Southwestern Caribbean	1,017.90																															X	X	X	X	X				X		X		
							Isthmian-Atlantic moist forests	6,555.50	X			X		X														X																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	9,907.60	X	X									X		X			X	X		X	X	X		X																				
3	NATURAL MONUMENTS (IUCN III)		4,458.34	0.00	0.00	4,458.34			4	2	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
16	Barro Colorado	1923	3,787.70			3,787.70	Isthmian-Atlantic moist forests	3,787.70	X			X		X														X																							
17	Cerro Gaital	2001	243.20			243.20	Isthmian-Atlantic moist forests	105.00	X			X		X														X																							
							Isthmian-Pacific moist forests	138.20	X	X		X		X														X																							
18	Los Pozos de Calobre	1994	427.44			427.44	Isthmian-Pacific moist forests	427.44	X	X		X		X														X																							
1	PROTECTION LANDSCAPE (IUCN IV)		635.70	0.00	62.20	573.50			2	1	0	1	0	1	0	0	0	0	1	0	1	0	0	1	1	0	1	2	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	1	0	1		
19	Isla Galeta	1997	635.70		62.20	573.50	Southwestern Caribbean	62.20																															X	X	X	X	X				X		X		
							Isthmian-Atlantic moist forests	26.40	X			X		X														X																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	547.10	X	X									X		X			X	X		X	X	X		X																				
16	NATIONAL PARKS (IUCN II, unless stated otherwise)		1,414,539.99	0.00	260,228.50	1,154,311.51			35	25	2	25	1	24	1	2	1	2	4	2	4	2	1	4	4	1	4	34	12	6	2	1	3	3	6	1	1	1	6	4	6	6	4	4	1	1	6	1	4		
20	La Amistad	1988	205,200.00			205,200.00	Isthmian-Atlantic moist forests	19,872.00	X			X		X														X																							
							Isthmian-Pacific moist forests	585.00	X	X		X		X														X																							
							Isthmian Paramo	1,206.00								X				X																															
							Talamancan montane forests	183,537.00	X	X																		X	X																						
21	Altos de Campana	1966	4,992.90			4,992.90	Isthmian-Atlantic moist forests	3,611.20	X			X		X														X																							
							Isthmian-Pacific moist forests	1,381.70	X	X		X		X														X																							
22	Camino de Cruces	1992	4,738.10			4,738.10	Isthmian-Pacific moist forests	4,738.10	X	X		X		X														X																							
23	Cerro Hoya	1984	29,747.00		6.00	29,741.00	Nicoya Marine	6.00																										X																
							Isthmian-Pacific moist forests	16,860.10	X	X		X		X														X																							
							Talamancan montane forests	12,880.90	X	X																		X	X																						
24	Chagres	1984	129,253.60			129,253.60	Eastern Panamanian montane forests	4,086.10	X	X		X																X	X	X																					
							Isthmian-Atlantic moist forests	123,257.60	X			X		X														X																							
							Isthmian-Pacific moist forests	1,909.90	X	X		X		X														X																							
25	Coiba	1991	253,626.00		203,493.30	50,132.70	Nicoya Marine	203,493.30																										X																
							Isthmian-Pacific moist forests	40,472.90	X	X		X		X														X																							
							Moist Pacific Coast mangroves	9,659.80		X				X					X		X			X	X		X	X		X																					
26	Darien	1980	578,323.60		16,603.70	561,719.90	Panama Bight	10,410.30																									X	X				X		X	X		X			X				
							Southwestern Caribbean	6,193.40																															X	X	X	X	X				X		X		
							Chocó-Darién moist forests	423,196.20	X	X		X		X								X						X	X	X																					
							Eastern Panamanian montane forests	134,329.20	X	X		X																X	X	X																					
							Isthmian-Pacific moist forests	4,194.50	X	X		X		X														X																							

Panama									MAIN THREATS TERRESTRIAL																									MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution					Over-exploitation					Habitat Degradation					Pollution						Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining		Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
27	Marino Golfo de Chiriqui (IUCN V)	1994	21,253.20		19,833.90	1,419.30	Nicoya Marine	19,833.90																											X																
							Isthmian-Pacific moist forests	1,419.30	X	X		X		X														X																							
28	Marino Isla Bastimento (IUCN V)	1988	13,268.40		11,509.50	1,758.90	Southwestern Caribbean	11,509.50																															X	X	X	X	X				X		X		
							Isthmian-Atlantic moist forests	1,758.90	X			X		X														X																							
29	Ormar Torrijos Herrera	1986	26,609.61			26,609.61	Isthmian-Atlantic moist forests	4,094.41	X			X		X														X																							
							Isthmian-Pacific moist forests	4,109.70	X	X		X		X														X																							
							Talamancan montane forests	18,405.50	X	X																		X	X																					
30	Portobelo	1976	35,482.90		7,571.10	27,911.80	Southwestern Caribbean	7,571.10																															X	X	X	X	X				X		X		
							Eastern Panamanian montane forests	1,925.80	X	X		X																X	X	X																				
							Isthmian-Atlantic moist forests	22,791.60	X			X		X														X																							
							Bocas del Toro-San Bastimentos Island-San Blas mangroves	3,194.40	X	X									X		X			X	X		X	X	X		X																			
31	Santa Fe	2001	73,065.98			73,066.00	Isthmian-Atlantic moist forests	3,719.40	X			X		X														X																							
							Isthmian-Pacific moist forests	11,301.60	X	X		X		X														X																							
							Talamancan montane forests	58,045.00	X	X																		X	X																					
32	Sarigua	1984	4,807.50		1,211.00	3,596.50	Panama Bight	1,211.00																										X	X				X		X	X		X			X				
							Gulf of Panama mangroves	3,487.60	X	X				X				X	X		X			X	X		X	X																					
							Panamanian dry forests	108.90	X		X																	X																					
33	Soberania	1980	18,408.50			18,408.50	Isthmian-Atlantic moist forests	10,373.70	X			X		X														X																							
							Isthmian-Pacific moist forests	8,034.80	X	X		X		X														X																							
34	Volcán Baru	1976	15,762.70			15,762.70	Isthmian-Pacific moist forests	118.10	X	X		X		X														X																							
							Talamancan montane forests	15,644.60	X	X																		X	X																					
6	WILDLIFE REFUGES (IUCN IV)		34,797.80	0.00	26,572.90	8,224.90			5	6	0	3	0	6	0	0	0	2	3	0	3	0	0	3	3	0	3	6	0	1	0	0	0	3	5	0	0	0	3	0	3	3	0	3	0	0	3	0	0		
35	Cenegin del Mangle	1980	853.50			853.50	Gulf of Panama mangroves	853.50	X	X				X				X	X		X			X	X		X	X																					
36	Isla de Cañas	1994	23,971.00		19,676.60	4,294.40	Panama Bight	19,676.60																										X	X				X		X	X		X			X				
							Isthmian-Pacific moist forests	640.30	X	X		X		X														X																							
							Gulf of Panama mangroves	3,654.10	X	X				X				X	X		X			X	X		X	X																					
37	Isla Iguana	1981	109.80		109.80		Panama Bight	109.80																										X	X				X		X	X		X			X				
38	La Barqueta	1994	6,010.70		3,147.50	2,863.20	Nicoya Marine	3,147.50																											X																
							Isthmian-Pacific moist forests	222.30	X	X		X		X														X																							
							Moist Pacific Coast mangroves	2,640.90		X				X					X		X			X	X		X	X		X																				
39	Playa de Boca Vieja	1994	3,494.20		3,494.20		Nicoya Marine	3,494.20																											X																
40	Taboga	1984	358.60		144.80	213.80	Panama Bight	144.80																										X	X				X		X	X		X			X				
							Isthmian-Pacific moist forests	213.80	X	X		X		X														X																							
7	FOREST RESERVES (IUCN VI)		136,076.97	0.00	1,553.20	134,523.77			11	11	0	7	0	9	0	0	0	2	2	0	2	0	0	2	2	0	2	11	2	0	0	0	0	1	2	0	0	0	1	0	1	1	0	1	0	0	1	0	0		
41	Canglin	1984	30,007.60		1,550.30	28,457.30	Panama Bight	1,550.30																										X	X				X		X	X		X			X				
							Isthmian-Pacific moist forests	27,503.90	X	X		X		X														X																							
							Gulf of Panama mangroves	953.40	X	X				X				X	X		X			X	X		X	X																					
42	Chepigana	1960	36,890.20			36,890.20	Isthmian-Pacific moist forests	34,183.10	X	X		X		X														X																							
							Gulf of Panama mangroves	2,707.10	X	X				X				X	X		X			X	X		X	X																					
43	El Montuoso	1977	12,562.21			12,562.21	Isthmian-Pacific moist forests	12,562.21	X	X		X		X														X																							
44	Fortuna	1976	20,788.84			20,788.84	Isthmian-Pacific moist forests	3,075.54	X	X		X		X														X																							
							Talamancan montane forests	17,713.30	X	X																		X	X																					
45	La Tronosa	1977	20,257.60			20,257.60	Isthmian-Pacific moist forests	20,257.60	X	X		X		X														X																							
46	La Yeguada	1960	7,108.52			7,108.52	Isthmian-Pacific moist forests	7,108.52	X	X		X		X														X																							
47	Tonosi	1960	8,462.00		2.90	8,459.10	Nicoya Marine	2.90																											X																
							Isthmian-Pacific moist forests	8,172.80	X	X		X		X														X																							
							Talamancan montane forests	286.30	X	X																		X	X																					
6	HIDROLOGIC RESERVES (IUCN VI)		58,103.86	0.00	83.00	58,020.86			10	9	0	9	0	9	0	0	0	1	1	0	1	1	0	1	1	0	1	10	2	2	0	0	0	1	1	0	0	0	1	0	1	1	0	1	0	0	1	0	0		
48	Canglon-Filo del Tallo	1997	3,610.40			3,610.40	Isthmian-Pacific moist forests	3,610.40	X	X		X		X														X																							
49	Isla del Rey	?	9,895.00		83.00	9,812.00	Panama Bight	83.00																										X	X				X		X	X		X			X				
							Isthmian-Pacific moist forests	9,812.00	X	X		X		X														X																							
50	Isla MaJe	1996	17,580.40			17,580.40	Eastern Panamanian montane forests	4,105.20	X	X		X																X	X	X																				
							Isthmian-Pacific moist forests	13,475.20	X	X		X		X														X																							
51	Serrania de Darien	2004	12,037.66			12,037.66	Chocó-Darién moist forests	10,421.40	X	X		X		X								X						X	X	X																				
							Isthmian-Pacific moist forests	1,616.26	X	X		X		X														X																							
52	Serrania de Filo del Tallo	1997	12,494.30			12,494.30	Isthmian-Pacific moist forests	12,464.60	X	X		X		X														X																							
							Gulf of Panama mangroves	29.70	X	X				X				X	X		X			X	X		X	X																					
53	Tapagra	1993	2,486.10			2,486.10	Isthmian-Atlantic moist forests	1,586.10	X			X		X														X																							
							Isthmian-Pacific moist forests	900.00	X	X		X		X														X																							
1	SPECIAL PROTECTION ZONES (IUCN II)		179,447.60	0.00	179,444.30	3.30			1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
54	Isla Montuosa y Banco Hanni	?	179,447.60		179,444.30	3.30	Nicoya Marine	179,444.30																											X																
							Isthmian-Pacific moist forests	3.30	X	X		X		X														X																							
	Established:	53	2,556,902.46	0.00	562,525.20	1,994,377.28		123	97	75	6	67	1	74	1	2	1	10	18	2	18	6	1	18	18	1	18	94	30	14	6	1	3	10	18	1	1	1	17	8	17	17	8	11	1	1	17	1	8		
	Proposed / Uncertain:	2		% of Country Territory:		26.89%			0.99	0.77	0.06	0.68	0.01	0.76	0.01	0.02	0.01	0.10	0.18	0.02	0.18	##	##	0.18	0.18	0.01	0.18	0.96	0.31	0.14	0.06	0.01	0.13	0.42	0.75	0.04	##	##	0.71	0.33	0.71	0.71	0.33	0.46	0.04	0.04	0.71	0.04	0.33		

IUCN's categories:
I. strict protection
- **Ia**. strict nature reserve
- **Ib**. wilderness area

II. ecosystem conservation and protection (i.e., national park)
III. conservation of natural features (i.e., natural monument)
IV. conservation through active management (i.e., habitat/species management area)
V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)
VI. sustainable use of natural resources (i.e., managed resource protected area)

Table 29: Detailed Data on PAs - Dominican Republic

Dominican Republic		ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	MAIN THREATS TERRESTRIAL																								MAIN THREATS MARINE																	MANAGED BY	COMMENTS
									Loss and Degradation of Natural Habitat														Pollution					Over-exploitation					Habitat Degradation					Pollution						Over-exploitation						
	NAME								Cattle Grazing	Agriculture	Recurent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events		Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease		Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
4	NATURE RECREATIONAL AREAS		13,217.00	0.00	3,658.00	6,693.00			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	3	0	0	0	0	0	3	0	0	0	0	0	0	3		
1	Boca de Nigua		581.00		331.00	250.00	Greater Antillean Marine	331.00																									X	X		X						X							X		
							?	250.00																																											
2	Cabo Rojo - Bahía de las Aguilas		7,911.00		2,749.00	5,162.00	Greater Antillean Marine	2,749.00																									X	X		X						X							X		
							?	5,162.00																																											
3	El Puerto Guagüi		4,147.00		?	?	?																																												
4	Guaraguao - Punta Catuano		578.00		578.00	1,281.00	Greater Antillean Marine	578.00																									X	X		X						X							X		
							?	1,281.00																																											
3	ECOLOGIC CORRIDORS		1,366.00	0.00	0.00	1,366.00			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5	Autopista 6 de Noviembre		364.00			364.00	?																																												
6	Autopista Duarte		444.00			444.00	?																																												
7	Autopista Juan Bosch		558.00			558.00	?																																												
31	NATURE MONUMENTS		68,728.00	0.00	2,370.00	66,358.00			13	13	0	12	16	17	20	0	0	0	4	0	4	0	0	5	5	4	4	21	0	0	0	0	3	3	0	3	0	0	0	0	0	3	0	0	0	0	0	0	3		
8	Bosque Húmedo de Río San Juan		159.00			159.00	Hispaniolan moist forests	159.00	X	X		X	X	X	X													X																							
9	Cabo Francés Viejo		25.00			25.00	?																																												
10	Cabo Samaná		926.00			926.00	Hispaniolan moist forests	144.00	X	X		X	X	X	X													X																							
11	Cerro de San Francisco		402.00			402.00	Hispaniolan moist forests	144.00	X	X		X	X	X	X													X																							
12	Cueva de los Tres Ojos de Santo Domingo		67.00			67.00	?																																												
13	del Pomier		501.00			501.00	Hispaniolan moist forests	45.00	X	X		X	X	X	X													X																							
14	Don Rafael Herrera Cabral		50.00			50.00	?																																												
15	El Saltadero		238.00			238.00	?																																												
16	Hoyo Claro		3,930.00			3,930.00	Hispaniolan moist forests	306.00	X	X		X	X	X	X													X																							
17	Isla Catalina		1,624.00		715.00	909.00	Hispaniolan moist forests	234.00	X	X		X	X	X	X													X																							
							Greater Antillean Marine	715.00																									X	X		X						X							X		
18	La Ceiba		1.00			1.00	?																																												
19	Laguna Gri-Grí		1,616.00		1,548.00	68.00	Greater Antillean Marine	1,548.00																									X	X		X						X							X		
							Bahamian-Antillean mangroves	68.00					X		X				X		X			X	X	X	X	X																							
20	Lagunas Cabarete y Goleta		7,091.00			7,091.00	Bahamian-Antillean mangroves	108.00					X		X				X		X			X	X	X	X	X																							
							Hispaniolan moist forests	1,539.00	X	X		X	X	X	X													X																							
21	Las Caobas		10,547.00			10,547.00	Hispaniolan dry forests	1,827.00						X	X													X																							
22	Las Dunas de las Calderas		1,759.00			1,759.00	Bahamian-Antillean mangroves	477.00					X		X				X		X			X	X	X	X	X																							
							Hispaniolan dry forests	684.00						X	X													X																							
23	Las Marías		450.00			450.00	?																																												
24	Loma Isabel de Torres		1,660.00			1,660.00	Hispaniolan moist forests	1,660.00	X	X		X	X	X	X													X																							
25	Loma La Altagracia o Loma la Enea		67.00			67.00	?																																												
26	Los Cacheos		5,584.00			5,584.00	Enriquillo wetlands	387.00	X	X				X										X	X			X																							
							Hispaniolan dry forests	4,149.00						X	X													X																							
27	Manantiales de Las Barías		76.00			76.00	?																																												
28	Miguel Domingo Fuerte		3,353.00			3,353.00	?																																												
29	Pico Diego de Ocampo		2,534.00			2,534.00	Hispaniolan dry forests	18.00						X	X													X																							
							Hispaniolan moist forests	297.00	X	X		X	X	X	X													X																							
30	Punta Bayahibe		270.00		107.00	163.00	Greater Antillean Marine	107.00																									X	X		X						X							X		
							?	163.00																																											
31	Río Cumayasa y Cuevas Las Maravillas		8,730.00			8,730.00	Hispaniolan moist forests	288.00	X	X		X	X	X	X													X																							
32	Salto de Jimenoa		1,743.00			1,743.00	?																																												
33	Salto de la Damajagua		553.00			553.00	Hispaniolan moist forests	54.00	X	X		X	X	X	X													X																							
34	Salto de Socoa		6,830.00			6,830.00	?																																												
35	Salto El Limón		1,647.00			1,647.00	Bahamian-Antillean mangroves	27.00					X		X				X		X			X	X	X	X	X																							
							Hispaniolan moist forests	72.00	X	X		X	X	X	X													X																							
36	Salto Grande		1,476.00			1,476.00	?																																												
37	Saltos de Jima		1,867.00			1,867.00	?																																												
38	Saltos de La Tinaja		2,952.00			2,952.00	?																																												
30	NATIONAL PARKS		1,050,728.00	0.00	155,578.00	896,799.00			19	17	8	8	15	15	20	1	1	1	8	1	8	1	1	10	10	8	8	30	1	1	1	1	9	7	1	7	1	1	1	1	1	7	1	2	1	1	1	1	7		
39	José del Carmen Ramírez		74,972.00			74,972.00	Hispaniolan pine forests	54,648.00	X	X	X																	X																							
40	Anacaona		53,893.00			53,893.00	?																																												
41	Aniana Vargas		12,963.00			12,963.00	?																																												
42	Armando Bermúdez		80,254.00			80,254.00	Hispaniolan pine forests	76,617.00	X	X	X																	X																							
43	Baiguate		5,244.00			5,244.00	?																																												
44	Cabo Cabrón		3,555.00			3,555.00	Hispaniolan moist forests	1,206.00	X	X		X	X	X	X													X																							
45	Cotubanamá (Del Este)		79,640.00		38,178.00	41,462.00	Greater Antillean Marine	38,178.00																									X	X		X						X							X		
							Bahamian-Antillean mangroves	3,016.30					X		X				X		X			X	X	X	X	X																							
							Enriquillo wetlands	5,001.30	X	X				X										X	X			X																							
							Hispaniolan moist forests	33,444.40	X	X		X	X	X	X													X																							
46	El Morro		2,434.00			2,434.00	Bahamian-Antillean mangroves	1,300.00					X		X				X		X			X	X	X	X	X																							
							Bahamian-Antillean mangroves	1,134.00					X		X				X		X			X	X	X	X	X																							
47	Francisco Alberto Caamaño Deñó		58,748.00		29,868.00	28,880.00	Greater Antillean Marine	29,868.00																									X	X		X						X							X		
							?																																											
48	Humedales del Ozama		4,620.00			4,620.00	Hispaniolan moist forests	4,620.00	X	X		X	X	X	X													X																							
49	Jaragua		153,547.00		82,918.00	70,629.00	Greater Antillean Marine	82,918.00																									X	X		X						X							X		
							Bahamian-Antillean mangroves	13,815.90					X		X				X		X			X	X	X	X	X																							
							Hispaniolan dry forests	56,813.10						X	X													X																							

Dominican Republic								MAIN THREATS TERRESTRIAL																												MAIN THREATS MARINE														MANAGED BY	COMMENTS
								Loss and Degradation of Natural Habitat												Pollution					Over-exploitation										Habitat Degradation					Pollution						Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurrent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophication	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
50	La Gran Sabana		21,958.00			21,958.00	?																																									
51	La Hispaniola		5,477.00		2,737.00	2,740.00	Greater Antillean Marine	2,737.00																									X	X		X				X								X		
							?																																									
52	Lago Enriquillo e Isla Cabritos		40,493.00			40,493.00	Enriquillo wetlands	40,345.00	X	X				X										X	X			X																					
							Hispaniolan dry forests	148.00						X	X													X																						
53	Los Haitises		63,168.00			63,168.00	Bahamian-Antillean mangroves	11,658.00					X		X				X		X			X	X	X	X	X																					
							Hispaniolan moist forests	51,510.00	X	X		X	X	X	X													X																						
54	Luis Quin		19,729.00			19,729.00	?																																									
55	Manglares del Bajo Yuna		12,120.00			12,120.00	Bahamian-Antillean mangroves	4,167.00					X		X				X		X			X	X	X	X	X																					
							Hispaniolan moist forests	720.00	X	X		X	X	X	X													X																						
56	Manglares del Estero Balsa		5,659.00		228.00	5,431.00	Greater Antillean Marine	228.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	3,033.00					X		X				X		X			X	X	X	X	X																						
							Hispaniolan dry forests	1,422.00						X	X													X																						
57	Manolo Távarez Justo		35,174.00			35,174.00	?																																									
58	Maximo Gomez		4,229.00			4,229.00	?																																									
59	Montaña La Humeadora		30,541.00			30,541.00	Hispaniolan moist forests	16,911.00	X	X		X	X	X	X													X																						
							Hispaniolan pine forests	72.00	X	X	X																	X																						
60	Nalga de Maco		16,582.00			16,582.00	Hispaniolan pine forests	6,489.00	X	X	X																	X																						
61	Picky Lora		11,228.00			11,228.00	?																																									
62	Punta Espada		8,248.00			8,248.00	?																																									
63	Saltos de la Jalda		3,643.00			3,643.00	?																																									
64	Sierra de Bahoruco		109,177.00			109,177.00	Hispaniolan dry forests	35,051.10						X	X													X																						
							Hispaniolan moist forests	16,645.50	X	X		X	X	X	X													X																						
							Hispaniolan pine forests	57,480.40	X	X	X																	X																						
65	Sierra de Neiba		18,300.00			18,300.00	Hispaniolan pine forests	5,751.00	X	X	X																	X																						
66	Sierra Martín García		24,501.00		1,649.00	24,501.00	Greater Antillean Marine	1,649.00																									X	X		X				X								X		
							Hispaniolan dry forests	15,921.00						X	X													X																						
67	Valle Nuevo		90,631.00			90,631.00	Hispaniolan pine forests	90,631.00	X	X	X																	X																						
2	SUBMARINE NATIONAL PARKS		25,760.00	0.00	25,627.00	133.00			0	0	0	0	1	1	2	0	0	0	1	0	1	0	0	1	1	1	1	2	0	0	0	0	2	2	0	2	0	0	0	0	2	0	0	0	0	0	0	2		
68	Monte Cristi		24,645.00		24,645.00		Greater Antillean Marine	24,645.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	153.00					X		X				X		X			X	X	X	X	X																						
							Hispaniolan dry forests	144.00						X	X													X																						
69	Submarino La Caleta		1,115.00		982.00	133.00	Greater Antillean Marine	982.00																									X	X		X				X								X		
							?																																									
17	WILDLIFE REFUGES		53,283.00	0.00	30,752.00	43,503.00			7	7	0	7	14	12	19	0	0	0	7	0	7	0	0	7	7	7	7	19	0	0	0	0	9	9	0	9	0	0	0	0	9	0	0	0	0	0	0	9		
70	Bahía Luperón		1,870.00		549.00	1,321.00	Greater Antillean Marine	549.00																									X	X		X				X								X		
							Hispaniolan moist forests	288.00	X	X		X	X	X	X													X																						
71	Cañon del Río Gurabo		3,012.00			3,012.00	?																																									
72	Cayos Los Siete Hermanos		0.00		10,485.00	10,485.00	Greater Antillean Marine	10,485.00																									X	X		X				X								X		
73	Gran Estero		15,332.00		12,757.00	2,575.00	Greater Antillean Marine	12,757.00																									X	X		X				X								X		
							?																																									
74	Humedales del Bajo Yaque del Sur		5,846.00		1,885.00	3,961.00	Greater Antillean Marine	1,885.00																									X	X		X				X								X		
							Hispaniolan dry forests	3,105.00						X	X													X																						
75	La Gran Laguna o Perucho		732.00		367.00	365.00	Greater Antillean Marine	367.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	216.00					X		X				X		X			X	X	X	X	X																						
							Hispaniolan moist forests	9.00	X	X		X	X	X	X													X																						
76	Laguna Cabral o Rincón		5,603.00			5,603.00	Hispaniolan dry forests	1,494.00						X	X													X																						
77	Laguna de Mallén		141.00			141.00	?																																									
78	Laguna Saladilla		3,116.00			3,116.00	Hispaniolan dry forests	171.00						X	X													X																						
79	Lagunas de Bávaro y El Caletón		640.00			640.00	Bahamian-Antillean mangroves	225.00					X		X				X		X			X	X	X	X	X																					
							Hispaniolan moist forests	18.00	X	X		X	X	X	X													X																						
80	Lagunas Redonda y Limón		3,211.00			3,211.00	Bahamian-Antillean mangroves	419.00					X		X				X		X			X	X	X	X	X																					
							Hispaniolan moist forests	2,792.00	X	X		X	X	X	X													X																						
81	Manglar de la Jina		5,286.00		3,758.00	1,529.00	Greater Antillean Marine	3,758.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	711.00					X		X				X		X			X	X	X	X	X																						
							Hispaniolan moist forests	90.00	X	X		X	X	X	X													X																						
82	Manglares de Puerto Viejo		1,115.00		645.00	470.00	Greater Antillean Marine	645.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	162.00					X		X				X		X			X	X	X	X	X																						
							Hispaniolan dry forests	63.00						X	X													X																						
83	Ría Maimón		478.00		80.00	398.00	Greater Antillean Marine	80.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	576.00					X		X				X		X			X	X	X	X	X																						
							Hispaniolan moist forests	9.00	X	X		X	X	X	X													X																						
84	Río Chacuey		3,877.00			3,877.00	Hispaniolan dry forests	27.00						X	X													X																						
							Hispaniolan moist forests	981.00	X	X		X	X	X	X													X																						
85	Río Higuamo		1,849.00			1,849.00	?																																									
86	Río Soco		1,175.00		226.00	950.00	Greater Antillean Marine	226.00																									X	X		X				X								X		
							Bahamian-Antillean mangroves	189.00					X		X				X		X			X	X	X	X	X																						
2	BIOLOGIC RESERVES		17,837.00	0.00	0.00	17,837.00			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
87	Loma Charco Azul		17,437.00			17,437.00	?																																									
88	Sierra Prieta		400.00			400.00	?																																									

Dominican Republic								MAIN THREATS TERRESTRIAL																												MAIN THREATS MARINE												MANAGED BY	COMMENTS
								Loss and Degradation of Natural Habitat														Pollution					Over-exploitation						Habitat Degradation					Pollution						Over-exploitation							
	NAME	ESTABLISHED	SIZE ESTABLISHED (hectares)	SIZE PROPOSED (hectares)	SIZE MARINE (hectares)	SIZE TERRESTRIAL (hectares)	ECOREGION	WITHIN PROTECTED AREA	Cattle Grazing	Agriculture	Recurrent Fires	Roads Construction / Improvement	Land Usurpation	Human Settlements	Tourism Developments	Uncontrolled Visitation	Industrial Development	Salt and Shrimp Ponds	Reduction of Rivers' Flow	Volcanic Eruptions	Climate Extre-me Events	Mining	Siltation	Eutrophiziation	Untreated Sewage	Agrochemicals	Logging *	Uncontrolled Hunting	Poaching	Overfishing	Invasive Species	Use of Bottom Trawls	Dredge-and-Fill Operations	Tourism Development	Non-responsible Tourism	Coral Bleaching Disease	Siltation	Untreated Sewage	Solid Wates	Industrial Pollution	Agrochemicals Runoff	Poaching	Undersized Fishing	Capture of Untargeted Species	Overfishing	Selective Overfishing	Invasive Species		
8	**SCIENTIFIC RESERVES**		**22,630.00**	**0.00**	**0.00**	**22,630.00**			**6**	**6**	**2**	**4**	**4**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			
89	Dicayagua		115.00			115.00	?																																								
90	Ebano Verde		2,990.00			2,990.00	Hispaniolan pine forests	2,574.00	X	X	X																	X																				
91	La Salcedoa		4,122.00			4,122.00	?																																								
92	Las Neblinas		4,078.00			4,078.00	Hispaniolan moist forests	153.00	X	X		X	X	X	X													X																				
							Hispaniolan pine forests	945.00	X	X	X																	X																				
93	Loma Barbacoa		1,371.00			1,371.00	Hispaniolan moist forests	756.00	X	X		X	X	X	X													X																				
94	Loma Guaconejo		2,337.00			2,337.00	Hispaniolan moist forests	1,548.00	X	X		X	X	X	X													X																				
95	Loma Quita Espuela		7,574.00			7,574.00	Hispaniolan moist forests	3,987.00	X	X		X	X	X	X													X																				
96	Villa Elisa		43.00			43.00	?																																								
15	**FOREST RESERVES**		**164,962.00**	**0.00**	**0.00**	**164,962.00**			**14**	**14**	**4**	**10**	**10**	**20**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			
97	Alto Bao		30,727.00			30,727.00	Hispaniolan moist forests	2,124.00	X	X		X	X	X	X													X																				
							Hispaniolan pine forests	15,984.00	X	X	X																	X																				
98	Alto Mao		45,705.00			45,705.00	Hispaniolan moist forests	26,226.00	X	X		X	X	X	X													X																				
							Hispaniolan pine forests	15,507.00	X	X	X																	X																				
99	Arroyo Cano		2,390.00			2,390.00	Hispaniolan dry forests	1,278.00						X	X													X																				
							Hispaniolan moist forests	972.00	X	X		X	X	X	X													X																				
100	Barrero		19,215.00			19,215.00	Hispaniolan dry forests	13,833.00						X	X													X																				
							Hispaniolan moist forests	99.00	X	X		X	X	X	X													X																				
101	Cabeza de Toro		594.00			594.00	Hispaniolan dry forests	17,370.00						X	X													X																				
102	Cayuco		504.00			504.00	?																																								
103	Cerro de Bocanigua		2,921.00			2,921.00	Hispaniolan dry forests	1,755.00						X	X													X																				
104	Cerros de Chacuey		5,189.00			5,189.00	Hispaniolan moist forests	936.00	X	X		X	X	X	X													X																				
							Hispaniolan pine forests	117.00	X	X	X																	X																				
105	Guanito		6,895.00			6,895.00	Hispaniolan dry forests	3,006.00						X	X													X																				
							Hispaniolan moist forests	297.00	X	X		X	X	X	X													X																				
106	Hatillo		4,964.00			4,964.00	Hispaniolan dry forests	5,832.00						X	X													X																				
							Hispaniolan moist forests	6,669.00	X	X		X	X	X	X													X																				
							Hispaniolan pine forests	1,350.00	X	X	X																	X																				
107	Las Matas		5,617.00			5,617.00	Hispaniolan dry forests	252.00						X	X													X																				
108	Loma del 20		5,002.00			5,002.00	Hispaniolan dry forests	1,512.00						X	X													X																				
							Hispaniolan moist forests	1,053.00	X	X		X	X	X	X													X																				
109	Loma Novillero		1,289.00			1,289.00	Hispaniolan moist forests	765.00	X	X		X	X	X	X													X																				
110	Río Cana		25,995.00			25,995.00	Hispaniolan dry forests	11,070.00						X	X													X																				
							Hispaniolan moist forests	783.00	X	X		X	X	X	X													X																				
111	Villarpando		7,955.00			7,955.00	Hispaniolan dry forests	3,852.00						X	X													X																				
3	**MARINE MAMMALS SANCTUARIES**		**3,318,721.00**	**0.00**	**3,316,816.00**	**2,571.00**			**1**	**1**	**0**	**1**	**3**	**2**	**4**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**2**	**2**	**2**	**2**	**4**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**3**			
112	Bancos de la Plata y de la Navidad		3,287,980.00		3,287,980.00		Greater Antillean Marine	3,287,980.00																										X	X		X					X					X			
113	Estero Hondo		3,256.00		3,256.00	666.00	Greater Antillean Marine	3,256.00																										X	X		X					X					X			
							Bahamian-Antillean mangroves	513.00					X		X				X		X			X	X	X	X	X																							
							Hispaniolan dry forests	153.00						X	X													X																				
114	Santuario Marino del Norte o de Samaná		27,485.00		25,580.00	1,905.00	Greater Antillean Marine	25,580.00																										X	X		X					X					X			
							Bahamian-Antillean mangroves	18.00					X		X				X		X			X	X	X	X	X																							
							Hispaniolan moist forests	27.00	X	X		X	X	X	X													X																				
2	**MARINE SANCTUARIES**		**1,056,239.00**	**0.00**	**1,056,239.00**	**0.00**			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**			
115	Arrecifes del Sureste		785,531.00		785,531.00		Greater Antillean Marine	785,531.00																										X	X		X					X					X			
116	Arrecifes del Suroeste		270,708.00		270,708.00		Greater Antillean Marine	270,708.00																										X	X		X					X					X			
10	**PANORAMIC ROUTES**		**30,175.00**	**0.00**	**1,238.00**	**28,937.00**			**1**	**1**	**0**	**1**	**1**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**			
117	Autovía Santo Domingo - Samana - Boulevard del Atlántico		10,382.00			10,382.00	?																																									
118	Carretera Bayacanes-Jarabacoa		1,750.00			1,750.00	?																																									
119	Carretera Cabral-Polo		1,204.00			1,204.00	?																																								
120	Carretera El Abanico-Constanza		2,321.00			2,321.00	?																																								
121	Carretera Nagua-Sánchez		1,694.00			1,694.00	?																																								
122	Carretera Santiago-La Cumbre-Puerto Plata		2,098.00			2,098.00	?																																								
123	Costa Azul		1,892.00		1,238.00	654.00	Greater Antillean Marine	1,238.00																										X	X		X					X					X			
							?																																									
124	Entrada de Mao		5,437.00			5,437.00	Hispaniolan dry forests	1,566.00						X	X													X																				
125	Mirador del Atlantico		1,210.00			1,210.00	Hispaniolan moist forests	108.00	X	X		X	X	X	X													X																				
126	Mirador del Paraíso		2,187.00			2,187.00	Hispaniolan dry forests	36.00						X	X													X																				
	Established:	**126**	**5,823,646.00**	**0.00**	**4,592,278.00**	**1,251,789.00**			**142**	**61**	**59**	**14**	**43**	**64**	**74**	**92**	**1**	**1**	**1**	**22**	**1**	**22**	**1**	**1**	**25**	**25**	**22**	**22**	**109**	**1**	**1**	**1**	**1**	**32**	**30**	**1**	**30**	**1**	**1**	**1**	**1**	**30**	**1**	**2**	**1**	**1**	**1**	**1**	**30**			
	Proposed / Uncertain:	**0**			**% of Country Territory:**	**25.84%**				**0.6**	**0.6**	**0.1**	**0.4**	**0.6**	**0.7**	**0.9**	**0**	**0**	**0**	**0.2**	**0**	**0.2**	**0**	**0**	**0.2**	**0.2**	**0.2**	**0.2**	**1**	**0**	**0**	**0**	**0**	**1.1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0.1**	**0**	**0**	**0**	**0**	**1**			

IUCN's categories:
I. strict protection
Ia. strict nature reserve
Ib. wilderness area
II. ecosystem conservation and protection (i.e., national park)
III. conservation of natural features (i.e., natural monument)
IV. conservation through active management (i.e., habitat/species management area)
V. landscape/seascape conservation and recreation (i.e., protected landscape/seascape)
VI. sustainable use of natural resources (i.e., managed resource protected area)

MARENA. 2016. SISTEMA NACIONAL DE ÁREAS PROTEGIDAS. Superficie Terrestre y Marina, Enero 2016. Ministerio de Medio Ambiente y Recursos Naturales. Santo Domingo. 5 pp.

ANNEX Q: LISTS OF CONSERVATION CONCERN SPECIES (DATABASE)

Table 30: Endangered and Critically Endangered Species - Moist Forests

I.A. TROPICAL AND SUBTROPICAL MOIST BROADLEAF FORESTS																											
TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos–San Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
ANIMALIA																											
CHORDATA																											
ANPHIBIA					Total Species of Conservation Concern	229	101	30	0	36	78	5	29	1	17	29	24	2	62	5	4	29	
					Critically Endangered (CR)	93		14	0	13	36	1	10	0	7	12	11	0	26	1	2	9	
					Endangered (EN)	86		7		16	29	1	11		8	14	10		23	3	2	13	
					Vulnerable (VU)	50		9		7	13	3	8	1	2	3	3	2	13	1		7	
					Endemic (E)		101	2		11	20		8	1	9	9	12		30	1		23	
1	ANURA	HYLIDAE	Agalychnis	annae	Blue-sided Treefrog, Orange-eyed Tree Frog	EN	E								EN	EN			EN				
2	ANURA	HYLIDAE	Agalychnis	lemur	Lemur Leaf Frog	CR	E									CR			CR				
3	ANURA	HYLIDAE	Agalychnis	litodryas	Pink-sided Treefrog	VU	E											VU					
4	ANURA	HYLIDAE	Agalychnis	moreletii	Black-eyed Leaf Frog, Morelet's Treefrog	CR		CR			CR		CR										Also present in coniferous forests
5	ANURA	BUFONIDAE	Atelopus	certus	Darien Stubfoot Toad	EN										EN				EN			
6	ANURA	BUFONIDAE	Atelopus	chiriquiensis	Lewis' Stubfoot Toad	CR											CR		CR				
7	ANURA	BUFONIDAE	Atelopus	glyphus	Pirri Range Stubfoot Toad	CR														CR	CR		
8	ANURA	BUFONIDAE	Atelopus	limosus		EN										EN					EN		
9	ANURA	BUFONIDAE	Atelopus	senex	Pass Stubfoot Toad	CR	E								CR	CR			CR				Possibly Extint
10	ANURA	BUFONIDAE	Atelopus	varius	Harlequin Frog, Painted Frog, Clown Frog, Veragoa Stubfoot Toad	CR	E								CR	CR	CR		CR				Possibly Extint from the C.R. Seasonal Moist Forest
11	ANURA	BUFONIDAE	Atelopus	zeteki	Cerro Campana Stubfoot Toad, Golden Arrow Poison Frog, Golden Frog, Panamanian Golden Frog, Zetek's Golden Frog	CR	E									CR	CR		CR				
12	CAUDATA	PLETHODONTIDAE	Bolitoglossa	alvaradoi	Moravia de Chirripo Salamander	EN	E								EN		EN		EN				
13	CAUDATA	PLETHODONTIDAE	Bolitoglossa	carri	Cloud Forest Salamander	CR	E				CR												
14	CAUDATA	PLETHODONTIDAE	Bolitoglossa	celaque	Celaque Mushroomtongue Salamander	EN	E			EN	EN												
15	CAUDATA	PLETHODONTIDAE	Bolitoglossa	compacta	Cerro Pando Salamander	EN	E												EN				
16	CAUDATA	PLETHODONTIDAE	Bolitoglossa	conanti	Conant's Mushroomtongue Salamander	EN	E				EN												
17	CAUDATA	PLETHODONTIDAE	Bolitoglossa	decora		CR	E				CR												
18	CAUDATA	PLETHODONTIDAE	Bolitoglossa	diaphora		CR	E				CR												
19	CAUDATA	PLETHODONTIDAE	Bolitoglossa	diminuta	Quebrada Valverde Salamander	VU	E												VU				
20	CAUDATA	PLETHODONTIDAE	Bolitoglossa	dunni	Dunn's Mushroomtongue Salamander , Dunn's Salamander	EN	E			EN													
21	CAUDATA	PLETHODONTIDAE	Bolitoglossa	engelhardti	Engelhardt's Mushroomtongue Salamander , Engelhardt's Salamander	EN	E						EN										
22	CAUDATA	PLETHODONTIDAE	Bolitoglossa	flavimembris	Yellow-legged Mushroomtongue Salamander, Yellow-legged Salamander	EN	E						EN										
23	CAUDATA	PLETHODONTIDAE	Bolitoglossa	flaviventris	Yellowbelly Mushroomtongue Salamander, Yellow-bellied Salamander	EN	E				EN		EN										
24	CAUDATA	PLETHODONTIDAE	Bolitoglossa	franklini	Franklin's Mushroomtongue Salamander, Black-bellied Salamander, Common Franklin's Salamander , Franklin's Salamander	EN	E						EN										
25	CAUDATA	PLETHODONTIDAE	Bolitoglossa	gracilis	Rio Quiri Salamander	VU	E												VU				
26	CAUDATA	PLETHODONTIDAE	Bolitoglossa	heiroreias	Holy-mountain Salamander	EN	E				EN												
27	CAUDATA	PLETHODONTIDAE	Bolitoglossa	insularis		VU	E											VU					
28	CAUDATA	PLETHODONTIDAE	Bolitoglossa	lignicolor	Camron Mushroomtongue Salamander	VU	E										VU						
29	CAUDATA	PLETHODONTIDAE	Bolitoglossa	longissima		CR	E				CR												
30	CAUDATA	PLETHODONTIDAE	Bolitoglossa	magnifica	Magnificent Web-footed Salamander	EN	E										EN		EN				
31	CAUDATA	PLETHODONTIDAE	Bolitoglossa	marmorea	Crater Salamander	EN	E										EN		EN				
32	CAUDATA	PLETHODONTIDAE	Bolitoglossa	medemi	Finca Chibigui Salamander	VU	E													VU			
33	CAUDATA	PLETHODONTIDAE	Bolitoglossa	meliana	Mexican Mushroomtongue Salamander	EN	E			EN	EN												
34	CAUDATA	PLETHODONTIDAE	Bolitoglossa	minutula		EN	E												EN				

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos-Sn Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
35	CAUDATA	PLETHODONTIDAE	Bolitoglossa	mombachoensis		VU	E								VU								
36	CAUDATA	PLETHODONTIDAE	Bolitoglossa	mulleri	Müller's Mushroomtongue Salamander, Müller's Salamander	VU		VU															Also present in coniferous forests
37	CAUDATA	PLETHODONTIDAE	Bolitoglossa	nigrescens	Cordillera Central Salamander, Black Web-fotted Salamander	EN	E								EN		EN		EN				
38	CAUDATA	PLETHODONTIDAE	Bolitoglossa	obscura	Tapantí Giant Salamander	VU	E												VU				
39	CAUDATA	PLETHODONTIDAE	Bolitoglossa	oresbia		CR	E				CR												
40	CAUDATA	PLETHODONTIDAE	Bolitoglossa	pesrubra		VU	E										VU		VU				
41	CAUDATA	PLETHODONTIDAE	Bolitoglossa	porrasorum		EN	E			EN	EN												
42	CAUDATA	PLETHODONTIDAE	Bolitoglossa	rostrata	Longnose Mushroomtongue Salamander, Long-nosed Salamander	VU					VU												
43	CAUDATA	PLETHODONTIDAE	Bolitoglossa	salvinii	Salvin's Mushroomtongue Salamander	EN							EN										
44	CAUDATA	PLETHODONTIDAE	Bolitoglossa	sombra	Shadowy Web-footed Salamander	VU	E												VU				
45	CAUDATA	PLETHODONTIDAE	Bolitoglossa	sooyorum	Cordillera Talamanca Salamander	EN	E										EN		EN				
46	CAUDATA	PLETHODONTIDAE	Bolitoglossa	subpalmata	La Palma Salamander	EN									EN								
47	CAUDATA	PLETHODONTIDAE	Bolitoglossa	synoria		CR	E				CR												
48	CAUDATA	PLETHODONTIDAE	Bolitoglossa	tica		EN	E								EN								
49	CAUDATA	PLETHODONTIDAE	Bradytriton	silus	Finca Chiblac Salamander	CR	E				CR												
50	ANURA	CRAUGASTORIDAE	Craugastor	alfredi	Alfred's Rainfrog	VU						VU											
51	ANURA	CRAUGASTORIDAE	Craugastor	anciano	Corquin Robber Frog	CR	E				CR												
52	ANURA	CRAUGASTORIDAE	Craugastor	angelicus	Angel Robber Frog	CR	E												CR				Possibly extint
53	ANURA	CRAUGASTORIDAE	Craugastor	aphanus		VU	E			VU													
54	ANURA	CRAUGASTORIDAE	Craugastor	aurilegulus		EN				EN													
55	ANURA	CRAUGASTORIDAE	Craugastor	azueroensis		EN	E										EN		EN				Also present in Dry Forests
56	ANURA	CRAUGASTORIDAE	Craugastor	bocourti		VU	E			VU													
57	ANURA	CRAUGASTORIDAE	Craugastor	brocchi		VU				VU	VU												Also present in coniferous forests
58	ANURA	CRAUGASTORIDAE	Craugastor	catalinae		CR	E										CR		CR				
59	ANURA	CRAUGASTORIDAE	Craugastor	charadra		EN	E			EN													Also present in coniferous forests
60	ANURA	CRAUGASTORIDAE	Craugastor	coffeus		CR	E			CR													
61	ANURA	CRAUGASTORIDAE	Craugastor	cruzi	Cruz Robber Frog	CR	E			CR													
62	ANURA	CRAUGASTORIDAE	Craugastor	daryi		EN	E				EN												
63	ANURA	CRAUGASTORIDAE	Craugastor	emcelae	Rio Claro Robber Frog	CR	E												CR				
64	ANURA	CRAUGASTORIDAE	Craugastor	emleni		CR	E				CR												Also present in coniferous forests
65	ANURA	CRAUGASTORIDAE	Craugastor	epochthidius		CR	E			CR													Also present in coniferous forests
66	ANURA	CRAUGASTORIDAE	Craugastor	fecundus		CR	E			CR													
67	ANURA	CRAUGASTORIDAE	Craugastor	fleischmanni	Fleischmann's Robber Frog	CR	E								CR				CR				Beliebed extint in most of uts range
68	ANURA	CRAUGASTORIDAE	Craugastor	greggi	Gregg's Stream Frog	CR	E						CR										
69	ANURA	CRAUGASTORIDAE	Craugastor	gulosus		CR	E									CR			CR				
70	ANURA	CRAUGASTORIDAE	Craugastor	laevissimus		EN				EN					EN								Also present in coniferous forests
71	ANURA	CRAUGASTORIDAE	Craugastor	lauraster		EN				EN													Also present in coniferous forests
72	ANURA	CRAUGASTORIDAE	Craugastor	lineatus	Montane Robber Frog	CR		CR					CR										Also present in coniferous forests
73	ANURA	CRAUGASTORIDAE	Craugastor	matudai		VU	E						VU										
74	ANURA	CRAUGASTORIDAE	Craugastor	merendonensis	San Pedro Robber Frog	CR				CR													
75	ANURA	CRAUGASTORIDAE	Craugastor	milesi	Miles' Robber Frog	CR				CR	CR												
76	ANURA	CRAUGASTORIDAE	Craugastor	obesus		CR										CR	CR		CR				
77	ANURA	CRAUGASTORIDAE	Craugastor	olanchano		CR					CR												
78	ANURA	CRAUGASTORIDAE	Craugastor	omoaensis		CR				CR													
79	ANURA	CRAUGASTORIDAE	Craugastor	pechorum		EN				EN													
80	ANURA	CRAUGASTORIDAE	Craugastor	persimilis		VU										VU			VU				
81	ANURA	CRAUGASTORIDAE	Craugastor	psephosypharus		VU		VU		VU													
82	ANURA	CRAUGASTORIDAE	Craugastor	punctariolus		EN										EN	EN		EN				
83	ANURA	CRAUGASTORIDAE	Craugastor	pygmaeus	Pygmy Free-fingered Frog, Pygmy Robber Frog	VU					VU		VU										

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos-Sn Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
84	ANURA	CRAUGASTORIDAE	Craugastor	ranoides		CR									CR	CR	CR		CR				Possibly extinct in some parts of the Isthmian Pacific and Isthmian Atlantic moist forests. Also present in Dry Forests.
85	ANURA	CRAUGASTORIDAE	Craugastor	rhyacobatrachus		EN											EN		EN				Possibly extinct in some parts of Talamanca
86	ANURA	CRAUGASTORIDAE	Craugastor	rivulus		VU		VU			VU												
87	ANURA	CRAUGASTORIDAE	Craugastor	sabrinus	Long-legged Streamfrog	EN		EN		EN	EN												
88	ANURA	CRAUGASTORIDAE	Craugastor	saltuarius		CR				CR	CR												
89	ANURA	CRAUGASTORIDAE	Craugastor	sandersoni	Sanderson's Streamfrog, Sanderson's Rainfrog	EN		EN		EN	EN												
90	ANURA	CRAUGASTORIDAE	Craugastor	stadelmani		CR				CR	CR												
91	ANURA	CRAUGASTORIDAE	Craugastor	stuarti		EN					EN		EN										
92	ANURA	CRAUGASTORIDAE	Craugastor	tabasarae		CR													CR		CR		
93	ANURA	CRAUGASTORIDAE	Craugastor	taurus	Golfito Robber Frog	CR											CR		CR				Possibly extinct in most of the region
94	ANURA	CRAUGASTORIDAE	Craugastor	trachydermus		CR		CR															Possibly extinct
95	ANURA	CRAUGASTORIDAE	Craugastor	xucanebi		VU		VU			VU												
96	CAUDATA	PLETHODONTIDAE	Cryptotriton	monzoni		CR					CR												
97	CAUDATA	PLETHODONTIDAE	Cryptotriton	nasalis	Cortes Salamander	EN																	There is no map distribution in UICN web site, although the range distribution description says that this species occurs at middle and high elevations in PN El Cusuco in Honduras and on the west slope of Cerro Pozo de Agua in the Sierra de Caral, Izabal, Guatemala.
98	CAUDATA	PLETHODONTIDAE	Cryptotriton	veraepacis	Baja Verapaz Salamander	CR		CR															
99	CAUDATA	PLETHODONTIDAE	Dendrotriton	bromeliacius	Volcan Tajumulco Bromeliad Salamander	CR							CR										
100	CAUDATA	PLETHODONTIDAE	Dendrotriton	chujorum		CR		CR															Also present in Dry Forests
101	CAUDATA	PLETHODONTIDAE	Dendrotriton	cuchumatanus	Forest Bromeliad Salamander	CR					CR												
102	CAUDATA	PLETHODONTIDAE	Dendrotriton	kekchiorum		EN		EN			EN												
103	CAUDATA	PLETHODONTIDAE	Dendrotriton	rabbi	Guatemalan Bromeliad Salamander	CR					CR												
104	CAUDATA	PLETHODONTIDAE	Dendrotriton	sanctibarbarus		VU					VU												
105	GYMNOPHIONA	DERMOPHIIDAE	Dermophis	mexicanus	Mexican Caecilian	VU		VU		VU	VU	VU	VU										Also present in dry forests
106	ANURA	ELEUTHERODACTYLIDAE	Diasporus	ventrimaculatus		VU													VU				
107	ANURA	HYLIDAE	Duellmanohyla	lythrodes	Savage's Brook Frog	EN										EN			EN				
108	ANURA	HYLIDAE	Duellmanohyla	salvavida	Honduran Brook Frog	CR					CR												
109	ANURA	HYLIDAE	Duellmanohyla	schmidtorum		VU							VU										
110	ANURA	HYLIDAE	Duellmanohyla	soralia	Copan Brook Frog	EN				EN	EN												
111	ANURA	HYLIDAE	Duellmanohyla	uranochroa	Costa Rica Brook Frog	EN										EN	EN		EN				Possibly extinct in most of the region
112	ANURA	HYLIDAE	Ecnomiohyla	fimbrimembra	Heredia Treefrog	EN									EN				EN				
113	ANURA	HYLIDAE	Ecnomiohyla	miliaria	Cope's Brown Treefrog	VU										VU			VU				
114	ANURA	HYLIDAE	Ecnomiohyla	minera		EN		EN															
115	ANURA	HYLIDAE	Ecnomiohyla	rabborum	Rabb's Fringe-limbed Treefrog	CR	E										CR						
116	ANURA	HYLIDAE	Ecnomiohyla	salvaje		CR				CR													
117	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	armstrongi	Baoruco Hammer Frog, Armstrong's Robber Frog	EN	E															EN	
118	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	audanti	South Island Telegraph Frog	VU	E															VU	
119	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	auriculatoides		EN	E															EN	
120	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	fowleri	Fowler's Robber Frog, Khaki Bromeliad Frog	CR	E															CR	Small part of Hispaniolan Moist Forests Region in Dominican Republic
121	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	furcyensis	La Selle Red-legged Frog , Furcy Robber Frog	CR	E															CR	Small part of Hispaniolan Moist Forests Region in Dominican Republic
122	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	haitianus		EN	E															EN	Small part of Hispaniolan Moist Forests Region in Dominican Republic
123	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	heminota	Half-stripe Bromeliad Frog , Shreve's Robber Frog	EN	E															EN	
124	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	hypostenor	Baoruco Burrowing Frog	EN	E															EN	
125	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	jugans	La Selle Dusky Frog, Mable's Robber Frog	CR	E															CR	Small part of Hispaniolan Moist Forests Region in Dominican Republic
126	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	leoncei	Southern Pastel Frog, Hispaniola Robber Frog	CR	E															CR	
127	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	leprus	Leprus Chirping Frog, Mottled Chirping Frog	VU		VU			VU												

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128	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	iminutus		EN	E															EN	Small part of Hispaniolan Moist Forests Region in Dominican Republic
129	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	montanus		EN	E															EN	Small part of Hispaniolan Moist Forests Region in Dominican Republic
130	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	nortoni	Spiny Giant Frog, Norton's Robber Frog	CR	E															CR	
131	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	notidodes	Neiba Telegraph Frog	EN	E															EN	Small part of Hispaniolan Moist Forests Region
132	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	oxyrhyncus	Rednose Robber Frog	CR	E															CR	Small part of the Hispaniolan Moist Forests Region from Dominican Republic
133	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	parabates	Independencia Robber Frog	CR	E															CR	
134	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	patriciae		EN	E															EN	Small part of the Hispaniolan Moist Forests Region
135	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	pictissimus	Hispaniolan Yellow-mottled Frog	VU	E															VU	Also present in dry and conifeorus forests
136	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	pituinus		EN	E															EN	
137	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	rubrimaculatus	Dusky Chirping Frog, Red-spotted Chirping Frog	VU	E				VU		VU										
138	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	rufifemoralis	Red-legged Robber Frog	CR	E															CR	
139	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	ruthae		EN	E															EN	
140	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	schmidti	Schmidt's Robber Frog	CR	E															CR	Also present in flooded grasslands
141	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	sommeri		EN	E															EN	Small part of the Hispaniolan Moist Forests
142	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	wetmorei	Tiburon Whistling Frog	VU																VU	
143	ANURA	HYLIDAE	Exerodonta	catracha		EN					EN												
144	ANURA	HYLIDAE	Exerodonta	perkinsi		CR	E	CR															
145	ANURA	HEMIPHRACTIDAE	Gastrotheca	cornuta	Horned Marsupial Frog	EN										EN			EN	EN	EN		
146	ANURA	HYLIDAE	Hyla	bocourti	Bocourt's Treefrog	CR	E	CR															
147	ANURA	HYLIDAE	Hyla	walkeri	Walker's Treefrog	VU		VU															
148	ANURA	MICROHYLIDAE	Hypopachus	barberi	Barber's Sheep Frog	VU					VU		VU										
149	ANURA	HYLIDAE	Hypsiboas	heilprini	Hispaniolan Green Treefrog, Los Bracitos Treefrog	VU																VU	Probably extint. Also reported from flooded grasslands
150	ANURA	BUFONIDAE	Incilius	chompipe		VU	E												VU				
151	ANURA	BUFONIDAE	Incilius	fastidiosus	Pico Blanco Toad	CR													CR				Possibly extinct
152	ANURA	BUFONIDAE	Incilius	holdridgei	Holdridge's Toad	CR	E								CR				CR				
153	ANURA	BUFONIDAE	Incilius	ibarrai		EN					EN												
154	ANURA	BUFONIDAE	Incilius	leucomyos		EN				VU	VU												
155	ANURA	BUFONIDAE	Incilius	macrocristatus		VU		VU				VU	VU										
156	ANURA	BUFONIDAE	Incilius	peripatetes	Almirante Trail Toad	CR													CR				Also present in montane grasslands
157	ANURA	BUFONIDAE	Incilius	tacanensis		EN	E				EN		EN										
158	ANURA	BUFONIDAE	Incilius	tutelarius		EN					EN		EN										
159	ANURA	HYLIDAE	Isthmohyla	angustilineata	Narrow-lined Treefrog	CR										CR			CR				Possibly extinct in some part of the ecoregions
160	ANURA	HYLIDAE	Isthmohyla	calypsa		CR	E												CR				Regionally extinct in Costa Rica
161	ANURA	HYLIDAE	Isthmohyla	debilis	Isla Bonita Treefrog	CR										CR	CR		CR				Possibly extinct
162	ANURA	HYLIDAE	Isthmohyla	graceae	Continental Divide Treefrog	CR	E												CR				
163	ANURA	HYLIDAE	Isthmohyla	insolita		CR	E				CR												
164	ANURA	HYLIDAE	Isthmohyla	pictipes	Pico Blanco Treefrog	EN													EN				
165	ANURA	HYLIDAE	Isthmohyla	rivularis	American Cinchona Plantation Treefrog	CR									CR	CR	CR		CR				
166	ANURA	HYLIDAE	Isthmohyla	tica	Starrett's Treefrog	CR									CR	CR	CR		CR				Possibly extinct
167	ANURA	LEPTODACTYLIDAE	Leptodactylus	silvanimbus	Honduras White-lipped Frog	CR	E				CR												
168	ANURA	RANIDAE	Lithobates	macroglossa		VU		VU			VU												
169	ANURA	RANIDAE	Lithobates	miadis		VU	E							VU									
170	ANURA	RANIDAE	Lithobates	vibicarius	Rancho Redondo Frog, Green-eyed Frog	VU													VU				Possibly extinct in Panama
171	CAUDATA	PLETHODONTIDAE	Nototriton	barbouri	Yoro Salamander	EN				EN	EN												
172	CAUDATA	PLETHODONTIDAE	Nototriton	brodiei		EN					EN												
173	CAUDATA	PLETHODONTIDAE	Nototriton	gamezi	Monteverde Moss Salamander	VU													VU				
174	CAUDATA	PLETHODONTIDAE	Nototriton	guanacaste		VU									VU								
175	CAUDATA	PLETHODONTIDAE	Nototriton	lignicola		CR					CR												
176	CAUDATA	PLETHODONTIDAE	Nototriton	limnospectator		EN					EN												
177	CAUDATA	PLETHODONTIDAE	Nototriton	major		CR													CR				

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178	CAUDATA	PLETHODONTIDAE	Nototriton	saslaya		VU				VU													
179	CAUDATA	PLETHODONTIDAE	Nototriton	tapanti		VU													VU				
180	CAUDATA	PLETHODONTIDAE	Nyctanolis	pernix	Nimble Long-limbed Salamander	EN		EN				EN											
181	CAUDATA	PLETHODONTIDAE	Oedipina	alfaroi	Limon Worm Salamander	VU										VU							
182	CAUDATA	PLETHODONTIDAE	Oedipina	altura	Cartago Worm Salamander	CR													CR				
183	CAUDATA	PLETHODONTIDAE	Oedipina	carablanca	Los Diamantes Worm Salamander	EN										EN							
184	CAUDATA	PLETHODONTIDAE	Oedipina	gephyra	La Fortuna Worm Salamander	EN					EN												
185	CAUDATA	PLETHODONTIDAE	Oedipina	gracilis		EN										EN							
186	CAUDATA	PLETHODONTIDAE	Oedipina	grandis	Cerro Pando Worm Salamander	EN													EN				
187	CAUDATA	PLETHODONTIDAE	Oedipina	maritima	Maritime Worm Salamander	CR										CR							Also present in mangroves
188	CAUDATA	PLETHODONTIDAE	Oedipina	paucidentata	El Empalme Worm Salamander	CR													CR				
189	CAUDATA	PLETHODONTIDAE	Oedipina	poelzi	Quarry Worm Salamander	EN													EN				
190	CAUDATA	PLETHODONTIDAE	Oedipina	pseudouniformis		EN					EN				EN	EN			EN				
191	CAUDATA	PLETHODONTIDAE	Oedipina	stenopodia		EN							EN										
192	CAUDATA	PLETHODONTIDAE	Oedipina	tomasi		CR					CR												
193	ANURA	DENDROBATIDAE	Oophaga	arborea	Polkadot Poison Frog	EN	E									EN			EN				
194	ANURA	DENDROBATIDAE	Oophaga	granulifera	Granular Poison Frog, Granular Poison-arrow Frog, Granulated Poison-dart Frog	VU											VU		VU				
195	ANURA	DENDROBATIDAE	Oophaga	speciosa	Splendid Poison Frog	EN	E									EN			EN				
196	ANURA	HYLIDAE	Osteopilus	pulchrilineatus	Hispaniolan Yellow Treefrog, Common Treefrog	VU																VU	Also present in flooded grasslands
197	ANURA	HYLIDAE	Osteopilus	vastus	Hispaniolan Giant Treefrog, Hispaniola Treefrog	VU																VU	Also present in flooded grasslands
198	ANURA	BUFONIDAE	Peltophryne	fracta	Eastern Crested Toad	EN																EN	Also present in dry forests & flooded grasslands
199	ANURA	BUFONIDAE	Peltophryne	guentheri	Southern Crested Toad, Gunther's Caribbean Toad	VU																VU	Also present in dry forests & flooded grasslands
200	ANURA	DENDROBATIDAE	Phyllobates	vittatus	Golfodulcean Poison Frog, Golfodulcean Poison-arrow Frog	EN										EN			EN				
201	ANURA	PIPIDAE	Pipa	myersi	Myers' Surinam Toad	EN		EN			EN												
202	ANURA	HYLIDAE	Plectrohyla	acanthodes	Thorny Spikethumb Frog	CR					CR		CR										
203	ANURA	HYLIDAE	Plectrohyla	avia	Greater Spikethumb Frog	CR	E																
204	ANURA	HYLIDAE	Plectrohyla	chrysopleura		CR					CR												
205	ANURA	HYLIDAE	Plectrohyla	dasypus	Honduras Spikethumb Frog	CR				CR	CR												
206	ANURA	HYLIDAE	Plectrohyla	exquisita		CR				CR	CR												
207	ANURA	HYLIDAE	Plectrohyla	glandulosa	Forest Spikethumb Frog	EN					EN		EN										
208	ANURA	HYLIDAE	Plectrohyla	guatemalensis	Guatemala Spikethumb Frog	CR				CR	CR		CR										
209	ANURA	HYLIDAE	Plectrohyla	hartwegi	Hartweg's Spikethumb Frog	CR		CR			CR		CR										
210	ANURA	HYLIDAE	Plectrohyla	ixil	Ixil Spikethumb Frog	CR					CR	CR											
211	ANURA	HYLIDAE	Plectrohyla	matudai	Matuda's Spikethumb Frog	VU					VU		VU										
212	ANURA	HYLIDAE	Plectrohyla	pokomchi		CR		CR			CR												
213	ANURA	HYLIDAE	Plectrohyla	psiloderma		EN					EN												
214	ANURA	HYLIDAE	Plectrohyla	quecchi		CR		CR			CR												
215	ANURA	HYLIDAE	Plectrohyla	sagorum		EN					EN		EN										
216	ANURA	HYLIDAE	Plectrohyla	tecunumani		CR					CR												
217	ANURA	HYLIDAE	Plectrohyla	teuchestes		CR					CR												
218	ANURA	CRAUGASTORIDAE	Pristimantis	museosus		EN	E									EN			EN				
219	CAUDATA	PLETHODONTIDAE	Pseudoeurycea	brunnata	Brown False Brook Salamander	CR		CR					CR										
220	CAUDATA	PLETHODONTIDAE	Pseudoeurycea	exspectata	Jalpa False Brook Salamander	CR					CR												
221	CAUDATA	PLETHODONTIDAE	Pseudoeurycea	goebeli	Goebel's False Brook Salamander	CR					CR		CR										
222	CAUDATA	PLETHODONTIDAE	Pseudoeurycea	rex	Royal False Brook Salamander	CR		CR			CR		CR										
223	ANURA	HYLIDAE	Ptychohyla	dendrophasma		CR		CR															
224	ANURA	HYLIDAE	Ptychohyla	legleri	Legler's Stream Frog	EN											EN		EN				
225	ANURA	HYLIDAE	Ptychohyla	panchoi		EN		EN		EN	EN												
226	ANURA	HYLIDAE	Ptychohyla	salvadorensis		EN					EN												
227	ANURA	HYLIDAE	Ptychohyla	sanctaecrucis		CR		CR															
228	ANURA	HYLIDAE	Ptychohyla	spinipollex		EN				EN	EN												
229	ANURA	BUFONIDAE	Rhinella	chrysophora		EN				EN	EN												

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						Total Species of Conservation Concern	58	24	9	2	18	30	1	4	0	0	1	0	0	2	0	0	3	
		REPTILIA				Critically Endangered (CR)	15		2	1	7	5					1						2	
						Endangered (EN)	28		3	0	6	16		2			0			2			0	
						Vulnerable (VU)	15		4	1	5	9	1	2	0	0	0	0	0	0	0	0	1	
						Endemic (E)		24	3	1	10	11		1			1			1				
1	SQUAMATA		ANGUIDAE	Abronia	anzuetoi	Anzuetoi Arboreal Alligator Lizard	VU	E						VU										
2	SQUAMATA		ANGUIDAE	Abronia	aurita	Cope's Arboreal Alligator Lizard	EN		EN															
3	SQUAMATA		ANGUIDAE	Abronia	campbelli	Campbell's Alligator Lizard	CR																	
4	SQUAMATA		ANGUIDAE	Abronia	fimbriata		EN	E				EN												
5	SQUAMATA		ANGUIDAE	Abronia	frosti	Frost's Arboreal Alligator Lizard	CR	E	CR															
6	SQUAMATA		ANGUIDAE	Abronia	gaiophantasma	Brilliant Arboreal Alligator Lizard	EN	E	EN			EN												
7	SQUAMATA		ANGUIDAE	Abronia	matudai	Matuda's Arboreal Alligator Lizard	EN					EN		EN										
8	SQUAMATA		ANGUIDAE	Abronia	meledona		EN	E				EN												
9	SQUAMATA		ANGUIDAE	Abronia	montecristoi	MonteCristo Arboreal Alligator Lizard	EN					EN												
10	SQUAMATA		ANGUIDAE	Abronia	salvadorensis	Salvador Arboreal Alligator Lizard	EN					EN												
11	SQUAMATA		ANGUIDAE	Abronia	vasconcelosii		VU					VU												
12	SQUAMATA		DIPSADIDAE	Adelphicos	daryi	Dary's Burrowing Snake	EN	E				EN												
13	SQUAMATA		DIPSADIDAE	Adelphicos	ibarrorum		EN	E				EN												The information says that this snake has a limited distribution in pine-oak forest
14	SQUAMATA		DIPSADIDAE	Adelphicos	veraepacis	Stuart's Burrowing Snake	VU		VU			VU												
15	SQUAMATA		TYPHLOPIDAE	Amerotyphlops	stadelmani	Stadelman's Worm Snake	VU				VU													
16	SQUAMATA		DACTYLOIDAE	Anolis	amplisquamosus		EN	E			EN	EN												
17	SQUAMATA		DACTYLOIDAE	Anolis	cusuco		EN	E			EN	EN												
18	SQUAMATA		DACTYLOIDAE	Anolis	loveridgei	Honduran Giant Anole	EN	E			EN	EN												
19	SQUAMATA		VIPERIDAE	Atropoides	indomitus		EN																	There is no map of distribution for this species at UICN website, but the information for range description says that this species is currently known from two localities in central and northern Honduras
20	SQUAMATA		VIPERIDAE	Bothriechis	aurifer	Yellow-blotched Palm Pit Viper	VU		VU			VU	VU											
21	SQUAMATA		VIPERIDAE	Bothriechis	marchi	March's Palm Pit Viper	EN																	There is no map of distribution at UICN website, but range description says that this species primarily occurs in northern Honduras and may extend into extreme eastern Guatemala, although there is one record from Nicaragua.
22	SQUAMATA		ANGUIDAE	Celestus	anelpistus	Giant Hispaniolan Galliwasp	CR																CR	There is no map of distribution at UICN website, but the range description says that this species was recorded from south-central Dominican Republic up to moderate elevations but it is possibly extinct in this region
23	SQUAMATA		ANGUIDAE	Celestus	bivittatus		EN					EN												Also present in dry & coniferous forests
24	SQUAMATA		ANGUIDAE	Celestus	montanus	Mountain Lesser Galliwasp	EN																	There is no map of distribution at UICN website, but the range description says that this species occurs in the Sierra de Meredon in northwestern Honduras and adjacent Guatemala
25	SQUAMATA		ANGUIDAE	Celestus	warreni	Giant Hispaniolan Galliwasp	CR																CR	There is no map of distribution at UICN website, but the range description says that the entire distribution is on Hispaniola where occurs up to moderate elevations
26	SQUAMATA		DIPSADIDAE	Chapinophis	xanthocheilus		EN	E	EN			EN												
27	SQUAMATA		IGUANIDAE	Ctenosaura	oedirhina	Garrobo, Roatán Spiny-tailed Iguana, Wishywilly, De Queiroz's Spiny-tailed Iguana	EN				EN													
28	TESTUDINES		DERMATEMYDIDAE	Dermatemys	mawii	Tortuga Blanca, Tortuga Rivereña Centroamericana (Central America River Turtle)	CR		CR	CR	CR													Also present in mangrove forests
29	SQUAMATA		DIPSADIDAE	Enulius	bifoveatus		CR	E			CR													

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos-Sn Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
30	SQUAMATA	DIPSADIDAE	Enulius	roatenensis		EN	E			EN													There is no map of distribution at UICN website, but the range description says that is endemic to the western portion of Roatán Island
31	SQUAMATA	DIPSADIDAE	Geophis	damiani		CR				CR	CR												
32	SQUAMATA	DIPSADIDAE	Geophis	fulvoguttatus		EN					EN												
33	SQUAMATA	DIPSADIDAE	Geophis	nephodrymus		VU					VU												
34	SQUAMATA	DIPSADIDAE	Geophis	talamancae		EN														EN			
35	SQUAMATA	COLUBRIDAE	Leptophis	modestus	Cloud Forest Parrot Snake	VU		VU			VU												
36	SQUAMATA	SCINCIDAE	Marisora	roatanae	Roatán Skink	CR	E			CR													
37	SQUAMATA	ELAPIDAE	Micrurus	ruatanus	Coral de la Isle de Roatán, Coral Roatanense (Roatán Coral Snake)	CR	E			CR													
38	SQUAMATA	DIPSADIDAE	Omoadiphas	aurula		VU	E				VU												
39	SQUAMATA	DIPSADIDAE	Omoadiphas	cannula		CR				CR	CR												
40	SQUAMATA	DIPSADIDAE	Omoadiphas	texiguatensis		CR					CR												
41	SQUAMATA	COLUBRIDAE	Oxybelis	wilsoni		EN	E			EN													
42	SQUAMATA	PHYLLODACTYLIDAE	Phyllodactylus	insularis	Belize Leaf-toed Gecko	VU	E		VU														Difficult to see the ecoregion in a small island
43	SQUAMATA	DIPSADIDAE	Rhadinaea	stadelmani	Stadelman's Graceful Brown Snake	EN	E				EN												
44	SQUAMATA	DIPSADIDAE	Rhadinella	hempsteadae	Hempstead's Pine Woods Snake	EN																	There is no map distribution at UICN website, but the range description says that this species occurs in Alta Verapaz and Sierra de las Minas, Guatemala
45	SQUAMATA	DIPSADIDAE	Rhadinella	montecristi	Monte Cristi Graceful Brown Snake	VU				VU	VU												
46	SQUAMATA	DIPSADIDAE	Rhadinella	pegosalyta		VU	E			VU													
47	SQUAMATA	DIPSADIDAE	Rhadinella	posadasi	Posada's Graceful Brown Snake	EN							EN										
48	SQUAMATA	DIPSADIDAE	Rhadinella	tolpanorum		CR					CR												
49	SQUAMATA	DIPSADIDAE	Sibon	lamari		EN																	There is no map distribution at UICN website, but the range description says that this specie is known from a small number of localities in CR and western Panama
50	SQUAMATA	DIPSADIDAE	Sibon	merendonensis		CR					CR												
51	SQUAMATA	SPHAERODACTYLIDAE	Sphaerodactylus	callocricus	Rough-banded Sphaero	VU																VU	
52	SQUAMATA	COLUBRIDAE	Tantilla	jani	Jan's Centipede Snake	VU					VU		VU										
53	SQUAMATA	COLUBRIDAE	Tantilla	lempira	Mena's Centipede Snake	EN					EN												
54	SQUAMATA	COLUBRIDAE	Tantilla	psittaca		VU				VU													
55	SQUAMATA	COLUBRIDAE	Tantilla	tritaeniata	Three-banded Centipede Snake	CR	E			CR													
56	SQUAMATA	DIPSADIDAE	Trimetopon	simile	Dunn's Tropical Ground Snake	EN	E													EN			
57	SQUAMATA	DIPSADIDAE	Trimetopon	viquezi	Viquez's Tropical Ground Snake	CR	E									CR							
58	SQUAMATA	XENOSAURIDAE	Xenosaurus	grandis		VU		VU		VU	VU												Also present in dry forests and shrublands
					Total Species of Conservation Concern	**52**	**6**	**6**	**2**	**11**	**11**	**5**	**8**	**0**	**8**	**11**	**10**	**4**	**14**	**12**	**9**	**13**	
					Critically Endangered (CR)	**2**											**1**	**1**				**1**	
					Endangered (EN)	**15**		**1**		**3**	**2**	**1**	**2**		**3**	**2**	**4**		**4**	**1**	**1**	**5**	
					Vulnerable (VU)	**35**		**5**	**2**	**8**	**9**	**4**	**6**		**5**	**9**	**5**	**3**	**10**	**11**	**8**	**7**	
					Endemic (E)		**6**											**2**		**1**	**1**	**1**	
AVES																							
1	PELECANIFORMES	ARDEIDAE	Agamia	agami	Agami Heron	VU		VU	VU	VU	VU	VU				VU	VU		VU	VU			
2	PSITTACIFORMES	PSITTACIDAE	Amazona	auropalliata	Yellow-naped Amazon, Yellow-naped Parrot	VU				VU	VU		VU		VU								Also present in dry, coniferous and mangrove forests
3	PSITTACIFORMES	PSITTACIDAE	Amazona	oratrix	Yellow-headed Amazon, Yellow-headed Parrot	EN		EN		EN													Possibly extint in some parts of Petén-Veracruz Moist Forests. Also reported from dry, coniferous and mangrove forests
4	PSITTACIFORMES	PSITTACIDAE	Amazona	ventralis	Hispaniolan Amazon, Hispaniolan Parrot	VU																VU	Possibly extint in some parts of this ecoregion. Also reported from dry and coniferous forests
5	PASSERIFORMES	TYRANNIDAE	Aphanotriccus	capitalis	Tawny-chested Flycatcher	VU									VU	VU			VU				
6	PSITTACIFORMES	PSITTACIDAE	Ara	ambiguus	Great Green Macaw	EN				EN					EN	EN	EN		EN	EN	EN		Possibly extint in some parts of the Isthmian Pacific Moist Forests and Isthmian Atlantic Moist Forest in Panama region
7	PROCELLARIIFORMES	PROCELLARIIDAE	Ardenna	creatopus	Pink-footed Shearwater	VU										VU							Seabird

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos-Sn Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
8	PASSERIFORMES	PARULIDAE	Basileuterus	ignotus	Pirre Warbler	VU														VU	VU		Between Eastern Panamanian Montane and Chocó-Darien Moist Forest
9	ACCIPITRIFORMES	ACCIPITRIDAE	Buteo	ridgwayi	Ridgway's Hawk, Hispaniolan Hawk	CR																CR	Possibly extint in most of the ecoregion. Most of the records are from Los Haitises National Park. Also reported from dry & coniferous forests
10	PASSERIFORMES	THRAUPIDAE	Calyptophilus	frugivorus	Chat Tanager, Eastern Chat-Tanager	VU																VU	Possibly extint in the ecoregion. Also reported from dry & coniferous forests
11	PASSERIFORMES	COTINGIDAE	Carpodectes	antoniae	Yellow-billed Cotinga	EN									EN		EN						Also present in mangrove forests
12	PASSERIFORMES	TURDIDAE	Catharus	bicknelli	Bicknell's Thrush	VU																VU	
13	PASSERIFORMES	COTINGIDAE	Cephalopterus	glabricollis	Bare-necked Umbrellabird	EN									EN	EN			EN				It breeds in most part of Talamancan Montane Forests
14	CUCULIFORMES	CUCULIDAE	Coccyzus	ferrugineus	Cocos Cuckoo	VU	E											VU					
15	CUCULIFORMES	CUCULIDAE	Coccyzus	rufigularis	Bay-breasted Cuckoo, Rufous-breasted Cuckoo	EN																EN	Possibly extint in most of this ecoregion. Also reporetd from dry & coniferous forests
16	PASSERIFORMES	CORVIDAE	Corvus	leucognaphalus	White-necked Crow	VU																VU	Possibly extint in most of the Hispaniolan Moist Forests region
17	PASSERIFORMES	COTINGIDAE	Cotinga	ridgwayi	Turquoise Cotinga	VU									VU		VU		VU				Possibly extint in some parts of the Costa Rican Seasonal Moist Forest and Isthmian Pacific Moist Forests regions
18	GALLIFORMES	CRACIDAE	Crax	rubra	Great Curassow	VU		VU	VU	VU	VU		VU			VU	VU		VU	VU	VU		Also reporetd from dry & coniferous forests
19	ACCIPITRIFORMES	ACCIPITRIDAE	Cryptoleucopteryx	plumbea	Plumbeous Hawk	VU										VU				VU	VU		
20	STRUTHIONIFORMES	TINAMIDAE	Crypturellus	kerriae	Choco Tinamou, Chocó Tinamou	VU														VU			
21	GALLIFORMES	ODONTOPHORIDAE	Cyrtonyx	ocellatus	Ocellated Quail	VU				VU	VU	VU	VU										
22	PASSERIFORMES	PARULIDAE	Dendroica	cerulea	Cerulean Warbler	VU														VU			Non-breeding region
23	PASSERIFORMES	PARULIDAE	Dendroica	chrysoparia	Golden-cheeked Warbler	EN				EN	EN	EN											Non-breeding region. Also reported from coniferous forests
24	CORACIIFORMES	MOMOTIDAE	Electron	carinatum	Keel-billed Motmot	VU		VU		VU	VU								VU				Possibly extint in a small part of Central America Montane Forests region
25	PASSERIFORMES	PARULIDAE	Ergaticus	versicolor	Pink-headed Warbler	VU					VU		VU										
26	COLUMBIFORMES	COLUMBIDAE	Geotrygon	leucometopia	White-fronted Quail-dove	EN																EN	Its distribution encompasses small parts of the Hispaniolan Moist Forests
27	PASSERIFORMES	CARDINALIDAE	Habia	atrimaxillaris	Black-cheeked Ant-tanager, Black-cheeked Ant Tanager, Black-cheeked Ant-Tanager	EN											EN						Possibly extint in a great part of its distribution
28	COLUMBIFORMES	COLUMBIDAE	Leptotila	battyi	Brown-backed Dove, Azuero Dove	VU											VU		VU				
29	PASSERIFORMES	FRINGILLIDAE	Loxia	megaplaga	Hispaniolan Crossbill	EN																EN	Its distribution encompasses small parts of the Hispaniolan Moist Forests
30	STRIGIFORMES	STRIGIDAE	Megascops	barbarus	Bearded Screech-owl, Santa Barbara Screech-Owl, Bearded Screech-Owl, Bearded Screech Owl	VU		VU			VU	VU											
31	CUCULIFORMES	CUCULIDAE	Neomorphus	geoffroyi	Rufous-vented Ground-cuckoo	VU				VU						VU				VU	VU		
32	PASSERIFORMES	TYRANNIDAE	Nesotriccus	ridgwayi	Cocos Flycatcher	VU	E											VU					
33	GALLIFORMES	ODONTOPHORIDAE	Odontophorus	dialeucos	Tacarcuna Wood-quail, Tacarcuna Wood Quail, Tacarcuna Wood-Quail	VU	E													VU	VU		
34	GALLIFORMES	CRACIDAE	Oreophasis	derbianus	Horned Guan	EN					EN		EN										
35	COLUMBIFORMES	COLUMBIDAE	Patagioenas	subvinacea	Ruddy Pigeon	VU														VU	VU	VU	
36	GALLIFORMES	CRACIDAE	Penelopina	nigra	Highland Guan	VU		VU		VU	VU	VU	VU										
37	PASSERIFORMES	EMBERIZIDAE	Pinaroloxias	inornata	Cocos Finch, Cocos Island Finch	VU												VU					
38	PASSERIFORMES	COTINGIDAE	Procnias	tricarunculatus	Three-wattled Bellbird	VU				VU	VU				VU	VU	VU		VU				Possibly extint in some parts of the Isthmian Pacific Moist Forests
39	PASSERIFORMES	HIRUNDINIDAE	Progne	sinaloae	Sinaloa Martin	VU							VU										Its major distribution is in Mexico, with some registers in Guatemala and Belize
40	PASSERIFORMES	EMBERIZIDAE	Pselliophorus	luteoviridis	Yellow-green Finch	VU													VU				
41	PSITTACIFORMES	PSITTACIDAE	Psittacara	chloropterus	Hispaniolan Parakeet, Hispaniolan Conure	VU																VU	Possibly extint in most of the ecoregion. Also reported from dry and coniferous forests

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	42	PROCELLARIIFORMES	PROCELLARIIDAE	Pterodroma	hasitata	Black-capped Petrel	EN																	EN	It is a seabird that breeds in Sierra de Baoruco region and its distribution encompasses a small part of hispaniolan moist forests
	43	PROCELLARIIFORMES	PROCELLARIIDAE	Pterodroma	phaeopygia	Galapagos Petrel, Galápagos Petrel, Dark-rumped Petrel	CR											CR	CR					Also present in montane grasslands
	44	PSITTACIFORMES	PSITTACIDAE	Pyrrhura	eisenmanni	Azuero Parakeet	EN											EN		EN				
	45	PASSERIFORMES	RHINOCRYPTIDAE	Scytalopus	panamensis	Tacarcuna Tapaculo, Pale-throated Tapaculo	VU															VU	VU	
	46	CAPRIMULGIFORMES	TROCHILIDAE	Selasphorus	ardens	Glow-throated Hummingbird	EN													EN				Also present in montane grasslands
	47	PASSERIFORMES	HIRUNDINIDAE	Tachycineta	euchrysea	Golden Swallow	VU																VU	Its distribution encompasses small parts of the Hispaniolan Moist Forest Ecoregion. Also present in dry and coniferous forests
	48	PASSERIFORMES	THRAUPIDAE	Tangara	cabanisi	Azure-rumped Tanager, Cabanis's Tanager	EN							EN										
	49	PSITTACIFORMES	PSITTACIDAE	Touit	costaricensis	Red-fronted Parrotlet	VU									VU	VU			VU				
	50	PASSERIFORMES	TURDIDAE	Turdus	swalesi	La Selle Thrush	EN	E															EN	Its distribution encompasses small part of the Hispaniolan Moist Forest region of Dominican Republic where possibly is extint
	51	PASSERIFORMES	PARULIDAE	Xenoligea	montana	White-winged Warbler, White-winged Ground-warbler	VU																VU	Its distribution encompasses small parts of the Hispaniolan Moist Forest Ecoregion
	52	PASSERIFORMES	THAMNOPHILIDAE	Xenornis	setifrons	Spiny-faced Antshrike, Speckled Antshrike	VU										VU					VU	VU	
						Total Species of Conservation Concern	**25**	**9**	**9**	**5**	**7**	**9**	**9**	**4**	**0**	**7**	**8**	**8**	**0**	**8**	**6**	**6**	**3**	
						Critically Endangered (CR)	**3**						**1**				**2**				**1**	**1**		
						Endangered (EN)	**9**		**3**	**3**	**4**	**4**	**3**	**3**		**2**	**2**	**2**		**3**	**2**	**3**	**2**	
						Vulnerable (VU)	**13**		**6**	**2**	**3**	**5**	**5**	**1**		**5**	**4**	**6**		**5**	**3**	**2**	**1**	
MAMMALIA						**Endemic (E)**		**9**			**1**		**1**				**1**	**1**		**1**			**3**	
	1	PRIMATES	ATELIDAE	Alouatta	pigra	Yucatán Black Howler Monkey, Mexican Black Howler Monkey, Guatemalan Black Howler Monkey, Guatemalan Howler, Guatemalan Howling Monkey, Lawrence's Howler Monkey, Guatemalan Black Howler, Black Howling Monkey	EN		EN	EN	EN	EN	EN											Review altitudinal range. Also present in coniferous forests
	2	PRIMATES	ATELIDAE	Ateles	fusciceps	Brown-headed Spider Monkey, Black-headed Spider Monkey	CR										CR				CR	CR		Review altitudinal range
	3	PRIMATES	ATELIDAE	Ateles	geoffroyi	Geoffroy's Spider Monkey, Black-handed Spider Monkey, Central American Spider Monkey, Central American Spider Monkey, Black-headed Spider Monkey, Mono Colorado	EN		EN	EN	EN	EN	EN	EN		EN	EN	EN		EN		EN		Review altitudinal range. Also present in dry and coniferous forests
	4	CHIROPTERA	EMBALLONURIDAE	Balantiopteryx	io	Thomas's Sac-winged Bat	VU		VU		VU	VU	VU											Also presnt in dry and coniferours forets and shrublands
	5	PILOSA	BRADYPODIDAE	Bradypus	pygmaeus	Pygmy Three-toed Sloth	CR	E									CR							Only known from Isla Escudo in Bocas del Toro. Also present in magroves
	6	EULIPOTYPHLA	SORICIDAE	Cryptotis	endersi	Ender's Small-eared Shrew, Enders' S Small-eared Shrew	EN	E												EN				
	7	EULIPOTYPHLA	SORICIDAE	Cryptotis	gracilis	Talamancan Small-eared Shrew, Talamancan Small Eared Shrew	VU									VU	VU	VU		VU				Los que están en amarillo son muy bajos de msnm para la especie que ocurre arriba de 1,800 msnm, según la descripción
	8	EULIPOTYPHLA	SORICIDAE	Cryptotis	griseoventris	Guatamalan Small Eared Shrew	VU		VU			VU	VU											El mapa de distribución parece abarcar Petén-Veracruz pero según la distribución de esta especie no alcanzaría los msnm.
	9	EULIPOTYPHLA	SORICIDAE	Cryptotis	mera	Darien Small Eared Shrew	EN															EN	EN	El mapa de distribución parece abarcar Chocó Darién pero según la distribución de esta especie no alcanzaría los msnm.
	10	RODENTIA	DASYPROCTIDAE	Dasyprocta	coibae	Coiban Agouti	VU	E											VU					Se encuentra solamente en la isla Coiba, Panamá
	11	RODENTIA	DASYPROCTIDAE	Dasyprocta	ruatanica	Roatan Island Agouti, Ruatan Island Agouti	EN	E			EN													Se encuentra solamente en la isla de Roatán, Honduras
	12	RODENTIA	CRICETIDAE	Handleyomys	rhabdops	Striped Rice Rat	VU		VU				VU											Petén parece estar en una zona más baja a la que ocurre esta especie
	13	RODENTIA	HETEROMYIDAE	Heteromys	nelsoni	Nelson's Spiny Pocket Mouse	EN					EN		EN										
	14	CHIROPTERA	VESPERTILIONIDAE	Lasiurus	minor	Minor Red Bat	VU	E															VU	

	TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos-Sn Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
15		CARNIVORA	FELIDAE	Leopardus	tigrinus	Oncilla, Little Spotted Cat, Tiger Cat, Little Tiger Cat	VU									VU	VU	VU		VU				Pequeñas porciones del Isthmian Atlantic Moist Forest y Pacific Moist Forest
16		CETARTIODACTYLA	CERVIDAE	Mazama	pandora	Yucatan Brown Brocket	VU		VU	VU														Also present in coniferous and mangrove forests, and shrublands
17		PILOSA	MYRMECOPHAGIDAE	Myrmecophaga	tridactyla	Giant Anteater	VU		VU		VU	VU		VU		VU	VU	VU		VU	VU	VU		Possibly Extinct in Peten-Yucatan Moist Forests and Sierra Madre de Chiapas Moist Forest. Also reported from dry & coniferous forests, & shrublands
18		RODENTIA	CRICETIDAE	Peromyscus	mayensis	Maya Mouse, Mayan Deer Mouse	CR	E					CR											Por la elevación en que se encuentra la especie, no podría ser Peten-Veracruz Moist Forest
19		RODENTIA	CAPROMYIDAE	Plagiodontia	aedium	Cuvier's Hutia, Hispaniolan Hutia, Hispanolan Hutia	EN	E															EN	
20		CHIROPTERA	PHYLLOSTOMIDAE	Platyrrhinus	chocoensis	Choco Broad-nosed Bat	VU														VU			En el mapa de distribución de UICN solamente sale la parte de Chocó-Darien Moist Forest en suramérica (Colombia y Ecuador) y no la de panamá
21		RODENTIA	CRICETIDAE	Reithrodontomys	tenuirostris	Narrow-nosed Harvest Mouse	VU					VU	VU											
22		PRIMATES	CEBIDAE	Saimiri	oerstedii	Black-crowned Central American Squirrel Monkey, Central American Squirrel Monkey, Red-backed Squirrel Monkey	VU									VU		VU		VU				Toma una pequeña porción de Costa Rican Moist Forest
23		EULIPOTYPHLA	SOLENODONTIDAE	Solenodon	paradoxus	Hispaniolan Solenodon, Haitian Solenodon	EN	E															EN	
24		PERISSODACTYLA	TAPIRIDAE	Tapirus	bairdii	Baird's Tapir, Central American Tapir	EN		EN	EN	EN	EN	EN	EN		EN	EN	EN		EN	EN	EN		Also reported from dry & coniferous forests, & shrublands
25		CETARTIODACTYLA	TAYASSUIDAE	Tayassu	pecari	White-lipped Peccary	VU		VU	VU	VU	VU	VU			VU	VU	VU		VU	VU	VU		Also present in dry, coniferous & mangrove forests, & shrublands
	PLANTAE																							
						Total Species of Conservation Concern	**66**	**29**	**13**	**1**	**5**	**17**	**7**	**18**	**0**	**12**	**15**	**8**	**1**	**9**	**3**	**1**	**10**	
						Critically Endangered (CR)	**9**		**1**			**1**		**1**		**3**	**1**	**1**		**2**			**1**	
						Endangered (EN)	**34**		**5**	**0**	**0**	**10**	**4**	**10**	**0**	**5**	**8**	**4**	**0**	**5**	**2**	**1**	**7**	
						Vulnerable (VU)	**23**		**7**	**1**	**5**	**6**	**3**	**7**	**0**	**4**	**6**	**3**	**1**	**2**	**1**	**0**	**2**	
						Endemic (E)		**29**	**1**	**0**	**0**	**2**	**0**	**1**	**0**	**8**	**5**	**6**	**1**	**6**	**2**	**1**	**6**	
	TRACHEOPHYTA																							
1		PINALES	PINACEAE	Abies	guatemalensis	Guatemalan Fir	EN	E				EN												
2		FABALES	LEGUMINOSAE	Acacia	allenii	Cachito, Cornizuelo	EN	E								EN								
3		ORCHIDALES	ORCHIDACEAE	Acianthera	compressicaulis		EN																EN	Also present in dry & coniferous forests, & flooded grasslands
4		ARALES	ARACEAE	Anthurium	caloveboranum		VU	E									VU	VU	VU					
5		ORCHIDALES	ORCHIDACEAE	Brachionidium	dressleri	Cup Orchid	EN											EN		EN				
6		CYCADALES	ZAMIACEAE	Ceratozamia	matudae		EN					EN		EN										
7		CYCADALES	ZAMIACEAE	Ceratozamia	robusta	Costilla de León, Palma de camote, Palma imperial, Piña de monte	EN		EN															
8		ARECALES	PALMAE	Chamaedorea	adscendens		VU		VU					VU										
9		ARECALES	PALMAE	Chamaedorea	fractiflexa	Tepejilote torcido	EN							EN										
10		ARECALES	PALMAE	Chamaedorea	oblongata	Tepejilote jade	VU		VU	VU	VU			VU										
11		ZINGIBERALES	COSTACEAE	Costus	barbatus		CR	E								CR								
12		ZINGIBERALES	COSTACEAE	Costus	nitidus		EN									EN	EN							
13		ZINGIBERALES	COSTACEAE	Costus	osae		VU	E										VU						
14		ZINGIBERALES	COSTACEAE	Costus	vinosus		CR										CR							
15		ORCHIDALES	ORCHIDACEAE	Cypripedium	irapeanum	Irapeao Cypripedium	VU		VU				VU	VU										
16		FABALES	LEGUMINOSAE	Dalbergia	glomerata		VU					VU		VU		VU								
17		CARYOPHYLLALES	CACTACEAE	Disocactus	biformis		EN					EN		EN										
18		CARYOPHYLLALES	CACTACEAE	Disocactus	eichlamii		EN	E				EN		EN										
19		CARYOPHYLLALES	CACTACEAE	Epiphyllum	lepidocarpum		EN									EN						EN		
20		BROMELIALES	BROMELIACEAE	Hohenbergiopsis	guatemalensis		EN		EN			EN	EN	EN										
21		CARYOPHYLLALES	CACTACEAE	Hylocereus	calcaratus		EN	E									EN	EN		EN				
22		CARYOPHYLLALES	CACTACEAE	Hylocereus	escuintlensis		CR					CR		CR										
23		CARYOPHYLLALES	CACTACEAE	Hylocereus	minutiflorus		VU		VU		VU	VU												
24		CARYOPHYLLALES	CACTACEAE	Hylocereus	stenopterus		VU	E									VU							

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.A.1. Petén - Veracruz Moist Forests	I.A.2. Yucatán Moist Forests	I.A.3. Central American Atlantic Moist Forests	I.A.4. Central American Montane Forests	I.A.5. Chiapas Montane Forests	I.A.6. Sierra Madre de Chiapas Moist Forests	I.A.7. Cayos Miskitos-Sn Andrés-Providencia Moist	I.A.8. Costa Rican Seasonal Moist Forests	I.A.9. Isthmian – Atlantic Moist Forests	I.A.10. Isthmian – Pacific Moist Forests	I.A.11. Cocos Island Moist Forests	I.A.12. Talamancan Montane Forests	I.A.13. Chocó – Darién Moist Forests	I.A.14. Eastern Panamanian Montane	I.A.15. Hispaniolan Moist Forests	COMMENTS
25	PINALES	CUPRESSACEAE	Juniperus	comitana		EN		EN			EN		EN										
26	PINALES	CUPRESSACEAE	Juniperus	gamboana		EN					EN	EN	EN										
27	PINALES	CUPRESSACEAE	Juniperus	gracilior	Sabina	EN																EN	
28	PINALES	CUPRESSACEAE	Juniperus	standleyi	Huitó, Cipres, Huitum	EN					EN		EN										
29	MAGNOLIALES	MAGNOLIACEAE	Magnolia	domingensis		CR																CR	
30	MAGNOLIALES	MAGNOLIACEAE	Magnolia	hamorii	Caimoni	EN	E															EN	
31	MAGNOLIALES	MAGNOLIACEAE	Magnolia	morii		EN	E									EN	EN		EN		EN		
32	MAGNOLIALES	MAGNOLIACEAE	Magnolia	pallescens		EN	E															EN	
33	CARYOPHYLLALES	CACTACEAE	Mammillaria	eichlamii		EN		EN			EN	EN	EN			EN							Also present in dry and coniferous forests
34	FABALES	LEGUMINOSAE	Mora	ekmanii		VU	E															VU	
35	LAURALES	LAURACEAE	Ocotea	monteverdensis	Quizzará Blanco, Quizzará Amarillo	CR	E																
36	PINALES	PINACEAE	Pinus	occidentalis	Hispaniolan Pine	EN																EN	
37	PINALES	PINACEAE	Pinus	tecunumanii	Schwerdtfeger's Pine, Tecun Uman Pine	VU		VU			VU		VU			VU							Also present in coniferous forests
38	PINALES	PODOCARPACEAE	Podocarpus	buchii	Tachuela, Palo de Cruz , Chicharrón	EN	E															EN	
39	PINALES	PODOCARPACEAE	Podocarpus	costaricensis	Cipresillo	CR									CR				CR				
40	PINALES	PODOCARPACEAE	Podocarpus	hispaniolensis		EN	E															EN	
41	PINALES	PODOCARPACEAE	Podocarpus	matudae	Sabino	VU		VU			VU	VU	VU										
42	PINALES	PODOCARPACEAE	Prumnopitys	standleyi	Cipresillo, Ciprecillo, Ciprés Lorito	EN	E								EN				EN				
43	ORCHIDALES	ORCHIDACEAE	Psychilis	olivacea		VU	E															VU	Also present in mangrove forests
44	FAGALES	FAGACEAE	Quercus	acutifolia	Encino de asta, Encino pepitillo, Encino laurelillo, Encino blanco, Encino rojo, Encino saucillo, Encino tepezcohuite	VU		VU			VU	VU	VU										
45	PINALES	TAXACEAE	Taxus	globosa	Mesoamerican Yew, Mexican Yew	EN					EN	EN	EN										
46	MAGNOLIALES	MYRISTICACEAE	Virola	surinamensis	Baboonwood	EN										EN	EN				EN		
47	BROMELIALES	BROMELIACEAE	Vriesea	camptoclada		VU	E								VU		VU		VU				
48	CARYOPHYLLALES	CACTACEAE	Weberocereus	bradei		VU	E								VU								
49	CARYOPHYLLALES	CACTACEAE	Weberocereus	frohningiorum		CR	E								CR		CR		CR				
50	CARYOPHYLLALES	CACTACEAE	Weberocereus	imitans		EN	E								EN								
51	CARYOPHYLLALES	CACTACEAE	Weberocereus	tonduzii		VU	E								VU				VU				
52	CARYOPHYLLALES	CACTACEAE	Weberocereus	trichophorus		EN	E									EN							
53	CYCADALES	ZAMIACEAE	Zamia	acuminata		VU										VU							
54	CYCADALES	ZAMIACEAE	Zamia	cunaria		VU	E														VU		
55	CYCADALES	ZAMIACEAE	Zamia	dressleri		EN	E														EN		
56	CYCADALES	ZAMIACEAE	Zamia	elegantissima		EN										EN							
57	CYCADALES	ZAMIACEAE	Zamia	herrerae		VU					VU												
58	CYCADALES	ZAMIACEAE	Zamia	ipetiensis	sin referencia de lugar	EN	E																
59	CYCADALES	ZAMIACEAE	Zamia	monticola	No data available to create distribution maps and to calculate at least extent of occurrence.	CR	E																
60	CYCADALES	ZAMIACEAE	Zamia	neurophyllidia		VU										VU							
61	CYCADALES	ZAMIACEAE	Zamia	oreillyi	Camotillo	VU				VU													
62	CYCADALES	ZAMIACEAE	Zamia	prasina		CR	E	CR															
63	CYCADALES	ZAMIACEAE	Zamia	skinneri	Cebolla roja	EN										EN							
64	CYCADALES	ZAMIACEAE	Zamia	standleyi	Yuca de ratón	VU				VU													Also present in coniferous forests
65	CYCADALES	ZAMIACEAE	Zamia	variegata	Camotillo	EN		EN															
66	FABALES	LEGUMINOSAE	Zygia	biflora		VU				VU						VU							
TOTALS					Total Species of Conservation Concern :	430	169	67	10	77	145	27	63	1	44	64	50	7	95	26	20	58	
					Critically Endangered (CR) :	122		17	1	20	42	2	11	0	10	16	13	1	28	2	3	13	
					Endangered (EN) :	172		19	3	29	61	9	28	0	18	26	20	0	37	8	7	27	
					Vulnerable (VU) :	136		31	6	28	42	16	24	1	16	22	17	6	30	16	10	18	
					Endemic (E) :		169	6	1	22	33	1	10	1	17	16	19	3	38	4	2	33	

Table 31: Endangered and Critically Endangered Species - Dry Forests

I.B. TROPICAL AND SUBTROPICAL DRY BROADLEAF FORESTS													
	TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.B.16. Central American Dry Forests	I.B.17. Chiapas De-pression Dry Forests	I.B.18. Panamanian Dry Forests	I.B.19. Hispaniolan Dry Forests	COMMENTS
	ANIMALIA												
	CHORDATA												
	ANPHIBIA					**Total Species of Conservation Concern**	**11**	**6**	**2**	**3**	**2**	**10**	
						Critically Endangered (CR)	**4**		**1**	**2**	0	**1**	
						Endangered (EN)	**4**		0	0	**1**	**3**	
						Vulnerable (VU)	**3**		**1**	**0**	0	**2**	
						Endemic (E)		**6**	0	**1**	**1**	**4**	
1	ANURA	CRAUGASTORIDAE	Craugastor	azueroensis			EN	E			EN		Also presente in moist broadleaf forests
2	ANURA	CRAUGASTORIDAE	Craugastor	ranoides			CR		CR				Also presente in moist broadleaf forests
3	CAUDATA	PLETHODONTIDAE	Dendrotriton	chujorum			CR			CR			Also presente in moist broadleaf forests
4	GYMNOPHIONA	DERMOPHIIDAE	Dermophis	mexicanus		Mexican Caecilian	VU		VU				Also presente in moist broadleaf forests
5	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	alcoae		Barahona Rock Frog, Hispaniola Dwarf Robber Frog	EN	E				EN	
6	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	pictissimus		Hispaniolan Yellow-mottled Frog	VU					VU	Also presente in moist broadleaf forests and coniferous forests.
7	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	probolaeus			EN	E				EN	
8	ANURA	BUFONIDAE	Peltophryne	fluviatica		Hispaniolan Crestless Toad	CR	E				CR	Also present in moist forests & flooded grasslands
9	ANURA	BUFONIDAE	Peltophryne	fracta		Eastern Crested Toad	EN	E				EN	
10	ANURA	BUFONIDAE	Peltophryne	guentheri		Southern Crested Toad, Gunther's Caribbean Toad	VU					VU	Also present in moist forests & flooded grasslands
11	ANURA	HYLIDAE	Ptychohyla	macrotympanum		Pine Forest Stream Frog	CR	E		CR			
	REPTILIA					**Total Species of Conservation Concern**	**8**	**4**	**7**	**1**	**0**	**4**	
						Critically Endangered (CR)	0		0	0	0	0	
						Endangered (EN)	**4**		**4**				
						Vulnerable (VU)	**4**		**1**	**1**	0	**2**	
						Endemic (E)		**4**	**2**	0	0	**2**	
1	SQUAMATA	DACTYLOIDAE	Anolis	muralla			VU	E	VU				
2	SQUAMATA	ANGUIDAE	Celestus	bivittatus			EN		EN				Also present in moist and coniferous forests
3	SQUAMATA	ANGUIDAE	Celestus	curtissi		Hispaniolan Khaki Galliwasp , Curtis' Galliwasp	VU	E				VU	
4	SQUAMATA	IGUANIDAE	Ctenosaura	flavidorsalis		Yellow-backed Spiny-tailed Iguana	EN		EN				Also present coniferous forests
5	SQUAMATA	IGUANIDAE	Ctenosaura	melanosterna		Black-chested Spiny-tailed Iguana, Rio Aguán Iguana, Cayos Co	EN		EN				
6	SQUAMATA	IGUANIDAE	Ctenosaura	quinquecariniata		Five-keeled Spiny-tailed Iguana, Oaxacan Spinytail Iguana, Oax	EN	E	EN				
7	SQUAMATA	IGUANIDAE	Cyclura	cornuta		Rhinoceros Iguana, Hispaniolan Rhinoceros Iguana	VU	E				VU	
8	SQUAMATA	XENOSAURIDAE	Xenosaurus	grandis			VU			VU			
	AVES					**Total Species of Conservation Concern**	**10**	**8**	**5**	**0**	**0**	**12**	
						Critically Endangered (CR)	**1**		0	0	0	**1**	
						Endangered (EN)	**3**		**2**	0	0	**1**	
						Vulnerable (VU)	**6**		**2**	0	0	**4**	
						Endemic (E)		**8**	**1**	0	0	**6**	
1	CAPRIMULGIFORMES	TROCHILIDAE	Amazilia	luciae		Honduran Emerald	EN	E	EN				
2	PSITTACIFORMES	PSITTACIDAE	Amazona	auropalliata		Yellow-naped Amazon, Yellow-naped Parrot	VU		VU				Also present in moist, coniferous and mangrove forests
3	PSITTACIFORMES	PSITTACIDAE	Amazona	oratrix		Yellow-headed Amazon, Yellow-headed Parrot	EN		EN				Also present in moist, coniferous and mangrove forests
4	PSITTACIFORMES	PSITTACIDAE	Amazona	ventralis		Hispaniolan Amazon, Hispaniolan Parrot	VU	E				VU	Also reported from moist and coniferous forests
5	ACCIPITRIFORMES	ACCIPITRIDAE	Buteo	ridgwayi		Ridgway's Hawk, Hispaniolan Hawk	CR	E				CR	Also reported from moist and coniferous forests
6	PASSERIFORMES	THRAUPIDAE	Calyptophilus	frugivorus		Chat Tanager, Eastern Chat-Tanager	VU	E				VU	Also reported from moist and coniferous forests
7	CUCULIFORMES	CUCULIDAE	Coccyzus	rufigularis		Bay-breasted Cuckoo, Rufous-breasted Cuckoo	EN	E				EN	Also reported from moist and coniferous forests
8	GALLIFORMES	CRACIDAE	Crax	rubra		Great Curassow	VU		VU				Also reported from moist and coniferous forests

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.B.16. Central American Dry Forests	I.B.17. Chiapas De-pression Dry Forests	I.B.18. Panamanian Dry Forests	I.B.19. Hispaniolan Dry Forests	COMMENTS
9	PSITTACIFORMES	PSITTACIDAE	Psittacara	chloropterus	Hispaniolan Parakeet, Hispaniolan Conure	VU	E				VU	Also present in moist and coniferous forests
10	PASSERIFORMES	HIRUNDINIDAE	Tachycineta	euchrysea	Golden Swallow	VU	E				VU	Also present in moist and coniferous forests
	MAMMALIA				**Total Species of Conservation Concern**	**7**	**0**	**6**	**3**	**2**	**0**	
					Critically Endangered (CR)							
					Endangered (EN)	**3**	0	**2**	**3**	**2**	0	
					Vulnerable (VU)	**4**		**4**				
					Endemic (E)		**0**	0	0	0	0	
1	PRIMATES	ATELIDAE	Ateles	geoffroyi	Geoffroy's Spider Monkey, Black-handed Spider Monkey, Cent	EN		EN	EN	EN		Also present in moist and coniferous forests
2	CHIROPTERA	EMBALLONURIDAE	Balantiopteryx	io	Thomas's Sac-winged Bat	VU		VU				
3	CHIROPTERA	PHYLLOSTOMIDAE	Leptonycteris	nivalis	Greater Long-nosed Bat, Mexican Long-nosed Bat	EN			EN			
4	CHIROPTERA	PHYLLOSTOMIDAE	Leptonycteris	yerbabuenae	Lesser Long-nosed Bat	VU		VU	VU			Also present in coniferous forests
5	PILOSA	MYRMECOPHAGIDAE	Myrmecophaga	tridactyla	Giant Anteater	VU		VU				Also reported from moist & coniferous, & shrulands
6	PERISSODACTYLA	TAPIRIDAE	Tapirus	bairdii	Baird's Tapir, Central American Tapir	EN		EN	EN	EN		Also reported from moist & coniferous, & shrulands
7	CETARTIODACTYLA	TAYASSUIDAE	Tayassu	pecari	White-lipped Peccary	VU		VU		VU		Also present in moist, coniferous & mangrove forests, & shrulands
PLANTAE												
	TRACHEOPHYTA				**Total Species of Conservation Concern**	**7**	**5**	**2**	**0**	**0**	**10**	
					Critically Endangered (CR)	**0**		0	0	0	0	
					Endangered (EN)	**2**		**1**			**1**	
					Vulnerable (VU)	**5**		**1**	0	0	**4**	
					Endemic (E)		**5**	0	0	0	**5**	
1	ORCHIDALES	ORCHIDACEAE	Acianthera	compressicaulis		EN	E				EN	Also present in moist & coniferous forests, & flooded grasslands
2	CARYOPHYLLALES	CACTACEAE	Leptocereus	paniculatus		VU	E				VU	
3	CARYOPHYLLALES	CACTACEAE	Mammillaria	eichlamii		EN		EN				Also present in moist and coniferous forests
4	FABALES	LEGUMINOSAE	Mimosa	domingensis		VU	E				VU	
5	CARYOPHYLLALES	CACTACEAE	Peniocereus	chiapensis		VU		VU				Also present in coniferous forests
6	CARYOPHYLLALES	CACTACEAE	Pereskia	marcanoi		VU	E				VU	
7	CARYOPHYLLALES	CACTACEAE	Pereskia	portulacifolia		VU	E				VU	
	TOTALS				**Total Species of Conservation Concern :**	**43**	**23**	**22**	**7**	**4**	**36**	
					Critically Endangered (CR) :	**5**	0	**1**	**2**	0	**2**	
					Endangered (EN) :	**16**	0	**9**	**3**	**3**	**5**	
					Vulnerable (VU) :	**22**		**9**	**1**	1	**12**	
					Endemic (E) :		**23**	**3**	**1**	**1**	**17**	

Table 32: Endangered and Critically Endangered Species - Coniferous Forests

	TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.C.20. Belizean Pine Forests	I.C.21. Central American Pine-Oak Forests	I.C.22. Miskito Pine Forests	I.C.23. Hispaniolan Pine Forests	COMMENTS
	ANIMALIA												
	CHORDATA												
	ANPHIBIA					Total Species of Conservation Concern	10	3					
						Critically Endangered (CR)	4		0	4	0	0	
						Endangered (EN)	3		0	3	0	0	
						Vulnerable (VU)	3					1	
						Endemic (E)		3		3			
1	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	pictissimus	Hispaniolan Yellow-mottled Frog		VU					VU	Also presente in moist broadleaf and dry forests
2	ANURA	HYLIDAE	Agalychnis	moreletii	Black-eyed Leaf Frog, Morelet's Treefrog		CR			CR			Also presente in moist broadleaf forests
3	CAUDATA	PLETHODONTIDAE	Bolitoglossa	mulleri	Müller's Mushroomtongue Salamander, Müller's S		VU			VU			Also presente in moist broadleaf forests
4	ANURA	CRAUGASTORIDAE	Craugastor	brocchi			VU			VU			Also presente in moist broadleaf forests
5	ANURA	CRAUGASTORIDAE	Craugastor	charadra			EN	E		EN			Also presente in moist broadleaf forests
6	ANURA	CRAUGASTORIDAE	Craugastor	emleni			CR	E		CR			Also presente in moist broadleaf forests
7	ANURA	CRAUGASTORIDAE	Craugastor	epochthidius			CR	E		CR			Also presente in moist broadleaf forests
8	ANURA	CRAUGASTORIDAE	Craugastor	laevissimus			EN			EN			Also presente in moist broadleaf forests
9	ANURA	CRAUGASTORIDAE	Craugastor	lauraster			EN			EN			Also presente in moist broadleaf forests
10	ANURA	CRAUGASTORIDAE	Craugastor	lineatus	Montane Robber Frog		CR			CR			Also presente in moist broadleaf forests
	REPTILIA					Total Species of Conservation Concern	2	0	0	2	0	0	
						Critically Endangered (CR)	0						
						Endangered (EN)	2		0	2	0	0	
						Vulnerable (VU)	0		0	0	0	0	
						Endemic (E)		0					
1	SQUAMATA	ANGUIDAE	Celestus	bivittatus			EN			EN			Also present in moist & dry forests
2	SQUAMATA	IGUANIDAE	Ctenosaura	flavidorsalis	Yellow-backed Spiny-tailed Iguana		EN			EN			Also present in dry forests
	AVES					Total Species of Conservation Concern	10	4	2	2	2	10	
						Critically Endangered (CR)	1		0	0	0	1	
						Endangered (EN)	3		1	1	0	1	
						Vulnerable (VU)	6		1	1	2	4	
						Endemic (E)		4	0	0	0	4	
1	PSITTACIFORMES	PSITTACIDAE	Amazona	auropalliata	Yellow-naped Amazon, Yellow-naped Parrot		VU				VU		Also present in moist, dry and mangrove forests
2	PSITTACIFORMES	PSITTACIDAE	Amazona	oratrix	Yellow-headed Amazon, Yellow-headed Parrot		EN		EN				Also present in moist, dry and mangrove forests
3	PSITTACIFORMES	PSITTACIDAE	Amazona	ventralis	Hispaniolan Amazon, Hispaniolan Parrot		VU					VU	Also reported from moist and dry forests
4	ACCIPITRIFORMES	ACCIPITRIDAE	Buteo	ridgwayi	Ridgway's Hawk, Hispaniolan Hawk		CR					CR	Possibly extint in this ecoregion. Also reproted from moist & dry forests
5	PASSERIFORMES	THRAUPIDAE	Calyptophilus	frugivorus	Chat Tanager, Eastern Chat-Tanager		VU	E				VU	Possibly extint in most of this ecoregion. Also reported from moist and dry forests
6	CUCULIFORMES	CUCULIDAE	Coccyzus	rufigularis	Bay-breasted Cuckoo, Rufous-breasted Cuckoo		EN	E				EN	Possibly extint in most of this ecoregion. Also reported from moist & dry forests
7	GALLIFORMES	CRACIDAE	Crax	rubra	Great Curassow		VU		VU	VU	VU		Also reported from moist & dry forests
8	PASSERIFORMES	PARULIDAE	Dendroica	chrysoparia	Golden-cheeked Warbler		EN			EN			Also present in moist forests
9	PSITTACIFORMES	PSITTACIDAE	Psittacara	chloropterus	Hispaniolan Parakeet, Hispaniolan Conure		VU	E				VU	
10	PASSERIFORMES	HIRUNDINIDAE	Tachycineta	euchrysea	Golden Swallow		VU	E				VU	Also reported from moist & dry forests

	TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.C.20. Belizean Pine Forests	I.C.21. Central American Pine-Oak Forests	I.C.22. Miskito Pine Forests	I.C.23. Hispaniolan Pine Forests	COMMENTS
	MAMMALIA					Total Species of Conservation Concern	8	0	5	5	4	0	
						Critically Endangered (CR)	0		0	0	0	0	
						Endangered (EN)	3		3	2	2	0	
						Vulnerable (VU)	5		2	3	2	0	
						Endemic (E)	0	0	0	0	0	0	
1	PRIMATES	ATELIDAE	Alouatta	pigra	Yucatán Black Howler Monkey, Mexican Black How	EN		EN				Also present in moist forests	
2	PRIMATES	ATELIDAE	Ateles	geoffroyi	Geoffroy's Spider Monkey, Black-handed Spider M	EN		EN	EN	EN		Also present in moist and dry forests	
3	CHIROPTERA	EMBALLONURIDAE	Balantiopteryx	io	Thomas's Sac-winged Bat	VU		VU				Also present in moist and dry forests and shrublands	
4	CHIROPTERA	PHYLLOSTOMIDAE	Leptonycteris	yerbabuenae	Lesser Long-nosed Bat	VU			VU			Also present in dry forests	
5	CETARTIODACTYLA	CERVIDAE	Mazama	pandora	Yucatan Brown Brocket	VU		VU				Also present in moist and mangrove forests, and shrulands	
6	PILOSA	MYRMECOPHAGIDAE	Myrmecophaga	tridactyla	Giant Anteater	VU			VU	VU		Also present in moist & dry forests, & shrublands	
7	PERISSODACTYLA	TAPIRIDAE	Tapirus	bairdii	Baird's Tapir, Central American Tapir	EN		EN	EN	EN		Possibly extint from the Miskito Pine Forests ecoregion. Also reported from moist & dry forests, & shrublands	
8	CETARTIODACTYLA	TAYASSUIDAE	Tayassu	pecari	White-lipped Peccary	VU			VU	VU		Also present in moist, dry & mangrove forests, & shrubland	
	PLANTAE												
	TRACHEOPHYTA					Total Species of Conservation Concern	5	0	1	3	1	1	
						Critically Endangered (CR)	0		0	0	0	0	
						Endangered (EN)	2		0	1	0	1	
						Vulnerable (VU)	3		1	2	1	0	
						Endemic (E)		0	0	0	0	0	
1	ORCHIDALES	ORCHIDACEAE	Acianthera	compressicaulis		EN						EN	Also present in moist & dry forests, & flooded grasslands
2	CARYOPHYLLALES	CACTACEAE	Mammillaria	eichlamii		EN				EN			Also present in moist and dry forests
3	CARYOPHYLLALES	CACTACEAE	Peniocereus	chiapensis		VU				VU			Also present in dry forests
4	CYCADALES	ZAMIACEAE	Zamia	standleyi		VU					VU		Also present in moist forests
5	PINALES	PINACEAE	Pinus	tecunumanii	Schwerdtfeger's Pine, Tecun Uman Pine	VU		VU		VU			Also present in moist forests
	TOTALS					Total Species of Conservation Concern :	35	7	8	12	7	11	
						Critically Endangered (CR) :	5	0	0	4	0	1	
						Endangered (EN) :	13	0	4	9	2	2	
						Vulnerable (VU) :	17	0	4	6	5	5	
						Endemic (E) :		7	0	3	0	4	

Table 33: Endangered and Critically Endangered Species - Montane Grasslands

I. D. MONTANE GRASS LANDS AND SHRUBLANDS										
I.D.24. Talamanca or Costa Rican Paramo										
						RED LIST STATUS				
TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	ENDEMIC	COMMENTS
ANIMALIA										
CHORDATA										
	ANPHIBIA				Total Species of Conservation Concern: 2	0	0	2	2	
1	ANURA	BUFONIDAE	Atelopus	chirripoensis				CR	E	
2	ANURA	BUFONIDAE	Incilius	peripatetes	Almirante Trail Toad			CR	E	Also present in moist broadleaf forests
	AVES				Total Species of Conservation Concern: 2	0	1	1	2	
1	PROCELLARIIFORMES	PROCELLARIIDAE	Pterodroma	phaeopygia	Galapagos Petrel, Galápagos Petrel, Dark-rumped Petrel			CR	E	Alos present in moist forests
2	CAPRIMULGIFORMES	TROCHILIDAE	Selasphorus	ardens	Glow-throated Hummingbird		EN		E	Alos present in moist forests
TOTALS:					Species of Conservation Concern: 4	0	1	3	4	

Table 34: Endangered and Critically Endangered Species - Flooded Grasslands

I.E. FLOODED GRASSLANDS AND SAVANAS											
I.E.25. Enriquillo Wetlands											
						RED LIST STATUS					
TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	ENDEMIC	COMMENTS	
ANIMALIA											
CHORDATA											
ANPHIBIA					**Total Species of Conservation Concern: 7**	**4**	**1**	**2**	**7**		
1	ANURA	ELEUTHERODACTYLIDAE	Eleutherodactylus	schmidti	Schmidt's Robber Frog			CR	E	Also present in moist broadleaf forests	
2	ANURA	HYLIDAE	Hypsiboas	heilprini	Hispaniolan Green Treefrog, Los Bracitos Treefrog	VU			E	Also present in moist broadleaf forests	
3	ANURA	HYLIDAE	Osteopilus	pulchrilineatus	Hispaniolan Yellow Treefrog, Common Treefrog	VU			E	Also present in moist broadleaf forests	
4	ANURA	HYLIDAE	Osteopilus	vastus	Hispaniolan Giant Treefrog, Hispaniola Treefrog	VU			E	Also present in moist broadleaf forests	
5	ANURA	BUFONIDAE	Peltophryne	fluviatica	Hispaniolan Crestless Toad			CR	E	Also present in dry forests	
6	ANURA	BUFONIDAE	Peltophryne	fracta	Eastern Crested Toad		EN		E	Also present in moist and dry forests	
7	ANURA	BUFONIDAE	Peltophryne	guentheri	Southern Crested Toad, Gunther's Caribbean Toad	VU			E	Also present in moist and dry forests	
AVES					**Total Species of Conservation Concern: 1**	**1**	**0**	**0**	**1**		
1	ANSERIFORMES	ANATIDAE	Dendrocygna	arborea	West Indian Whistling-duck	VU			E	Also present in mangrove foresst	
PLANTAE											
TRACHEOPHYTA					**Total Species of Conservation Concern: 1**	**0**	**1**	**0**	**1**		
1	ORCHIDALES	ORCHIDACEAE	Acianthera	compressicaulis			EN		E	Also present in moist, dry & coniferous forests	
TOTALS:					**Species of Conservation Concern: 9**	**5**	**2**	**2**	**9**		

Table 35: Endangered and Critically Endangered Species - Desert

I. F. DESERT AND XERIC SHRUBLANDS											
I.F.26. Motagua Valley Thornscrub											
						RED LIST STATUS					
	TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	ENDEMIC	COMMENTS
ANIMALIA											
CHORDATA											
	AMPHIBIA					**Total Species of Conservation Concern: 1**	**0**	**1**	**0**	**1**	
1	ANURA	CRAUGASTORIDAE	Craugastor	inachus				EN		E	
	REPTILIA					**Total Species of Conservation Concern: 2**	**1**	**1**	**0**	**2**	
1	SQUAMATA	IGUANIDAE	Ctenosaura	palearis		Motagua Spiny-tailed Iguana, Guatemalan Black Iguana, C		EN		E	
2	SQUAMATA	XENOSAURIDAE	Xenosaurus	grandis			VU			E	
	MAMMALIA					**Total Species of Conservation Concern: 5**	**4**	**1**	**0**	**5**	
1	CHIROPTERA	EMBALLONURIDAE	Balantiopteryx	io		Thomas's Sac-winged Bat	VU			E	Also present in moist, dry & coniferous forests
2	CETARTIODACTYLA	CERVIDAE	Mazama	pandora		Yucatan Brown Brocket	VU			E	Also present in moits, coniferous & mangrove forersts
3	PILOSA	MYRMECOPHAGIDAE	Myrmecophaga	tridactyla		Giant Anteater	VU			E	Also present in moist, dry & coniferous forests
4	PERISSODACTYLA	TAPIRIDAE	Tapirus	bairdii		Baird's Tapir, Central American Tapir		EN		E	Also present in moist, dry & coniferous forests
5	CETARTIODACTYLA	TAYASSUIDAE	Tayassu	pecari		White-lipped Peccary	VU			E	Also present in moits, coniferous & mangrove forersts
PLANTAE											
	TRACHEOPHYTA					**Total Species of Conservation Concern: 1**	**0**	**0**	**1**	**1**	
1	CARYOPHYLLALES	CACTACEAE	Myrtillocactus	eichlamii					CR	E	
	TOTALS:					**Species of Conservation Concern: 9**	**5**	**3**	**1**	**9**	

Table 36: Endangered and Critically Endangered Species - Mangroves

I.G. MANGROVES																					
TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	I.G.27. Belizean Coast Mangroves	I.G.28. Belizean Reef Mangroves	I.G.29. Northern Honduras Mangroves	I.G.30. Tehuantepec – El Manchón Mangroves	I.G.31. Northern Dry Pacific Coast Mangroves	I.G.32. Southern Dry Pacific Coast Mangroves	I.G.33. Gulf of Fonseca Mangroves	I.G.34. Mosquitia – Nicaraguan Caribbean Coast Mangroves	I.G.35. Rio Negro – Rio San Sun Mangroves	I.G.36. Moist Pacific Coast Mangroves	I.G.37. Bocas del Toro – San Blas Mangroves	I.G.38. Gulf of Panama or Panama Bight Mangroves	I.G.39. Greater Antilles Mangroves	COMMENTS
ANIMALIA																					
CHORDATA																					
ANPHIBIA					Total Species of Conservation Concern	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	
					Critically Endangered (CR)	1		0	0	0	0	0	0	0	0	0	0	1	0	0	
					Endangered (EN)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
					Vulnerable (VU)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
					Endemic (E)		1	0	0	0	0	0	0	0	0	0	0	1	0	0	
1	CAUDATA	PLETHODONT	Oedipina	maritima	Maritime-worm Salamander	CR	E											CR			Also reported from moist forests
REPTILIA					Total Species of Conservation Concern	4	2	2	1	5	1	1	1	1	1	1	1	1	1	1	
					Critically Endangered (CR)	2		1	0	1	0	0	0	0	0	0	0	0	0	0	
					Endangered (EN)	1		0	0	1	0	0	0	0	0	0	0	0	0	0	
					Vulnerable (VU)	1		1	1	1	1	1	1	1	1	1	1	1	1	1	
					Endemic (E)		2	0	0	2	0	0	0	0	0	0	0	0	0	0	
1	CROCODYLIA	CROCODYLID	Crocodylus	acutus	American Crocodile	VU		VU	VU	VU	VU	VU	VU	VU	VU	VU	VU	VU	VU	VU	
2	SQUAMATA	IGUANIDAE	Ctenosaura	bakeri	Utila Spiny-tailed Iguana, Baker´s Spinytail Iguana	CR	E			CR											Solamente para la isla Utila en Honduras
3	SQUAMATA	IGUANIDAE	Ctenosaura	oedirhina	Roatán Spiny-tailed Iguana, Wishywilly, De Queiroz´s Spiny-tailed Iguana	EN	E			EN											Solamente para Isla Roatán en Honduras
4	TESTUDINES	DERMATEMYD	Dermatemys	mawii	Central American River Turtle	CR		CR													Parte del Mesoamerican Gulf-Caribbean Mangrove, incluyendo las zonas costeras de Tabasco y Veracruz
AVES					Total Species of Conservation Concern	5	0	1	0	1	1	1	2	1	0	0	1	0	0	1	
					Critically Endangered (CR)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
					Endangered (EN)	3		1	0	0	0	0	1	0	0	0	1	0	0	0	
					Vulnerable (VU)	2		0	0	1	1	1	1	1	0	0	0	0	0	1	
					Endemic (E)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	APODIFORME	TROCHILIDAE	Amazilia	boucardi	Mangrove Hummingbird	EN							EN				EN				En la zona pacífica de Costa Rica, desde la península de Nicoya hasta el Golfo de Rio Dulce y Térraba-Sierpe
2	PSITTACIFORM	PSITTACIDAE	Amazona	auropalliata	Yellow-naped Amazon, Yellow-naped Parrot	VU				VU	VU	VU	VU	VU							Es poco lo que abarca de la parte Mesoamerican Gulf- Caribbean Mangrove de los manglares del norte de honduras
3	PSITTACIFORM	PSITTACIDAE	Amazona	oratrix	Yellow-headed Amazon, Yellow-headed Parrot	EN		EN													Also present in moist, dry and coniferous forests
4	PASSERIFORM	COTINGIDAE	Carpodectes	antoniae	Yellow-billed Cotinga	EN															Also present in moist forests
5	ANSERIFORM	ANATIDAE	Dendrocygna	arborea	West Indian Whistling-duck, West Indian Whistling Duck, West Indian Tree-duck, Black-billed Wood-duck, Cuban Tree-duck, West Indian Whistling-Duck	VU														VU	Also present in shrublands
MAMMALIA					Total Species of Conservation Concern	3	1	1	0	1	0	0	0	0	0	0	0	2	0	0	
					Critically Endangered (CR)	1		0	0	0	0	0	0	0	0	0	0	1	0	0	
					Endangered (EN)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
					Vulnerable (VU)	2		1	0	1	0	0	0	0	0	0	0	0	0	0	
					Endemic (E)		1	0	0	0	0	0	0	0	0	0	0	1	0	0	
1	PILOSA	BRADYPODID	Bradypus	pygmaeus	Pygmy Three-toed Sloth	CR	E											CR			Only known from Isla Escudo in Bocas del Toro. Also present in local moist forest
2	CETARTIODAC	CERVIDAE	Mazama	pandora	Yucatan Brown Brocket	VU		VU													Part of the Mesoamerican Gulf-Caribbean Mangroves, including coastal zones of Yucatan. Also present in moist & coniferous forests, & shrublands
3	CETARTIODAC	TAYASSUIDAE	Tayassu	pecari	White-lipped Peccary	VU				VU											Part of the Mesoamerican Gulf-Caribbean Mangroves, including coastal zones of Yucatan
PLANTAE																					
TACHEOPHYTA					Total Species of Conservation Concern	2	1	0	0	0	0	0	1	0	1	0	1	1	1	2	
					Critically Endangered (CR)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
					Endangered (EN)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
					Vulnerable (VU)	2		0	0	0	0	0	1	0	1	0	1	1	1	1	
					Endemic (E)		1	0	0	0	0	0	0	0	0	0	0	0	0	1	
1	MAGNOLIOPS	THEALES	Pelliciera	rhizophorae	Piñuelo Mangrove	VU							VU		VU		VU	VU	VU		
2	LILIOPSIDA	ORCHIDALES	Psychilis	olivacea		VU	E													VU	Endemic to DR & Haiti. Also present in moist forests
TOTALS					Total Species of Conservation Concern :	15	5	4	1	7	2	2	4	2	2	1	3	6	2	4	
					Critically Endangered (CR) :	4		1	0	1	0	0	0	0	0	0	0	2	0	0	
					Endangered (EN) :	4		1	0	1	0	0	1	0	0	0	1	0	0	0	
					Vulnerable (VU) :	7		2	1	3	2	2	3	2	2	1	2	2	2	3	
					Endemic (E) :		5	0	0	2	0	0	0	0	0	0	0	2	0	1	

Table 37: Endangered and Critically Endangered Species - Freshwater Ecoregions

II. FRESHWATER BIOMES AND ECOREGIONS

TAXA		ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	II.H. Tropical and Subtropical Coastal Rivers												II.I. Tropical & Subtropical Upland Rivers	II.J. Greater Antillean Freshwater	COMMENTS
									II.H.40. Quintana Roo Motagua	II.H.41. Grijalva - Usumacinta	II.H.42. Chiapas - Fonseca	II.H.43. Mosquitia	II.H.44. Estero Real - Tempisque	II.H.45. San Juan (Nicaragua/Costa Rica)	II.H.46. Isthmus Caribbean	II.H.47. Chiriquí	II.H.48. Santa María	II.H.49. Chagres	II.H.50. Tuira River	II.I.51. Upper Usumacinta	II.J.52. Hispaniola	
ANIMALIA																							
CHORDATA																							
		FISH																					
1		PERCIFORMES	CICHLIDAE	*Amphilophus*	*margaritifer*		EN	E													EN		
2		PECIFORMES	CICHLIDAE	*Amphilophus*	*zaliosus*	Arrow Cichlid	CR	E						CR									
		PECIFORMES	CICHLIDAE	*Amphilophus*	*macracanthus*	Blackthroat cichlid		E			E												
3		PECIFORMES	CICHLIDAE	*Cichlasoma*	*bocourti*	Chisel-tooth cichlid		E	E														
		PECIFORMES	CICHLIDAE	*Cichlasoma*	*guija*		CR				CR												
		PECIFORMES	CICHLIDAE	*Cichlasoma*	*trimaculatu*		CR				CR												
4		PECIFORMES	CICHLIDAE	*Vieja*	*godmanni*	Checkmark cichlid		E	E														
5		PECIFORMES	CICHLIDAE	*Vieja*	*microphthalma*			E	E														
		PECIFORMES	CICHLIDAE	*Vieja*	*guttulata*	Amatitlan cichlid		E			E												
		PECIFORMES	CICHLIDAE	*Vieja*	*zonata*	Oaxaca cichlid		E			E												
6		PECIFORMES	CICHLIDAE	*Archocentrus*	*spinosissimus*			E	E														
		PECIFORMES	DACTYLOSCOPIDAE	*Dactyloscopus*	*amnis*	Riverine stargazer		E			E												
7		ANGUILLIFORMES	ANGUILLIDAE	*Anguilla*	*rostrata*	American Eel	EN		EN									EN				EN	
8		ATHERINIFORMES	ATHERINOPSIDAE	*Atherinella*	*jiloaensis*		CR	E						CR									
9		CHARACIFORMES	CHARACIDAE	*Hyphessobrycon*	*milleri*			E	E														
10		CYPRINODONTIFORMES	POECILIIDAE	*Gambusia*	*dominicensis*	Domingo Mosquito Fish	EN	E														EN	
11		CYPRINODONTIFORMES	POECILIIDAE	*Poecilia*	*teresae*	mountain molly		E	E														
		CYPRINODONTIFORMES	POECILIIDAE	*Poecilia*	*marcellinoi*			E			E												
		CYPRINODONTIFORMES	POECILIIDAE	*Brachyrhaphis*	*hartwegi*	Soconusco gambusia		E			E												
		CYPRINODONTIFORMES	ANABLEPIDAE	*Anableps*	*dowei*	Pacific four-eyed fish		E			E												
12		SILURIFORMES	ARIIDAE	*Notarius*	*cookei*	False Scutlptured Sea-catfish	VU	E										VU	VU				
13		SILURIFORMES	ARIIDAE	*Potamarius*	*izabalensis*			E	E														
		SILURIFORMES	HEPTAPTERIDAE	*Rhamdia*	*parryi*	Tonala catfish		E			E												
14		RAJIFORMES	PRISTIDAE	*Pristis*	*Pristis*	Largetooth Sawfish	CR		CR				CR	CR				CR	CR				
TOTALS						**Species of Conservation Concern :**	**9**	**20**	**9**	**0**	**10**	**1**	**1**	**2**	**0**	**2**	**3**	**0**	**0**	**1**	**2**	
						Critically Endangered (CR) :	**5**		**1**	0	**2**	**1**	**1**	**2**	**0**	**1**	**1**	0	0	0	0	
						Endangered (EN) :	**3**		**1**	0	0	0	0	0	0	0	**1**	0	0	**1**	**2**	
						Vulnerable (VU) :	**1**		0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	
						Endemic (E) :		**20**	**7**	0	**8**	0	0	**2**	**0**	**1**	**1**	0	0	**1**	**1**	

Table 38: Endangered and Critically Endangered Species - Marine Ecoregions

III. MARINE BIOMES AND ECOREGIONS

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	III.K. Tropical Northwestern Atlantic			III.L. Tropical East Pacific				COMMENTS
								II.K.53. Western Caribbean	II.K.54. South-western Caribbean	II.K.55. Greater Antillean Marine	III.L.56. Chiapas-Nicaragua	III.L.57. Nicoya	III.L.58. Cocos Island	III.L.59. Panama Bight	
ANIMALIA															
CNIDARIA															
CORALS					**Total Species of Conservation Concern**	**17**	**0**	**10**	**11**	**10**	**3**	**5**	**3**	**6**	
					Critically Endangered (CR)	**4**		**1**	**2**	**2**	**0**	**1**	**0**	**2**	
					Endangered (EN)	**3**		**3**	**3**	**2**	**0**	**0**	**0**	**0**	
					Vulnerable (VU)	**10**		**6**	**6**	**6**	**3**	**4**	**3**	**4**	
					Endemic (E)		0	0	0	0	0	0	0	0	
1	SCLERACTINIA	ACROPORIDAE	*Acropora*	*cervicornis*	Staghorn Coral	CR			CR	CR					
2	SCLERACTINIA	ACROPORIDAE	*Acropora*	*palmata*	Elkhorn Coral	CR		CR	CR	CR					
3	SCLERACTINIA	AGARICIIDAE	*Agaricia*	*lamarcki*	Lamarck's Sheet Coral	VU		VU	VU	VU					
4	SCLERACTINIA	MEANDRINIDAE	*Dendrogyra*	*cylindrus*	Pillar Coral	VU		VU	VU	VU					
5	SCLERACTINIA	MEANDRINIDAE	*Dichocoenia*	*stokesii*	Elliptical Star Coral	VU		VU	VU	VU					
6	SCLERACTINIA	FUNGIIDAE	*Fungia*	*curvata*		VU					VU	VU	VU	VU	
7	MILLEPORINA	MILLEPORIDAE	*Millepora*	*boschmai*		CR						CR		CR	
8	MILLEPORINA	MILLEPORIDAE	*Millepora*	*striata*		EN		EN	EN						
9	SCLERACTINIA	FAVIIDAE	*Montastraea*	*annularis*	Boulder Star Coral	EN		EN	EN	EN					
10	SCLERACTINIA	FAVIIDAE	*Montastraea*	*faveolata*		EN		EN	EN	EN					
11	SCLERACTINIA	FAVIIDAE	*Montastraea*	*franksi*		VU		VU	VU	VU					
12	SCLERACTINIA	MUSSIDAE	*Mycetophyllia*	*ferox*	Rough Cactus Coral	VU		VU	VU	VU					
13	SCLERACTINIA	OCULINIDAE	*Oculina*	*varicosa*	Large Ivory Coral	VU		VU	VU	VU					
14	SCLERACTINIA	POCILLOPORIDAE	*Pocillopora*	*elegans*		VU					VU	VU	VU	VU	
15	SCLERACTINIA	POCILLOPORIDAE	*Pocillopora*	*inflata*		VU						VU		VU	
16	SCLERACTINIA	SIDERASTREIDAE	*Psammocora*	*stellata*		VU					VU	VU	VU	VU	
17	SCLERACTINIA	SIDERASTREIDAE	*Siderastrea*	*glynni*		CR								CR	Possibly extinct in Panama
CHORDATA															
FISH					**Total Species of Conservation Concern**	**82**	**24**	**40**	**37**	**31**	**14**	**34**	**26**	**30**	
					Critically Endangered (CR)	**6**		**4**	**4**	**3**	**1**	**1**	**0**	**2**	
					Endangered (EN)	**10**		**6**	**6**	**4**	**2**	**4**	**0**	**3**	
					Vulnerable (VU)	**66**		**30**	**27**	**24**	**11**	**29**	**26**	**25**	
					Endemic (E)		**24**	**1**	**1**	0	**2**	**13**	**11**	**9**	
1	PERCIFORMES	CHAENOPSIDAE	*Acanthemblemaria*	*atrata*	Cocos Barnacle Blenny	VU							VU		
2	LAMNIFORMES	ALOPIIDAE	*Alopias*	*superciliosus*	Bigeye Thresher Shark, False Thresher	VU		VU	VU	VU	VU	VU	VU	VU	
3	LAMNIFORMES	ALOPIIDAE	*Alopias*	*vulpinus*	Common Thresher Shark	VU		VU	VU	VU	VU	VU	VU	VU	
4	CLUPEIFORMES	ENGRAULIDAE	*Anchoa*	*chamensis*	Chame Point anchovy	VU								VU	
5	ANGUILLIGORMES	ANGUILLIDAE	*Anguilla*	*rostrata*	American Eel	EN		EN	EN	EN					
6	PERCIFORMES	TRIPTERYGIIDAE	*Axoclinus*	*cocoensis*	Cocos Triplefin	VU	E						VU		
7	TETRAODONTIFORMES	BALISTIDAE	*Balistes*	*capriscus*	Gray Triggerfish	VU									There is no distribution map in UICN website, but the range description says that this species is widespread in the Atlantic Ocean.
8	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Batrachoides*	*boulengeri*	Boulenger's Toadfish	VU	E				VU	VU		VU	
9	CARCHARHINIFORMES	CARCHARHINIDAE	*Carcharhinus*	*longimanus*	Oceanic Whitetip Shark, White-tipped Shark, Whitetip Oceanic Shark	VU		VU	VU	VU	VU	VU	VU	VU	
10	CARCHARHINIFORMES	CARCHARHINIDAE	*Carcharhinus*	*obscurus*	Dusky Shark	VU			VU						
11	CARCHARHINIFORMES	CARCHARHINIDAE	*Carcharhinus*	*plumbeus*	Sandbar Shark	VU		VU	VU	VU			VU		
12	PERCIFORMES	GOBIIDAE	*Chriolepis*	*dialepta*	White-starred Goby	VU	E						VU		
13	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*alloides*	Barfin Goby	VU		VU	VU	VU					
14	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*eidolon*	Pallid Goby	VU		VU	VU	VU					

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	III.K. Tropical Northwestern Atlantic			III.L. Tropical East Pacific				COMMENTS
								III.K.53. Western Caribbean	III.K.54. South-western Caribbean	III.K.55. Greater Antillean Marine	III.L.56. Chiapas-Nicaragua	III.L.57. Nicoya	III.L.58. Cocos Island	III.L.59. Panama Bight	
15	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*hyalinus*	Glass Goby	VU		VU	VU	VU					
16	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*lipernes*	Peppermint Goby, Bluenose Goby	VU		VU	VU	VU					
17	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*personatus*	Masked Goby	VU		VU	VU	VU					
18	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*thrix*	Bartail Goby	VU		VU	VU	VU					
19	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*tortugae*	Patch-reef Goby	VU		VU	VU						
20	PERCIFORMES	GOBIIDAE	*Coryphopterus*	*venezuelae*	Sand-canyon Goby	VU		VU	VU	VU					
21	PERCIFORMES	DACTYLOSCOPIDAE	*Dactyloscopus*	*lacteus*	Milky Sand Stargazer	VU	E					VU	VU		
22	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Daector*	*reticulata*	Reticulated Toadfish, Toadfish	VU	E							VU	
23	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Daector*	*schmitti*	Schmitt's Toadfish	VU	E					VU			
24	PERCIFORMES	LABRISOMIDAE	*Dialommus*	*fuscus*	Galapagos four-eyed blenny	VU	E					VU	VU		
25	RAJIFORMES	NARCINIDAE	*Diplobatis*	*ommata*	Bullseye Electric Ray, Ocellated Electric Ray	VU					VU	VU		VU	
26	PERCIFORMES	GOBIIDAE	*Elacatinus*	*nesiotes*	Broken-back Cleaner-goby	VU	E					VU	VU	VU	
27	PERCIFORMES	GOBIIDAE	*Elacatinus*	*prochilos*	Broadstripe Goby	VU		VU	VU	VU					
28	PERCIFORMES	CHAENOPSIDAE	*Emblemariopsis*	*pricei*	Seafan Blenny	VU		VU							
29	PERCIFORMES	EPINEPHELIDAE	*Epinephelus*	*itajara*	Atlantic Goliath Grouper, Jewfish, Goliath Grouper	CR		CR	CR	CR					
30	PERCIFORMES	EPINEPHELIDAE	*Epinephelus*	*striatus*	Nassau Grouper	CR		CR	CR	CR					
31	PERCIFORMES	DACTYLOSCOPIDAE	*Guillellus*	*chathamensis*	Cocos Stargazer	VU	E					VU			
32	GOBIESOCIFORMES	GOBIESOCIDAE	*Gobiesox*	*woodsi*	Woods' Clingfish	VU	E					VU			
33	PERCIFORMES	GOBIIDAE	*Gobiosoma*	*hildebrandi*	Hildebran's Goby	VU			VU						
34	PERCIFORMES	GOBIIDAE	*Gobiosoma*	*homochroma*	Plain Goby	EN						EN			
35	PERCIFORMES	GOBIIDAE	*Gobiosoma*	*spilotum*	Isthmian Goby	EN	E		EN						
36	PERCIFORMES	GOBIIDAE	*Gobulus*	*birdsongi*	Fin-joined Goby	CR								CR	
37	RAJIFORMES	GYMNURIDAE	*Gymnura*	*altavela*	Spiny Butterfly Ray	VU									The range of distribution does not encompass the 8 countries considered
38	PERCIFORMES	LABRIDAE	*Halichoeres*	*adustus*	Black Wrasse	VU						VU	VU	VU	
39	PERCIFORMES	LABRIDAE	*Halichoeres*	*discolor*	Cocos Wrasse	VU	E						VU	VU	
40	PERCIFORMES	LABRIDAE	*Halichoeres*	*salmofasciatus*		VU	E					VU			
41	PERCIFORMES	LABRIDAE	*Halichoeres*	*socialis*	Social Wrasse	EN	E	EN							
42	SYNGNATHIFORMES	SYNGNATHIDAE	*Hippocampus*	*erectus*	Lined Seahorse, Northern Seahorse	VU		VU	VU	VU					
43	SYNGNATHIFORMES	SYNGNATHIDAE	*Hippocampus*	*ingens*	Giant Seahorse, Pacific Seahorse	VU	E				VU	VU	VU	VU	
44	PERCIFORMES	SERRANIDAE	*Hypoplectrus*	*maya*	Maya Hamlet	VU		VU							
45	PERCIFORMES	EPINEPHELIDAE	*Hyporthodus*	*flavolimbatus*	Poey's Grouper, White Grouper, Yellowedge Grouper, Yellowfinned Grouper, Grouper	VU		VU	VU	VU					
46	PERCIFORMES	EPINEPHELIDAE	*Hyporthodus*	*nigritus*	Marsaw Grouper, Black Grouper, Black Jewfish	CR				CR					
47	PERCIFORMES	EPINEPHELIDAE	*Hyporthodus*	*niveatus*	Snowy Grouper, Spotted Grouper, Seabass	VU		VU	VU	VU					
48	LAMNIFORMES	LAMNIDAE	*Isurus*	*oxyrinchus*	Shortfin Mako	VU		VU	VU	VU	VU	VU	VU	VU	
49	PERCIFORMES	ISTIOPHORIDAE	*Kajikia*	*albidia*	White Marlin, Marlin, Skilligalee	VU		VU	VU	VU					
50	PERCIFORMES	LABRIDAE	*Lachnolaimus*	*maximus*	Hogfish	VU		VU	VU	VU					
51	PERCIFORMES	ISTIOPHORIDAE	*Makaira*	*nigricans*	Blue Marlin	VU		VU	VU	VU	VU	VU	VU	VU	
52	RAJIFORMES	MOBULIDAE	*Manta*	*birostris*	Giant Manta Ray, Oceanic Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Chevron Manta Ray	VU		VU	VU	VU	VU	VU	VU	VU	
53	ELOPTIFORMES	MEGALOPIDAE	*Megalops*	*atlanticus*	Tarpon	VU		VU	VU	VU		VU		VU	
54	TETRAODONTIFORMES	MOLIDAE	*Mola*	*mola*	Ocean Sunfish, Mola Ocean Sunfish, Moonfish, Giant Sunfish, Sunfish, Sun-fish, Headfish	VU									There is no distribution map in UICN website, but the range description says that this species is circumglobally distributed throughout warm and temperate zones of all oceans.

TAXA	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	RED LIST STATUS	ENDEMIC	III.K. Tropical Northwestern Atlantic			III.L. Tropical East Pacific				COMMENTS
								III.K.53. Western Caribbean	III.K.54. South-western Caribbean	III.K.55. Greater Antillean Marine	III.L.56. Chiapas-Nicaragua	III.L.57. Nicoya	III.L.58. Cocos Island	III.L.59. Panama Bight	
55	PERCIFORMES	EPINEPHELIDAE	*Mycteroperca*	*interstitialis*	Yellowmouth Grouper, Hamlet, Harlequin Rockfish, Princess Rockfish, Rockfish, Salmon Grouper, Salmon Rock Fish, Scamp, Crossband Rockfish, Grey Mannock	VU		VU		VU					
56	PERCIFORMES	EPINEPHELIDAE	*Mycteroperca*	*olfax*	Colorado Grouper, Mangrove, Sailfin Grouper, Sea Bass, Yellow Grouper	VU						VU	VU	VU	
57	SILURIFORMES	ARIIDAE	*Notarius*	*cookei*	False Bronze Sea-catfish, False Scultptured Sea-catfish	VU	E					VU		VU	
58	PERCIFORMES	SCIAENIDAE	*Odontoscion*	*eurymesops*	Galapagos croaker	VU						VU	VU		
59	OPHIDIIFORMES	BYTHITIDAE	*Ogilbia*	*cocoensis*	Cocos Brotula	VU						VU			
60	OPHIDIIFORMES	BYTHITIDAE	*Ogilbichthys*	*ferocis*	Ferocious Coralbrotula	EN			EN						
61	ANGUILLIGORMES	OPHICHTHIDAE	*Paraletharchus*	*opercularis*	Pouch snake eel	VU						VU	VU		
62	ACTINOPTERYGII	SCORPAENIFORMES	*Prionotus*	*teaguei*	Long-ray searobin	VU	E					VU		VU	
63	RAJIFORMES	PRISTIDAE	*Pristis*	*pectinata*	Smalltooth Sawfish, Wide Sawfish	CR		CR	CR						
64	RAJIFORMES	PRISTIDAE	*Pristis*	*pristis*	Largetooth Sawfish	CR		CR	CR		CR	CR		CR	
65	ANGUILLIGORMES	OPHICHTHIDAE	*Quassiremus*	*evionthas*	Galápagos Snake Eel	VU						VU	VU	VU	
66	ORECTOLOBIFORMES	RHINCODONTIDAE	*Rhincodon*	*typus*	Whale Shark	VU		VU	VU	VU	VU	VU	VU	VU	
67	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Sanopus*	*astrifer*	Whitespotted Toadfish	VU		VU							
68	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Sanopus*	*greenfieldorum*	Whitelined Toadfish	VU		VU							
69	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Sanopus*	*splendidus*	Splendid Toadfish	EN		EN							
70	CARCHARHINIFORMES	SPHYRNIDAE	*Sphyrna*	*lewini*	Scalloped Hammerhead	EN		EN	EN	EN	EN	EN		EN	
71	CARCHARHINIFORMES	SPHYRNIDAE	*Sphyrna*	*mokarran*	Great Hammerhead, Squat-headed Hammerhead Shark, Hammerhead Shark	EN		EN	EN	EN	EN	EN		EN	
72	PERCIFORMES	POMACENTRIDAE	*Stegastes*	*beebei*	Galapagos ringtail damselfish, Southern whitetail major	VU	E					VU	VU	VU	
73	PERCIFORMES	SCOMBRIDAE	*Thunnus*	*obesus*	Bigeye Tuna	VU		VU	VU	VU	VU	VU	VU	VU	
74	PERCIFORMES	SCOMBRIDAE	*Thunnus*	*thynnus*	Atlantic Bluefin Tuna	EN		EN	EN	EN					
75	GOBIESOCIFORMES	GOBIESOCIDAE	*Tomicodon*	*abuelorum*	Grandparents Clingfish	EN						EN		EN	
76	GOBIESOCIFORMES	GOBIESOCIDAE	*Tomicodon*	*bidens*	Bifid clingfish	VU	E					VU		VU	
77	GOBIESOCIFORMES	GOBIESOCIDAE	*Tomicodon*	*vermiculatus*	Vermiculate Clingfish	VU	E						VU		
78	PERCIFORMES	SCIAENIDAE	*Umbrina*	*galapagorum*	Galápagos drum	VU	E						VU		
79	RAJIFORMES	UROTRYGONIDAE	*Urotrygon*	*reticulata*	Reticulate Round Stingray	VU								VU	
80	RAJIFORMES	UROTRYGONIDAE	*Urotrygon*	*simulatrix*	Fake Round Ray	VU								VU	
81	BATRACHOIDIFORMES	BATRACHOIDIDAE	*Vladichthys*	*gloverensis*	Glover's Reef Toadfish	VU		VU	VU						
82	PERCIFORMES	LABRIDAE	*Xyrichtys*	*victori*	Galapagos razorfish	VU	E						VU		
TOTALS					**Species of Conservation Concern :**	**99**	**24**	**50**	**48**	**41**	**17**	**39**	**29**	**36**	
					Critically Endangered (CR) :	**10**		**5**	**6**	**5**	**1**	**2**	**0**	**4**	
					Endangered (EN) :	**13**		**9**	**9**	**6**	**2**	**4**	**0**	**3**	
					Vulnerable (VU) :	**76**		**36**	**33**	**30**	**14**	**33**	**29**	**29**	
					Endemic (E) :		**24**	**1**	**1**	**0**	**2**	**13**	**11**	**9**	

Table 39: Combined Terrestrial Conservation Concern Species List

AMPHIBIA

Total Species of Conservation Concern		234	105
	Critically Endangered (CR)	96	
	Endangered (EN)	88	
	Vulnerable (VU)	50	
	Endemic (E)		105
Agalychnis	annae	EN	E
Agalychnis	lemur	CR	E
Agalychnis	litodryas	VU	E
Agalychnis	moreletii	CR	
Atelopus	certus	EN	
Atelopus	chiriquiensis	CR	
Atelopus	chirripoensis	CR	E
Atelopus	glyphus	CR	
Atelopus	limosus	EN	
Atelopus	senex	CR	E
Atelopus	varius	CR	E
Atelopus	zeteki	CR	E
Bolitoglossa	alvaradoi	EN	E
Bolitoglossa	carri	CR	E
Bolitoglossa	celaque	EN	E
Bolitoglossa	compacta	EN	E
Bolitoglossa	conanti	EN	E
Bolitoglossa	decora	CR	E
Bolitoglossa	diaphora	CR	E
Bolitoglossa	diminuta	VU	E
Bolitoglossa	dunni	EN	E
Bolitoglossa	engelhardti	EN	E
Bolitoglossa	flavimembris	EN	E
Bolitoglossa	flaviventris	EN	E
Bolitoglossa	franklini	EN	E
Bolitoglossa	gracilis	VU	E
Bolitoglossa	heiroreias	EN	E
Bolitoglossa	insularis	VU	E
Bolitoglossa	lignicolor	VU	E
Bolitoglossa	longissima	CR	E
Bolitoglossa	magnifica	EN	E
Bolitoglossa	marmorea	EN	E
Bolitoglossa	medemi	VU	E
Bolitoglossa	meliana	EN	E
Bolitoglossa	minutula	EN	E
Bolitoglossa	mombachoensis	VU	E
Bolitoglossa	mulleri	VU	
Bolitoglossa	nigrescens	EN	E
Bolitoglossa	obscura	VU	E
Bolitoglossa	oresbia	CR	E
Bolitoglossa	pesrubra	VU	E
Bolitoglossa	porrasorum	EN	E
Bolitoglossa	rostrata	VU	
Bolitoglossa	salvinii	EN	
Bolitoglossa	sombra	VU	E
Bolitoglossa	sooyorum	EN	E
Bolitoglossa	subpalmata	EN	
Bolitoglossa	synoria	CR	E
Bolitoglossa	tica	EN	E
Bradytriton	silus	CR	E
Craugastor	alfredi	VU	
Craugastor	anciano	CR	E
Craugastor	angelicus	CR	E
Craugastor	aphanus	VU	E
Craugastor	aurilegulus	EN	
Craugastor	azueroensis	EN	E
Craugastor	bocourti	VU	E
Craugastor	brocchi	VU	
Craugastor	catalinae	CR	E
Craugastor	charadra	EN	E
Craugastor	coffeus	CR	E
Craugastor	cruzi	CR	E
Craugastor	daryi	EN	E
Craugastor	emcelae	CR	E
Craugastor	emleni	CR	E
Craugastor	epochthidius	CR	E
Craugastor	fecundus	CR	E
Craugastor	fleischmanni	CR	E
Craugastor	greggi	CR	E
Craugastor	gulosus	CR	E
Craugastor	laevissimus	EN	
Craugastor	lauraster	EN	
Craugastor	lineatus	CR	
Craugastor	matudai	VU	E
Craugastor	merendonensis	CR	
Craugastor	milesi	CR	
Craugastor	obesus	CR	
Craugastor	olanchano	CR	
Craugastor	omoaensis	CR	
Craugastor	pechorum	EN	
Craugastor	persimilis	VU	
Craugastor	psephosypharus	VU	
Craugastor	punctariolus	EN	
Craugastor	pygmaeus	VU	
Craugastor	ranoides	CR	
Craugastor	rhyacobatrachus	EN	
Craugastor	rivulus	VU	
Craugastor	sabrinus	EN	

Craugastor	saltuarius	CR	
Craugastor	sandersoni	EN	
Craugastor	stadelmani	CR	
Craugastor	stuarti	EN	
Craugastor	tabasarae	CR	
Craugastor	taurus	CR	
Craugastor	trachydermus	CR	
Craugastor	xucanebi	VU	
Cryptotriton	monzoni	CR	
Cryptotriton	nasalis	EN	
Cryptotriton	veraepacis	CR	
Dendrotriton	bromeliacius	CR	
Dendrotriton	chujorum	CR	
Dendrotriton	cuchumatanus	CR	
Dendrotriton	kekchiorum	EN	
Dendrotriton	rabbi	CR	
Dendrotriton	sanctibarbarus	VU	
Dermophis	mexicanus	VU	
Diasporus	ventrimaculatus	VU	
Duellmanohyla	lythrodes	EN	
Duellmanohyla	salvavida	CR	
Duellmanohyla	schmidtorum	VU	
Duellmanohyla	soralia	EN	
Duellmanohyla	uranochroa	EN	
Ecnomiohyla	fimbrimembra	EN	
Ecnomiohyla	miliaria	VU	
Ecnomiohyla	minera	EN	
Ecnomiohyla	rabborum	CR	E
Ecnomiohyla	salvaje	CR	
Eleutherodactylus	alcoae	EN	E
Eleutherodactylus	armstrongi	EN	E
Eleutherodactylus	audanti	VU	E
Eleutherodactylus	auriculatoides	EN	E
Eleutherodactylus	fowleri	CR	E
Eleutherodactylus	furcyensis	CR	E
Eleutherodactylus	haitianus	EN	E
Eleutherodactylus	heminota	EN	E
Eleutherodactylus	hypostenor	EN	E
Eleutherodactylus	jugans	CR	E
Eleutherodactylus	leoncei	CR	E
Eleutherodactylus	leprus	VU	
Eleutherodactylus	minutus	EN	E
Eleutherodactylus	montanus	EN	E
Eleutherodactylus	nortoni	CR	E
Eleutherodactylus	notidodes	EN	E
Eleutherodactylus	oxyrhyncus	CR	E
Eleutherodactylus	parabates	CR	E
Eleutherodactylus	patriciae	EN	E
Eleutherodactylus	pictissimus	VU	E
Eleutherodactylus	pituinus	EN	E
Eleutherodactylus	probolaeus	EN	E
Eleutherodactylus	rubrimaculatus	VU	E
Eleutherodactylus	rufifemoralis	CR	E
Eleutherodactylus	ruthae	EN	E
Eleutherodactylus	schmidti	CR	E
Eleutherodactylus	sommeri	EN	E
Eleutherodactylus	wetmorei	VU	
Exerodonta	catracha	EN	
Exerodonta	perkinsi	CR	E
Gastrotheca	cornuta	EN	
Hyla	bocourti	CR	E
Hyla	walkeri	VU	
Hypopachus	barberi	VU	
Hypsiboas	heilprini	VU	
Incilius	chompipe	VU	E
Incilius	fastidiosus	CR	
Incilius	holdridgei	CR	E
Incilius	ibarrai	EN	
Incilius	leucomyos	EN	
Incilius	macrocristatus	VU	
Incilius	peripatetes	CR	E
Incilius	tacanensis	EN	E
Incilius	tutelarius	EN	
Isthmohyla	angustilineata	CR	
Isthmohyla	calypsa	CR	E
Isthmohyla	debilis	CR	
Isthmohyla	graceae	CR	E
Isthmohyla	insolita	CR	E
Isthmohyla	pictipes	EN	
Isthmohyla	rivularis	CR	
Isthmohyla	tica	CR	
Leptodactylus	silvanimbus	CR	E
Lithobates	macroglossa	VU	
Lithobates	miadis	VU	E
Lithobates	vibicarius	VU	
Nototriton	barbouri	EN	
Nototriton	brodiei	EN	
Nototriton	gamezi	VU	

Nototriton	guanacaste	VU	
Nototriton	lignicola	CR	
Nototriton	limnospectator	EN	
Nototriton	major	CR	
Nototriton	saslaya	VU	
Nototriton	tapanti	VU	
Nyctanolis	pernix	EN	
Oedipina	alfaroi	VU	
Oedipina	altura	CR	
Oedipina	carablanca	EN	
Oedipina	gephyra	EN	
Oedipina	gracilis	EN	
Oedipina	grandis	EN	
Oedipina	maritima	CR	E
Oedipina	paucidentata	CR	
Oedipina	poelzi	EN	
Oedipina	pseudouniformis	EN	
Oedipina	stenopodia	EN	
Oedipina	tomasi	CR	
Oophaga	arborea	EN	E
Oophaga	granulifera	VU	
Oophaga	speciosa	EN	E
Osteopilus	pulchrilineatus	VU	
Osteopilus	vastus	VU	
Peltophryne	fluviatica	CR	E
Peltophryne	fracta	EN	E
Peltophryne	guentheri	VU	
Phyllobates	vittatus	EN	
Pipa	myersi	EN	
Plectrohyla	acanthodes	CR	
Plectrohyla	avia	CR	E
Plectrohyla	chrysopleura	CR	
Plectrohyla	dasypus	CR	
Plectrohyla	exquisita	CR	
Plectrohyla	glandulosa	EN	
Plectrohyla	guatemalensis	CR	
Plectrohyla	hartwegi	CR	
Plectrohyla	ixil	CR	
Plectrohyla	matudai	VU	
Plectrohyla	pokomchi	CR	
Plectrohyla	psiloderma	EN	
Plectrohyla	quecchi	CR	
Plectrohyla	sagorum	EN	
Plectrohyla	tecunumani	CR	
Plectrohyla	teuchestes	CR	
Pristimantis	museosus	EN	E
Pseudoeurycea	brunnata	CR	
Pseudoeurycea	exspectata	CR	
Pseudoeurycea	goebeli	CR	
Pseudoeurycea	rex	CR	
Ptychohyla	dendrophasma	CR	
Ptychohyla	legleri	EN	
Ptychohyla	macrotympanum	CR	E
Ptychohyla	panchoi	EN	
Ptychohyla	salvadorensis	EN	
Ptychohyla	sanctaecrucis	CR	
Ptychohyla	spinipollex	EN	
Rhinella	chrysophora	EN	

REPTILIA

Total Species of Conservation Concern		67	31
	Critically Endangered (CR)	16	
	Endangered (EN)	32	
	Vulnerable (VU)	19	
	Endemic (E)		31
Abronia	anzuetoi	VU	E
Abronia	aurita	EN	
Abronia	campbelli	CR	
Abronia	fimbriata	EN	E
Abronia	frosti	CR	E
Abronia	gaiophantasma	EN	E
Abronia	matudai	EN	
Abronia	meledona	EN	E
Abronia	montecristoi	EN	
Abronia	salvadorensis	EN	
Abronia	vasconcelosii	VU	
Adelphicos	daryi	EN	E
Adelphicos	ibarrorum	EN	E
Adelphicos	veraepacis	VU	
Amerotyphlops	stadelmani	VU	
Anolis	amplisquamosus	EN	E
Anolis	cusuco	EN	E
Anolis	loveridgei	EN	E
Anolis	muralla	VU	E
Atropoides	indomitus	EN	
Bothriechis	aurifer	VU	
Bothriechis	marchi	EN	
Celestus	anelpistus	CR	
Celestus	bivittatus	EN	
Celestus	curtissi	VU	E
Celestus	montanus	EN	
Celestus	warreni	CR	
Chapinophis	xanthocheilus	EN	E
Crocodylus	acutus	VU	
Ctenosaura	flavidorsalis	EN	
Ctenosaura	melanosterna	EN	
Ctenosaura	palearis	EN	E
Ctenosaura	quinquecariniata	EN	E
Ctenosaura	bakeri	CR	E
Ctenosaura	oedirhina	EN	E
Cyclura	cornuta	VU	E
Dermatemys	mawii	CR	
Enulius	bifoveatus	CR	E
Enulius	roatenensis	EN	E
Geophis	damiani	CR	
Geophis	fulvoguttatus	EN	
Geophis	nephodrymus	VU	
Geophis	talamancae	EN	
Leptophis	modestus	VU	
Marisora	roatanae	CR	E
Micrurus	ruatanus	CR	E
Omoadiphas	aurula	VU	E
Omoadiphas	cannula	CR	
Omoadiphas	texiguatensis	CR	
Oxybelis	wilsoni	EN	E
Phyllodactylus	insularis	VU	E
Rhadinaea	stadelmani	EN	E
Rhadinella	hempsteadae	EN	
Rhadinella	montecristi	VU	
Rhadinella	pegosalyta	VU	E
Rhadinella	posadasi	EN	
Rhadinella	tolpanorum	CR	
Sibon	lamari	EN	
Sibon	merendonensis	CR	
Sphaerodactylus	callocricus	VU	
Tantilla	jani	VU	
Tantilla	lempira	EN	
Tantilla	psittaca	VU	
Tantilla	tritaeniata	CR	E
Trimetopon	simile	EN	E
Trimetopon	viquezi	CR	E
Xenosaurus	grandis	VU	E

AVES

Total Species of Conservation Concern		55	14
	Critically Endangered (CR)	2	
	Endangered (EN)	17	
	Vulnerable (VU)	36	
	Endemic (E)		14
Agamia	agami	VU	
Amazilia	boucardi	EN	
Amazilia	luciae	EN	E
Amazona	auropalliata	VU	
Amazona	ventralis	VU	E
Amazona	oratrix	EN	
Aphanotriccus	capitalis	VU	
Ara	ambiguus	EN	
Ardenna	creatopus	VU	
Basileuterus	ignotus	VU	
Buteo	ridgwayi	CR	E
Calyptophilus	frugivorus	VU	E
Carpodectes	antoniae	EN	
Catharus	bicknelli	VU	
Cephalopterus	glabricollis	EN	
Coccyzus	ferrugineus	VU	E
Coccyzus	rufigularis	EN	E
Corvus	leucognaphalus	VU	
Cotinga	ridgwayi	VU	
Crax	rubra	VU	
Cryptoleucopteryx	plumbea	VU	
Crypturellus	kerriae	VU	
Cyrtonyx	ocellatus	VU	
Dendrocygna	arborea	VU	E
Dendroica	cerulea	VU	
Dendroica	chrysoparia	EN	
Electron	carinatum	VU	
Ergaticus	versicolor	VU	
Geotrygon	leucometopia	EN	
Habia	atrimaxillaris	EN	
Leptotila	battyi	VU	
Loxia	megaplaga	EN	
Megascops	barbarus	VU	
Neomorphus	geoffroyi	VU	
Nesotriccus	ridgwayi	VU	E
Odontophorus	dialeucos	VU	E
Oreophasis	derbianus	EN	
Patagioenas	subvinacea	VU	
Penelopina	nigra	VU	
Pinaroloxias	inornata	VU	
Procnias	tricarunculatus	VU	
Progne	sinaloae	VU	
Pselliophorus	luteoviridis	VU	
Psittacara	chloropterus	VU	E
Pterodroma	hasitata	EN	
Pterodroma	phaeopygia	CR	E
Pyrrhura	eisenmanni	EN	
Scytalopus	panamensis	VU	
Selasphorus	ardens	EN	E
Tachycineta	euchrysea	VU	E
Tangara	cabanisi	EN	
Touit	costaricensis	VU	
Turdus	swalesi	EN	E
Xenoligea	montana	VU	
Xenornis	setifrons	VU	

MAMMALIA

Total Species of Conservation Concern		27	11
	Critically Endangered (CR)	3	
	Endangered (EN)	10	
	Vulnerable (VU)	14	
	Endemic (E)		11
Alouatta	pigra	EN	
Ateles	fusciceps	CR	
Ateles	geoffroyi	EN	
Balantiopteryx	io	VU	E
Bradypus	pygmaeus	CR	E
Cryptotis	endersi	EN	E
Cryptotis	gracilis	VU	
Cryptotis	griseoventris	VU	
Cryptotis	mera	EN	
Dasyprocta	coibae	VU	E
Dasyprocta	ruatanica	EN	E
Handleyomys	rhabdops	VU	
Heteromys	nelsoni	EN	
Lasiurus	minor	VU	E
Leopardus	tigrinus	VU	
Leptonycteris	nivalis	EN	
Leptonycteris	yerbabuenae	VU	
Mazama	pandora	VU	E
Myrmecophaga	tridactyla	VU	E
Peromyscus	mayensis	CR	E
Plagiodontia	aedium	EN	E
Platyrrhinus	chocoensis	VU	
Reithrodontomys	tenuirostris	VU	
Saimiri	oerstedii	VU	
Solenodon	paradoxus	EN	E
Tapirus	bairdii	EN	
Tayassu	pecari	VU	

TRACHEOPHYTA

Total Species of Conservation Concern		73	34
	Critically Endangered (CR)	10	
	Endangered (EN)	34	
	Vulnerable (VU)	29	
	Endemic (E)		34
Abies	guatemalensis	EN	E
Acacia	allenii	EN	E
Acianthera	compressicaulis	EN	E
Anthurium	caloveboranum	VU	E
Brachionidium	dressleri	EN	
Ceratozamia	matudae	EN	
Ceratozamia	robusta	EN	
Chamaedorea	adscendens	VU	
Chamaedorea	fractiflexa	EN	
Chamaedorea	oblongata	VU	
Costus	barbatus	CR	E
Costus	nitidus	EN	
Costus	osae	VU	E
Costus	vinosus	CR	
Cypripedium	irapeanum	VU	
Dalbergia	glomerata	VU	
Disocactus	biformis	EN	
Disocactus	eichlamii	EN	E
Epiphyllum	lepidocarpum	EN	
Hohenbergiopsis	guatemalensis	EN	
Hylocereus	calcaratus	EN	E
Hylocereus	escuintlensis	CR	
Hylocereus	minutiflorus	VU	
Hylocereus	stenopterus	VU	E
Juniperus	comitana	EN	
Juniperus	gamboana	EN	
Juniperus	gracilior	EN	
Juniperus	standleyi	EN	
Leptocereus	paniculatus	VU	E
Magnolia	domingensis	CR	
Magnolia	hamorii	EN	E
Magnolia	morii	EN	E
Magnolia	pallescens	EN	E
Mammillaria	eichlamii	EN	
Mimosa	domingensis	VU	E
Mora	ekmanii	VU	E
Myrtillocactus	eichlamii	CR	E
Ocotea	monteverdensis	CR	E
Pelliciera	rhizophorae	VU	
Peniocereus	chiapensis	VU	
Pereskia	marcanoi	VU	E
Pereskia	portulacifolia	VU	E
Pinus	occidentalis	EN	
Pinus	tecunumanii	VU	
Podocarpus	buchii	EN	E
Podocarpus	costaricensis	CR	
Podocarpus	hispaniolensis	EN	E
Podocarpus	matudae	VU	
Prumnopitys	standleyi	EN	E
Psychilis	olivacea	VU	E
Quercus	acutifolia	VU	
Taxus	globosa	EN	
Virola	surinamensis	EN	
Vriesea	camptoclada	VU	E
Weberocereus	bradei	VU	E
Weberocereus	frohningiorum	CR	E
Weberocereus	imitans	EN	E
Weberocereus	tonduzii	VU	E
Weberocereus	trichophorus	EN	E
Zamia	acuminata	VU	
Zamia	cunaria	VU	E
Zamia	dressleri	EN	E
Zamia	elegantissima	EN	
Zamia	herrerae	VU	
Zamia	ipetiensis	EN	E
Zamia	monticola	CR	E
Zamia	neurophyllidia	VU	
Zamia	oreillyi	VU	
Zamia	prasina	CR	E
Zamia	skinneri	EN	
Zamia	standleyi	VU	
Zamia	variegata	EN	
Zygia	biflora	VU	

TOTALS

Species of Conservation Concern :		456	
	Critically Endangered (CR) :	127	
	Endangered (EN) :	181	
	Vulnerable (VU) :	148	
	Endemic (E) :		195

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