

# ***Biodiversity Corridor Planning and Implementation Program***

**Cooperative Agreement No. LAG-A-00-99-00046-00**

**Madagascar Site and Hydrological Processes Learning Initiative  
Annual Progress Report**

**For FY07: October 1, 2006 - September 30, 2007**

**Submitted October 15, 2007**

**By Conservation International**



## I. Summary of Activity Status and Progress

### A) Introduction

This report covers activities for the period of October 1, 2006 - September 30, 2007 for the USAID Biodiversity Corridor Planning and Implementation Program (Corridor) Cooperative Agreement in Madagascar and the Hydrological Processes Learning Initiative.

Under the USAID Leader with Associates Global Conservation Program, CI is implementing biodiversity corridors in two priority areas: the Cerrado/Pantanal region of south-western Brazil and the Menabe Biodiversity Corridor in Madagascar. The purpose of these programs is to establish functioning biodiversity corridors over the current five-year phase of the Agreement. This report provides an update on the progress of each of these programs, as well as the Hydrological Processes Learning Initiative.

The Highlights section below summarizes some key activities and outcomes of each country program. The Activities section provides a summary of outcomes and activities for the country programs. A few of the key impacts of the program are summarized in the Success Stories at the end of the report.

### B) Highlights and Successes

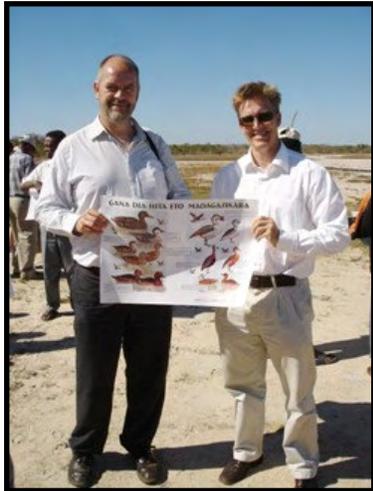
#### Madagascar

#### Lake Bedo is Declared a RAMSAR Site

Lake Bedo is a large, shallow lake that lies within the Menabe Antimena protected area, between the forest block and the mangroves, and hosts a number of endemic birds such as the Madagascar Teal (*Anas bernieri*) and the Madagascar Plover (*Charadrius thoracicus*). It is also an important site for numerous migratory bird species. Because of the abundance of avifauna and the scenic beauty of this site, Lake Bedo also has considerable ecotourism potential. Before the GCP Project began, Lake Bedo was severely threatened by uncontrolled hunting of birds, mainly for sport.



The Minister of Environment, Water, and Forests, Mr. Koto Bernard (in the middle), cuts the ribbon at the RAMSAR site designation ceremony at Lake Bedo.



Over the last two years Durrell has worked hard to catalyze support and draw attention to the importance of this wetland. In close liaison with governmental partners (CIREEF), a proposal was developed to nominate the lake as a RAMSAR site to raise its profile internationally and to promote it as an ecotourism destination. The proposal was accepted by the RAMSAR Secretariat in Switzerland and Lake Bedo was officially named a RAMSAR site in May 2007. The RAMSAR designation is a symbol of its global importance as a wetland and is a testament to the hard work and persistence of the GCP team, the Government of Madagascar, and local communities to conserve this site and ensure its unique birdlife continues to thrive in perpetuity.

Lake Bedo's new status as a RAMSAR site also provides an exciting opportunity for ecotourism development targeting birdwatchers. The RAMSAR label elevates the lake's status in terms of its biodiversity and conservation importance, and will hopefully serve as a leveraging point to attract tourists.

UNEP/AEWA Executive Secretary Bent Lenten (left) and Durrell Madagascar Programme Director, Leo Niskanen display a poster on local water birds found at Lake Bedo.

### Participatory Ecological Monitoring Decreases Pressures on Biodiversity and Habitat

In 2003 the Menabe Antimena forest block was under tremendous pressure from unsustainable and illegal human activities such as hunting and logging. These activities not only posed a great threat to Menabe's unique biodiversity, but also represented a long-term threat to local people who depend on the forest for resources and benefit from forest-provided ecosystem services.

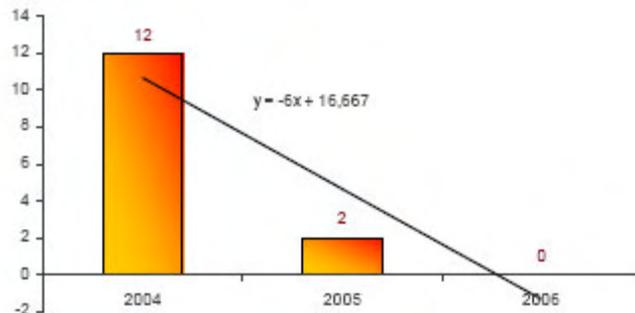


Figure 1. Number of lemur traps found during participatory ecological monitoring activities in the three northern communities (Kiboy, Tsitakabasia, and Tsianaloky) since 2004.

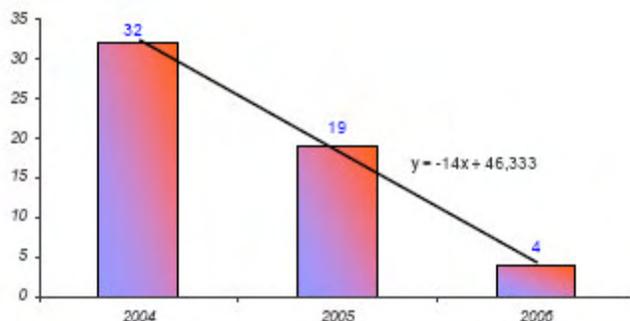


Figure 2. Number of tree stumps found during participatory ecological monitoring activities in the three northern communities (Kiboy, Tsitakabasia, and Tsianaloky) since 2004.

In 2004 GCP supported Durrell to begin participatory ecological monitoring in three villages (Kiboy, Tsitakabasia and Tsianaloky) on the northern edge of what is now the Menabe Antimena protected area. The participatory ecological monitoring activities include collecting data through transects and recording both biodiversity sightings (e.g., sightings of lemurs)

and evidence of biodiversity threats (e.g., hunting traps or tree stumps). The monitoring activities also take the form of a competition among communities. Points are awarded for biodiversity and deducted for threats and then tallied at the end of each year. Winnings are distributed as a function of the total points earned by each community.

Data gathered during participatory ecological monitoring activities from these three sites since 2004 show a clear reduction in the rate of deforestation, habitat degradation and hunting. In addition, anecdotal evidence indicates that local people are enthusiastic about the results they are seeing and have internalized the purpose and outcome of monitoring activities. This is a true success for community-based biodiversity conservation.

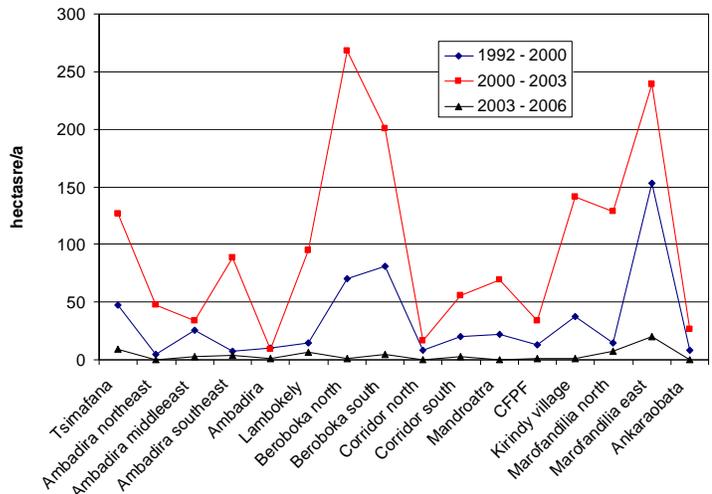


Figure 3. Annual deforestation rate in the Central Menabe forest from 1992 to 2006.

### Table of Activity Status

Activity Number	Activity Title	Status*	Page number for more information
<b>Madagascar</b>			
1.1	Support creation and performance of management structures for the new protected area	On track	5
1.2	Support good governance to enhance communities capacity to manage natural resources	On track	7
1.3	Build the capacity of communities to develop and to implement resource management plans for community area	On track	7
1.4	Build the capacity of practitioners and students in skills relevant to biodiversity conservation	Completed	8
1.5	Support to development structures performance as part of shared governance to enhance communities capacity to manage natural resources	On track	8
2.1	Identify the causes of threatened species' decline to inform	Cancelled	9

Activity Number	Activity Title	Status*	Page number for more information
	management		
2.2	Evaluate the biodiversity and threats to mangroves	On track	9
2.3	Develop and implement species monitoring protocols	On track	9
2.4	Develop an agreed management plan for each management unit for the whole corridor	Delayed	9
2.5	Develop and implement a corridor communications and environment outreach strategy	On track	11
2.6	Refine learning system to ensure the effectiveness of conservation efforts throughout the corridor and conduct mid-term	On track	11
3.1	Support the establishment of a long term forest control system	On track	12
3.2	Develop participatory ecological monitoring	On track	12
4.1	Implement the ecotourism development plan	On track	13
4.2	Develop economic reforestation in the medium and long term	On track	14
4.3	Support the development of conservation incentive mechanisms to engage local communities in active conservation measures	On track	14
4.4	Seek long-term funding mechanisms for the new protected area	On track	14
4.5	Promote investments in high-potential revenue-generating activities that offer alternatives to natural resources degradation in Central Menabe	On track	15
<b>Hydrological Processes Learning Initiative</b>			
	Workshop on Identifying and Reviewing Socioeconomic Assessments for Conservation Action in Hydrological Regimes	Completed	18
	Case Study on Integrating Hydrological Processes into Conservation Planning in the Pantanal (Brazil)	Completed	19

\*Status may include activities that are completed, on-track, delayed, mixed performance, or cancelled.

## **I) Madagascar**

### **A) Key Short- and Long-Term Program Objectives for the Site**

In the face of the spiraling biodiversity loss and natural resources degradation inside the Menabe Biodiversity corridor, CI and partner organizations are aiming to address the primary threats to biodiversity by developing and promoting viable alternative livelihood activities and bringing about changes by reducing causes of threats that weigh on the ecosystem and the biodiversity of this region.

To make this happen, four main strategies were adopted to address the proximate threats and the underlying root causes of the biodiversity loss in the Menabe corridor:

- 1) Strengthening the capacity of communities and local and regional actors to manage sustainable use of natural resources
- 2) Supporting establishment of an improved corridor management system
- 3) Supporting a participatory and effective corridor enforcement system
- 4) Reducing impacts of unsustainable activities and demonstrating benefits of conservation

### **B) Summary of Progress for Site**

#### **Objective 1: Strengthen the capacity if communities and local and regional actors to manage sustainable use of natural resources**

At the beginning of the GCP grant, the natural resources of the Ambadira and Kirindy corridors were caught in a vicious cycle of degradation due to the local subsistence economy. As a short-term activity, the project focused on empowering local people to conserve these forest resources. Meanwhile, activities that can serve as alternatives to destructive practices such as unsustainable agriculture and hunting were identified and initiated. Due to our capacity building and empowerment activities, the commitment to sustainable natural resource management is now strongly anchored in regional partners and local communities.

Activities to finalize the definitive protected status of the Menabe Antimena (formerly known as the Menabe Central Protected Area), as well as to construct and support the new management structure for the protected area were undertaken this year. Thanks to GCP, Menabe Antimena is among the most advanced of Madagascar's new protected areas: the temporary protection status was granted in March 2006 and renewed through March 2008, the protected area management plan was developed in August 2007, the protected area business plan is under development, and the definitive protection status should be awarded in March 2008. Menabe Antimena will be classified as a category V protected area, Harmonious Protected Landscape, according to IUCN classification (see Annex 1). Menabe Antimena is also the first example of the co-management governance type to be implemented in Madagascar.

The key steps to accomplish this outcome were:

- Support creation and performance of management structures for the new protected area

A “start-up team” was created in March 2007 to see through the preparatory phase of co-management of the protected area. This “start-up team” includes individuals from Fanamby, Durrell, WWF, DPZ, CFPP, ANGAP, the Forest Service, and representatives from the communities. The protected area governance structure is based on the principles of co-management, follows a model developed with the assistance of IUCN technical experts in July 2006, and capitalizes on the lessons learned over four years of project implementation.

Three co-management structures on multiple levels led by Fanamby and the protected area start-up team are currently being constructed and tested for their management viability. The process of establishing these management structures advanced well but has taken time for stakeholders to understand and internalize.

The governance system covers several levels:

- **The technical management proposal development level** (examples of “technical management proposals” include the management plan and associated documents, the definition of the protected area’s boundaries, the definition of timelines and resource use rules, budget allocation among priorities, etc.) with the Co-Management Committee (CGP), which includes community representatives, technical representatives from conservation and research partner organizations, and representatives of the fisheries and forest services.
- **The decision-making level** (this level includes approval or validation of technical management proposals as well as their modification, integration with other proposals, etc.) with the *Comite Directeur* (CODIR), which includes regional authorities, civil society groups, mayors, ministerial representatives at the regional level, private sector actors, and donors.
- **The executive level** (this level includes the execution of decisions regarding the demarcation and surveillance of protected area boundaries, the enforcement of agreed-upon rules, etc.), with the executive organ (OREX) Fanamby and the “start-up team.”

At the inter-Commune level, the OPCI also have a role to play in the management of the protected area. Currently, the two OPCI, Alokaina and Analamaitso, are in the process of identifying their roles and responsibilities within the co-management governance structure. Three training workshops were held on the topics of good governance of municipal resources, the municipal vision for conservation and sustainable management of natural resources in the protected area, and roles and responsibilities of each of the three co-management structures. Fanamby continued to work this past year to promote the merging of the two OPCI, but without the definitive protected area management decree, it is difficult to define formally a common issue that regroups the two OPCI.

The social agreement for the benefit of the environment, known as the “environmental dina” was validated and adopted at the fokontany, municipal, and district levels. It was also presented for validation by the Region of Menabe. Its publication and distribution to villages and community associations, however, was delayed due to

**OPCI – Organisme Publique de Coopération Inter-communale**

The OPCI is an inter-municipal structure that emerges around a common issue. Generally, a Commune delegates the responsibility for managing and addressing this issue to the OPCI with the aim of a coherent strategy that covers the entire spatial expanse of the issue. In the case of Menabe Antimena, two OPCI have been established: one to address issues of forest management (Anganalamaintso), and one that focuses on mangrove management (Alokaina).

In May 2007, Lake Bedo was declared a Ramsar site solidifying its global importance for wetland biodiversity and conservation. Work began to implement Ramsar policy management of the site, “wise use” of wetlands with the ultimate goal of sustainable management of the wetland. Lake Bedo is a prime site for tourism.

the CEFB’s (Commission for Forests Environment and Biodiversity, a regional platform within the Regional Development Committee) work integrating sector-specific activities in the Madagascar Action Plan (MAP) at the national, regional, and district levels. The content of the environmental “dina” was presented by the Region during public events such as the Regional MAP workshop on February 1, 2007, the District MAP

workshop in Belo sur Tsiribihina on March 13, 2007, the Bedo Lake Ramsar site inauguration on May 13, 2007, and World Environment Day activities from June 20-22, 2007 in Manja.

- Support good governance to enhance communities’ capacity to manage natural resources

Training on good governance was successfully provided to the ten community associations responsible for the management of forest areas in the corridor as well as the two municipal associations (OPCI) supporting management of the mangroves and adjacent forest areas. To achieve this objective the training focused on carefully explaining the rights and obligations of each member of the community. This was followed by detailed discussions on transparent and democratic mechanisms for ensuring fair and equitable distribution of costs and benefits. Extensive use was made of local examples pertaining to local cultural practices, norms and legislation. Written evaluations of the training are still being completed by participants and will be received shortly.

- Build the capacity of communities to develop and implement resource management plans for community areas

From October 2006 to April 2007, the project worked closely with the community associations and local officials from the Ministry of Environment, Water and Forests to rezone the community managed areas within the corridor. The rezoning was necessary to ensure that the areas set aside for strict conservation in the Ambadira-Kirindy forest

form one contiguous block of this biodiversity-rich habitat. The new areas recently set aside by the associations for strict conservation purposes were also included in the revised zoning plan. These plans were then validated by the local authorities (Community Council and Mayor's office). The state of the natural resources in the areas under management of each community was also assessed providing a baseline against which to measure management effectiveness and leading to detailed management contracts with each management unit defining the rights and limitations of use over specific natural resources.

- Build the capacity of corridor resource managers in biodiversity management

In November 2006 the Durrell team organized a three-day training workshop on ecological and endangered species monitoring and good governance for 26 staff of the regional Environment, Water and Forests office. The training was combined with a visit to the Kiboy village to discuss the challenges and opportunities of community-based management. The training has helped to enforce capacity in the field and is also being put in practice in nearby sites such as Andranomena and Kirindy Mitea.

- Support to development structures performance as part of shared governance, to enhance communities' capacity to manage natural resources

Our efforts are supporting the lead-up to the official adoption of the co-management governance arrangement of the protected area under the Protected Areas Code.

1. The structure of the Executive Organ (OREX) was developed this year. It is a new and permanent management structure for the protected area that includes the "start-up team" and Fanamby. Preliminary roles and responsibilities of OREX have been defined, and the structure is currently being tested.
2. The Shared Management Committee (CGP) was developed and is currently working to establish the management units, which consist of:
  - 10 COBA in the dry forest (three of which are pre-existing COBA in Tsitakabasia, Kiboy and Tsianaloka and seven of which have been revived through community-based management contracts in Marofandilia, Ankarabato, Amptaka, Kirindy village, Lambokely, Madroatsy, and Andretrevo).
  - The FASM (Fiombonana Analabe Soa Miray - the community-level association in Beroboka) through the community management contract at Bedo Lake
  - 6 COBA in mangroves (three of which are pre-existing COBA at Kivalo, Kaday, and Bevava, and 3 of which are new COBA to be selected from the list of 19 communities requesting community management contracts)
  - The Menabe Research Group (MRG)
3. The "Comite Directeur" or CODIR is the third of the three co-management structures for Menabe Antimena. The CODIR is evolving from the ad hoc "comite de pilotage" of the protected area and is now a permanent governance structure.

Tools to ensure the involvement of local communities in the sustainable management of natural resources are available in the form of documents (2 orders for temporary protection status, management delegation document) and in the form of definitive law (future decree creating the category V Menabe Antimena protected area).

Capacity building activities to support these three structures included meetings and communication activities with all stakeholders. In addition, roles and responsibilities of each of the three structures were developed and are being finalized.

## **Objective 2: Support establishment of an improved corridor management system**

We made considerable achievements in supporting an improved corridor management system. Progress is being made in using the Menabe Antimena Protected Area as a model for other protected areas in Madagascar and contributing greatly to the development of the guide for Madagascar's System of Protected Areas (SAPM), which will serve as the long-term manual for new protected area creation.

GCP also contributed to long-term conservation of the western dry forest by developing an innovative co-management governance arrangement for the new Menabe Antimena Protected Area. Menabe Antimena is among the first sites to develop management rules and structures for protected areas in Madagascar that conform to IUCN's category V protected areas.

The key steps to accomplish this outcome were:

- Identify the causes of threatened species decline to inform management

The analysis of stress levels and physiological health indicators of the Giant Jumping Rat *Hypogemus antimena*, which was originally scheduled for this year, has been cancelled. The international expertise required to carry out this work was not available in 2007 and as the survey work has to be conducted during the dry season it is not possible to complete this activity during the timeframe of the present project.

- Develop and implement species monitoring protocols

In an effort to help develop capacity for monitoring biodiversity, we have continued to test and develop protocols while monitoring the status of endemic species. A survey of Menabe amphibians took place in January-March 2007 and the field work for the Giant Jumping Rat population estimation was carried out in August 2007. The results showed that the more disturbed the forest, the lower the abundance and diversity of amphibians (see Menabe Species Monitoring Manual). Canopy cover, as well as the degree and thickness of litter were found to influence the choice of breeding sites of endemic species such as *Aglyptodactylus laticeps*. The Giant Jumping Rat survey used the same methods as in previous surveys, which will help compare results between years. This time a new area of suitable habitat connecting the northern part of the population with

the southern population was included. The monitoring protocols for the amphibians and the Jumping Rat, as well as those for monitoring lemurs, flat-tailed tortoise and reptiles were combined into a field manual enabling protected area managers to follow tried and tested methodologies for monitoring these key endemic species.

- Facilitate orientation of research in support of PA management planning

The Menabe Research Group (MRG) held a workshop on March 27-28, 2007, which included 34 participants from 19 institutions (e.g., national universities, international universities, conservation organizations, research institutions). Research from the MRG will be compiled and has already begun to serve as a basis from which to develop the conservation plan for the protected area. CFPF's role as permanent secretary of the MRG was further developed with the aim of defining its future role in the research management unit of the protected area.

- Develop an agreed management plan for each management unit for the whole corridor

The GCP project team called upon the USAID-funded, and CI-implemented Miaro program team to provide assistance developing the Menabe Antimena management plan. The GCP-Miaro collaboration took the form of three working sessions, two of which took place in Morondava and one of which took place in Antananarivo. The Nature Conservancy's 5S approach, which focuses on analyzing conservation targets and threats, was used to develop the management plan. Conservation targets and threats were jointly defined by Fanamby and Durrell after a series of workshops involving all relevant stakeholders. Species-level conservation targets include baobabs, the Giant Jumping Rat, the Flat-shelled Tortoise, and lemurs. Habitat-level targets include dune forest, dense dry forest, the Kimanaomby lake, Bedo lake, and the mangroves. The creation of the Baobab Alley protected area results from this analysis of conservation targets. This work resulted in a draft of the global management plan for the protected area. However, specific management plans for each of the five management units within the protected area have not yet been developed.

Corridor restoration activities this year included the care and maintenance of natural regeneration and the creation of fire breaks. Care of regeneration included pruning individual trees and removing parasitic vines from each plant in a 20 hectare area to ensure strong saplings and encourage additional seedlings to grow. Fire breaks of 3000 meters in length were put in place to protect the site and the plantation from bush fires.

A multi-party group established the boundaries of the mangrove area of the protected area with physical markings. The group included the "start-up team" as well as representatives from WWF, the forest service, the district, the Commune, local communities, and the president of the Alokaina OPCI. In addition to the 23 local administrative structures (fokontany) for the dry forest, 26 fokontany for mangrove were added to the group developing the final boundaries and internal zoning of the protected area. However, mangrove reforestation has not yet begun due to flooding during the planting season. This activity has been pushed back to January 2008.

- Develop and implement a corridor communications and environment outreach strategy

The SIQR information tool was re-started with 5 weekly radio programs, activities implemented by 5 communication agents, a review of the system's objectives, and a question/answer session with listeners. Each of the five communities has a locally-designated communication agent who is responsible for collecting questions and depositing them at the information center in Marofandilia. These compiled questions are delivered to Morondava and Belo sur Tsiribihina where they are answered on air. GCP supports communication agents in each of the five communities through training and other support. This year, SIQR was implemented in collaboration with the Alokaina OPCI, the communication agents, and local radio stations.

The start-up team implemented activities to support the notion of co-management of the protected area by undertaking a communication campaign to this effect as well as reviving the management structures of seven communities within the dense dry forest. In the coastal zone, with matching funds from WWF, implementation of co-management was also supported by an awareness-building campaign. A total of 30 information sessions and meetings to prepare the delimitation and zoning process of the mangroves were held in the five communes of the Alokaina OPCI. As a result, they validated the boundaries of the mangrove portion of the protected area. In addition, 19 communities expressed a desire to enter into a community management contract for mangrove areas.

**SIQR: The Système d'Information Questions-Réponses** (Question and Answer Information System) is a communication network among communities. Local people pose questions related to development and conservation and they are answered during radio programs.

- Refine learning system to ensure the effectiveness of conservation efforts throughout the corridor and conduct mid-term

A workshop took place April 2007 in Mangily/Toliara to kick-start the regional SAPM exchange network. During the workshop, the start-up team of Menabe Antimena developed the protected area's shared governance structure based on the model developed with the assistance of IUCN experts in July 2006. This structure empowers local communities as protected area co-managers. The workshop also resulted in identification of the 5 management units within the protected area.

In turn, the SAPM Commission at the national level built on the Menabe experience when developing the various manuals and guides for protected area creation, notably those that concern governance options, co-management, and the preparation of protected area management plans. This learning process will continue through ongoing exchange through the network and informally.

Three monitoring and evaluation meetings took place this year (April 2007, June 2007, and September 2007). These meetings served as opportunities to update progress on

activities and make adjustments where needed. For instance, the evolution of the “start-up team” and the protected area’s governance structure was a topic of discussion as this represents the first co-management arrangement being developed in Madagascar. Other topics included the launching of the conservation management planning process with support of the USAID-funded MIARO project and the extension of the intervention area of the participatory ecological monitoring activities.

### **Objective 3: Support a participatory and effective corridor enforcement strategy**

A low rate of natural resources law enforcement prevails throughout the Menabe corridor. Authorities often lack staff, budget, and public support for enforcement actions. Creating effective enforcement is a long-term objective that will clearly reduce the pressure from the current threats to biodiversity. However, in the past year we were able to improve this situation through discrete activities to support a long-term forest control system and expanding our ecological monitoring program.

The key steps to accomplish this outcome were:

- Support the establishment of a long-term forest control system

A Forest Control Procedures Manual was developed and used to train Local Forest Committees (CFL) in 10 communities in the dry forest 1 community at Lake Bedo. A total of 160 individuals participated in the training including members of the CFL, fokontany heads, village-level police, members of the municipal administration, and KASTI (local anti-fire committees established by the forest service).

The Nosibe and Ankoaraobato trails heading toward Tanandava, which are access points to the Ambadira forest and facilitate illegal wood trafficking, were barricaded. In addition, regular control missions and spot checks of the forest within the protected area took place with and without the forest service and community management associations. In April and August, illegal wood was seized by the forest management association in Ampataka.

GCP’s collaboration with Waters and Forests in creating the Menabe Antimena protected area continued. The local Waters and Forests office (CIREEF) is a member of the start-up team for the protected area and has endorsed the co-management arrangement for governance.

- Develop participatory ecological monitoring

The participatory monitoring program initiated in Year 2 was expanded to include all 10 key villages with responsibility for managing parts of the Menabe Antimena protected area. Following the methodology, the key species encountered and pressures such as cut stumps, new roads, burned areas, etc, were recorded. Results were discussed with villagers and presented at a special event in conjunction with the participatory monitoring contest (see Activity 4.3 below). Comparison of the results of the monitoring

since 2004 shows a decline in pressures, indicating that the approach is working and should be continued. The participatory and transparent nature of this monitoring combined with immediate and widespread reporting has helped to maintain good working relations among the community management associations, the wider communities, the protected area managers and the Environment, Water and Forests agents.

In addition, as a match to GCP, a detailed study has begun with funding from the government of Denmark to compare the results of community-based monitoring vis-à-vis traditional scientific techniques in order to make recommendations for improvement of ecological monitoring in Menabe and elsewhere.

#### **Objective 4: Reduce impacts of unsustainable practices and demonstrate benefits of conservation**

We aim to promote biodiversity-friendly activities as economic alternatives to current less sustainable practices that will help to support local communities to improve their management of natural resources. Considerable progress was made with regards to ecotourism and economic reforestation.

The key steps to accomplish this outcome were:

- Implement the ecotourism development plan

Principle results of this initial period include implementing the 2007-2008 action plan: restructuring the Regional Tourism Office (ORTMEN), operationalizing ORTMEN's office, creating the ORTMEN website, reinforcing the concept of the destination of Menabe, promoting tourism in the region (including holding the Jama festival from July 27-29, 2008 – see photos), and rehabilitating and restructuring the hotel and restaurant center at Mangily. A training needs assessment was conducted with hotels, restaurants, artisans, and transportation actors with the aim of improving the competitiveness of the tourism sector in the region. Finally, beach clean-up activities were organized by ORTMEN as well as a communication campaign promoting a “clean and healthy” destination.

Madagascar's tourism will be enhanced by the recent declaration of the Allee de Baobab, an important tourism attraction in the region and the gateway to the Menabe Antimena, as a new protected area.

We began work developing a single entrance fee structure for the entire complex of protected areas in Central Menabe (Andranomena, Menabe Antimena, and Lake Bedo).

A plan for the installation of an interpretive center at Marofandilia was developed. However, interpretation and reception services and structures for Menabe Antimena will exist at Alley de Baobab, Tsimafana, and Andranomena, in addition to Marofandilia. This new strategy results from the development of the management plan and reflects the notion of a single Central Menabe complex of protected areas that includes the

ANGAP-managed Andranomena Special Reserve. It is also meant to capture the maximum number of tourists coming from both south and north.

- Develop economic reforestation in the medium and long term

Implementation of the multi-year restoration plan for the corridor between the Ambadira and Kirindy forest blocks continues. This year's activities included reforestation of the primary holes in the forest corridor. This includes active restoration in strategically-identified areas that cover a total of 2 hectares, which will act as shade and seed banks for natural regeneration of the remaining 16 hectares to be restored. In addition, activities included production of plants in the Marofandilia tree nursery, and planting of 7,360 Arofy seedlings (3000 of which came from the Analabe Living Conservatory). Village-level reforestation progresses as well. The association of sculptors at Marofandilia, the Fivoarantsaina association, took the initiative to develop its own tree nursery with native species because they see the value of replacing the wood that they use for their sculptures. GCP supports them with technical assistance on operating tree nurseries for native species.

The five Communes affected by the protected area received information regarding the necessity to establish a Reforestation Zone (i.e., Reserve Foncier pour le Reboisement). We also provided technical support to the Communes to identify land for reforestation and on reforestation techniques.

The Bemanonga Commune has designated its reforestation zone within the community-managed area at Marofandilia, and has already begun reforestation. The four other Communes have proposed identifying their zones for reforestation in 2007 to start the process in 2008.

- Support the development of conservation incentive mechanisms to engage local communities in active conservation measures

As in previous years, the results of participatory monitoring were used to score each village according to biodiversity value and levels of pressures in their area of the corridor. The community management associations were also assessed. All ten villages participated in the competition in late 2006. Kiboy village was declared as the overall winner; however, all participating villages received cash prizes depending on points scored. Special village meetings decided how the money would be spent. Over 600 households benefited directly from the resulting prizes. These benefits can be seen as an intermediate measure to demonstrate benefits before other longer-term benefits, such as protection of water sources, ecotourism benefits and sustainable use are felt at the community level. Due to the novelty of this approach, its immediate success, and effectiveness for co-management, an independent external evaluation started in 2007.

- Seek long-term funding mechanisms for the new protected area

Progress toward establishing a sustainable financing mechanism for the region has been made this year. Specifically, an agreement between the GCP team and ANGAP that a single entrance fee will be charged for the management and maintenance of protected areas and tourism sites located between the Alley de Baobab and the Tsiribihina River was reached. This entrance fee structure will go into effect once the Menabe Antimena protected area is established in March 2008. As a result, a previous activity regarding charging an entrance fee specifically for Lake Bedo has been abandoned.

To address this issue beyond just the above-mentioned sites, the protected area management rules currently being developed include a component for long-term funding mechanisms.

- Promote investments in high-potential revenue-generating activities that offer alternatives to natural resources degradation in Central Menabe

With the support of the regional farmers' federation VFTM, the project supported developing farming cooperatives and training them in improved agriculture techniques. Despite our efforts in 2005-2006 to develop a partnership with the Aquamen Shrimp Company to procure vegetables locally from GCP-supported farmers, the production did not fulfill market needs in terms of quantity and an agreement was never signed with Aquamen.

In the spirit of adaptive management, we recognized our strengths regarding conservation activities and our weaknesses regarding agricultural development and opted for a partner-based approach to promoting revenue-generating activities. In addition to providing organizational support to farmer groups directly, we established partnerships for agriculture-based activities.

The Project worked with SAHA Menabe (Swiss Intercooperation) to expand the cultivation and consumption of yams with 11 farmer organizations. Yams will supplement local people's diet, which is necessary if forest conversion to agricultural land is to be halted.

The Project also continued to develop a partnership with MCA. However, given delays in activity implementation in collaboration with MCA, Fanamby worked with a consultant to develop value-added agricultural products that will bring a higher price due to their production from within the protected area. This consultant has identified potential products and has also begun to identify markets for these products.

In terms of financing additional projects, 3 agricultural micro-projects were presented to the World Bank rural development project PSDR within the general framework of the third phase of Madagascar's environment program (EP3).

As matching funds, total of 5 small social and economic development projects were funded by the CI Node Small Grants Program: 2 wells for potable water and irrigation of tree nurseries, 2 small irrigation networks, and 1 beekeeping project. The Marofandilia

sculptors' association received support in market research and development from the project, as well as general capacity building and material management.

## Acronyms

ANGAP: National Park Service

CFEB: Forestry, Environment and Biodiversity Committee (within CRD)

CFL: Local Forest Committee

CFPF: Center for Professional Training on Forestry

CGP: Co-Management Committee

CI: Conservation International

CIREEF: Regional Forest Service (Circonscription Régionale de l'Environnement, des Eaux et Forêts)

COBA: Community based

CODIR: Direction Committee

CRD: Regional Development Committee

DPZ: German Primate Center (Deutsches Primatenzentrum)

DW: Durrell Wildlife Conservation Trust

EP3: Environmental Program Phase 3

ESSA: High School of Agronomic Sciences (Ecole Supérieure des Sciences Agronomiques)

FASM: Fiombonana Analabe Soa Miray - the community-level association in Beroboka

FY: Fiscal Year

GCF: Global Conservation Fund

GIS: Geographic Information Systems

IUCN: International Union for Conservation of Nature and Natural Resources – The World Conservation Union

KASTI: local anti-fire committees established by the forest service

MCA: Millenium Challenge Account

MIARO: USAID Project in Madagascar for “Maintaining Biological Integrity of Critical Biodiversity Habitats” (Cooperative Agreement No 687-A-00-04-00090-00)

MRG: Menabe Research Group

MAP: Madagascar Action Plan

MOU: Memorandum Of Understanding

NGO: Non Governmental Organization

OPCI: Inter-municipal Organization

OREX: Executive Organ

ORTMEN: Regional Tourism Office

PA: Protected Area

PCD: Development Plan for the Commune

PSDR: Rural Development Support Project (World Bank Project)

SAHA: Sahan'Asa Hampandrosoana ny Ambanivohitra (Swiss Development Program)

SAPM: Madagascar's System of Protected Areas

SIQR: Question and Answer Information System

USAID: United States Agency for International Development

VFTM : A regional farmers' federation

WWF : World Wide Fund For Nature

ZPC: Conservation Priority Area

## II) Hydrological Processes Learning Initiative

Integrating hydrological processes into conservation planning at the landscape scale is a technical challenge that requires the close collaboration of both biodiversity conservation and hydrological expertise. Over the past two years (2006-2007), Conservation International has led a collaborative learning initiative to bring together conservation partners and centers of freshwater expertise, including the African Wildlife Foundation, The Nature Conservancy, the Wildlife Conservation Society, the World Wildlife Fund, the IUCN Freshwater Program, Wetlands International and the Commonwealth Scientific and Industrial Research Organisation. The initiative enables partners to share expertise and lessons learned on the integration of hydrological processes into conservation planning at the landscape scale to address the following key questions:

- How do changes in hydrological processes impact on globally threatened species and/or conservation priority sites (such as KBAs) and the ecosystem services they provide?
- How do we map and quantify hydrological processes and patterns and identify clear targets or thresholds for hydrological processes to ensure the persistence of globally threatened species, priority sites, and the ecosystem services they provide?
- How do we value the biodiversity and ecological benefits of functioning hydrological processes to the wider economy and society?
- How do we integrate hydrological information with biodiversity and socioeconomic data to support the design of effective conservation strategies at the landscape scale and how do we integrate these conservation strategies in sustainable development planning?

### Objective 1: Setting hydrological and biodiversity targets

All activities were completed in FY06.

### Objective 2: Identifying socioeconomic analyses and methodologies to enable the maintenance of hydrological processes and biodiversity conservation

The key steps to accomplish this outcome were:

- Workshop on Identifying and Reviewing Socioeconomic Assessments for Conservation Action in Hydrological Regimes

A second workshop was held at Chilika, India in March and hosted by Wetlands International South Asia and the Chilika Development Authority. Chilika lagoon is a RAMSAR site that consists of a unique assemblage of marine, brackish and fresh water ecosystems, and supports the livelihoods of over a million fisherfolk in the area. The objectives of this second workshop were to examine processes and approaches for defining threats and pressures on the hydrological system, engaging with the relevant stakeholders, identifying the types of conservation interventions that might be most effective given the local/ regional contexts, and identifying the types of analyses required to properly implement those interventions. The case study teams were to integrate the various layers of biodiversity, hydrological and socio-economic analyses to develop a cohesive strategy for conservation.<sup>1</sup> The report on this workshop is included as an appendix.

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<sup>1</sup> All presentations and resources from both workshops will be posted on the CI Corridor Learning Portal and available for download by workshop participants in November 2007 (<http://corridors.conservation.org/>).

- Continuing Case Study on Integrating Hydrological Processes into Conservation Planning in the Pantanal (Brazil)

At the second workshop, CI-Brazil presented an update on the status of its work in identifying biodiversity targets and a preliminary analysis of the key drivers and threats to biodiversity and the hydrological system. Preliminary first steps of systematic conservation planning was outlined, including opportunity costs, primary productivity growth, headsprings (meaning important recharge catchments areas) and irreplaceability. The preliminary gap analysis revealed that only 10% of threatened species quantitative targets were fulfilled, 52% are partially protected and 38% are non-protected.

In part due to the tremendous amount of thinking in biodiversity and hydrological processes over the course of this two-year GCP project and to the huge need on the ground, CI has invested into an initiative to “*integrate hydrology, freshwater priorities and ecosystem services in corridor planning*” in FY08. By integrating watershed management and resource planning at this scale, and through having a better understanding of hydrological processes as they impact biodiversity and service flows, this initiative aims to contribute towards CI’s work in understanding, adapting and mitigating threats to biodiversity. This initiative builds on the lessons learned from the implementation of systematic analyses and planning processes initiated in the two CI corridors (Maracaju-Negro and Mamberamo), as well as from the various partner implemented case studies that were part of this GCP learning project. CI regions that are involved in this new initiative include China (Pingwu-Yujiashan landscape), Southern Africa (Kavango-Zambezi), Philippines (Eastern Mindanao Corridor), Cambodia (Cardamom Mountains) and Indonesia (East Java).

The GCP initiative has also facilitated technical collaborations between CI and CSIRO and Wetlands International. Over 2008, the CI corridors planning unit and Wetlands International South Asia will be working together on an adaptive systematic conservation planning approach in the Chindwin-Manipur hydrological corridor within the Irrawaddy river basin of northeast India. The objective of this collaboration is to test the applicability of an integrated planning approach within a large complex system, with the expectation of developing a model for replication in other similar systems. This type of collaboration was identified as a desired follow up activity during both workshops.

## **Appendices**

### **Madagascar**

1. Map Of Menabe Antimena Protected Areas
2. Lemur Diversity And Abundance In Menabe Central Survey (February - May 2007)
3. 2006 Ecological Monitoring of the Menabe Central Forests Report
4. Deforestation in Menabe Central between 1992 and 2006 Preliminary Report

### **Hydrological Processes Learning Initiative**

1. Integrating Biodiversity and Hydrological Processes into Conservation Planning at the Landscape Scale