History of Protected Area Designation, Co-management and Community Participation in Belize

By

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Introduction

Ever since the arrival of the British into Belize, then British Honduras, in the early 17th century (Leslie, 1997; Bolland 2004), the Belizean economy was primarily based on the exploitation of the country's bountiful timber resources. The logwood (*Haematoxylum campechianum*) was *raison d etre* for the British; its trade flourished until the late 1700's followed by the harvesting of mahogany (*Swetenia macrophylla*), cedar (*Cedrella mexicana*), rosewood (*Swartzia cubensis*), santa maria (*Calophyllum brasiliense*) and other hardwood species until the late 1800s (Bolland 2004). Thus, for much of Belize's history, the exploitation of its forests continued to be the mainstay of the economy until 1959, when large scale agriculture began to replace forestry as the primary income earner (Leslie, 1997). Nonetheless, compared to our Caribbean and Central American neighbors whose economies were based on large scale agriculture, the historical dependence of forestry spared much of Belize's forest (Leslie 1997) where today, the country boasts a forest cover of some 69% (Meerman and Sabido 2001), of which some 52% have protected area designation (GoB 2005). However, the situation is changing with an alarming deforestation rate of some 2.3% annually - almost doubling the annual Central American deforestation rate of 1.2% (Di Fiore 2002). At this rate, the forest cover will be reduced to 58% by 2020 if current trends continue unabated (GoB 2005). The exploitation of timber resources (e.g., between 1797 and 1802 over 4.5 million board feet of mahogany were exported; Bolland 2004) and the subsequent agricultural development have both exerted immense pressure on Belize's ecosystems. The exploitation of Belize's forest resources proceeded for much of our history with scant attention being paid to the environment and the need for protected areas to conserve our rich biodiversity. This chapter will discuss the history of protected area designation and management in Belize from the 1920s to today with emphasis on how this process has changed over time. In addition, the role that co-management has played in Belize's Protected Areas System will be discussed with a focus on community co-management to the present time. It will discuss some of the successes and failures of co-management with directions for the future.

History of Protected Area Designation in Belize

In an attempt to curb this monopolization of land and protect timber resources, the Crown Land Ordinance was passed in 1817 (Leslie 1997), which gave all unclaimed land to the Crown. While the Crown Land Ordinance (CLO) failed to curb the harvesting of timber species on Crown land, it provided a legal framework by which the colonial government could set aside land. The CLO remain the only significant legislation relating

to the 'protection' of the environment for over a hundred years, when in 1927, the Forest Ordinance (FO) was passed (CEP/UNDP 1996; Leikman et al 2004), after which the Forest Department was established (GoB 2005b). The FO provided the legal basis for the designation of protected areas (Hartshorn et al. 1984; Leslie 1997). Thus, the CLO gave the government control over all public or "crown' lands while the FO relegated authority to the appropriate government official to set aside forest reserves on an *ad hoc* basis (CEP/UNDP 1996; Leikman et al. 2004) for the purposes of timber exploitation (Hartshorn et al. 1984).

Under these two pieces of legislation, Belize's first attempt at conservation occurred in 1920 with the designation of Silk Grass Forest Reserve and the Mountain Pine Ridge Forest Reserve (UNEP/WCMC n.d). With the passing of the Forest Ordinance in 1927, it became the first piece of legislation that regulated the use of forests despite the fact that the Forest Policy would not be passed until 1954 (GoB 2005b). Under the FO, five forest reserves were designated by 1930 (Silk Grass, Freshwater Creek, Sibun, Vaca, and Columbia River) and became a part of the early protected areas network of Belize (GoB 1998) despite the fact that harvesting of timber species was permitted within these forest reserves. In 1928, Belize's first nature reserve at Half Moon Caye was declared to protect the Red-footed Boobies (*Sula sula*) (Hartshorn et al. 1984; CEP/UNDP 1996; Waight and Lumb 1999). The Half Moon Caye Preserve is significant in Belize's history because it was the first protected area in the country set aside for wildlife conservation. The forest reserves, by contrast, allowed the controlled harvesting of timber species found within their boundaries (GoB 1998).

After 1930, the designation of protected areas (PAs) in Belize entered into a hiatus for almost 40 years (Hartshorn et al. 1984). Needless to say, Belize's forests and wildlife faced numerous threats during this 40 year period (e.g., deforestation, hunting, agriculture) due to increased exploitation of timber resources and agricultural expansion. Though no PAs were designated during this period, a number of legislations were enacted that, in many ways, set the foundation for the designation of PAs in the late 1960's. In 1944, the colonial government passed the Wildlife Protection Ordinance followed by a subsidiary legislation the following year that provided the legal basis for the protection of wildlife (Hartshorn et al., 1984). This act would serve as the basis for wildlife protection until it was replaced by the Wildlife Protection Act in 1981 (GoB 2000). The Fisheries Ordinance was established in 1948 (FOA, 2005) and regulated the harvesting of fish species in all rivers and territorial waters (Hartshorn et al. 1984). Likewise, the Forest policy was instituted in 1954 to add further protection of the forestry sector (GoB 2005b).

In 1958, the Crown Land Ordinance and Forest Ordinance were revised to specifically include both the establishment and management of forest reserves within which timber extraction was allowed under strict regulations (Hartshorn and Green 1985; Leikman et al. 2004) in addition to the Fisheries Ordinance (Hartshorn et al. 1984). Using these two Ordinances, the colonial government designated a total of 15 forests reserves covering almost 20% of Belize by the time of independence (Hartshorn et al. 1984).

Two years after self-government in 1964, the government, with the coaxing of international conservation organizations, acted on the need to increase the level of protection for Belize's forests and its associated diversity by increasing the number of PAs in the country. Thus in 1966, the government assembled the National Parks

Commission with the expressed purpose of identifying areas worthy of national park designation throughout the country; the Commission, consisting of such notables as Henry Fairweather, Albert S. Grant, Louis Lindo, Ronald Clark, and James Waight, completed and submitted their report to the government in 1968 (Waight and Lumb 1999). The commission identified a number of areas that were worthy of protection and strongly recommended that the government designated those areas as national parks.

Furthermore, the government, with the assistance of the United Nations Food and Agricultural Organization (FAO), retained the services of national parks consultant, William O. Deshler, to devise a national park system for Belize. The Deshler report rehashed many of the recommendations suggested by the National Parks Commission including the urgency of passing appropriate legislation such as a wildlife protection ordinance and national park legislation, in addition to providing environmental education about wildlife to both children and adults (Waight and Lumb 1999).

In summary, Belize boasts a long history of setting aside protected areas for the conservation of biodiversity and the controlled extraction of resources. The Crown Lands Ordinance, the Forest Ordinance and the Wildlife protection ordinances were instrumental in providing the legal framework necessary for designation of protected areas and the protection of wildlife in Belize. Cognizant of the need to protect Belize's rich biodiversity in addition to the lobbying efforts of concerned Belizeans and international non-governmental organizations (NGOS) alike, the government commissioned the National Parks Commission and the Deshler Report to provide data on which to create a protected area network. The recommendations of both reports proved integral to the rapid designation of protected areas that was to follow the post-independence years. However, much credit should be given to a new but steadfast group of Belizeans who would later organize into what was to become the Belize Audubon Society (BAS; Craig 2006).

The Role of Belize Audubon Society in Protected Areas Designation in Belize

Interestingly, many of the National Parks Commission members later became instrumental in the establishment of the Belize Audubon Society on February 9, 1969 as a branch of the Florida Audubon Society. The BAS was an environmental NGO whose expressed purpose was to study wildlife and conservation in Belize (Waight and Lamb 1999; Craig 2006). In fact, the five aforementioned individuals all became BAS board members. Using the knowledge they had gained from compiling the National Parks Commission's report and experiencing first hand the threats to Belize's biodiversity as they traveled throughout Belize, these individuals and BAS lobbied the government for the designation of national parks. As a result, the 40 year hiatus of park designation in Belize came to an end. Soon after its establishment, the BAS successfully lobbied the government, using the CLO and FO as their legal premise, to establish Crown Reserves at Rio Grande in 1968 and Guanacaste in 1973 (Hartshorn et al. 1984; Belize Interim First National Report 1998; Waight and Lumb 1999).

The Río Grande crown reserve, which consisted of some 3,644 hectares in the upper valley of the river, was designated as a wildlife sanctuary and natural reserve to protect the watershed in order to minimize erosion and siltation of the Rio Grande

(Hartshorn et al. 1984). Unfortunately, the area was later abandoned and the watershed was deforested for rice cultivation (Hartshorn et al. 1984).

In 1968, BAS, Florida Audubon Society and Florida State University also unsuccessfully lobbied the government to designate 2,362 hectares of land set aside in the Columbia Forest Reserve as a wildlife refuge to be used for research and educational purposes. Even though the boundaries of the proposed wildlife refuge were demarcated and government had agreed to declare the area a wildlife sanctuary, the wildlife refuge succumbed to a rice cultivation project in the same area (Hartshorn et al. 1984; Waight and Lumb 1999).

Guanacaste Park, consisting of 21 hectares near the confluence of Roaring Creek and the Belize River near Belmopan City (Waight and Lumb 1999), on the other hand, was designated as a "Crown Reserve for the use as a national park" (Hartshorn et al., 1984:98) at the entrance to Belmopan City. The main attraction of the park was the large Guanacaste tree (*Enterolobium cyclocarpum*), also called Tubroose in Kriol, that supported an epiphytic flora of over 35 species as well as numerous bird species (Waight and Lumb 1999). Guanacaste Park, at the request of the Ministry of Natural Resources, was BAS' first managed protected area (Hartshorn et al. 1984) informally beginning a long history of co-management between the BAS and the GoB. However, since the National Parks System Act would be passed some eight years later, Guanacaste did not officially become a national park until April 2, 1990.

BAS lobbying efforts continued and in 1977, the Society persuaded the government to declare Crown Reserve Bird Sanctuaries on seven small cayes to protect the rookeries of numerous water bird species (Hartshorn et al. 1984) under the Fisheries Regulations of 177 (FAO, 2005), one of the final piece of legislation passed prior to Belize's independence (Hartshorn and Green 1985). The Fisheries Ordinance, like its predecessor, the Forest Ordinance, ceded authority to the government to establish marine reserves, albeit on an *ad hoc* basis. Like Guanacaste Park four years earlier, BAS was given management authority of the park by the government.

While no other protected areas would be designated until after independence, BAS continued to lobby for the continued protection of Belize's biologically diverse ecosystems. Soon after Belize's independence, the government passed two landmark pieces of legislation – both of which were recommended by the National Parks Commission and the Deshler report – the National Park Systems Act (No. 5, 1981) and the new Wildlife Protection Act (No. 4, 1981) – that set the stage for protected areas development in Belize. The National Park System Act provided the legal framework for the establishment of national parks, natural monuments, and wildlife reserves while the Wildlife Protection Act, greatly improved since the 1944 Ordinance, afforded protection to wildlife recognized under Convention on International Trade in Endangered Species (CITIES) and regulated the use and hunting of other species in need of protection (Hartshorn et al., 1984). Both of these Acts delegated responsibility for their enforcement to the Forest Department (FD) in the Ministry of Natural Resources.

Because the FD lacked the capacity, personnel and financial resources (Hartshorn et al. 1984; GoB 2005b) to adequately administer protected areas, the department was unprepared to deal with this new responsibility given to them under the two Acts. Recognizing its limitations, the government approached the BAS in 1982 and asked the Society to use its expertise and experience in protected areas management to manage and

protect the six major national parks and wildlife sanctuaries (Belesky 2004). Since then, the role of promoting conservation and management of Belize's protected areas increasingly fell to the BAS (Waight and Lumb 1999; Craig pers. comm.). This co-management agreement between the government and BAS was formalized and solidified in 1984 with the signing an agreement that gave the Society the authority to collaborate with the FD and the GOB in the "protection and management of areas designated under the Forestry Acts and National Parks and Refuges Acts" as well as to draft management plans for governments approval for the said protected areas (Hyde 1984). In 1987, the government ceded further authority to the Society to manage and protect protected areas "until further notice" (Neal 1987 in Waight and Lumb 1999). This co-management agreement continued until 1995 when BAS signed a five year tripartite agreement with GOB, and the FD that defined the Society's role in the protection of six protected areas (Waight and Lumb 1999), five of which were terrestrial reserves. Later, the number of PAs under the auspices of the BAS was increased to eight protected areas totaling almost 64,000 hectares (Liekman et al. 2004).

Around this same time, in 1984, when BAS's role in management of Belize's protected areas was solidified, the burgeoning tourism industry became an important source of foreign exchange for Belize (GoB 1998). The partnership between tourism and conservation was soon realized and set the stage for increasing the number of protected areas in Belize.

Types of Protected Areas in Belize

Historically, protected areas (PAs) in Belize were designated primarily for the following purposes in order of importance: exploitation of timber resources (Hartshorn et al. 1984), scenic value (Salas 1993); wildlife protection (Waight and Lamb 1999), and rarely were protected areas designated for ecological or scientific purposes, though the latter purpose is becoming more common. The government's historical emphasis of extractive reserves (e.g., forest reserves) is evident by the sheer number of extractive reserves that currently exist in the protected area network. Of the 94 legally recognized protected areas in 2005 (Fig., 1), 37 are designated as extractive reserves (20 forest reserves and 17 marine reserves) totaling some 13.1% of national territory versus 9.3% percent set aside for conservation and/or biodiversity purposes (Meerman 2005). Additionally, the majority of PAs designated for conservation purposes (e.g., Crooked Tree Wildlife Sanctuary) occurred post independence due to lobbying efforts of both local and international conservation NGOs (e.g., BAS; WWF) and communities (e.g., Community Baboon Sanctuary) and private initiatives of concerned individuals (e.g., Runaway Creek Nature Reserve). Even though the number of PAs for biodiversity conservation has increased, the PA network suffers from gaps (Meerman 2005) that resulted from the historical *ad hoc* nature of PA designation. Consequently, the current system lacks integration and complimentarily of ecosystem types.

To increase complimentarily and integrate the extensive protected area network, GoB recently commissioned a National Protected Areas Policy and System Plan (NPAPSP) to identify gaps and develop a tool for a systematic rationalization of protected areas designation (Meerman 2005b). In addition to identifying gaps and

espousing solid recommendations the NPAPSP was a concerted effort to put biodiversity conservation at the forefront of PA designation and social and economic development (Meerman 2005). Thus, if the recommendations put forth by the report are adhered to, Belize will, for the first time, have a PA system that is informed by policy and gap analysis that is focused on an ecosystem approach and biodiversity conservation rather than an *ad hoc* approach that was focused on extraction of natural resources.

Integration of Conservation, Co-management, and Community Participation

Following independence in 1981, and the implementation of the two major environmental laws that laid the foundation for the National Protected Areas System that wasn't to become a reality for 25 years, the young nation of Belize began exploring innovative types of conservation methods. By assigning BAS power to manage its early protected areas, the GoB began its history in co-management of Protected Areas (PAs) as a way of tapping the resources of international conservation agencies that were anxious to help the young democracy that still had a great deal of its lands forested. As the GoB began expanding its PAs to include Half Moon Caye in 1982 (De Vries et al 2003), Crooked Tree Wildlife Sanctuary (WS) in 1984 and Cockscomb Basin Forest Reserve (FR) in1985, it began relying more on the BAS as a co-management partner; this comangement agreement was formalized in 1984 when GoB asked the BAS to manage six of its protected areas (Waight and Lumb 1984).

In 1985, community participation in conservation began with the declaration of the Community Baboon Sanctuary (CBS). The concepts of co-management and community participation intertwined under the BAS when a great deal of exchange occurred between the CBS and Cockscomb Basin Forest Reserve both of which were administered by the BAS. These early experiments in community participation and co-management were to presage the numerous future agreements the GoB was to sign with community groups, non-governmental organizations and private landowners.

The CBS began as an experiment in community involvement in land management whose mission was to protect the black howler monkeys (called locally "baboons") on the private lands of over 150 subsistence farmers. Each landowner signed a voluntary pledge to abide by a simple management plan for their farms (Horwich 1990a; Horwich and Lyon 1988, 1995, 1998).The main goal was to maintain aerial corridors for the howlers (Lyon and Horwich 1996; Horwich and Lyon 1998). The significance of the CBS in Belize was three fold: 1) it was the first time a community participated actively in conserving its land and protecting its wildlife, 2) the land being protected was private, and 3) the CBS was to act as a model for other communities country-wide. The step the seven communities of the CBS (Flowers Bank, Scotland Half Moon, Bermudian Landing, Double Head Cabbage, Willows Bank, St. Paul's Bank and Big Falls) took had a wide-ranging effect by encouraging other communities directly and indirectly to participate in conservation (Horwich 2005) and to participate in the new ecotourism industry that was soon to become one of the leading industries in Belize's economy (Boo 1990; Lindberg and Enriquez 1994).

Protected Area management and community participation began to immediately influence each other. Under the direction of BAS' first Director, Walter Craig, the Cockscomb Basin Forest Reserve and the CBS histories became intertwined (Horwich and Lyon 1999; Horwich et al. 1993a). While the CBS was learning about traditional protected area management, Cockscomb Basin was utilizing local human resources from the adjacent village of Maya Centre, hiring Ignacio Pop as the first warden and later Ernesto Saqui as the first director of Cockscomb Basin protected area. As the park expanded, so did the local staff and the economy of Maya Centre became integrated with the protected area as economic benefits accrued from salaries and later from crafts sold to park visitors (Boo1990; Lindberg and Enriquez 1994; Horwich and Lyon 1999; Horwich et al. 1993a). These benefits became so important that when, much later, a political representative of the area proposed deregulating the protected area to distribute lands to the people, the community objected and stopped it from occurring (Saqui pers. comm.). Later in 1992-4, these two communities cooperated in translocating howlers from the CBS to create a new population in Cockscomb where they had been locally extirpated since the 1970s (Horwich et al. 1993b, 2002; Koontz et al. 1994).

The Community Baboon Sanctuary as a Belizean Model

As the CBS became widely publicized nationally and internationally (ABC/Kane 1991; National Audubon Society 1991; Project Lighthawk 1992; Lipske 1992; Koontz 1993; Wildlife 1994), it influenced other Belizean communities to become active in conservation activities (Anon 1994; GoB 1998). It first directly influenced Monkey River Village, when in 1988, the BAS and the Belize Tourism Industry Association (BTIA) took Fallett Young, the CBS' first Manager to address community members about CBS's conservation efforts in the Belize River Valley (Anon. 1988; Horwich et al. 1993a). Because Monkey River had a significant population of howlers, residents soon saw the potential for Monkey River to participate in the growing conservation and ecotourism efforts that were developing. They eventually initiated the process to create Payne's Creek National Park in 1991(Monkey River Village Council 1991; Horwich et al. 1993a).

Three more efforts have been documented to duplicate the community work initiated by members of the CBS and their US advisors. The first was when Greg Smith, an expatriate living on Ambergris Caye, initiated a community effort based directly on the CBS method, organizing landowners of beach properties to protect turtle nesting beaches of Ambergris Caye in 1990 (Horwich et al. 1993a). When Horwich and Lyon, of the newly created Community Conservation (CC) organization began to duplicate the CBS model in Gales Point, Manatee, in 1992 (Lyon and Horwich 1996), Smith moved his focus to work with the villagers of Gales Point to protect a significant population of nesting hawksbill turtles on the beaches on either side of the river entering the Southern Lagoon. Predators were destroying almost all nests. This project, managed by Gales Point villagers, Kevin and Leroy Andrewien (an ex-turtle hunter) and Dickie Slusher, continues to the present and has released about 12,000 young turtles per year since its inception in 1992.

Two other projects were initiated using the CBS model, the Slate Creek project in 1991 (Bevis and Bevis 1991; Anon 1997a) and the Community Hicatee Sanctuary at

Freetown Sibun on the Sibun River. The Slate Creek project involves private landowners and functions as an important buffer to the adjacent Mountain Pine Ridge Forest Reserve (Slate Creek Preserve 2006). It has worked with local communities including Siete Milas in protecting its natural environment. Siete Milas also now works with Itzamna, a community-based organization co-managing the Elio Panti National Park in the Mayan Mountains (Garcia pers. com.).

In 1994-5. the Community Hicatee Project (Anon 2000) was stimulated by work carried out by John Polisar , a US student, on the endangered Central American River turtle (*Dermatemys mawii*), the hickatee, under the CBS (Polisar 1995; Polisar and Horwich 1994). This Community Hicatee project, coordinated by Freetown Sibun chairman, Hubert Neil and later under the Sibun Watershed Association obtained a UNDP grant in 1997 (Neil 1998) and created a visitor center but has been relatively quiescent to present.

Indirectly, many rural communities in Belize, seeing the efforts of the CBS villages, realized that they too could participate in the growing conservation/ecotourism movement. They saw the potential in having protected areas within their midst and began to initiate the process with the GoB to create protected areas adjacent to their communities (Horwich and Lyon 1999). St. Margaret's village, led by expatriate Lee Wengryn initiated the establishment of Five Blues Lake National Park on Earth Day 1991 (Horwich and Lyon 1999). The Association of the Friends of Five Blues Lake NP formed in 1993, created a management plan draft assisted by CC (Gerlitz 1994) and was the first community-based group to negotiate with the Forestry Department to co-manage a protected area (Anon 1997b). Community Conservation also initiated a community project in Gales Point with the help of the Ministry of Tourism and Belize Enterprises for Sustainable Technology (BEST) in 1991 (Horwich and Lyon 1998, 1999; Horwich et al. 1993a).

Recent History of Protected Areas, Co-management and Community Participation

The late 1980s to early 1990s was a time of further protected area declaration. In 1988, Programme for Belize, a private NGO was established as the first private protected area (Programme for Belize 2003). In 1989, the International Tropical Conservation Foundation of Switzerland followed suit creating the Shipstern Nature Reserve (Meerman and Boomsma 1993) and in 1990 Monkey Bay Wildlife Sanctuary was declared a private reserve.

In 1990, the GoB created the Bladen Nature Reserve and expanded the Cockscomb Basin Reserve Forest to over 100,000 acres (Anon 1990). The original Cockscom Basin, while created as the first sanctuary to protect jaguars, in reality, would have protected only a hand full of those predators that require a large home range. Thus, the GoB now had a realistic protected area for jaguars. In 1991, Laughingbird Cay and Monkey Bay NP were created.

Toledo, often forgotten and a stronghold of the indigenous Mayan community, was beginning to strengthen its organization and push for both indigenous rights and an indigenous voice in land use and conservation. As early as 1978, the Toledo Maya Cultural Council was created (Coc 1989). More than a decade later in 1992, the Kekchi

Council and Toledo Alcaldes Association were formed. When a proposal by Horwich and Chet Schmidt proposed a Toledo Biosphere to include protection of the Sarstoon-Temash area, Columbia Reserve Forest and the Sapodilla Cays (Horwich 1990b), a number of the Mayan Villages were interested as were other communities; however, the GoB was not yet interested in the idea (Horwich 2005).

In 1994, the GoB continued creating protected areas including Sarstoon-Temash, Rio Blanco NP and Payne's Creek NP. A pivotal year for government interest in community participation, 1994, the GoB seemed to respond to the community interest in participating in conservation and ecotourism by sponsoring a conference on Ecotourism. This led to the production of a GoB created video on some of the communities participating in community ecotourism such as Gales Point and St Margaret's Village (Government Information Service 1994). They also produced a Guide to Community Ecotourism (Anon 1994) advertising the facilities that many of the communities were producing and offering for tourists. But this peak of interest waned quickly and both the video and guidebook were not widely circulated. Later, although the GoB still talked about community ecotourism, most of the efforts went toward an economically higher level of tourism (Horwich and Lyon 1999).

However, it wasn't only the GoB who left the communities dangling but conservationists as well. While talking about community participation, the conservation community as a whole was expecting too much from the untrained communities without providing them with the resources to play their part as co-managers. The conservation community and GoB were not providing these communities with neither the financial resources nor the training to be competent co-managers. Despite this, some community-based organizations like the CBS were able to create a mechanism for financial stability. Others like the Friends of Five Blues were able to establish relationships with foreign organizations and volunteers to struggle to maintain their CBO and co-management positions.

Despite the lack of training and finances, community interest continued and in 1995 the Association of Friends of 5 Blues Lake NP signed a formal co-management agreement with the GoB. BAS signed agreements to co-manage six other PAs with the GoB a year later in 1996 (Leikam et al 2004) The GoB continued creating protected areas, particularly in the marine realm creating Bacalar Chico NP, Sapodilla Cayes, and South Water Cay Marine Reserve in 1996.

In 1997, the Inuit Circumpolar Conference sponsored a co-management workshop in Toledo. In their advertisement material, they featured the Community Baboon Sanctuary as an example of co-management (Kekchi Council of Belize and Inuit Circumpolar Conference 1997; Inuit Circumpolar Conference and Kekchi Council of Belize 1997) . That same year, the Mayan mapping project was carried out in which Mayan villages in Toledo created maps of their villages (Toledo Maya Community Council and Toledo Alcaldes Association 1997).

Later that same year, Community Conservation with the help of Judy Lumb initiated the process for a stakeholders workshop for the Sarstoon-Temash NP (Anon 1998a). Since the various stakeholder villages had little knowledge of the NP and its boundaries that had been established two years earlier, they were reticent to come to the meeting. Horwich and Lumb accompanied by photographer Jim Beveridge and others traveled to Barranco and then by foot to Midway, Conejo, and Sunday Wood to invite

and convince the villagers that it was in their interest to attend this stakeholder meeting. The meeting, mediated by Sebastian and Fabian Cayetano, resulted in the publishing of the transcripts (Anon 1998a) and, more importantly, laid the foundation for the participation of the villages in the management of the NP. Later, SATIIM formed as an indigenous organization in 1998 (Anon 1998b) and helped organize the Sarstoon-Temash Stakeholder group with the help of a UNDP grant (Caddy et al. 2000).

In 1997, Cockscomb officially became a Wildlife Sanctuary (Leikam et al 2004), the Ya'axche Conservation Trust and the Aguacaliente Management Team were created and Toledo Institute of Development and the Environment (TIDE) was initiated as an independent group having originated as the Toledo office of the Belize Environmental Center directed by Lou Nicolait. In 1998, a number of other protected areas were created including three marine reserves (Cay Caulker MR, Corozol Bay MR, Blue Hole MR) and Aguacaliente WS. That year, as well, the Golden Stream Preserve was created by Flora and Fauna International as a private protected area that would be eventually managed by the Ya'axche Conservation Trust (2004). A year later, BAS added two more PAs to its managerial responsibilities (Leikam et al 2004).

The stakeholders meeting for the Sarstoon-Temash (Anon 1998a) became a pivotal time for community co-management. Shortly following that meeting, Horwich of CC realized that a larger grant was needed in order to involve a number of PAs and their community co-managers. Horwich conferred with Humberto Paredes of PACT and Richard Belisle of the Forestry Department to garner support in pursuing such a grant. Jon Lyon of CC took the lead in conferring with the NY office of UNDP and CC developed the original proposal. PACT, interested in taking the lead as the in-country NGO, worked with CC to develop the final proposal for a community co-managed park system (PACT 1998) that was to include four potential community co-managed areas: Freshwater Creek Forest Reserve, Five Blues Lake National Park, Gales Point Manatee and Aguacaliente WS. The Sarstoon-Temash NP was also to be included but those stakeholders decided to pursue their own grant. The project was carried out between 1999 and 2001 (Ravndal 2002).

The PACT-CC partnership began the Co-management grant in 1999 with Horwich and Lyon and the newly appointed project manager Lisell Alamilla, meeting with the four community groups and CC creating maps and compiling histories for the four protected areas. By mid-1999, despite CC's original vision, a steering committee formed to oversee the project, decided to terminate CC's participation in favor of using Belize consultants and advisors. At the termination of the project, UNDP sent an independent party to evaluate the project (Ravndal 2002). Ravndal's philosophy (pers comm.) was that a project evaluation should have the expressed goal of improving the situation. She developed a list of critical barriers that she felt limited the success of the project. The GoB took these critical barriers very seriously and with other stakeholders met in 2002 to discuss how to progress based on Ravndal's critique. This pivotal event led the GoB to create a Protected Areas System Plan in 2004 that was completed by the end of 2005 and presented to the conservation community in early 2006 (GoB 2005).

A second large grant followed in 2000 to BAS from the European Union with the intent to explore the potential for community co-management in Crooked Tree WS and Cockscomb Basin WS that were administered by BAS (Leikam et al. 2004). That year, SATIIM initiated plans for an $800,000 Global Environmental Fund grant to develop the

Sarstoon-Temash NP that was carried out from 2002-5 (Caddy et al. 2000; Horwich 2005).

The barrier reef, one of Belize's most valuable national treasures was not going unnoticed. The Mesoamerican Barrier Reef System Project was created in 1997 when Mexico, Belize, Guatemala and Honduras committed to protect this important resource (Mesoamerican Barrier Reef System 2006). The early 2000s marked a spurt in marine protection when the Project for the Conservation and Sustainable use of the Mesoamerican Barrier Reef System was launched in 2001. In 2000, TIDE signed the first agreement for a Marine Reserve. The same year Port Honduras and Gladden Spit MR were created and Toledo Association for Sustainable Tourism and Empowerment (TASTE) was formed. TASTE quickly joined the ranks of co-managers by signing an agreement in 2001 with the Fisheries Department to co-manage the Sapodilla Cayes. Mayflower Bocawina NP was also created in 2001 followed by Swallow Cay and Gra Gra Lagoon NP in 2002.

Community Participation and the National Protected Areas Policy and Systems Plan

The late 1990s was a time of great conservation activity. The early beginnings of a National Protected Areas Plan occurred in the 1990's when WWF and USAID collaborated in a National Resource Management and Protection Project (NARMAP). That resulted in an initial National Protected Areas System Plan (NPASP) published by Programme for Belize with assistance from the Inter-American Development Bank (Botnick et al. 2000). The second major accomplishment was the creation of the Protected Area Conservation Trust (PACT) in 1996. PACT was established as a statutory body after several years of consultation and meetings with various non-government organizations, government departments, private sector and international conservation organizations. Through PACT, Belize was able to gain additional revenues for conservation from the increased ecotourism. A survey of tourists showed that they would be willing to pay as much as a $20US tax if they knew it would go toward the conservation of Belize (Spergel, 1996). Afraid that too high a tax would deter tourism, a modest $3.75US tax was established instead with PACT as the recipient and distributor of the collected monies to the competing co-managers (Spergel 1996).

Development of the more recent NPAPSP (GoB 2005) serendipitously began with the proposal by Community Conservation in 1997, following the Sarstoon-Temash Stakeholders meeting, with the goal to strengthen the community co-management sub-system as a whole. Following the implementation of that UNDP grant in 1999-2001, a final evaluation noted a number of deficiencies in the system that prevented the success of the project (Ravndal 2002). It highlighted the absence of an integrated national management plan for protected areas as a primary weakness (Salas 2003). This led to a series of meetings in 2002-3, sponsored by BAS and UNDP, that included NGOs, CBOs government agencies and PACT, that led to a process of formulating a national policy and plan for protected areas (Salas 2003)**.** This involved a two year program involving a NPAPSP Task Force that ended in December 2005 and included guidelines and criteria for financial sustainability, co-management, and creation and de-reservation of terrestrial and marine protected areas.

Strengthening Future Community Co-Management of Protected Areas in Belize

During the past five years, a wide-range of activities has stimulated and created an environment that produced a unique opportunity to explore and enhance the community co-management process in Belize. The key activities that have created this new environment include:

- The Protected Areas Conservation Trust (PACT) Co-management Project (1999-2002) added knowledge of community co-management (Lyon and Horwich, 2004; UNDP, 2002) and its evaluation (Ravendal, 2002; UNDP, 2002);
- The Government of Belize (GOB) and its communities took the lead in signing many community co-management agreements;
- The GoB developed a comprehensive Protected Areas Policy and System Plan (Briceño, 2004; GoB 2003, 2005);
- The U.S. Peace Corps-Belize created a revised Peace Corps project plan for Belize to support community co-management and community-based ecotourism initiatives (Miller, 2004).

As conservationists, researchers and government staff, we have not helped community-based groups to achieve competence and empowerment to do their job as co-managers. We have expected them to perform with inadequate knowledge, training and finances. We must help them to obtain these necessities so they can participate fully and do the job we expect of them. Ravndal's report (2002) indicated specific critical barriers preventing effective co-management of protected areas in Belize. Many have been addressed in the last two years by creating a protected areas policy and system plan and by reviewing existing policy and legislation (Meerman 2005; GoB 2005). Others still need to be addressed to strengthen the community co-managers if the system is to work.

Defining Co-Management in Belize

What is it we mean by co-management and what do we expect of our community co-managers? Co-management of natural resources has been defined in numerous ways (Borrini-Feyerabend et al. 2004). In its broadest sense, co-management can refer to any type of collaborative management between any number of parties including individuals, clans or other tribal units, non-governmental organizations or governmental entities. It can refer to the co-management of a great variety of resources including soil, water, agricultural systems, grazing lands, forests (Poffenbeger and Gean 1998), fisheries (Berkes, 1989; Singleton, 1998), tree crops, wildlife (Murindagomo 1990), coastal resources (Pomeroy and Goetze 2003), wetlands, private property (Alderman 1990) and protected areas.

There are two basic types of co-management in Belize today: NGO and CBO co-management which can be used on public lands. There is also co-management of private protected areas by NGOs, private individuals and communities. Examples of private co-management include the Ya'axche Conservation Trust management of Golden Stream

Corridor Preserve, Programme for Belize's management of its Rio Bravo Conservation and Management Area, and management of recently acquired lands by Toledo Institute for Development and Environment (TIDE), Shipstern Nature Reserve and Monkey Bay Wildlife Sanctuary among others. Examples of co-management of public lands include Cockscomb Basin and other PAs co-managed by BAS and those PAs co-managed by community groups or other NGOs (see Table 1).

A simple working definition of community co-management of PAs is *the equal sharing of power and responsibility between government and a local community unit, with advisory involvement of an NGO where possible and desired, in the management of a protected area by members living on, near or adjacent to it.* Often plagued with deficiencies, these community projects must be strengthened by addressing core issues.

Recommendations for Strengthening Co-managerial CBOs

1. Small Seed Money - Consistent seed money is necessary in initiating and maintaining small community-based conservation projects. This may seem obvious, yet many projects must continuously apply for yearly grants with no idea if their requests will be awarded. Thus, a great amount of time, energy and human resources are used by these groups in researching funding opportunities, proposal writing and other tasks connected to grant writing. The lack of success in obtaining continual funding creates funding gaps that can bleed enthusiasm from the project and cause discontinuity within the community organization. Integrated funding packages ought to include basic salaries and operating expenses to keep a project alive and functioning.

The Community Baboon Sanctuary was maintained on a continuum of small grants for its first five years (1985-90; Horwich and Lyon 1995). In contrast, the Gales Point community effort experienced major gaps in funding (Horwich and Lyon, 1998). Had the money been spread over all of the years, arguably much more could have been accomplished without discontinuity in community motivation. The Association of Friends of Five Blues has had a similar challenge in funding. To offset this discontinuity in financial resources for salaries, they had success in attracting foreign volunteers as coordinators that has allowed them to continue at a low level without continuity in financial support.

One solution to this barrier is for government agencies, NGOs and the parastatal PACT to work collectively with funding agencies to devise a plan to finance specific community projects on a 3-5 year basis. Thus, any such project would be given a chance to develop without the burden of focusing time and energy on seeking short term funding cycles. This could be either at a partial funding level, where they could also begin grant writing for complementary project activities or could be at a full funding level. Protected areas that might not have sufficient resources for financial sustainability might be chosen for longer term funding if the project and CBO are developing and performing successfully.

2. Financial Mentor - A trend in Belize is that certain NGOs attract international donors who serve as a steady funding partner for them (DeVries et al. 2003). To some extent these agencies have been more than just funders and have made a strong commitment to these local NGOs, including financial support, training and long term

mentoring. Programme for Belize started this way in 1988 with the Massachusetts Audubon Society and later with The Nature Conservancy (TNC). TIDE has benefited greatly through their association with TNC. Flora and Fauna International (FFI) has helped purchase land and fund management of the Golden Stream Corridor Preserve and the local partner Ya'axche Conservation Trust. Friends of Nature (2004) attracts support from Conservation International, TNC and the Oak Foundation.

Most community-based projects have had much less success attracting external funding. Often community projects are only able to attract short-term grants that in many cases serve only to create funding instability in future years. Attempts should be made to connect community-protected areas with funding partners.

3. NGO Mentoring - NGOs could serve as effective mentors to strengthen CBOs with the long term goal of "spinning off" these community groups as fully trained and empowered groups capable of managing their respective protected area. The role of NGOs in mentoring CBOs should be examined. While NGOs have been concerned mainly with their own projects, there is a potential win-win situation in maximizing the conservation success of NGOs while strengthening CBOs to take over co-management of the protected areas adjacent to their communities. Three cases in particular should be examined. Paynes Creek National Park was created by GoB due to petitioning of community groups representing Monkey River and Punta Negra Villages. Those same villages showed interest in co-managing the National Park (De Vries 2003). However, TIDE, which has been working with them, instead, is co-managing Paynes Creek with the GoB. TIDE's potential in mentoring those communities to manage that park could be a very positive situation. There is a great deal of work to do in the management of protected areas in Belize and with NGO mentoring, these villages could develop as responsible stewards and enable more benefits to accrue to local communities. Similarly, the Sarstoon-Temash Institute of Indigenous Management (SATIIM) is currently working toward a co-management of the Sartoon-Temash National Park. They are looking in the direction of expanding their sphere of influence to include community-controlled areas modeled on the Toledo People's Eco-Park Plan embraced by TEA (Schmidt and Ack, pers. comm.; Choc pers comm.). The Belize Audubon Society (BAS) looked at expanding the influence of the communities around the Cockscomb Basin Wildlife Sanctuary and Crooked Tree Wildlife Sanctuary (Leikam et al. 2004). When the BAS offers those communities more autonomy over park management, perhaps it will free BAS to use their vast experience in protected area management to mentor other communities to become better stewards of their nearby protected areas. As noted earlier, Programme for Belize has been mentoring communities in the Belize River Valley (Leikam et al. 2004), and Friends of Nature of Placencia is looking to assist surrounding community efforts. In both cases, this mentoring will strengthen the protected areas system and facilitate integrated regional planning and communication.

In Belize, CC worked with World Wildlife Fund as an initial donor, the Milwaukee County Zoological Society as a secondary donor and the Belize Audubon Society as the in-county administrator until the Community Baboon Sanctuary (CBS) became independent. Currently, CC works with Stockton College in fund raising for the CBS and deals directly with the Women's Conservation Group from the CBS in advising them and providing them with books and posters for sale. As the effort in Belize

expanded, CC worked with other community groups as well as the Peace Corps-Belize to further and strengthen community co-management in Belize.

4. Project Support Coordinator - A coordinator who can effectively work with a community group has been shown to help the whole community conservation process (McLain, 1997). It was the function that Horwich (1990a) served for the Community Baboon Sanctuary and is currently being served by Peace Corps Volunteers in a number of community conservation projects in Belize (Miller 2004; see Table 2). In the CBS, we stressed our role, as foreigners, as "transient catalysts" who would be ultimately replaced by a local person (Horwich and Lyon 1995). In the cases of Spanish Creek Wildlife Sanctuary and Mayflower Bocawina National Parks, support coordinators have worked well in providing training, grant writing and general business development skills. Additionally, those communities become eligible for Small Project Assistance (SPA) grants through the Peace Corps. In the early stages of protected area formation and management, the BAS used such an approach in the Cockscomb Basin Wildlife Sanctuary and the Crooked Tree Wildlife Sanctuary (Horwich and Lyon 1999; Horwich et al 1993a). The project support coordinator serves as a mentor for skills transfer, connecting the community with both in-country and international resources and for general moral support. The role of the project support coordinator ultimately is temporary in that ideally the coordinator would train counterparts from the local community to replace them and assume the management support role.

5. Community Training - Another critical barrier in community conservation projects is the lack of experience, knowledge and expertise for community members to act as empowered managers. Bernstein (2005) has determined 13 areas of training that would help strengthen community co-managers. These include: conflict resolution, natural resource and protected area management, organizational development, proposal/grant writing, meeting facilitation, project monitoring and evaluation, survey methods, business management, operation planning, biological monitoring, communications, and other related work skills such as tourism, environmental education and empowerment. A long-term integrated training program only can address this comprehensive need.

Working with the Peace Corps and the Belize Forest department, CC initiated a series of training seminars for both Peace Corps support coordinators and community co-managers (Bernstein 2003). One idea for short-term intervention that came out of the 2004 Peace Corps in-service training workshop was that a team of Peace Corps Volunteers with advanced training in business skills might function as a consultant team to train a number of communities. Volunteers could work intensively with one community at a time for up to three months and then continue to make themselves available on short-term consultant-basis as needed after the initial training period was over. Community training ought to be long-term, consistent, sustainable and designed to address the perceived needs and realities of each project in conformity with the National Protected Areas Policy and System Plan.

Conclusion

Even through Belize boasts a long history in setting aside protected areas for extractive purposes, the designation of protected areas for the preservation and protection of ecosystems and biodiversity is becoming increasingly common. Since independence, the number of protected areas in Belize has increased rapidly to 115 management units that include 94 protected areas (GoB 2005) accounting for 36% of Belize's national territory (Meerman 2005b). Currently, protected areas declared for conservation purposes comprise 9.3% of national territory (Meerman 2005b) and will most likely increase in the near future since numerous gaps in the protected area system was recently identified (Meerman 2005c). At the same time, Belize has been exploring creative alternatives to traditional kinds of conservation and land management. These ideas and their inherent flexibility will help Belize in ensuring a more secure environment in its future. But the future is already displaying new complexities that will require creative solutions. As Belize's population continues to grow at 2.7% per year, our population will double in only 26 years (CSO 2000); this drastic increase in population coupled with the simultaneous threats from climate change, cruise tourism, ecotourism, escalating poverty and crime, pollution (e.g., solid waste), and rampant deforestation will put immense strain of the country's natural resources and protected areas. Thus, new problems and challenges will begin to arise that Belize must be able to deal with and mitigate.

So how do we proceed in a way that will be sustainable in the future? The National Protected Area System Plan has provided a roadmap of where we are and where we need to go in terms of protecting biodiversity and increasing the management of existing areas. Its findings and recommendations must be implemented. Additionally, the idea of co-management initially embraced by the GoB is a step in the right direction; nonetheless, concrete and practical steps (e.g., seed money, financial mentoring, NGO mentoring, project support coordinator, and community training) must occur if co-management agreements are to become sustainable and aid in the conservation of Belize's abundant resources. With that said, the principles of sustainable ecotourism must be adhered to in order for communities to benefit economically. To that end, GoB must ensure that the playing field remains equitable to all Belizeans and not only for the fortunate few. Simultaneously, NGOs and other stakeholders (e.g., funding agencies) have an equally important role to play. They must ensure that CBOs have the capacity, experience, and financing to properly implement co-management agreements by fostering long-term mentorship and capacity building of community-based groups. Finally, a national initiative that will link and partner local NGOs and CBOs with each other to allow the sharing of best practices and effective strategies must be undertaken. We believe that if communities are equipped with the relevant training and capacity, they will become empowered and work hard to mitigate the numerous challenges and threats that Belize's protected areas will soon face.

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Table 1. A summary of NGO and CBO managed protected areas in Belize. *agreement signed. (after GoB 2005; Leikam et al. 2004).

Co-managed PA	Year Est.	Acreage	Co-managed Agency
NGO Co-managed			
Half Moon Caye NM	1982	9,771	BAS
Crooked Tree WS	1984	41,297	BAS
Blue Hole NP	1986	665	BAS with Armenia
Cockscomb basin WS	1990	128,000	BAS
Bladen NR	1990	99,670	Bladen Consortium
Guanacaste NP	1994	58	BAS
Tapir Mountain NR	1994	6,744	BAS
Payne's creek NP	1994	31,676	TIDE
Sarstoon Temash NP	1994	41,898	SATIIM
Blue Hole NM	1996	1,023	BAS
Laughingbird Caye/Gladden Spit	1996	10,119	Friends of Nature
Victoria Peak NM	1998	4,847	BAS
Port Hondoras MPA	2001	96,731	TIDE
Actun Tunichil Muknal	2004	457	BAS
Man of War Caye	1977	13	BAS
CBO Co-managed			
*5 Blues Lake NP	1994	4,061	Assn of Friends of 5 Blues
*Rio Blanco NP	1994	100	Rio Blanco Mayan Assn
Monkey Bay NP	1994	1,799	Guardians of the Jewel
Sapodilla Cayes MR	1996	38,594	TASTE
*Bacalar Chico NP	1996	12,810	Green Reef
Freshwater Creek FR	1997	61,177	Friends of Freshwater Creek
*Aguacaliente WS	1998	5,492	Aguacaliente Mgmt Team
*F and MR of Cay Caulker	1998	94	FAMRCC
Honey Camp NP	2000	7,772	Assn of Friends of Freshwater Creek
Mayflower Bocawina NP	2001	7,107	Friends of Mayflower Bocawina NP
*Noj Kaax Meen Eligio Panti NP	2001	12,936	Itzamna Society
*Billy Barquedier NP	2001	1,500	STACA
GraGra Lagoon NP	·2002	1,197	Friends of GraGra Lagoon
Spanish Creek Wildife Sanctuary	2002	5,985	Rancho Dolores Env, and Dev. Group
*Swallow Cayes WS	2002	8,970	Friends of Swallow Cayes
Davis Falls		94,156	Friends of Valley
Private			
Community Baboon	1985	12,980	Women's Conservation Group

Sanctuary			
Golden Stream	1998	15,038	YTC
Rio Bravo and C&MA	1988	259,206	Programme for Belize
Shipstern NR	1988	20,333	ITCF
Monkey Bay WS		1,150	Monkey Bay
Runaway Creek		7,124	(BB/ASF)
Boden Creek Ecological Reserve		7,600	Belize lodge and Excursions
Aguacate Lagoon		284	
Block 127		9,232	TIDE

Figure 1. Map of Protected Areas in Belize as of August 2005. *Source*: Meerman, J.C. 2005. National Protected Areas System Assessment and Analysis: Protected Areas Analysis.