

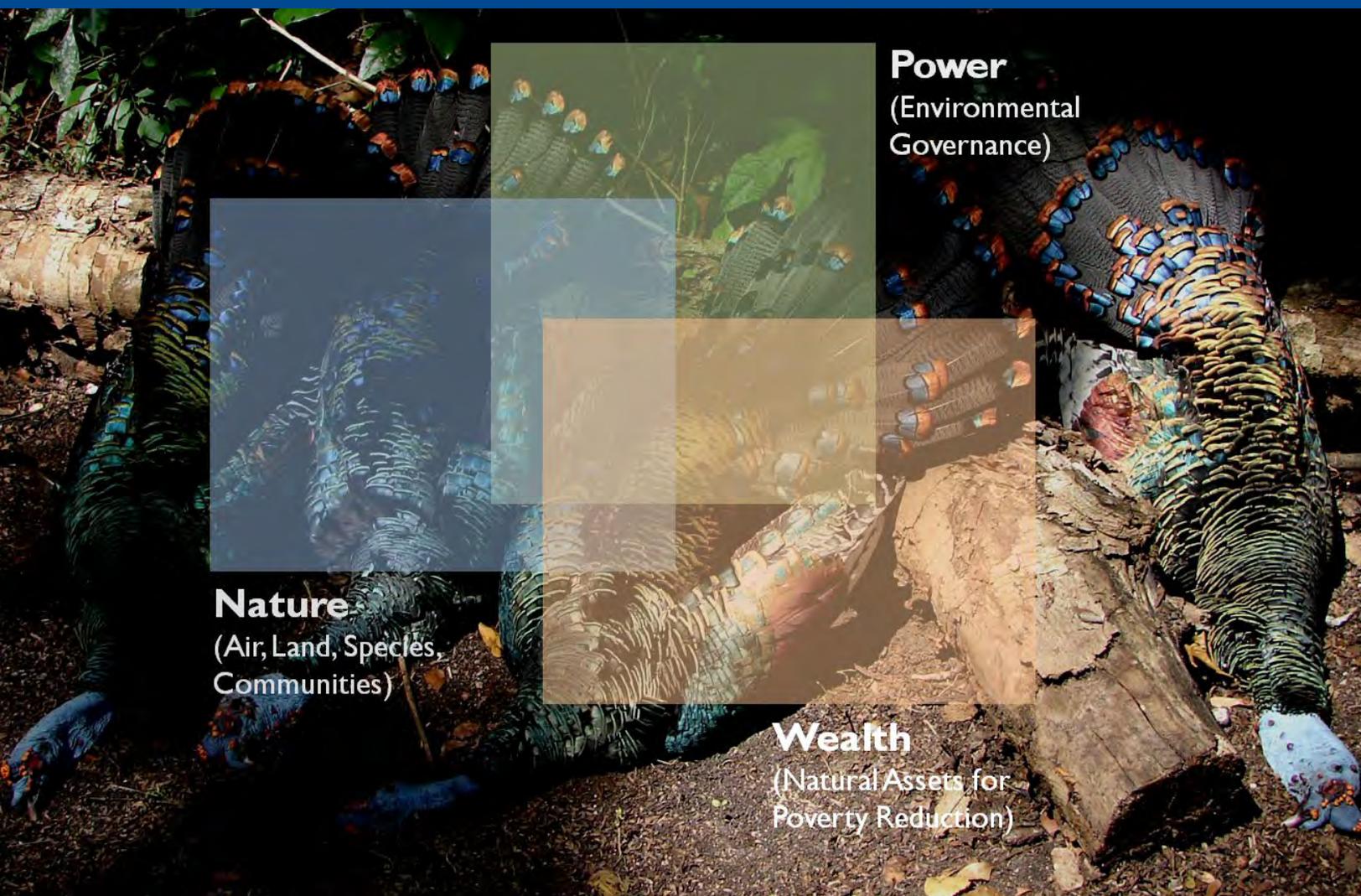


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FROM THE AMERICAN PEOPLE



TRANS**L**INKS

*Promoting Transformations
by Linking Nature, Wealth and Power*



Nature
(Air, Land, Species,
Communities)

Power
(Environmental
Governance)

Wealth
(Natural Assets for
Poverty Reduction)

Case Study:

**Community-based Ocellated Turkey (*Meleagris ocellata*) Sport Hunting
in the Petén, Guatemala**

TRANSLINKS

TransLinks is a 5-year Leader with Associates cooperative agreement that has been funded by the United States Agency for International Development (USAID) to further the objective of increasing social, economic and environmental benefits through sustainable natural resource management. This new partnership of the Wildlife Conservation Society (lead organization), the Earth Institute of Columbia University, Enterprise Works/VITA, Forest Trends, the Land Tenure Center of the University of Wisconsin, and USAID is designed to support income growth of the rural poor through conservation and sustainable use of the natural resource base upon which their livelihoods depend.

The program is organized around four core activities that will be implemented in overlapping phases over the life of the program. These are:

1. **Knowledge building** including an initial review, synthesis and dissemination of current knowledge, and applied comparative research in a number of different field locations to help fill gaps in our knowledge;
2. **Identification and development of diagnostic and decision support tools** that will help us better understand the positive, negative or neutral relationships among natural resource conservation, natural resource governance and alleviation of rural poverty;
3. **Cross-partner skill exchange** to better enable planning, implementing and adaptively managing projects and programs in ways that maximize synergies among good governance, conservation and wealth creation; and
4. **Global dissemination** of knowledge, tools and best practices for promoting wealth creation of the rural poor, environmental governance and resource conservation.

Over the 5-year life of the program, TransLinks aims to develop a coherent, compelling and, most importantly, useful corpus of information about the value of, and approaches to, integrating Nature, Wealth and Power. To do this, TransLinks is structuring the work around two core issues – 1) payments for ecosystem services and 2) property rights and resource tenure.





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Case Study

Community-based Ocellated Turkey (*Meleagris ocellata*) Sport Hunting in the Petén, Guatemala

Report prepared for WCS TransLinks Program

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Community-based Ocellated Turkey (*Meleagris ocellata*) Sport Hunting in the Petén, Guatemala

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Acronyms

AFISAP	San Andres Forestry Concession
CC	Carmelita Cooperative
CONAP	Guatemalan National Council of Protected Areas
CPI	Counterpart International
DECAM	Control of Firearms and Munitions Department of the Guatemalan military
IEWMS	Integrated Environmental & Wildlife Management Services
FSC	Forest Stewardship Council
MBR	Maya Biosphere Reserve
NTFP	Non-Timber Forest Product
NWTF	National Wild Turkey Federation
OMYC	Organization for Management and Conservation
PES	Payments for Ecosystem Services
PP	Proyecto Pavo
PPC	Proyecto Pavo Carmelita
PPU	Proyecto Pavo Uaxactún
RTLLC	Real Turkeys Limited Liability Company
UF	University of Florida
USAID	United States Agency for International Development
WCS	Wildlife Conservation Society

Introduction to Payments for Ecosystem Services

Many of the world's poorest people live in rural areas that are extremely rich in biological diversity, but poor in social services and economic opportunities. A paucity of livelihood options in these remote areas often results in heavy dependence on natural resources for sustenance and income. Where local governance systems are unable to establish and enforce natural resource use norms, the very resources upon which the rural poor depend may be depleted through unsustainable use. Where globalization has increased the industrial scale extraction of natural resources, local access is often diminished, sustainable management systems are frequently compromised and resource dependent families are commonly impoverished. Over dependence on declining natural resources can result in a poverty trap for rural families that may exacerbate existing challenges in accessing health care, education, clean water, fuel and income. Persistent poverty and livelihood insecurity can foment or perpetuate conflict, further diminishing the investments needed to foster economic growth.

Payments for Ecosystem Services (PES) is a relatively new and rapidly evolving approach for conserving biodiversity and securing livelihoods outside of protected areas over the long term. PES systems typically require willing buyers to purchase services from willing sellers. The latter must have either traditional or legal authority to sell or lease these services. Understanding the role that property rights and resource tenure play in facilitating and maintaining PES markets is critical. For PES markets to deliver benefits to rural communities over the long term, governance systems that regulate access to and meter use of natural resources, and ensure the equitable sharing of benefits from their sale need to be in place. Thus, it is also important to appreciate how governance systems can establish and support resource use norms that promote the sustainable use of communally-shared ecosystem services.

This is one of a series of case studies to better understand when and why PES approaches are most viable and effective. Specifically, this paper will review the establishment of an ocellated turkey hunting enterprise in the Petén of Guatemala that was designed to generate profits to support local livelihoods and, thus, to motivate local communities to sustainably manage the forest and its wildlife resources.

Background: The Petén

Historians and archaeologists estimate that in the seven centuries between 250 C.E. and 900 C.E. at least several million Maya thrived in what is now the Petén province of northern Guatemala. The Maya were particularly adept at producing high agricultural yields from poor soils. This allowed for development of high human population densities throughout the region and the ever growing demand for goods put a strain on the natural resources in the landscape. This stress together with climate change that resulted in a prolonged regional dry period together with severe short-term droughts tipped the balance, finally leading to a collapse of regional trade, increasing warfare between city states, and ultimately the catastrophic decline of the Maya civilization in the 8th and 9th century C.E. (Culbert, 1988; Peterson & Haug, 2005; Diamond, 2005).

The tropical forest of the Petén that had been cleared for Maya fields, building materials and fuel eventually regenerated, shrouding the abandoned but still magnificent Maya cities. Over the last 100 years archaeologists have just begun to investigate and reclaim these lost cities from the trees, which, today, cover an area that is the largest remaining contiguous tropical forest in Central America¹. In the last few decades a growing number of people, like the ancient Maya before them, have begun to exert increasing pressure on the natural environment in the region. These new residents have moved to the Petén mainly from other provinces of Guatemala (Ramos *et al.*, 2001). Deforestation and loss of forest species and ecosystem services is increasing as these new migrants clear and burn the forest for agriculture and cattle ranching.

The Maya Biosphere Reserve (MBR) was established in 1990 to safeguard the forest and the wildlife it contains and to secure the natural resource dependent livelihoods of native peoples. It covers 19% of the surface area of Guatemala (21,602 km²). The MBR is at the heart of a tri-national system of protected areas shared with Belize and Mexico known as the “Selva Maya” (Maya Forest).

The MBR is sub-divided into three management zones: the “Core Zone” designated for non-extractive activities (e.g., ecotourism), the “Multiple-Use” Zone for the sustainable extraction of timber and non-timber forest products, and the largely unmanaged “Buffer Zone” for the practice of conventional agriculture and commercial resource use on the southern border (see Figure 1). The Core Zone contains nine management units, including Laguna del Tigre National Park, Mirador-Rio Azul National Park, Sierra del Lacandón National Park, Tikal National Park, Yaxha National Park, and the “Biotopes²” of Dos Lagunas, Rio Escondido, El Zotz, and

Cerro Cahui. All are under the jurisdiction of the Guatemalan National Council of Protected Areas (CONAP). The Multiple-Use Zone includes two corridor units and 14 forestry concessions. Twelve of these³ are leased by the government to resident communities within the Multiple-Use Zone and two are leased to private sector firms. In theory, the government lease agreements with the communities stipulate that they are allowed to harvest natural resources as long as they comply with certain regulations (i.e. maintain certification of their timber extraction activities, develop annual work plans for approval by CONAP, pay taxes, and protect their areas from fire and illegal colonization).

Though government policies exist to regulate access to and use of MBR resources, they are seldom adhered to by long-term residents or short-term visitors. This is because they conflict with traditional rights and practices, permitting processes are frequently complicated and many require travel to the capital, and government agencies (i.e. CONAP and the Civil National Police) often lack the resources required to enforce the law. Recent migrants that are illegally encroaching on the MBR have in some cases been driven by necessity to obtain access to land and resources, and in others have been emboldened by numerous examples of powerful individuals who openly flaunt the laws.

Without functional management regimes that regulate access and meter use of natural resources within the MBR, the present populations of the Petén are, like the ancient Maya, in danger of depleting their environment, impoverishing their economies, and provoking conflict over increasingly scarce natural resources that are the foundation of their livelihoods.

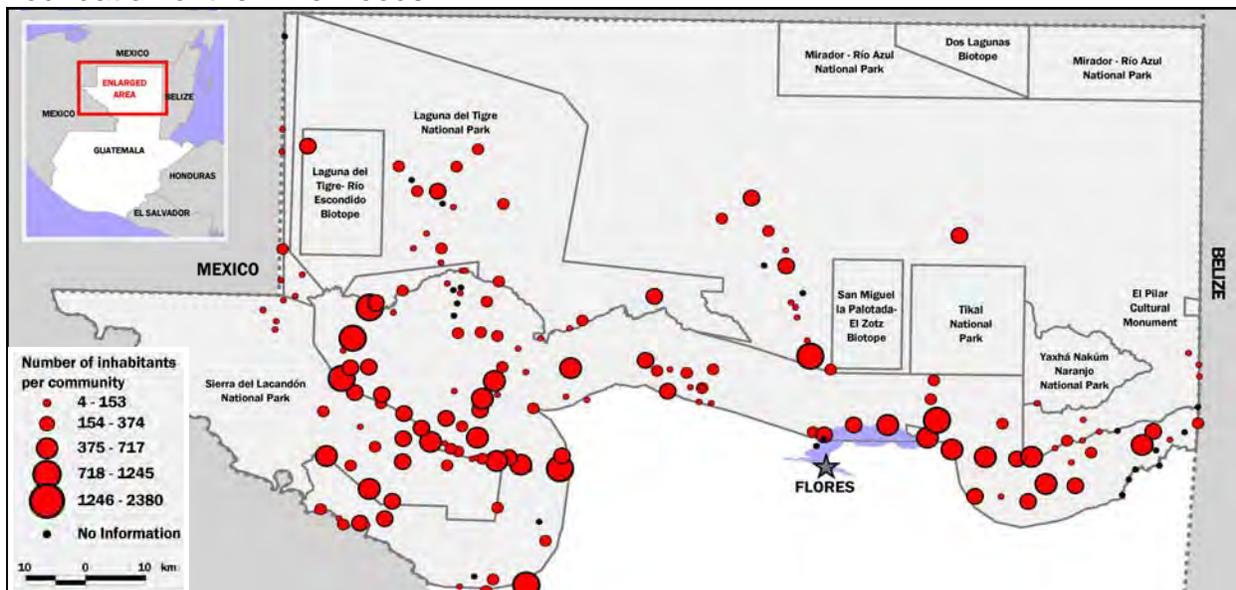


Figure 1. The Maya Biosphere Reserve indicating the location of the core protected areas as well as the size of the main population centers (in 2001).

Challenges to Forest Conservation and Economic Development

The 2001 census of 158 communities in and around the MBR (see Figure 1) showed a huge increase in the population size in this area over the last few decades with most of the increases due to migration⁴ (Ramos *et al.*, 2001; see Figures 2 and 3). From a mere 10,000 people living in the MBR in 1985, the population tripled in 10 years and then doubled in the next six years to 60,000 people by 2001. The population explosion in the MBR is a result primarily of external migration and high local birth rates. Even if immigration can be controlled, the latter will continue to drive population growth within the MBR as almost 65% of residents are under 20 years of age, compared to 57% in the rest of Guatemala.

The 2001 census collected both demographic and economic data on households. Analysis of communities in the MBR showed that people were engaged in the market economy either by owning a business (e.g., general store, pharmacy, grain mill, agrochemical store), or by selling commodities or labor (e.g., handicrafts, carpentry, hunting, allspice⁵ collection, day labor, tourism, palm frond “xate”⁶ collection, gum-resin “chicle”⁷ collection). Women are especially involved in agriculture, animal husbandry, midwifery, commerce, handicrafts and laundry services.

The communities of Uaxactún (688 people in 2000 and currently approximately 1000) and Carmelita (388 people in 2000 and now) are two of the larger and older settlements within the MBR itself. Most families in Uaxactún and Carmelita cultivate maize and other crops for domestic consumption, and raise pigs and poultry as sources of animal protein. Most adult men hunt on an irregular, opportunistic basis with only a small percentage continuing to rely on hunting for their livelihood. Like most MBR communities both Uaxactún and Carmelita are heavily dependent on natural resources to meet their basic needs. At the time of the survey in 2001 both Uaxactún and Carmelita families were generating income primarily from xate (60.6% and 65.2% in 2000, respectively), allspice (33.3% and 34.3%, respectively) and to a lesser extent chicle collection. The selective timber harvests managed by the community concessions have become the most significant component of the local economies in recent years. Most homes in both villages are constructed primarily with materials extracted from the forest. With the population pyramid in these two communities heavily skewed to children (see Figure 4), communities are likely to continue to grow rapidly in the next decades, putting pressure on natural resources and putting in jeopardy an economy based on the wild harvesting of relative low value natural resources.

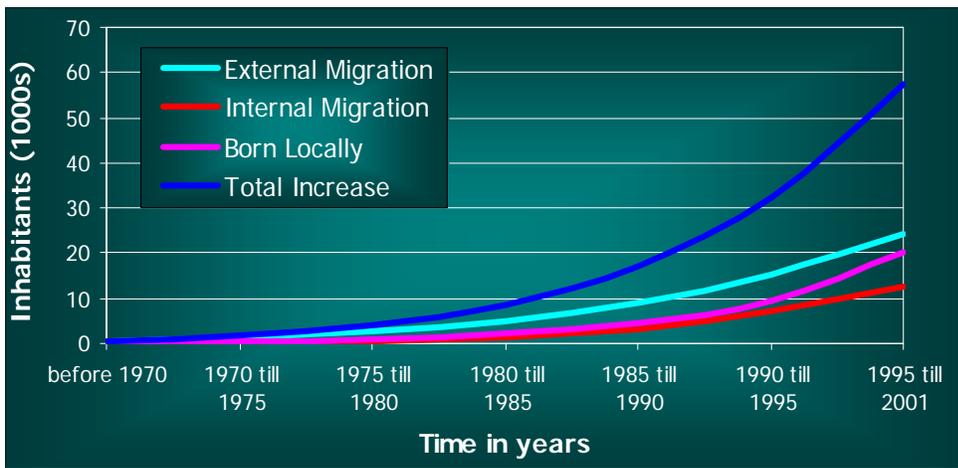


Figure 2. Population increase in the communities of the Maya Biosphere Reserve.

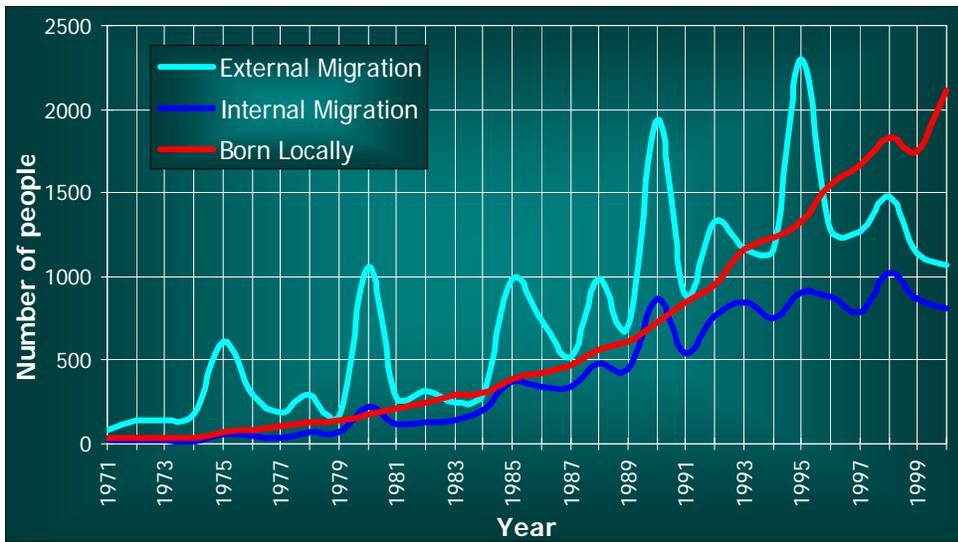


Figure 3. Annual population variation in the Maya Biosphere Reserve Communities.



Figure 4. Population pyramid for the Maya Biosphere Reserve Communities.

To forestall forest degradation by anarchic immigration and to secure the livelihoods of long term residents of the MBR the government of Guatemala decided to reinforce the rights of access and use of communities with historical or prior claims to lands within the MBR. Governmental interest in the “placement” of the local communities was also largely a response to the negotiated terms of the 1996 Peace Accords which ended 36 years of civil war. One of the agreements included the provision of at least 100,000 hectares of land within the Maya Biosphere for management by local populations. This number was eventually surpassed with over 400,000 ha of land within the 12 community forest concessions (this does not include the four small “cooperatives” on the southern edge of Sierra Lacandon). In this way concessionary rights were granted to Uaxactún, Carmelita and other communities to manage the forest for timber and Non-Timber Forest Products (NTFPs) for 25 years (see Figure 5).

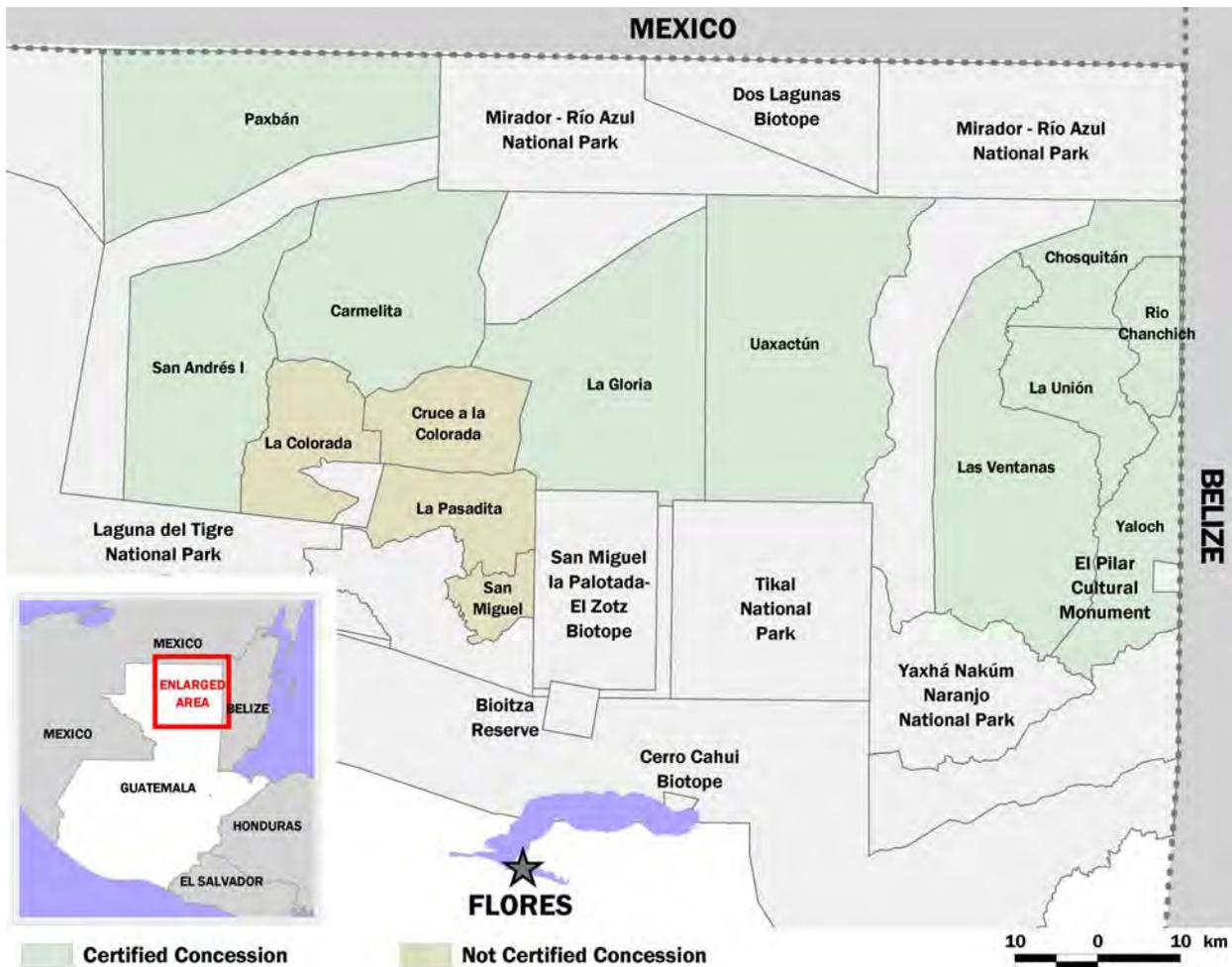


Figure 5. Forestry concessions and community cooperatives in the north-eastern Maya Biosphere Reserve. The concessions that are FSC certified are shown in green.

In addition, there was an international effort to convince the government to adopt a “Biosphere” approach to conserving remaining significant tracts of natural habitat where human settlements already existed. The justification was that local stakeholders would have an incentive to control further immigration and forest destruction, recognizing the reality that governments in developing countries often have limited resources or political will to enforce resource use policies on the scale that these remaining areas require.

Uaxactún’s Organización Manejo y Conservación (OMYC) and the Carmelita Cooperative were created to represent the interests and concerns of residents of each community and, as their representatives, decide how best to manage the natural resources in the Uaxactún (835 km²) and Carmelita (526 km²) concessions to generate local economic benefits without depleting the resource base. The concessions are leased from the government for an annual fee⁸. One of the requisites of the lease agreement is the development of sustainable management and business plans that regulate the exploitation of the forest⁹ resources. The management plans detail where and how resources can be harvested and which areas should be set aside for conservation of nature and ancient Maya sites. Both OMYC and the Carmelita Cooperative opted to selectively log sections of their community concessions and both enterprises have been certified according to green logging standards set by the Forest Stewardship Council (FSC)¹⁰.

Use of the forest through NTFP collection, ecotourism and low impact logging provides sources of income to many people within the MBR. Recently, a new, innovative, source of income has been established: community-based ocellated turkey sport hunting. This offers another income stream to help augment and diversify local economies, and has a higher value to impact ratio compared to other extraction activities thus, lowering the risk of overexploitation of the resource.

Turkey Hunting for Conservation and Local Livelihoods

Turkey Hunting: Ecological and Economic Rationale

The ocellated turkey is an ideal species for managed harvest systems. First, it is well-adapted to high natural mortality rates with an impressive reproductive capacity. Only 20% or less of the poults that hatch each spring survive until November, after which time every turkey in the population has only slightly more than a 50% probability of surviving from one year to the next. This high natural

mortality rate makes it very likely that under proper conditions, a proportion of the sport hunter harvest is compensatory rather than additive mortality. Hens lay nests of 8-12 eggs, may nest their first year, and are often able to re-nest after being disturbed by predators during the laying process. Second, hens are exclusively responsible for parenting the young, thus adult-males offer no reproductive contribution after mating. Also, the species is polygynous and adult male turkeys maintain a strict social hierarchy that restricts annual breeding activity to a minority of the adult-male population (almost all adult hens will attempt to reproduce annually). Third, the singing behavior and distinct morphology facilitate the selective harvest of adult males. Fourth, the annual breeding pattern allows selective harvesting to occur immediately following the breeding peak, further mitigating the impact of adult male harvests. The seasonal peak of singing behavior of adult-male turkeys generally occurs at the end of April or beginning of May. This behavior increases as the hens gradually abandon their young from the prior breeding cycle, to mate and then lay and incubate their clutches. Adult male behavior makes the birds most conspicuous as the breeding season ends. Fifth, the species is capable of exploiting a broad range of habitat and dietary resources, particularly areas with a mosaic of agriculture and forest patches. The species would do well in the most impacted areas of the reserve and could potentially even repopulate much of the landscape outside of the reserve if indiscriminant and unrelenting hunting pressure could be controlled.

Local studies of subsistence hunting of ocellated turkeys, which are exploited for food and sometimes for feathers which are used for local handicraft manufacture¹¹, indicate annual non-sport har-



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Turkey feathers are used to ornament Uaxactún corn dolls

vests of approximately 50 turkeys in Carmelita and 75 turkeys in Uaxactún (see Figure 6). At average local values per turkey ranging from US\$5-10 the total value of annual subsistence harvests are estimated between \$250-750. The current market price for foreigners to sport hunt an ocellated turkey ranges from \$2,000 to over \$3,000 which substantially increases the potential value of ocellated turkeys to local villagers. Currently the communities participating in ocellated turkey sport hunting earn over \$1,000 per turkey harvested- over 100 times the subsistence value of the birds.

History of Turkey Hunting in the Petén

Populations of both the ocellated turkey and its closest living relative, the wild turkey of North America (*Meleagris gallopavo*) have been reduced and extirpated in parts of their historical ranges by unsustainable hunting pressure. In North America the wild turkey has recovered. Regulated hunting and active restoration played a role but the key element was the prosperity in the United States following World War II - almost everybody had gainful employment and little time or inclination to poach wild turkeys. The restoration programs of state wildlife agencies and the increase in wild turkey abundance helped fuel a parallel increase in the popularity of sport hunting of wild turkey which in turn yielded increasing revenues for management and law enforcement efforts. Today the wild turkey occupies a wider distribution than in pre-Columbian times and every U. S. State except Alaska has a management program and hunting season for wild turkeys. The National Wild Turkey Federation¹² (NWTF), a non-profit organization founded in 1973 dedicated to turkey conservation through sustainable “sport” use, claims over 500,000 members and cites a worldwide total of almost three million wild turkey hunters, providing testament to the increasing popularity of turkey hunting.

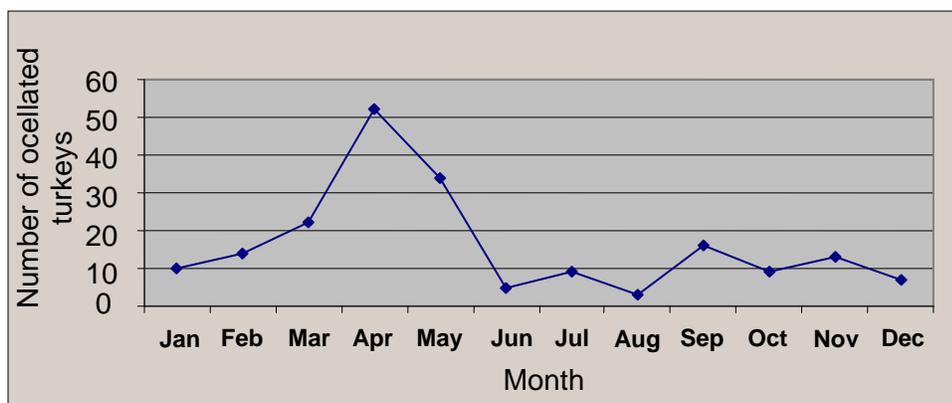


Figure 6. Temporal subsistence harvest trend for ocellated turkey from pre-PP Subsistence Hunting Registry, Uaxactún, Flores, Petén for July 1993 - July 1998 (N=194). (Source WCS unpublished data.)

Dr. Lovett E. Williams is a wildlife biologist and specialist on the wild turkey. During his service in the Florida Game and Fresh Water Fish Commission (FGFWFC) Williams conducted research on the wild turkey and helped develop management techniques for wild-trapping and relocation that eventually contributed to the successful reintroduction of the species throughout its former range. After leaving the FGFWFC in 1985, Williams entered private business as President of Florida Wildlife Services, Inc., a wildlife management consulting firm, and co-owner of Fisheating Creek Hunting Camp in Glades County that offers hunting opportunities for wild turkeys and other game species in Florida. He continues to research and to write about the wild turkey and more recently the ocellated turkey. As owner-operator of the company Real Turkeys™ LLC (Limited Liability Company) he markets turkey hunting opportunities overseas, specialty turkey-hunting products, and related literature. Since the late 1990s he has marketed Gould's wild turkey hunts in northwestern Mexico and ocellated turkey hunts in the Petén of Guatemala.

Williams' interest in the ocellated turkey began when he first hunted this species in southern Mexico. After his hunt in 1997, he visited many sites within the ocellated turkey's range and discussed the species with almost anyone who had experience with it. He concluded that the species was suffering from over hunting and was on the same downward course its North American cousin had been. He conceived of a conservation effort for ocellated turkey in Mexico based on the North American sport-hunting model where fees paid by hunters have contributed significantly to the conservation of wildlife and its habitat. He believed that a demonstration of community-based sport hunting for ocellated turkeys,



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The ocellated turkey (Meleagris ocellata)

where local subsistence hunters and other community members would work as guides and camp staff, could lead to sustainable harvest activities and to the development of harvest management policies.

At the same time, Erick Baur, a wildlife biologist, and Roan McNab, of the Wildlife Conservation Society (WCS) based in Flores, Guatemala, were both studying subsistence hunting in the MBR and considering the idea of a conservation program featuring the ocellated turkey. Baur had been living in Guatemala since he was a U. S. Peace Corps volunteer in 1994, during which time he worked in rural villages with subsistence hunters in the countries' two largest protected areas, first in the Sierra de las Minas Biosphere Reserve and later in the Maya Biosphere Reserve. Baur was beginning to study subsistence hunting and the status of wildlife populations in the proposed community forestry concession of Carmelita, San Andres when he met McNab. At that point McNab had completed fieldwork for his research on the impacts of NTFP extraction on wildlife in the proposed concession area of Uaxactún and was working in support of the community's efforts to procure the rights to a forestry concession. Baur and McNab were discouraged by the lack of attention to wildlife resource use policy within the management framework of the forestry concession system proposed for the Multiple-Use Zone of the MBR. They were confident that North American interest in the wild turkey could be channeled into support for a program focusing on its jungle cousin which could be used to promote the development of sustainable wildlife-use policy in the reserve. The community-based sport hunting program, if set up in the MBR, would provide much needed income to local people, would offer turkey hunters a unique experience, and help to conserve the ocellated turkey, which in Guatemala was threatened throughout its range by unsustainable subsistence hunting and to a lesser degree habitat loss (McNab *et al.*, 2004). In addition, it would provide a model for sustainable hunting of other wildlife. McNab was particularly keen to create conditions by which people "value" the persistence of nature and sport-hunting of ocellated turkey seemed to offer just such an incentive mechanism.

In 1999 Williams set up a hunting project in Ejido of Tres Garantías, Mexico and in 2000 expanded the project to include Ejido of Caobas, both in the state of Quintana Roo. The community and staff received benefits from the hunts, including communal revenues that went towards community improvement projects.

Upon hearing about the Mexican ocellated turkey hunting venture, McNab suggested to Williams that a similar project be set up in the Petén of Guatemala where he and WCS were active. Lovett traveled to Flores to meet with McNab and also met Baur. He proceeded to Mexico with Baur (as his interpreter) to iron out problems that had emerged there during the first hunting season (i.e. inadequate staffing, funds not dispersed as agreed, language and cultural barriers) and to plan for the second hunt. The hunting project in Mexico was subsequently closed down after an unsuccessful second year. Lovett turned his attention to the Petén where there were better prospects for a community-based conservation and hunting project to succeed. With the support of all parties, in 1999 the “Proyecto Pavo” (PP) was born.

The community of Uaxactún was an obvious choice for the location of such a turkey hunting enterprise. At that point Uaxactún was one of the largest and oldest human settlements within the Multiple-Use Zone and had a long history of reliance on NTFP and wildlife resources, having originally been established as a chicle resin extraction camp in the early 1900's. Research on local wildlife resource use was started in the early nineties by a series of Guatemalan university students interned with local institutions: first the Wild Animal Rescue Association (ARCAS) and later the Organization for Conservation and the Environment (ONCA), with assistance from WCS. By that point sufficient data was available to assess local hunting pressure and the status of the ocellated turkey population over a 5 year period. WCS had begun to evaluate the economic viability of the proposed selective-timber harvest system on which the concession was largely predicated, and was determined to help Uaxactún develop opportunities to earn alternative sources of income, particularly through sustainable NTFP extraction. The relationships and results of WCS' long-term work with the community could help nurture the development of the project, which in turn could be built upon to promote the integrated management and sustainable use of the natural resources in the Uaxactún forest concession. In addition, the community would benefit a great deal from a novel low-impact source of income.

In 1999 Williams provided the funding to employ Baur to co-develop and manage the Guatemalan operations of the ocellated turkey sport hunting enterprise. His work and long-standing relationships with the community of Carmelita within the MBR eventually also led to a natural expansion of the PP to the Multiple-Use Zone of that community in 2004.

When the PP began in 1999 there were no existing national laws to regulate sport hunting in Guatemala, and the concept itself was novel to government officials with jurisdiction over wildlife re-

sources and the MBR. As a result, the PP operated for five years registered with CONAP as a scientific investigation. During that period the turkeys harvested by participating clients were permitted on the basis of scientific collection licenses provided by CONAP in lieu of hunting licenses. Initially the program received funding from NWTF, WCS, the Levin School of Law at the University of Florida (UF), and partial support for Baur from the Wildlife Ecology and Conservation Department at UF. In 1999 surveys were conducted of the ocellated turkey population in the proposed concession area and a series of public discussions were held with the community of Uaxactún. Meetings were also held with the relevant regulatory agencies and the necessary processes were determined in order to acquire permits for a “test hunt” in 2000. The proposed project was integrated into the master management plan written for the proposed community concession of Uaxactún along with complementary guidelines for the management of subsistence hunting. The project conducted its first test hunt in Uaxactún in 2000 and its first sport harvest with four US hunters there in 2001. Since then the PP has successfully conducted 13 community-based turkey harvests in three community forestry concession units, evaluated two additional units, provided services to over 150 wild turkey hunters, harvested 245 turkeys, and maintained a 100% success rate.

Operating in the legal context of a scientific research project required the annual renewal of a research license by CONAP. The School of Biology at the University of San Carlos in Guatemala City provided official institutional endorsement of the project. Securing a research license was a requisite step in obtaining a wildlife collection license that served in lieu of hunting license, which at that time was the only legal means of harvesting wild flora and fauna. The collection licenses were in turn a requisite for the export permits required for hunters to return to the US with their trophies. Given that the ocellated turkey is listed as a CITES Appendix 3 species in Guatemala, CONAP requires specific CITES export permits for the legal export of ocellated turkey specimens. Transport within Guatemala of wildlife specimens requires a permit called a “guía” or guide, or more recently a valid hunting license accompanied by the corresponding registry booklet. During the period in which the PP operated as a research project, there were no tax obligations and only limited permitting costs.



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Trophy tails

With the advent, in 2005, of national hunting legislation and a state-controlled system for issuing hunting licenses, the legal context of the PP was converted to a CONAP registered commercial wildlife resource operation. Currently hunting licenses cost approximately \$200 per participant. Since 2005 the communities have reported their income from the PP as part of the annual proceeds of each concession.

For the first two years the project imported the participants' personal shotguns for the hunts. Given Guatemala's complicated legal processes for the import, transport, and public possession of firearms this ultimately proved unfeasible. For the 2002 hunting season, it was decided that it would be more efficient to purchase appropriate shotguns in Guatemala rather than importing them from the US, and then make them available on a restricted basis to the clients during the hunts.

The shotguns currently used by the project are registered with the Control of Firearms and Munitions Department of the Guatemalan military (DECAM) as required by law. Firearm registration is normally processed by the retailers of the new firearm as part of the purchase transaction and accompanied by a DECAM registration certificate upon final payment. Although registered, firearms must remain in the residence of the owner unless one of various transport or public possession licenses is acquired. After experimenting with alternate permits the PP elected to operate using public possession licenses (Licencia de Portacion de Armas de Fuego). Although more expensive and complicated to process and renew, these licenses are the only option that provides the necessary temporal and geographic flexibility to accommodate hunt operations.

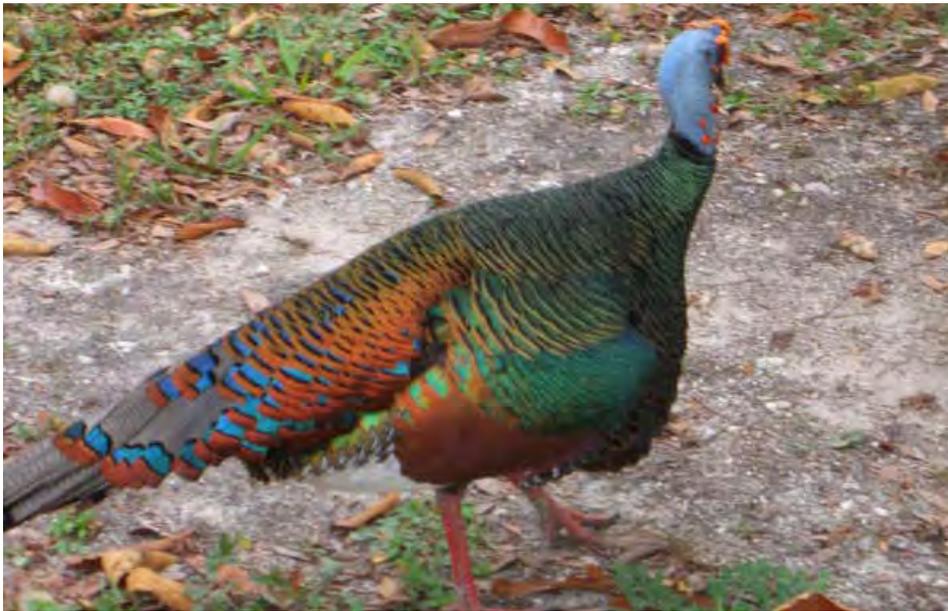
Fairly modest investment and infrastructure are required for successful turkey sport hunting field operations in the community concessions. In each participating community concession a block of forest is designated as the ocellated turkey management area on the basis of 3 criteria: distance from settlements, existing infrastructure, and size. Increasing the distance from permanent human settlements creates better general conditions because subsistence hunting is greatest near the villages and steadily decreases the farther away you travel. Focusing harvests in the remote areas of the concessions provides several benefits; turkeys are usually more abundant and less cautious in these areas which facilitates harvest, and it reduces the amount of overlap with subsistence hunting pressure making it less likely that project operations cause additive pressure on turkeys or deprive local inhabitants of resources they would otherwise utilize.

Most of the MBR was historically subjected to selective timber operations (mainly focused on the largest mahogany and Spanish cedars) and the concessions continue to conduct annual timber and NTFP extraction activities. This provides an existing network of both active and abandoned timber roads, skid trails, timber staging areas, foot trails, and primitive camps left by harvesters located near seasonal or permanent ponds throughout the forest. The extent and condition of the existing road network and the placement of the camp determines the time required to deliver hunters to appropriate hunt sites each morning. As adult male turkeys are most reliably found at their roost sites and only sing from their roosts for a brief period around dawn during breeding season, hunters must prepare and leave camp early, be driven to a drop-off point (20 minutes to more than an hour), proceed on foot to the area near the roost identified by the guide or scout (another 20 minutes to more than an hour), and set-up their hunt site before dawn. Appropriate areas for operations require a sufficient road network that permits a camp to be situated centrally providing access to hunt sites in multiple directions. Sport hunting operations require appropriate vehicles and considerable road maintenance. Abandoned timber and other extraction roads require rehabilitation, as do active road and trail networks that become severely degraded during the rainy season. All routes require some annual maintenance and improvement in order to deliver clients quickly and efficiently. This may take 1-2 months and is the most costly part of the pre-season preparations. The condition of the roads must also be such that rehabilitation and maintenance costs are not prohibitive. Fortunately for turkey hunters the peak of adult male turkey singing corresponds to the driest part of the year, generally providing sufficient time for the maintenance of the road network prior to the hunts and reducing the logistical challenges of delivering clients to their hunt sites.

The availability of fresh water is another determinant of the location of camps and an important logistical factor in planning field preparations. Fresh water is required by road and camp maintenance crews, as well as the camp staff and the clients during the hunts. Due to the karst substrate in the region there are relatively few permanent water bodies and those that exist often contain heavily mineralized water. Temporary fresh water ponds form throughout the forest each rainy season most of which have dried out by the time field preparations begin. Occasionally temporary ponds hold water over the dry season and may persist for several years before reverting back to a seasonal pond. Not only is it expensive to pay local pickup owners to deliver shipments of water to the camps, there may not be pickups available to deliver water on the regular basis required to support field crews.

The camps used during the hunts are rustic, being constructed principally of several palm thatched huts built with materials collected locally in the style traditionally used for chicle and xate extraction camps. Hunting camps include 2-person dormitory huts with cots, simple mattresses, mosquito nets, and shelves for each client, a larger dining hall for meals, a latrine, simple bathing stalls, additional large huts for the kitchen, a storage area, and several huts to accommodate the camp staff. Camps have vehicular access to the existing road network and areas for parking, loading, and unloading vehicles. Once built the camps require two to four weeks maintenance annually depending on their condition. Camps are often temporarily occupied by xate or chicle extractors during the off-season and have on many occasions been damaged either unintentionally or for unknown reasons deliberately. The Petén enterprise model has relatively light infrastructure compared to many commercial ocellated turkey hunting enterprises currently operating in Mexico.

Additional preparatory field work includes the maintenance of preferred hunt sites and wildlife resource inventory sample routes. Certain physical and vegetation conditions appear to be exceptionally appealing to adult-male turkeys for reproductive displays. Areas with pre-existing natural or artificial clearings are used more consistently by adult-males than other sites, thus facilitating hunting by increasing the predictability of finding “target” turkeys and due to their openness, offer more and better opportunities to actually shoot a turkey. Clearings maintained by the project in each area range from 1-3 acres in size and may be prepared by a crew in less than a day. Brush removed during site maintenance is either burned in a pile to create a bed of ashes which turkeys enjoy dust-bathing in or gathered into piles at the edges of the clearing to use as simple blinds to conceal hunters. The survey routes used for the annual wildlife resource inventories consist of 20-24, 2 km long stretches of existing roads and trails that are measured and marked at 50 m intervals with flagging tape, paint, or metal trail markers. The survey designs are not static between years, having varied over the years in length (formerly 5 km), number and placement of routes during the development of the current sampling methods. Each year the data collectors must restore the markings to existing routes and measure and mark new routes when necessary.



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There are two species of turkey worldwide - the North American wild turkey (*Meleagris gallopavo*) with its five sub-species and the ocellated turkey (*Meleagris ocellata*). Less is known about the latter. It is smaller than its northern cousin and more colorful. Both male and female have iridescent green and blue feathers. The bluish-gray tail feathers have a blue and bronze spot in the shape of an eye, which is the origin of their name from the Latin word *oculus* for eye. Due to the similarity of the species to the peacock they were previously mistaken for members of the peafowl family (*Pavo spp.*), which may be the origin of the local name pavo or pavo ocelado. Both male and female have blue heads with orange warty caruncles and snoods (the appendage above the beak that extends on the male during the breeding season). Neither gender has a beard. The male's crown is adorned by caruncles and, in the breeding season, these and the distinct red eye ring of the species become more pronounced. Males also have long, sharp spurs. The ocellated turkey is unusually quiet for a bird that lives in dense vegetation cover. Its behavior of keeping birds in a flock together without calling is probably an adaptation to avoid predators. They keep close visual contact with their group and fly to and from roosting sites, usually in the same tree, at the same time. The males become vocal in the breeding season when they "sing" to attract females. Hens usually lay 10-12 eggs in a ground nest between March and May with poults hatching May-July. A broad array of mammalian, avian, and reptilian predators is capable of preying on turkeys throughout all its life stages.



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Rationale for Turkey Hunting as an Alternative Livelihood Activity

There are five recognized sub-species of the North American wild turkey: the “Eastern” occupies the area east of the Mississippi River, except for peninsular Florida which is occupied by the “Osceola” sub-species; the “Rio Grande” occupies areas west of the Mississippi river and the high plains of northeastern Mexico; the “Merriam’s” occupies the mountains of the southwest; and the “Gould’s” occupies the northern Sierra Madre Occidental of Mexico. In the spirit of competition, there is a triple-tiered hierarchy of prestige, within the NWTF and among turkey hunters more generally, based on the collection and registration of distinct varieties of wild turkey. Hunters who take the first four sub-species, which are distributed within the USA, by “fair-chase”, accomplish the “grand slam”. The addition of a Gould’s completes a “royal slam”. The ocellated turkey¹³ is required to complete the “world slam”. These can be registered with the NWTF and are considered great accomplishments in the world of turkey hunting. Many American turkey hunters are willing to invest considerable time and money to pursue the certified “slams”; other hunters are simply interested in the experience of hunting a very different turkey in a unique tropical environment rather than the “world slam”. The total cost of an ocellated turkey hunt in the MBR runs to about \$6,000, including pre-trip preparations, the payments to Williams and the communities, additional tips and skinning fees to the camp staff, wildlife broker fees, taxidermy costs, and travel costs such as hotel, meals and airfare.

Only in the last few years has the profile of the ocellated turkey been raised among wild turkey hunting enthusiasts. Since 2000, Williams has written seven magazine articles about the ocellated turkey in *Turkey Call* and *Turkey & Turkey Hunting*. The NWTF has produced three documentary videos for the Outdoor Channel cable channel featuring the ocellated turkey and the PP. An eighth



© L.E. Williams

The size of the spurs is important

article about the PP was written by Neal Eichholz, the former Florida Fresh-Water Fish & Wildlife Commission area director, for the US Fish and Wildlife Service publication “Birdscapes”. Currently Williams, Baur, and Eichholz are collaborating on a book manuscript on the ocellated turkey and the PP.

Current Operations

Today the annual harvest operations directly involve five organizations: the US-based company Real Turkeys LLC™ (RTLLC), the Guatemalan company Integrated Environmental & Wildlife Management Services, Sociedad Anonima (IEWMS), two community committees referred to as Proyecto Pavo Uaxactún (PPU) and Proyecto Pavo Carmelita (PPC), and the board of directors of the management authority of the San Andres Forestry Concession (AFISAP). RTLLC is owned and operated by Dr. Williams who attends the annual harvests in Guatemala and also manages all US-based PP activities including marketing, client coordination, payment collection and disbursement to Guatemala, scientific direction, and coordination with the NWTf. IEWMS is responsible for PP activities in Guatemala that require technical services or legal representation such as the wildlife surveys, harvest management plans, firearm permitting, and facilitation of hunting licenses and related permitting. IEWMS also helps coordinate PPU, and PPC activities, makes client reservations, local fund-raising and coordination with those donors. The PPU/PPC committees are responsible for managing the community accounts, pre-harvest preparations, harvest personnel, participation in public projects, and coordination with concession authorities. The Wildlife Conservation Society continues to provide limited office services in the Petén and to contribute to the PP’s wildlife monitoring efforts.



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Adult male, tail wagging

© E. H. Baur



Bathroom facilities

© E. H. Baur



Dishwashing facilities (left) and cooking facilities (right)

© E. H. Baur



Dining hall (left) and bedroom (right)

Participating hunters arrive at the regional airport in Flores, Petén from the United States via Guatemala City, Cancun, Mexico or Belize City. Groups of clients arrive weekly during the hunt season. Each group is met by community members at a hotel near the airport and brought to the communities where they have lunch and often purchase local crafts, then proceed to the remote forest camps. Group sizes have ranged from 4 to 6 hunters per party because fewer would not be profitable and more would compromise service quality. The annual hunting season is limited to the month-long period after the first week of April that corresponds to the local average seasonal peak of turkey singing.

Local guides and scouts prepare for the hunts by locating as many active roost sites in the harvest area as possible by cueing in on the adult-males' crepuscular singing. The guides identify a few good sites to set up a hunter within 100m of the roost and prepare a simple path to the nearest road. Hunting sites must have a natural opening at ground level such as a tree-fall or open under storey, ideally offering the hunter more than one direction to aim at an approaching turkey. The hunters are driven before dawn and again at mid-afternoon from camp to their respective drop-off points, from which they proceed on foot to the hunt sites near the roost. Accompanied by their guide and one or more scouts they try to reach the sites, conceal themselves, and begin calling the targeted turkey once it begins to sing. In some cases the hunters and guides set up cloth or natural material blinds from which to call. Clients are returned to their hotel near Flores on the fifth day after arriving in camp, or earlier if everyone finishes hunting, with either one or two trophies that have been skinned, salted, and boxed for shipping.



© E. H. Baur

Staff dining hall (left) and staff quarters (right)

Ancient Maya ruins are ubiquitous in the region and there are large Maya sites near each of the PP campsites, the most spectacular perhaps being the partially restored complex at Tikal National Park and UNESCO World Heritage Site that lies just south of Uaxactún. The hunts are often completed in less than the 4 days scheduled, thus most of the hunters have taken advantage of the opportunity to visit Tikal and other historical sites or to visit the picturesque towns of Flores and Antigua.

Research for Monitoring and Verification of Conservation Benefits

Population Surveys

When CONAP originally authorized the PP to operate in 1999, it also required that the project conduct annual turkey population surveys in the concession units where harvests would occur in order to prove that the proposed selective harvests would not damage the resource. CONAP did not have any existing protocols for monitoring wildlife populations, so the PP was instructed to develop appropriate methods. The project faced the combined challenge of developing survey methods that could (a) provide meaningful indicators of abundance of the species, (b) be standardized and replicated in order to discern trends between seasons and management units, (c) be applied over forested areas up to 800 km² for at least 2 months each year, and (d) were simple enough to execute using rotational, local labor with minimal education and few technical skills.

The original surveys sampled between 22-26 routes per management unit that were 5 km in length and marked at 100 m intervals that were established along existing roads and trails throughout each concession. Each year the observers were trained to distinguish between sexes and age classes (adult/first-year) of turkeys



© K. Benson

The picturesque town of Flores

based on morphological characteristics, provided with field glasses, and asked to record data from auditory and visual detections of ocellated turkeys on a simple data form. Daily sample periods were 5-8 am and 4-7 pm, corresponding to peak activity of the target species. The observers sampled routes by walking at approximately 1.7 km/hr (3 hours per 5 km route). Data were collected on the date, time, type of observation, perpendicular distance from the trail, the number, gender and age-class of individuals observed and habitat type where observations were made.

One element of the research involved ocellated turkey singing. The males sound a series of low frequency drumming notes (which could be imitated perfectly on an orchestral tympani) followed by a high-pitched “song”. Drumming is a territorial announcement and singing is to attract females. Trophy hunting is scheduled for the peak of male singing activities at dusk and dawn. This bestows several management benefits: (a) the peak corresponds to the period when most copulation has concluded and nesting is well underway (Gonzalez *et al.*, 1998) thereby reducing the impact of a selective male harvest, (b) the singing peak also facilitates efforts to locate and distinguish adult-male turkeys which increases hunting success and reduces the likelihood of non-target losses (i.e. females and juvenile birds). The data collection periods were extended beyond the 2 months required by CONAP for several years until it was determined that the peak of singing behavior occurs from early April until the middle of May.

In 2000 there were no existing maps of the infrastructure within the proposed concession area of Uaxactún, therefore the first step towards a survey design was to compile sufficient information from several existing maps and multiple field visits to the area into a single map (see Figure 7). Spanish versions of the maps produced by the PP were provided to the local management authorities and have subsequently been used for logistical planning of a number of research, fire-control, and NTFP extraction activities. In order to increase the management value of the monitoring effort, the PP included four other game-bird species in the surveys; the great curassow (*Crax rubra*), the crested guan (*Penelope purpurascens*), the plain chachalaca (*Ortalis vetula*) and the great tinamou (*Tinamus major*), to develop a database for other wildlife resources important to the concessionaires. An additional management benefit of the survey efforts resulted from the fact that they required consistent human presence in remote areas of participating concessions during the driest part of the year. It is precisely at this time of year that these areas accessible by vehicle are at their most vulnerable to forest fires, squatter invasions, and unlawful extraction of timber, NTFPs, wildlife, and other resources. Since

inception, PP survey data collectors have identified irregular activities and informed the respective management authorities of these on a regular basis.

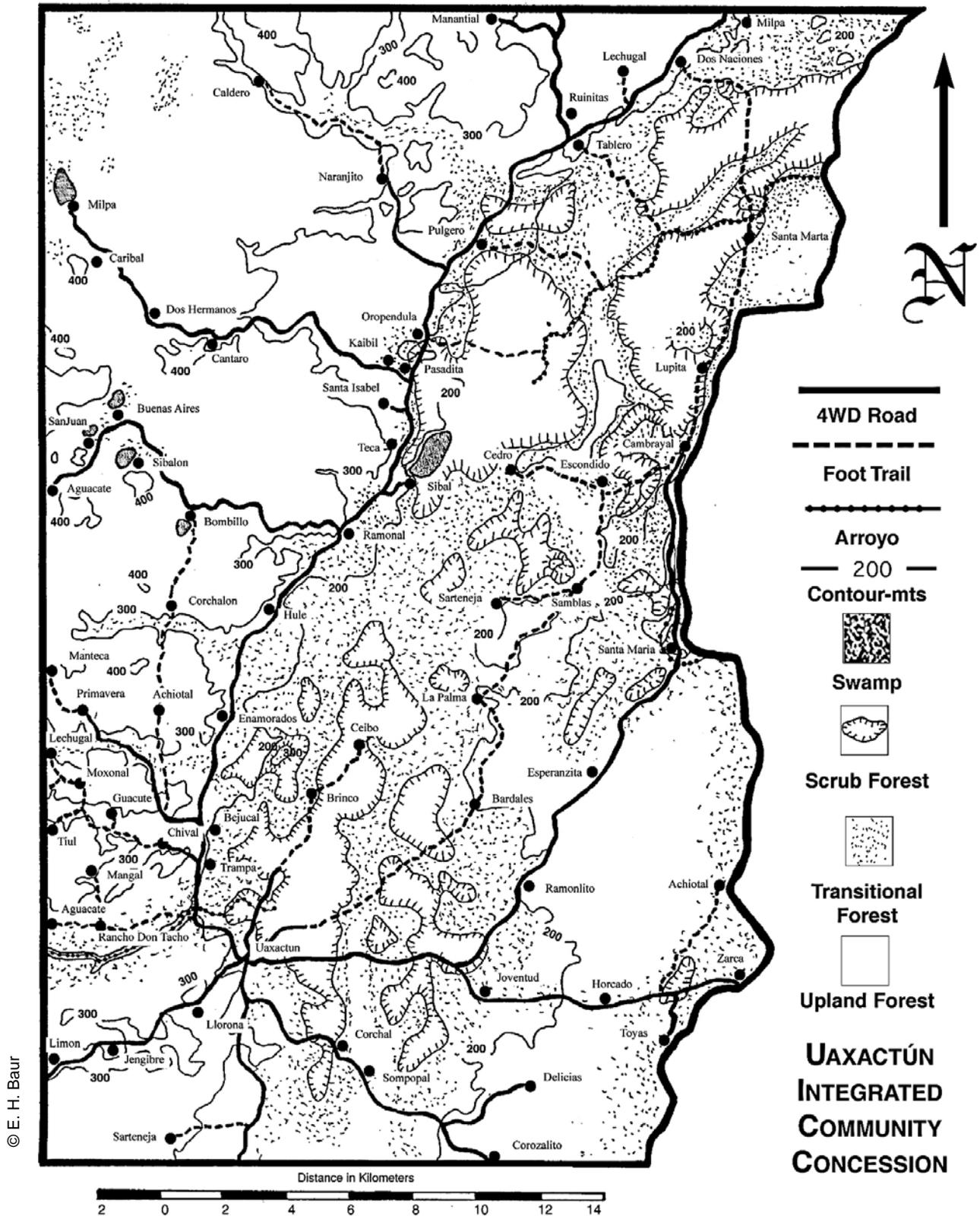


Figure 7. Map of the Uaxactún Integrated Community Concession.

Since 2005 several modifications have been made to the monitoring efforts. The advent of state issued hunting licenses brought considerable increases in permitting costs, which are paid for out of the income to the communities. The responsibility for all labor and technical costs of the monitoring efforts was assumed by Real Turkeys LLC, as an appropriate measure to alleviate the increased financial burden on the communities and consistent with the project's expectation of exclusive use of ocellated turkeys in the designated management areas of participating concessions. This shift also allowed the monitoring effort to be refined in a number of important ways. The PP can now select the data collectors and maintain qualified personnel every year in each area. The length of the sample routes was reduced to 2 km, permitting greater spatial replication and sampling frequency (see Figures 8 and 9 for example survey routes). Currently data are collected only in the designated turkey management areas of participating concession as the results are ostensibly a basis of reference for annual harvest quotas. The survey periods are limited to the two months of peak singing activity (mid-March – mid-May; see Figure 10), and they have been expanded to include all legal game species in order to maximize the management value of the monitoring efforts.

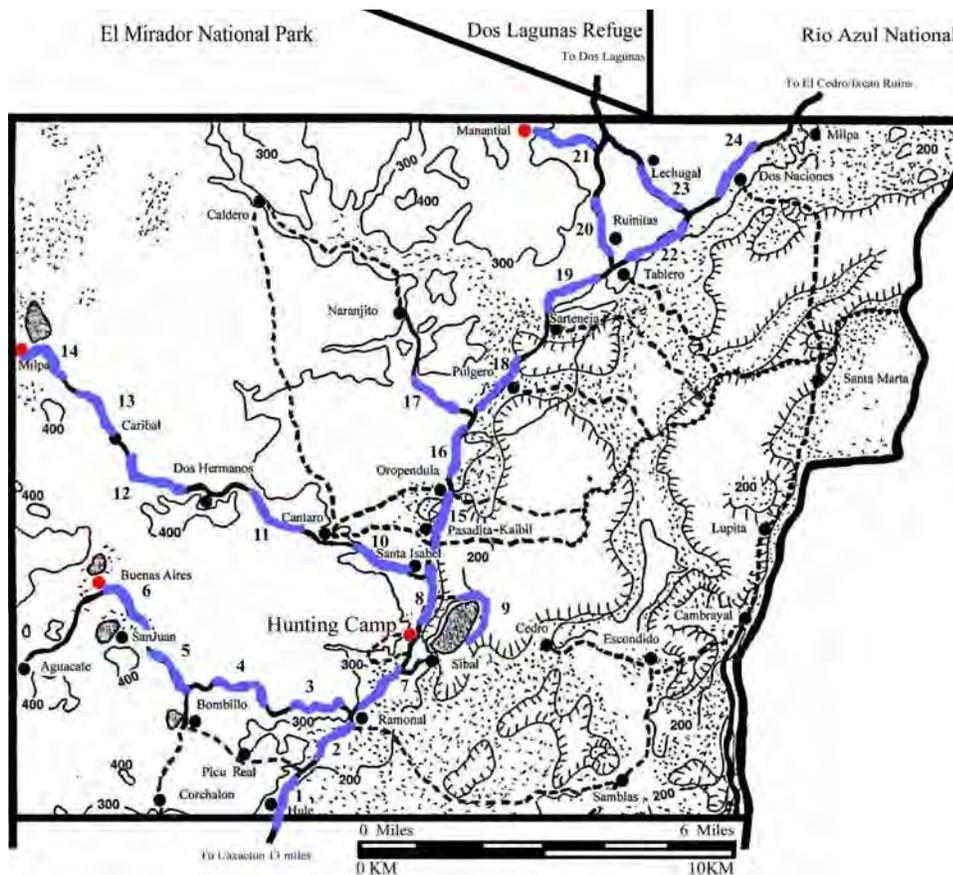


Figure 8. Blue lines indicate the survey routes used for monitoring in 2006 in the Uaxactún forestry concession.

The data collection techniques and daily sample periods remain the same, except that data collectors can sample two routes per period for a daily maximum of 4 (former maximum was 2 per day).

Initially CONAP noted that permission to hunt in the MBR would be granted only after review of annual harvest management plans and population monitoring data. Since a new, "Comprehensive Hunting Law" was approved by the Guatemalan Congress in 2005, CONAP has only required hunting licenses and written permission from the relevant management authority to authorize hunting in the MBR. CONAP no longer requires monitoring data to authorize

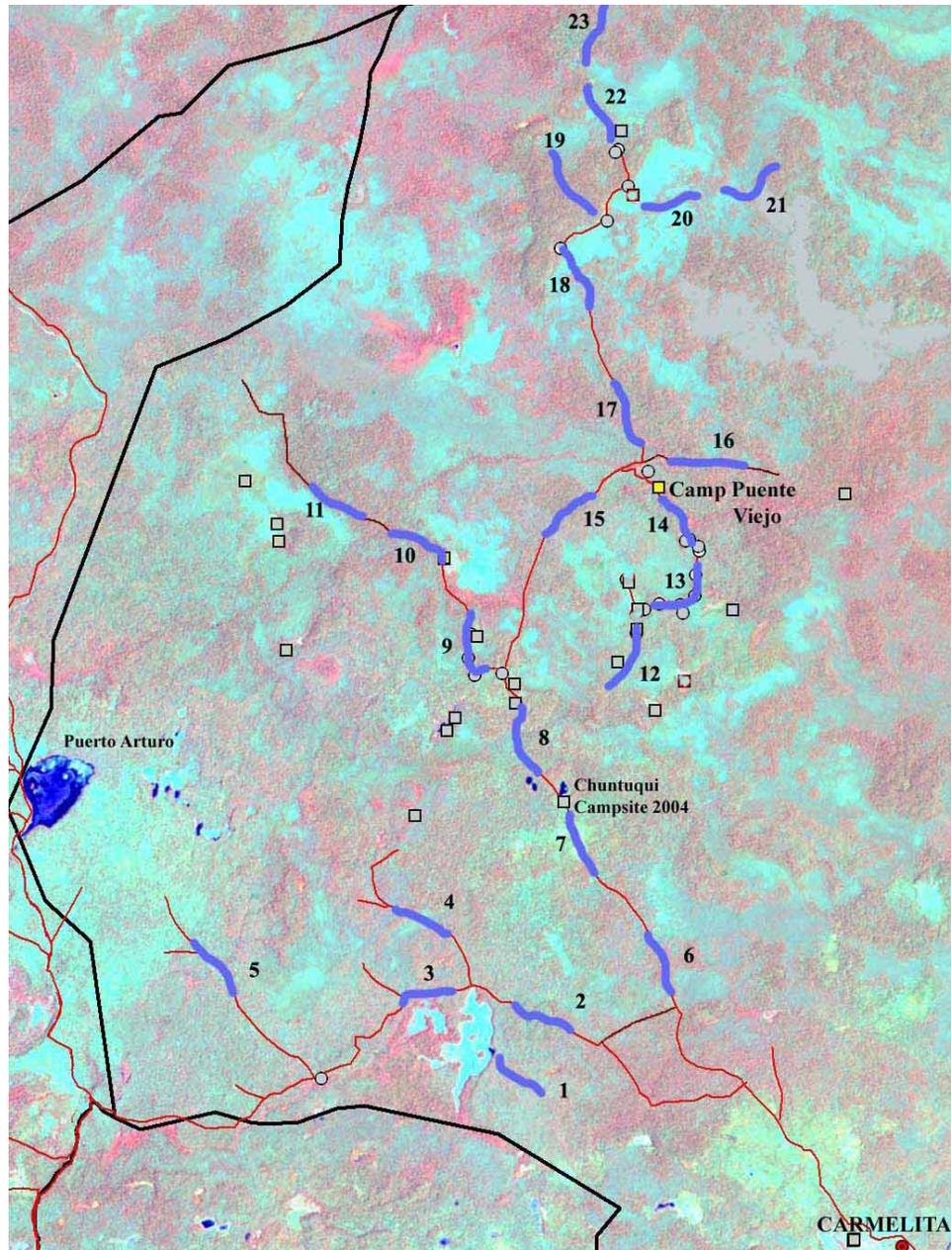


Figure 9. Blue lines indicate the survey routes used for monitoring in 2006 in the Carmelita forestry concession.

Table 1. Summary of adult-male density estimates from annual PP monitoring in the harvest areas of the Uaxactún and Carmelita community forestry concessions.

	Uaxactún		Carmelita	
Years	2000 - 2004	2005 - 2007	2002 - 2004	2005 - 2007
Mean Density	0.48	0.76	0.37	0.63
Range	0.32-0.54	0.60 - 0.84	0.24 - 0.45	0.41 - 0.81
St. Dev.	0.083	0.136	0.114	0.204

hunting. However, gathering this information has on at least two occasions served to garner support from key CONAP official when arbitrary bureaucratic reticence threatened to delay the issuance of the permits beyond the projected hunt dates.

The monitoring data provides abundance indices of the ocellated turkey populations for the harvest management plans submitted to CONAP. A relative density estimate of adult male turkeys, the number of detections and individuals observed for all turkeys, along with a range of estimated population sizes are reported each year. Adult-male density estimates are calculated based on the maximum number of adult male turkeys detected acoustically or visually during a single sample of a route during the sample period. Based on the assumption that all turkeys singing within 500 m of the routes (Steadman *et al.*, 1979) may be detected, numerous strips of 2 km² are sampled during each visit. An average of values calculated for all routes is used to estimate the adult-male density in the entire management area (see Table 1).

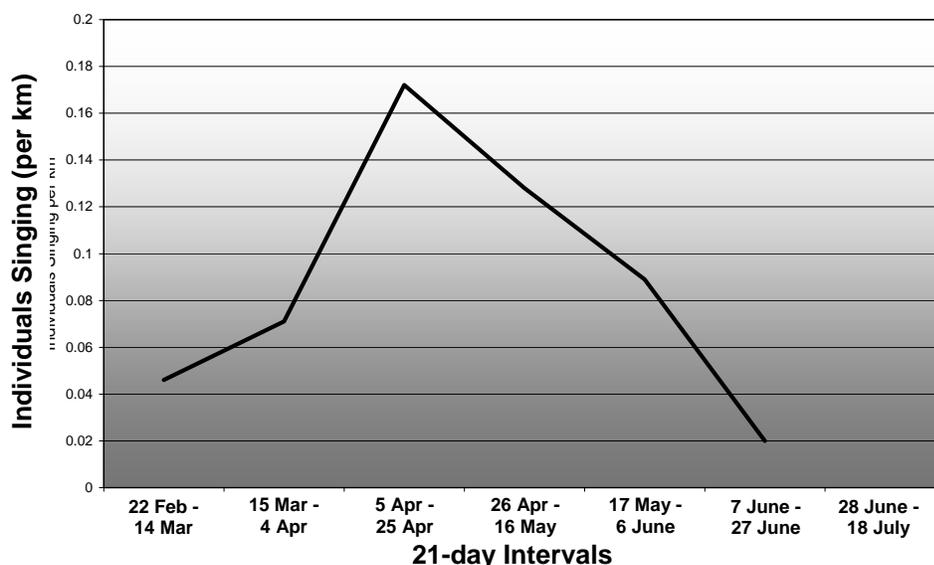


Figure 10. Seasonal singing pattern/Average singing-male detection rate, 2000-2004. Uaxactún Integrated Forestry Concession, Flores, El Petén. (Data from E.H. Baur.)

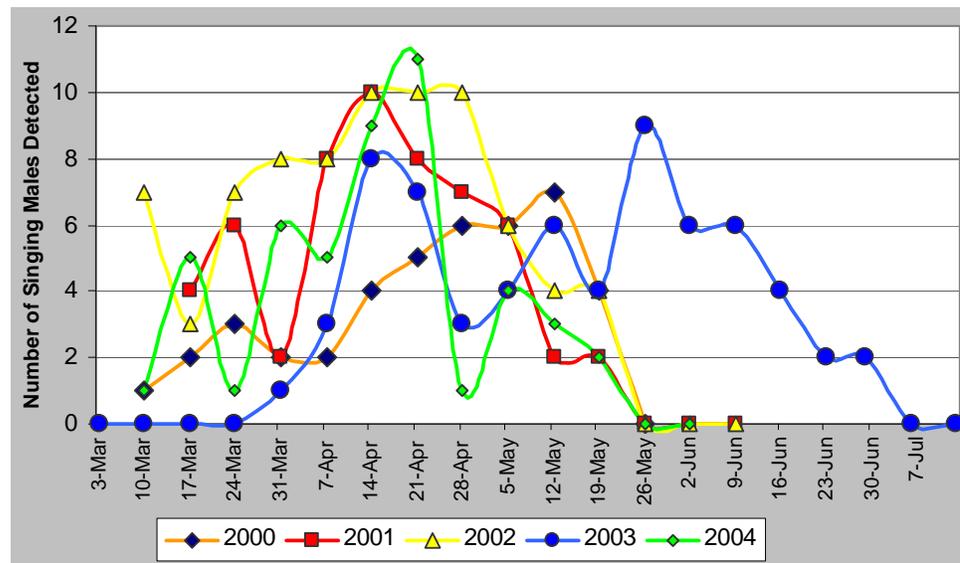


Figure 11. Seasonal patterns of number of singing male ocellated turkeys detected between years, Uaxactún Integrated Forestry Concession, 2000 - 2004.

The density estimates generated from the call count data (see Figure 11 for examples) are considered conservative for several reasons. First, all adult-males along the survey routes are not likely to be singing at the moment the call counter is passing through at 3mph. Second, based on direct observations (ms in prep.) it appears that breeding adult males are solitary and territorial and that there is a sub-dominant segment of the adult-male population that does not sing or attempt to breed. It is possible that that these sub-dominant individuals represent a significant proportion of the adult-male component of the populations. The assumption that density estimates are conservative is also supported by the trends observed between the estimates generated by previous and current data collection methods. Since the refinement of the annual monitoring efforts in 2005 the population estimates derived from the data have been consistently higher than the results of pre-2005 surveys.

Vocalization Research

Subsistence hunters commonly shoot ocellated turkeys off the roost in the dark using flashlights. That may be the most efficient way to acquire meat, however, North American sport hunters consider roost shooting unethical. These turkey hunting enthusiasts spend years learning about wild turkey behavior and improving their ability to imitate a repertoire of turkey vocalizations, in order to convincingly engage a targeted turkey and coax it from protective cover. In the case of the ocellated turkey, suitable calling methods were not developed until recently.

Lovett Williams invested considerable time observing and recording the vocalizations of ocellated turkeys in Mexico, Belize and Guatemala with the primary objective of developing a calling method. In the process, he has recorded and identified 16 calls so far, and his endeavors to develop appropriate turkey calling techniques have been successful. Now hunters who participate in the PP hunts have the opportunity to call in their trophies using either a play-back electronic turkey caller or a manual, breath-operated wooden reed instrument called a Doug Camp “owl hooter”.

Attracting turkeys by calling has several advantages: (i) it is less likely that a hunter will mistakenly take a female bird (similar in color) as the focus is on the male birds that drum and sing; (ii) as the bird slowly approaches the hunter this facilitates correct sex identification; (iii) with a calling instrument, the hunting period is not restricted to the short period around dawn while the trophy is roosting, but can continue throughout the day if the hunter does not successfully take a turkey early in the day; and (iv) this is the hunting experience sought by turkey hunting enthusiasts. Having an effective calling method significantly improves client satisfaction and thus facilitates marketing efforts for the PP.

Auxiliary Research

With partial funding from the NWTF, Williams supported efforts in Mexico, Belize, and Guatemala to determine the current distribution of the ocellated turkey. Work by Dr. Sophie Calmé in Mexico determined that the species distribution has diminished significantly over the last 20 years, particularly in the western and northern parts of the Yucatan peninsula and that it has been extirpated in Tabasco and Chiapas (Calmé and Sanvicente, 2004). WCS efforts directed by McNab *et al.* (2004) in Guatemala found that the species continues to be doing well in the northeastern part of the MBR where it is best protected, its range has been severely restricted in the south, persisting in only a few areas peripheral to and outside of the reserve. Its distribution in Belize seems to be unchanged in recent years, occurring in the northwestern districts adjoining Guatemala.

The PP has developed a database that includes body weights and spur measurements which is currently being analyzed for the book being prepared by Williams *et al.* The PP has provided specimens to the Winchester Museum of the NWTF, in Edgefield, South Carolina, US, the Florida Museum of Natural History in Gainesville, Florida, US, and the Natural History Museum of the Center for Conservation Studies, University of San Carlos, in Guatemala City, Guatemala.

Although not directly affiliated to or supported by PP activities, Baur's graduate research on the ocellated turkey and related species complemented the project's research efforts and helped maintain his availability during the developmental stage of the project. That research yielded diet descriptions based on the analysis of crop and stomach contents from 197 turkeys provided by local hunters and descriptions of habitat use, forest strata use, and abundance variation along a gradient of subsistence hunting pressure. That research also provided descriptions of the sequence of turkey reproductive activities based on local observations, and described nest site and clutch characteristics from observations made of 40 turkey nests.

Structure and Governance of the Enterprise

The PP has been dedicated to the development of appropriate and practical management policies and mechanisms since its inception in 1999. At the local level the PP not only seeks the organizational capacity necessary to manage annual field operations, but also the social and financial mechanisms necessary for participating communities to mitigate their own subsistence impacts on turkeys and other wildlife. The PP works directly with CONAP to promote the development and implementation of policies that are appropriate for sustainable wildlife use and ocellated turkey harvest management within the context of community forest concession management.

The original structure and organization of PP activities in Uaxactún were determined through local public participation and consensus. In 1999, WCS sponsored a series of public meetings in Uaxactún, including educational presentations and workshops in order to provide a public forum to determine how the community could participate in the proposed project. The local cultural norm for dealing with public issues is public meetings or general assemblies



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Home of Proyecto Pavo in Uaxactún, used mainly to store equipment

("Asembleas") where all decisions of public importance are settled by a popular vote. Not only did the PP initially adopt the assembly decision making process, it used it to determine that the project would be managed locally by an independent "Hunting Commission Committee", to select committee members and field staff, and to determine pay scales and job responsibilities. The results of that process were incorporated into two products: the wildlife management plan for the concession and a contract ("convenio") between RTLLC and the community (see below for more detail) drafted by a law student at the Levin School of Law Conservation Clinic, University of Florida. The proposed turkey project and a complementary subsistence wildlife use management plan became part of the concession's master management plan.

The assembly decision-making process ultimately became unsuitable for the project. The process is cumbersome and inefficient, and the degree of attendance and audience composition are both highly variable and extremely influential on the outcomes. If a candidate for a position or committee post has a decent showing of family or friends during a particular assembly, the probability of being selected increases significantly. Assemblies often made decisions for political rather than pragmatic reason, such as the selection of committee members and field personnel who were unqualified or unfit for the service. Community decision making also resulted in the "rotational" labor policy which though equitable meant that staff training had to be ongoing and staff skills only improved very slowly thus inhibiting the improvement of service quality and increasing the operating costs of the PP.

Public assemblies are difficult to organize and highly vulnerable to disruption. To attract an adequate number of participants requires that: i) assemblies be scheduled several weeks in advance, ii) public notice is provided via flyers, "bullhorn" announcements, and word-of-mouth, iii) ample refreshments are provided, and iv) they be held exclusively on Sundays, as it is the only day of the week that a plurality of the adult population is likely to be available. On the day of a scheduled assembly the size and composition of the audience may be significantly affected by weather or current events. Even assemblies that are already underway are susceptible to being co-opted by other public interests (who were just saved the trouble of having to coordinate their own meeting), or else distracted or disturbed by private interests (usually inebriates).

Several factors motivated a series of changes to the project in 2005. According to instructions from CONAP, the PP established a Guatemalan company, "Integrated Environmental & Wildlife Management Services, Sociedad Anonima" (IEWMS) and registered it

with CONAP as a commercial wildlife resource user. As the legal representative of IEMWS, Baur, began to negotiate “memoranda of understanding” or “convenios” between the RTLLC component represented by RTLLC & IEMWS, the local committee component of the PP, and the local management authorities, in order to articulate all expectations related to PP activities. In Uaxactún, where a small minority of community members had tried to manipulate public sentiment against the project, the “convenios” were signed by OMYC, Baur and the turkey hunting committee (see Appendix 1 for a copy). In Carmelita the “convenios” were drafted with essentially the same expressed expectations and responsibilities as in Uaxactún and shared by all parties but were never formalized, although none of the parties objected to the terms expressed in those documents (because the Cooperative became insolvent for awhile, and no one was causing problems for the PP in Carmelita). A first USAID small grant provided by the Guatemalan program of Counterpart International (CPI)¹⁴, was awarded in 2005 to help increase investment in the community’s turkey management efforts, and build local support. That award was used to support field service improvements, and modifications to the monitoring activities.

The local turkey hunting committees became known as Proyecto Pavo Uaxactún (PPU) and Proyecto Pavo Carmelita (PPC) respectively, which are subsidiaries of the corresponding management authorities. After the first community committee in Uaxactún elected to divide all of the earnings from the test operations among themselves, the responsibility of managing the community accounts was assumed by Baur until the project was restructured in 2005. Since then participating communities receive all deposits directly from RTLLC into individual bank accounts and manage all spending and accounting with the support of the local manage-



© E. H. Baur

Perched ocellated turkey

ment authority accounting staff. The hunting committees are responsible for: (i) maintaining legal accounting with the management authorities; (ii) hiring staff; (iii) preparing work schedules; (iv) preparing payrolls (project employees become temporary employees of the local management authority); (v) purchasing and transporting food and supplies during preparations for and throughout the hunts; (vi) providing logistical support for preparation and hunt activities; (vii) communicating with local management authorities; (viii) coordinating operations with local patrol and vigilance commissions; (ix) coordinating PP supported community projects; (xi) public representation of the PP locally; and (xii) coordinating with Baur. The local committees allocate some earnings to support community projects and activities during the remainder of the year and reserve a significant portion of the net earnings as working capital to serve as a contingency buffer for the subsequent season's operations.

The “convenios” established the right of the PP to adopt the same hiring policies applied by the local management authorities. Over time the PP has been able to reduce the size of the local committees, and improve both operation efficiency and service quality. Initially, committees were large (up to 8 people) and membership turnover was high. Subsequently, the project was able to maintain experienced committee members who were motivated and could work together. Currently the Proyecto Pavo committee in Uxactún has just 2 members (a third recently retired) and in Carmelita there is only one permanent member who uses seasonal assistants during field operations. The PP is able to select workers with appropriate skills and experience during field operations and to avoid workers who perform poorly. To maintain the high quality of the trophy hunting enterprise, and ensure client satisfaction there was a need to pick “the best people for the job” because, for example, to be a good guide requires extensive experience with and knowledge of ocellated turkeys. Most employees are men who are traditional subsistence hunters, in part because the intention was to reduce the number of subsistence hunters, but also because ex-hunters are very skilled at finding turkeys.

The “convenios” designated turkey management areas in each concession (see Figure 12) within which the PP has the exclusive right to harvest ocellated turkeys. To motivate community members to refrain from hunting turkeys in the management areas the project offers temporary local employment for some along with corresponding local spending, purchase of goods and services from others, direct financial assistance and increased wildlife management capacity to concession authorities, general community project assistance for the public, trail and principal road maintenance, and traditional use fees. To foster social awareness of the



project and respect for the management areas promotional posters were designed and disseminated with support from USAID and CPI in 2007. The posters included a summary of the local economic impact of the project, maps indicating the management areas, and an appeal to support the project by avoiding hunting turkeys in those areas (the first page of the poster for Uaxactún is shown in Appendix 2). The project has been successful in reducing the pressure on ocellated turkeys in the indicated sport hunting zone, but it has not been totally eliminated. Community members who are caught hunting turkeys in the turkey management areas forfeit the right to future employment with the PP. Although some community members still harvest ocellated turkeys in these areas, as the PP has become more financially stable and capable of investing in the community there seems to have been a positive shift in attitudes towards both forest resource and ocellated turkey conservation (based on interviews with community members).

Most recently the PP began integrating the AFISAP forestry concession, located adjacent to the Carmelita concession on its western border, into the Carmelita PP field activities. Unlike Uaxactún and Carmelita, AFISAP has no permanent human settlements, it is

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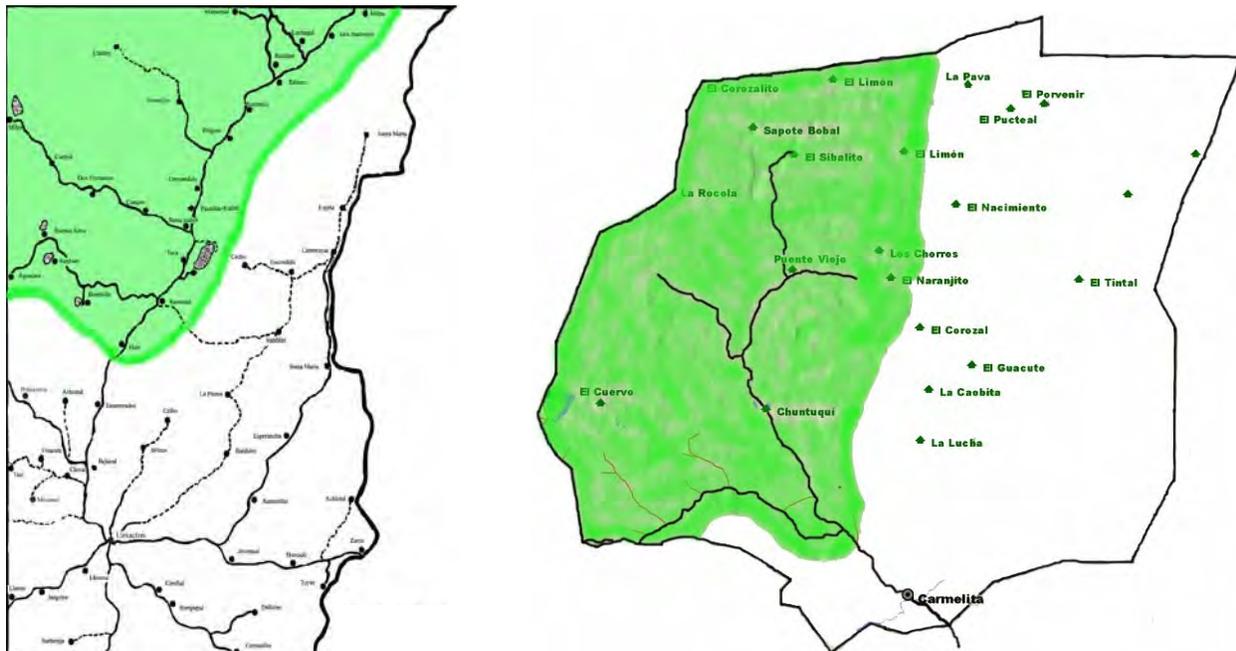


Figure 12. Uaxactún (left) and Carmelita (right) Community Concessions, with the turkey management areas within each concession highlighted in green.

leased by a local association from the nearby town of San Andres, located in the Buffer Zone of the MBR. Although AFISAP has managed to control and remove illegal colonists to date, all of its neighboring management units except Carmelita have been invaded by illegal colonists in recent years. Integration of AFISAP offers the PP a significantly larger western harvest area, and the PP offers AFISAP a supplementary alternative income, a basis for the management of wildlife resources, and increased presence in remote parts of the concession during the most vulnerable part of the year. The USAID small grants awarded by CPI in 2007 and 2008 have helped support the evaluation of the AFISAP concession and the expansion of this wildlife enterprise approach to conservation and poverty alleviation into the area.

Each year the PP prepares harvest management plans for each of the concession units that are submitted to CONAP in the name of the respective management authority. Each harvest plan provides a summary of the operations for the prior year, including the number of turkeys harvested, relevant client information, income generated by the project, and an analysis of the monitoring results relevant to the ocellated turkey.

Maintaining the quality of the resource is consistent with both hunt quality and the sustainability of the enterprise. The PP is superior to NTFP enterprises in the MBR in terms of setting and adhering to harvest levels. Similar to timber operations, especially those certified by Smartwood, it has an overall positive impact. Arguably it is better regulated than many sport-hunting enterprises in the USA and other developed countries and is on par with intensely managed, high-quality, private hunting operations. During field preparations the PP minimizes damage to locally important resources by avoiding the destruction of xate palms, or chicle and allspice tree saplings when preparing trails and clearings and by discouraging subsistence hunting among project employees. The PP regularly hosts regional CONAP wildlife personnel in the hunting camps during the hunts to maintain a clear understanding of the project within that institution (CONAP's Regional personnel have often assisted the PP when CONAP's Guatemala City bureaucrats have obstructed the process). To offer an incentive to non-participating locals and to mitigate the project's harvest impacts by substituting some subsistence pressure, the project offers Q500 (~US\$70) from the community account to local farmers and traditional landowners when a client successfully harvests a turkey in their fields or pastures. The project also substitutes subsistence pressure by prioritizing "easy" birds that sing in areas of high access (closer to town or on major roads or trails) that are more likely to be taken by local subsistence hunters.

The PP takes a number of measures to reduce the likelihood of crippling or non-target losses during the hunts:

- 1) Only the most experienced employees are permitted to serve as guides.
- 2) Both guides and scouts are trained to properly identify adult-male turkeys, to identify and prepare adequate hunt sites, and to indicate to the client whether a turkey is an adult male or not.
- 3) Prior to hunting, detailed instructions are given to clients about how to properly distinguish adult-male turkeys from hens and juveniles, how to use the caller, and to familiarize them with the situations and conditions to expect on their hunt.
- 4) A target range is established at each camp and immediately after settling into camp, all clients are required to test-shoot both the weapon and the ammunition they will be using on the hunts at a target placed within the range of distances that the hunter may expect in the field.
- 5) Clients are accompanied at all times in the field by experienced local guides and scouts, and are provided with a loaded shotgun only after reaching the hunt site.
- 6) Clients are provided with 12 gauge, full-choke, shotguns and specialty turkey-load shells that are appropriate for the size of the bird, the average distance from which birds are shot, and for the extremely dense vegetation of the local forests.
- 7) To ensure that clients take careful aim, the PP maintains strict policies that are clearly explained to the clients prior to their first morning hunt, namely:
 - an unrecovered, crippled bird (fatally wounded adult males that fly away) will be charged as a full trophy fee (there is an extensive effort made to find injured birds);
 - a mistakenly shot juvenile male replaces the adult-male trophy the hunter was seeking (juvenile male specimens may be exported); and
 - a mistakenly shot hen will be charged the full trophy fee plus a penalty charge, and the client forfeits the right to one trophy (hens are not legal game and may not be exported with the licenses and permits provided by the PP).
- 8) Shotguns are also single-shot to ensure that hunters take careful aim before firing at a turkey.

Benefits of the Enterprise

Economic Impacts

During the developmental stage of the project, annual operations benefited from a small amount of funding support from donor institutions. RTLLC funds community operations from revenue received. Only since 2006 has RTLLC shown a profit (see Figure 13). RTLLC pays the community organizations \$1,450 per hunter for the services and the right to harvest one ocellated turkey. If a hunter takes a second turkey, an additional \$700 goes to the community. Once the hunter shoots at a bird, the project considers its obligation to provide the hunter with an opportunity to harvest a bird completed. Through nine years of harvests, however, 100% of the clients have harvested at least one turkey. Slightly more than half have harvested two birds.

Uaxactún earned a gross income of \$36,600 from the harvest of 33 turkeys by 18 clients in 2008, plus approximately \$2,250 in miscellaneous tips and fees. Harvest earnings since 2001 exceed \$198,925 in Uaxactún, and cumulative additional earnings from miscellaneous tips and fees¹⁵, local research, and related activities exceed \$38,760. Income from the turkey hunting enterprise is seasonal as are the chicle or all-spice enterprises (unlike xate harvesting, which occurs year round). The market demand for ocellated turkeys to date has been more reliable than for other NTFPs, although xate has been harvested for the last 45 years and chicle for more than one hundred years, the demand and market value for those products is variable. Since the PP has been operating in

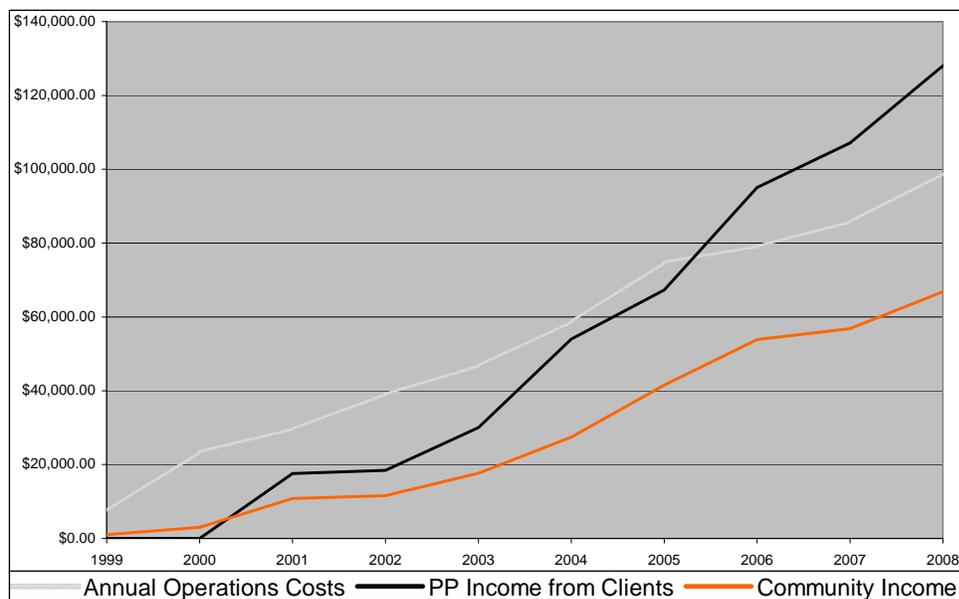


Figure 13. Spending versus income generated, Proyecto Pavo Guatemala, 1999 - 2008.

Uaxactún the PPU has contributed funds for traditional community celebrations, provided teacher's salaries and materials for the construction of a new schoolroom, provided support for the OMYC Control and Vigilance Commission, provided over \$3,000 in 2006 to restore the community's potable water system, and paid over \$8,300 to OMYC in support of concession management. In Carmelita the PPC is younger and less-developed; gross harvest earnings exceed \$94,100 with another \$33,590 from tips and fees, research, and related activities. The road maintenance undertaken by the enterprise also benefits all community members. A detailed breakdown of the economic impact for each community as well as the trend over time for the number of clients and harvest impact (number of trophies taken) is provided in Tables 2 and 3.

Traditionally the dry season offers the least opportunity for income generating activities, leading some villagers to increase pressure on wildlife and forest resources precisely during an important period in the annual reproductive cycle of many species. One of the



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School improvement in Uaxactún with Proyecto Pavo funds (OMYC donated timber; PP paid for the cement, bricks, chain link fence and roof)



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Skinning and preparing the trophies for transport

PP's major objectives has been to provide as much temporary local employment as possible to adult men in order to reduce subsistence hunting pressure. During the 2008 season in Uaxactún over 49 local residents received payment for services to the project (approximately \$12,700) as supervisors, field logisticians, camp builders, trail maintenance workers, guides, scouts, cooks, drivers, data collectors, for providing meals and transportation, and for traditional use bonus fees. Precisely because the PP intended to provide a lucrative alternative to other activities, daily wages are set from 33% to over 200% greater than local rates for comparable positions¹⁶. Camp staff are fed, housed, and equipped at far higher levels relative to other extractive-camp settings. They generally respond with great enthusiasm to this.

Although the PP does not specifically address gender issues, women have and continue to hold important administrative positions in the community committee groups (Currently the longest-running member of the PP in Uaxactún is a woman). The employment benefits of the project for women have been limited to culturally traditional work. They work as cooks in the field camps, provide local services such as washing camp equipment, provide meals or refreshments for meetings or events, and sell products crafted by local women's groups to PP clients. Although annual PP earnings generate only one-tenth the annual gross income provided from timber revenues, PP activities are superlative in other ways. The PP spends a higher proportion of its gross income within the community (70-80%) annually, and spends a higher proportion on community labor (40-50%). Local production, market value, and demand are all highly variable for most NTFPs, whereas the earnings per trophy hunting client and overall demand have either improved or been consistent since the beginning of the project.



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Trophies

Table 2. Proyecto Pavo Economic and Harvest Impact Summary in Uaxactún, 1999-2008: **(a)** Harvest and community income summary, with comments; **(b)** Local spending on associated Proyecto Pavo activities, with comments; and **(c)** Approximate overall economic impact of Proyecto Pavo in Uaxactún. (Source: E. H. Baur, OMYC.)

(a)

Year	Clients	Harvest Impact	Harvest Notes	Gross Community Income
1999	0	0	No harvest	n/a
2000	0	1	1 test specimen, donated to NWTF museum	
Test hunt, 1 client @ \$1,250 + \$600 from Lovett				\$1,850
2001	8	9	8 trophies, 1 accidental non-trophy	\$10,800
8 clients @ \$1,350 each				
2002	6	8	7 trophies, 1 additional specimen donated to NWTF museum	\$11,600
8 clients paid @ \$1,450 each; only 6 arrived				
2003	13	13	13 trophies, 1 at partial payment	\$19,100
13 clients @ \$1,450; \$250 videographer camping fee; \$500 extra inventory effort				
2004	12	14	14 trophies	\$20,200
12 clients @ \$1,450; + 2 extra trophies				
2005	13	23	23 trophies	\$27,725
14 clients @ \$1,450; \$750 deposit from no show client; 9 extra trophies @ \$700; \$375 videographer camping fee				
2006	17	31	29 trophies, 1 bird lost & 1 accidental non-trophy	\$34,450
17 @ \$1,450; 14 extra trophies @ \$700				
2007	18	33	33 trophies	\$36,600
18 clients @ \$1,450; 15 extra trophies @ \$700				
2008	18	33	33 trophies	\$36,600
18 clients @ \$1,450; 15 extra trophies @ \$700				
Totals	105	165		\$198,925



Trophies

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(b)

Year	Tips & Skinning fees*	Small Grants		Expenses **
1999	n/a	n/a	n/a	
Preliminary inventory work, community coordination and public meetings, local guide for site visit L. Williams				\$1,500
2000	\$250	\$3,500	\$2,500 Levin School of Law & \$1,000 WCS for inventory	
Other inventory costs, rehabilitation of building, support for public meetings, assistance on vocalization and thesis research				\$2,500
2001	\$800	n/a	n/a	
Local research, public meetings costs, local program costs				\$3,000
2002	\$630	n/a	n/a	
Local camp supervisor training and assistance, local program costs				\$900
2003	\$1,300	n/a	n/a	
Local camp supervisor, local labor on Yaloch-EI Esfurezo & Carmelita concession evaluations, local program costs				\$1,250
2004	\$1,260	n/a	n/a	
Local camp supervisor, local labor on Arbol Verde & Carmelita concession evaluations, local program costs				\$1,250
2005	\$1,600	\$3,400	USAID, Counterpart assistance	
Uaxactun camp supervision & inventory labor costs, local program costs				\$1,750
2006	\$2,120	n/a	n/a	
Uaxactun camp supervision & inventory labor costs, local program costs				\$1,750
2007	\$2,250	\$1,000	USAID, Counterpart assistance	
Uaxactun camp supervision & inventory labor costs, local program costs				\$1,750
2008	\$2,250	\$1,000	USAID, Counterpart assistance	
Uaxactun camp supervision & inventory labor costs, local program costs				\$1,750
Totals	\$12,460	\$8,900		\$17,400

* Based on average minimum total tips of \$70 per client and \$30 per trophy

** Local research, inventory assistance and related expenses (Minimum approximate local expenditures)

(c)

	\$	Value at Q7.5/\$
Harvest Income	\$198,925	Q1,491,937.50
Tips & Skinning Fees	\$12,460	Q93,450.00
Local Small Grants	\$8,900	Q66,750.00
Local research & Inventory	\$17,400	Q130,500.00
Total Economic Impact Uaxactun 1999-2008	\$237,685	Q1,782,637.50

Table 3. Proyecto Pavo Economic and Harvest Impact Summary in Carmelita, 2002-2008: **(a)** Harvest and community income summary, with comments; **(b)** Local spending on associated Proyecto Pavo activities, with comments; and **(c)** Approximate overall economic impact of Proyecto Pavo in Carmelita. (Source: E.H. Baur, CC.)

(a)

Year	Clients	Harvest Impact	Harvest Notes	Gross Community Income
2004	8	8	8 trophies	\$10,450
8 clients @ \$1,250; \$450 donated				
2005	8	13	13 trophies	\$13,800
8 clients @ \$1,350; 5 extra trophies @ \$600 each				
2006	10	18	17 trophies, 1 Juvenile male misidentified by guide	\$19,400
10 clients @ \$1,450; 7 extra trophies @ \$700				
2007	12	16	16 trophies	\$20,200
12 clients @ \$1,450; 4 extra trophies @ \$700				
2008	17	25	25 trophies	\$30,250
17 clients @ \$1,450; 8 extra trophies @ \$700				
Totals	55	80		\$94,100

(b)

Year	*Tips & Skinning fees	Small Grants		Expenses**
2002	\$0	n/a	n/a	\$2,000
Carmelita inventory labor and local costs, local program costs				
2003	\$0	n/a	n/a	\$1,750
Carmelita inventory labor and local costs, local program costs				
2004	\$800	n/a	n/a	\$1,500
Local camp supervisor and inventory coordination, local program costs				
2005	\$890	\$5,600	USAID, Counterpart assistance	\$1,750
Carmelita camp supervision & inventory labor costs, local program costs				
2006	\$1,210	n/a	n/a	\$1,750
Carmelita camp supervision & inventory labor costs, local program costs				
2007	\$1,320	\$4,000	USAID, Counterpart assistance	\$1,500
Carmelita camp supervision & Carmelita-AFISAP inventory labor costs, local program costs				
2008	\$3,020	\$5,000	USAID, Counterpart assistance	\$1,500
Carmelita camp supervision & Carmelita-AFISAP inventory labor costs, local program costs				
Totals	\$7,240	\$14,600		\$11,750

* Based on average minimum total tips of \$70 per client and \$30 per trophy

** Local research, inventory assistance and related expenses (Minimum approximate local expenditures)

(c)

	\$	Value at Q7.5/\$
Harvest Income	\$94,100	Q705,750.00
Tips & Skinning Fees	\$7,240	Q54,300.00
Local Small Grants	\$14,600	Q109,500.00
Local research & Inventory	\$11,750	Q88,125.00
Total Economic Impact Carmelita	\$127,690	Q957,675



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Trophies



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Entrepreneurship in Uaxactún

Conservation Impacts

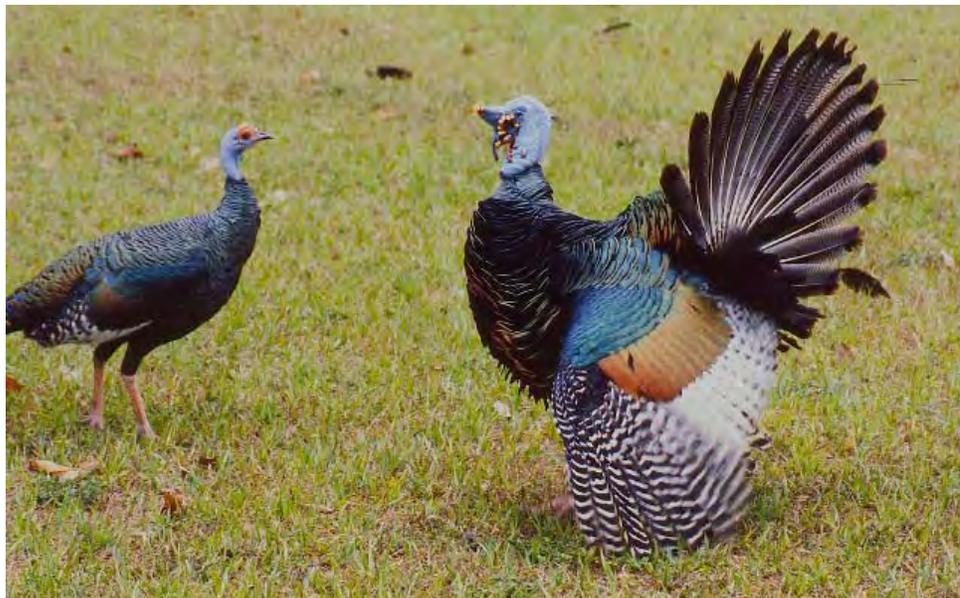
A key objective of the PP is to show CONAP and the communities of Uaxactún and Carmelita that an exploited ocellated turkey population can thrive if the local harvest is properly managed. At the national level, the PP works directly with CONAP to promote the application of sustainable wildlife resource-use policies that are appropriate for ocellated turkey harvest management. The historical lack of state-regulated hunting and a related curriculum in Guatemalan universities have impeded the development and implementation of appropriate national wildlife resource use policies. Since WCS first proposed the project to CONAP in 1999, many officials have been openly surprised and/or in many cases skeptical that the impacts of hunting pressure can be mitigated through harvest management. Over the years, Baur has provided numerous presentations to CONAP personnel to educate officials about the basic principles of wildlife resource-use management. The PP has also provided presentations featuring the project at national CONAP events such as workshops for the development of management policy in the MBR and public policy reviews by the Guatemalan national congress. The PP contributed information to the Guatemalan congress via CONAP on several occasions during the development of the current hunting legislation and directly participated in the CONAP workshop that drafted the relevant regulations for that legislation. The regional CONAP officials that attend PP field operations are provided intensive experiences in practical wildlife harvest management. The PP has been a pioneer in the development of related policy, having contributed the first (and only) wildlife management plan that was subsequently incorporated into a CONAP-approved concession unit master plan. The PP also developed the first (and only) standardized, systematic, monitoring procedure for exploited wildlife populations in the Maya Biosphere's Multiple-Use Zone, and a wildlife harvest management plan protocol with CONAP.

On the local level the PP aspires to catalyze a change of attitude towards wildlife use. Many adult residents of the communities where the PP operates are illiterate and those with formal schooling have rarely had the opportunity to study beyond a sixth-grade, primary education level. The lack of relevant education in combination with the traditional, opportunistic wildlife harvest practices prevent the villagers from perceiving wildlife as a natural resource that may be sustainably used. As the subsistence hunters in these communities participate in the managed wildlife harvests and witness that there are no observable negative impacts on turkey abundance, it is hoped that local awareness can develop of wildlife as natural resources that can be managed through harvest pressure control.

The participating units now have wildlife abundance databases¹⁷ spanning several consecutive years that can serve as the basis for development of subsistence or sport hunting management. Another conservation benefit provided by PP operations is the increased capacity for participating community concessions to engage in active wildlife management. On occasion the PP community committees have facilitated public discussion of related topics such as introducing WCS affiliated researchers to the community and providing a public forum for local wildlife policy efforts. The intention was for the project to set an example that would have a collateral effect, eventually leading to broader application of harvest management policies for the ocellated turkey and the development of sustainable harvest systems for other exploited species. In July 2008, Uaxactún's OMYC approved in the General Assembly by a unanimous vote of 200+ to 0, a comprehensive set of "Norms for Control and Vigilance" in the concession of Uaxactún. This includes simple norms for hunting, including listing protected, non-game species, prohibition of external market hunting, allowance of moderate subsistence hunting with daily quotas that can be realistically enforced by the OMYC Control & Vigilance Committee.

The PP operations benefit other wildlife species indirectly in a number of ways. PP activities have provided approximately \$12,000 directly to the community management authorities of participating concessions, thus supporting the current national policies for the conservation of natural resource in the Multiple-Use Zone and the conservation benefits they bestow on all wildlife. Many PP field activities also facilitate the general administration of participating concession units, particularly road and trail maintenance. Annually the PP improves the trail networks used by all villagers over a significant proportion of each concession during the dry season. In addition to facilitating everyone's travel in the area, this work ensures vehicular access immediately prior to the season with the greatest risk of forest fires (see Figure 14), thus offering local management authorities improved capacity to respond to forest-fires. The increased human presence in remote areas of participating concessions provided by PP personnel complements vigilance efforts of the management authorities. PP personnel have identified and reported several camps of outsiders illegally harvesting xate, several groups of poachers, and have assisted forest-fire suppression and monitoring efforts. In Uaxactún the PP has purchased uniforms and boots for the local control and vigilance committee and on occasion provided fuel, provisions, and wages to support committee patrols or investigations of unlawful activities.

Currently the PP community committees spend net profits on community projects intended to provide obvious benefits to all village members. Alternatively those funds could be invested directly into wildlife management policies that also benefit the general public. One potential application of local project funds for the mutual benefit of wildlife and residents would be support for the control of spring field clearing. The annual period of clearing and burning of fields in preparation for planting coincides with the nesting season of the ocellated turkey. Turkey hens (which nest on the ground) are attracted to agricultural areas for nesting, in part due to the thick groundcover characteristic of recently burned areas. This unfortunate coincidence creates a direct conflict between local subsistence needs and the reproductive efforts of local turkey populations. Research conducted by Baur on nest-site characteristics confirmed not only that turkey hens make considerable use of agricultural habitat for nesting (60% of all turkey nests reported by locals) but that most of those nests are threatened by fire (92% of agricultural nest sites burned at some point during the season, though in most cases after nests had hatched or been abandoned). Local farmers work individually, each clearing several acres of jungle by hand with machetes under brutal heat, and in the past have had little incentive, much less the capacity to clear proper fire lanes or take other appropriate control measures to ensure that fires are contained within the intended fields. In Uaxactún progress had been made in recent years towards the improvement of control over these activities. With WCS assistance fire breaks have been cut around some 60% of the agricultural areas to be burned. In addition, with support from PP profits it would be possible to provide fire fighting equipment and support training of local control and vigilance groups, and provide daily wages to farmers



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Female turkey approaching displaying male

and the coordination necessary to organize farmers into crews that could sequentially conduct well-controlled burns on each crew member's field with the accompaniment of the local control and vigilance committee.

Sustainability

Ecological Sustainability

The ocellated turkey hunting policy of the PP is designed to avoid potential adverse impacts on breeding success. As previously discussed, the hunts are selective for adult males whose number exceeds that required for breeding. The harvests are scheduled to correspond to the period following the breeding peak to ensure that dominant males are able to contribute genetic material to subsequent generations. In addition, harvest levels are kept extremely low (see Table 4). Although hunters are permitted by national hunting law to harvest up to four turkeys, the PP imposes a maximum of two birds per hunter. Temporal, infrastructural, and labor availability constraints limit the project's maximum capacity to approximately 36 clients a year under current conditions. With only 12-18 clients per year in each community, the harvest rate would have no foreseeable impact on population productivity. Even under optimum circumstances a maximum potential harvest of 72 birds per year distributed over the current harvest areas of participating management units (i.e. a combined area of approximately 1,000 km²), would amount to a very low harvest density compared to the legal harvests of wild turkeys on state-controlled public management units in North America.

Finally, there is a fail-safe feature implicit in the trophy hunting exercised by the PP. If the hunter success rate of harvesting adult male turkeys should fall significantly below 100% in two or more successive years, hunters would no longer be attracted to the area, demand for trophy hunting would decline or cease and the enterprise would fail.

Although the harvest of ocellated turkeys in the PP is selective for adult males, on some occasions juveniles ("jakes") have been taken. Since the juvenile male component is not significantly affected by PP operations it will be the predominant cohort of breeders the following season when the juveniles become two years old. Even if the entire adult-male component were harvested, recruitment of juvenile males would restore the adult-male component to levels necessary for normal breeding activity the following breeding season.

Table 4. Annual PP harvest levels compared to population estimates based on annual monitoring in the ocellated turkey management area of the Uaxactún concession unit.

Year	Minimum Adult-Male Density*	Adult-Male Population*	Estimated Total Population**	Harvest Level	Proportion of Adult-Males*	Proportion of Total Population**
2001	0.49	147	490-980	9	6.1%	0.9-1.8%
2002	0.54	162	539-1081	8	4.9%	0.7-1.5%
2003	0.47	141	470-940	10/3***	7.1%***	1.4-2.8%
2004	0.42	126	420-840	14	11.1%	1.7-3.3%
2005	0.6	180	599-1201	23	12.8%	1.9-3.8%
2006	0.71-0.94	213-282	709-1881	31	14.6-11%	1.6-3.3%
2007	0.8-0.88	240-264	799-1761	29/4****	12.1-11 %****	1.9-3.8%

* Abundance estimates for the adult-male component of the population within the management area (approx. 300 km²).

** Based on an adult-male component of the population of 15-30% ahead of the breeding season.

*** In 2003 three specimens were juvenile males, thus the impact includes approximately 1.6-1.8% of the 165-188 juvenile males in addition to the impact indicated for the adult-male component.

**** In 2007 four specimens were juvenile males, thus the impact includes approximately 1.1-1.4% of the 281-351 juvenile male population in addition to the impact indicated for the adult-male component.

Table 5. PP Economic Indicators 2001 – 2008.

Year	Clients	Difference	Harvest	Difference	Community Income	Difference
2001	8	n/a	9	n/a	\$10,800.00	n/a
2002	6	- 25%	8	- 11%	\$11,600.00	+ 7.4%
2003	13	+ 117%	13	+ 63%	\$19,100.00	+ 65%
2004	20	+ 54%	22	+ 69%	\$30,650.00	+ 61%
2005	21	+ 5%	36	+ 64%	\$41,525.00	+ 36%
2006	27	+ 29%	46	+ 28%	\$53,850.00	+ 30%
2007	30	+ 11%	49	+ 7%	\$56,800.00	+ 5.5%
2008	35	+ 17%	58	+ 18%	\$66,850.00	+ 18%



Local staff at a hunting camp

© E. H. Baur

The annual PP resource inventories provide a minimum population count of ocellated turkeys and other game species, allowing significant population trends to be detected, thus providing additional assurance that harvest levels do not exceed local population requirements for adequate reproduction.

Economic Sustainability

There is considerable competition in the ocellated turkey sport hunting market from Mexico. North American hunters go to Mexico because it is more familiar territory than Guatemala to most of them and since many Americans have hunted in Mexico over the years, they recommend Mexican outfitters. In addition there is a range of service and price options available in Mexico.

The PP is unique not only by being the only ocellated turkey hunting business in Guatemala, but also the only regional community-based sport hunting project in Mesoamerica for the ocellated turkey. The community involvement appeals to some hunters and is one of the reasons they choose to hunt the ocellated turkey with the PP. The PP has operated community harvests for 8 consecutive years, has maintained a 100% success rate, and has sent more than half of its clients home with two trophies (see Table 5). Hunters are very satisfied with their experience in Guatemala based on hunter satisfaction questionnaires by RTLLC. The development of successful calling methods has been a key factor in improving hunt quality and attractiveness of the PP to North American turkey hunters.



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Ocellated turkey nest with eggs

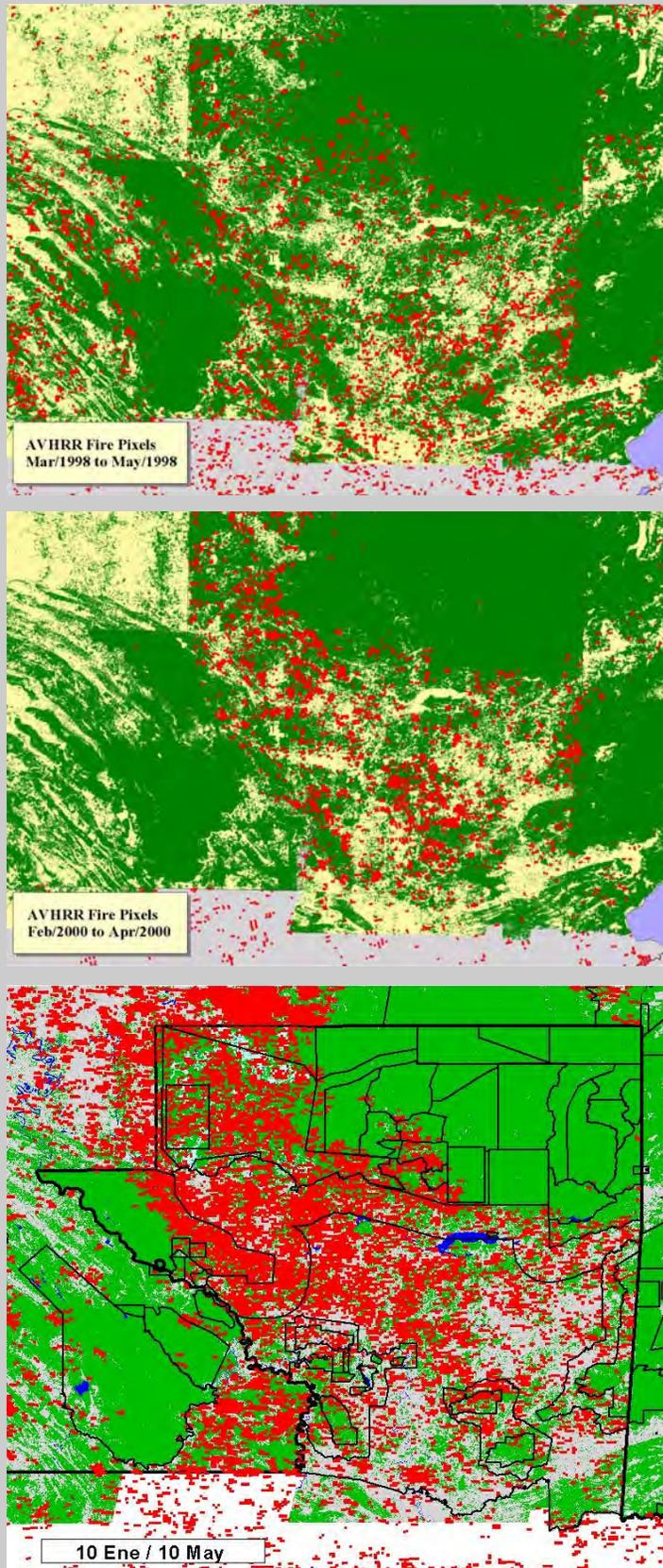


Figure 14. Patterns of fire in the Petén (fire pixels shown in red) for: (a) 1998, (b) 2000 and (c) 2003.

The marketing effort has led to a gradual increase in annual bookings. RTLLC has a web site, distributes brochures, and places advertisements in turkey hunting magazines, and Williams presents PowerPoint presentations on the hunts. The hunts in 2007 and 2008 were fully booked almost a year in advance. If marketing success continues to improve, there should be a potential client base well into the future.

Challenges to the Enterprise

Throughout its 10 year history the PP has been repeatedly challenged by various international, domestic, and local factors and the present economic downturn appears to be adversely affecting booking levels for 2009. On the national level the project has been threatened by legislative changes and bureaucratic idiosyncrasies several times. Complications with both CONAP and the DECAM permitting processes created delays that threatened to prevent the PP from receiving permits in time to operate legally. CONAP suffers from high personnel turnover rates and political appointment of its directors. Because the agency requires its national directors to personally authorize each license or permit issued, and provides them with the power of unlimited oversight, permitting processes are sometimes subject to arbitrary requirements or delayed indefinitely by simple reluctance to perform the necessary services.

The Petén has been a part of a regional wilderness frontier for decades, leading to a number of social attitudes that complicate the sustained operation of any activity on the community level. There had been a historic lack of state control and law enforcement, and no permanent national civilian police force in the department until the period when the PP began. Previously a haven for Guatemalan and Mexican armed guerilla movements as well as a broad assortment of “legal refugees”, the region currently has the dubious distinction of being the regional hub for the international



© J. Radachowsky

Burned ocellated turkey nest, El Burreal in 2003

trafficking of narcotics, would-be US-bound illegal immigrants, ancient Maya artifacts, and wildlife. The local culture is noted for its rugged individualism and disregard for authority of any kind. Most MBR villages formed around major chicle-resin camps and are composed of residents with diverse geographic, ethnic, and cultural origins, resulting in a notable lack of social cohesion.

The project takes extensive security measures to ensure the safety of its clients including police escorts between villages and camps. The project has not been successful in completely avoiding malicious activities. On one end of the spectrum are petty thefts or the occasional turkey shot in the management area. In some cases, individuals with a grudge against a PP employee, the local management authorities or WCS have created problems. On the other end of the spectrum is violent crime. Although not motivated by any direct interest in PP activities, one young community hunting committee president was murdered in Uaxactún and another narrowly avoided injury on a different occasion in an ambush shooting. Although many locals are grateful for the opportunity to take advantage of a well-built camp while gum-tapping or palm-leaf cutting in the area during the off-season, on several occasions camps have either been deliberately vandalized or else inadvertently degraded to the point where they were no longer suitable for project purposes. Palm thatch roofs offer increased scenic and thermal insulation properties to the camp facilities, but they are extremely flammable, and the project has suffered from intentional acts of arson.

Perhaps the greatest threat to the PP occurred in 2004 when a Guatemalan congressman attempted to bully CONAP into terminating the project and authorizing commercial sport hunting rights for turkeys on his behalf. That legislator arranged a series of public and closed congressional hearings wherein the CONAP director and/or other officials were required to present information on the PP and were humiliated by the congressman and other party affiliates. Later that same congressman threatened to have the CONAP director arrested if permits were provided to the PP. That led to a series of arbitrary requirements being imposed on permitting procedures and ultimately to delays which nearly prevented the PP from operating hunts in 2005. That same year local representatives of an otherwise well-respected, international NGO, attempted to turn public opinion against the project's developers at public assemblies in Uaxactún and openly proposed to supplant Williams and Baur in the marketing and operation of the turkey hunts. During the course of these events the current general hunting law was being debated in congress, contributing an elevated degree of legal uncertainty as to the correct permitting procedures to the already complicated affair.

In recent years the PP has been financially stable, has built up the trust and respect in the participating communities, has developed a good reputation amongst clients abroad, and has faced relatively stable permitting requirements. Unfortunately there is no guarantee that the previous challenges will not reoccur or that new problems will not develop. Recently, unlawful hunting for ocellated turkeys has occurred in the Petén by Mexican-based hunt organizers that later claim the birds were shot in Mexico (which does not require a CITES certificate for the export of trophies).

Replicability

The ocellated turkey has a geographic range of approximately 130,000 km² in northern Guatemala, northwestern Belize and the Mexican states of Yucatan, Quintana Roo, and Campeche (see Figure 15). In theory, it would be possible to replicate this enterprise throughout the range of the ocellated turkey.



Figure 15. Approximate range of the ocellated turkey (*Meleagris ocellata*).

The PP itself evaluated two other community concessions for potential participation in the program before committing to the current expansion effort in AFISAP. Those were rejected due to lack of vehicular access, the inability to control local hunting pressure, and the lack of a suitable workforce.

Similar programs for groups of related species may appeal to trophy-motivated sport hunters from North America. There is the potential for fall hunts of several large bird species including the crested guan (*Penelope purpurascens*), great curassow (*Crax rubra*), chachalaca (*Ortalis vetula*), and the large species of tinamou¹⁸. Deer hunting enthusiasts may be interested in white-tailed deer which has significantly different antler morphology than North American white-tailed deer. There are also red-brocket deer (*Mazama temama*), Yucatan grey brocket deer (*Mazama pandora*), white-lipped peccary (*Tayassu pecari*), and collared peccary (*Tayassu tajacu*). However, WCS Guatemala, has been extremely reluctant to consider the expansion of sport hunting to include other species. It would be very difficult to guarantee the sustainable management of game taken in such enterprises. In the period (5-10 years) required to extend the model to include other species, it would be necessary to have the diligent, determined efforts of stakeholders who are committed to the long-term success of the project, as well as clear economic incentives for local people that would ensure that such harvests not be additive, but rather substitute existing subsistence harvests. As alternative sources of income based on ecotourism increase, the conditions for multi-species improved game management may indeed improve, following somewhat the pattern of increased employment that made the return of the wild turkey possible in the USA. Until that point however, subsistence game hunting in local villages will likely remain a key source of protein for villagers typically unable to purchase chicken and beef due to the high costs of these foodstuffs in frontier areas.

There is potential to incorporate third-party research and management into the project. Williams has proposed a project to trap and relocate ocellated turkeys to suitable habitat in order to demonstrate a sport hunting program that would provide incentives to landowners to manage and commercially hunt their turkey populations. Even if mechanisms cannot be developed for similar commercial enterprises in other places for the ocellated turkey or other species, the project has demonstrated the sustainable and profitable use of a properly managed wildlife population.

Conclusions: Key Features to Making PES Work in the Petén

We believe a number of factors were instrumental in the successful establishment of the PP in Guatemala:

(i) WCS, mainly in the person of Roan McNab, and Erick Baur had established long-standing and trusting relationships with the communities of Uaxactún and Carmelita, respectively, prior to setting up the enterprise.

(ii) The blend of key actors have English and Spanish language fluency, as well as a fundamental understanding of both the North American hunting culture and the local Guatemalan culture of the Petén. Having a North American (or American-like) project manager who is able to put US clients at ease in an environment that is extremely foreign to most of them is crucial.

(iii) Community members were integrally involved in setting up the enterprise and even those who did not initially benefit from employment eventually saw the benefits through local community works. The project has also gone to great lengths to publicize benefits, going so far as to hand out fliers with information on annual income and investments in social works.

(iv) Uaxactún and Carmelita differ from many communities in the region in that they are well-established forest communities with the majority of their residents of local origin (76.26% and 62.11 in 2000, respectively) or from the Petén region (7.7% and 16.49%, respectively), rather than external immigrants (Ramos *et al.*, 2001;



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Two happy clients with their local guides

see Figure 16). This gives them more of a vested interest in managing their resources and more of a communal culture than a newer settlement of recent migrants might have.

(v) Access although not completely straightforward is not an insurmountable obstacle with the airport in Flores and some road infrastructure. Yet access is such that local control over the extensive project management areas is possible.

(vi) The ecology of the ocellated turkey that helps make this a viable venture.

(viii) The consistent determined efforts of attentive stakeholders in the process.

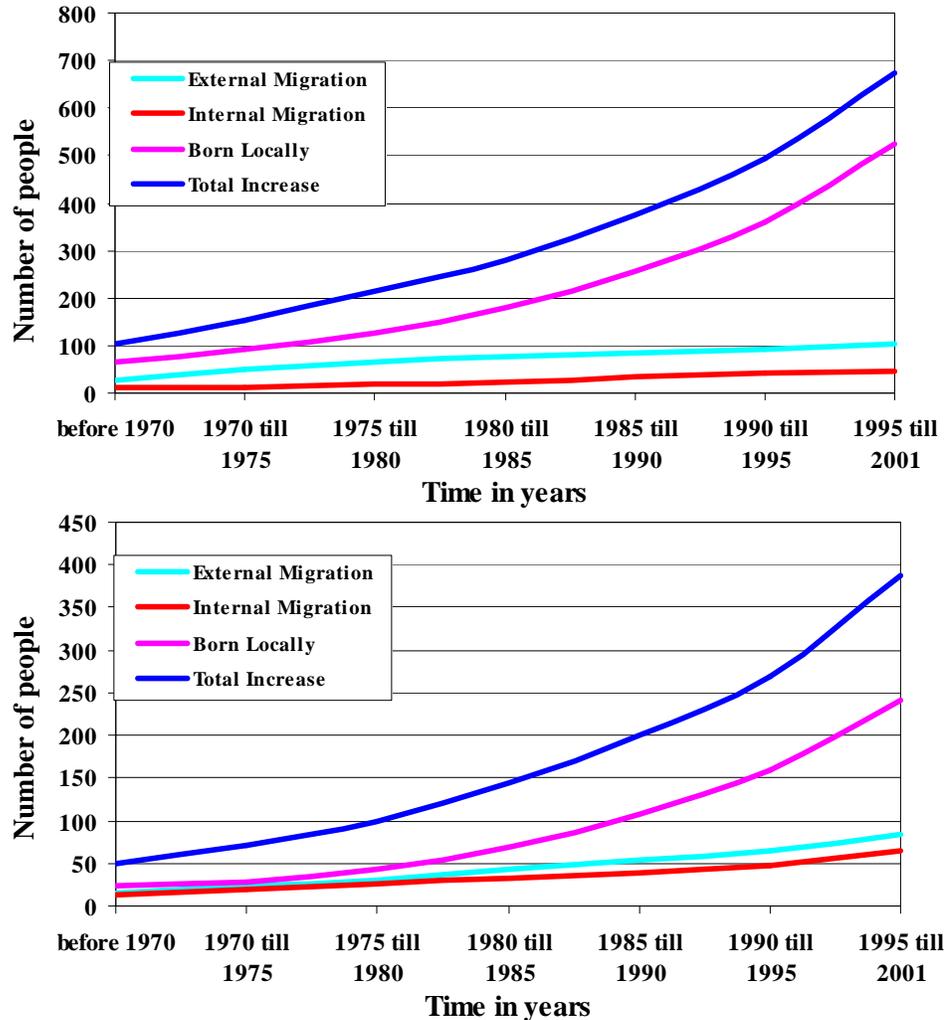


Figure 16. Increase in the population of Uaxactún (*top graph*) and Carmelita (*bottom graph*).

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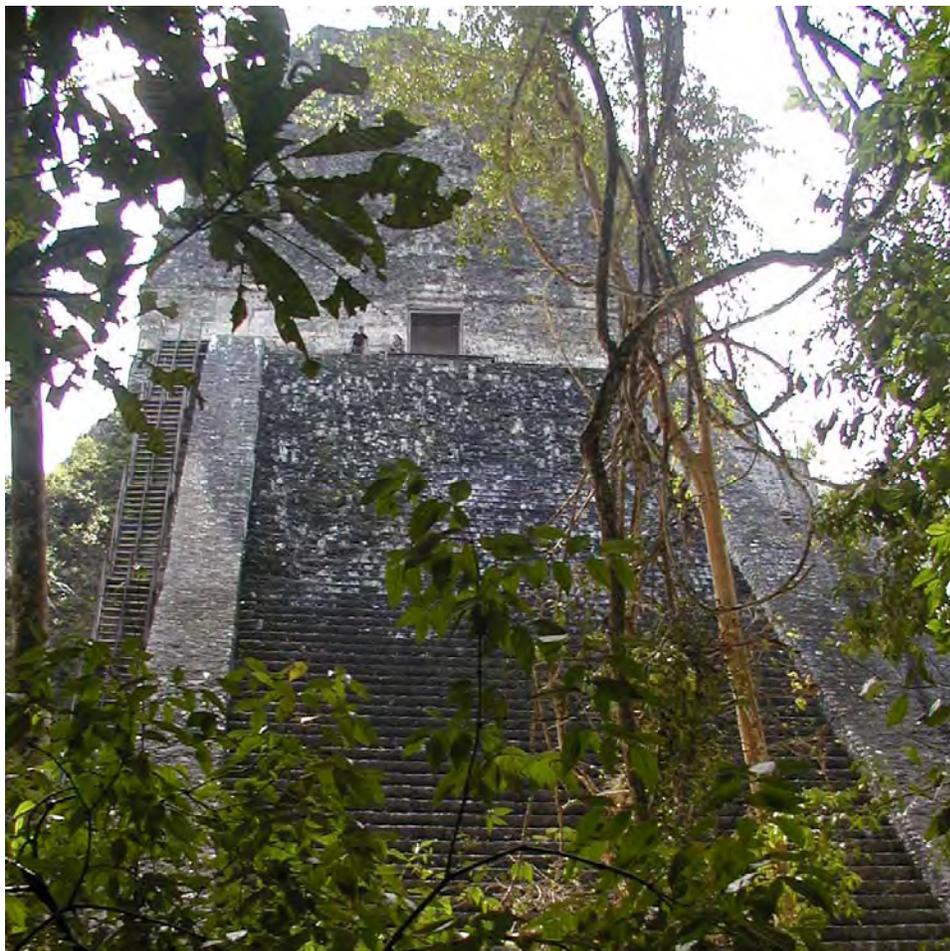
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Endnotes

1. Ramos V. H. In preparation. Human Footprint of Mesoamerica. WCS Guatemala.
2. Biotopes were established in 1986, prior to the creation of the Maya Biosphere Reserve, and managed by the Center for Conservation Studies (CECON) of the University of San Carlos. CECON currently administers all Biotopes in coordination with CONAP.
3. Two of the 12 community management units have had their timber harvests suspended by CONAP due to inadequate management and land speculation, leaving 10 functional community-based management units. Another two of the 12 face severe challenges, while 8 of the 12 have been largely successful.
4. Migration has been categorized as internal or external, where the former corresponds to movement within the Petén province itself and the latter to movement from other provinces in Guatemala.
5. Allspice berries are the dried fruits of the *Pimenta dioica* tree. Allspice is predominantly exported to Europe, Russia and the United States and commonly used as a culinary and pickling spice or to make essential oils.
6. Xate palm leaves (*Chamaedorea spp.*) are exported predominantly to Europe and the United States and commonly used ornamentally in floral arrangements.
7. Chicle is the resin tapped from the sapodilla tree (*Manilkara zapota*) which was formerly the key ingredient of chewing gum (synthetic alternatives are predominantly used today) and the backbone of the regional economy.
8. In Uaxactún's case at Q5 per hectare for a 25 year period, with 3 years of "grace" in payments with an annual fee of Q18,990; a total of Q417,780 (approx. US\$55,704, excluding taxes and other fees).
9. The entire forestry concession system was designed to rely principally (economically) on the annual selective timber harvests and other historically important economic activities (extraction of xate and other NTFPs) and these were incorporated into the master management plans of the community concessions at a later date.
10. FSC (www.fsc.org) is an international non-profit, multi-stakeholder organization established in 1993 to promote responsible management of the world's forests. Its main tools for achieving this are standard setting, independent certification and labeling of forest products. This offers customers around the world the ability to choose products from socially and environmentally responsible forestry (en.wikipedia.org/wiki/Forest_Stewardship_Council).
11. Aside from the meat, the feathers are used in ornamenting the Uaxactún corn dolls that are sold for Q10 (just over US\$1) on average.
12. The NWTF (www.nwtf.org) promotes the conservation of the wild turkey through sustainable use, management and member activism in relevant legislative efforts. It conducts fund raising events that help support regional, state, and private conservation efforts for the wild turkey in the USA, Canada, and Mexico.
13. The scientific name of the ocellated turkey was changed from *Agriocharis ocellata* to *Meleagris ocellata* to reflect its relationship the North American turkeys.
14. Provides USAID support for community-based tourism initiatives.
15. Staff are paid \$30 to skin each bird, average tips are \$30 to the guide and scout for every bird hunted and another \$30 that is divided among the remaining camp staff. So additional undocumented income ranges from \$90 to \$150 per client.

16. Q150/day per guide (compared to Q60/day for OMYC timber workers) and Q100/day for scouts, cooks and drivers (builders make Q75/day).
17. Data have been collected for the following mammals and birds: Yucatan Squirrel (*Sciurus yucatanensis*), Collared Peccary (*Tayassu tajacu*), Deppe's Squirrel (*Sciurus deppei*), Red Brocket Deer (*Mazama americana*), Coatimundi (*Nasua narica*), White-tailed Deer (*Odocoileus virginianus*), Agouti (*Dasyprocta punctata*), White-lipped Peccary (*Tayassu pecari*), Yucatan Brown Brocket Deer (*Mazama pandora*), Ocellated Turkey (*Meleagris ocellata*), Red-billed Pigeon (*Columba flavirostris*), Great Curassow (*Crax rubra*), White-tipped Dove (*Leptotila verreauxi*), Crested Guan (*Penelope purpurascens*), Grey-chested Dove (*Leptotila cassini*), Great Tinamou (*Tinamus major*), Grey-headed Dove (*Leptotila plumbeiceps*), Plain Chalaca (*Ortalis vetula*), Little Tinamou (*Crypturellus soui*), Spotted Wood Quail (*Odontophorus guttatus*), Slaty-breasted Tinamou (*Crypturellus boudardi*), Scaled Pigeon (*Columba speciosa*), Thicket Tinamou (*Crypturellus cinnamomeus*), Short-billed Pigeon (*Columba nigrirostris*). Sufficient data to estimate abundance do not exist for all of these species.
18. A species such as the crested guan (*Penelope purpurascens*), for example, that has similar dietary and habitat requirements to the ocellated turkey, and is also legal game at the time of year of the turkey hunts, cannot be harvested in the same selective manner. Because male and female guans cannot be distinguished from one another and are obligate bi-parental breeders any harvest during the breeding season would be likely to have negative impacts on the reproductive effort of the population.



© S. Strindberg

The spectacular ancient Mayan complex at Tikal

TRANSLINKS

Case Study:

Community-based Ocellated Turkey (*Meleagris ocellata*) Sport Hunting
in the Petén, Guatemala

Appendices 1-2

Appendix 1. Memorandum of Understanding (“convenio”) Between the Turkey Hunters Commission (Proyecto Pavo Uaxactún) & OMYC.

CONVENIO DE RESPONSABILIDADES ENTRE LA COMISION DE TRABAJO: PROYECTO PAVO UAXACTÚN Y LA S.C. OMYC:

El señor **ADAN PEREZ SALACAN**, Presidente activo de la entidad denominada la **Comisión de Trabajo: Proyecto Pavo Uaxactún**, que en lo sucesivo se denominará **Comisión de Trabajo: PPU**, la entidad responsable con las actividades del aprovechamiento del pavo ocelado en el área de la **Concesión Integrada de Uaxactún** en asociación con la empresa **INTEGRATED ENVIRONMENTAL & WILDLIFE MANAGEMENT SERVICES S.A.** (que en lo sucesivo se denominará **IEWMS**), y el señor **MANUEL DE JESÚS FAJARDO**, Presidente y Representante Legal activo de la **Sociedad Civil Organización de Manejo y Conservación**, que en lo sucesivo se denominará **OMYC**, y cual entidad es reconocido por el estado de Guatemala como la entidad administrativa legal de la **Concesión Integrada de Uaxactún**, manifiestan que por el presente acto, el establecimiento de la relación formal entre las dos entidades:

I. COMPROMISOS DE LA OMYC:

1) Equipo y Materiales:

Los equipos y materiales comprados o donativos al proyecto para la realización de sus actividades sean reservados por el uso exclusivo de la **Comisión de Trabajo: PPU**. Se compromete no usar ningún equipo ni autorizar el uso de cualquier equipo del proyecto para otras actividades sin la autorización específica del presidente activo de la **Comisión de Trabajo: PPU**.

2) Contabilidad:

Se compromete ayudar a la **Comisión de Trabajo: PPU** en mantener el registro contable legal de sus ingresos y costos. En caso que la **OMYC** incurra algún costo por el apoyo técnico correspondiente de su contador activo, será justo que lo cobra en forma razonable a la **Comisión de Trabajo: PPU**.

3) Obligaciones Fiscales:

A) Se compromete responsabilizarse con reporta a la Superintendencia Tributaria (SAT) los ingresos de la **Comisión de Trabajo: PPU** dentro de sus reportes propios. Cualquier obligación tributaria por las actividades del aprovechamiento en la comunidad sea cancelada con fondos de la **Comisión de Trabajo: PPU**. Falta de cumplir con requisitos desconocidos para cualquier aspecto de la actividad no sea percibido por la **Comisión de Trabajo: PPU** como trasgresión voluntaria del convenio presente ni causa única para anular lo.

B) Se compromete emitir las facturas contables que corresponden con los ingresos a la **Comisión de Trabajo: PPU**.

4) Cuenta:

Se compromete respaldar y mantener una cuenta bancaria en nombre de la Comisión de Trabajo: PPU cual requiere dos firmas: cuales sean de un integrante activo de la Comisión de Trabajo: PPU y un integrante legal de la OMYC.

5) **Impuestos:**

Se compromete cobrar el único impuesto a la Comisión de Trabajo: PPU basado en la cantidad de pavos cosechados en la tarifa de Q375 por cada pavo cosechado en la concesión de Uaxactún en el año por el proyecto.

6) **Responsabilidades:**

A) Se compromete dejar las responsabilidades de la realización de las actividades del aprovechamiento de pavos ocelados entre el **OMYC** y la **IEWMS** en forma directa a los integrantes activos de la **Comisión de Trabajo: PPU**.

B) Se autoriza a la **Comisión de Trabajo: PPU** seleccionar los miembros de la comunidad quienes participarán en las actividades del aprovechamiento anual, mientras la **Comisión de Trabajo: PPU** sigue las mismas normas de selección de trabajadores practicadas por la **OMYC**.

7) **Colaboración de la OMYC:**

Se compromete a brindar los apoyos necesarios durante el aprovechamiento cuando la **Comisión de Trabajo: PPU** lo perciba necesario y lo solicita para garantizar la seguridad del campamento, el área de aprovechamiento, de los clientes participantes, la personal participante de la **IEWMS**, y el personal comunitario laborando en el esfuerzo.

II. **COMPROMISOS DE LA COMISION DE TRABAJO: PROYECTO PAVO UAXACTÚN:**

1) **Organismo:**

Se compromete que la **Comisión de Trabajo: PPU** sea constituida por un máximo de tres integrantes activos, residentes de la aldea Uaxactún, Flores, Petén, elegidos o confirmados por la asamblea presente en la segunda sesión pública del año por la **Comisión de Trabajo: PPU**. (ver Sección II. Artículo 3, Párrafo A)

2) **Informes:**

A) Se compromete proporcionar un informe anual de sus actividades al **OMYC** en Julio de cada año.

B) Se compromete proporcionar informes económicos trimestrales al **OMYC** en los meses de abril, julio, octubre, y enero de cada año.

3) **Sesiones:**

A) Se compromete cumplir con dos sesiones públicas al año, una antes y la otra después del aprovechamiento, para mantener informada la comunidad de sus actividades.

B) Se compromete participar en sesiones trimestrales entre la **Comisión de Trabajo: PPU** y **OMYC** en los meses de abril, julio, octubre, y enero de cada año.

4) **Cuenta:**

Se compromete respaldar y mantener una cuenta bancaria de la **Comisión de Trabajo: PPU** cual requiere dos firmas: cuales sean de un integrante activo de la **Comisión de Trabajo: PPU** y un integrante activo de la **OMYC**.

5) **Contabilidad:**

A) Se compromete mantener el registro contable legal de sus ingresos y costos con el apoyo técnico del contador activo de la **OMYC**.

B) Se compromete compensar a la **OMYC** en forma razonable, los costos relacionados por el apoyo técnico en la contabilidad de la **Comisión de Trabajo: PPU**.

6) **Impuestos:**

Se compromete proporcionar como el único impuesto a la **OMYC**, la cantidad de Q375 por cada pavo cosechado en la concesión de Uaxactún en el año por el proyecto.

7) **Control del Área:**

A) Se compromete ayudar con el control y vigilancia del área de aprovechamiento durante del curso de sus actividades de campo en el mismo.

B) Se compromete mantener informado la **OMYC** en forma expediente, de encuentros de cualquier actividad que sea anómala o en plena contra de las normas de la **OMYC**.

C) Se compromete proporcionar apoyo a los esfuerzos de control de incendios en forma razonable y cuando la **Comisión de Trabajo: PPU** ya tenga recursos desplegados y disponibles en el campo.

8) **Tarifas Adicionales:**

La **Comisión de Trabajo: PPU** tenga la responsabilidad de establecer las cantidades para tarifas adicionales no contemplados en el presente convenio, aplicables a la IEWMS y sus clientes o personal. Cualquier tarifa establecida por la **Comisión de Trabajo: PPU** en tales situaciones serán reportados por medio del informe anual de la **Comisión de Trabajo: PPU** a la **OMYC**.

III. **OTRAS CONSIDERACIONES:**

1) El convenio presente sea activo desde el momento de ser firmado por los dos representantes legales indicados.

2) Al ser activo el convenio tenga vigencia de un plazo mínimo de 5 años después de la fecha en que esta firmada.

3) La **Comisión de Trabajo: PPU** o la **OMYC** tenga derecho de retirarse del presente convenio en caso de incumplimiento voluntario de los acuerdos descritos en el convenio por parte de la otra entidad

4) *Cualquier aspecto no contemplado en el presente convenio podrá renegociarse y ser arrendado con cláusulas o artículos adicionales al presente convenio cuando tales cambios sean de mutuo acuerdo entre todo los integrantes activos de las dos entidades, indicados en el documento física del convenio, y firmados por los Presidentes activos respectivos y activos de ambas entidades.*

5) *En caso de cambios en los puestos de los individuales con la calidad de presidente activo de cualquier de las dos entidades, sus sucesores sean obligados a respetar los aspectos establecidos por este convenio durante la vigencia indicada.*

6) *Cualquier de las dos entidades tenga derecha retirarse del presente convenio por algún de las condiciones siguientes:*

a. *La prohibición legal de las actividades descritas arriba por cambios en la legislación correspondiente.*

b. *La falta de seguridad en el área de la concesión o amenaza física a algún integrante de cualquier de las dos entidades.*

c. *Eventos incontrolables catastróficos cuales lógicamente perjudican a algún de las dos entidades en forma que haga el cumplimiento con el convenio sean imposibles o que haga cambios cuales ya no permiten que el cumplimiento con la actividad sea rentable financieramente para la entidad correspondiente.*

En la aldea de Uaxactún, Municipalidad de Flores, departamento del Petén, se extiende la presente en el 6 de Marzo, año 2,005, firmándolo de conformidad los que en ella intervenimos.

ADAN PEREZ SALACAN
PRESIDENTE DE LA COMISION
DE TRABAJO: PROYECTO PAVO
UAXACTÚN
Cedula Numero O 16-99,400

MANUEL DE JESÚS FAJARDO
PRESIDENTE Y REPRESENTANTE LEGAL
S.C. OMYC
Cedula Numero P 17- 7,798

Aprobado en el momento por los Integrantes Siguietes del Consejo Consultivo de Uaxactún

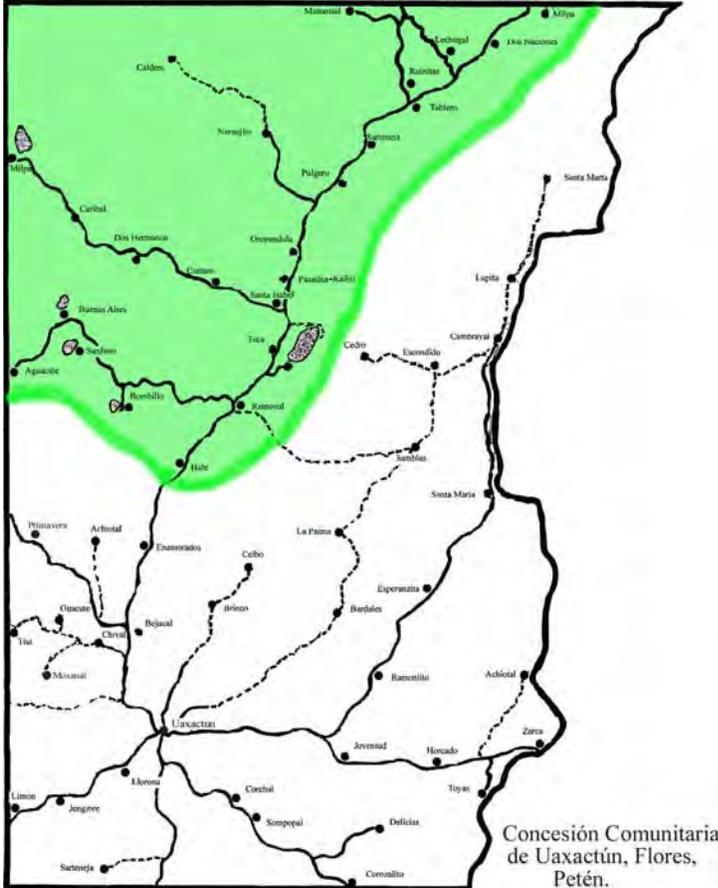
Appendix 2. Promotional Poster for Turkey Sport Hunting in Uaxactún.



Alianza para el Turismo Comunitario



El área indicada es la zona de la concesión comunitaria que corresponde con el área de aprovechamiento y del manejo sostenible del Pavo Ocelado



EL PROYECTO PAVO ENTREGA BENEFICOS A UAXACTÚN

POR FAVOR COLABOREN

POR FAVOR SEAN CONSCIENTES

FAVOR NO MATAN PAVOS EN LA ZONA INDICADA

FAVOR NO DEDICAN A ACTIVIDADES CUALES PERJUDICAN AL PROYECTO

SI USTED MATA ALGUN PAVO O PAVA DENTRO EL AREA INDICADA DURANTE CUALQUIER PARTE DEL AÑO LO HAGA EN DETRIMENTO A SU COMUNIDAD

NO PERMITEN QUE NINGUN ACTIVIDAD NI QUE NINGUN ELEMENTO PERJUDICA AL PROYECTO PAVO

El Proyecto Pavo ofrece un ingreso a los comunitarios de Uaxactún por una extracción de recursos naturales alternativa, innovadora, y con un impacto ambiental mas bajo que cualquier actividad extractiva tradicional

El Proyecto Pavo necesita su consciencia y colaboración para brindarles beneficios económicos

Las operaciones del proyecto en Uaxactún estan manejadas por la comisión comunitaria "Proyecto Pavo Uaxactún" con el apoyo técnico de la IEWMS SA y con la colaboración y soporte de OMYC

Gracias a la Alianza Para el Turismo Comunitario, USAID, & Counterpart International

EL PROYECTO PAVO SIRVE A UAXACTÚN LO APOYEMOS!



TRANSLINKS

A partnership of NGOs, Universities and USAID led by The Wildlife Conservation Society, dedicated to finding and sharing practical ways to generate benefits from conserving natural resources that are of global importance, and that serve as the supermarkets, bank accounts and insurance for many of the poorest people on earth.

For more information please visit our website at www.translinks.org or contact Dr. David Wilkie, the program director, at dwilkie@wcs.org.



Land Tenure Center



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