

COMMUNITY SANCTUARIES: PRESENT AND FUTURE GOALS

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Abstract

The community Baboon Sanctuary is a community-based sanctuary in Belize, in which landowners voluntarily abide by land management plans for the black howler monkey. Four main programs of conservation, education, research, and tourism are carried out by sanctuary staff.

Conservation includes checking on pledged lands, censusing monkeys, and studying an endangered river turtle for its eventual sustained use.

Reintroduction of other locally extinct species are future goals.

Education centers on a rural museum, an extensive guidebook, and a labelled trail system for tourists and school classes. Research includes studies of black howler behavior and ecology, riverine forest succession following slash-and-burn agriculture, river turtle reproduction, and creole culture. Tourism is developing rapidly and the sanctuary coordinates it for the economic benefit of local people. The sanctuary is functioning as a model for the areas and a similar program is beginning in order to conserve a wintering roost area for the bald eagle in the United States.

Introduction

The Community Baboon Sanctuary began in 1985 as an experiment to coordinate private landowners (mostly subsistence farmers), to manage their lands for the benefit of the black howler monkey, *Alouatta pigra*. Landowners have been presented with a map of their lands and an accompanying management plan. If in agreement with the plan, the landowners sign a voluntary pledge to abide by it the sanctuary has since grown to include over 75 landowners and 7 villages, an area of

over 18 square (Horwich, 1986, 1988; Horwich & Lyon, 1987, 1988).

It is continually growing as additional landowners sign voluntary pledges for individualized management plans. We have begun to expand the functions on the sanctuary by targeting the conservation of other species within the sanctuary, especially those endemic to the area. Local staff have been trained and employed to run a full program of conservation, education, research, and tourism under the Belize Audubon Society.

Conservation

The most important function of the sanctuary manager is to work with landowners on a one-to-one basis to check each year on their agricultural practices to make sure they are maintaining their practices in accordance with the management plans they pledged to uphold. Discussions occur each year prior to cutting and burning the milpas during the dry season. Secondly, the Sanctuary manager has begun mapping additional lands to expand the Sanctuary to include all riverine and cohune palm forests which are good habitat for the howlers. An immediate conservation practice for the howlers includes some experimental attempts to construct ladder bridges and living fencepost plantings to bridge gaps to create aerial pathways for howlers until trees can regrow.

As a result of our work with landowners we have been invited to advise a local farming cooperative to encourage conservation policies on agricultural lands. We were requested to provide help in developing a balanced program for agriculture in the area which would help to protect and maintain a healthy environment for forests and wildlife while aiding local farmers to make a living. They also wanted help to set aside an area of primate wildlife habitat that is good habitat for tapirs (*Tapirus bairdii*) and Morelet's crocodiles (*Crocodylus moreletii*), both endangered species.

Censusing of the original 3 square miles mapped is continued yearly, using both paid staff and volunteers to feed back information on the status of the population within the sanctuary. Approximately 25-30 troops are involved. The population has increased approximately 30% from 1985 to 1988. It has increased from an estimated 840 minkeys to almost 1 100 howlers within an 18 square mile area of riverine forest.

A second endangered species (IUCN, 1986) has also been targeted for research and management due to the probability of its disappearance from the area if present trends continue. We originally started with the black howler since it was not hunted nor eaten by the local Creole people and is considered harmless to crops. Many people additionally enjoyed the presence of the monkey so we could capitalize on this neutral to positive relationship. In contrast, the Central American river turtle, *Dermatemys mawii*, also endemic to the Yucatan peninsular area with a range similar to the black howler, is hunted for food. It is the sole surviving species of an ancient family and is under heavy hunting pressure both for subsistence and for economic exploitation. In areas where it is exploited, it rapidly disappears (Moll, 1986). Some divers may take hundreds in a few days by using diving gear in depleted pools in the dry season.

Thus we are beginning a study of the species seasonal reproduction taking measurements and reproductive organs from hunted specimens. Sanctuary staff are also monitoring turtle hunting in the sanctuary and presence in the Belize City market to get baseline seasonal data on hunting to compare with earlier studies (Moll, 1986). Once we clearly define its seasonal reproductive parameters we hope to make some management suggestions to local and federal government bodies for its protection and sustained use.

A longterm goal of the sanctuary is ultimately to reintroduce species which have disappeared from the area. Mahogany and other hardwoods which were very important economically to Belize in the past have virtually disappeared from the area. We have built a small greenhouse and hope

eventually to encourage replanting mahogany, cedar, and other hardwood species for long term economic gains. The greenhouse will also be used for production of other local trees for replanting riverbanks and other areas and for the production of fruit trees.

We would additionally like to reintroduce some game birds back to the area. This will entail agreement on the part of landowners an a general consensus of area residents not to hunt the introduced species with the potential managed hunting in the distant future. These species includes the ocellated turkey, an endemic and protected bird in Belize. Two others, the crested guan, and the great curassow are game species which have been hunted to extinction within the area. Plans are also being made to reintroduce black howlers into other secure areas in Belize from which they have disappeared.

Education

The sanctuary education program centers on a small museum, a labelled forest trail, and an extensive guidebook. The museum, Belize's first, opened in April, 1989. Its original purposes were to change the center of conservation by having a conservation oriented museum located rurally where the future protectors of the forests live and work.

It is composed of a series of laminated poster exhibits integrated with biological materials from the area. Subject matter includes mainly natural history materials with some cultural, archeological, and historical materials.

The natural history exhibits are strongly conservation oriented. They specifically deal with animals and plants directly from the area. Topics include the importance of tropical forests, forest succession following slash-and-burn agriculture, water resources, mutualism, and various ecological topics.

The museum opening was a Creole cultural event which included traditional folksinging and storytelling, as well as traditional crafts and wood lore indicating traditional uses of the tropical forest. These included boiling chicle sap for chewing

gum, carving dishes from mahogany butresses, making brushers, tongs, and fish traps, and processing cohune palm oil.

The guidebook started as a small pamphlet on howler monkeys which was given to local villagers. It evolved into a 60 pages booklet which has increased to a 110 page booklet which integrates information on local flora and fauna with generalized material about the tropical rainforest and its functions and importance. The guidebook is sold in order to refund publishing it, but it is given to teachers for the school library after the Sanctuary Manager has talked to the school classes. We expect to republish the guidebook to include the materials in the museum as a 300 page textbook about the tropical forests of northern Belize, which we hope to distribute to all schools in Belize.

A three mile trail system has been cut and labelled with numbers and tree names. The numbers correspond to sign texts with an appendix at the end of the guidebook. A sanctuary staff member takes tourists and school classes along the trail in order to show them howler monkeys. They are additionally given lectures which basically conform to the sign texts, embellished with additional regional knowledge. The sign texts could eventually be used in self guided tours if desired. At this point we feel it is necessary that all tours and tourists go with a guide initially because the trails are all on private lands which often contain livestock fences as well as planted fields.

The Sanctuary Manager also goes to rural area schools and Belize City Schools to give lectures about the sanctuary and tropical forest conservation. We eventually hope to involve a system of preparatory lectures in the classroom which coordinate with field lectures. This is a system that the Belize Audubon Society is considering in order to integrate school lectures with field education within the national parks.

Tourism and Local Economics

One main objective of the sanctuary is to integrate human interests with the conservation of the forests and wildlife. A potential benefit to villagers which was initially expressed by them was an interest in inviting tourists to the area. This has been explored slowly but the numbers of tourists has since proceeded extremely rapidly. The numbers of visitors have increased from an estimated 20-30 in 1985 when the sanctuary was initiated, to a projected 2-3,000 peoples in 1990. These include both foreign and Belize and tourists and school children. At present there has been a small economic benefit from campers who take meals with local families. A few of these tourists use local boat and hoseback guides. All services are arranged through the Sanctuary Manager. We have applied for a grant to supply low interest loans to villagers for tourist cabins. Due to the radical increase in tourism, as soon as these cabins are built there will be an instant increase in the economic benefits to the village. We have also been investigating the production of local crafts for sale to tourists as well.

The Potential For Other Community Sanctuaries

The idea of forming community sanctuaries based on voluntary management programs for privately owned lands has wide ramifications throughout the world and in other disciplines such as in archeology. We have been exploring the potential for similar sanctuaries in Mexico, Guatemala, Belize, and the United States.

A project to protect the wintering roosts areas of the American bald eagle (*Haliaeetus leucocephalus*) has begun using the technique developed in Belize. Presently over 60 landowners have signed a petition requesting a local conservation group, Ferry Bluff Eagle Sanctuary to coordinate a similar management plan for the bald eagle. We have begun mapping the area as to property boundaries and vegetation using local county survey maps and aerial photographs. Local landowners are involved,

and with their help we are coming up with simple management plans for each landowner. In this instance as in Belize we are attempting to use the good ideas which are already in practice and blending them with other conservation ideas. Once the management plans are completed and landowner maps are made we will approach landowners to voluntarily pledge to abide by these plans.

Basic goals of the eagle management include, protecting 7 specific winter roosts which protect eagle from severe winter weather, increasing and coordinating feeding of carrion from roadkills, fish killed by the dam, and piglets which have died on local farms, and developing nesting sites in the area to entire breeding pairs to the area. Additional requests may be made to specific farmers to include a wider variety of conservation ideas, including forest corridors, wetlands, prairies, and specific areas of biological significance.

Specific research and public education goals have been developed. A bald eagle day was run with the Wisconsin Department of Natural Resources in January, 1989 for public education. Roost counts will be made yearly to monitor the winter eagle population each year and additional behavioral studies and feeding studies are planned.

Acknowledgements

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Primate Institutions

Although selectively logged, much of Belize is still forested. Belize is in the process of developing a parks system, but there are no groups specifically concerned with primates, no professional scientific journals, no primate colonies maintained for research, and no primatological collections, except for a few living specimens at the Belize Zoo and a couple of skeletons at the Community Baboon Sanctuary Museum.

The Community Baboon Sanctuary ("Baboon" is the Creole word referring to howler monkey), which I helped form in 1985, is the only institution specifically concerned with a primate species. It is established on about 12,000 acres of private lands with the cooperation of 75 landowners and villages. It is under the auspices of the Belize Audubon Society and is run by a local staff under or. Fallet Young, the Sanctuary manager. Its formation and functions have been documented and described (Horwich, 1986, 1987, 1988; Horwich & Lyon, 1987a, 1987b, 1988; Gradwohl & Greenberg, 1988). We have gathered data at the sanctuary on troop size; home range, roaring (Horwich 1987 Gebhard, 1983), breeding (Horwich, 1983) infant development (Horwich, 1987 Gebhard, 1985), and seasonal ecology of the black howler (*Alouatta pigra*). We are continuing to gather data on behavior, ecology, and population changes.

To my knowledge, only one other primatologist Jeremy Dahl is currently working in Belize, on *Alouatta pigra*. Dahl (1987) earlier conducted a primate survey within Belize. Another primate survey was recently carried out (Hubrecht, 1986) and a past study was conducted on *Alouatta pigra* within the current boundaries of the Community Baboon Sanctuary (Bolin, 1981).

Primate Species in Belize

Belize has only two documented species of primates within its national boundaries. There are informal reports indicating potentially 2 or 3 additional species. The range of *Alouatta pigra*

has been documented (Horwich, & Johnson, 1984, 1986; Watts *et al.*, 1986) while additional information on it and a subspecies of spider monkey (*Ateles geoffroyi yucatanensis*) have been recorded (Dahl, 1987; Hubrecht, 1986).

Information on other primate species is very indefinite. McCarthy (1982) has indicated Belize as the northern most range of the white faced capuchin (*Cebus capuchinus*) by its presence in the south of Belize but additional survey (Dahl, 1987) have not confirmed it despite informant's report.

Prior to 1970 *Alouatta palliata* and *Alouatta pigra* were considered to be the same species. They have since been separated by physical (Smith, 1970) and behavioral (Horwich, 1983) characteristics. The occurrence of the golden mantled howler has not been confirmed in Belize but was thought to occur on the Guatemala side of the Sarstoon River, the southern boundary of Belize (Horwich & Johnson, 1984). Recent report of Peace Corps Volunteers from that area in Guatemala confirm a population of *Alouatta palliata* north of the Rio Dulce, as well as *Alouatta pigra* south of the Rio Dulce but the distributions of two species there have not yet been worked out (Brown & Curdis, pers. comm.).

The status of spider monkeys in Belize is intriguing but still hypothetical. Informants have suggested to me the presence of 3 types of spider monkeys in western Belize. They have noted a large black type a large white form and a smaller brown monkey. The larger black forms supposedly occur in the same groups but do not associate with the small brown monkeys. I have seen the small brown form, which are thought to be *Ateles geoffroyi yucatanensis* (Konstant *et al.*, 1985), in Lagoon Back and on the Bladen River (Dahl, 1987) which is being considered as a protected area. I have seen a captive large black from with a white belly and a photo of a large silver form which must be *A. g. vellerosus* (Konstant *et al.*, 1985). There is thus the distinct possibility that the two subspecies of spider monkeys in western Belize are acting like a species.

Courses and meetings held in Belize

World Wildlife Fund-U.S. has at least two training sessions for varied wildlife employees. The first was a general three day symposium held in 1986. It was a general symposium to stimulate interest in Belize wildlife and begin thinking about a general resource plan for Belize. In 1987 a second symposium was run more specifically for practical experience for people working in wildlife management. Its main emphasis was in composing and writing an operational plan for Cockscomb Basin Sanctuary. CATIE of Costa Rica ran a training course for Latin American wildlife workers in December, 1987. It included some Belizeans while in the country. Recently REDES (Red Regional de Organizaciones Conservacionistas no Gubernamentales para el Desarrollo Sostenido de Centroamerica), a group committed to interrelate Central American Conservation ran a training session in March, 1988.

Agencies, biological stations, conservation areas and their conservation interests in Belize

The Community Baboon Sanctuary (Fallet Young, Sanctuary Manager) c/o Belize Audubon Society, P.O. Box 1001. Belize City, Belize Central America.

This is the only institution in the country whose main emphasis is primates. Management research and basic ecology and behavior data are being collected on the black howler monkey (*Alouatta pigra*). Research is also being carried out on river forest succession following slash-and burn agriculture, reproductive biology of the Central American River turtle (*Dermatemy mawii*), conservation concepts of villagers, and Creole kinship. A guide book in English (Horwich, 1987b) is available from the author for \$ 5. US postpaid. The sanctuary is working to expand the sanctuary boundaries to connect with Crooked Tree Sanctuary and Mussel Creek which is a prospective wildlife area.

Belize Audubon Society (Walter Craig, Executive Director, Dr. Victor González, President)
P.O. Box 1001 48 Southern Foreshore
Belize City, Belize Central America
Tel. (02)7369

BAS is working with the Government of Belize to help establish a national park system. Thus far the only protected area, Crooked Tree, has primates. There are two small populations of howler monkeys (*A. pigra*) which occur close to the village of Crooked Tree on an island within the reserve area and along Black Creek on the southern boundary of the sanctuary. Crooked Tree has been created to protect waterbirds so its boundaries mainly encompass lands directly adjacent to water bodies. The Cockscomb Basin Sanctuary (Jaguar Sanctuary) was recently created and was commonly believed to support howlers and spider monkeys which were hunted to extinction within the area. I have written a proposal for the Cockscomb Sanctuary to reintroduce howler monkeys into that recently created park. The Cockscomb Basin incorporates nearly 4000 acres of restricted reserve and 50,000 acres which will be used for selective logging. BAS publishes a newsletter on their activities.

Programme For Belize (Bill Burley, Director of Planning)
5736 Lottie Waight St.
Belize City, Belize, Central America.
Tel. 45984

This group is working with the Government of Belize to create a sanctuary centered around lands donated by Coca Cola. Although no one has yet done an adequate survey of the area, these lands have both howlers and spider monkeys and encompass areas where that 2 spider monkey subspecies may overlap. This area of the country including adjacent lands now under private control is the mostly critical area for spider

monkeys in the country. The Rio Bravo area being set up by PFB encompasses 150,000 acres with another 150,000 buffer zone.

The Belize Zoo (Sharon Matola, Director)
P.O. 474
Belize City, Belize, Central America

The Belize Zoo has 3 howler monkeys and two spider monkeys (*Ateles geoffroyi*) and has done promotion of primate conservation in Belize.

Belize Center for Environmental Studies (Lou Nicolait, Director)
P.O. Box 785, 55 Eve Street
Belize City, Belize Central America
Tel. 02-45545

This institute is attempting to coordinate conservation efforts and information in Belize. They have the most information on mapping of natural resources and about researchers working in the country. Nicolait was involved in preparation of the Belize Country Profile (Hartshorn, 1984) which is the most extensive reference on natural resources of Belize.

U.S. Peace Corps (Lou Miller)
P.O. Box 487, No 35 Gabourel Lane
Belize City, Belize Central America
Tel. 44096

The Peace Corps has placed volunteer in the various sanctuaries under the BAS.

Shipsten Wildlife Reserve
Sarteneja
Corozal District, Belize Central America

Shipstern is creating a biological station which presently is breeding butterflies for butterfly zoos. Howlers were thought to once occur in the area and the reserve has volunteered as a second reintroduction site for howlers. There are no primates presently on the site.

Journal and Magazines in Belize

There are no journals or magazines which publish articles on primatology. The Environmental Center is hoping to put out a popular magazine to publish research articles from Belize. The Tuesday edition of the Beacon newspaper, a biweekly newspaper, deals with tourism and conservation articles (Meb Cutluk, editor). Recently a bibliography (Boles, 1988a) and a directory (Boles, 1986b) of environmental sciences in Belize has been compiled (Ed Boles, Rt. 1 Box 130-E, Raymond, Mississippi 39154, USA).

Primatologists Working in Belize and Adjacent Southern Guatemala:

Dr. Jeremy F. Dahl
Yerkes Regional Primate Research Center
Emory University
Atlanta, GA 30322 U.S.A.

Distribution of primates in Belize and behavior of the black howler.

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Ecology, social behavior, infant development of the black howler.

Michelle H. Brown, Thomas Curdts (and Jack Bucklin)
Cuerpo de Paz
6a Avenida, 1-45 zona 2
Guatemala, Guatemala Centro America

Distribution of *Alouatta pigra* in southern Guatemala.

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