



## Park Profile– Guatemala Cerro Cahú Protected Biotope

**Last field evaluation:** December 2003

**Publication date:** December 2003

**Location:** Municipality of San José, department of Petén in the Maya Biosphere Reserve

**Year created:** 1989

**Area:** 650 hectares

**Ecoregion:** Tehuantepec Moist Forest

**Habitat:** Tall and medium broad-leaved forest, bottomland forest



### Summary

#### *Description*

Cerro Cahú Protected Biotope is located in northern Guatemala, in the municipality of San Jose, department of Petén. In 1989, Cerro Cahú was legally declared a protected area and is one of the few natural regions in the buffer zone of the Mayan Biosphere Reserve that remains in relatively good state. Located on the road leading to Tikal National Park, Cerro Cahú has become a potentially important tourist destination. Although local inhabitants make careful use of the protected area, the surrounding zones are being rapidly deforested. If the deforestation trend is not reverted, the remaining forest will soon become isolated.

#### *Biodiversity*

Fauna reported for the biotope includes 29 mammal, 11 amphibian, 17 reptile, and 82 bird species. The howler monkey (*Alouatta pigra*), Morelet's crocodile (*Crocodylus moreletii*), and Central American river turtle (*Dermatemys mawii*) are regional endemic species that live in the biotope. In addition, the four bat species in the reserve are indicative of a non-disturbed mature forest. That jaguars (*Panthera onca*) roam throughout the area indicates that the biotope is still somehow connected to Tikal National Park. Thirteen of the bird species reported are included in CONAP's Red List. *A. pigra*, *D. mawii*, *P. onca*, and *C. moreletii* have been added to UICN's red list; the first two are considered endangered.

#### *Threats*

The biotope is **critically threatened**, and will most likely not succeed in protecting and maintaining its biological diversity in the short term unless emergency actions are taken. The principal threats include the advance of the agricultural and cattle frontiers, which

gradually isolate the area. Forest fires, illegal hunting and wood extraction, and lack of institutional control are among other worrisome threats.

## **Description**

### *Physical Description*

Cerro Cahuí Protected Biotope is located in northern Guatemala, in the municipality of San José, department of Petén. It is one of the core zones of the Mayan Biosphere Reserve (CONAP, 2001a), the most important tropical forest region of the country. The biotope is located inside the buffer zone of the reserve (CEMEC/CONAP, 1999a) and borders with the communities of El Remate and El Caoba to the East; Lake Petén Itzá, to the South, a fragmented forest zone property of the San José municipality to the North, and the Jobompiche settlement to the West. The biotope's 650 hectares (CONAP, 2001a) are under different conservation prescriptions because, prior to declaration, the forest was heavily exploited and some areas have been extensively used for agricultural purposes. The biotope is adjacent to Lake Petén Itzá.



*General view of the protected area from the community known as Remate and a view of the portion of the biotope that borders Lake Petén Itzá (photos © PW-Guatemala)*

The surface soils of the protected area are mostly organic and shallow. Sub-surface soil is clayey and lies on calcareous rock. The landscape is between rolling and hilly; elevations range from 100 to 360 m (CDC/CECON, 1995). According to data provided by the Tikal meteorological station, the climate is predominantly humid-hot and the dry season is not clearly marked. The annual average temperature is 23.9°C, which may vary between 20°C and 30.7°C. Relative air humidity is 81%, which fluctuates from 100% to a minimum of 36%. The annual average precipitation is 1,323 mm; the dry season begins around February and wanes in May. Temperatures may drop 11°C between the coldest and warmest months.

## ***Biodiversity***

### *Flora*

According to Dinerstein et al.'s classification (1995), the biotope belongs to the Tehuantepec Moist Forest Ecoregion. The map of functional landscapes of the MBR (CONAP, 2001a), shows that the predominant habitat of the protected area is a high and medium broad-leaved forest in the South, and a lowland forest in the southeast.

The Rapid Ecological Evaluation of the MBR (APESA, 1993) classifies the area as a forest with an average diversity of trees, perhaps 200 species per hectare; Schulze and Whitacre (1999) estimate that the adjacent Tikal Park has more tree species. The soil drainage of the rolling grounds promotes varied vegetation. As occurs in habitats of other parts of the MBR, the temporary flooded areas have lowland forest features, with very compact and sometimes spiny bushes.

#### High and medium broad-leaved forest

These types of forests dominate the protected area. Soils drain very quickly because they are shallow and porous. The uppermost canopy is between 6 and 20 meters tall (CONAP, 2001a), depending on the conditions. In some well-drained places, the uppermost canopy is tall but sparse, and some trees lose their leaves during the driest seasons. Trees are not as tall in places exposed to the elements and the sun, and hilltops are covered with shrub formations. In the lower areas, vegetation is more abundant and species more varied (Pérez *et al.*, 2001). Some individual trees are 25 or more meters tall and protrude from the canopy. The Breadnut Tree or Ramón (*Brosimum alicastrum*) is abundant and seems associated to other species such as Sapodilla (*Pouteria reticulata*), Yellow Mombin or Jobo (*Spondias mombim*), Copal Tree (*Protium copal*), and Noseberry (*Manilkara zapota*), also plentiful (Pérez *et al. ibid.*) The forest harbors several commercial species such as Mahogany (*Swietenia macrophylla*) and Cedar (*Cedrela odorata*), which are favored by illegal extractors. The high and dark understory abounds in Corozo (*Orbignya cohune*), Bay Leaf (*Sabal morrisiana*), "Xate" (*Chamaedorea* sp), and "Bayal" (*Desmoncus ferox*) palms.



General view of the area, from the southeast (photo © PW-Guatemala)

### Lowland Forest

This type of forest covers the southern corner of the protected area. It flourishes in deep, heavy, and sticky soils that flood during the rainy season and dry up and crack during hot periods. Forests have grown in ravines or small or medium lowlands. Soils drain poorly and are constantly under water during the rainy season. Water pools up in depressed grounds, which give way to plant formations. A low, sparse treetop forest is evident in some places, where Logwood (*Haematoxylum campechianum*) predominates. Other species of this formation include Black Olive (*Bucida buceras*) and “Palo Gusano” (*Lonchocarpus guatemalensis*). The canopy of lowland forests rarely grows beyond 11m.

### *Fauna*

These are the findings of the latest inventories carried out in the Cerro Cahuí Protected Biotope: 29 mammal, 11 amphibian, 17 reptile, and 82 bird species (Pérez *et al.*, 2001), which are very discouraging figures when compared to neighboring areas such as Tikal National Park and the “San Miguel la Palotada” Biotope. This difference might be due to incomplete research or the fact that the biological diversity is degrading because of isolation and human pressure inside the Biotope and surrounding areas. Jaguars (*Panthera onca*) have been observed in the area, as well as four bat species (*Trachops cirrhosus*, *Mimon bennettii*, *Micronycteris megalotis* and *Tonatia saurophila*) and these sightings indicate that the forests are mature and that the area is still in good state.

Among the regional endemic fauna that inhabits the biotope, the howler monkey (*Alouatta pigra*) and the crocodile (*Crocodylus moreletii*) are associated to Lake Petén Itzá, which is adjacent to the protected area. The Central American river turtle (*Dermatemys mawii*) has also been observed in the area. Thirteen of the bird species reported by Pérez *et al.*, 2001 are included in CONAP’s Red List (CONAP (2001b)). *A. pigra*, *D. mawii*, *P. onca*, and *C. moreletii* have been added to UICN’s red list, the first two as endangered. Among the flora species, Mahogany (*Swietenia macrophylla*) appears in CITES’ Appendix II, while CONAP’s Red List of Flora

(2001c) considers that many species in the area could become extinct if extraction is not regulated.

### ***Management***

In 1989, the Cerro Cahuí Biotope was declared protected by Decree 4-89 of the Law of Protected Areas. The Law of Creation of the Mayan Biosphere Reserve, Decree 5-90, did not include the area as one of the core zones of the reserve, but the operative master plan does. The biotope had been informally created and registered in 1986 through a legal document from the National Enterprise for the Economic Development of Petén (*Empresa Nacional de Fomento y Desarrollo Económico de Petén* –FYDEP, 1986), which granted management rights to the [Conservation Studies Center](#) of the University of San Carlos of Guatemala (CECON). At present, there is an initiative to legalize the lands in the name of the University of San Carlos of Guatemala (Ruiz, 2003, pc\*). Institutional control has been feeble since the area was created and the illegal activities that occur every day have not been prosecuted.

Four employees staff the protected area: one charges admission to visitors and tourists, another performs surveillance duties, and two are in charge of control and surveillance. Field personnel work only during the daytime for 22 consecutive days and take 8 days off. During the off period, only one individual remains in charge of the area. Marauders carry out illegal activities under the cover of the night and during the staff's off-periods and vacation. This situation worsens when workers abandon their jobs in search of better wages. Park rangers believe that between 16 and 18 persons should staff the biotope. The University of San Carlos of Guatemala, through CECON, pays staff salaries.

The biotope's master plan is old-fashioned and does not keep in tune with the area's present status. The plan defines different management zones, one of them a primitive area dedicated to biological conservation, and a recovery zone that has been established in crop areas cleared by neighbor settlers in the western and northwestern corners. Currently, the plan is being updated, but the initiative is in the developing stage (Ruiz, 2003, pc\*). Infrastructure for area protection consists of an equipped operations center for park rangers, a visitor's center, and a camping area for tourists. Field personnel are provided the minimum necessary work equipment. Although park rangers do not carry firearms, the Nature Protection Service of the Guatemalan National Police provides permanent security to visitors and tourists. This service and state security forces carry out very sporadic joint patrols that have successfully prevented illegal activities. The protected area's 2003 budget is of approximately US\$ 25,000.00; about 80% is used for payroll.



*Entrance to Cerro Cahui, the road comes from Remante; One of the tourist police that maintains a presence in the area (photos © PW-Guatemala)*



*Entrance to the management area, and a general view of the administration infrastructure in the area (photos © PW-Guatemala)*

### ***Human influence***

The biotope is accessible through a paved road that runs from the city of Flores to Tikal National Park, and then through the community of El Remate on an dirt road of approximately 3 Km. This road runs throughout the southern limit of the protected area and connects with the El Remate community to the East, and Jobompiche to the West. The rest of the area is easily accessible by foot, over the surrounding cultivated fields. Easy access impedes adequate control of illegal activities.



*Partial view of the northeast. In the center is the paved road heading towards Tikal. The photo shows remaining forest but also fragmented areas. There is only one part (not part of the protected area) that connects the biotope to the greater ecosystem; the rest is fragmented. (photo © PW-Guatemala)*

Three communities surround the biotope: El Remate, Jobompiche, and Caoba, which exert significant pressure on the protected area. Although no invasions have been reported, agricultural plots have been detected in the West, inside the area's legal limits. The population brings about acute stress to the area, mainly due to agricultural burning during the dry season, an activity that poses serious threats to the biotope. Although satellite imagery from CEMEC/CONAP (2003) shows that fires have not been extremely harmful and that in 2003 some fires were successfully controlled, the damage potential is quite high. ParksWatch evaluations point out that neighbor communities carry out illegal hunting, deforestation, and agricultural activities.

The area receives a moderate number of visitors. Admission fees (approximately US\$2.50 per visitor) are deposited in a common fund that is used by CECON to manage its seven biotopes. Since visitor flow is not standard in every biotope, the funds invested in Cerro Cahuí are not equal to the admission fees collected. The Tourism Police has appointed permanent personnel to the area to provide support and protection to the visitors.



*Visitors' Center (photo © PW-Guatemala)*



*A photo of the beach called “playa del amor” where there is a dock for visitors (photo © PW-Guatemala)*

### ***Conservation and Research***

There are no permanent research activities in the area. In the past, the Peregrine Foundation carried out bird projects and students from the University of San Carlos have done flora and fauna inventories and studies.

### **Threats**

The biotope is a **critically threatened** area that will not succeed in protecting and maintaining its biological diversity in the short term unless emergency actions are taken. The principal threats include the advance of the agricultural and cattle frontiers, which are gradually isolating the area. Forest fires, illegal hunting and wood extraction, and lack of institutional control are among other worrisome threats. The Center for Conservation Studies has not been able to take full control of the biotope.

### ***Present threats***

#### ***Forest fires***

Forest fires can cause substantial damage to the biotope. Cerro Cahuí was spared when the most damaging forest fires in the history of Petén occurred in 1998 and 2003. CEMEC/CONAP’s satellite imagery (1999a) and field evaluations done by ParksWatch demonstrate that the 1998 forest fires surrounded the biotope’s agricultural area and the northern and western zones. Every year, fires start in the ever-expanding agricultural zones of the biotope. A small fire that broke out in 2003 was successfully controlled, but the surroundings were not protected and the biotope could have been reduced to ashes (Albacete, 2003).

This problem is linked to the ever-increasing human activities inside the area. The main causes are cattle ranching and agriculture in the buffer zone, which is being rapidly depleted. The lack of action from the state and individuals to prevent the deforestation of the areas adjacent to the biotope point out to bigger problems. Time is of the essence: Cerro Cahuí is critically endangered.



### *Advance of the cattle and agricultural frontiers*

The West and North ends of the protected area suffer the consequences of the advance of the cattle and agricultural frontiers. Statistics show that 3% of the forest has been felled for agricultural purposes since the area was created. Before the official declaration, the biotope lost 9.5% of its surface (CEMEC/CONAP, 1999b), and a recovery zone was deemed necessary. Some of the areas are now in full recovery and the advance of the agricultural frontier inside Cerro Cahuá seems to be dwindling. The problem, however, needs more attention. The loss of forest coverage in the North and West has almost isolated the protected area, which is quickly becoming an island of sorts amidst croplands and pastures. Even if soil use patterns were to be stabilized, the rapid deterioration of the landscape will have negative effects in the near future.



*A view of the biotope towards the East, forest fragmentation due to agricultural and grazing activities can be seen (photo © PW-Guatemala)*

### *Illegal logging and hunting*

As in other areas of the MBR, the problems that arise from illegal extraction of forest products and illegal hunting are very difficult to control because the protected area is easily accessible and institutional control almost non-existent. Although park rangers have repeatedly denounced illegal felling, no actions have been undertaken beyond the occasional police patrols. During a field visit in December 2003 we were able to witness illegal logging in the western part of the biotope, unbeknownst to forest rangers. Although hunting is not controlled, rangers state that it seldom occurs. The root of the problem resides in CECON's lack of capacity to survey the area. The biotope is small and there are forest rangers that can carry out steady patrols. Nighttime patrols should be established to discourage intruders. Another problem arises from the fact that forest rangers must carry out tasks not outlined in their job descriptions, such as services to visitors and custodial care of the tourist infrastructure, which takes time from their actual tasks.



*We witnessed illegal logging in the southeastern portion of the protected area during our visit, near Jobompiche (photo © PW-Guatemala)*

### ***Exotic flora and fauna species***

At least two exotic flora species have been reported for the biotope: an orchid (*Oeceoclades maculata*) and a planted species, *Mutingia calabura* (Pérez *et al.*, 2001), although this fact is not supported by research. Africanized bees have been observed, which could threaten some bird nests. The full scope of the problem from these exotic species is unknown due to lack of research.

### ***Future Threats***

If the most serious threats faced by the biotope are not dealt with, they will only continue at the present level or escalate. If immediate solutions are not put into practice, the biotope will lose its biological diversity before it becomes evident. Reports for 2001 may indicate a decrease in fauna, which could well be the first evidence of the area not meeting its objectives.

### **Recommended Solutions**

Increased patrols and surveillance are needed to stop the ongoing depredation of the area. The park rangers' work shifts need to be re-organized. These improvements will bring about the need to contract more staff to assure year-round 24-hour patrols. In this manner, the area would be more controlled and illegal logging and hunting may become a problem of the past.

The most pressing problems for Cerro Cahuí, however, have to do with human activities in the zone of influence, which the area managers cannot control without the aid of government and non-government actors. The small size of the area makes it impossible to protect an important part of the biological diversity it harbors unless measures are taken to assure connectivity with the rest of the MBR. Managers should initiate emergency actions to preserve the remaining northern forest mosaic outside the protected area. There are at least three projects underway in Guatemala: the Mesoamerican Biological Corridor, the Forest Incentives Program of the National Forest Authority, and the Conservation Incentives Project of Conservation International, which make investing in activities that stimulate the conservation of the zone possible.

### **Conclusions**

The Cerro Cahuí Protected Biotope is a very small area that is rapidly becoming isolated. At present, it is under heavy pressure from human activities in the surrounding areas, but it is still possible to lessen the pressure. Constant efforts and emergency measures may guarantee the connectivity of the zone with the rest of the MBR, which may be the ideal prescription for the preservation of the remaining biological diversity.

The biotope is a habitat of endangered species; large felines still roam about. Information regarding the actual degree of pressure and degradation these species face is inadequate, although it is probably very high. The biotope is a critically threatened area that might not be able to protect and preserve its biological diversity if emergency actions are not implemented. Flora and fauna might very well be degrading gradually, and the area might have already lost

some of its characteristics due to isolation, although it might not be visually evident. It is highly recommended to carry out research to determine the corrective measures that need to be implemented if, indeed, degradation is occurring.

Managers must take control of the area. It should not be a problem to establish permanent patrols because this measure requires minimum investment and the re-organization of the park rangers' shifts to make them more efficient is actually a clerical task. Managers must not permit illegal activities, such as logging, in such a small area with a permanent staff.

ParksWatch field visits indicate that the pressure upon the zone of influence, especially in the forest mosaic that connects with other areas to the North, is obvious and needs to be addressed immediately. The changes in the use of soils and forest fires in these areas exert enormous pressure upon the biotope and entail serious consequences. An uncontrolled forest fire might suddenly destroy the protected area. This peril demands that the managers take emergency actions to counter the situation. For this reason, a specific joint program with other actors must be put in place. The master plan, which is at present being updated, must make this joint program a priority, which should include clear annual aims to accurately measure results and recommend corrective actions if needed.



## References

- Albacete, C., 2003. *Informe sobre los incendios forestales en la Reserva de la Biosfera Maya*. Trópico Verde. Guatemala.
- APESA, 1993. *Evaluación Ecológica Rápida de la Reserva de la Biosfera Maya, Guatemala*. APESA / TNC / PBM-USAID. Guatemala.
- Barrios, M., 2003. *Personal communication*. Director of the biotopes within Petén.
- CDC/CECON, 1995. *50 áreas de interés para la conservación en Guatemala*. Centro de Datos para la Conservación, Centro de Estudios Conservacionistas de la Universidad de San Carlos de Guatemala. Guatemala.
- CEMEC/CONAP, 1999a. *Incendios forestales, Departamento de Petén, 1998*. Consejo Nacional de Áreas Protegidas. Sistema de Información Geográfica. Centro de Monitoreo y Evaluación. Guatemala.
- CEMEC / CONAP, 1999b. *Áreas de cambio en el bosque de la Reserva de la Biosfera Maya hasta 1999*. Centro de Monitoreo y Evaluación del Consejo Nacional de Áreas Protegidas. Guatemala.
- CONAP, 2001a. *Plan Maestro de la Reserva de la Biosfera Maya 2001-2006*. Serie coediciones técnicas número 30. Consejo Nacional de Áreas Protegidas. Guatemala.
- CONAP, 2001b. *Listado de especies de fauna silvestre amenazadas de extinción (lista Roja de Fauna)*. Resolución ALC 032-99 del Consejo Nacional de Áreas Protegidas. Guatemala.
- CONAP, 2001c. *Listado de especies de flora silvestre amenazadas de extinción (Lista Roja de Flora)*. Resolución ALC 028-2001 del Consejo Nacional de Áreas Protegidas. Guatemala.
- Decreto 4-89. Ley de Áreas Protegidas, reformas a la ley Decretos 18-89, 110-96 y 117-97, y reglamento. Congreso de la República de Guatemala. Guatemala.
- Decreto 5-90, 1990. *Declaratoria de la Reserva de la Biosfera Maya*. Congreso de la República de Guatemala. Guatemala.
- Dinerstein, E.; D. Olson; D. Graham; A. Webster; S. Primm; M. Bookbinder; G. Ledec, 1995. *Una evaluación del estado de conservación de las eco-regiones terrestres de América Latina y el Caribe*. Banco Mundial y Fondo Mundial para la Naturaleza. Washington.
- Fenton, M., L. Acharya, D. Audet, M. Hickey y C. Merriman, M. Obrist y D. Syme, 1992. *Phyllostomid bats (Chiroptera: Phyllostomidae) as indicators of habitat disruption in the neotropics*. *Biotropica* 24: 440-446.
- FYDEP, 1986. *Acta número 167-86 del Libro de Actas Varias de la Secretaría General del FYDEP*. Empresa Nacional de Fomento y Desarrollo Económico de Petén. Guatemala.
- Pennington, T.; Sarukhán, J., 1998. *Árboles tropicales de México*. Instituto de Ecología de la Universidad Autónoma de México / Fondo de Cultura Económica. México.

Pérez, S., P. Herman, A. Kihn, J. Morales, N. Castillo, F. Ramírez, E. Cano, R. García, J. Ordóñez, M. Flores, A. Higueros, M. Acevedo, C. Vásquez, C. Burgos, H. Enríquez y H. Piérola, 2001. *Caracterización ecológica de los Biotopos Chocón Machacas, Izabal, y Cerro Cahuí, Petén*. Universidad de San Carlos de Guatemala Dirección General de Investigación del Centro de Estudios Conservacionistas. Guatemala.

Ruiz, L., 2003. *Personal communication*. Legal assistant of the Center for Conservation Studies.

Schulze, M. D. y D. F. Whitacre, 1999. *A classification and ordination of the tree community of Tikal National Park, Petén, Guatemala*. Bulletin of the Florida Museum of Natural History 41. USA.

UICN, 2003. *Red List of threatened species*. International Union for Conservation of Nature and Natural Resources. En <http://www.redlist.org>

---

\* pc: personal communication