

Park Management Plan Signature Page

This plan was prepared to provide a framework for the management of the environmental resources and cultural values of the Chiquibul National Park. The plan was developed in consultation with the members of the buffer communities, private sector representatives, the FCD Board of Directors, the Forest Department of the Government of Belize, and other concerned and involved government and non-government stakeholders. It is submitted to FCD and the Forest Department as per the Park Co-Management Agreement.

Statement of Approval

I have reviewed the enclosed Park Management Plan for the Chiquibul National Park and approve the activities and strategies laid out for the achievement of the park's objectives contained therein. I further agree that the objectives and strategies presented herein offer the best options for achieving the sustainable development and conservation management of the park, while addressing the social and cultural needs of buffer communities and the country of Belize as a whole. In testimony of this, we inscribe our signatures:

FCD Board of Directors:

_____ Name	_____ Representing	_____ Date

Chiquibul National Park Management Plan 2008-2013

Government of Belize:

Wilber Sabido

Chief Forest Officer

Date

Hon. Gaspar Vega

Minister of Natural Resources
& the Environment

Date

Table of Contents

Executive Summary	6
Acronyms	8
1. Introduction.....	10
1.1 <i>Background and context</i>	10
1.2 <i>Purpose and Scope of the Management Plan</i>	11
2. Current Status	13
2.1 <i>Location</i>	13
2.2 <i>Regional Context</i>	15
2.3. <i>National Context</i>	16
2.3.1 Policy Framework.....	17
2.3.2 Legal and Administrative Framework	18
2.3.3 Socio-economic Context	20
2.4 <i>Physical environment of CNP</i>	23
2.4.1 Climate	23
2.4.2 Hydrology	24
2.4.3 Geology.....	26
2.4.4 Soils.....	26
2.5 <i>Biodiversity of CNP</i>	26
2.5.1 Ecosystems	26
2.5.2 Flora.....	30
2.5.3 Fauna.....	30
2.5.4 Past and Present Research.....	34
2.6. <i>Cultural and socio-economic value of CNP</i>	35
2.6.1 Community and Other Stakeholder Use.....	35
2.6.2 Archaeological Sites	36
2.6.3 Tourism and Recreation Use.....	37
2.6.4 Other Economic Use.....	38
2.6.5 Education Use	39
3. Analysis of Conservation & Cultural Targets and Threats	40
3.1 <i>Conservation and Cultural Targets</i>	40
3.2 <i>Threats to biodiversity</i>	43
4. Management and Organizational Background	47
4.1 <i>FCD background</i>	47
4.2 <i>Current management structure</i>	48
5. The Management Plan.....	49
5.1 <i>Management Goal</i>	49
5.2 <i>Management constraints and limitations</i>	49
5.3 <i>Management zones</i>	50
5.4 <i>Management Programmes, Strategies and Objectives</i>	61
5.4.1. Institutional Management and Strengthening Programme.....	62
5.4.2. Administration Programme	65
5.4.3. Research and Monitoring Programme	69
5.4.4. Natural Resources Management Programme.....	72

Chiquibul National Park Management Plan 2008-2013

5.4.5.	Protection and Surveillance Programme	76
5.4.6.	Infrastructure Management Programme.....	80
5.4.7.	Public Use Planning Programme.....	83
5.4.8.	Community Development & Environmental Education Programme	85
5.4.9.	Bi-National Relations Programme	88
5.5.	<i>Recommended Management Structure</i>	91
5.6.	<i>Management actions</i>	94
5.7.	<i>Monitoring and review</i>	125
5.8.	<i>Timeline – Activity Schedule</i>	126
5.9.	<i>Financing – Indicative Budget</i>	157
5.9.1	Indicative Budget – Non-Staff & Investments (Detailed)	158
5.9.2	Indicative Budget – Non-Staff & Investments (Summary)	171
5.9.3	Indicative Budget (Staff Salaries).....	172
	<i>References</i>	173
6.	Appendices	186
	<i>Annex 1 – Listing of Ecosystems found within the Chiquibul</i>	187
	<i>Annex 2 – Species of conservation concern known or expected to occur within the Chiquibul</i>	188
	<i>Annex 3 – Monthly Status Report Form</i>	190
	<i>Annex 4 – Objective, Responsibilities and Targets (ORT) Report Form</i>	191

List of Figures

Figure 1 - The CNP and the Chiquibul Forest area.....	10
Figure 2 - Chiquibul National Park in the context of the CMM area	14
Figure 3 - The Chiquibul NP in relation to protected areas in the region	16
Figure 4 - Terrestrial Protected Areas.....	17
Figure 5 - Administrative Framework for the NPAS	19
Figure 6 - CNP Stakeholders.....	20
Figure 7 - Agricultural incursions into the CNP	22
Figure 8 – Hydrology of the Chiquibul	25
Figure 9 – Geological features within the Chiquibul.....	27
Figure 10 - Ecosystems of the Chiquibul.....	28
Figure 11 – Flora records from the BERDS database	32
Figure 12 – Fauna records from the BERDS database.....	33
Figure 13 – Military training areas in the Chiquibul Forest.....	36
Figure 14 - Major and minor centers of archaeological significance in the Chiquibul	37
Figure 15 – Selected current and potential tourism sites within the Chiquibul Forest	38
Figure 16 – FCD’s organization structure.....	48
Figure 17 – CNP management constraints and limitations.....	50
Figure 18 – Proposed management zonation for the CNP.....	52
Figure 19 – Proposed management zonation for the Chiquibul Forest.....	53
Figure 20 - Protocol for Alteration of Management Zones	60
Figure 21 - Maya Mountains Massif management structure (proposed)	91
Figure 22 - Proposed CNP management structure.....	92

List of Tables

Table 1 - Stakeholder Analysis for the Chiquibul National Park.....21
Table 2 – Mineral potential within the Chiquibul Forest.....23
Table 3 - Listing of Plant species of conservation concern.....30
Table 4 – Chiquibul faunal records30
Table 5 – Summary of critical impacts to Chiquibul’s biodiversity44
Table 6 – Proposed Future Management Zones (2008-2013)54

List of Boxes

Box 1 – Protected areas adjacent to CNP.....13
Box 2 – Hurricanes affecting the Chiquibul in the past 100 years24

Executive Summary

The Friends for Conservation and Development (FCD) is an environmental, non-profit, non-governmental organization, which was founded in 1999. FCD's strategic plan (2004-2006) provides for the organization to engage in protected areas management with an interest on the protected areas located in the Cayo District. From 1993, FCD has been conducting monitoring and research, and raising awareness about the plight of the Chiquibul Forest. The Forest Department and FCD signed a provisional co-management agreement for the CNP on the 1st June 2007. The agreement sets out the following provisions:

- Development of a Management Plan that provides for the protection of the natural and cultural resources of the Chiquibul National Park;
- Institution of a Protection Program for the conservation of the ecosystems and species in the Chiquibul National Park,
- Development of a Research and Monitoring Program to conserve the park's critical biodiversity;
- Implementation of a Public Awareness Campaign that promotes the importance of the Chiquibul National Park; and
- Launching of a Chiquibul National Park financial sustainability plan to enable effective long term management.

This Management Plan will not only guide FCD's work in the Chiquibul National Park for the next five years, but it also fulfills the first requirement of its provisional co-management agreement. This management plan also forms the basis for CNP's fundraising and financial sustainability strategy, which is the final major planning step that FCD needs to undertake. The following statement forms the core of the CNP's management focus for the next five years:

Management Goal: The Chiquibul National Park functions as a core area of protection of biological diversity within the Chiquibul forest and is recognized within the Greater Chiquibul/Maya Mountains Region for its intrinsic natural and cultural values, whilst contributing to national development, regional security and cooperation, and enhancing and maintaining its ecological integrity.

Nine management programmes have been identified for the Chiquibul National Park. They are as follows:

- Institutional Management and Strengthening
- Administration
- Research and Monitoring
- Natural Resources Management
- Protection and Surveillance
- Infrastructure Management
- Public Use Planning
- Community Development and Environmental Education
- Bi-National Relations

Each of these management programmes have a set of management objectives that, when grouped, aim to achieve the CNP Management Goal.

Acknowledgements

The Consultants wish to thank all the persons who contributed information and shared their expertise during the literature review and information gathering stage of the Chiquibul National Park management planning process.

Special appreciation goes to the participants of the multiple planning sessions. These participants represented the gamut of CNP stakeholders – government agencies, non-government agencies, resource users, and private sector agencies such as Pine Lumber Company and Boiton Minerals to name a few. Your dynamic participation at these sessions was invaluable to the planning effort, and resulted in the definition of CNP's conservation and management goals and strategies for the next five years.

The Consultants wish to extend special thanks to Rafael Manzanero, Derric Chan and Amparito Itzá, who assisted greatly in the logistical preparations, and provided much of the context related to the planning effort.

We are also grateful to FCD staff and CNP rangers for their invaluable contributions, and for being patient with us during the tedious planning exercise.

It goes without saying that this management plan would not have been completed without the support and endorsement of the staff of the Forest Department, Institute of Archaeology and the Department of Geology and Petroleum.

And last but certainly not least, on behalf of FCD, the Consultants extend sincere appreciation to the Protected Areas Conservation Trust, the Critical Ecosystems Partnership Fund, and The Nature Conservancy for their generous financial support.

Acronyms

ALIDES	Regional Alliance for Sustainable Development
APAMO	Association of Protected Area Management Organizations
BACONGO	Belize Alliance of Non Government Organizations
BATSUB	British Army Training Support Unit Belize
BDF	Belize Defence Force
BECOL	Belize Electricity Company Ltd.
BERDS	Biodiversity and Environmental Resource Data System for Belize
BF	British Forces
BNR	Bladen Nature Reserve
BTFS	Belize Tropical Forest Studies
CAP	Conservation Action Plan
CAR	Caracol Archaeological Reserve
CBWS	Cockscomb Basin Wildlife Sanctuary
CCAD	Central American Commission for Environment and Development
CEPF	Critical Ecosystem Partnership Fund
CFAC	Chiquibul Forest Advisory Council
CFMC	Chiquibul Forest Management Council
CFR	Chiquibul Forest Reserve
CI	Conservation International
CMM	Chiquibul - Maya Mountains
CMMKBA	Chiquibul/Maya Mountains Key Biodiversity Area
CNP	Chiquibul National Park
CONAP	Comisión Nacional de Áreas Protegidas
CRFR	Columbia River Forest Reserve
CSO	Central Statistical Office
FD	Forest Department
FCD	Friends for Conservation and Development
GEF	Global Environmental Fund

Chiquibul National Park Management Plan 2008-2013

GIS	Geographic Information System
GOB	Government of Belize
GPD	Geology and Petroleum Department
GPS	Global Positioning System
ha	Hectare
IoA	Institute of Archaeology
IPCA	Indigenous Peoples' Conservation Alliance
IUCN	World Conservation Union
MBCP	Mesoamerican Biological Corridor Programme
MMM	Maya Mountains Massif
MPRFR	Mountain Pine Ridge Forest Reserve
NGO	Non Governmental Organization
NHM	Natural History Museum London
NICH	National Institute of Culture and History
NPAC	National Protected Areas Commission
NPAP	National Protected Areas Policy
NPAS	National Protected Areas System
NPASP	National Protected Areas System Plan
OAS	Organization of American States
PA	Protected area
PARCA	Plan Ambiental de la Región Centroamericana
PLC	Pine Lumber Company Ltd.
SICAP	Central American System of Protected Areas
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UTM	Universal Transverse Mercator
WCPA	World Commission on Protected Areas
WCS	Wildlife Conservation Society
YEAG	Youth Environmental Action Group

1. Introduction

1.1 Background and context

The Chiquibul National Park is Belize's largest protected area, with an extension covering 264,003 acres (106,838 ha). It is located in the administrative region of the Cayo District and, functionally, within a larger forest region known as the Chiquibul Forest (see Figure 1). Besides the Chiquibul National Park (CNP), this region includes the Chiquibul Forest Reserve (147,823 acres) and the Caracol Archaeological Reserve (25,550 acres). The Chiquibul Forest has tremendous geopolitical and regional importance since it abuts the Belize-Guatemala border and is contiguous to the Chiquibul-Montañas Mayas Biosphere Reserve, which is located in the Department of Petén, Guatemala. For practical purposes, this transboundary group of protected areas will hereinafter be referred to as the Greater Chiquibul/Maya Mountains Region.

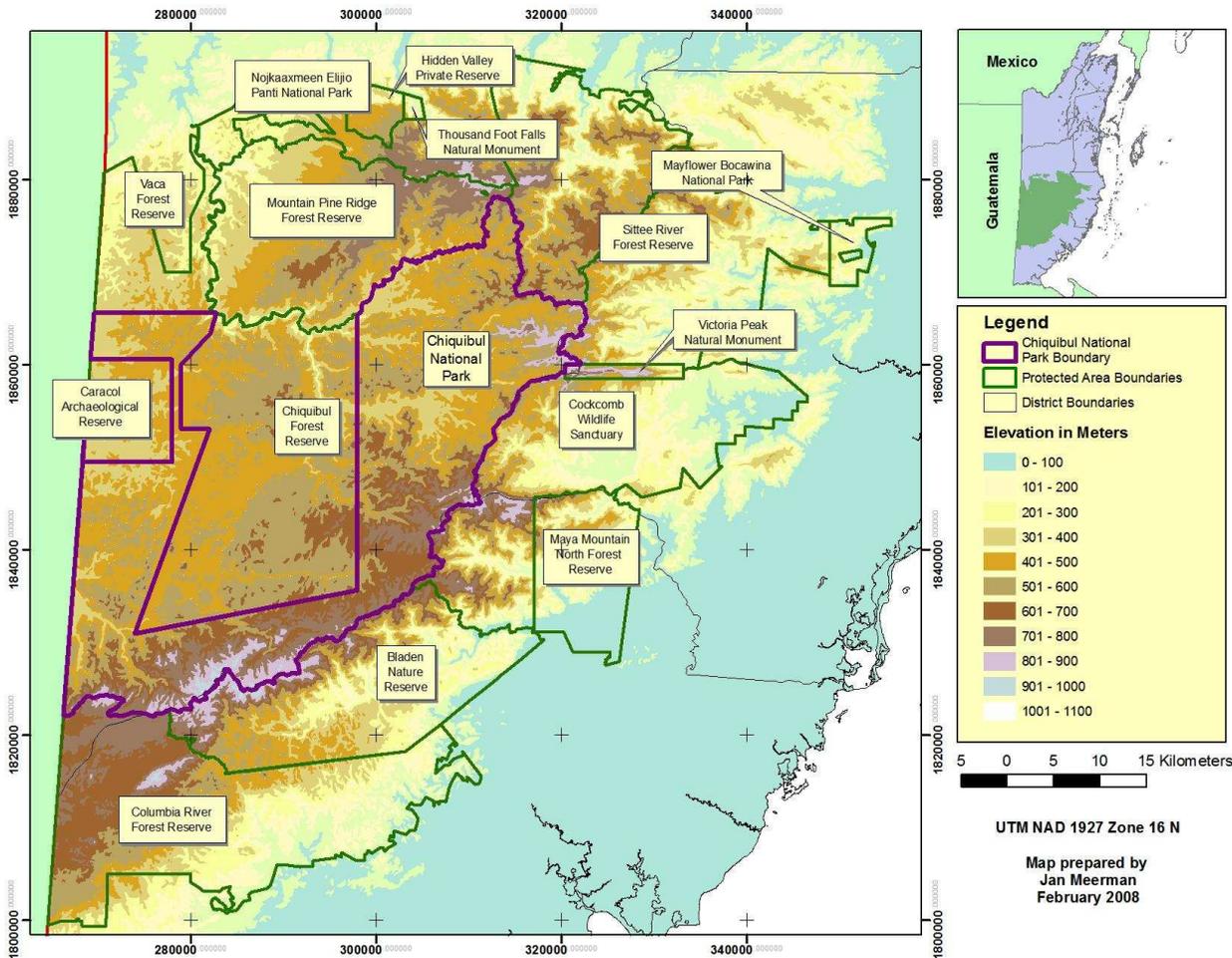


Figure 1 - The CNP and the Chiquibul Forest area

The Chiquibul Forest is home to numerous rare and endangered species, including Jaguar (*Panthera onca*), Ocelot (*Felis pardalis*), Margay (*Felis wiedii*), and Scarlet macaw (*Ara macao*). Riparian areas appear to support a high density of Baird's tapir (*Tapirus bairdii*), which is considered endangered throughout its range. The area is subject to multiple, ongoing human activities, most of which have

often been in conflict with each other, yet there has never been a management plan in place for this important core conservation area. Friends for Conservation and Development (FCD), a non-governmental organization based in San Jose Succotz in the Cayo District, recently received the legal mandate to assist the Forest Department in putting in place a viable management system for the National Park.

This Management Plan has been submitted to the Forest Department for review and approval as required by the National Parks System Act, which is the legislation that was used to declare the Chiquibul National Park, and under the provisions of the Co-Management Agreement between FCD and the Forest Department. It must be noted that the Forest Department has jurisdiction over the Chiquibul Forest Reserve, as provided by the Forests Act. The Management Plan has also been shared with the Institute of Archaeology, which has jurisdiction over the Caracol Archaeological Reserve as provided by the Ancient Monuments and Antiquities Act.

1.2 Purpose and Scope of the Management Plan

The Chiquibul Forest has been facing a variety of anthropogenic pressures and threats with varying degrees of intensity. The area is subject to multiple, ongoing human activities, which have caused major impacts on its wildlife and other natural resources, as well as on its cultural resources. There have even been cases of attacks on visitors, thereby undermining the tourism potential of the area.

This Management Plan has been formulated to guide the management and conservation of the Chiquibul National Park over a five year period (2008-2013), starting off in November which is the start of FCD's calendar year of operations. The Plan can be seen as a framework for adaptive management which lists various management programs, strategies and actions that, when implemented, will address the multiple stresses that impact on the CNP. The Plan will also take advantage of the numerous opportunities that exist for strengthening the management of the National Park, and will set the stage for long-term financial and business planning geared at supporting the implementation of the management strategies and actions.

Most importantly, the Management Plan is based on the premise that the management of the CNP must be rationalized with the management needs of the Chiquibul Forest Reserve and the Caracol Archaeological Reserve. Although the CNP is a distinct management unit, it is now widely recognized that efforts must be taken to work towards a management regime that considers the Chiquibul Forest area as an ecological unit, with the CAR and the CFR playing an integral role.

The Management Plan also recognizes that the Chiquibul Forest itself forms part of an even larger ecological unit – which includes the Maya Mountains Massif (MMM) and the Chiquibul-Montañas Mayas Biosphere Reserve in Guatemala. This Greater Chiquibul/Maya Mountains Region, which spans both sides of the Belize-Guatemala border, forms the headwaters of the Belize River watershed. This bi-national area is the largest and most important watershed in Belize, providing and supporting multiple functions such as a reservoir for biodiversity, drinking water, hydro power, agriculture, and recreation opportunities, among others. The Greater Chiquibul/Maya Mountains Region also provides opportunities for the development and utilization of non-renewable resources while taking care not to undermine the fragile ecological integrity of the area.

This Management Plan sets the stage for the integration of the CNP within the larger Maya Mountains Massif, and for the coordination of management efforts among all the MMM stakeholder

agencies. The entire planning process was guided by the National Management Plan Framework developed under the National Protected Areas System Plan project (2005), and follows specific recommendations provided by the Maya Mountain Massif assessment exercise recently finalized for the Forest Department.

Much information on the pressures and challenges facing the Chiquibul Forest has been compiled by FCD (and its predecessor – Youth Environmental Action Group) through the countless field expeditions that these organizations have conducted into the area over the last twelve years. Over this same period, numerous scientists have conducted multiple and diverse biological and geological studies. However, as has been noted, there has never been a management plan in place for this important region until now. This Management Plan is the outcome of a series of meetings and planning sessions held over the last two years, commencing with FCD stakeholder consultation forums in 2005 and culminating with management planning sessions in 2007-2008, including field visits and planning meetings conducted by the consultants. The series of management planning sessions included the participation of representatives of the core institutional stakeholder agencies of the Chiquibul Forest – the Forest Department, the Institute of Archaeology, and FCD.

Many scientific research reports and biodiversity data were compiled through an extensive literature search and review, and later analyzed (see Section 7 - References). FCD expedition and patrol reports were also compiled and analyzed. These reports and data sets formed much of the basis for planning.

The Management Plan is consistent with the approach recommended by the Maya Mountains Massif (MMM) Conservation Action Planning process. Conservation Action Planning (CAP) is a collaborative, science-based approach used to identify the biodiversity of an area that needs to be conserved, to decide where and how to conserve it, and to measure effectiveness of conservation efforts. The basic concepts of this conservation approach follow an adaptive management framework of setting goals and priorities, developing strategies, taking action and measuring results (TNC 2007).¹ The CNP management planning consultants served as core team members of the MMM CAP process to ensure synergies between the two planning processes. The CNP management planning process was therefore closely integrated with the MMM CAP process, which resulted in a report entitled “Summary Report Technical Assessment of the Maya Mountains Massif (Wildtracks, 2008)”. This report served as a guiding framework for the management plan.² It provided key conservation and cultural targets for the CNP, as well as broad conservation strategies and actions to protect and/or enhance these targets. The MMM CAP report also provided detailed information on pressures and threats and how these impact on the CNP’s biodiversity. Essentially, this Management Plan is the result of feeding the MMM CAP output into a management framework for the CNP. It is expected that the MMM CAP output will similarly guide the management planning processes for the other protected areas within the Maya Mountains Massif.

¹ At its core, CAP is a framework that helps practitioners to focus their conservation strategies on clearly defined elements of biodiversity or conservation targets and fully articulated threats to these targets and to measure their success in a manner that will enable them to adapt and learn over time. The CAP process accomplishes this by prompting a conservation team to work through a series of diagnostic steps that culminate in the development of clearly defined objectives and strategic actions. Together these represent a testable hypothesis of conservation success that forms the basis of an “adaptive” approach to conservation management (TNC, 2007).

² The report of another parallel planning process – Synthesis of Freshwater Research and Conservation Activities in the Watersheds of Belize (TNC, 2007) – also provided useful information.

2. Current Status

2.1 Location

The Chiquibul National Park is a 106,838 ha (264,003 acres)³ protected area located in the Central American country of Belize, a country consisting of 22,966 km² (8,867 sq. miles) of tropical forest, savanna, mangrove, and wetlands. With a population of just over 300,000 (CSO, 2007), Belize is bordered by Mexico to the north and Guatemala to the west and south. To the east, it is bordered by the Caribbean Sea, with the Belize Barrier Reef running parallel with the coastline for the entire length of the country.

The Chiquibul National Park is located between UTM coordinates⁴ 1,878,200 – 1,871,800 North and 265,600 – 322,600 East. This location puts it in the center of the block of protected areas known as the “Maya Mountains Massif” or more simply just “Maya Mountains”. As such the CNP is flanked by the following Belizean Protected Areas:

- Caracol Archaeological Reserve
- Chiquibul Forest Reserve
- Vaca Forest Reserve
- Mountain Pine Ridge Forest Reserve
- Sibun River Forest Reserve
- Sittee River Forest Reserve
- Victoria Peak Natural Monument
- Cockscomb Wildlife Sanctuary
- Bladen Nature Reserve
- Columbia River Forest Reserve

Box 1 – Protected areas adjacent to CNP

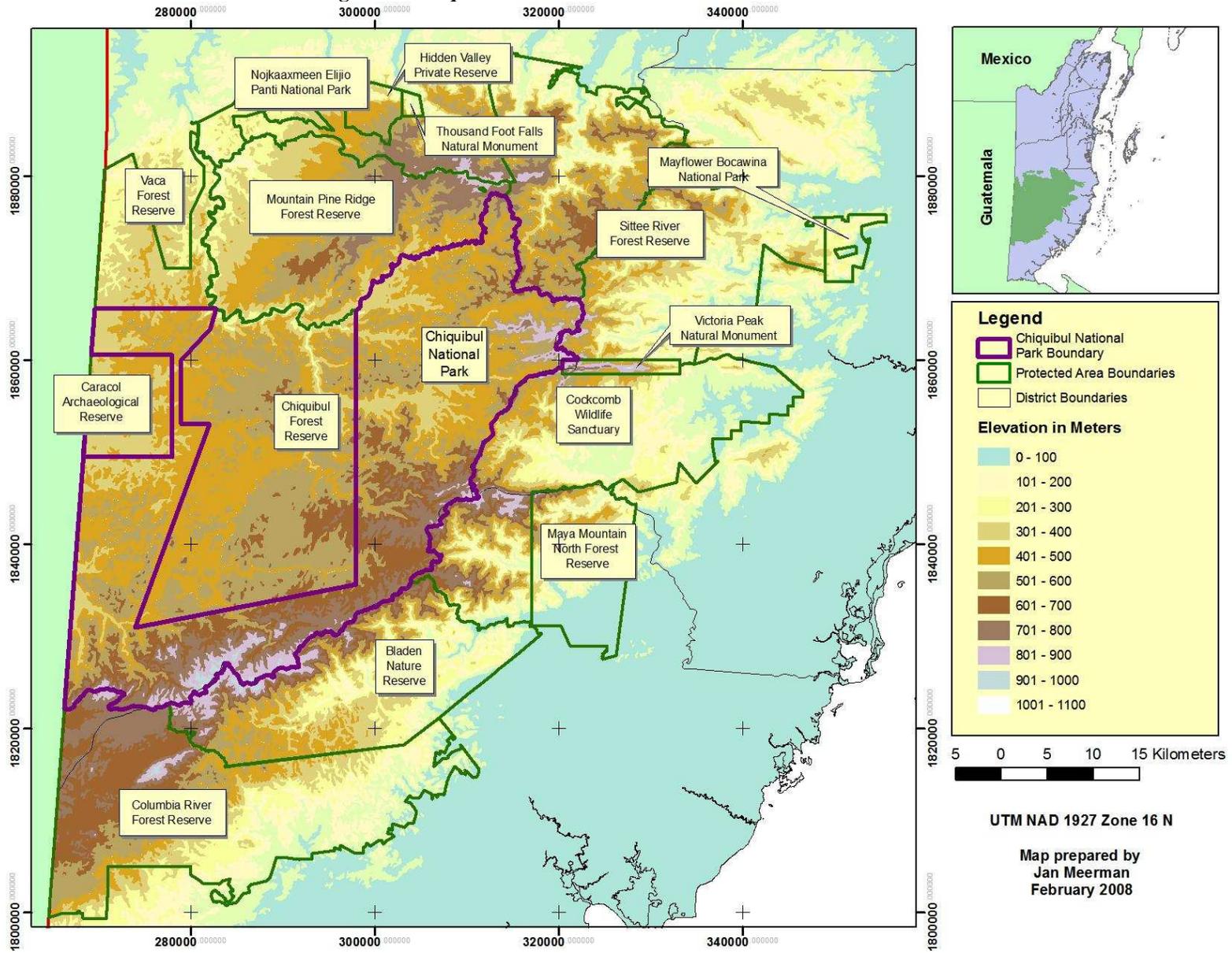
While all these protected areas are part of the larger Maya Mountains block of protected areas and essentially form one ecological entity, this block is essentially split in two by the Maya Mountain Main Divide and for access and management purposes, the CNP forms part of the “Chiquibul Forest” which also includes the Chiquibul Forest Reserve (59,822 ha – 147,823 acres) and the Caracol Archaeological Reserve (10,339 ha – 25,549 acres). Ecologically, the Chiquibul Forest clearly forms a single entity and all boundaries in there are artificial (see Figure 2).

³ Based on GIS measurements

⁴ NAD 1927, zone 16 N.

Chiquibul National Park Management Plan 2008-2013

Figure 2 - Chiquibul National Park in the context of the CMM area



Chiquibul National Park Management Plan 2008-2013

The Maya Mountains were formed by geological uplifting and consist of granitic, sandstone, volcanic and limestone elements. The highest point of the Maya Mountains is formed by “Doyle’s Delight” or “Kaan Witz” with an elevation of 1,124 meters and is located on the CNP boundary with the Columbia River Forest Reserve.

Access into the CNP from the Belizean side is essentially limited to one road that comes from the Mountain Pine Ridge and crosses the Macal River at the Guacamallo Bridge. From there on, most of the access roads and trails actually fall within the CFR, the CNP itself having very few all-weather roads and trails. There is a complex system of trails into the CNP created by Guatemalans located along the border.

2.2 Regional Context

The Chiquibul National Park lies within Mesoamerica, a region highlighted as a world ‘hotspot for species diversity’ (Conservation International, 2003), and considered critical for the preservation of the biodiversity of the Western Hemisphere. The combination of North American, South American and Caribbean elements provides for a unique assemblage of plants and animals which has resulted in a particularly rich biodiversity – with 8% of the world’s known plant species, and 10% of its vertebrates.

For the above reason, the Critical Ecosystems Partnership Fund (CEPF) has recognized the Chiquibul National Park (CNP) as part of a tri-national bioregion forming the largest remaining contiguous block of tropical forest north of the Amazon making it part of the Chiquibul/Maya Mountains Key Biodiversity Area (CMMKBA).

The protection of the CNP fits within the Central American Environmental Agenda - Plan Ambiental de la Region Centroamericana (PARCA) out of which the Central American Commission for Environment and Development (CCAD) was created in 1989. The Government of Belize is a member of this Commission, as well as a signatory of the Convention for the Conservation of Biodiversity and Protection of Priority Wilderness Areas in Central America (formed in 1992), and the Regional Alliance for Sustainable Development (ALIDES) (1994). One of the programmes supported by the Regional Alliance for Sustainable Development is the Mesoamerican Biological Corridor Programme (MBCP). This regional program has been implemented in recent years, establishing corridors of natural vegetation throughout Central America (however with the exception of Belize) to link protected areas, with the goal of retaining sufficient natural vegetation cover to allow gene flow between protected areas both within and between countries.

The CNP is within one of eleven priority areas highlighted under the Sistema Centroamericano de Areas Protegidas (Central American System of Protected Areas) (SICAP), an initiative that has been developed in an effort to plan protected area coverage throughout the region and identify gaps in ecosystem coverage. This initiative has emphasized the importance of the addition of the Maya Mountains to the System while recognizing it as a Transboundary Protected Area for Peace and Conservation (WCPA, 2001).

Within the MBCP, the CNP performs an important “node” function (Herrera et al. 2002), but the link with the Guatemalan side of the Maya Mountains is quickly being lost as part of the expanding agricultural frontier in that country. Currently CNP remains a vital component of the Biological Corridor linking Belize with protected areas in the Northern Petén and in Southern Mexico

(Meerman et al, 2000; Ramos, 2004) (see Figure 3).

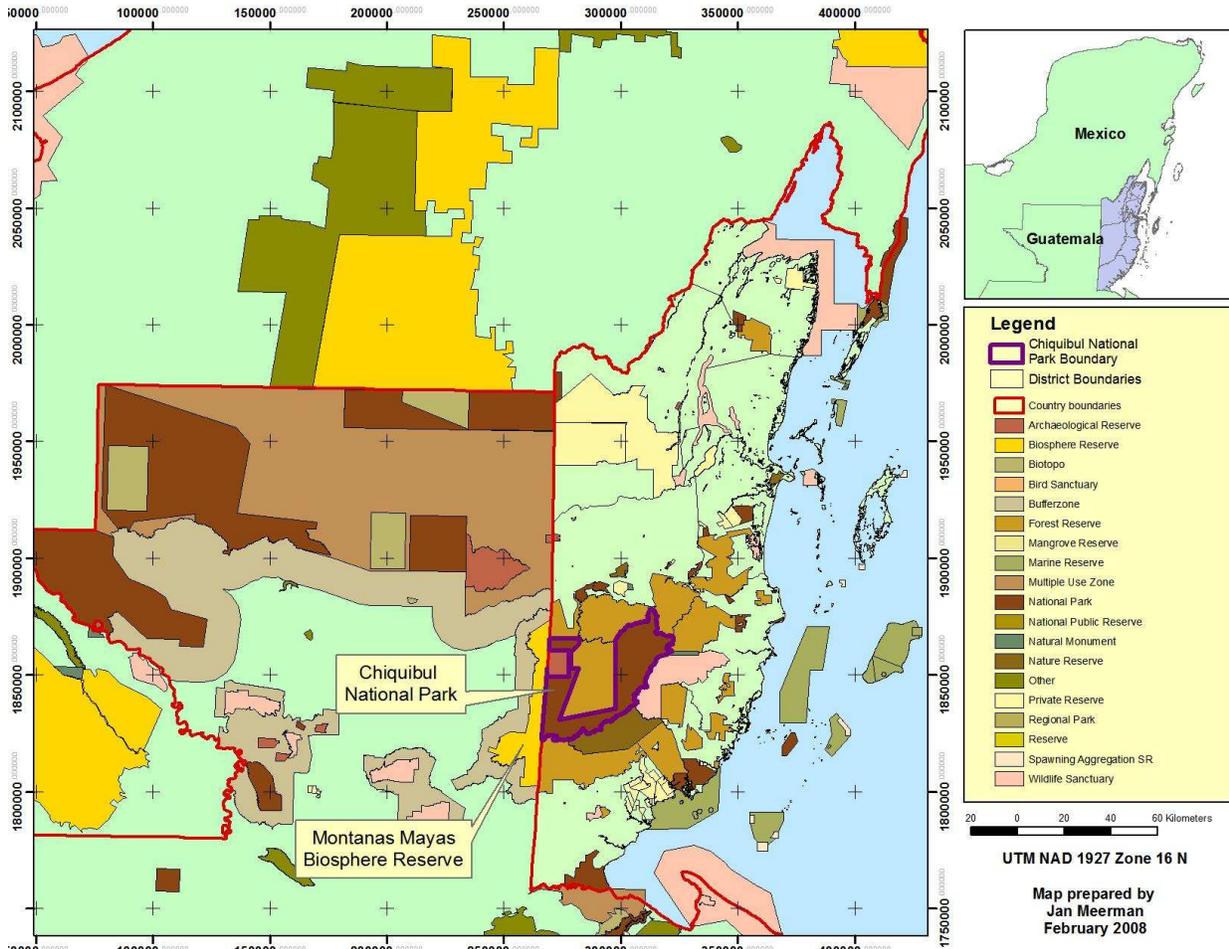


Figure 3 - The Chiquibul NP in relation to protected areas in the region

2.3. National Context

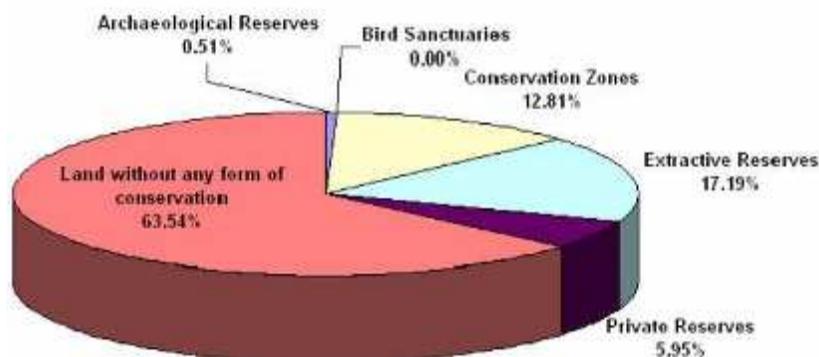
The Belizean network of protected areas is extensive; covering approximately 26% of the national territory (see Figure 3). A total of 94 protected areas have been gazetted. When taken separately, these protected areas amount to approximately 37% of the country's terrestrial area and 14% of the marine territory. Belize's protected areas contribute to the historical, cultural and ecological significance of the Maya Forest Region and connect the last remaining forests in Petén, Guatemala, to the forests of Calakmul, Mexico (NPASP, 2005). The protected areas system of Belize is also integral to the maintenance of the Mesoamerican Biological Corridor (MBC), which is comprised of a network of protected areas linked by biological habitat corridors, stretching from México to Panama (NPASP, 2005). Furthermore, Belize's marine protected areas form an integral part of the Mesoamerican Barrier Reef System, which extends from the southern half of the Yucatan Peninsula to the Bay Islands of Honduras and includes the second longest barrier reef in the world. This extensive protected areas network has in great part supported Belize's burgeoning tourism industry, which has become a mainstay of the economy.

Only 12.81% of Belize's land territory has been declared as conservation zones that do not allow extraction of natural resources (see Figure 4). These conservation zones include the four protected

Chiquibul National Park Management Plan 2008-2013

area categories under the National Parks System Act – national parks, nature reserves, natural monuments, and wildlife sanctuaries. The Chiquibul National Park is the single largest protected area of Belize, and comprises 29% of the terrestrial conservation zone of the country, and nearly 5% of Belize's land area.

Figure 4 - Terrestrial Protected Areas
Terrestrial Protected Areas



Of the remaining land areas under protection, 71% is open for managed extraction (such as logging operations) – these areas are the forest reserves. There are six forest reserves adjacent to the Chiquibul National Park – these include the Chiquibul Forest Reserve, the Mountain Pine Ridge Forest Reserve, the Vaca Forest Reserve, the Sibun Forest Reserve, the Sittie River Forest Reserve, and the Columbia River Forest Reserve (see Figure 2 above). The Chiquibul Forest Reserve is wedged between the Chiquibul National Park and the Mountain Pine Ridge Forest Reserve. The Forest Reserves are really areas for the management of extractive resources. Three conservation zones are adjacent to the Chiquibul National Park – Bladen Nature Reserve, Cockscomb Basin Wildlife Sanctuary, and Victoria Peak Natural Monument. The Caracol Archaeological Reserve lies within the Chiquibul National Park, just south of the Vaca Forest Reserve, and is bounded by the Guatemalan border on the west.

Currently, there is one active timber harvesting licence (Bull Ridge) and one xaté harvesting licence (Gosen Product Co Ltd.) operating within the Chiquibul Forest Reserve.

2.3.1 Policy Framework

Sparked by an incisive and critical ex-post project evaluation report of a UNDP/GEF co-management project, the Ministry of Natural Resources appointed a Task Force in 2003 and mandated it to create a national overarching policy for protected areas management and an implementation plan for the overall protected areas system in Belize⁵. Led by this Task Force, the GOB and its local non-governmental and international partners engaged in a national consultation process and a series of extensive studies during 2004-2005 to prepare a policy and strategy for its national system of protected areas.

In November 2005, this planning process culminated with the production of over 20 reports, which led to the preparation of Belize's National Protected Areas Policy and System Plan. The National Protected Areas Policy (NPAP) was subsequently endorsed and accepted by the GOB in November

⁵ BCDL. 2006. Environmental Policy and Advocacy Initiatives in Belize (draft report).

2005, and the National Protected Areas System Plan (NPASP) was endorsed and accepted in January 2006. A multi-stakeholder National Protected Areas Commission (NPAC) was established in late 2007 to oversee the implementation of the NPASP.

The National Protected Areas Policy (NPAP) is the key statement on the role and management of protected areas. This policy aims to guide the establishment, management and administration of protected areas (terrestrial and marine) in Belize, and to create a National Protected Area System in which all important sites are included in one coherent framework and meet all obligations under international agreements to which Belize is a signatory. The NPAP aims for the PA system to: a) be comprehensive, with representative examples of all ecosystems in the country and including areas providing important environmental services, possessing exceptional scenic values and providing critical habitat for species of conservation concern or economic importance; b) be integrated with regional and national approaches promoting biological connectivity (such as the Mesoamerican Biological Corridors Project) and with other national and regional development plans; c) be economically, socially and ecologically sustainable in order to optimize socio-economic benefits derived from the system as far as these are compatible with maintaining biodiversity values and sustainable resource management and ensure the equitable distribution of these benefits and public awareness of their importance; and d) have transparent management geared towards delivery of measurable benefits and emphasize public participation at all levels. This applies to the establishment, management, modification or de-reservation of all the protected areas included in the national network.⁶

The National Protected Area System Plan (NPASP) is designed to implement the policy. The plan emphasizes the following strategic actions: a) establish a National Protected Areas Commission to ensure coordinated action in PA system development; b) revise and consolidate protected area legislation in order to give legislative underpinning to the plan; c) provide support services to protected area managers across the PA system, to enhance management capacity; d) secure comprehensive coverage by concentrating attention on gaps in the present network of protected areas; and e) simplify the existing PA system by consolidating adjacent protected areas into single, multi-zoned, management units⁷. This creates a smaller number of sites that are individually more important – indeed some will be of exceptional importance on a regional, even global, scale. Overall the plan aims to create a more effective protected area system that delivers and is seen to deliver tangible benefits yet is more cost-effective and simpler to administer.⁸

The completion of the NPAP and NPASP for Belize's extensive network of protected areas is a significant achievement which establishes a precedent for the Central American and Mesoamerican region.

2.3.2 Legal and Administrative Framework

The administration of the national protected area system is shared by three key government departments (see Figure 5). The Forest Department administers protected areas declared under the Forests Act and the National Parks System Act. These areas include most of the terrestrial protected areas and a few marine protected areas. Statutory authority over all the marine reserves declared

⁶ NPASP 2005

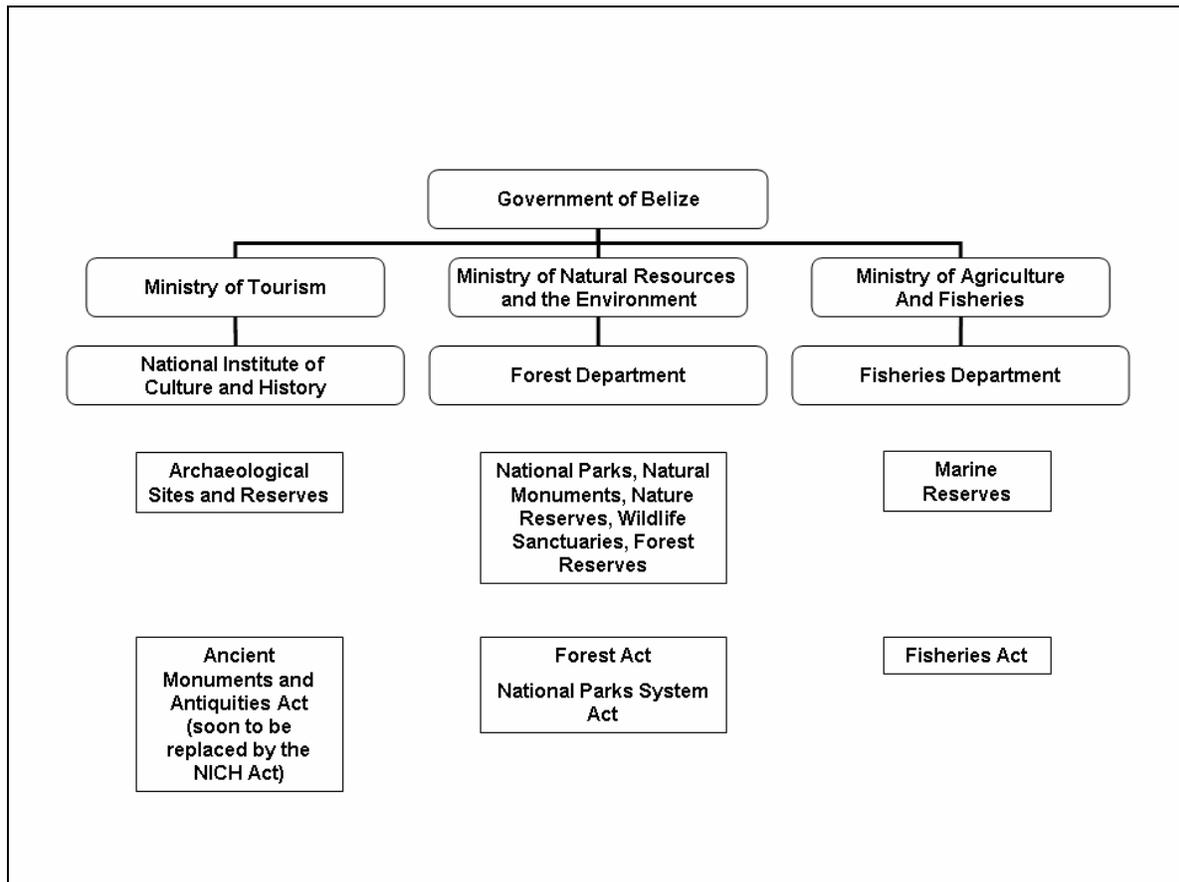
⁷ Special attention will be devoted to the Belize Barrier Reef System, the Maya Mountain-Mountain Pine Ridge massif and the north-western forests.

⁸ NPASP 2005

Chiquibul National Park Management Plan 2008-2013

under the Fisheries Act rests with the Fisheries Department. The Institute of Archaeology, which falls under the institutional umbrella of the National Institute of Culture and History (NICH), is in charge of the archaeological and cultural sites and reserves declared under the Ancient Monuments and Antiquities Act.

Figure 5 - Administrative Framework for the NPAS



The Chiquibul National Park was declared under the National Parks System Act, which states the following definition for a “national park”:

“[any] area established ... for the protection and preservation of natural and scenic values of national significance for the benefit and enjoyment of the general public...”

Under guidelines defined by the World Conservation Union (IUCN), the Chiquibul National Park is a **Category II** protected area, and is defined as follows:

“[a] natural area of land and/or sea designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations; (b) exclude exploitation or occupation inimical to the purposes of the area; and (c) provide foundation for spiritual, scientific, educational, recreational, and visitor opportunities all of which must be environmentally and culturally compatible.”

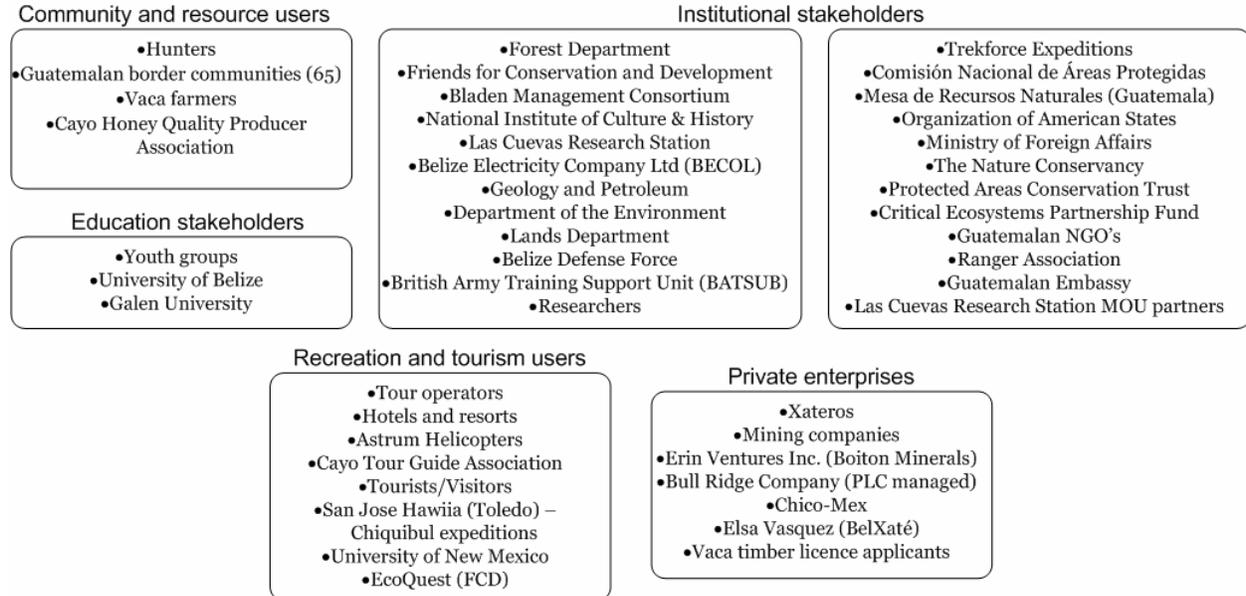
The Chiquibul National Park, therefore, was established as an area of core protection, in which all resource extraction activities should be prohibited.

The Forest Department has over the years entered into collaborative agreements with non-governmental organizations and community-based organizations for the joint management of protected areas – referred to as co-management agreements.

2.3.3 Socio-economic Context

Stakeholder Analysis. Besides the Forest Department and FCD, a number of other governmental and non-governmental agencies, as well as private enterprises, are directly or indirectly linked to activities in or near the Chiquibul National Park. These entities, which are considered the primary stakeholders of the area, can be grouped into five categories of stakeholders: 1) community and resource users, 2) institutional stakeholders, 3) recreation and tourism users, 4) education stakeholders, and 5) private enterprises. Given that the Chiquibul area extends into the east-central Petén region of Guatemala, the Comisión Nacional de Áreas Protegidas (CONAP) and agencies involved in the management of the Reserva de la Biósfera Montañas Mayas/Chiquibul, as well as communities along the Belize-Guatemala border, are considered key stakeholders. Figure 6 shows a detailed listing of CNP stakeholders listed under five categories: Community and resource users, education stakeholders, institutional stakeholders, recreation and tourism users, and private enterprises.

Figure 6 - CNP Stakeholders



Chiquibul National Park Management Plan 2008-2013

Table 1 below provides information on the type of influences or impacts of CNP on each group of stakeholders and vice versa. A “+” sign indicates that the influence or impact is positive, while a “-” sign indicates that the influence or impact is negative or detrimental.

Table 1 - Stakeholder Analysis for the Chiquibul National Park

Primary Stakeholders	Influence or impact of CNP on stakeholder	Influence or impact of stakeholder on CNP
Communities – Guatemala and Belize	<ul style="list-style-type: none"> • Environmental services • Exclusion from potential hunting area • Exclusion from CNP for cutting logs/posts/leaves, and medicinal plants 	<ul style="list-style-type: none"> + • Cooperation with conservation objectives - • Unsustainable harvesting of xaté - • Hunting - • Looting
Resource users	<ul style="list-style-type: none"> • Exclusion from potential • Exclusion from CNP for cutting logs/posts/leaves, and medicinal plants 	<ul style="list-style-type: none"> - • Security presence - • Removal of broadleaf cover - • Impacts on wildlife - • Increased erosion on steeper slopes
Recreation & tourism users	<ul style="list-style-type: none"> • Recreation opportunities • Tourism destinations 	<ul style="list-style-type: none"> + • Potential income source + • Increased visitor numbers - • Vandalism - • Garbage pollution
Education stakeholders	<ul style="list-style-type: none"> • CNP as a living laboratory • Promote civic pride 	<ul style="list-style-type: none"> + • Unregulated education field projects & activities - • Molesting of wildlife
Timber and NTFP concessionaires	<ul style="list-style-type: none"> • Potential income source • Employment for communities 	<ul style="list-style-type: none"> + • Unregulated harvesting activities + • Trespass
BDF & BATSUB	<ul style="list-style-type: none"> • Field training opportunities 	<ul style="list-style-type: none"> + • Increased security presence - • Increased human presence and associated impacts - • Increased noise impacts
LCRS and Researchers	<ul style="list-style-type: none"> • Research opportunities 	<ul style="list-style-type: none"> + • Unregulated research activities - • Molesting of wildlife
GPD and miners	<ul style="list-style-type: none"> • Mineral potential of CNP 	<ul style="list-style-type: none"> + • Removal of riparian vegetation and broadleaf forest - • Access road construction - • Increased accessibility for hunting, etc. - • Pollution and alteration of natural processes on the headwaters - • Potential environmental fund
BECOL	<ul style="list-style-type: none"> • Hydro power potential of the Macal River • Watershed protection 	<ul style="list-style-type: none"> + • Support to CNP management - • Environmental services - • Water quality impacts - • Loss of riparian vegetation - • Access road construction

There are no permanent settlements in the CNP. FCD maintains a guard post but this is actually located just inside the CFR. From the Belize side, the CNP is buffered by other protected areas. There are no communities adjacent to the park and there are no communities that have a direct claim on the area. On the Guatemalan side, however, there are many communities that influence the

Chiquibul National Park Management Plan 2008-2013

CNP. The total number of border communities is approximately sixty-five (65), but FCD recognizes eleven (11) Guatemalan buffer-communities: Monte de Los Olivos, San Jose Las Flores, El Carrizal, Naranjo, Nueva Armenia, Las Brizas de Chiquibul, Centro Maya, San Marcos, Sacul Arriba, Las Flores de Chiquibul and El Rondón. These communities depend on agriculture for their subsistence and are increasingly farming on the Belizean side of the international border, even within the CNP where as much as 2,520 ha (6,227 acres) have so far been cleared (see Figure 7).

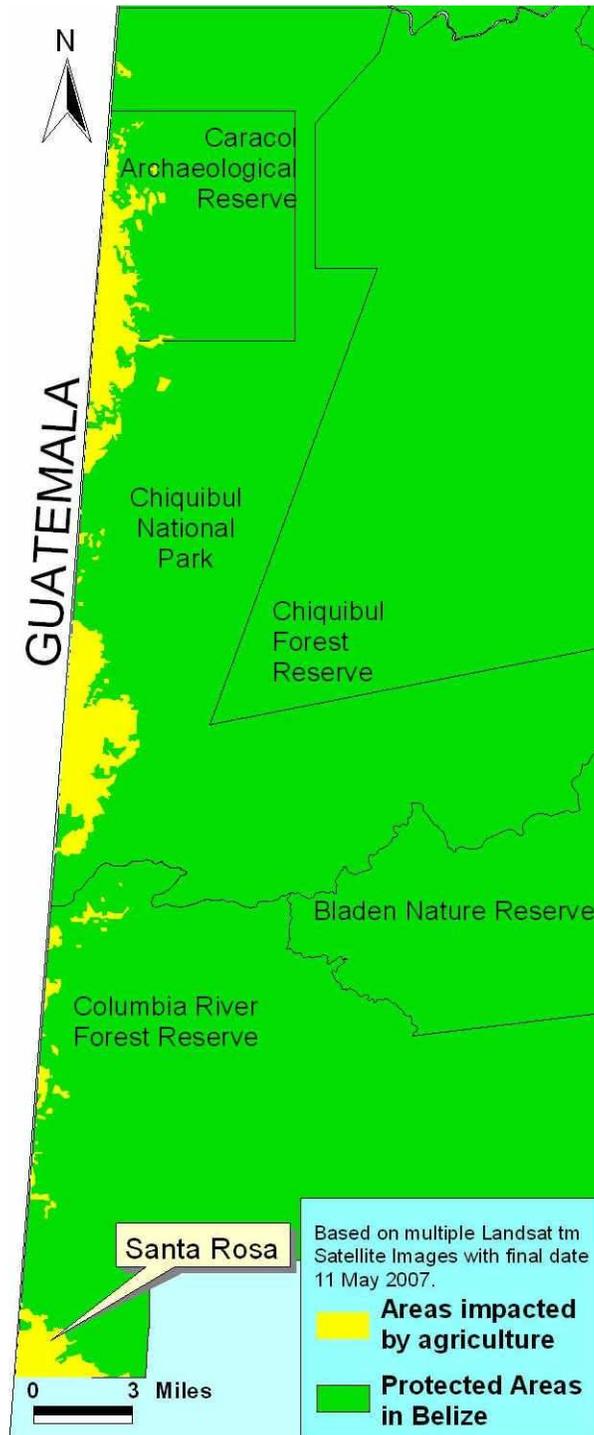


Figure 7 - Agricultural incursions into the CNP

The Greater Chiquibul Maya Mountains Area, which spans both sides of the Belize-Guatemala border, forms the headwaters of the Belize River watershed. This bi-national area is the largest and most important watershed in Belize. Within this watershed, the Chiquibul Mopan and Macal sub-watersheds are located within the Chiquibul Forest, and provide and support multiple functions such as biodiversity, drinking water, hydro power, agriculture, and recreation, among others.

The Chiquibul Forest is also extremely important for its mines and minerals potential. Gold prospecting in the Ceibo Chico area of the Chiquibul National Park has been an ongoing activity since the late 1980s, and continues under Boiton Minerals/Erin Ventures Inc. (under Ceiba Resources Ltd.). The first exploration license was issued in 1999, and the operation has been slowly increasing in size since the extension of the exploration license in 2004. The company has held prospecting licenses for four contiguous blocks, covering a total of 34km², and a mining license covering 38.85 hectares (96 acres), which has recently been renewed for another 5 years, and extended in September, 2007, to cover 160.25 hectares (396 acres), to give the mining company mining rights to the total area of alluvial fan associated with the Ceibo Chico drainage system (Wildtracks, 2008). Orion Company is also known to have a long standing concession in the CNP and the CFR and has machinery in place to start operations near Erin Ventures Inc. Table 2 below, which is derived from information received from the Geology and Petroleum Department, shows the extent of mineral potential within the Chiquibul National Park, Chiquibul Forest Reserve and Caracol Archaeological Reserve (adapted from Wildtracks, 2008).

Table 2 – Mineral potential within the Chiquibul Forest

Protected Area Name	Value	Mineral Resources
Chiquibul National Park	High	All minerals, gold, lead, zinc, base metals, heavy metals...need to be inventoried. Steeper slopes. Intrusions, igneous areas. Lower areas not as interesting.
Chiquibul Forest Reserve	High	All minerals, gold, lead, zinc, base metals, heavy metals...need to be inventoried. Steeper slopes. Intrusions, igneous areas. Lower areas not as interesting.
Caracol Archaeological Reserve	Low	

2.4 Physical environment of CNP

2.4.1 Climate

Belize is a tropical country, but because of its location in the outer tropical geographical belt, there exists a noticeable variation in average monthly temperatures. Also, there exists considerable variation in the monthly amount of rainfall with a dry season from February through May and a wet season from June through January. In addition there exists considerable variation in the annual amount of rainfall in Belize, with the North-east receiving as little as 1200 mm/year (48”) and the South-east as much as 4,000 mm/year (160”).

Although an automated weather station has recently been installed at the FCD ranger station, no reliable long term weather data exist for the area. Generally it is believed that the Chiquibul falls with

the 2000 mm/year (80”) zone. But rainfall is likely to increase towards the south and in the higher areas along the Maya Mountain Divide.

The rainy season to an extent coincides with the hurricane season, associated with passing tropical storms – particularly in August, September and October. Hurricanes originate over warm seas, and develop into a cyclonic form that can be very destructive. Hurricanes have periodically caused extensive damage to the Chiquibul in the past century (see Box 2).

- Un-named 1918: 45 mph (?)
- Anna 1961: 45 mph
- Hattie 1961: 160 mph
- Fifi 1974: 115 mph
- Greta 1978: 135 mph

Box 2 – Hurricanes affecting the Chiquibul in the past 100 years

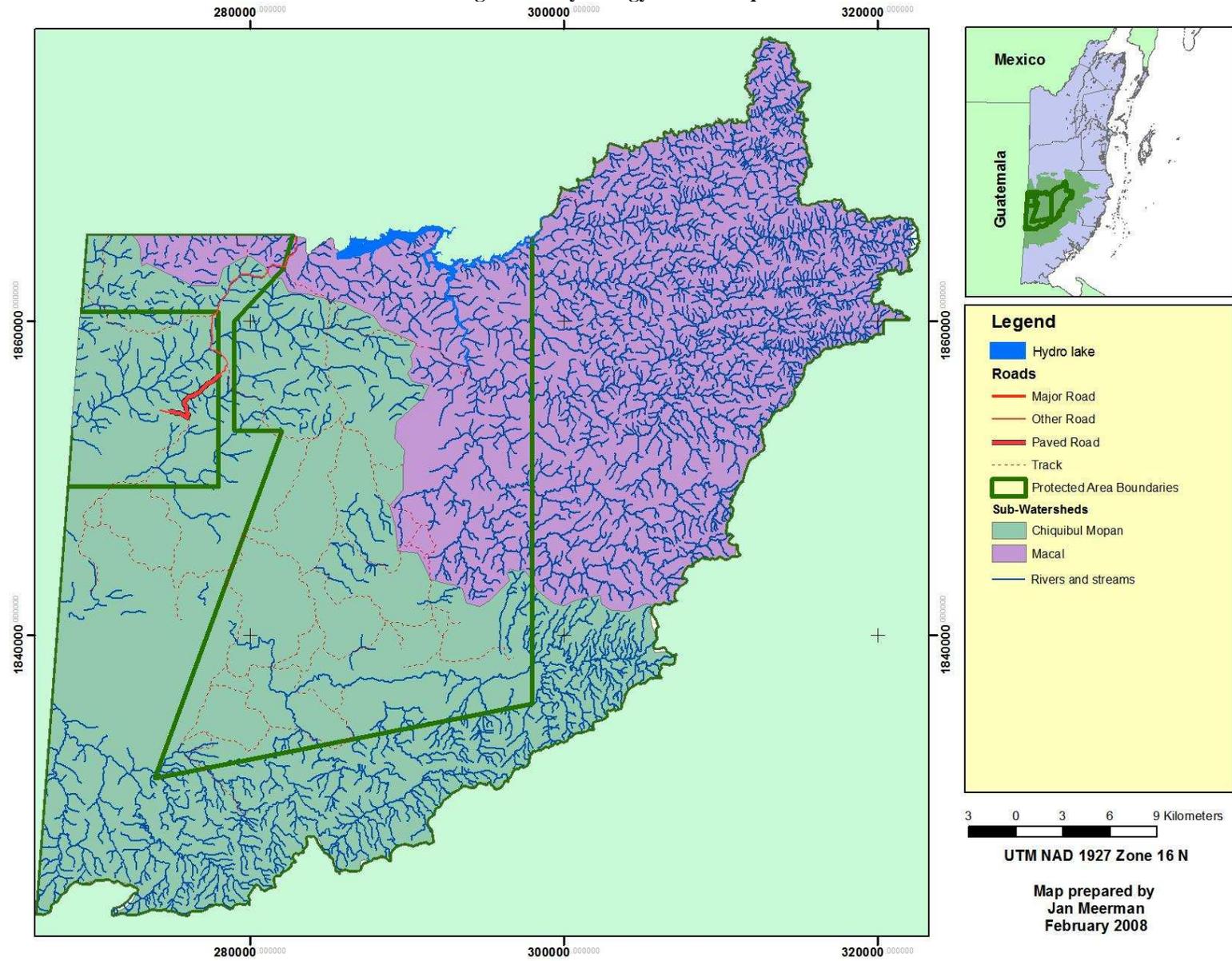
It should be noted that although the Chiquibul is on the leeward side of the Maya Mountains the impact from hurricanes is still substantial.

2.4.2 Hydrology

The entire Chiquibul Forest forms part of the Belize River Watershed (see Figure 8). But within that are 2 main sub-drainage systems formed by the Macal and the Mopan (here with the Chiquibul River as the main tributary). The division between the 2 sub-watersheds splits the Chiquibul Forest roughly in two. Notable is the difference between surface drainage patterns between the two sub-watersheds. In the Macal sub-watershed, there exists abundant surface drainage (small streams), while the Mopan sub-watershed has a large subterranean component.

Chiquibul National Park Management Plan 2008-2013

Figure 8 – Hydrology of the Chiquibul



2.4.3 Geology

The geology of the Chiquibul Forest splits into two main groups (Cornec, 2003). Cretaceous limestones make up the western half and Permian metasediments (including sandstones of the Santa Rosa Group) in the east and following the Maya Mountain Divide. Also along the main Maya Mountain Divide, but then restricted to the extreme south are some ancient volcanic deposits (Bladen Volcanic Member). The general geology has consequences for the overall landscape and geology of the Area. The limestones are very permeable and this is the reason why there is so little surface water in the western part of the Chiquibul. It also explains the abundance of caves and sinkholes in that area (see Figure 9).

2.4.4 Soils

The soils of the Chiquibul reflect the geology, where the soils are on limestone, the soils tend to be basic and by tropical soil standards, relatively fertile. On the other hand, over the steeper limestone hills, the soils have been classified by Wright (1959) as skeletal. Meaning that they are very shallow and that bedrock is protruding on many places. Typically, mechanized agriculture is not possible on such soils but due to their relatively high fertility, they are quite suited for milpa agriculture.

On the meta-sediments and volcanic deposits to the east and south, more acid soils are found. These soils tend to be very weathered, acidic and poor in nutrients. On top of that they tend to be on very steep slopes as well and the soils, in many cases can be classified skeletal as well.

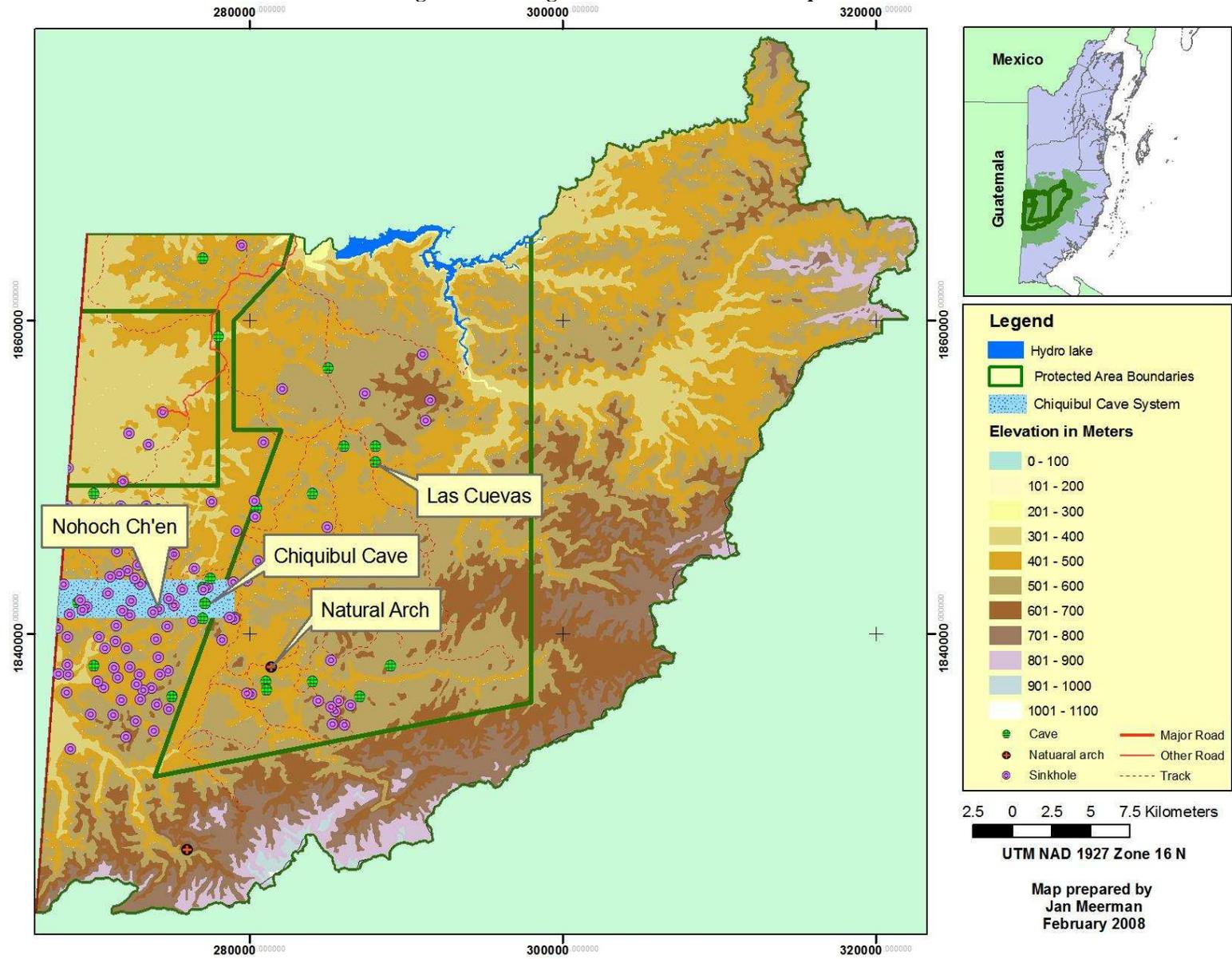
2.5 Biodiversity of CNP

2.5.1 Ecosystems

The 2004 version of the Belize Ecosystems Map (Meerman & Sabido, 2001) recognizes 17 ecosystems for the Chiquibul Forest (see Annex 1 and Figure 10). The majority of these ecosystems are variants of broadleaf forest distinguished on the base of humidity, elevation and substrate.

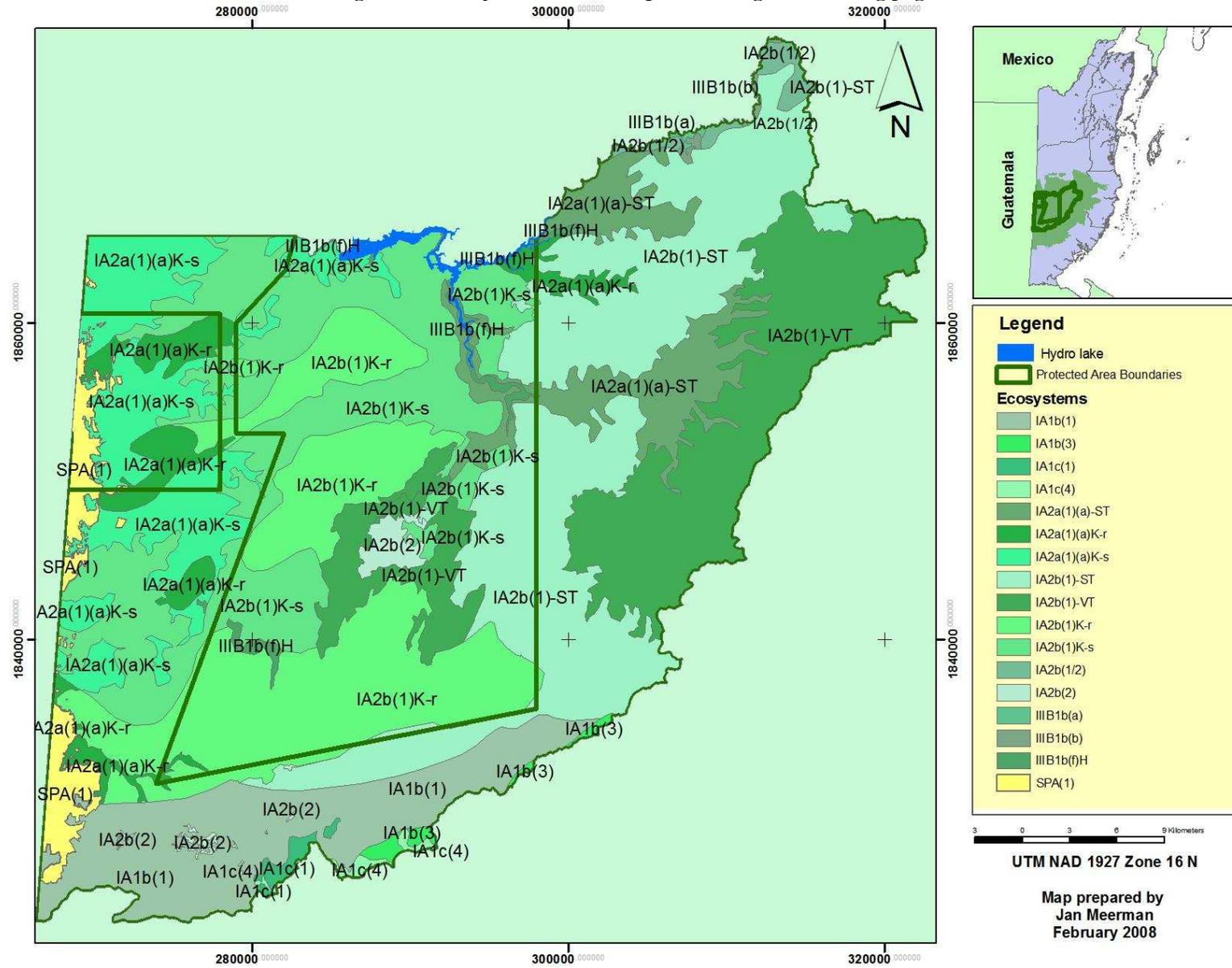
Chiquibul National Park Management Plan 2008-2013

Figure 9 – Geological features within the Chiquibul



Chiquibul National Park Management Plan 2008-2013

Figure 10 - Ecosystems of the Chiquibul see legend following page



Chiquibul National Park Management Plan 2008-2013

Unesco code	Unesco Ecosystem Type	Acres	Hectares
IA1b(1)	Tropical evergreen broad-leaved submontane forest	38,887	15,737
IA1b(3)	Tropical evergreen broad-leaved submontane palm forest	1,940	785
IA1c(1)	Tropical evergreen broad-leaved lower-montane forest	1,580	639
IA1c(4)	Tropical evergreen broad-leaved lower montane palm forest	1,098	444
IA2a(1)(a)-ST	Tropical evergreen seasonal broad-leaved lowland hill forest, Simarouba-Terminalia variant	24,231	9,806
IA2a(1)(a)K-r	Tropical evergreen seasonal broad-leaved lowland hill forest, on rolling karstic terrain	14,815	5,996
IA2a(1)(a)K-s	Tropical evergreen seasonal broad-leaved lowland hill forest on steep karstic terrain	38,618	15,628
IA2b(1)-ST	Tropical evergreen seasonal broad-leaved submontane forest, Simarouba-Terminalia variant	87,357	35,352
IA2b(1)-VT	Tropical evergreen seasonal broad-leaved submontane forest: Virola-Terminalia variant	64,725	26,193
IA2b(1)K-r	Tropical evergreen seasonal broad-leaved submontane forest on rolling karstic hills	71,795	29,054
IA2b(1)K-s	Tropical evergreen seasonal broad-leaved submontane forest on steep karstic hills	70,681	28,604
IA2b(1/2)	Tropical evergreen seasonal mixed submontane forest	3,152	1,276
IA2b(2)	Tropical evergreen seasonal needle-leaved submontane forest	3,148	1,274
IIIB1b(a)	Deciduous broad-leaved lowland shrubland, well-drained, over poor soils	307	124
IIIB1b(b)	Deciduous mixed submontane shrubland over poor soils	718	291
IIIB1b(f)H	Deciduous broad-leaved lowland riparian shrubland in hills	3,295	1,334
SPA(1)	Agriculture: non mechanized agriculture including unimproved pasture	11,027	4,463

2.5.2 Flora

The composition of the Chiquibul Forest is relatively well documented, particularly through the implementation of several permanent sample plots in the area (Bird, 1998) and through the work of Bridgewater et al. (2006) who made a compilation of all the plant specimens collected in the Chiquibul (see Figure 11 below). A total of 505 plant species is thus listed for the Chiquibul, but this list is by no means complete. For example the BERDS⁹ database contains 1800 plant records from the Chiquibul Forest comprising of 662 species. Also data from several expeditions such as to the highest point of the Maya Mountain Divide are still awaiting analysis and when finished are likely to raise this figure substantially.

Based on the list of Species of Conservation Concern (Meerman, 2005), the following plant species occurring in the Chiquibul Forest are of some conservation concern (see Table 4):

Table 3 - Listing of Plant species of conservation concern

<i>Species</i>	English Name	IUCN class	Status in Belize
<i>Ceratozamia robusta</i>		VU	VU
<i>Pithecellobium johansenii</i>		EN	DD
<i>Quiina schippii</i>		EN	DD
<i>Schippia concolor</i>	Mountain Pimento	VU	LC
<i>Swietenia macrophylla</i>	Large-Leaved Mahogany	VU	VU

This list is very short and probably reflects more our (lack of) knowledge on the true conservation status of Belizean plants in general. The large size and protected nature of the Chiquibul Forest probably implies that most plant populations within the park can be considered “safe” at least from an ecological perspective, though it is quite possible that the economic viability of certain harvested species such as Mahogany (*Swietenia macrophylla*) and Xaté (*Chamaedorea ernesti-augusti*) is already compromised.

2.5.3 Fauna

The fauna of the Chiquibul Forest has probably been insufficiently recorded. The BERDS database contains 6,856 faunal records for this area.

Table 4 – Chiquibul faunal records

Class	Records	Number of species recorded
Insects (Lepidoptera + Odonata)	4066	584
Fish	16	10
Amphibians	78	26
Reptiles	91	44
Birds	713	94
Mammals	94	28

While these numbers appear impressive, they are obviously very incomplete. For some groups such as Fish and Amphibians, the numbers above probably come close to the actual number of species that can be found in the Chiquibul Forest. For others they probably represent only a small

⁹ <http://www.biodiversity.bz> as per March 30, 2008

percentage of what can be expected. The bird list for example should be able to come close to 300 species for the Chiquibul Forest.

While the species database is obviously still incomplete, the fauna of the Chiquibul Forest may be expected to house a fairly complete complement of the Belizean fauna. Some typical Northern Belize (Yucatan) elements will be absent but otherwise a large percentage of the known Belizean fauna should be expected in the Chiquibul Forest.

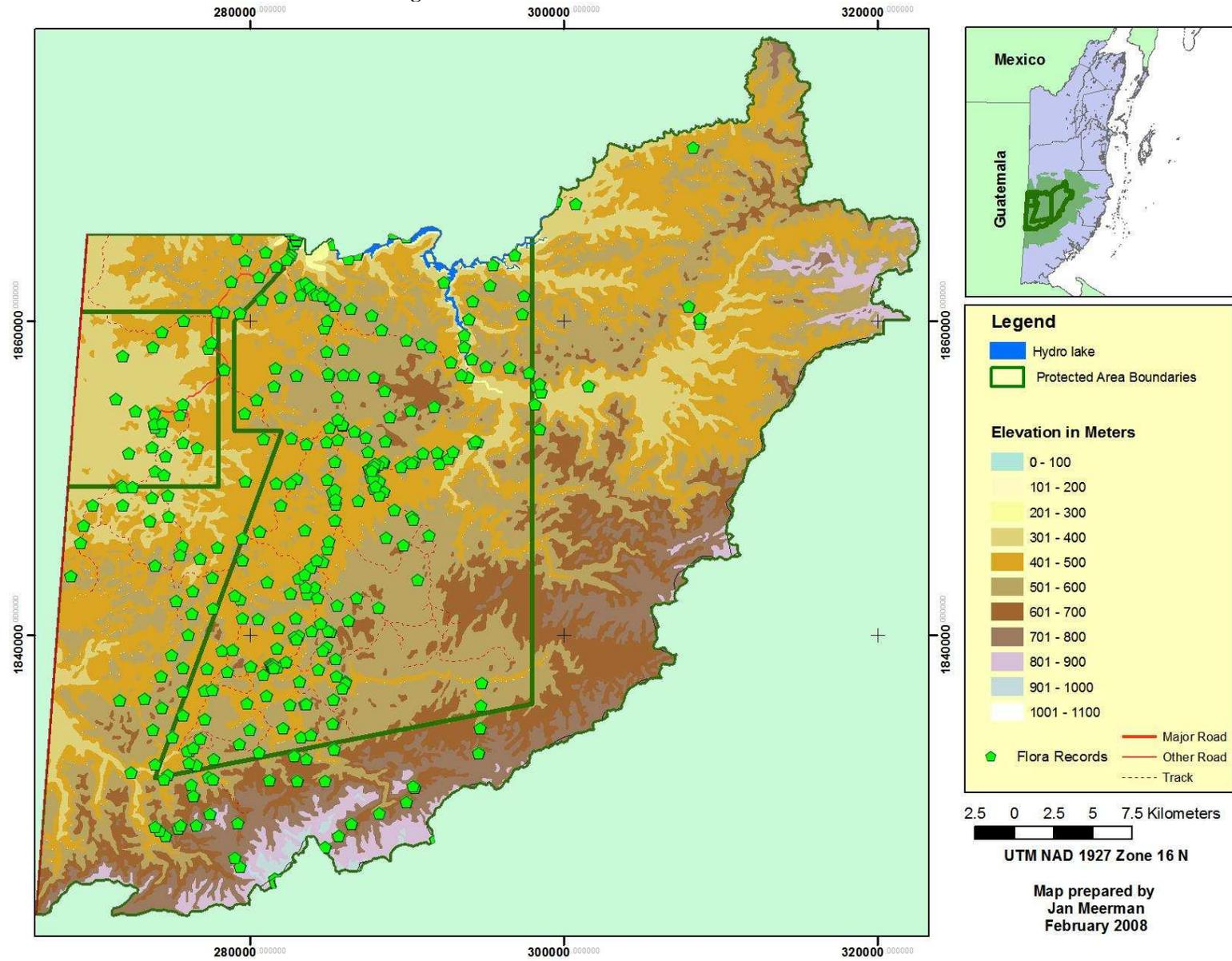
While exact data are lacking, there is strong anecdotal evidence that the larger vertebrate fauna has suffered heavily as a result of heavy hunting pressure by Guatemalan xateros, with “game” species such as Currasow, Crested Guan, Ocellated Turkey, White-lipped Peccary, Collared Peccary, Paca, Red Brocket Deer and White-tailed Deer bearing the brunt of the pressure but there is further anecdotal evidence indicating that other non-traditional game species such as Tapir are being targeted as well. In addition, there appears to be trade in wild species for the pet trade. Particularly Scarlet Macaws and occasionally spotted cats are reputedly being targeted.

The wildlife extraction/hunting situation is apparently particularly severe in the zone closest to Guatemala. Further to the east, towards the Maya Mountain Divide, healthy wildlife populations appear to persist. But hard data are lacking.

With the large amount of species occurring within the Chiquibul Forest, the amount of species of concern is high as well (see Annex 2).

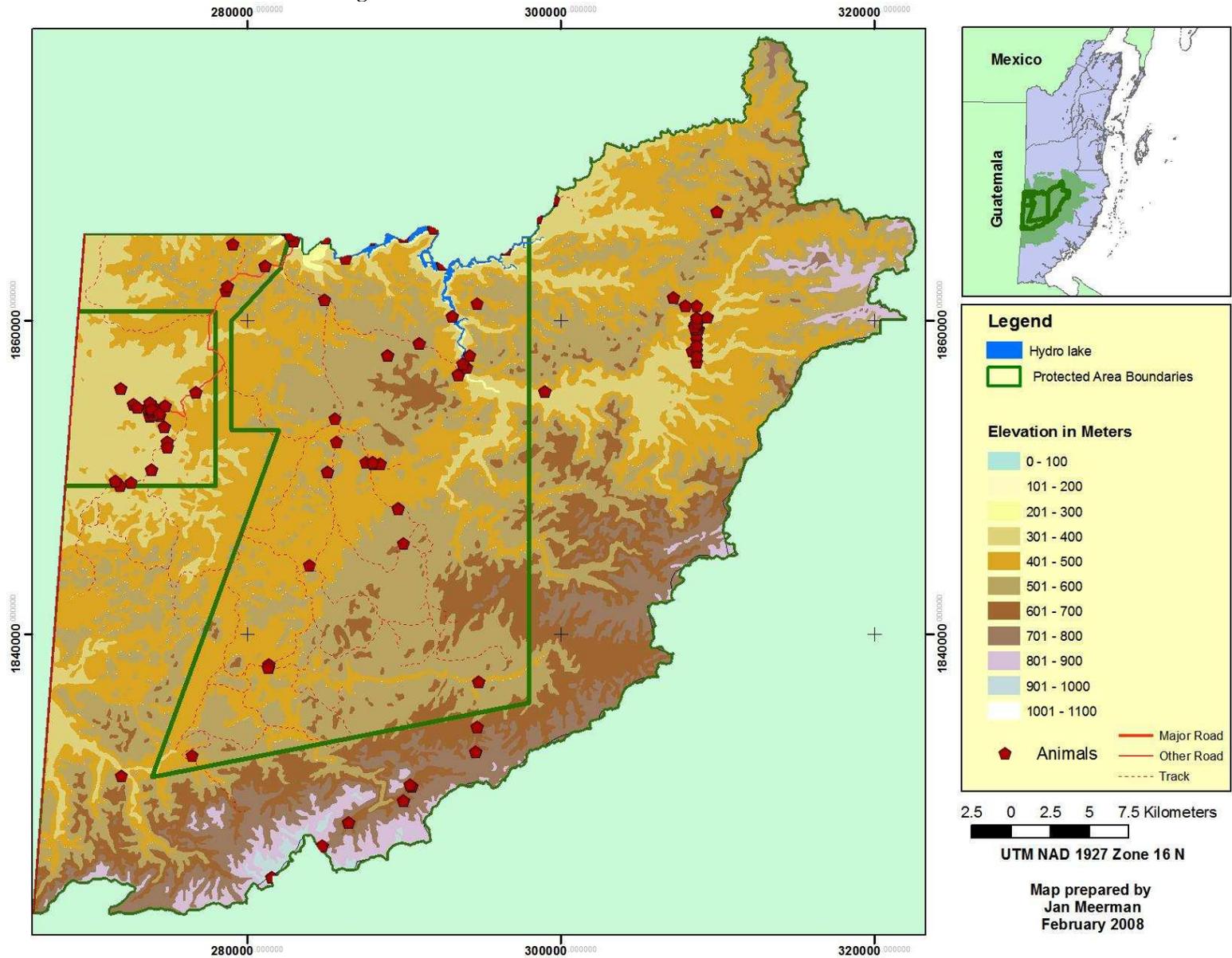
Chiquibul National Park Management Plan 2008-2013

Figure 11 – Flora records from the BERDS database



Chiquibul National Park Management Plan 2008-2013

Figure 12 – Fauna records from the BERDS database



2.5.4 Past and Present Research

The CNP has also been an important area for scientific research. The Las Cuevas Research Station, which is located in the middle of the CFR, has been operating since 1995 to document the biodiversity of the Chiquibul Forest and contribute practical knowledge to Belize's sustainable development and conservation. Priorities include understanding the maintenance and structure of the forest, evaluating human and natural impacts on the forest and linking science with conservation policy. Recent collaborative research activities have included the Harpy Eagle Release Program (Belize Zoo and Peregrine Fund), the Darwin Initiative Sustainable Conservation of Xaté (Natural History Museum, Belize Botanical Gardens and New York Botanical Gardens), Jaguar Population Survey (WCS), Scarlet Macaw Artificial Nest Program (BECOL and FCD), and Genetic Studies of Spiders and Reptiles (Memphis Zoo and NHM) (C. Minty, 2005).

Early research in the Chiquibul Forest focused largely on forest resources (Wolffsohn, 1956, 1960. Smith, Bird, 1998). But more recently the focus has been more on biodiversity. Some species have been subject to multiple studies such as the Scarlet Macaw (Kainer, 1990; Mallory & Matola, 1998; Matola & Sho, 2003; Renton, 1998) and the Xaté palm (Bridgewater et al, 2006; Wicks, 2004). There is also a substantial body of research on caving and particularly on the Chiquibul Cave System (Miller 1984-2001). Much of the biological research originated from the Las Cuevas Research Station. An overview of research (published and unpublished) can be viewed at <http://www.mayaforest.com/projects.htm>.

Of interest for management purposes are the studies from Malory and Brokaw (1995) and Lewis (2001) on birds and butterflies. These studies found few differences in bird/butterfly composition between logged and un-logged forests. This surprising lack of response of both bird and butterflies to disturbance caused by selective logging is theorized by the authors' fact that Belize's forests are naturally prone to disturbances such as tree falls and hurricanes. Disturbances caused by selective logging from an ecological perspective are just "background noise".

A list of research publications is encapsulated in Section 7 (References).

2.6. Cultural and socio-economic value of CNP

2.6.1 Community and Other Stakeholder Use

Since the CNP is bordered by other protected areas there are no communities adjacent to the park. This means that there are no persistent and direct pressures to exploit the CNP's biodiversity, at least from the Belize side of the border. Most of the anthropogenic pressures on the CNP come from the Guatemalan side of the border, where there are an estimated 65 communities within a 45 kilometer stretch along the international frontier zone. FCD has recognized eleven Guatemalan buffer communities that depend on agriculture for their subsistence and are increasingly farming within the Chiquibul Forest where as much as 4,462 ha (11,028 acres) have so far been cleared in both the Chiquibul National Park and the Caracol Archaeological Reserve¹⁰ (see Figure 7 above). These communities have also served as staging grounds for large-scale xaté harvesting within the Chiquibul Forest. It has been estimated that on peak seasons there are up to 800 Guatemalan xaté harvesters operating within the confines of the Chiquibul Forest (N. Bol, pers. comm. 2006). There is also evidence that these farmers and xaté collectors engage in widespread hunting of game species within the area, resulting in significant impact on the park's wildlife. For example, FCD Rangers have observed that the White-lipped Peccary, once abundant in the area, is now rarely observed within the CNP.

The Belize Defense Force and the British Army Training and Support Unit have for many years used the CNP as a military training area. As Figure 13 shows, large areas of the Chiquibul Forest are designated as military training zones. At times of high activity, troop levels have reached battalion strength, with training activities crisscrossing over wide swaths of the Chiquibul Forest. Training includes the firing of live and blank ammunition, etc., which primarily results in noise pollution that may have impacts on wildlife populations and tourism activities. Other associated impacts include damage to the vegetation and forest floor through the explosion of military shells, and compaction of the soil caused by base camp operations and use of military hardware.

¹⁰ Based on GIS analysis of 2007 Landsat tm data.

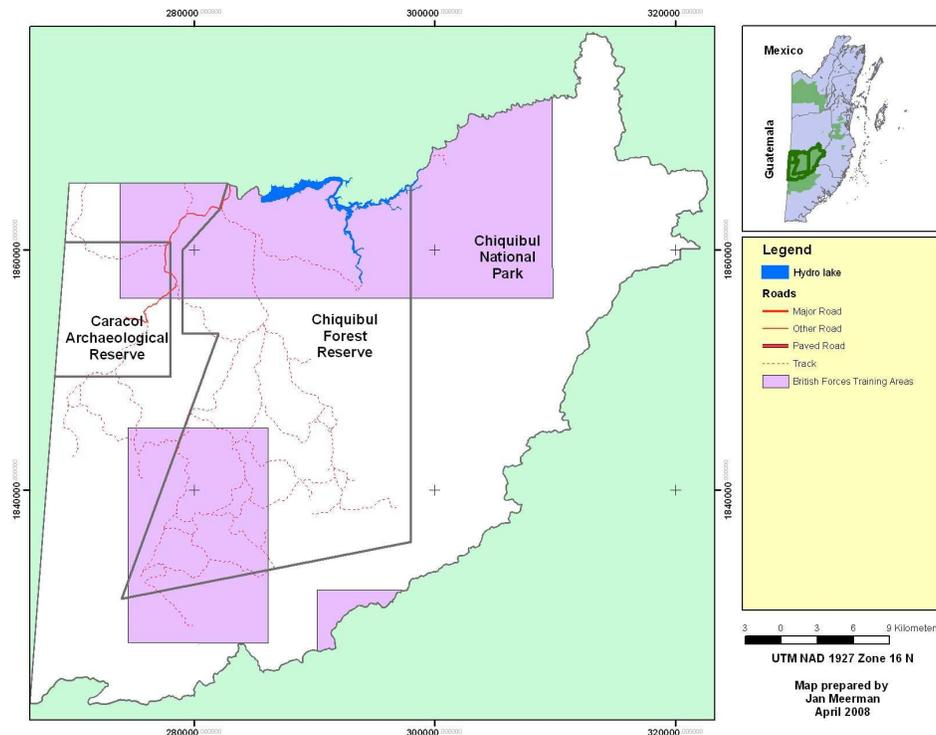


Figure 13 – Military training areas in the Chiquibul Forest

2.6.2 Archaeological Sites

The Chiquibul Forest, like most places in Belize, is thought to be dominated with archeological sites. Most of the major and minor centers of archaeological significance that have been mapped in the Chiquibul Forest are located within the Caracol Archaeological Reserve (CAR) and the northern and central part of the Chiquibul Forest Reserve, with a few sites in the western Chiquibul National Park south of the CAR. With the exception of the Cush Tabani site, no sites have been mapped in the southern and eastern CNP (see Figure 14 below). This latter fact does not indicate that archaeological sites are not located in this area; this simply means that there is an information gap – few surveys have been carried out in the area and, therefore, few sites have been discovered and mapped out (J. Awe, pers. comm., 2007).

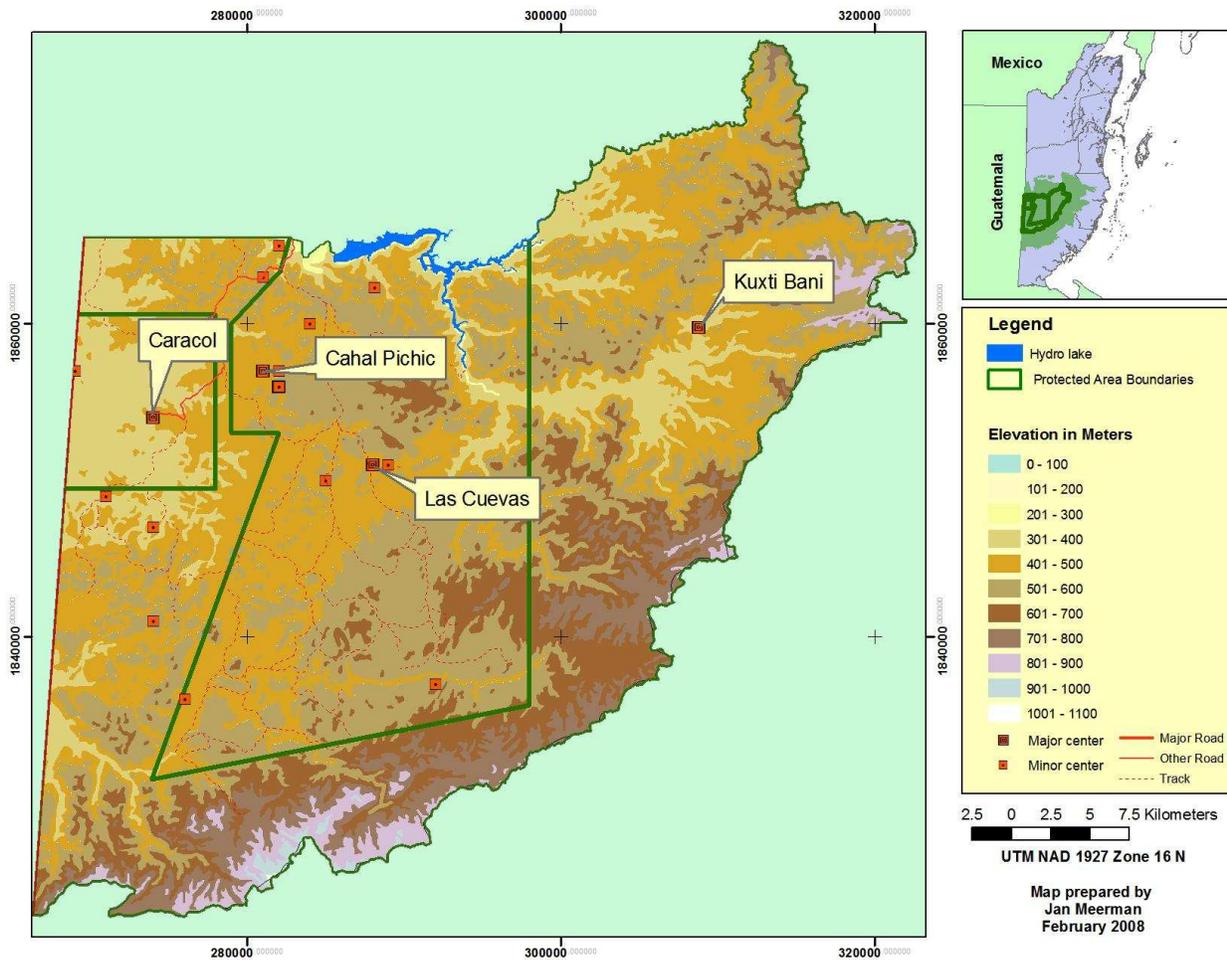


Figure 14 - Major and minor centers of archaeological significance in the Chiquibul

Of the known archaeological sites in the Chiquibul forest, the most well known are those at Caracol, as well as the archaeological features within the Las Cuevas site located next to the Las Cuevas Research Station in the center of the CFR. Caracol, which is administered by the Institute of Archaeology, is a major tourism destination.

2.6.3 Tourism and Recreation Use

Tourism use within the Chiquibul Forest has been largely limited to the Caracol archaeological site, which is accessed by an all-weather road through the Mountain Pine Ridge Forest Reserve (the final 6 kilometers stretch of this access road within the CAR is paved). There is also the occasional hiker/trekker and spelunker. The two other well-known but less-visited tourism destinations in the area include the caves at Las Cuevas and the Natural Arch, both located within the CFR (see Figure 15 below). Las Cuevas is accessible year-round, except during the height of the rainy season due to the current conditions of the access dirt road. The Natural Arch has recently not been accessible to regular 4X4 vehicles due to severe road conditions, which have been worsened due to constant use by heavy equipment from mining operations.

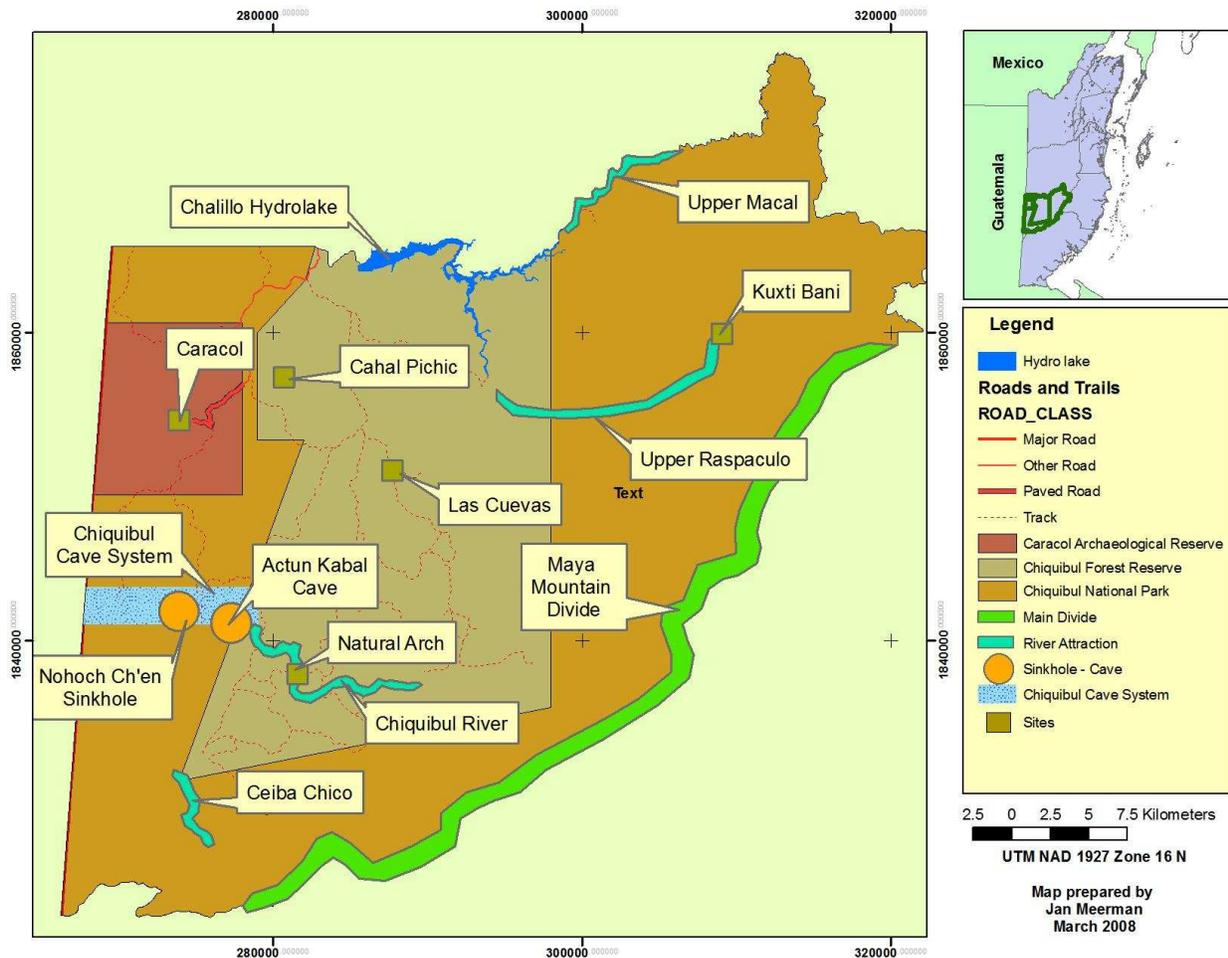


Figure 15 – Selected current and potential tourism sites within the Chiquibul Forest

The geology of the western part of the Chiquibul Forest is dominated by limestone features, which explains the abundance of caves and sinkholes in that area. As shown, the sinkholes are clustered within the southwestern part of the CNP; the best known sinkhole – Nohoch Ch'en – is located within the park. The greater part of the extensive Chiquibul Cave System, which has been featured in the National Geographic Magazine, is also located in this same area. These sites can only be accessed via dirt roads (tracks) and by foot, and are therefore rarely used by the average visitor (see Figures 14 and 15). In January 2008, the Institute of Archaeology and FCD signed a collaborative agreement for the management of the Chiquibul Cave System.

2.6.4 Other Economic Use

Legitimate economic uses within the Chiquibul Forest have been largely limited to logging and mining operations and, recently, a xaté harvesting activity. On October 18, 2006, Derrick Codd of San Ignacio, Cayo District, was issued with a two-year license for the harvesting of Xaté palm leaves (*Chamaedorea spp.*) within the Chiquibul Forest Reserve “but excluding therefrom all military training areas (whether granted or authorized prior to or after the issuance of this license).” Leaves of the following species of Xaté palms are allowed to be harvested under the license: *Chamaedorea tepejilote*, *Chamaedorea elegans*, *Chamaedorea oblongata* and *Chamaedorea ernesti-augustii*. This licence is now held by Gosen Product Co Ltd.

Bull Ridge Company (managed by Pine Lumber Company) has been granted a long-term forest licence for the entire CFR. Operations within the area have been confined to irregular selective logging, but are projected to expand soon.

Gold prospecting in the Ceibo Chico area of the Chiquibul National Park has been an ongoing activity since the late 1980s, and continues under Boiton Minerals/Erin Ventures Inc. (under Ceiba Resources Ltd.). The first exploration license was issued in 1999, and the operation has been slowly increasing in size since the extension of the exploration license in 2004. The company has held prospecting licenses for four contiguous blocks, covering a total of 34km², and a mining license covering 38.85 hectares (96 acres), which has recently been renewed for another 5 years, and extended in September, 2007, to cover 160.25 hectares (396 acres), to give the mining company mining rights to the total area of alluvial fan associated with the Ceibo Chico drainage system (Wildtracks, 2008). A new company, Orion, is preparing to commence work in the nearby licence area of Erin Ventures Inc.

2.6.5 Education Use

Regular education (formal and informal) activities have not taken place at CNP in the past, due to the fact that a permanent management presence has not been in place. With the onset of management, FCD has commenced the development of an education and outreach program, which is targeting schoolchildren, youth and adults within the communities of Arenal, Benque Viejo del Carmen, San Ignacio, San José Succotz, Siete Millas, Cristo Rey and San Antonio. These communities buffer the Vaca Forest Reserve and Mountain Pine Ridge Forest Reserve, which are themselves adjacent to the CNP. Eight communities in Guatemala are also being targeted with the assistance of CONAP. The primary objective of the first year of the education outreach campaign has been to promote the importance of the Chiquibul Forest in the overall Chiquibul-Maya Mountain region and to promote awareness of the multiple benefits derived from the area such as air, water and recreational opportunities.

3. Analysis of Conservation & Cultural Targets and Threats

3.1. Conservation and Cultural Targets

Through the Maya Mountain Massif (MMM) CAP process, a number of conservation and cultural targets were chosen to represent and encompass the biodiversity and cultural values of the MMM area.

Of these, the CNP planning team selected five focal targets, two are ecosystem-level targets (Broadleaf Forest and Aquatic and Riparian Systems), and the other three are cultural targets (Archaeological Sites, Aesthetic Landscapes and Subterranean Systems). Additionally, two species-level targets (Xaté and Scarlet Macaw) were chosen, which take into account the specific challenges and pressures faced at the CNP (see boxes below).

These focal targets provide a basis for setting goals, developing management strategies and actions, and monitoring success.

The focal targets of the CNP can be divided into three subgroups:

Focal Conservation Targets:

A limited suite of species communities and ecological systems that are chosen to represent and encompass the full array of biodiversity found in an area. They are the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. In theory conservation of the focal targets will ensure the conservation of all native biodiversity within functional landscapes. Often referred to as “focal targets” “biodiversity features” or “focal biodiversity.” (TNC 2007)

Criteria for selecting conservation targets:

- **Targets should represent the biodiversity at the site.** The focal targets should represent or capture the array of ecological systems, communities and species at the area and multiple spatial scales at which they occur.
- **Targets are highly threatened.** All else being equal, focusing on highly threatened targets will help ensure that critical threats are identified and addressed through conservation actions. (TNC 2007)

Ecosystem level. Assemblages of ecological communities that occur together share common processes, and have similar characteristics. Two ecosystems were selected:

**Conservation Targets -
Ecosystems:**
✓ Broadleaf Forests
✓ Aquatic and Riparian Systems

Species assemblages/Flagship species. Groups of species that share common natural processes or have similar conservation requirements. Also included is a wide-ranging flagship species that is highly threatened within its range:

**Conservation Targets –
Species:**
✓ Xaté
✓ Scarlet Macaw

Three cultural targets were chosen to represent the cultural values of the CNP:

Cultural Targets:
✓ Archaeological Sites
✓ Aesthetic Landscapes
✓ Subterranean Systems

A brief description of each target follows.

Except for some shrubland and very small patches of needle-leaved forests, **broadleaved forests** occur over 95% of the Chiquibul Forest. The broadleaved forests consist of several ecosystems or subtypes based on geology, rainfall, elevation, inclination and to some degree species composition (palm forests) (see Annex 1). The transitions between the various subtypes can be gradual, subtle and difficult to detect. Therefore, for the purpose of this management plan all broadleaf forests are lumped together. All they have in common is that the dominating life-form consists of broad leaved trees. Locally palm trees (particularly *Attalea cohune* – on rolling terrain and *Colpothrinax cookii* on the highest ridges) can be dominant.

Aquatic and riparian systems: Due to the karstic limestone nature of much of the Chiquibul, there is relatively little surface water. This does not mean there is no water, but much of it runs underground through the various caves and underground river systems. The most important surface waterways are the Macal, Raspaculo, Monkey Tail and Chiquibul rivers/streams. Along the Maya Mountain Divide are many more smaller headwater streams and the entire area effectively drains into the Belize River. As such, the hydrological regime of the Chiquibul Forests is of vital importance not only for the ecology of the area but of vital economic importance for much of Belize and the adjacent Petén, Guatemala.

While the rivers and streams themselves are key targets, this riparian system does not consist of these rivers and streams only. The adjacent shores are an integral part of this. The riparian systems include riparian shrublands. These are broadleaf forests that are constantly being disturbed by flash floods. As a result many rivers are fringed by secondary, often even herbaceous growth. These riparian shrublands are very dynamic and energy rich. As a result the riparian zones are key zones for many species, not just herbivores (such as Tapir) that benefit from the lush herbaceous vegetation but also for predators that are attracted to this herbivore riches.

The **Scarlet Macaw** is the largest of the parrots in Belize, with a national population thought to number fewer than 200 individuals (Matola, 2002). Whilst it was once thought to occur over much of the central forested areas of Belize, it is now considered to be restricted to the Chiquibul/Maya Mountains area, with a nesting range thought to be confined to the Raspaculo River area in the more remote Chiquibul region. A portion of this nesting area, in the upper Macal/Raspaculo River region, has recently been inundated, following the construction of the Chalillo Dam, though it is hoped that the birds will continue to use the area. Illegal xateros are known to kill Scarlet Macaws within the Chiquibul Forest area to supplement food as they collect xaté palm leaves, and it is believed there is also an illegal trade of nestlings to Guatemala for the pet trade.¹¹

Xaté (*Chamaedorea*) is the largest palm genus in the Neotropics, comprising between 80 and 100 species, and are generally harvested for their leaves. Cut leaf from *Chamaedorea* is now one of northern Central America's most important non-timber forest products. The harvesting of xaté from the wild for the floral market has been one of the most important economic activities in the neighbouring Petén region of Guatemala. With local yields in decline, individual xaté collectors (xateros) in Guatemala have been illegally crossing into Belize, a country where xaté has until recently not traditionally been utilized as a NTFP and where the high-value species *Chaemadorea ernesti-augusti* is found in high abundance. There is now a constant observed xatero presence in the Chiquibul Forest area, suggesting that the problem is acute, and a network of small foot trails and recently established larger horse tracks act as the primary routes feeding across the border into Guatemala (Bridgewater, et al, 2006). The major current impact on the Chiquibul Forest has been identified as the illegal, widespread and unsustainable harvesting of *C. ernesti-augusti* (**xaté**), with associated hunting pressure, which has reportedly drastically reduced populations of many game species within the forest, including species not generally hunted within Belize, such as Baird's tapir, scarlet macaw and spider monkeys (Wildtracks, 2008).

Several sub-targets have been identified under the **Archaeological Sites** target. They are:

- ✓ Ancient Maya Cities
- ✓ Portable carved monuments
- ✓ Other movable objects
- ✓ Rock art
- ✓ Cairns
- ✓ Agricultural terraces
- ✓ Sacbeob
- ✓ Modified springs
- ✓ Quarries
- ✓ Industrial features

There are several examples of each of these sub-targets within the Chiquibul Forest area. Geological features are pretty much known, as they have been mapped. However, archaeological features are much less known. Figure 12 on page 28 shows the lack of documented sites in the eastern lobe of the CNP (only Cuxta Bani mapped). Surely there are more sites located in that area; they just have

¹¹ Source: *Draft Summary: Technical Assessment of the Maya Mountains Massif, 2007* (p22)

not been found.

The geological and hydrological features of the Chiquibul Forest have created an astounding number of panoramic views and physical features, which have been grouped here as **aesthetic landscapes**. Five such landscape and viewscape features have been selected for attention:

- ✓ Natural Arch/Puente Natural
- ✓ Chiquibul River
- ✓ Raspaculo branch of the Macal River
- ✓ Nohoch Che'en sinkhole
- ✓ Kaan Witz (Doyle's Delight)

Subterranean Systems: The geological nature of the western half of the Chiquibul has created some unique conditions. As discussed under Aquatic and Riparian Systems, the limestone underground is very permeable which allows water to percolate into the various geological strata below. As a result surface waters tend to be scarce and many rivers go underground at least for part of their trajectory. The water wears out caverns and tubes (underground waterways) and the result is a “swiss cheese” pattern of holes in the limestone known as “Karst”. Karstic systems typically house unique species such as highly adapted invertebrates (blind spiders, white crayfish etc) and provide residence for species such as bats that use caves for daytime roosts.

Nested Target # 1: Endemic Fishes and other species – The Chiquibul Cave System houses several unique aquatic species. There are several unique invertebrates but more specifically there is a cave fish the “Blind Chulin” (*Rhamdia typhla*) which is a close relative of *Rhamdia laticauda* which lives in surface waters. The Blind Chulin appears to be a species in transition. In the same underground stream you can find all-white, completely blind fish together with pale brown specimens that show vestiges of at least one eye.

Nested Target # 2: Bats – Subterranean systems are of vital importance for many of the bat species that occur in the Chiquibul forest. These bats and the sensitivity of their roosts are also one of the main reasons why visitation to these subterranean systems needs to be considered with great care.

Nested Target # 3: Archaeological sites and artifacts – For the ancient Maya's, cave represented a gateway to the underworld. Consequently many subterranean systems show signs of ancient (mostly ceremonial) human use. Because of the prevalence of Mayan artifacts in Belize's subterranean systems, caves automatically fall under the jurisdiction of the Institute of Archaeology.

3.2 Threats to biodiversity

The critical threats on the biodiversity of the CNP and the Chiquibul Forest are summarized in the table below:

Chiquibul National Park Management Plan 2008-2013

Table 5 – Summary of critical impacts to Chiquibul’s biodiversity¹²

Pressure/Threat	Impacts on Biodiversity	Causes
Illegal Hunting	<ul style="list-style-type: none"> • Reduced viability of game species populations, and associated impacts on trophic structure of area • Likely long-term perturbation of forest structure & dynamics because of xatero hunting impacts on seed dispersers • Likely long-term perturbation of aquatic ecosystems because of reduced populations of larger fish species 	<ul style="list-style-type: none"> • Low income in Guatemalan communities adjacent to PA, and reliance on game meat and fish to supplement diet • Limited capacity of PA staff to effectively monitor and enforce within PA (limited staff / finance) • Increased access from land clearance in boundary areas, for subsistence, recreational and commercial hunters
Unsustainable and/or Illegal Xaté Harvesting	<ul style="list-style-type: none"> • Reduced viability of xaté (<i>Chaemadorea ernestii-augustii</i>) • Associated impacts on wildlife – intensity, indiscriminate hunting, harvesting of parrots for pet trade, clearing of vegetation for camp areas, harvesting of pacaya and other plant food sources • Likely long-term perturbation of forest structure & dynamics because of xatero hunting impacts on seed dispersers • Impoverishment of genetic pool 	<ul style="list-style-type: none"> • Low income in communities in Guatemala communities adjacent to CNP • Good market price of xaté in Guatemala and internationally • High demand from international market • Limited ability to effectively monitor and enforce within CNP (number of rangers / finance) • Weak governance and law enforcement in border areas with southern Petén, Guatemala
Agricultural Incursions	<ul style="list-style-type: none"> • Removal of broadleaf forest cover • Associated impacts on wildlife – indiscriminate hunting, harvesting of Scarlet Macaws for pet trade, harvesting of pacaya and other plant food sources • Fire impacts associated with forest clearance for agriculture • Leaching of soils with removal of forest canopy • Increased erosion on steeper slopes 	<ul style="list-style-type: none"> • Limited land availability for agriculture in Guatemala, for communities adjacent to Belize border • Limited capacity of PA staff to effectively monitor and enforce within PA (limited staff / finance) • Increased access in boundary areas with Guatemala • Weak governance and law enforcement in border areas with southern Petén, Guatemala • Limited environmental awareness • Limited knowledge of boundary line
Land Use Change in Adjacent Areas	<ul style="list-style-type: none"> • Removal of buffer area vegetation • Increased accessibility for hunting, fishing, looting • Increased potential for edge effects along boundaries following clearance of forest for agricultural land • Increased fire hazard along boundary areas • Increased potential for agricultural incursion and/or illegal logging 	<ul style="list-style-type: none"> • Increased requirement for agricultural land in Guatemala • Lack of political will to contain farmers into forest areas

¹² Source: CNP Planning Workshop (2007) and adapted from MMM RAPPAM Results (2007)

Chiquibul National Park Management Plan 2008-2013

Land Allocation/Dereservation	<ul style="list-style-type: none"> • Allocation of land within adjacent protected areas (Vaca) for farming, resulting in forest clearance and size reduction of CNP buffer zone 	<ul style="list-style-type: none"> • Advance of agricultural frontier, with encroachment on CNP • Political motivation • Lack of liaison and cooperation between Government Departments • Lack of clear boundaries, and lack of awareness of locations of protected areas among local communities • Lack of respect for environmental benefits of protected areas
Legal and Illegal Logging	<ul style="list-style-type: none"> • Changes in species composition within CFR with selective removal of species such as cedar, mahogany etc. • Fragmentation of forest structure through construction of logging roads and tracks • Increased access for hunting and other illegal activities • Hunting by logging crews • Increased risk of erosion in riparian belt 	<ul style="list-style-type: none"> • High demand for timber and timber products, both within Belize and for export • Increasing value of timber • Use of cut logs for house and livestock fence construction • Weak enforcement of logging policies • Ineffective monitoring systems
Visitor Impacts	<ul style="list-style-type: none"> • Increased visitor numbers, with related impacts of soil compaction on trails, increased garbage, expanding and unofficial campsites, pressure on fragile ecosystems, increased fire risk • Vandalism (including graffiti) of archaeological structures and caves • Unregulated education field project activities and impacts 	<ul style="list-style-type: none"> • Lack of enforcement of ‘no litter’ regulations by guides • Lack of adequate incentives / fines • Limited capacity of PA staff to effectively monitor and enforce visitor regulations (number of staff / finance) • Lack of Tourism Management Plans
Research Impacts	<ul style="list-style-type: none"> • Unregulated research activities (eg. involving collection and experimentation on critically endangered amphibian species) 	<ul style="list-style-type: none"> • Limited capacity of protected area co-managers / research stations to oversee research relating to sensitive species • Lack of identification of research needs for management purposes
Impacts from dams	<ul style="list-style-type: none"> • Likely long-term perturbation of aquatic ecosystems because changed hydrologic regime • Removal of riparian vegetation and adjacent broadleaf forest at hydro facilities and within inundated area • Inundation of habitat for critical species 	<ul style="list-style-type: none"> • GOB policy to reduce Belize’s dependence on foreign energy • Lack of integrated management
Mining / Oil Exploration	<ul style="list-style-type: none"> • Removal of riparian vegetation and adjacent broadleaf forest in mining concession area • Fragmentation of broadleaf forest due to construction of access road, with increased potential for edge effects • Increased accessibility for hunting and other illegal activities • Possibility of contamination in Maya Mountain headwaters 	<ul style="list-style-type: none"> • High market value of gold and other mineral resources • Lack of well defined policies and guidelines in PA • Over-riding ability of Dept. of Geology and Petroleum to issue exploration and mining licenses within the Chiquibul Forest • Lack of integrated management

Chiquibul National Park Management Plan 2008-2013

<p>Military Impacts</p>	<ul style="list-style-type: none"> • Increased human presence in broadleaf forest areas • Increased noise impacts associated with training activities - explosions, live-firing and helicopters, for example, with disturbance of wildlife • Eye-sore impact on visitors in the Chiquibul forest • Increased fire risks • Low level hunting impacts by Belize Defense Force patrols and British Forces local trackers 	<ul style="list-style-type: none"> • Designated military training areas for British Forces, under agreement with Belize Government • Lack of strong lobbying for alternate places for live-firing training • Lack of awareness of protected area legislation and regulations among military personnel, and / or lack of respect, and / or lack of enforcement
<p>Looting of Archaeological Sites</p>	<ul style="list-style-type: none"> • Looting of archaeological structures and caves by xateros • Loss of information for management purposes 	<ul style="list-style-type: none"> • Limited capacity of PA staff to effectively monitor and enforce PA regulations (number of staff / finance) • Lack of archaeological documentation in the Chiquibul forest

4. Management and Organizational Background

4.1. FCD background

Friends for Conservation and Development (FCD) is a non-profit organization created in 1999, and is managed by an Executive Board (see Figure 16 below). Its predecessor organization, Youth Environmental Action Group (YEAG) was created since 1989, and at first conducted outdoor interpretation and eventually served as a voluntary monitoring agent reporting to the Forest Department and Department of Archaeology (now the Institute of Archaeology). The mission of FCD is to motivate the public to protect the environment through conservation awareness while at the same time enhance the development of the human resource. For the past 16 years, YEAG/FCD has primarily functioned as an environmental education organization, dedicated to create an awareness of environmental issues and encourage community involvement with the aim of making the general public more conscious of their actions. As a result, FCD has developed ample experience in working with communities and has developed skills for conducting impact-oriented conservation education, nature interpretation, monitoring, and research. FCD has also had a long relationship with the Forest Department due to its protected areas training component, primarily in co-management and community support programs.

FCD's strategic plan (2004-2006) provides for the organization to engage in protected areas management with an interest on the protected areas located in the Cayo District. From 1993, FCD has been conducting monitoring and research, and raising awareness about the plight of the Chiquibul Forest. And since 2002, FCD undertook discussions with the Forest Department seeking a co-management initiative for the Chiquibul forest

In May 2005 and November 2005, FCD convened a series of Chiquibul Stakeholders Planning Workshops, and organized and conducted a fact-finding expedition into the Chiquibul Forest in March 2005. These workshops and expeditions were able to define the major challenges and management needs for the Chiquibul Forest, and in particular for the Chiquibul National Park.

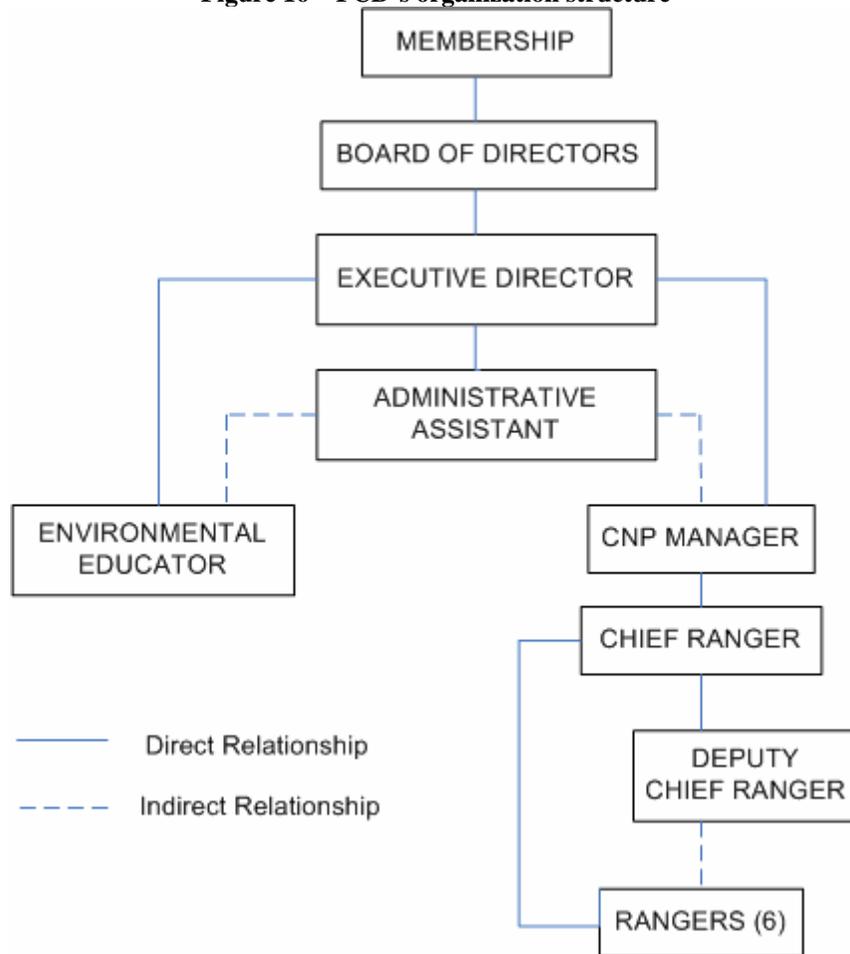
The Forest Department and FCD signed a provisional co-management agreement for the CNP on the 1st June 2007. The agreement sets out the following provisions:

- Development of a Management Plan that provides for the protection of the natural and cultural resources of the Chiquibul National Park;
- Institution of a Protection Program for the conservation of the ecosystems and species in the Chiquibul National Park,
- Development of a Research and Monitoring Program to conserve the park's critical biodiversity;
- Implementation of a Public Awareness Campaign that promotes the importance of the Chiquibul National Park; and
- Launching of a Chiquibul National Park financial sustainability plan to enable effective long term management.

4.2. Current management structure

FCD’s management structure is quite basic (Figure 16). It was fashioned to establish and initiate the organization’s two major programmatic areas – environmental education and protected areas management. Consequently, there are only two programme managers – the Environmental Educator and the CNP Manager. One Chief Ranger, a Deputy Chief Ranger and six Rangers are stationed at CNP and report to the CNP Manager. Both programme managers report to the Executive Director, who in turn is answerable to FCD’s Board of Directors. An Administrative Assistant supports the Executive Director, and the two programme managers.

Figure 16 – FCD’s organization structure



Clearly, this current management structure is a far cry from what is needed for FCD to effectively address the threats to CNP’s biodiversity. While not ideal, the recommended management structure shown and described in Section 5.5 (page 87) would better prepare FCD to address the CNP’s management needs and challenges, in partnership with the Forest Department and other key stakeholders.

5. The Management Plan

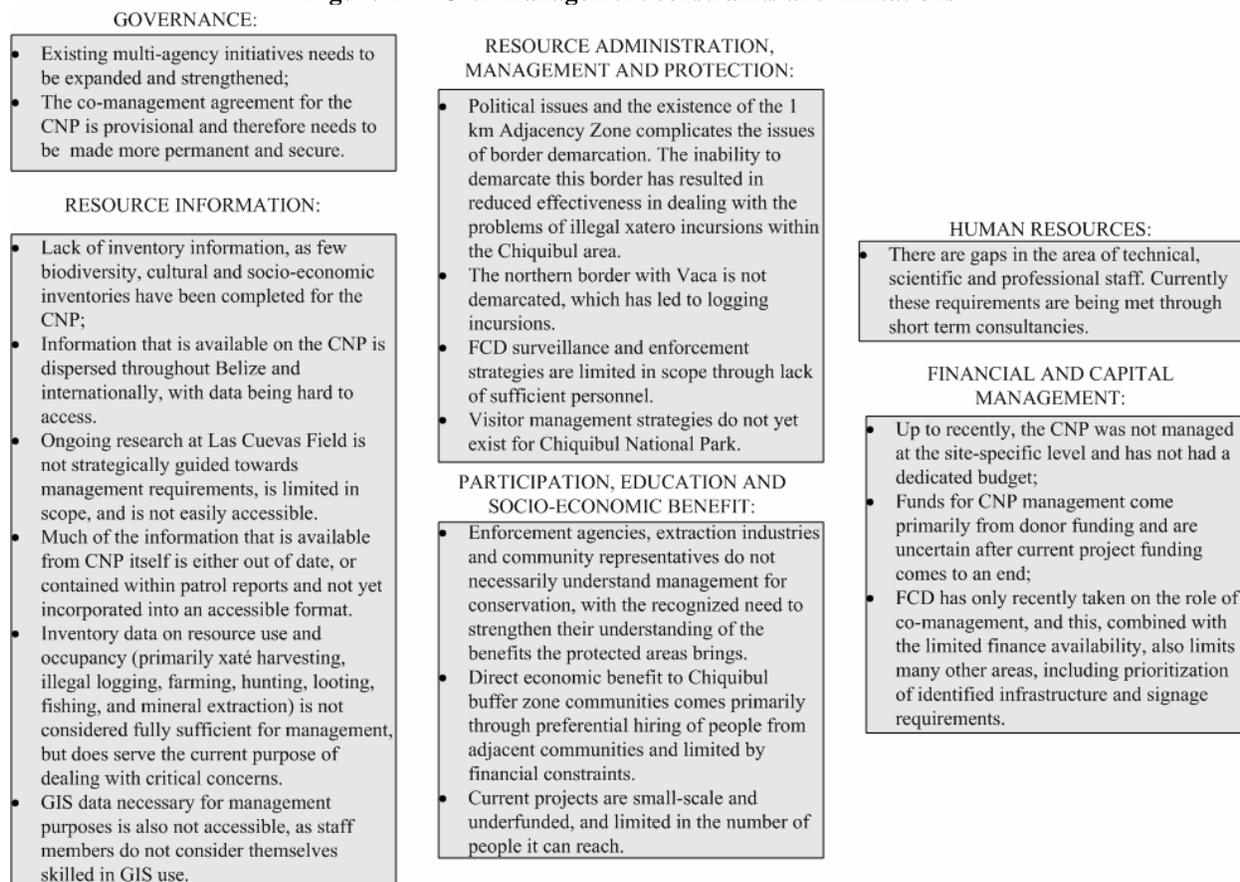
5.1. *Management Goal*

Management Goal for the Chiquibul National Park
<p style="text-align: center;">GOAL</p> <p>The Chiquibul National Park functions as a core area of protection of biological diversity within the Chiquibul forest and is recognized within the Greater Chiquibul/Maya Mountains Region for its intrinsic natural and cultural values, whilst contributing to national development, regional security and cooperation, and enhancing and maintaining its ecological integrity.</p>

5.2. *Management constraints and limitations*

Management constraints and limitations have been noted in the following areas: 1) Governance, 2) Resource Administration, Management and Protection, 3) Human Resources, 4) Resource Information, 5) Participation, Education and Socio-Economic Benefit, and 6) Financial and Capital Management. The following information on CNP management constraints and limitations (Figure 17) were excerpted from the Chiquibul National Park Assessment of Management Effectiveness report (Wildtracks, August 2007):

Figure 17 – CNP management constraints and limitations



5.3. Management zones

Zoning is an essential management tool, which defines the control of public access based on the protected area designation, natural resource use, education and research requirements, and intends to minimize potential impacts on the conservation role of the Protected Area.

The current classification of the Chiquibul National Park is of “National Park”, which under the National Park Systems Act of 1981 is defined as:

“for the protection and preservation of natural and scenic values of national significance for the benefit and enjoyment of the general public”

... as such allowed activities within the park include research, education and recreation.

Until now management has largely followed this designation. But the Belize National Protected Area Systems Plan (BNPASP) (Meerman & Wilson, 2005), mandates that current management designations be reviewed. Literally, the BNPASP states: *“Simplify the existing system by consolidating adjacent protected areas into single, multizoned, management units.”* This creates a smaller number of sites that are individually more important.

Following this mandate, a draft zoning plan is presented here that could be implemented for the CNP only but ultimately should be extended to encompass the entire Chiquibul Forest area (Chiquibul NP, Chiquibul FR and Caracol Archaeological Reserve).

The guidelines for the current zoning proposal are based on the following premises:

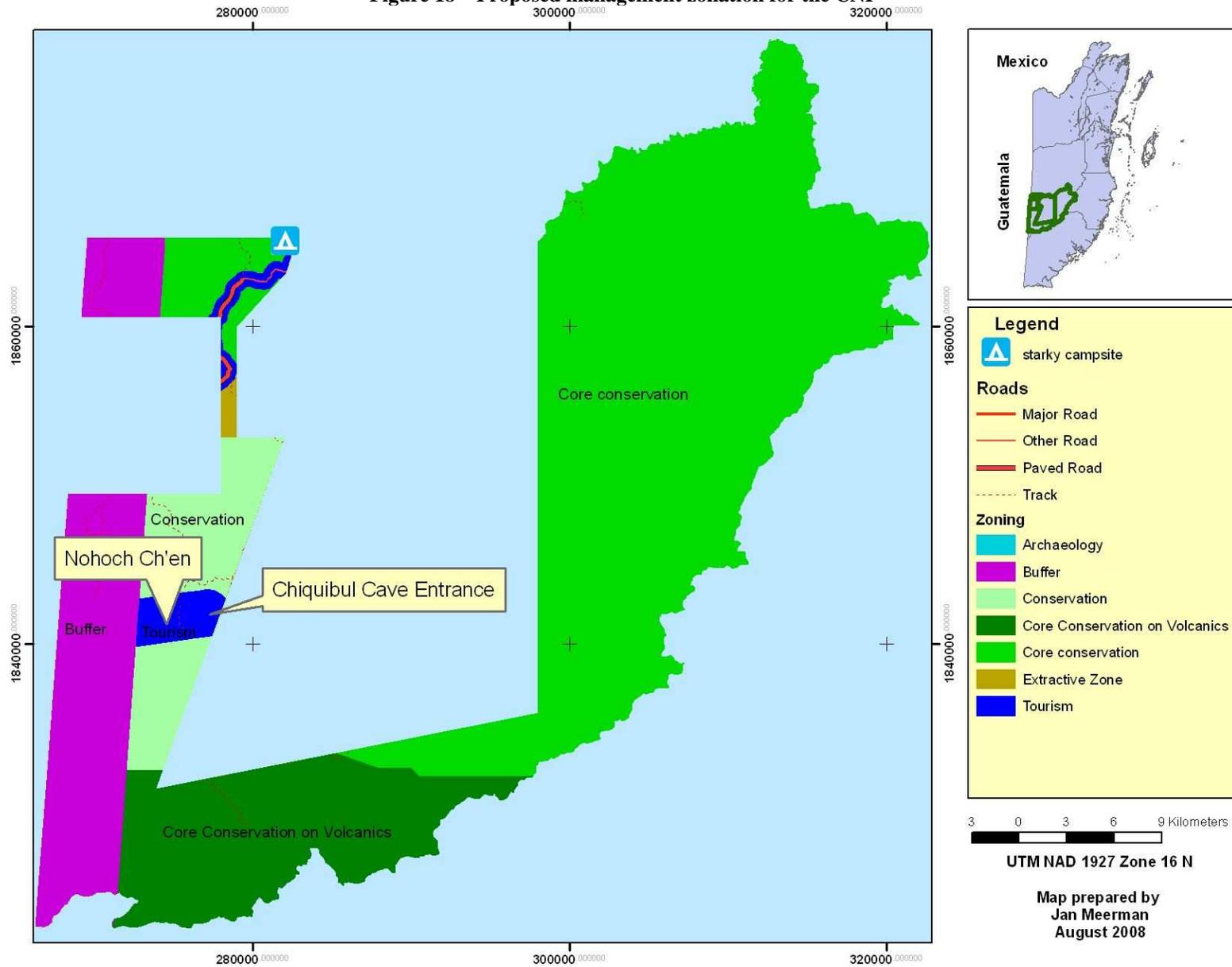
- Steepness of the terrain, with the less steep zones designated for timber management and the steeper areas for conservation. The boundaries of the current Chiquibul NP and FR were largely designed following this criterion;
- The outcomes of the Protected Area System Assessment and Analysis: Gap Analysis and MARXAN Analysis (Meerman, 2005);
- The Key Biodiversity Area Analysis (Meerman, 2007);
- The Chiquibul, Maya Mountains Conservation Action Planning (Wildtracks, 2007);
- Location of known archaeological sites and features;
- Location of known scenic landscape features;
- Location of current mining exploration and exploitation interests; and
- Location of current incursions for agricultural activities.

The outcome of this analysis is presented in Figures 18 and 19 below. This outcome represents the entire Chiquibul Forest area (as a future ideal scenario) (Figure 19) but legal changes will be required for the ideal scenario which is to manage the Chiquibul Forest as a single multi-zone unit. In the meanwhile, it can be implemented for the CNP only or to start with (Figure 18). The Table that follows provides a definition for each Zone, as well as objectives and regulations/guidelines for the proposed management zones (Table 8). The Zones are color-coded for ease of reference. It should be stressed that the proposed zonation does not take away any area under the jurisdiction, care and day to day operations of any of the current management agencies. Rather, the proposed zonation promotes an integrated management involving an improved coordination between the various management agencies that have a stake in the Chiquibul Forest.

For the implementation of objectives focused towards further developing the Chiquibul Forest area as an integrated protected area with multiple use zones, it should be borne in mind that management planning is an adaptive process, and over the five- year period, it may be necessary to amend zoning to allow for new activities and rearrangement of priorities.

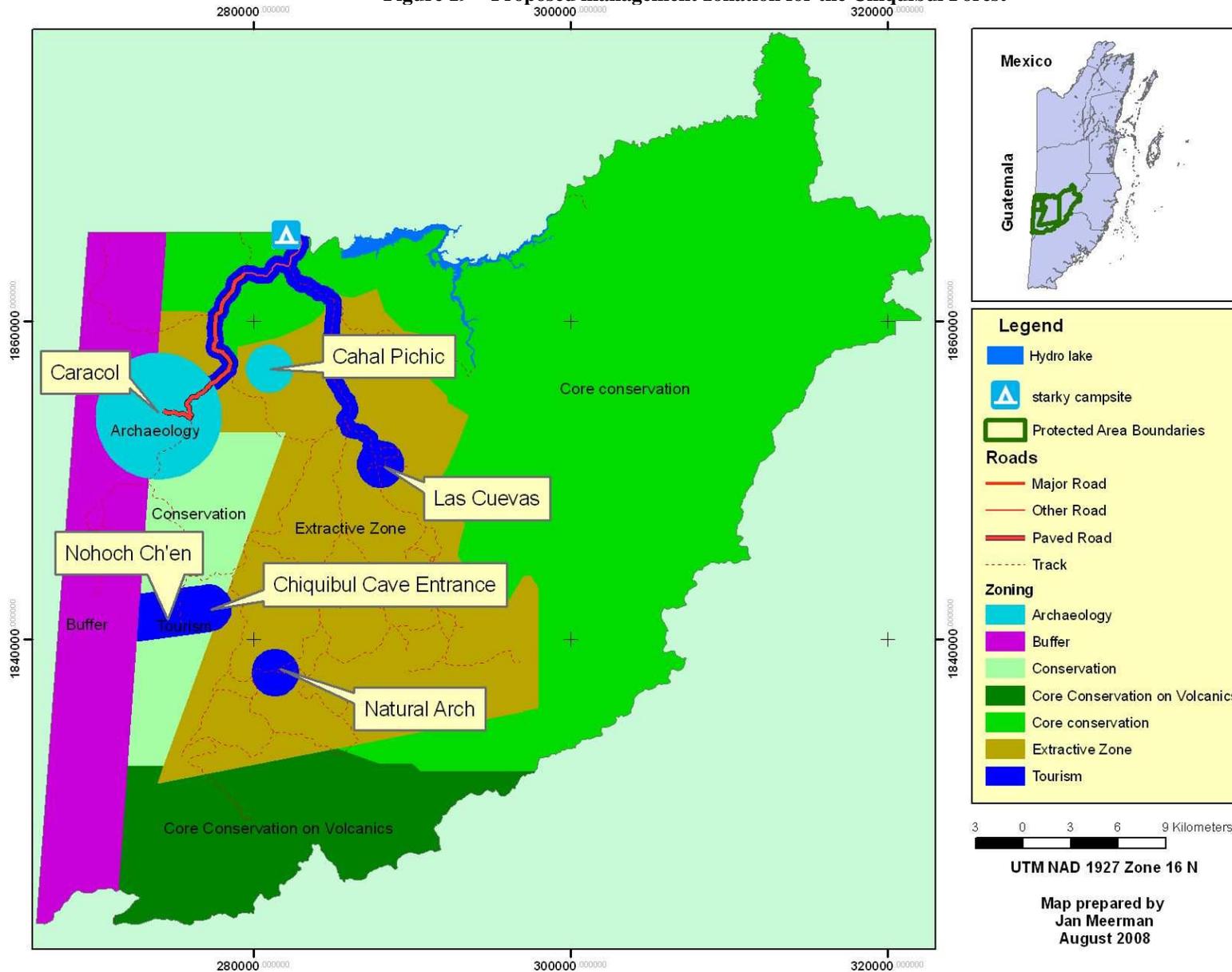
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Figure 18 – Proposed management zonation for the CNP



Chiquibul National Park Management Plan 2008-2013

Figure 19 – Proposed management zonation for the Chiquibul Forest



Map prepared by
Jan Meerman
August 2008

Chiquibul National Park Management Plan 2008-2013

Table 6 – Proposed Future Management Zones (2008-2013)

<i>Zone</i>	<i>Objective</i>	<i>Regulations/Guidelines</i>
<p><i>IUCN Cat. 1a</i></p>	<p><i>Strict Core Preservation Zone</i></p> <p>Restricted use area for core biodiversity and cultural resource protection, with critical management activities (including prioritized surveillance and enforcement) and research.</p> <p>Some areas may be opened for controlled, low impact, guided, tourism, where site-level management permits</p>	<ul style="list-style-type: none"> ▪ No entry, except by management, surveillance and enforcement personnel, permitted researchers ▪ Minimal impact research under special permission from Forest Department, Institute of Archaeology (dependent on research target) and site-level protected area co-managers ▪ No collecting of flora, fauna or inorganic material other than by approved researchers (as defined within the Research Policy document) with the permission of Forest Department, in consultation with site-level protected area co-managers ▪ Effective, prioritized surveillance and enforcement program ▪ Controlled low-impact, guided tourism, where site-level management zones permit <p>Management roles: FD & FCD bear principal responsibilities with Institute of Archaeology retaining responsibility for any archaeological sites.</p>

	<i>Zone</i>	<i>Objective</i>	<i>Regulations/Guidelines</i>
<p><i>IUCN Cat 1a</i></p>	<p>Core Conservation on Volcanics</p> <p>Restricted use area open to management activities, researchers, with enhanced surveillance and enforcement activities.</p> <p>Covers area along the Maya Mountain Divide with high biodiversity value (identified as part of Belize’s primary Key Biodiversity Area), where mineral deposits are expected – Insufficient data is currently available for designation of management activities.</p> <p>Some areas may be opened for controlled, low impact, guided, tourism, where site-level management permits</p>	<ul style="list-style-type: none"> ▪ Maintain ecological, biological and hydrological functionality. ▪ To maintain landscape features and protect areas of particularly fragile habitat and/or those with threatened or rare species, or features of cultural importance ▪ To allow surveillance and enforcement, and carefully planned research and environmental monitoring activities ▪ To allow controlled, low impact, guided, tourism, where site-level management permits ▪ Increase knowledge of mineral and biodiversity resources for effective planning for integrated management of this prior to lifting moratorium ▪ To reduce and prevent impacts from current and any future exploratory and/or extractive mining activities through careful, informed, integrated planning and execution of approved activities 	<ul style="list-style-type: none"> ▪ No entry, except by management, surveillance and enforcement personnel, permitted researchers and current mining concession holder* ▪ Minimal impact research under special permission from Forest Department, Institute of Archaeology (dependent on research target) and site-level protected area co-manager ▪ No collecting of flora, fauna or inorganic material other than by approved researchers (as defined within the Research Policy document) with the permission of Forest Department, in consultation with site-level protected area co-manager ▪ Controlled low-impact, guided tourism, where site-level management zones permit ▪ Implementation of a moratorium on further mineral explorative / extractive activities until sufficient information is available for effective planning ▪ All mining operations (exploratory and extractive), to have EIA, with strict ECP guidelines, and monitoring by FD, FCD and Geology and Petroleum, funded by concession holder ▪ Where exploratory and /or extractive mining activities are approved, best practices for “minimum impact” are implemented, geared towards limiting footprint, damage, destruction or disturbance of natural habitat and cultural resources ▪ Close liaison and collaboration with Department of Geology and Petroleum, towards integrated management. <p>Management roles: FD & FCD bear principal responsibilities. Department of Geology and Petroleum directly manage any mining explorations and exploitations.</p>

	<i>Zone</i>	<i>Objective</i>	<i>Regulations/Guidelines</i>
<p>IUCN Cat 1b</p>	<p>Conservation Zone</p> <p>Low use area open to researchers, research students, natural resource students, but open to general enjoyment</p> <p>Provides a buffer for the Core Preservation Zone Conservation</p>	<ul style="list-style-type: none"> ▪ To maintain a large proportion of the Protected Area in an entirely natural state, under management of the Forest Department and site-level protected area co-managers ▪ To maintain biodiversity and watershed functionality with minimal human impact ▪ To allow access for scientific research, education and low-medium impact tourism ▪ To ensure effective surveillance and enforcement 	<ul style="list-style-type: none"> ▪ Minimal impact research under special permission from Forest Department, Institute of Archaeology (dependent on research target) and site-level protected area co-managers ▪ No collecting of flora, fauna or inorganic material other than by approved researchers (as defined within the Research Policy document) with the permission of Forest Department, in consultation with site-level protected area co-managers ▪ Low to medium impact tourism, where site-level management zones permit ▪ Effective Surveillance and enforcement • Alternative extraction experiments. <p>Management roles: FD & FCD bear principal responsibilities with Institute of Archaeology retaining responsibility for any archaeological sites.</p>

Chiquibul National Park Management Plan 2008-2013

	Zone	Objective	Regulations/Guidelines
IUCN Cat. II	<p>Archaeology Zone</p> <p>Visitor use area geared towards Archaeological Tourism and Archaeological Research</p> <p>General biodiversity and cultural resource protection, with visitor access for tourism, education and research</p> <p>Provides a buffer for the Core Preservation Zone</p>	<ul style="list-style-type: none"> ▪ To maintain biodiversity resources and watershed functionality with minimal human impact, under management of the Forest Department and site-level protected area co-managers ▪ To maintain cultural resources with minimal human impact, under management of the Institute of Archaeology, in collaboration with site-level protected area co-managers and, where relevant, Forest Department ▪ To allow access for scientific research, education and low-medium impact tourism ▪ To ensure effective surveillance and enforcement 	<ul style="list-style-type: none"> ▪ Management spearheaded by NICH – IoA. ▪ Minimal impact research under special permission from Forest Department, Institute of Archaeology (dependent on research target) and site-level protected area co-managers ▪ No collecting of flora, fauna or inorganic material other than by approved researchers (as defined within the Research Policy document) with the permission of Forest Department, in consultation with site-level protected area co-managers ▪ Low to medium impact tourism, where site-level management zones permit ▪ Effective Surveillance and enforcement <p>Management roles: Institute of Archaeology bears principal responsibility for management with assistance from FCD and FD in the biodiversity component.</p>

Chiquibul National Park Management Plan 2008-2013

	Zone	Objective	Regulations/Guidelines
IUCN Cat. II and III	<p style="text-align: center;">Tourism Zone</p> <p>General biodiversity and cultural resource protection, with visitor access for tourism, education and research</p> <p>Provides a buffer for the Core Preservation Zone</p>	<ul style="list-style-type: none"> ▪ To maintain tourism assets, biodiversity resources and watershed functionality with minimal human impact, under management of the Forest Department and site-level protected area co-managers ▪ To maintain cultural resources with minimal human impact, under management of the Forest Department in collaboration with site-level protected area co-managers and, where relevant, Institute of Archaeology. ▪ To allow access for scientific research, education and low-medium impact tourism ▪ To ensure effective surveillance and enforcement 	<ul style="list-style-type: none"> ▪ Minimal impact research under special permission from Forest Department, Institute of Archaeology (dependent on research target) and site-level protected area co-managers ▪ No collecting of flora, fauna or inorganic material other than by approved researchers (as defined within the Research Policy document) with the permission of Forest Department, in consultation with site-level protected area co-managers ▪ Low to medium impact tourism. ▪ Effective Surveillance and enforcement <p>Management roles: FD & FCD sharing responsibilities with Institute of Archaeology which oversees archaeological sites and caves.</p>
IUCN Cat. IV	<p style="text-align: center;">Buffer Zone</p> <p>Area along the border with Guatemala. Whilst not a permanent zone, it is recommended that the 5km strip adjacent to the border be considered a Buffer Zone, with particular attention to surveillance and enforcement activities</p>	<ul style="list-style-type: none"> • To maintain biodiversity and cultural resources, and watershed functionality with minimal human impact • To prioritize surveillance and enforcement activities • To maintain and restore biodiversity and watershed functionality • To allow for those activities designated under the management zones • To promote trans-boundary conservation efforts • To promote trans-boundary conservation efforts 	<ul style="list-style-type: none"> • Includes adjacency zone and associated OAS regulations. • Management involves input from BDF. • No entry, except by military, police, park staff and permitted researchers. • No damage, destruction or disturbance of natural habitat and cultural aspects • Surveillance and enforcement against illegal resource extraction • Extraction of non-timber forest resources may be permitted under FD licence if safety is not compromised <p>Management roles: FD & FCD bear principal responsibilities with Institute of Archaeology retaining responsibility for any archaeological sites.</p>

	Zone	Objective	Regulations/Guidelines
<p><i>IUCN Cat. VI</i></p>	<p><i>Sustainable Resource Extraction Zone</i></p> <p>General biodiversity protection area designated for sustainable extraction of timber and non-timber resources.</p>	<ul style="list-style-type: none"> ▪ To maintain biodiversity resources and watershed functionality with low human impact, under management of the Forest Department and site-level co-managers ▪ To maintain cultural resources with low human impact, under management of the Institute of Archaeology, in collaboration and site-level protected area co-managers and, where relevant, Forest Department ▪ To allow permitted, sustainable extractive use of natural resource, with effective licenses and monitoring in place ▪ To allow access for scientific research, education and low-medium impact tourism ▪ To ensure effective surveillance and enforcement 	<ul style="list-style-type: none"> ▪ Long Term Forest Licenses issued and monitored by Forest Department, ▪ Research managed and controlled by Forest Department and/or Institute of Archaeology (dependent on research target) and site-level protected area co-managers ▪ No collecting of flora, fauna or inorganic material other than by approved researchers (as defined within the Research Policy document) with the permission of Forest Department, in consultation with site-level protected area co-managers ▪ Low to medium impact tourism, where site-level management zones permit ▪ Effective surveillance and enforcement <p>Management roles: FD bears principal responsibility for any resource extraction permitting and management, but can negotiate assistance from FCD in managing biodiversity components. Institute of Archaeology retaining responsibility for any archaeological sites.</p>

Chiquibul National Park Management Plan 2008-2013

To ensure, however, that Zones cannot be altered without justification for the reasons for such changes, and agreement at all levels for such alterations, the following protocol should be followed (see Figure 20).

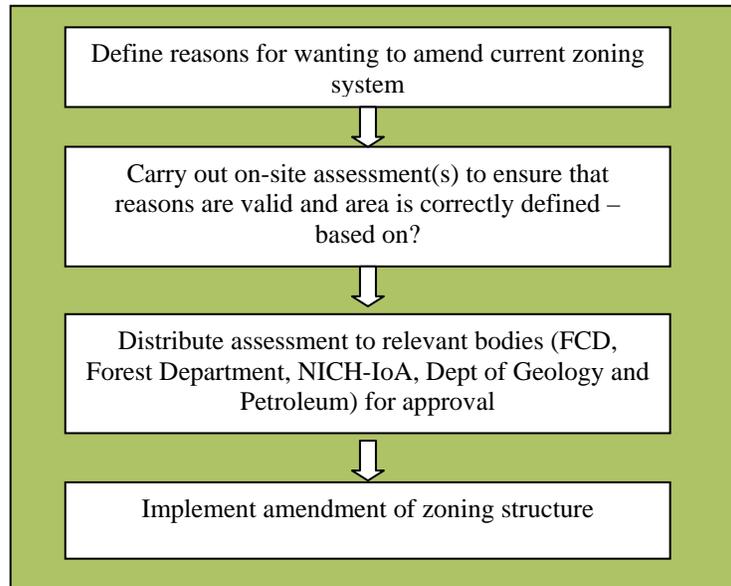


Figure 20 - Protocol for Alteration of Management Zones

5.4. Management Programmes, Strategies and Objectives

Management Goal for the Chiquibul National Park

GOAL

The Chiquibul National Park functions as a core area of protection of biological diversity within the Chiquibul forest and is recognized within the Greater Chiquibul/Maya Mountains Region for its intrinsic natural and cultural values, whilst contributing to national development, regional security and cooperation, and enhancing and maintaining its ecological integrity.

Nine management programmes have been identified for the Chiquibul National Park. They are as follows:

- Institutional Management and Strengthening
- Administration
- Research and Monitoring
- Natural Resources Management
- Protection and Surveillance
- Infrastructure Management
- Public Use Planning
- Community Outreach and Education
- Bi-National Relations

Management programmes are a means of grouping CNP's management objectives within related areas. The strength of the combined programmes is greater than the sum of the individual programmes as each supports the others over space and time with areas of overlap that strengthen the overall management of the protected area. Management programmes cannot therefore be thought of as independent of each other but must be seen in terms of a larger context – the integrated management of the CNP towards the final goal.

Each of these management programmes have a set of management objectives that, when grouped, aim to achieve the CNP Management Goal.

5.4.1. Institutional Management and Strengthening Programme

Overall Objective: By 2013, a functional multi-stakeholder governance and management structure is in place for the Chiquibul National Park and the Chiquibul Forest.

Within this general objective, a number of conservation and/or management priority issues have been identified through the conservation planning exercise:

- Management of the CNP cannot be done in isolation; for ecological and practical reasons, management of the CNP must in fact be integrated with that of the Chiquibul Forest.
- There are numerous stakeholders within the Chiquibul Forest, and therefore management needs to be inclusive in order to take into account the interests of the various stakeholders.
- The CNP is the largest protected area in Belize and shares a 45 km border with Guatemala along which there are over 60 communities with a combined population of over 40,000 inhabitants – this confluence of factors creates tremendous management challenges and threats to the Chiquibul's biodiversity that necessitate ample resources to address effectively.
- Up to recently, the CNP was not managed at the site-specific level and has not had a dedicated budget.
- Currently, funds for CNP management come primarily from donor funding and are uncertain after current project funding comes to an end. Grant funding alone may not be able to meet the financing threshold for the CNP.
- Currently there are no income generating activities, such as entry and user fees (only grant funding).
- FCD has only recently taken on the role of co-management, and this, combined with the limited finance availability, also limits many other areas, including prioritization of identified infrastructure and signage requirements.
- The co-management agreement for the CNP is provisional.
- The CNPAC's scope is currently limited to the CNP.

Based on the above priority issues, the Institutional Management and Strengthening Programme has been divided into the following sub-programmes:

- Governance Development Sub-Programme
- Financial Management Sub-Programme
- Fundraising Sub-Programme
- Strategic Networks and Partnerships Sub-Programme

Governance Development Sub-Programme	
Objective 1: By 2011, develop a governance structure for the CNP that incorporates the multiple stakeholders within the area and ensures an effective and transparent decision-making structure	
Activity Group 1	Review the Terms of Reference and composition of the CNP Advisory Council to ensure adequate and expanded representation of the various interest and stakeholder groups of the entire Chiquibul Forest, renaming the committee the Chiquibul Forest Advisory Council (CFAC) ¹³
Activity Group 2	Organize and conduct a comprehensive orientation session for the members of the CFAC, which will include a review of the CNP Management Plan and other related plans
Activity Group 3	Develop and institute a management zoning scheme for the Chiquibul Forest (see Table 6 above), involving the appropriate management agencies
Activity Group 4	Develop a medium-term management plan for the Chiquibul Forest, premised on an approved zoning scheme
Activity Group 5	Based on the Chiquibul Forest zoning scheme and management plan, prepare a strategy that will guide the execution of a process of integrated management of the three management units (CNP, CFR, and CAR) in the Chiquibul Forest
Activity Group 6	Repeal the current designations of the CNP, CFR and CAR, and replace with a designation that creates an integrated management area, involving the various management agencies, based on the Chiquibul Forest zoning scheme
Activity Group 7	Strengthen and expand cross-border working relations with CONAP and the Reserva de la Biósfera Montañas Mayas-Chiquibul (<i>linked to Bi-National Relations Sub-Programme</i>)
Activity Group 8	Expand the Terms of Reference of the CFAC in order that it may have oversight responsibilities for the integrated Chiquibul Forest management area (once this area is declared), renaming the committee the Chiquibul Forest Management Committee (CFMC)
Activity Group 9	Revise and formalize FCD's role so that it may function as the Secretariat of the CFMC, effectively placing FCD in charge of coordinating the management and operations of the integrated Chiquibul Forest management area
Objective 2: Negotiate and operationalize a permanent and secure co-management arrangement for CNP	
Activity Group 1	Re-negotiate FCD's provisional co-management agreement into a formal and comprehensive 5-year co-management agreement granting FCD full responsibility for the overall management of the CNP
Activity Group 2	By 2011, negotiate and set in motion a CFMC where FCD plays an

¹³ Note: CFAC members should at the least include representatives from the various land managers and regulatory agencies operating in the Chiquibul Forest – i.e., FD, IOA, FCD, and PLC

Chiquibul National Park Management Plan 2008-2013

	integral role in the implementation of a comprehensive and integrated management system in the Chiquibul Forest
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Financial Management Sub-Programme

Objective 1: Strengthen FCD's internal financial processes in order to exhibit sound financial management and to show accountability, transparency and good governance in the financial management of CNP programmes

Activity Group 1	Implement accounting software (such as QuickBooks) to strengthen FCD's internal financial management system
Activity Group 2	Prepare and disseminate Annual Reports (including Audited Financial Statements) for FCD's operations

Fundraising Sub-Programme

Objective 1: Develop and institute a fundraising program geared at diversifying CNP's funding base so that it is not dependent on just grant funding

Activity Group 1	Develop and implement a Resource Mobilization Strategy and complementary fundraising plan for the CNP, including provisions for the establishment of an Endowment Fund and for merchandizing
Activity Group 2	Develop and implement business plans for the viable income generation opportunities within the CNP (<i>linked to Public Use Sub-Programme</i>)
Activity Group 3	Develop and implement a revenue generation and cost recovery scheme for the CNP, focusing on entry fees, user fees and concession fees
Activity Group 4	Prepare grant proposals to support the implementation of CNP's management programs
Activity Group 5	Identify potential donor agencies and cultivate/strengthen donor relations

Strategic Networks and Partnerships Sub-Programme

Objective 1: Strengthen collaborative relations with partner organizations, and with local and international NGOs to broaden FCD's scope of interaction

Activity Group 1	Institute membership and participation in national, regional and international umbrella organizations (APAMO, IPCA, BACONGO, IUCN, etc.) to strengthen and support FCD's management efforts
Activity Group 2	Strengthen relations with international organizations for technical support to the CNP management programs

Objective 2: Facilitate local, regional and international exchange programs geared at strengthening the CNP management capacity of FCD

Activity Group 1	Organize and conduct annual community exchanges (farmers, educators, tour guides/operators) – Guatemala
Activity Group 2	Organize and conduct technical exchanges (staff) with Reserva de la Biósfera Montañas Mayas-Chiquibu
Activity Group 3	Organize and conduct technical exchanges (staff) with other protected areas within the Maya Mountains Massif (e.g., CBWS and BNR) and other protected areas in Belize (e.g., Rio Bravo)

5.4.2. Administration Programme

Overall Objective: By 2013, an effective and functioning administrative support structure is in place for the Chiquibul National Park.

Within this general objective, a number of conservation and/or management priority issues have been identified through the conservation planning exercise:

- The CNP is a large geographic area to cover with limited staff, resources, and equipment.
- There are gaps in the area of technical, scientific and professional staff. Currently, these requirements are being met through short-term consultancies.
- FCD is a relatively new organization and does not have an extensive track record as other protected area co-management NGO's in Belize. FCD is therefore not well known beyond the Cayo District, although this is expected to change fairly quickly.
- FCD-CNP staff members are limited in number but have multiple functions and therefore the possibility exists to stretch staff functions too thinly.
- FCD does not have a medium-term strategic plan.
- The current CNP field base may not be ideally located and set up as the headquarters for CNP management operations – need to consider space for expansion, etc.

Based on the above priority issues, the Administrative Programme is divided into the following sub-programmes:

- General Administration Sub-Programme
- Staff Recruitment and Retention Sub-Programme
- Human Resources Management Sub-Programme
- Equipment Procurement Sub-Programme
- Marketing Sub-Programme
- Monitoring and Review Sub-Programme

Chiquibul National Park Management Plan 2008-2013

General Administration Sub-Programme	
Objective 1: Develop an effective management structure	
Activity Group 1	Promote an effective management structure for CNP (linked to Staff Recruitment and Retention Sub-Programme)
Activity Group 2	Develop close liaison and co-operation in management efforts with the Maya Mountain Massif conservation area initiative, under the NPASP
Activity Group 3	Strengthen close liaison and co-operation in management efforts with the Forest Department , Chico Mex, and Pine Lumber Company (for the CFR) and the Institute of Archaeology (for CAR)
Activity Group 4	Develop partnership agreements with PLC, IOA, Belize Audubon Society and BFREE for co-ordination of research, education and patrolling activities
Activity Group 5	Develop partnership agreement with Las Cuevas Research Station for co-ordination of research and education activities
Objective 2: Maintain baseline administration activities	
Activity Group 1	Maintain baseline administration activities
Activity Group 2	Prepare Annual Operational Plans

Staff Recruitment and Retention Sub-Programme	
Objective 1: Ensure that CNP has sufficient staff for effective management and biodiversity conservation	
Activity Group 1	Conduct a comprehensive staff needs assessment for effective management of the CNP
Activity Group 2	Prepare clear and detailed Terms of Reference (job descriptions) for all staff posts
Activity Group 3	Develop and implement a Staff Recruitment Policy and Plan (including Succession Planning) to fill vacant CNP staff posts
Activity Group 4	Develop and implement preferential hiring policy for employment from local communities
Activity Group 5	Develop Compensation Framework including compensation philosophy and pay policy
Activity Group 6	Review and strengthen an Administrative and Personnel Policy Manual
Activity Group 7	Develop and institute a performance evaluation framework for staff

Human Resources Management Sub-Programme	
Objective 1: Strengthen the management of CNP's Human Resources in order to ensure that FCD has the capacity to effectively implement the CNP management plan.	
Activity Group 1	Conduct a comprehensive training needs assessment (identification of gaps)
Activity Group 2	Develop and implement a Human Resource Development plan

Chiquibul National Park Management Plan 2008-2013

Activity Group 3	Develop formal Orientation Package for new staff
Activity Group 4	Ensure that all new staff take part in orientation activities
Activity Group 5	Institute training for staff in priority needs (such as in protected areas management, equipment maintenance, wildlife identification, and understanding of conservation)
Activity Group 6	Evaluate effectiveness of training
Activity Group 7	Assess potential safety and liability issues within CNP, and ensure safety of visiting researchers, students and staff

Equipment Procurement Sub-Programme

Objective 1: Ensure adequate administration infrastructure and planning

Activity Group 1	Develop and implement a five-year infrastructure development plan
Activity Group 2	Construction and equipping of administration facilities

Marketing Sub-Programme

Objective 1: Improve the public image of and promote FCD and CNP

Activity Group 1	Raise the international profile of CNP, and awareness of grant-giving agencies of the need for funding
Activity Group 2	Upgrade website for FCD and CNP, linked to the websites of other management agencies involved in the Maya Mountains Massif
Activity Group 3	Develop and implement a Marketing Plan for the CNP, in line with the CNP Business Plan (linked to the Fundraising Sub-Programme)
Activity Group 4	Develop professional and attractive organizational and CNP logos

Monitoring and Review Sub-Programme

Objective 1: Annual review of management activities

Activity Group 1	Review of management effectiveness assessments on an annual basis, for submission to the Forest Department
Activity Group 2	Review of 'Measures of Success' monitoring
Activity Group 3	Preparation and review of annual work plans
Activity Group 4	Review of research and monitoring activities
Activity Group 5	Review of education and public awareness activities
Activity Group 6	Review of community participation activities

Chiquibul National Park Management Plan 2008-2013

Objective 2: Periodic review of management plan	
Activity Group 1	Ensure monitoring information feeds back into adaptive management planning activities
Activity Group 2	Review Management Plan after 2½ years
Activity Group 3	Review Management Plan after 5 years
Activity Group 4	Full management effectiveness assessment (as per NPASP) for submission to Forest Department at end of 5 years

5.4.3. Research and Monitoring Programme

Overall Objective: To conduct and facilitate research that will actively assist in the management of the Chiquibul National Park.

Within this general objective, a number of conservation and/or management priority issues have been identified through the conservation planning exercise:

- Lack of inventory information, as few biodiversity, cultural and socio-economic inventories have been completed for the CNP;
- Information that is available on the CNP is dispersed throughout Belize and internationally, with data being hard to access.
- Ongoing research at Las Cuevas Field is not strategically guided towards management requirements, is limited in scope, and is not easily accessible.
- Much of the information that is available from CNP itself is either out of date, or contained within patrol reports and not yet incorporated into an accessible format.
- Inventory data on resource use and occupancy (primarily xaté harvesting, illegal logging, farming, hunting, looting, fishing, and mineral extraction) is not considered fully sufficient for management, but does serve the current purpose of dealing with critical concerns.
- GIS data necessary for management purposes is also not accessible, as staff members do not consider themselves skilled in GIS use.
- Large areas exist for which no information is available at all (e.g., the mining zone, and the Cush Tabani section of the CNP).

Based on the above priority issues, the R&M Programme is divided into the following sub-programme:

- Research & Monitoring Sub-Programme

Research and Monitoring Sub-Programme	
Objective 1: Fill in knowledge gaps	
Activity Group 1	Create and implement an information management database to contain all research, (biodiversity, water quality etc.) monitoring and socio-economic data, to assist with adaptive management
Activity Group 2	Strengthen cross linkages with other organizations involved in research in Belize and the region
Activity Group 3	Develop baseline data for the Chiquibul Forests through biodiversity surveys and mapping activities, in particular: <ul style="list-style-type: none"> • Assess populations of key species – focused on Jaguars, Ocellated Turkey, Great Curassow, Crested Guans, White-lipped Peccary, Collared Peccary, Spider Monkey, Black Howler Monkey, Harpy Eagle and Scarlet Macaw • Establish baseline for fish species in the Chiquibul Forests • Gather baseline data on flora and fauna focusing particularly on “white” areas on the map • Gather baseline data (biodiversity, geology, water chemistry etc) for key zoning areas such as tourism zones and mining zones as a first step to rationalize and potentially modify zonation scheme • Assess populations of xaté
Activity Group 4	In cooperation with IOA, build database on cultural and archaeological sites and the Chiquibul Cave System particularly geared towards management activities.
Activity Group 5	Develop in house skills in database and GIS management
Activity Group 6	Identify and map all trails in the CNP
Objective 2: Develop monitoring programmes covering conservation targets	
Activity Group 1	Develop and implement standardized biodiversity monitoring protocols in liaison with other national, regional and international initiatives
Activity Group 2	Monitor hunting activity and indicator game species populations
Activity Group 3	Monitor Scarlet macaw populations
Activity Group 4	Monitor xaté populations
Activity Group 5	Monitor other focal vertebrate species of concern such as Jaguars, Ocellated Turkey, Great Curassow, Crested Guans, White-lipped Peccary, Collared Peccary, Spider Monkey, Black Howler Monkey and Harpy Eagle and potentially seed dispersers in liaison with other national and international initiatives
Activity Group 6	Monitor fish populations as a tool to monitor in-stream connectivity
Activity Group 7	Monitor on an annual basis using GIS tools, land use change (deforestation) within the Chiquibul Forest

Chiquibul National Park Management Plan 2008-2013

Activity Group 8	Monitor status of cultural and archaeological sites and signs of looting activity
Activity Group 8	Establish long term water monitoring programme for CNP, feeding into national water monitoring initiatives
Activity Group 10	Continued and extended collection of meteorological data
Activity Group 11	Develop and implement visitor impact monitoring within CNP – covering education and research users cover: user satisfaction and limits of acceptable change
Activity Group 12	Develop and implement limits of acceptable change for multiple use zones
Objective 3: Develop “measures of success” monitoring protocol, to verify success of conservation strategies	
Activity Group 1	Development and implementation of ‘Measures of Success’ monitoring programme, to verify success of conservation strategies, incorporating limits of acceptable change
Objective 4: Provide incentives and infrastructure for further research	
Activity Group 1	Coordinate with RIM (Research, Inventory, Monitoring) working group for further research programs and priorities
Activity Group 2	Promote Las Cuevas Research station as central base for research activities in the Chiquibul Forest
Activity Group 3	Facilitate research on upper level amphibians as a tool to monitor water chemistry, and other factor affecting these species
Activity Group 4	Strengthen monitoring program to detect chytridomycosis in upland amphibian populations
Activity Group 5	Facilitate research into population structure and densities of key wildlife species including Jaguar, White-lipped Peccary and Scarlet Macaw

5.4.4. Natural Resources Management Programme

Overall Objective: To sustainably manage the natural and mineral resources of the CNP.

Within this general objective, a number of conservation and/or management priority issues have been identified through the conservation planning exercise:

- Illegal hunting;
- Illegal logging;
- Agricultural incursions;
- Fires;
- Military activities both from BDF and BATSUB;
- Looting and vandalism of cultural sites;
- De-reservation of protected areas;
- Dams;
- Unsustainable harvesting of xaté;
- Illegal harvesting of xaté;
- Unsustainable and illegal harvesting of non-timber forest products (excluding xaté);
- Forest clearance as a result of mining activities;
- Increased accessibility as a result of natural resource extraction activities; and
- Potential for pollution of aquatic systems as a result of mining activities.

Based on the above priority issues, the NRM Programme is divided into the following sub-programmes:

- General Biodiversity Management Sub-Programme
- Species Protection Sub-Programme
- Extractive Use Sub-Programme
- Archaeological Sub-Programme
- Mining Sub-Programme

General Biodiversity Management Sub-Programme	
Objective 1: Provide the enabling environment for effective biodiversity management of the protected area	
Activity Group 1	Clearly demarcate the boundaries in critical areas
Activity Group 2	Implement management zones
Activity Group 3	Monitor on an annual basis using GIS tools, land use change (deforestation) within and adjacent to the Chiquibul Forest (<i>see Section 2.3.3 – Figure 7</i>)
Activity Group 4	Raise local awareness of the role of Chiquibul, and the benefits to Belize environmentally and financially
Activity Group 5	Integrate research and monitoring results into the adaptive management process
Activity Group 6	Develop and implement enforcement plan; Prioritize enforcement of existing regulations and encourage cooperation of communities towards this objective; Liaise with FD and BDF on enforcement issues; Liaise with management bodies of adjacent protected areas towards joint enforcement; Work closely and effectively with local communities
Activity Group 7	Develop and implement fire management plan; develop capacity and infrastructure for fire prevention and control
Activity Group 8	Liaise with GOB and British High Commission to Negotiate new BATSUB training areas (viz. 2.6.10-fig.13.). Ultimately military training areas should be away from core conservation zones but located in multiple use zones but not as to interfere with tourism use and potential

Species Protection Sub-Programme	
Objective 1: Protect native flora and fauna species present within the Chiquibul Forest	
Activity Group 1	<p>Collaborate with other national and regional initiatives towards conservation of all species of conservation concern with particular attention to:</p> <ul style="list-style-type: none"> • Jaguar • Baird’s Tapir • White-lipped Peccary • Great Curassow • Crested Guan • Ocellated Turkey • Black Howler Monkey • Spider Monkey • Scarlet Macaw • Upper Elevation Amphibians • Xaté

Chiquibul National Park Management Plan 2008-2013

Extractive Use Sub-Programme	
Objective 1: Maintain commercial species at ecologically and commercially viable levels	
Activity Group 1	Monitor extent of logged areas (in case of inclusion of logging zones within the management area)
Activity Group 2	Monitor population structure and recruitment of xaté using number of plants and average number of leaves per plant
Activity Group 3	Promote the inclusion of fish-tail xaté (<i>Chamaedorea ernesti-agustii</i>) in Appendix II of CITES by collecting the available information, identifying information gaps and making the case
Activity Group 4	Identify and monitor density of commercial timbers within the Chiquibul Forests
Activity Group 5	Promote or carry out experimental alternative extraction programs of species that show commercial potential
Activity Group 6	Reduce user impact through: <ul style="list-style-type: none"> • implementation of management zoning, • monitoring of user activities and impacts, • Development and implementation of 'Limits of Acceptable Change' for each zone
Activity Group 7	Promote working relations with concessionaires in the Chiquibul forest

Archaeological Sub-Programme	
Objective 1: By the year 2013, conserve 25% of the known cultural sites of the Chiquibul Forest through greater knowledge of sites, more effective management, and greater collaboration with other conservation partners (<i>adapted from MMM CAP</i>)	
Activity Group 1	Develop a comprehensive list, with mapping and assessment of all archaeological sites within the Chiquibul Forest by 2013
Activity Group 2	Increase the number of multi-year archaeological research projects in Chiquibul Forest by 2013
Activity Group 3	Development of more archaeological sites for tourism purposes, with effective visitor management plans in place at two sites, by 2013
Activity Group 4	Encourage and lobby the Institute of Archaeology to increase management presence at archaeological sites by 2013, through collaboration with other conservation organizations of the Chiquibul Forest
Activity Group 5	Training of other conservation partners in mapping and information gathering for archaeological sites within the Chiquibul Forest
Activity Group 6	Develop a Management Plan and Visitor Guidelines for the Chiquibul Cave System
Objective 2: Protection of archaeological sites (including caves) within the Chiquibul Forest	
Activity Group 1	Protection of all Archaeological Sites: <ul style="list-style-type: none"> • Close liaison with Institute of Archaeology • Develop protection protocols between IoA and FCD • Identification of archaeological sites

Chiquibul National Park Management Plan 2008-2013

	<ul style="list-style-type: none"> • Maintain Database of Archaeological Sites • Increased patrolling efforts with IoA targeted at preventing looting and destruction of these sites • Increased awareness of national heritage through primary and secondary level education • Declare Chiquibul Cave System as an Archaeological Reserve
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Mining Sub-Programme

Objective 1: Minimize ecological impact of current and future mining activities

Activity Group 1	Carry out comprehensive surveys in order to establish ecological and hydrological importance of areas with mining potential (see research and monitoring subprogramme).
Activity Group 2	Liaise closely with Geology and Petroleum Department and the Department of the Environment regarding the issuing of prospecting and mining licenses
Activity Group 3	Liaise with any mining company as to use a best practices approach and prevent impacts on wildlife and general ecology of the overall area
Activity Group 4	Develop and monitor an Environmental Compliance Plan for the current mining company
Activity Group 5	Develop a working partnership with the current mining company

Objective 2: Protect water quality of any streams affected by mining activities

Activity Group 1	Monitor water quality of all streams within and emerging from prospecting/mining license areas, and act appropriately in case of issues
Activity Group 2	Develop an appropriate methodology approved by DOE, FD and GPD to conduct mining in the Chiquibul Forest

5.4.5. Protection and Surveillance Programme

Overall Objective: By 2013, border incursions and encroachments into the Chiquibul Forest have reduced by 75%

Within this general objective, a number of conservation and/or management priority issues have been identified through the conservation planning exercise:

- FCD protection and enforcement strategies are limited in scope through lack of sufficient personnel.
- Political issues and the existence of the 1 km Adjacency Zone complicates the issues of border demarcation. The inability to demarcate this border has resulted in reduced effectiveness in dealing with the problems of illegal xatero and agricultural incursions within the Chiquibul area.
- There are over 60 communities found inside the Montañas Mayas Chiquibul Biosphere Reserve and most of these exert pressures over the natural resources in the Chiquibul Forest.

Based on the above priority issues, the Protection and Surveillance Programme is divided into the following sub-programmes:

- Demarcation Sub-Programme
- Patrolling Sub-Programme
- Fire Management Sub-Programme

Chiquibul National Park Management Plan 2008-2013

Demarcation Sub-Programme	
Objective 1: Clearly identify the Chiquibul as a protected area to prevent incursions based on ignorance	
Activity Group 1	Clearly demarcate the boundaries in critical areas
Activity Group 2	Establish boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these posts manned full-time

Patrolling Sub-Programme	
Objective 1: Deter and correct any incursions into the Chiquibul, and manage and monitor legal activities	
Activity Group 1	Create and implement information management database to contain all research, monitoring and socio-economic data, to assist with adaptive patrol management
Activity Group 2	Develop and implement an enforcement plan: <ul style="list-style-type: none"> • Prioritize enforcement of no-hunting/fishing/logging/extraction regulations; • Liaise with FD on enforcement issues • Liaise with the Organization of American States on Adjacency Zone issues • Liaise with management bodies of adjacent protected areas towards joint enforcement • Liaise with Cross-boundary management bodies towards joint enforcement • Liaise with any concession holders on assisting in data gathering • Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration among BDF, Police, FD, Immigration, IOA, FCD, Guatemalan Army, CONAP
Activity Group 3	Increase management presence at cultural and archaeological sites
Activity Group 4	Formation of an external multi-agency "Surveillance and Enforcement Team" that reacts to serious enforcement issues
Objective 2: By the year 2013, the illegal xatero incursions and associated activities have been reduced by 75%	
Activity Group 1	Involve mining, timber concessionaires, tour operators and other stakeholders in monitoring and surveillance in the Chiquibul Forest, by providing logistical assistance, overnight facilities, transportation and information to patrolling crews.
Activity Group 2	Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration among BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP
Activity Group 3	Strengthen the implementation of the bi-national institutional action

Chiquibul National Park Management Plan 2008-2013

	plan between Forest Department , CONAP, FCD and Mesa de RR. NN. (Petén) (bi-national monitoring and surveillance, information exchange, environmental education, community development in the Chiquibul Forest, fundraising)
Activity Group 4	Develop a public awareness program targeting the international xaté market
Activity Group 5	Promote higher levels of diplomacy through Ministry of Foreign Affairs and OAS
Activity Group 6	Promote the development of a comprehensive border management plan with key stakeholders
Activity Group 7	Liaise and coordinate with national security forces in dealing with Guatemalan prisoners (i.e., trespassers taken into custody on the Belizean side)
Activity Group 8	Improve on the gathering of intelligence
Activity Group 9	Participate actively on the inter-agency commission comprised of BDF, Police, FD and Immigration
Objective 3: By the year 2013, all agricultural incursions within Chiquibul Forest are vacated and regenerating into forest and there are no new ones reported	
Activity Group 1	Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration among BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP
Activity Group 2	Strengthen the coordination and collaboration among departments of the Ministry of Natural Resources, relevant conservation NGO's, national and local politicians towards the protection of the Chiquibul Forest
Activity Group 3	Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP FCD and Mesa de RR. NN. (Petén) (bi-national monitoring and surveillance, information exchange, environmental education, fundraising, community development in the Chiquibul Forest)
Activity Group 4	Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves
Activity Group 5	Institute a permanent presence and monitor/surveillance program along the borderline
Activity Group 6	Socialize the borderline issues with Guatemalan authorities in conjunction with Ministries of Natural Resources and Foreign Affairs.
Activity Group 7	Elevate the status of the borderline issues to the United Nations
Activity Group 8	Institute a Borderline Commission under the auspices of the Ministry of Foreign Affairs

Fire Management Sub-Programme	
Objective 1: Prevent damage to conservation targets as a result from wildfires (either through lightning strike, agricultural wild fires, campfires and/or arson)	
Activity Group 1	Develop and implement a fire management plan
Activity Group 2	Develop capacity and infrastructure for fire prevention and control

5.4.6. Infrastructure Management Programme

Overall objective: To establish and maintain an infrastructure conducive to the proper management – in all aspects – of the Chiquibul Forest

Within this general objective, a number of conservation and/or management priority issues have been identified through the conservation planning exercise:

- Current infrastructure is inadequate to support proper management of the CNP
- Road conditions within the Chiquibul Forest are in an advanced state of deterioration, which is further exacerbated by the heavy vehicles and equipment that use the roads
- The current network of ranger stations and observation posts are insufficient to provide adequate security coverage to the Chiquibul Forest
- Boundary demarcation and maintenance requires a substantial commitment of resources
- The current research facility at Las Cuevas is under-utilized and in an early stage of deterioration
- There is no comprehensive radio communication coverage over the entire Chiquibul Forest
- The current network of helicopter landing pads is not upgraded

The Infrastructure Management Programme is divided into the following sub-programmes:

- Infrastructure Development Sub-Programme
- Infrastructure Use Training Sub-Programme

Infrastructure Development Sub-Programme	
Objective 1: Ensure adequate infrastructure is in place to support CNP management and carry out protection and scientific monitoring activities	
Activity Group 1	Evaluate office and administrative needs to support operational efficiency
Activity Group 2	Develop and implement five year infrastructure development plan
Activity Group 3	Investigate desirability and options to incorporate Las Cuevas Research Station in the management infrastructure of the Chiquibul Forest
Activity Group 4	Develop the Las Cuevas Research Station as the central field headquarters and base of operations for CNP management
Activity Group 4	Establish ranger stations and boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time (protection and surveillance program).
Activity Group 6	Construct watchtowers at strategic locations
Activity Group 7	Establish and maintain heli-pads in strategic positions in order to facilitate research, rescue and general emergency actions.
Activity Group 8	Establish hard and software infrastructure in order to be able to maintain an information management database which contain all research, (biodiversity, water quality etc.) monitoring and socio-economic data, to assist with adaptive management
Activity Group 9	Maintain and/or lobby to maintain the Chiquibul Road and other infrastructural roads in the Chiquibul
Activity Group 10	Erect signs specifically in hotspot areas
Objective 2: Ensure adequate equipment is in place to support CNP management and carry out enforcement and monitoring activities	
Activity Group 1	Improve enforcement equipment and capabilities
Activity Group 2	Equip and maintain staff, surveillance, research, education and accommodation facilities
Activity Group 3	Provide sufficient communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest
Activity Group 4	Provide sufficient first aid materials and emergency rescue materials at key points within the management area
Activity Group 5	Maintain an efficient inventory of equipment and supplies
Activity Group 6	Obtain and maintain adequate transportation means for enforcement and monitoring

Infrastructure Use Training Sub-Programme	
Objective 1: Ensure that CNP staff are adequately trained to operate and maintain CNP infrastructure and facilities	
Activity Group 1	Develop in house skills in database and GIS management
Activity Group 2	Provide communication skills training (using satellite phone, radios)
Activity Group 3	Provide first aid and Jungle Rescue training
Activity Group 4	Develop weapons and field engagement protocols
Activity Group 5	Institute a training program on weapons handling

5.4.7. Public Use Planning Programme

Overall Objective: To increase tourism, research and education activity within the Chiquibul Forest and to achieve some level of economic sustainability through expansion of tourism and research that is compatible with biodiversity conservation

Within this general objective, a number of issues have been identified through the conservation planning exercise:

- Tourism pressure is still low due to remoteness and under-developed attractions
- Many attractions with high visitors use potential exist within the Chiquibul Forest but little if nothing is known about their sensitivity or levels of acceptable change
- Currently there exists a security threat to visitors as the result of the heavy presence from Guatemalan xateros

The Public Use Programme is divided into the following sub-programme:

- Public Use Sub-Programme

The activities below are generally based on the major tourism and recreation options highlighted in Figure 14 (see Section 2.6.3).

Public Use Planning Sub-Programme	
Objective 1: To increase tourism, research and education activity within the Chiquibul Forest and to achieve some level of economic sustainability through expansion of tourism and research that is compatible with biodiversity conservation	
Activity Group 1	Develop and implement a five-year tourism development plan
Activity Group 2	Develop and implement a public use plan
Activity Group 3	Identify a network of outdoor camps to stimulate and promote the Chiquibul experience
Activity Group 4	Liaise with BTB, BTIA and Cayo Tour Guide Association to promote Chiquibul as a tourism destination
Activity Group 5	Evaluate options and finalize the decision on the location of facilities and infrastructure associated with education and research
Activity Group 6	Further investigate options for development of Tourism, Research and Education facilities possibly in conjunction with Las Cuevas Research Station
Activity Group 7	Establish and enforce low-impact, no-garbage and other visitor regulations
Activity Group 8	Designate a research area for use by school and university groups
Activity Group 9	Promote a program of integrated research and monitoring in the Greater CMM with key institutions – UB, BFREE, Las Cuevas, TNC
Activity Group 10	Research the potential for visitation development of the Chiquibul Cave System: <ul style="list-style-type: none"> • Carry out an impact assessment for the touristic development of the Chiquibul Cave; • Prepare a management plan specifically for the Chiquibul Cave System
Activity Group 11	Provide enhanced visitors' safety through: <ul style="list-style-type: none"> • A communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest; • Provide sufficient first aid materials and emergency rescue materials at key points within the management area.
Activity Group 12	Develop and implement Limits of Acceptable Change Program including a monitoring program of user numbers (research and education), activities, and satisfaction.
Activity Group 13	Creation and maintenance of trails and ensure proper signage
Activity Group 14	Develop and Outdoor Environmental Learning Center

5.4.8. Community Development & Environmental Education Programme

Overall Objective: By the end of 2013, FCD serves as the main hub for and has a vibrant integrated environmental education and public outreach program in the Chiquibul-Maya Mountains Massif

Within this general objective, a number of conservation priorities have been identified through the conservation planning exercise:

- Limited environmental awareness
- Limited knowledge of boundary line
- Enforcement agencies, extraction industries and community representatives do not necessarily understand management for conservation, with the recognized need to strengthen their understanding of the benefits the protected areas brings.
- Very few inhabitants (~18%)¹⁴ of the 18 targeted buffer communities know that the CMM area consists of a network of protected areas
- About half of the population of these communities knows that the CMM area is under threat but do not know about mechanisms and methods that can be used to mitigate the impact
- Few community members have been involved in conservation activities
- Direct economic benefit to Chiquibul buffer zone communities comes primarily through preferential hiring of people from adjacent communities and limited by financial constraints.
- Many community members do not understand or are not aware of the benefits that can accrue from protected areas

The Community Development and Environmental Education Programme is divided into the following sub-programme:

- Community Development and Outreach Sub-Programme
- Environmental Education Sub-Programme

Under this sub-programme is a series of objectives with linked actions/strategies to achieve the programme objective.

¹⁴ Source: Community Outreach Project Plan: Education Campaign for the Protection of the Chiquibul-Maya Mountains (FCD, April 2007)

Community Development and Outreach Sub-Programme

Objective 1: By 2013, at least 5 communities representing buffer communities of the CMM are involved in conservation and sustainable livelihood activities

Activity Group 1	Conduct adult outreach programming
Activity Group 2	Organize and carry out field trips that provide a firsthand experience of conservation activities within the CNP and other core conservation areas
Activity Group 3	Hire a community extension officer
Activity Group 4	Develop a community development promoters program
Activity Group 5	Identify pilot communities in the MMM for building capabilities
Activity Group 6	Develop a community sustainable livelihood model program
Activity Group 7	Produce a trainers manual for community capacity building

Environmental Education Sub-Programme¹⁵

Objective 1: By 2013, 80% of the inhabitants of all the buffer communities will know the benefits of the MMM and learn techniques on how best to protect the area

Activity Group 1	Community consultations via surveys and focal group meetings
Activity Group 2	Primary school visits
Activity Group 3	Costumes of the emblematic species of the CNP
Activity Group 4	Secondary school visits
Activity Group 5	Production of EE materials
Activity Group 6	Design key environmental awareness messages and conduct non-formal education
Activity Group 7	Conduct adult outreach and demonstration program

Objective 2: By 2013, over 50% of inhabitants from the buffering communities are supporting environmental service fees for the conservation of the CMM

Activity Group 1	Devise a public outreach program in water resources of the CMM
Activity Group 2	Conduct an economic valuation exercise of the water resources of the CMM (liaise with the NPAC)
Activity Group 3	Promote interest among private companies including BECOL, BWS and water bottling companies on environmental service fees
Activity Group 4	Sensitize government agencies and personnel on the importance of water and the CMM
Activity Group 5	Generate local constituency support via letters and working groups about environmental service fees

¹⁵ Source: Community Outreach Project Plan: Education Campaign for the Protection of the Chiquibul-Maya Mountains (FCD, April 2007)

Chiquibul National Park Management Plan 2008-2013

Activity Group 6	Strengthen partnerships with Guatemalan organizations for public outreach on water resources of the CMM in the Montañas Mayas-Chiquibul Biosphere Reserve
Objective 3: By 2013 FCD has a vibrant and active integrated education program in the Greater CMM	
Activity Group 1	Develop a needs assessment among EE practitioners in the MMM
Activity Group 2	Identify and put in effect a communication system among educators
Activity Group 3	Develop and implement a training program
Activity Group 4	Develop an EE methodology for the MMM
Activity Group 5	Liaise and develop strategic partnerships in the MMM

5.4.9. Bi-National Relations Programme

Overall Objective: By 2013, FD, FCD, CONAP and Mesa de Recursos Naturales have put in place an integrated management program for the protection of the CNP and the Reserva de la Biósfera Montañas Mayas-Chiquibul, in line with the tri-national agreement signed by Belize-Mexico-Guatemala.

Within this general objective, a number of conservation priorities have been identified through the conservation planning exercise:

- Political issues and the existence of the 1 km Adjacency Zone complicates the issues of border demarcation. The inability to demarcate this border has resulted in reduced effectiveness in dealing with the problems of illegal xatero incursions within the Chiquibul area
- Illegal hunting and extraction of xaté from the CMM area is attributed to people that come in from Guatemala
- Limited land availability for agriculture in Guatemala, for communities adjacent to Belize border
- Increased access in boundary areas with Guatemala
- Weak governance and law enforcement in border areas with southern Petén, Guatemala
- Current projects are small-scale and under-funded, and limited in the number of people it can reach.
- Many community members use adjacent forest in protected areas for farming purposes
- Levels of poverty are extreme among neighboring Guatemalan communities

The Bi-National Relations Programme is divided into the following sub-programmes:

- Bi-National Relations Sub-Programme
- Sustainable Livelihoods Sub-Programme

Under this sub-programme is a series of objectives with linked actions/strategies to achieve the programme objective.

Chiquibul National Park Management Plan 2008-2013

Bi-National Relations Sub-Programme	
Objective 1: By 2013, protected areas officials from Belize and Guatemala have engaged key community leaders from the neighbouring communities in Guatemala for the protection of the Chiquibul-Maya Mountains area	
Activity Group 1	Strengthen and expand the bi-national protected areas partnership agreement
Activity Group 2	Based on this agreement, develop a work plan for the protection of the bi-national CMM area
Activity Group 3	Seek funding from the Friends of Belize consortium to support the implementation of the bi-national work plan
Activity Group 4	Conduct community visits in target communities
Activity Group 5	Exchange visits for community leaders, youth and protected area officials
Objective 2: By 2013, a permanent program of confidence building measures has been instituted for Belizean and Guatemalan land management and security agencies	
Activity Group 1	Develop a confidence building program that engages Belizean and Guatemalan agencies
Activity Group 2	Conduct cross-border exchanges
Activity Group 3	Develop and implement a training needs program for Guatemalan/Belizean officials

Sustainable Livelihoods Sub-Programme	
Objective 1: By 2013, interested farmers from the buffer communities in Guatemala are committed to and have initiated sustainable livelihood model programs.	
Activity Group 1	Based on the bi-national protected areas agreement, develop a plan of action for a sustainable livelihoods program for communities of the bi-national CMM area
Activity Group 2	Seek funding from the Friends of Belize consortium to support the implementation of the bi-national sustainable livelihoods action plan
Activity Group 3	Sustainable livelihood and capacity building workshops
Activity Group 4	Community visits targeting farmers and community groups
Activity Group 5	Establish and support one demonstration project in at least 5 target communities
Activity Group 6	Promote certification of sustainably managed xaté concessions and plantations in Guatemala and Belize, through coordination with Rainforest Alliance and other relevant organizations, and by creating awareness of ecological consequences of the xaté trade
Activity Group 7	Promote the establishment of xaté plantations in forested areas, crop plantations (like cacao), and nurseries in Guatemala and Belize, in order to have a more controlled and sustainable source of xaté.

Chiquibul National Park Management Plan 2008-2013

Activity Group 8	Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves
Activity Group 9	Institute a working team in Guatemala that coordinates, monitors and evaluates the sustainable livelihood program
Activity Group 10	Hire an Extension person that relates directly on model programs in Belize and Guatemala.

5.5. Recommended Management Structure

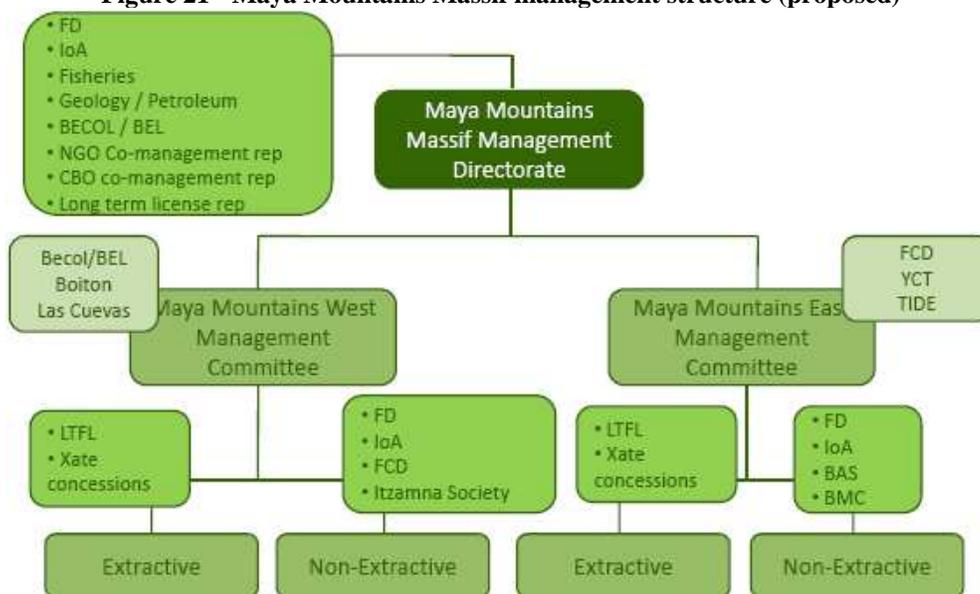
It goes without question that the successful implementation of this management plan will take a concerted effort by all the key actors that have a stake in the proper management of the Chiquibul Forest area. Although FCD and the Forest Department have entered into a provisional co-management agreement for the Chiquibul National Park, it will take more than just these two agencies to achieve the stated protected area management goals, objectives, strategies and actions.

These management efforts, additionally, cannot be solely focused on the Chiquibul National Park or the larger Chiquibul Forest area. As has been shown, these two areas form part of an even larger ecological unit – which includes the Maya Mountains Massif (MMM) and the Chiquibul-Montañas Mayas Biosphere Reserve in Guatemala.

Figure 6 and Table 1 of Section 2.3.4 (Socio-economic Context – Stakeholder Analysis) showed that besides the Forest Department and FCD, a large number of other governmental and non-governmental agencies, as well as private enterprises, influence or impact the Chiquibul Forest area, and vice versa, and the larger Maya Mountains Massif region in Belize. These primary stakeholders were grouped into five categories of stakeholders: 1) community and resource users, 2) institutional stakeholders, 3) recreation and tourism users, 4) education stakeholders, and 5) private enterprises.

Taking this complex organizational and stakeholder landscape into consideration, the Maya Mountains Massif Conservation Action Plan (MMM-CAP) proposed the management structure shown in Figure 21 below (Wildtracks, 2008).

Figure 21 - Maya Mountains Massif management structure (proposed)

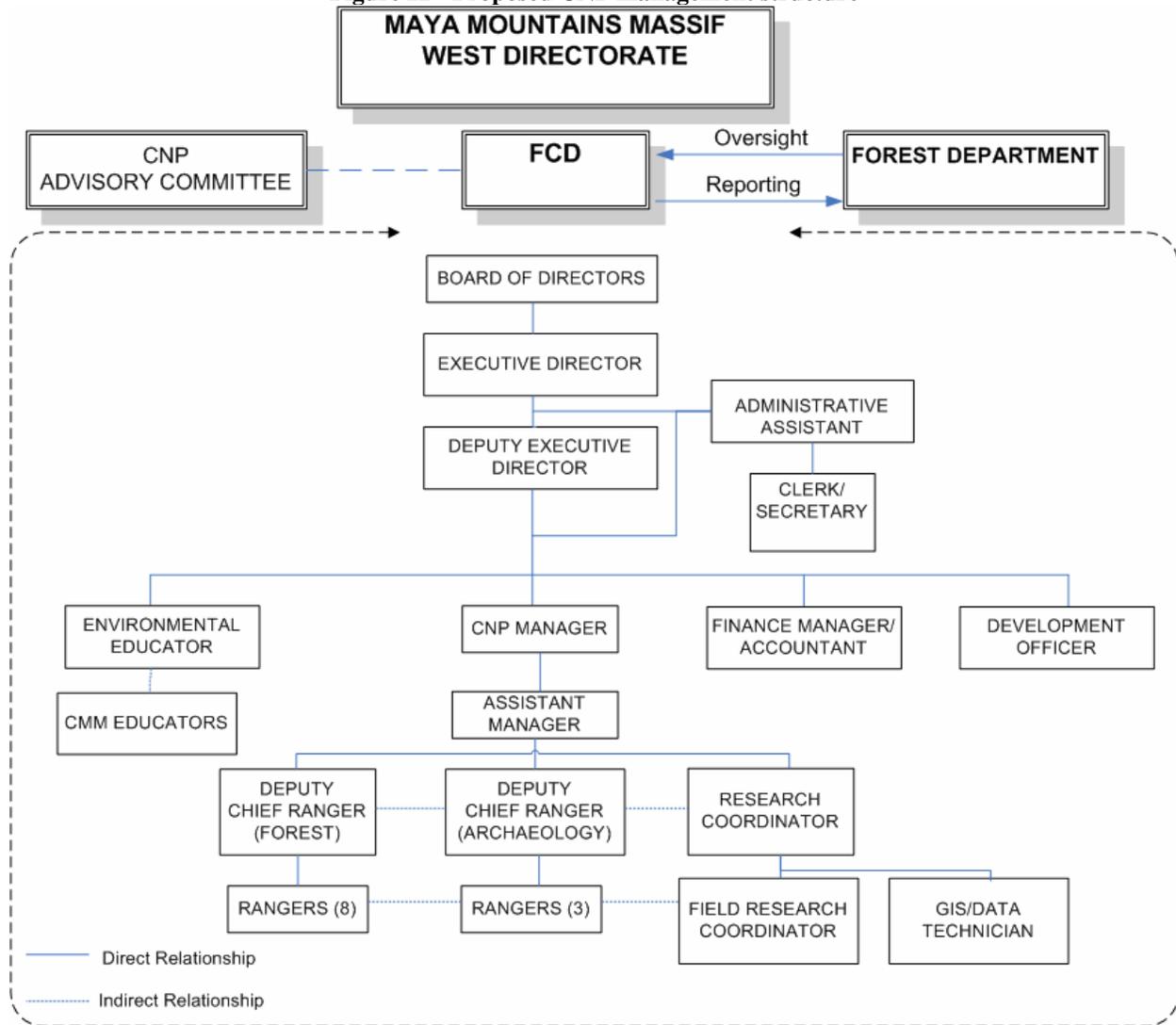


This proposed management structure recognizes the need to manage the Maya Mountains Massif as an integrated ecological unit. The Maya Mountains Massif Management Directorate would therefore oversee the management of extractive and non-extractive activities within this large area. The extractive activities relate mostly to timber licenses, xaté harvesting permits, and mining. The non-extractive activities relate mostly to protected areas management activities.

The MMM-CAP further recognizes that two institutional sub-structures divided along natural geographic features are essential to ensure the effective management of such a large area. Therefore, the Maya Mountains West Management Committee would coordinate the management of the area that lies west of the Maya Mountains Divide, and the Maya Mountains East Management Committee would oversee the area east of the Divide.

The Chiquibul Forest area lies with the area to be overseen by the Maya Mountains West Management Committee. Figure 22 below shows the proposed management structure for the Chiquibul National Park (and by extension the larger Chiquibul Forest area) which, in actuality, covers the greater part of the area west of the Divide and therefore much of the area to be overseen by the Maya Mountains West Management Committee.

Figure 22 - Proposed CNP management structure



Four agencies are involved in protected areas management within the Maya Mountains West region – the Forest Department, FCD, Institute of Archaeology, and the Itzamna Society. The proposed

structures shown on Figures 21 and 22, as well as the proposed zoning scheme (see Section 5.3), suggest that each of these four agencies would not relinquish management authority over any of their areas. Rather, each agency would retain its original obligations and responsibilities.

Figure 22 shows how the FD and FCD would collaborate in the management of the CNP. Overseen by the Forest Department and the Maya Mountains West Management Committee and with technical guidance from the CNP Advisory Committee, FCD would be primarily responsible for the day-to-day management of the CNP. FCD's current management structure (see Section 4.2) is woefully inadequate to handle this task. While the proposed management structure above is still not ideal, it nevertheless would allow FCD to effectively undertake the basic management of the CNP.

5.6. *Management actions*

Institutional Management and Strengthening Programme				
Governance Development Sub-Programme				
Objective 1: By 2011, develop a governance structure for the CNP that incorporates the multiple stakeholders within the area and ensures an effective and transparent decision-making structure				
Management Actions	Present Status	Desired Status	Year	Responsibility
Review the Terms of Reference and composition of the CNP Advisory Council (CNPAC) to ensure adequate and expanded representation of the various interest and stakeholder groups of the entire Chiquibul Forest, renaming the committee the Chiquibul Forest Advisory Council (CFAC)	An Advisory Council for the CNP is in place to guide and support FCD in CNP management decisions	Establish an Advisory Council that will provide guidance and support for the management of the Chiquibul Forest	2009	CFO, IOA, GPD, FCD, other NGO representatives
Organize and conduct a comprehensive orientation session for the members of the CFAC, which will include a review of the CNP Management Plan and other related plans	CFAC is non-existent	Members of the CFAC are fully versed with the CNP management plan and other related documents	2009	FD, FCD, CFAC
Develop and institute a management zoning scheme for the Chiquibul Forest, encompassing archaeology, general buffer, mining buffer, conservation, timber and tourism zones	The boundaries of the three management units within the Chiquibul Forest (CNP, CFR and CAR) are not based on ecological considerations	A proposal for a management zoning scheme for the Chiquibul Forest is completed	2009	FD, IOA, FCD, CFAC
Develop a medium-term management plan for the Chiquibul Forest, premised on an approved zoning scheme	No management plans in place	A integrated management plan is in place and approved for the Chiquibul Forest	2010	FD, IOA, FCD, CFAC
Based on the Chiquibul Forest zoning scheme and management plan, prepare a strategy that will guide the execution of a process of re-designation of the three management units (CNP, CFR, and CAR) within the Chiquibul Forest	CNP, CFR and CAR are managed as separate units	Strategy developed to lobby for the Chiquibul Forest to be managed as one integrated area	2010	FCD, CFAC

Chiquibul National Park Management Plan 2008-2013

Repeal the current designations of the CNP, CFR and CAR, and replace with a designation that creates an integrated management area based on the Chiquibul Forest zoning scheme	CNP, CFR and CAR are managed as separate units	The Chiquibul Forest integrated management area is created	2011	GOB
Strengthen and expand cross-border working relations with CONAP and the Reserva de la Biósfera Montañas Mayas-Chiquibul	Working relations are informal	Official cross-border cooperation in protected areas management instituted	2011	GOB, CONAP
Expand the Terms of Reference of the CFAC in order that it may have oversight responsibilities for the integrated Chiquibul Forest management area (once this area is declared), renaming the committee the Chiquibul Forest Management Council	An Advisory Council in place for the CNP	The CNPAC and its proposed successor (CFAC) are replaced by an empowered Chiquibul Forest Management Council (CFMC)	2012	FD, IOA
Revise and formalize FCD's role so that it may function as the Secretariat of the CFMC	FCD co-manages CNP and functions as the Secretariat of the CNPAC	FCD's co-management agreement expanded to include coordination responsibilities for the integrated Chiquibul Forest management area; FCD functions as the Secretariat for the CFMC	2012	CFMC, FCD
Objective 2: Negotiate and operationalize a permanent and secure co-management arrangement for CNP				
Re-negotiate FCD's provisional co-management agreement into a formal and comprehensive 5-year co-management agreement granting FCD full responsibility for the overall management of the CNP	FCD's co-management agreement is provisional and focuses only on the CNP	FCD's co-management agreement is formalized	2008	FD, FCD

Chiquibul National Park Management Plan 2008-2013

By 2011, negotiate and set in motion a CFMC where FCD plays an integral role in the implementation of a comprehensive and integrated management system in the Chiquibul Forest.	FCD's co-management agreement is provisional and focuses only on the CNP	FCD's co-management agreement expanded to include management responsibilities for the integrated Chiquibul Forest management area; FCD functions as the Secretariat for the CFMC	2012	CFMC, FCD
Financial Management Sub-Programme				
Objective 1: Strengthen FCD's internal financial processes in order to exhibit sound financial management and to show accountability, transparency and good governance in the financial management of CNP programmes				
Implement accounting software (such as QuickBooks) to strengthen FCD's internal financial management system	FCD's accounting is partially out-sourced	FCD has an internal financial management system	2009	FCD, donor agencies Cost -- \$\$
Prepare and disseminate Annual Reports (including Audited Financial Statements) for FCD's operations	FCD has completed one financial audit	FCD's audited financial statements disseminated annually	2009	FCD Cost -- \$12,000
Fundraising Sub-Programme				
Objective 1: Develop and institute a fundraising program geared at diversifying CNP's funding base so that it is not dependent on just grant funding				
Develop and implement a Resource Mobilization Strategy and complementary fundraising plan for the CNP, including provisions for the establishment of an Endowment Fund and for merchandizing	FCD depends entirely on grant funding	Resource Mobilization Strategy completed; identifies diverse funding sources	2009	FCD, PACT, other donor agencies, consultants Cost -- \$25,000
Develop and implement business plans for the viable income generation opportunities within the CNP	No financial or business plans in place	A Financial Plan in place for the Chiquibul Forest, along with accompanying business plans for viable business prospects	2009	FCD, CEPF, PACT, consultants Costs – \$30,000 (Financial Plan) \$30,000 (Business Plans)
Develop and implement a revenue generation and cost recovery scheme for the CNP, focusing on entry fees, user fees and concession fees	No user or entry fee system in place for CNP	Entry, user and concession fee structure designed and instituted	2009	FCD, FD, IOA, PACT, consultants

Chiquibul National Park Management Plan 2008-2013

Prepare grant proposals to support the implementation of CNP's management programs	FCD dependent on two major grants only	FCD's grant portfolio is expanded and diversified	2008 and beyond	FCD, consultants
Identify potential donor agencies and cultivate/strengthen donor relations	FCD dependent on two major grants only	FCD's grant portfolio is expanded and diversified	2008 and beyond	FCD
Strategic Networks and Partnerships Sub-Programme				
Objective 1: Strengthen collaborative relations with partner organizations, and with local and international NGOs to broaden FCD's scope of interaction				
Institute membership and participation in national, regional and international umbrella organizations (APAMO, IPCA, BACONGO, IUCN, etc.) to strengthen and support FCD's management efforts	FCD is a member of APAMO and IPCA	FCD's participation in national and regional networks is expanded and maintained	2009 and beyond	FCD
Strengthen relations with international organizations for technical support to the CNP management programs	FCD has links with Rare and IUCN	FCD's links with international organizations (such as with IUCN) is expanded and maintained	2009 and beyond	FCD
Objective 2: Facilitate local, regional and international exchange programs geared at strengthening the CNP management capacity of FCD				
Organize and conduct annual community exchanges (farmers, educators, tour guides/operators) – Guatemala	FCD's current CEPF/PACT project supports some exchange visits	Community exchanges are formalized and conducted annually	Ongoing	FCD, CONAP
Organize and conduct technical exchanges (staff) with Reserva de la Biósfera Montañas Mayas-Chiquibul	FCD's current CEPF/PACT project supports some exchange visits	Formal technical exchange program between CNP and Reserva de la Biósfera Chiquibul-Montañas Mayas expanded	2009	FCD, CONAP
Organize and conduct technical exchanges (staff) with other protected areas within the Maya Mountains Massif (e.g., CBWS and BNR)	Some technical (staff) exchanges have been planned	FCD formalizes a staff exchange program with BAS, Itzamna and BMC	2009	FCD, BAS, BMC, FD

Chiquibul National Park Management Plan 2008-2013

Administrative Programme				
General Administration Sub-Programme				
Objective 1: Develop an effective management structure				
Management Actions	Present Status	Desired Status	Year	Responsibility
Develop an effective management structure for CNP (<i>linked to Staff Recruitment and Retention Sub-Programme</i>)	FCD's management structure is inadequate to address CNP's management constraints and limitations	FCD's management structure is strengthened	2010	Additional Rangers, Accountant, Community Outreach Officers Cost -- \$\$ (salaries)
Develop close liaison and co-operation in management efforts with the Maya Mountain Massif conservation area initiative, under the NPASP	A Conservation Action Plan (CAP) for the MMM is being prepared	FCD's conservation efforts are in line with the CNP management plan and the MMM CAP	2008 and beyond	FCD, MMM partner agencies
Strengthen close liaison and co-operation in management efforts with the Forest Department, IoA, GPD, Chico-Mex and Pine Lumber Company (for the CFR) and the Institute of Archaeology (for CAR)	FCD has good working relations with FD and growing relations with IoA and Mines & Petroleum Department	FCD works closely with FD, IOA and PLC	2008 and beyond	FCD, IOA, FD, PLC
Develop partnership agreements with PLC, IOA, Belize Audubon Society and BFREE for co-ordination of research, education and patrolling activities	FCD has partnership agreements with Chico-Mex and Trekforce, and MOU with IOA	FCD has partnership agreements with all its neighboring land management agencies	2009-2010	FCD, FD, IOA, PLC, BAS, BMC
Develop Memoranda of Agreement with Las Cuevas Research Station and BFREE for co-ordination of research and education activities	FCD is not a party to the LCRS-FD agreement	LCRS, BFREE and FCD are full partners in research activities	2009 and ongoing	FD, FCD, LCRS signatories
Objective 2: Maintain baseline administration activities				
Maintain baseline administration activities	FCD's headquarters is located in San Jose Succotz	FCD maintains a suitable headquarters that provides support to CNP management	2008 and ongoing	FCD
Prepare Annual Work Plans (<i>linked to Monitoring and Review Sub-Programme</i>)	Annual work plans are prepared, but no medium-term strategic plan or management plan is in place	Annual work plans are based on FCD's strategic plan and CNP's management plan	2008 and ongoing	FCD

Chiquibul National Park Management Plan 2008-2013

Staff Recruitment and Retention Sub-Programme				
Objective 1: Ensure that CNP has sufficient staff for effective management and biodiversity conservation				
Conduct a comprehensive staff needs assessment for effective management of the CNP	FCD has a basic cadre of staff in place	There is a clear understanding of the ideal staff composition for FCD and CNP	2009	FCD, consultants
Prepare clear and detailed Terms of Reference (job descriptions) for all staff posts	Basic job descriptions in place	Detailed job descriptions for each staff post	2009	FCD
Develop and implement a Staff Recruitment Policy and Plan (including Succession Planning) to fill vacant CNP staff posts	FCD has a basic cadre of staff in place	Vacancies and critical new posts filled, based on funding availability	2009	FCD, FD, donor agencies
Develop and implement preferential hiring policy for employment from local communities	FCD staff come from buffer communities	Formalize and maintain the policy of hiring staff from buffer communities	2008 and ongoing	FCD
Develop Compensation Framework including compensation philosophy and pay policy	Informal compensation package in place, comprising primarily of salaries and wages	Compensation Framework is prepared and instituted	2010 and ongoing	FCD, consultants
Review and strengthen an Administrative and Personnel Policy Manual	Administrative and Policy Manual in place	Administrative and Policy Manual is strengthened	Ongoing	FCD
Develop and institute a performance evaluation framework for staff	Staff are evaluated for performance	A staff performance assessment system is strengthened	2009	FCD, consultants
Human Resources Management Sub-Programme				
Objective 1: Strengthen the management of CNP's Human Resources in order to ensure that FCD has the capacity to effectively implement the CNP management plan.				
Conduct a comprehensive training needs assessment (identification of gaps)	A short term training needs assessment has been conducted	There is a comprehensive need assessment for Chiquibul forest staff	2009	FCD, consultants
Develop and implement a Human Resource Development plan	None in place	Based on the results of the needs assessment, a HRD plan is developed and instituted	2009	FCD, consultants
Develop formal Orientation Package for new staff	Informal system in place	Orientation System for new staff is formalized	2009	FCD
Ensure that all new staff take part in orientation activities	In place – informal	Formalize	2009	FCD
Institute training for staff in priority needs	No HRD plan in place	Staff engage in training based on the HRD plan	2009 and ongoing	FCD

Chiquibul National Park Management Plan 2008-2013

Evaluate effectiveness of training	Not applicable	Training effectiveness evaluated regularly	2010 and ongoing	FCD, FD
Assess potential safety and liability issues within CNP, and ensure safety of visiting researchers, students and staff	Not in place	Visitor safety is one of the top priorities of CNP management	2010	FCD, consultants
Equipment Procurement Sub-Programme				
Objective 1: Ensure adequate administration infrastructure and planning				
Develop and implement a five-year infrastructure development plan	Development of CNP infrastructure taking place in the absence of a plan	New CNP infrastructure and facilities follow guidelines of the infrastructure development plan	2010	FCD, FD, donor agencies
Construction and equipping of administration facilities	Field base of operations is ill-equipped and not strategically located	Field base is centralized and well-equipped; FCD headquarters is well-equipped	2011	FCD, FD, donor agencies
Marketing Sub-Programme				
Objective 1: Improve the public image of and promote FCD and CNP				
Raise the international profile of CNP, and awareness of grant-giving agencies of the need for funding	FCD is not well known beyond the Maya Forest region	CNP is hailed as a model protected area in the Maya Forest and Mesoamerican Region	2012	FCD
Development of a website for FCD and CNP, linked to the websites of other management agencies involved in the Maya Mountains Massif	Websites are in existence for both FCD and CMM	Website upgraded	2009	FCD, consultants
Develop and implement a Marketing Plan for the CNP, in line with the CNP Business Plan (<i>linked to the Fundraising Sub-Programme</i>)	Business Plan under development	Marketing Plan in place	2010	FCD, consultants
Develop professional and attractive organizational and CNP logos	CMM, CNP and FCD logos exist	Re-branding of CMM, CNP and FCD, based on the Marketing Plan	2010	FCD, consultants
Monitoring and Review Sub-Programme				
Objective 1: Annual review of management activities				
Review of management effectiveness on annual basis, for submission to Forest Department	Baseline management effectiveness report completed	Improved CNP management, based on annual management effectiveness reports	2009 and ongoing	FCD, consultants

Chiquibul National Park Management Plan 2008-2013

Review of 'Measures of Success' monitoring (linked to Research and Monitoring Sub-Programme)	Occasional self-analysis	Annual measures of success analysis using standardized (national) methodology	2009 and ongoing	Data Manager, Monitoring Consultant
Preparation and review of annual work plans	Annual work plans are prepared, but no medium-term strategic plan or management plan is in place	Annual work plans are based on FCD's strategic plan and CNP's management plan	2009 and ongoing	FCD
Review of research and monitoring activities	Not applicable	Focused research and monitoring, based on management effectiveness evaluation	2009 and ongoing	FCD, consultants
Review of education and public awareness activities	Monitoring success is done through Rare methodology	Focused education and public awareness, based on management effectiveness evaluation	2009 and ongoing	FCD, consultants
Review of community participation activities	Not applicable	Focused community outreach, based on management effectiveness evaluation	2009 and ongoing	FCD, consultants
Objective 2: Periodic review of management plan				
Ensure monitoring information feeds back into adaptive management planning activities	Not applicable	Improved CNP management	Ongoing	FCD, Rangers
Review Management Plan after 2½ years	Not applicable	Management Plan reviewed and updated in 2010	2010	FCD, consultants
Review Management Plan after 5 years	Not applicable	Management Plan comprehensively reviewed in 2013	2013	FCD, consultants
Full management effectiveness assessment (as per NPASP) for submission to Forest Department at end of 5 years	Baseline management effectiveness report completed	Comprehensive management effectiveness report submitted to FD	2013	FCD, consultants

Chiquibul National Park Management Plan 2008-2013

Research and Monitoring Programme				
Research & Monitoring Sub-Programme				
Objective 1: Fill in knowledge gaps				
Management Actions	Present Status	Desired Status	Year	Responsibility
Create and implement information management database to contain all research, (biodiversity, water quality etc.) monitoring and socio-economic data, to assist with adaptive management	No effective in-house system for own data and external data scattered (NHM, BERDS, BDF, IoA)	In house data management system and links with BERDS, National Monitoring Institute if and when implemented	2009	1 data manager, ½ time (?) Software and hardware B\$ 10,000 startup costs
Strengthen cross linkages with other organizations involved in research in Belize and the region	Already contacts but no formal mechanism for data exchange	Formalized data exchange protocols	2008 and ongoing	Part of data manager task
Develop baseline data for the Chiquibul Forests through biodiversity surveys and mapping activities.	Abundant data but dispersed throughout Belize and abroad. Only data in BERDS are in standardized format	Complete spread of Geo-referenced biodiversity data, with focus on areas under special management (tourism, mining)	2010	Wardens as part of regular patrol and monitoring activities; Tourguides; REA-Consultants
In cooperation with IoA, build database on archaeological sites particularly geared towards management activities.	IoA data present but not in accessible format	Up to data dataset including GIS dataset(s) directly accessible to management body	2009	Data manager + IoA
Develop in house skills in database and GIS management	One staff member has basic skills and is undergoing training	Data-manager + 1 back up staff have received training in Database and GIS management	2009	Data manager + 1 extra staff.; Training (through Galen university, online training?) B\$ 5,000
Objective 2: Develop monitoring programmes covering conservation targets				
Develop and implement standardized biodiversity monitoring protocols in liaison with other national, regional and international initiatives	No effective monitoring in place	Routine biodiversity monitoring serving local and national monitoring needs	2009	Data Manager, Wardens, NGO's, Monitoring Consultant, National Monitoring Institute if and when in place

Chiquibul National Park Management Plan 2008-2013

Monitor hunting activity and indicator game species populations	Wardens keep notes and report promptly	Routine human activity monitoring, with data entered in database	2009	Data Manager, Wardens, NGO's, Monitoring Consultant, National Monitoring Institute if and when in place
Monitor Scarlet macaw populations	Wardens keep notes, research on Scarlet Macaws conducted for BECOL	Routine and systematic Scarlet Macaw monitoring, with data entered in database	2009	Data Manager, Wardens, NGO's, Researchers, Monitoring Consultant, National Monitoring Institute if and when in place
Monitor other focal vertebrate species of concern such as in liaison with other national and international initiatives	Wardens keep notes	Routine and standardized biodiversity monitoring serving local and national monitoring needs	2009	Data Manager, Wardens, NGO's, Researchers, Monitoring Consultant, National Monitoring Institute if and when in place
Monitor fish populations as a tool to monitor in-stream connectivity.	None	Routine and standardized fish monitoring	2009	Data Manager, Wardens, NGO's, Researchers, Monitoring Consultant, National Monitoring Institute if and when in place
Monitor on an annual basis using GIS tools, land use change (deforestation) within the Chiquibul Forest.	Occasional overflights, on foot patrols	Annual analysis of land use change using remote sensing methods in combination with overflights and patrols	2009	Data Manager, Wardens, Monitoring Consultant, National Monitoring Institute if and when in place
Monitor status of archaeological sites and signs of looting activity	Part of patrols	Systematic patrols of all mapped sites; specific patrol protocols for the Chiquibul Cave System	2009 and ongoing	Data Manager, Wardens, IoA.
Establish long term water monitoring programme, feeding into national water monitoring initiatives	None	Schedules monitoring of water quality in all areas with potentially detrimental activities	2009	Data Manager, Wardens, Monitoring Consultant, National Monitoring Institute if and when in place, Financed through mitigative measures resulting from EIA process

Chiquibul National Park Management Plan 2008-2013

Continued and extended collection of meteorological data.	MET department and Wildtracks meteorological stations installed	Network of functioning automated weather stations	2009	Data Manager, MET department
Develop and implement visitor impact monitoring – covering education and research users cover: user satisfaction and limits of acceptable change	None	Limits of acceptable change identified and monitoring in place	2010	Data Manager, Monitoring Consultant
Develop and implement limits of acceptable change for multiple use zones	None	Limits of acceptable change identified and monitoring in place	2010	Data Manager, Monitoring Consultant
Develop and implement limits of acceptable change for the Chiquibul Cave System		Limits of acceptable change identified and monitoring in place	2009	
Objective 3: Develop “measures of success” monitoring protocol, to verify success of conservation strategies				
Development and implementation of ‘Measures of Success’ monitoring programme, to verify success of conservation strategies, incorporating limits of acceptable change	Occasional self-analysis	Annual measures of success analysis using standardized (national) methodology	2009	Data Manager, Monitoring Consultant
Objective 4: Provide incentives and infrastructure for further research				
Coordinate with RIM (Research, Inventory, Monitoring) working group for further research programs and priorities.	Under development	Research activities in the Chiquibul guided by research needs and priorities benefiting management	2009	Data manager,
Develop Las Cuevas Research station as central base for research activities in the Chiquibul Forest.	Under discussion	Las Cuevas Research Station in one way or other integrated in management of Chiquibul Forest	2010	FCD, Las Cuevas, FD, CMI
Coordinate with BFREE for consolidating research in Greater CMM	Under discussion	Cross exchange and coordination underway with both research institutes	2009	
Facilitate research on upper level amphibians as a tool to monitor water chemistry, and other factor affecting these species.	Ongoing	Scheduled amphibian monitoring as a long term monitoring project	2010	FCD, Wildtracks, Other researchers

Chiquibul National Park Management Plan 2008-2013

Develop and implement monitoring program to detect chytridomycosis in upland amphibian populations	Ongoing	Scheduled amphibian monitoring as a long term monitoring project	2010	FCD, Wildtracks, Other researchers
Facilitate research into population structure and densities of key wildlife species including Jaguar, White-lipped Peccary and Scarlet Macaw	Cooperation exists, but FCD not yet in a position to actively facilitate research; discussions with BECOL for conducting some research on species	FCD successful in attracting researchers / institutions to carry out research into key species; research needs defined	2009	FCD, Data Manager, NGO's, RIM workgroup, Researchers, Monitoring Consultant, National Monitoring Institute if and when in place

Chiquibul National Park Management Plan 2008-2013

Natural Resources Management Programme				
General Biodiversity Management Sub-Programme				
Objective 1: Provide the framework for effective biodiversity management of the protected area				
Management Actions	Present Status	Desired Status	Year	Responsibility
Clearly demarcate the boundaries in critical areas	Partly completed	All critical areas identified and boundary demarcated. Note that there is uncertainty whether clearing boundary lines is a good action in all cases	2010	Volunteer work?
Implement management zones	No management zones	Management zones identified and implemented, incorporating all PA's throughout the Chiquibul Forest	2012	Long term project
Monitor on an annual basis using GIS tools, land use change (deforestation) within and adjacent to the Chiquibul Forest	Occasional overflights, on foot patrols	Annual analysis of land use change using remote sensing methods in combination with overflights and patrols	2009	Data Manager, Wardens, Monitoring Consultant, National Monitoring Institute if and when in place
Raise local awareness of the role of Chiquibul, and the benefits to Belize environmentally and financially	Frequent activity	Chiquibul Forest known throughout Belize and both threats and benefits widely appreciated; obtain more international partners	2010	FCD, PACT
Integrate research and monitoring results into the adaptive management process	Already contacts but no formal mechanism for data exchange	Formalized data exchange protocols, mechanism in place to incorporate results in management process	2008	Part of data manager task
Develop and implement enforcement plan	In place but un-structured	Formalized enforcement plan incorporating FD, IoA, Police, BDF and cross boundary partners	2009	FCD, IoA, FD, Police, BDF, CONAP
Prioritize enforcement of existing regulations and encourage cooperation of communities towards this objective	Primarily done with Guatemalan communities at a regular level	Border communities recognize and respect Belizean boundary and regulations	2008 >	FCD, IoA, FD, Police, BDF, CONAP

Chiquibul National Park Management Plan 2008-2013

Liaise with FD and BDF on enforcement issues	Frequent planning meetings conducted; FCD sits on interagency body	FD and BDF active and effective in enforcement issues	2008 >	FCD, FD, BDF
Liaise with GOB, British High Commission BDF and BATSUB to ultimately move military training areas out of core conservation zone(s)	BATSUB has agreement with government to use large designated areas within the Chiquibul as military training areas.	Military training areas located in Multiple Use zone(s) away from critical areas including current and potential tourism sites.	2008>	FCD, FD, GOB, BDF, BATSUB, British High Commission.
Liaise with management bodies of adjacent protected areas towards joint enforcement	In discussion	Active reciprocal involvement in the enforcement in all adjacent protected areas	2008>	FCD, BDF, FD, IoA, BMC, BAS
Work closely and effectively with local communities	Some meetings held but not structured	Belize communities recognize and respect CNP and its regulations	2008>	FCD
Develop and implement a fire management plan; Develop capacity and infrastructure for fire prevention and control	First steps taken (training); equipment is being purchased	Fire management plan implemented with infrastructure in place	2010	FCD, BDF, FD, IoA
Species Protection Sub-Programme				
Objective 1: Protect native flora and fauna species present within the Chiquibul Forest				
Collaborate with other national and regional initiatives towards conservation of all species of conservation concern	Actions not coordinated	Effective coordination of all initiatives geared towards the conservation of species of concern	2009	FCD (data manager), FD, NGO's, Research Institutions, CONAP etc.
Extractive Use Sub-Programme				
Objective 1: Maintain commercial species at ecologically and commercially viable levels				
Monitor extent of logged areas (in case of inclusion of logging zones within the management area)	FD has information but is not readily accessible	Public database with up-to-date information on areas being logged	2010	FCD - data manager, FD
Monitor population structure and recruitment of xaté using number of plants and average number of leaves per plant	Baseline data available	Annual update on Xaté status; develop specific inventory and monitoring program	2009 >	Data Manager, Wardens, Monitoring Consultant, Researchers, National Monitoring Institute if and when in place
Promote the inclusion of fish-tail xaté (<i>Chamaedorea ernesti-agustii</i>) in Appendix II of CITES	Under consideration	Xaté included in Appendix II of CITES	2010	FCD, FD, CONAP

Chiquibul National Park Management Plan 2008-2013

Identify and monitor density of commercial timbers within the Chiquibul Forest	FD has information but is not readily accessible	Database with up-to-date information on timber stocks	2010	FCD - data manager, FD, Consultants, Researchers.
Promote or carry out experimental alternative extraction programs of species that show commercial potential	Ideas	Capacity in place to carry out experimental extraction programs	2010	FCD, FD, Consultants, Researchers.
Reduce user impact	None	Management zoning implemented	2010	FCD, FD, IoA, Petroleum & Geology, BATSUB
Promote working relations with concessionaires in the Chiquibul Forest	Partially in place	Mutually beneficial working relationship with all concessionaires	2008	FCD, FD, any concessionaires.
Archaeological Sub-Programme				
Objective 1: By the year 2013, conserve 25% of the known cultural sites of the Chiquibul Forest through greater knowledge of sites, more effective management, and greater collaboration with other conservation partners (<i>adapted from MMM CAP</i>)				
Develop a comprehensive list, with mapping and assessment of all sites within the Chiquibul Forest by 2013	Only large structures are mapped	All sites mapped, if not in detail but at least all locations known	2008>	IoA
Increase the number of multi-year archaeological research projects in Chiquibul Forest by 2013	Ongoing Research mainly at Caracol	multi-year archaeological research projects in place for 3 sites	2008>	IoA
Development of more archaeological sites for tourism purposes, with effective management plans in place for 2 sites, by 2013	Caracol primary archaeological site	Cahal Pichic and Chiquibul Cave developed for tourism purposes	2011	IoA, FCD, FD
Encourage and lobby the IoA to increase management presence at archaeological sites by 2013, through collaboration with other conservation organizations of the Chiquibul Forest	FCD has a collaborative agreement with IoA for the Chiquibul Cave System	Zonation plan accepted and integrated management implemented with IoA, FCD and BDF sharing management responsibilities	2010	IoA, FCD, FD
Training of other conservation partners in mapping and information gathering for archaeological sites within the Chiquibul Forest	Initial work with XMET presently for training in mapping	All management partners have active mapping and database components	2010	IoA, FCD, FD, Las Cuevas
Develop a Management Plan and Visitor Guidelines for the Chiquibul Cave System	In discussion	Management plan in place	2011	IoA, FCD, FD

Chiquibul National Park Management Plan 2008-2013

Propose the Chiquibul Cave System and Caracol as a mixed World Heritage Site designation	Stipulated as part of working agreement with IoA	Chiquibul Cave System and CAR recognized as World Heritage Site	2011	IoA, FCD, FD
Objective 2: Protection of archaeological sites (including caves) within the Chiquibul Forest				
Close liaison with Institute of Archaeology	IoA and FCD collaborate at the CNPAC level	Have a working relationship with IoA	2009 >	FCD, IoA
Develop protection protocols between IoA and FCD	No protocols in place	Protection protocols developed and tested	2009>	FCD, IoA
Identification of archaeological sites	Data at IoA difficult to access	Shared Database of Archaeological Sites	2009	FCD, IoA
Maintain database of Archaeological Sites	Fragmented data	Comprehensive database of archaeological sites readily accessible by Chiquibul partners	2010	FCD, IoA, FD, BDF, etc.
Increased patrolling efforts with IoA targeted at preventing looting and destruction of these sites	Most Chiquibul patrols do not include IoA personnel	All known Archaeological sites under surveillance. Special patrols targeted at preventing looting and destruction of these sites	2010	FCD, Close liaison with Institute of Archaeology,
Increased awareness of national heritage through primary and secondary level education	Ongoing	Increased awareness of national heritage through primary and secondary level education	2009 >	IoA, FCD
Develop management plan for Chiquibul Cave System	Considered	Management Plan for the Chiquibul Cave developed and accepted	2009>	IoA, FCD, Cave Conservation Specialist
Mining Sub-Programme				
Objective 1: Minimize ecological impact of current and future mining activities				
Carry out biodiversity surveys in order to establish ecological importance of areas with mining potential	None	Biodiversity in "Mining Zone" well documented	2009	Data Manager, Wardens, Consultants, National Monitoring Institute if and when in place
Liaise closely with GPD and DOE regarding the issuing of prospecting and mining licenses	Infrequent	Standard procedures for involvement of PA management in the issuing of mining and prospecting licenses.	2009	FCD, FD, Dept of Petroleum and Geology
Liaise with any mining company as to use a best practices approach and	Dialogue in place	Mining companies have working relationship with	2009	FCD, FD, Dept of Petroleum and Geology. Payment

Chiquibul National Park Management Plan 2008-2013

prevent impacts on wildlife and general ecology of the overall area		FCD and allow them to monitor and evaluate activities; monitoring arranged and financed through EIA process		through EIA compliance plan
Develop and monitor an Environmental Compliance Plan for the current mining company	None	Mining activities are upheld as per guidelines	2009	FCD, FD, DOE, Dept of Petroleum and Geology.
Develop a working partnership with the current mining company	Contacts made	A mutually beneficial working relationship in place	2009	FCD, FD, DOE, Dept of Petroleum and Geology, Boiton Minerals
Objective 2: Protect water quality of any streams affected by mining activities				
Monitor water quality of all streams within and emerging from prospecting/mining license areas, and act appropriately in case of issues	None	Mining companies have working relationship with FCD and allow them to monitor water quality; monitoring arranged and financed through EIA process	2009	FCD, FD, Dept of Petroleum and Geology. Payment through EIA compliance plan
Develop appropriate methodologies and practices (approved by DOE, FD and Geology and Petroleum Dep't) with respect to mining in the Chiquibul Forest	None	Appropriate mining methodologies and practices developed and approved	2010	FCD, FD, Dept of Petroleum and Geology. EIA consultant(s).

Chiquibul National Park Management Plan 2008-2013

Protection and Surveillance Programme				
Demarcation Sub-Programme				
Objective 1: Clearly identify the Chiquibul as a protected area to prevent incursions based on ignorance				
Management Actions	Present Status	Desired Status	Year	Responsibility
Clearly demarcate the boundaries in critical areas	Partly completed	All critical areas identified and boundary demarcated. Note that there is uncertainty whether clearing boundary lines is a good action in all cases	2010	Volunteer work?
Establish boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time	1 building	Depending on outcome of infrastructure development plan have observation post under construction and staff identified	2012	FCD - Budget huge
Patrolling Sub-Programme				
Objective 1: Deter and correct any incursions into the Chiquibul, and manage and monitor legal activities				
Create and implement information management database to contain all research, monitoring and socio-economic data, to assist with adaptive patrol management	Moderate infrastructure at San Jose Succotz office.	Sufficient hard and software available to start and maintain databases, trained staff and dedicated data manager in place	2009	FCD, Funding agencies.
Develop and implement an enforcement plan	First steps taken	Enforcement plan developed and implemented	2009	FCD, BDF, FD, IoA, CONAP, BMC, BAS, YCT
Increase management presence at archaeological sites	Focus on Caracol	All known Archaeological sites under surveillance. Special patrols targeted at preventing looting and destruction of these sites; unit especially dedicated to Chiquibul Cave System	2010	FCD, Close liaison with Institute of Archaeology,
Formation of an external multi-agency "Surveillance and Enforcement Team" that reacts to serious enforcement issues	First steps taken	Enforcement plan developed and implemented	2009	BDF, Police, FD, Immigration, IoA, FCD, Guatemalan Army, CONAP

Chiquibul National Park Management Plan 2008-2013

Objective 2: By the year 2013, the illegal xatero incursions and associated activities have been reduced by 85%				
Involve mining, timber concessionaires, tour operators and other stakeholders in monitoring and surveillance in the Chiquibul Forest, by providing logistical assistance, overnight facilities, transportation and information to patrolling crews	None in place	Formal agreements with all concessionaires and other stakeholders for assistance in identifying illegal activities	2009	All stakeholders
Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration	First steps taken under the bi-national work plan	Enforcement plan developed and implemented	2009	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP
Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP, FCD and Mesa de RR. NN. (bi-national monitoring and surveillance, information exchange, environmental education, community development in the Chiquibul Forest, fundraising)	First year joint effort has been analyzed	National Institutional Action Plan implemented	2010	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP
Public awareness program targeting the international xaté market	None made	Public Awareness plan developed and implemented	2010	FCD, FD

Chiquibul National Park Management Plan 2008-2013

Objective 3: By the year 2013, all agricultural incursions within Chiquibul Forest are vacated and regenerating into forest and there are no new ones reported				
Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration	Efforts strengthened though primarily at Rio Blanco	Enforcement plan developed and implemented	2009	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP
Strengthen the coordination and collaboration among departments of the Ministry of Natural Resources, relevant conservation NGO's, national and local politicians towards the protection of the Chiquibul Forest	Several reunions held with Official of government and NGO's	Comprehensive border management program developed	2009	Ministry of Foreign Affairs, FD, IOA, FCD, BDF, Police, Immigration, Tourism
Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP, FCD and Mesa de RR. NN.	Bi-national workplan in effect	National Institutional Action Plan implemented	2009	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP
Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves	Ongoing. An agreement exists with Cayo Honey Quality Producers Cooperative	Sustainable income-generating activities, practiced on 500 acres in areas adjacent to Chiquibul Forest	2008>	FCD, Agriculture Department
Institute a permanent presence and monitor/surveillance program along the borderline	Conducted on specific hot spots	Outpost established and manned with permanent monitoring at specific hotspots	2008>	FCD, FD, BDF
Fire Management Sub-Programme				
Objective 1: Prevent damage to conservation targets as a result from wildfires (either through lightning strike, escaped agricultural fires, campfires and/or arson)				
Develop and implement fire management plan; Develop capacity and infrastructure for fire prevention and control	First steps taken (training)	Fire management plan implemented with infrastructure in place	2010	FCD, BDF, FD, IoA

Chiquibul National Park Management Plan 2008-2013

Infrastructure Management Programme				
Infrastructure Development Sub-Programme				
Objective 1: Ensure adequate infrastructure is in place to support CNP management and carry out protection and scientific monitoring activities				
Management Actions	Present Status	Desired Status	Year	Responsibility
Evaluate office and administrative needs to support operational efficiency	Under consideration	Office and Administrative needs documented	2008	FCD
Develop and implement five year infrastructure development plan	None	Infrastructure development plan in place	2009	FCD, Consultants
Investigate desirability and options to incorporate Las Cuevas Research Station in the management infrastructure of the Chiquibul Forest	Under consideration	Clear focus on in- or ex-clusion of LCRS into Chiquibul management	2009	FCD, Las Cuevas, FD, CMI
Develop the Las Cuevas Research Station as the central field headquarters and base of operations for CNP management	Not applicable	Needs discussion between partners	2010	FCD, Las Cuevas, FD, CMI
Establish ranger stations and boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time (protection and surveillance program)	1 building and 1 OP at Rio Blanco. One at Santa Rosa under consideration	Depending on outcome of infrastructure development plan have observation post under construction and staff identified	2011	FCD - Budget huge
Construct watchtowers at strategic locations	1 under consideration	Outpost with watch tower established and manned with permanent monitoring at specific hotspots	2011	FCD, FD, BDF
Establish and maintain heli-pads in strategic positions in order to facilitate research, rescue and general emergency actions	Unknown number and are not maintained	Depending on outcome of infrastructure development plan	2010>	FCD, BATSUB, BDF
Establish hard and software infrastructure in order to be able to maintain an information management database which contain all research, (biodiversity, water quality etc.)	Moderate infrastructure at San Jose Succotz office	Sufficient hard and software available to start and maintain databases	2009	FCD, Funding agencies.

Chiquibul National Park Management Plan 2008-2013

monitoring and socio-economic data, to assist with adaptive management				
Maintain and/or lobby to maintain the Chiquibul Road and other infrastructural roads in the Chiquibul	Very bad conditions	Frequently and adequately maintained (but largely unpaved) road system	2008 > onwards	FCD, LCRS, IoA, Mining Licence Holders, Logging industry, Tourism industry, BATSUB, BDF, MoW.
Gate is established at entrance of CNP to conduct monitoring and surveillance	In process	Gate in place and monitored permanently	2008	FCD, LCRS, IoA, Mining Licence Holders, Logging industry, Tourism industry, BATSUB, BDF, MoW.
Objective 2: Ensure adequate equipment is in place to support CNP management and carry out enforcement and monitoring activities				
Improve enforcement equipment and capabilities	Rangers have basic equipment though lack firearms	Communication structure in place, tested and functional. Rangers carry firearms and have received training in the use of the above	2008	FCD, FD, BDF, Police
Equip and maintain staff, surveillance, research, education and accommodation facilities	Basic infrastructure present	Seamless "catering" mechanism in place	2009 > ongoing	FCD
Provide sufficient communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest	Limited infrastructure	Communication structure in place, tested and functional	2009	FCD
Provide sufficient first aid materials and emergency rescue materials at key points within the management area	Limited infrastructure	All stations equipped with appropriate first aid and rescue materials	2009	FCD
Maintain an efficient inventory of equipment and supplies	Not structured	Efficient inventory of equipment and supplies in place and maintained	2010	FCD
Obtain and maintain adequate transportation means for enforcement and monitoring	1 Vehicle	Transportation infrastructure in synch with needs assessment	2010	FCD

Chiquibul National Park Management Plan 2008-2013

Infrastructure Use Training Sub-Programme				
Objective 1: Ensure that CNP staff are adequately trained to operate and maintain CNP infrastructure and facilities				
Develop in house skills in database and GIS management	One staff member has basic skills	Data-manager + 1 back up staff have received training in Database and GIS	2009	Data manager + 1 extra staff.; Training (through Galen university, online training?) B\$ 5,000
Provide communication skills training (using satellite phone, radios)	Basic skills present	All staff trained in communication skills	2009	FCD, consultant
Provide first aid and Jungle Rescue training	Basic skills present	Wardens trained in jungle rescue; CMM rescue team is in place	2010	FCD, Tour guide Ass., Caves Branch

Chiquibul National Park Management Plan 2008-2013

Public Use Programme				
Public Use Sub-Programme				
Objective 1: To increase tourism, research and education activity within the Chiquibul Forest and to achieve some level of economic sustainability through expansion of tourism and research that is compatible with biodiversity conservation				
Management Actions	Present Status	Desired Status	Year	Responsibility
Develop and implement a five-year tourism development plan	None	Tourism Development Plan designed and ready to be implemented (think of educational research area, low impact, no garbage regulations etc)	2010	FCD, Consulting team
Identify a network of outdoor camps to stimulate and promote the Chiquibul experience	None; concerns with security and safety	Network of camping sites identified, and visitor safety & security plan designed	2009	FCD, FD, BDF
Liase with BTB, BTIA and Cayo Tour Guide Association to promote Chiquibul as a tourism destination	FCD maintains informal contacts with these agencies; business planning consultations	BTB, BTIA and CTGA actively support the CNP business plan	2009	FCD, consulting team
Evaluate options and finalize the decision on the location of facilities and infrastructure associated with education and research	Ongoing though not within the frame of a development plan or public use plan	Tourism Development Plan designed and ready to be implemented	2010	FCD, Consulting team
Further investigate options for development of Tourism, Research and Education facilities possibly in conjunction with Las Cuevas Research Station	Under consideration	Public Use Infrastructure designed and ready to implement	2010	FCD
Establish and enforce low-impact, no-garbage and other visitor regulations	Not applicable	Low-impact, no-garbage regulation developed and enforced	2009	FCD
Designate a research area for use by school and university groups	None	Research Area designated based on zonation plan	2009	FCD
Research the potential for visitation development of the Chiquibul Cave System	Under investigation	Economical assessment of the Chiquibul Cave as a tourism attraction	2009	FCD, Consulting team
Carry out an impact assessment for the touristic development of the Chiquibul Cave	None	EIA carried out following Economical Assessment	2010	Consulting Team

Chiquibul National Park Management Plan 2008-2013

Prepare a management plan specifically for the Chiquibul Cave system	None	Management plan prepared in conjunction with EIA	2010	Consulting Team
A communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest	Limited infrastructure	Communication structure in place, tested and functional	2009	FCD
Provide sufficient first aid materials and emergency rescue materials at key points within the management area	Limited infrastructure	All stations equipped with appropriate first aid and rescue materials	2009	FCD
Develop and implement Limits of Acceptable Change Program including a monitoring program of user numbers (research and education), activities, and satisfaction	None	Development and implementation of 'Limits of Acceptable Change' for each management zone	2010	FCD, FD, IoA, Petroleum & Geology, NGO's, Consultants
Creation and maintenance of trails and ensure proper signage	Under development	Trail network designed based on zonation plan and in place including proper signage	2011	FCD, FD, IoA, BBG
Develop an OELC	None	Interpretative center designed (based on zonation plan) and in place	2012	FCD, FD, IoA, BBG

Chiquibul National Park Management Plan 2008-2013

Community Development and Environmental Education Programme				
Community Development and Outreach Subprogramme				
Objective 1: By 2013, at least 5 communities representing buffering communities of the CMM are involved in conservation and sustainable livelihood activities				
Management Actions	Present Status	Desired Status	Year	Responsibility
Conduct adult outreach programming	Project plan in place for 2008-2009	Conduct outreach in 29 communities in MMM with a focus on water resources	2009 >	FCD
Organize and carry out field trips that provide a first hand experience of conservation activities within the CNP and other core areas	Ongoing	Conitnue with focus on water resources and bi-national field trips	2009 >	FCD
Hire a community extension officer	Not in place; working with Agriculture Department	Officer hired	2010	FCD
Develop a community development promoters program	Not in place	Program developed and implemented at bi-national level with a focus on micro enterprises	2009	
Identify pilot communities in the MMM for building capabilities	Initiated	Communities identified and leadersip capabilities developed	2009	FCD
Develop a community sustainable livelihood model program	Not in place	Program developed after implementation of capacity building program	2010	FCD
Produce a trainers manual for community capacity building	Not in place	Community leaders identified and leadersip capabilities developed	2008	FCD
Environmental Education Sub-Programme				
Objective 1: By 2013, 75% of the inhabitants of the 22 target communities will know that the Chiquibul-Maya Mountains consists of a network of protected areas.				
Community consultations via surveys and focus group meetings	Completed	Community attitudes measured; EE project plan developed	2008	FCD
Primary school visits	Started and to be continued	Water conservation ethic promoted	Ongoing	FCD
Costumes of the emblematic species of the CNP	Scarlet macaw has been selected	Water conservation ethic promoted	Ongoing	FCD
Secondary school visits	Started and to be continued	Water conservation ethic promoted	Ongoing	FCD
Production of EE materials	Started and to be continued	Water conservation ethic promoted	Ongoing	FCD

Chiquibul National Park Management Plan 2008-2013

Design key environmental awareness messages and conduct non-informal education	Started and to be continued	Water conservation ethic promoted	Ongoing	FCD
Conduct adult outreach and demonstration program	Started and to be continued	Local community support for water conservation promoted	Ongoing	FCD
Objective 2: By 2013, over 50% of inhabitants from the buffering communities are supporting environmental service fees for the conservation of the CMM				
Devise a public outreach in water resources of the CMM	Materials under preparation	Local community support for water conservation strengthened	2009	FCD
Conduct an economic valuation exercise of the water resources of the MMM	None	Water resources of the MMM have been economically valued	2012	Consultants
Promote interest among private companies including BECOL, BWS and water bottling companies on environmental fees	Not started	Private sector support for water conservation promoted and expanded; corporate responsibility promoted	2009 >	FCD
Sensitize government agencies and personnel on the importance of water and the CMM	Not started	Government support for protection of MMM expanded	2009 >	FCD
Generate local constituency support via letters and working groups about environmental service fees	Not started	Local constituency support for water conservation promoted and expanded	2009 >	FCD
Strengthen partnerships with Guatemalan organizations for public outreach on water resources of the CMM in the Montanas Mayas-Chiquibul BR.	First phase of EE in some communities completed	EE program expanded into other communities	Ongoing	FCD, CONAP, Pro Petén, TNC
Objective 3: By 2013 FCD has a vibrant and active integrated education program in the Greater CMM				
Develop a needs assessment among EE practitioners in the MMM	Not started	EE practitioners needs identified	2009	FCD, FD
Identify and put in effect a communication system among educators	Not in place	EE programs coordinated	2009	FCD and partner agencies
Develop and implement a training program	Not in place	Tranining program impelemented using the RARE methodology	2009 >	FCD

Chiquibul National Park Management Plan 2008-2013

Develop an EE methodology for the MMM	Not in place	Methodology expanded into MMM	2009 >	FCD
Liaise and develop strategic partnerships in the MMM	Partnership development initiated	Coordinated implementation of EE program in the MMM	2008 >	FCD and partner agencies

Chiquibul National Park Management Plan 2008-2013

Bi-National Relations Programme				
Bi-National Relations Sub-Programme				
Objective 1: By 2013, protected areas officials from Belize and Guatemala have engaged key community leaders from the 18 target communities in Guatemala for the protection of the Chiquibul-Maya Mountains area				
Management Actions	Present Status	Desired Status	Year	Responsibility
Strengthen and expand the bi-national protected areas partnership agreement	Tri-national (Bze, Mex, Guat) PA agreement in place	Formalized bi-national (Bze-Guat) PA agreement focuses on CNP-CMM	2010	FCD, CONAP officials Costs – meetings \$\$
Based on this agreement, develop a plan of action for the protection of the bi-national CMM area	Under preparation	Bi-national CMM protection action plan in place	2010	FCD, CONAP officials Costs – meetings \$\$
Seek funding from the Friends of Belize consortium to support the implementation of the bi-national action plan	None in place	FOB funding forms part of the Resource Mobilization Plan	2010 and ongoing	FCD, CONAP officials Costs – meetings \$\$
Conduct community visits in target communities	Already occurring	Maintained	Ongoing	FCD, CONAP officials Costs – meetings \$\$
Exchange visits for community leaders and protected area officials	Already occurring, but limited in scope	Scope expanded; visits maintained	Ongoing	FCD, CONAP officials Costs – meetings \$\$
Objective 2: By 2013, a permanent program of confidence building measures has been instituted for Belizean and Guatemalan land management and security agencies				
Develop a confidence building program that engages Belizean and Guatemalan agencies	Confidence building program ongoing	Confidence building program in place and expanded	2011	Ministry of Foreign Affairs (Bze & Guat), FCD, FD, CFMC, CONAP Costs – meetings \$\$
Conduct cross-border exchanges	Already occurring, but limited in scope	Scope expanded; exchanges formalized and maintained	2011	FCD, FD, CFMC, CONAP Costs – meetings \$\$
Develop and implement a training needs program for Guatemalan/Belizean officials	None in place	Courses formalized, expanded and maintained	2012	Ministry of Foreign Affairs (Bze & Guat), FCD, FD, CFMC, CONAP Costs – courses \$\$

Chiquibul National Park Management Plan 2008-2013

Sustainable Livelihoods Sub-Programme				
Objective 1: By 2013, interested farmers from targeted communities in Guatemala are committed to and have initiated sustainable livelihood model programs				
Based on the bi-national protected areas agreement, develop a plan of action for a sustainable livelihoods program for communities of the bi-national CMM area	Outlines in the plan but not seeing funds as yet	Sustainable livelihoods program and action plan developed	2009	Ministry of Foreign Affairs (Bze & Guat), FCD, FD, CFMC, CONAP Costs – meetings \$\$
Seek funding from the Friends of Belize consortium to support the implementation of the bi-national sustainable livelihoods action plan	None in place	FOB funding forms part of the Resource Mobilization Plan	2009 and ongoing	FCD, CONAP officials Costs – meetings \$\$
Sustainable livelihood workshops	None occurring	Workshops implemented on a regular basis	2009 and ongoing	FCD, CONAP officials Costs – workshops \$\$
Community visits targeting farmers and community groups	Already occurring	Maintained	2009 and ongoing	FCD, CONAP officials Costs – meetings \$\$
Establish and support one demonstration project in 8 target communities	None	8 demonstration projects in place – one for each target community	2010 and ongoing	FCD, CONAP officials Costs – projects \$\$
Replicate model programs into other communities	Not applicable	Expanded into other 5 communities	2013	
Promote certification of sustainably managed xaté concessions and plantations in Guatemala and Belize, through coordination with Rainforest Alliance and other relevant organizations, and by creating awareness of ecological consequences of the xaté trade	None in place	Sustainably managed xaté concessions and plantations certified	2012	FCD, CONAP, Rainforest Alliance

Chiquibul National Park Management Plan 2008-2013

<p>Promote the establishment of xaté plantations in forested areas, crop plantations (like cacao), and nurseries in Guatemala and Belize, in order to have a more controlled and sustainable source of xaté</p>	<p>Already occurring, but limited in scope</p>	<p>Scope expanded; xaté and other crop plantations and nurseries established</p>	<p>2013</p>	<p>FCD, FD, CFMC, CONAP Costs – meetings \$\$</p>
<p>Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves</p>	<p>Cayo Honey Quality Producers conducting extension and training</p>		<p>2013</p>	<p>FCD, FD, Agriculture Department, Cooperatives Costs – projects \$\$</p>

5.7. Monitoring and review

The following monitoring and review process is presented as the mechanism for tracking progress of the management plan's implementation and ensuring compliance with assigned responsibilities within the management plan. The process includes the following steps:

- The CNP Manager, FCD Environmental Educator, Executive Director and Board Chairperson collect monthly updated individual objective summary/status reports (see Annex 1) from responsible employees, members, volunteers (including Board of Directors) and consultants.
- The Executive Director ensures that all objectives have been accounted for.
- The Executive Director, based on consultation and in coordination with the Chairperson and Programme Managers, makes note of unfinished objectives (shortfalls), needs for readjustments of outcomes and target dates (re-forecasts), meetings to be called, etc., on a bi-monthly basis. This can be done using the Objectives, Responsibilities and Targets (ORT) form (see Annex 2).
- Based on programme managers' reports, the Executive Director documents progress of strategic plan implementation in a brief inter-organizational memorandum on a quarterly basis to all management plan participants. Also a shortened non-detailed version should be included in the organizational newsletter.
- Review of management plan implementation should be a regular agenda item at staff and Board meetings.
- The management plan is to be generally monitored through quarterly meetings with the Forest Department, internal planning sessions and a mid-term evaluation.
- Progress of management plan implementation is to be evaluated at annual Board Retreats. Such evaluation may be facilitated by external consultants.

5.8. *Timeline – Activity Schedule*

Institutional Management and Strengthening Programme							
Governance Development Sub-Programme							
Objective 1: By 2011, develop a governance structure for the CNP that incorporates the multiple stakeholders within the area and ensures an effective and transparent decision-making structure							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Review the Terms of Reference and composition of the CNP Advisory Council (CNPAC) to ensure adequate and expanded representation of the various interest and stakeholder groups of the entire Chiquibul Forest, renaming the committee the Chiquibul Forest Advisory Council (CFAC)	CFO, IOA, GPD, FCD, other NGO representatives						
Organize and conduct a comprehensive orientation session for the members of the CFAC, which will include a review of the CNP Management Plan and other related plans	FD, FCD, CFAC						
Develop and institute a management zoning scheme for the Chiquibul Forest, encompassing archaeology, general buffer, mining buffer, conservation, timber and tourism zones	FD, IOA, FCD, CFAC						

Chiquibul National Park Management Plan 2008-2013

Develop a medium-term management plan for the Chiquibul Forest, premised on an approved zoning scheme	FD, IOA, FCD, CFAC						
Based on the Chiquibul Forest zoning scheme and management plan, prepare a strategy that will guide the execution of a process of re-designation of the three management units (CNP, CFR, and CAR) within the Chiquibul Forest	FCD, CFAC						
Repeal the current designations of the CNP, CFR and CAR, and replace with a designation that creates an integrated management area based on the Chiquibul Forest zoning scheme	GOB						
Strengthen and expand cross-border working relations with CONAP and the Reserva de la Biósfera Montañas Mayas-Chiquibul	GOB, CONAP						
Expand the Terms of Reference of the CFAC in order that it may have oversight responsibilities for the integrated Chiquibul Forest management area (once this area is declared), renaming the committee the Chiquibul Forest Management Council	FD, IOA						

Chiquibul National Park Management Plan 2008-2013

Revise and formalize FCD's role so that it may function as the Secretariat of the CFMC	CFMC, FCD						
Re-negotiate FCD's provisional co-management agreement into a formal and comprehensive 5-year co-management agreement granting FCD full responsibility for the overall management of the CNP	FD, FCD						
By 2011, negotiate and set in motion a CFMC where FCD plays an integral role in the implementation of a comprehensive and integrated management system in the Chiquibul Forest.	CFMC, FCD						
Financial Management Sub-Programme							
Objective 1: Strengthen FCD's internal financial processes in order to exhibit sound financial management and to show accountability, transparency and good governance in the financial management of CNP programmes							
Implement accounting software (such as QuickBooks) to strengthen FCD's internal financial management system	FCD, donor agencies						
Prepare and disseminate Annual Reports (including Audited Financial Statements) for FCD's operations	FCD						

Chiquibul National Park Management Plan 2008-2013

Fundraising Sub-Programme							
Objective 1: Develop and institute a fundraising program geared at diversifying CNP's funding base so that it is not dependent on just grant funding							
Develop and implement a Resource Mobilization Strategy and complementary fundraising plan for the CNP, including provisions for the establishment of an Endowment Fund and for merchandizing	FCD, PACT, other donor agencies, consultants						
Develop and implement business plans for the viable income generation opportunities within the CNP	FCD, CEPF, PACT, consultants						
Develop and implement a revenue generation and cost recovery scheme for the CNP, focusing on entry fees, user fees and concession fees	FCD, FD, IOA, PACT, consultants						
Prepare grant proposals to support the implementation of CNP's management programs	FCD, consultants						
Identify potential donor agencies and cultivate/strengthen donor relations	FCD						

Chiquibul National Park Management Plan 2008-2013

Strategic Networks and Partnerships Sub-Programme							
Objective 1: Strengthen collaborative relations with partner organizations, and with local and international NGOs to broaden FCD's scope of interaction							
Institute membership and participation in national, regional and international umbrella organizations (APAMO, IPCA, BACONGO, IUCN, etc.) to strengthen and support FCD's management efforts	FCD						
Strengthen relations with international organizations for technical support to the CNP management programs	FCD						
Objective 2: Facilitate local, regional and international exchange programs geared at strengthening the CNP management capacity of FCD							
Organize and conduct annual community exchanges (farmers, educators, tour guides/operators) – Guatemala	FCD, CONAP						
Organize and conduct technical exchanges (staff) with Reserva de la Biósfera Montañas Mayas-Chiquibul	FCD, CONAP						
Organize and conduct technical exchanges (staff) with other protected areas within the Maya Mountains Massif (e.g., CBWS and BNR)	FCD, BAS, BMC, FD						

Chiquibul National Park Management Plan 2008-2013

Administrative Programme							
General Administration Sub-Programme							
Objective 1: Develop an effective management structure							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Develop an effective management structure for CNP (<i>linked to Staff Recruitment and Retention Sub-Programme</i>)	FCD						
Develop close liaison and co-operation in management efforts with the Maya Mountain Massif conservation area initiative, under the NPASP	FCD, MMM partner agencies						
Strengthen close liaison and co-operation in management efforts with the Forest Department, IOA, GPD, Chico-Mex and Pine Lumber Company (for the CFR) and the Institute of Archaeology (for CAR)	FCD, IOA, FD, PLC						
Develop partnership agreements with PLC, IOA, Belize Audubon Society and BFREE for co-ordination of research, education and patrolling activities	FCD, FD, IOA, PLC, BAS, BMC						

Chiquibul National Park Management Plan 2008-2013

Develop Memoranda of Agreement with Las Cuevas Research Station and BFREE for co-ordination of research and education activities	FD, FCD, LCRS signatories						
Objective 2: Maintain baseline administration activities							
Maintain baseline administration activities	FCD						
Prepare Annual Work Plans (<i>linked to Monitoring and Review Sub-Programme</i>)	FCD						
Staff Recruitment and Retention Sub-Programme							
Objective 1: Ensure that CNP has sufficient staff for effective management and biodiversity conservation							
Conduct a comprehensive staff needs assessment for effective management of the CNP	FCD, consultants						
Prepare clear and detailed Terms of Reference (job descriptions) for all staff posts	FCD						
Develop and implement a Staff Recruitment Policy and Plan (including Succession Planning) to fill vacant CNP staff posts	FCD, FD, donor agencies						
Develop and implement preferential hiring policy for employment from local communities	FCD						
Develop Compensation Framework including compensation philosophy and pay policy	FCD, consultants						

Chiquibul National Park Management Plan 2008-2013

Review and strengthen an Administrative and Personnel Policy Manual	FCD						
Develop and institute a performance evaluation framework for staff	FCD, consultants						
Human Resources Management Sub-Programme							
Objective 1: Strengthen the management of CNP's Human Resources in order to ensure that FCD has the capacity to effectively implement the CNP management plan.							
Conduct a comprehensive training needs assessment (identification of gaps)	FCD, consultants						
Develop and implement a Human Resource Development plan	FCD, consultants						
Develop formal Orientation Package for new staff	FCD						
Ensure that all new staff take part in orientation activities	FCD						
Institute training for staff in priority needs	FCD						
Evaluate effectiveness of training	FCD, FD						
Assess potential safety and liability issues within CNP, and ensure safety of visiting researchers, students and staff	FCD, consultants						
Equipment Procurement Sub-Programme							
Objective 1: Ensure adequate administration infrastructure and planning							
Develop and implement a five-year infrastructure development plan	FCD, FD, donor agencies						
Construction and equipping of administration facilities	FCD, FD, donor agencies						

Chiquibul National Park Management Plan 2008-2013

Marketing Sub-Programme							
Objective 1: Improve the public image of and promote FCD and CNP							
Raise the international profile of CNP, and awareness of grant-giving agencies of the need for funding	FCD						
Development of a website for FCD and CNP, linked to the websites of other management agencies involved in the Maya Mountains Massif	FCD, consultants						
Develop and implement a Marketing Plan for the CNP, in line with the CNP Business Plan (<i>linked to the Fundraising Sub-Programme</i>)	FCD, consultants						
Develop professional and attractive organizational and CNP logos	FCD, consultants						
Monitoring and Review Sub-Programme							
Objective 1: Annual review of management activities							
Review of management effectiveness on annual basis, for submission to Forest Department	FCD, consultants						
Review of 'Measures of Success' monitoring (<i>linked to Research and Monitoring Sub-Programme</i>)	Data Manager, Monitoring Consultant						
Preparation and review of annual work plans	FCD						
Review of research and monitoring activities	FCD, consultants						
Review of education and public awareness activities	FCD, consultants						

Chiquibul National Park Management Plan 2008-2013

Review of community participation activities	FCD, consultants						
Objective 2: Periodic review of management plan							
Ensure monitoring information feeds back into adaptive management planning activities	FCD, Rangers						
Review Management Plan after 2½ years	FCD, consultants						
Review Management Plan after 5 years	FCD, consultants						
Full management effectiveness assessment (as per NPASP) for submission to Forest Department at end of 5 years	FCD, consultants						

Chiquibul National Park Management Plan 2008-2013

Research and Monitoring Programme							
Research & Monitoring Sub-Programme							
Objective 1: Fill in knowledge gaps							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Create and implement information management database to contain all research, (biodiversity, water quality etc.) monitoring and socio-economic data, to assist with adaptive management	1 data manager						
Strengthen cross linkages with other organizations involved in research in Belize and the region	Part of data manager task						
Develop baseline data for the Chiquibul Forests through biodiversity surveys and mapping activities.	Wardens as part of regular patrol and monitoring activities; Tour guides; REA-Consultants						
In cooperation with IoA, build database on archaeological sites particularly geared towards management activities.	Data manager + IoA						
Develop in house skills in database and GIS management	Data manager + 1 extra staff						

Chiquibul National Park Management Plan 2008-2013

Objective 2: Develop monitoring programmes covering conservation targets							
Develop and implement standardized biodiversity monitoring protocols in liaison with other national, regional and international initiatives	Data Manager, Wardens, NGO's, Monitoring Consultant, National Monitoring Institute						
Monitor hunting activity and indicator game species populations	Data Manager, Wardens, NGO's, Monitoring Consultant, National Monitoring Institute						
Monitor Scarlet macaw populations	Data Manager, Wardens, NGO's, Researchers, Monitoring Consultant, National Monitoring Institute						
Monitor other focal vertebrate species of concern such as in liaison with other national and international initiatives	Data Manager, Wardens, NGO's, Researchers, Monitoring Consultant, National Monitoring Institute						
Monitor fish populations as a tool to monitor in-stream connectivity.	Data Manager, Wardens, NGO's, Researchers, Monitoring Consultant, National Monitoring Institute						
Monitor on an annual basis using GIS tools, land use change (deforestation) within the Chiquibul Forest.	Data Manager, Wardens, Monitoring Consultant, National Monitoring Institute						
Monitor status of archaeological sites and signs of looting activity	Data Manager, Wardens, IoA.						

Chiquibul National Park Management Plan 2008-2013

Establish long term water monitoring programme, feeding into national water monitoring initiatives	Data Manager, Wardens, Monitoring Consultant, National Monitoring Institute						
Continued and extended collection of meteorological data.	Data Manager, MET department						
Develop and implement visitor impact monitoring – covering education and research users cover: user satisfaction and limits of acceptable change	Data Manager, Monitoring Consultant						
Develop and implement limits of acceptable change for multiple use zones	Data Manager, Monitoring Consultant						
Develop and implement limits of acceptable change for the Chiquibul Cave System							
Objective 3: Develop “measures of success” monitoring protocol, to verify success of conservation strategies							
Development and implementation of ‘Measures of Success’ monitoring programme, to verify success of conservation strategies, incorporating limits of acceptable change	Data Manager, Monitoring Consultant						

Chiquibul National Park Management Plan 2008-2013

Objective 4: Provide incentives and infrastructure for further research							
Coordinate with RIM (Research, Inventory, Monitoring) working group for further research programs and priorities.	Data manager,						
Develop Las Cuevas Research station as central base for research activities in the Chiquibul Forest.	FCD, Las Cuevas, FD, CMI						
Coordinate with BFREE for consolidating research in Greater CMM							
Facilitate research on upper level amphibians as a tool to monitor water chemistry, and other factor affecting these species.	FCD, Wildtracks, Other researchers						
Develop and implement monitoring program to detect chytridomycosis in upland amphibian populations	FCD, Wildtracks, Other researchers						
Facilitate research into population structure and densities of key wildlife species including Jaguar, White-lipped Peccary and Scarlet Macaw	FCD, Data Manager, NGO's, RIM workgroup, Researchers, Monitoring Consultant, National Monitoring Institute						

Chiquibul National Park Management Plan 2008-2013

Natural Resources Management Programme							
General Biodiversity Management Sub-Programme							
Objective 1: Provide the framework for effective biodiversity management of the protected area							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Clearly demarcate the boundaries in critical areas	Volunteers?						
Implement management zones							
Monitor on an annual basis using GIS tools, land use change (deforestation) within and adjacent to the Chiquibul Forest	Data Manager, Wardens, Monitoring Consultant, National Monitoring Institute						
Raise local awareness of the role of Chiquibul, and the benefits to Belize environmentally and financially	FCD, PACT						
Integrate research and monitoring results into the adaptive management process	Part of data manager task						
Develop and implement enforcement plan	FCD, IoA, FD, Police, BDF, CONAP						
Prioritize enforcement of existing regulations and encourage cooperation of communities towards this objective	FCD, IoA, FD, Police, BDF, CONAP						
Liaise with FD and BDF on enforcement issues	FCD, FD, BDF						
Liaise with GOB, British High Commission BDF and BATSUB to ultimately move military training areas out of core conservation zone(s)	FCD, FD, GOB, BDF, BATSUB, British High Commission.						
Liaise with management bodies of adjacent protected areas towards joint enforcement	FCD, BDF, FD, IoA, BMC, BAS						
Work closely and effectively with local communities	FCD						
Develop and implement a fire management plan; Develop capacity and infrastructure for fire prevention and control	FCD, BDF, FD, IoA						

Chiquibul National Park Management Plan 2008-2013

Species Protection Sub-Programme							
Objective 1: Protect native flora and fauna species present within the Chiquibul Forest							
Collaborate with other national and regional initiatives towards conservation of all species of conservation concern	FCD (data manager), FD, NGO's, Research Institutions, CONAP etc.						
Extractive Use Sub-Programme							
Objective 1: Maintain commercial species at ecologically and commercially viable levels							
Monitor extent of logged areas (in case of inclusion of logging zones within the management area)	FCD - data manager, FD						
Monitor population structure and recruitment of xaté using number of plants and average number of leaves per plant	Data Manager, Wardens, Monitoring Consultant, Researchers, National Monitoring Institute						
Promote the inclusion of fish-tail xaté (<i>Chamaedorea ernesti-agustii</i>) in Appendix II of CITES	FCD, FD, CONAP						
Identify and monitor density of commercial timbers within the Chiquibul Forest	FCD - data manager, FD, Consultants, Researchers.						
Promote or carry out experimental alternative extraction programs of species that show commercial potential	FCD, FD, Consultants, Researchers.						
Reduce user impact	FCD, FD, IoA, Petroleum & Geology, BATSUB						
Promote working relations with concessionaires in the Chiquibul Forest							
Archaeological Sub-Programme							
Objective 1: By the year 2013, conserve 25% of the known cultural sites of the Chiquibul Forest through greater knowledge of sites, more effective management, and greater collaboration with other conservation partners (<i>adapted from MMM CAP</i>)							
Develop a comprehensive list, with mapping and assessment of all sites within the Chiquibul Forest by 2013	IoA						

Chiquibul National Park Management Plan 2008-2013

Increase the number of multi-year archaeological research projects in Chiquibul Forest by 2013	IoA						
Development of more archaeological sites for tourism purposes, with effective management plans in place for 2 sites, by 2013	IoA, FCD, FD						
Encourage and lobby the IoA to increase management presence at archaeological sites by 2013, through collaboration with other conservation organizations of the Chiquibul Forest	IoA, FCD, FD						
Training of other conservation partners in mapping and information gathering for archaeological sites within the Chiquibul Forest	IoA, FCD, FD, Las Cuevas						
Develop a Management Plan and Visitor Guidelines for the Chiquibul Cave System	IoA, FCD, FD						
Propose the Chiquibul Cave System and Caracol as a mixed World Heritage Site designation	IoA, FCD, FD						
Objective 2: Protection of archaeological sites (including caves) within the Chiquibul Forest							
Close liaison with Institute of Archaeology	FCD, IoA						
Develop protection protocols between IoA and FCD							
Identification of archaeological sites	FCD, IoA						
Maintain database of Archaeological Sites	FCD, IoA, FD, BDF, etc.						
Increased patrolling efforts with IoA targeted at preventing looting and destruction of these sites	FCD, Close liaison with Institute of Archaeology,						

Chiquibul National Park Management Plan 2008-2013

Increased awareness of national heritage through primary and secondary level education	IoA, FCD						
Declare Chiquibul Cave System as an Archaeological Reserve							
Mining Sub-Programme							
Objective 1: Minimize ecological impact of current and future mining activities							
Carry out biodiversity surveys in order to establish ecological importance of areas with mining potential	Data Manager, Wardens, Consultants, National Monitoring Institute						
Liaise closely with GPD and DOE regarding the issuing of prospecting and mining licenses	FCD, FD, Dept of Petroleum and Geology, DOE						
Liaise with any mining company as to use a best practices approach and prevent impacts on wildlife and general ecology of the overall area	FCD, FD, Dept of Petroleum and Geology, DOE						
Develop and monitor an Environmental Compliance Plan for the current mining company	FCD, FD, DOE, Dept of Petroleum and Geology.						
Develop a working partnership with the current mining company							
Objective 2: Protect water quality of any streams affected by mining activities							
Monitor water quality of all streams within and emerging from prospecting/mining license areas, and act appropriately in case of issues	FCD, FD, Dept of Petroleum and Geology, DOE						
Develop an appropriate methodology approved by DOE, FD and Mining and Petroleum Dep't to conduct mining in the Chiquibul Forest							

Chiquibul National Park Management Plan 2008-2013

Protection and Surveillance Programme							
Demarcation Sub-Programme							
Objective 1: Clearly identify the Chiquibul as a protected area to prevent incursions based on ignorance							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Clearly demarcate the boundaries in critical areas	Volunteer work?						
Establish boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time	FCD						
Patrolling Sub-Programme							
Objective 1: Deter and correct any incursions into the Chiquibul, and manage and monitor legal activities							
Create and implement information management database to contain all research, monitoring and socio-economic data, to assist with adaptive patrol management	FCD, Funding agencies.						
Develop and implement an enforcement plan	FCD, BDF, FD, IoA, CONAP, BMC, BAS, YCT						
Increase management presence at archaeological sites	FCD, Close liaison with Institute of Archaeology,						
Formation of an external multi-agency "Surveillance and Enforcement Team" that reacts to serious enforcement issues	BDF, Police, FD, Immigration, IoA, FCD, Guatemalan Army, CONAP						
Objective 2: By the year 2013, the illegal xatero incursions and associated activities have been reduced by 85%							
Involve mining, timber concessionaires, tour operators and other stakeholders in monitoring and surveillance in the Chiquibul Forest, by providing logistical assistance, overnight facilities, transportation and information to patrolling crews	All stakeholders						

Chiquibul National Park Management Plan 2008-2013

Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP						
Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP, FCD and Mesa de RR. NN. (bi-national monitoring and surveillance, information exchange, environmental education, community development in the Chiquibul Forest, fundraising)	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP						
Develop a public awareness program targeting the international xaté market	FCD, FD						
Objective 3: By the year 2013, all agricultural incursions within Chiquibul Forest are vacated and regenerating into forest and there are no new ones reported							
Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP						
Strengthen the coordination and collaboration among departments of the Ministry of Natural Resources, relevant conservation NGO's, national and local politicians towards the protection of the Chiquibul Forest	Ministry of Foreign Affairs, FD, IOA, FCD, BDF, Police, Immigration, Tourism						
Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP, FCD and Mesa de RR. NN.	BDF, Police, FD, Immigration, IOA, FCD, Guat. Army, CONAP						

Chiquibul National Park Management Plan 2008-2013

Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves	FCD, Agriculture Department						
Institute a permanent presence and monitor/surveillance program along the borderline	FCD, FD, BDF						
Fire Management Sub-Programme							
Objective 1: Prevent damage to conservation targets as a result from wildfires (either through lightning strike, escaped agricultural fires, campfires and/or arson)							
Develop and implement fire management plan; Develop capacity and infrastructure for fire prevention and control	FCD, BDF, FD, IoA						

Chiquibul National Park Management Plan 2008-2013

Infrastructure Management Programme							
Infrastructure Development Sub-Programme							
Objective 1: Ensure adequate infrastructure is in place to support CNP management and carry out protection and scientific monitoring activities							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Evaluate office and administrative needs to support operational efficiency	FCD						
Develop and implement five year infrastructure development plan	FCD, Consultants						
Investigate desirability and options to incorporate Las Cuevas Research Station in the management infrastructure of the Chiquibul Forest	FCD, Las Cuevas, FD, CMI						
Develop the Las Cuevas Research Station as the central field headquarters and base of operations for CNP management	FCD, Las Cuevas, FD, CMI						
Establish ranger stations and boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time (protection and surveillance program)	FCD - Budget huge						
Construct watchtowers at strategic locations	FCD, FD, BDF						
Establish and maintain heli-pads in strategic positions in order to facilitate research, rescue and general emergency actions	FCD, BATSUB, BDF						

Chiquibul National Park Management Plan 2008-2013

Establish hard and software infrastructure in order to be able to maintain an information management database which contain all research, (biodiversity, water quality etc.) monitoring and socio-economic data, to assist with adaptive management	FCD, Funding agencies.						
Maintain and/or lobby to maintain the Chiquibul Road and other infrastructural roads in the Chiquibul	FCD, LCRS, IoA, Mining Licence Holders, Logging industry, Tourism industry, BATSUB, BDF, MoW.						
Gate is established at entrance of CNP to conduct monitoring and surveillance	FCD, LCRS, IoA, Mining Licence Holders, Logging industry, Tourism industry, BATSUB, BDF, MoW.						
Objective 2: Ensure adequate equipment is in place to support CNP management and carry out enforcement and monitoring activities							
Improve enforcement equipment and capabilities	FCD, FD, BDF, Police						
Equip and maintain staff, surveillance, research, education and accommodation facilities	FCD						
Provide sufficient communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest	FCD						
Provide sufficient first aid materials and emergency rescue materials at key points within the management area	FCD						
Maintain an efficient inventory of equipment and supplies							
Obtain and maintain adequate transportation means for enforcement and monitoring							

Chiquibul National Park Management Plan 2008-2013

Infrastructure Use Training Sub-Programme							
Objective 1: Ensure that CNP staff are adequately trained to operate and maintain CNP infrastructure and facilities							
Develop in house skills in database and GIS management	Data manager + 1 extra staff.						
Provide communication skills training (using satellite phone, radios)	FCD, consultant						
Provide first aid and Jungle Rescue training	FCD, Tour guide Ass., Caves Branch						

Chiquibul National Park Management Plan 2008-2013

Public Use Programme							
Public Use Sub-Programme							
Objective 1: To increase tourism, research and education activity within the Chiquibul Forest and to achieve some level of economic sustainability through expansion of tourism and research that is compatible with biodiversity conservation							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Develop and implement a five-year tourism development plan	FCD, Consulting team						
Identify a network of outdoor camps to stimulate and promote the Chiquibul experience							
Liaise with BTB, BTIA and Cayo Tour Guide Association to promote Chiquibul as a tourism destination							
Evaluate options and finalize the decision on the location of facilities and infrastructure associated with education and research	FCD, Consulting team						
Further investigate options for development of Tourism, Research and Education facilities possibly in conjunction with Las Cuevas Research Station	FCD						
Establish and enforce low-impact, no-garbage and other visitor regulations	FCD						
Designate a research area for use by school and university groups	FCD						
Research the potential for visitation development of the Chiquibul Cave System	FCD, Consulting team						
Carry out an impact assessment for the touristic development of the Chiquibul Cave	Consulting Team						
Prepare a management plan specifically for the Chiquibul Cave system	Consulting Team						

Chiquibul National Park Management Plan 2008-2013

A communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest	FCD						
Provide sufficient first aid materials and emergency rescue materials at key points within the management area	FCD						
Develop and implement Limits of Acceptable Change Program including a monitoring program of user numbers (research and education), activities, and satisfaction	FCD, FD, IoA, Petroleum & Geology, NGO's, Consultants						
Creation and maintenance of trails and ensure proper signage	FCD, FD, IoA, BBG						
Develop an OELC	FCD, FD, IoA, BBG						

Chiquibul National Park Management Plan 2008-2013

Community Development and Environmental Education Programme							
Community Development and Outreach Subprogramme							
Objective 1: By 2013, at least 5 communities representing buffering communities of the CMM are involved in conservation and sustainable livelihood activities							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Conduct adult outreach programming	FCD						
Organize and carry out field trips that provide a firsthand experience of conservation activities within the CNP and other core areas	FCD						
Hire a community extension officer	FCD						
Develop a community development promoters program							
Identify pilot communities in the MMM for building capabilities	FCD						
Develop a community sustainable livelihood model program	FCD						
Produce a trainers manual for community capacity building	FCD						
Environmental Education Sub-Programme							
Objective 1: By 2013, 75% of the inhabitants of the 18 target communities will know that the Chiquibul-Maya Mountains consists of a network of protected areas.							
Community consultations via surveys and focal group meetings	FCD						
Primary school visits	FCD						
Costumes of the emblematic species of the CNP	FCD						
Secondary school visits	FCD						
Production of EE materials	FCD						

Chiquibul National Park Management Plan 2008-2013

Design key environmental awareness messages and conduct non-informal education	FCD							
Conduct adult outreach and demonstration program	FCD							
Objective 2: By 2013, over 50% of inhabitants from the buffering communities are supporting environmental service fees for the conservation of the CMM								
Devise a public outreach in water resources of the CMM	FCD							
Conduct an economic valuation exercise of the water resources of the MMM	Consultants							
Promote interest among private companies including BECOL, BWS and water bottling companies on environmental fees	FCD							
Sensitize government agencies and personnel on the importance of water and the CMM	FCD							
Generate local constituency support via letters and working groups about environmental service fees	FCD							
Strengthen partnerships with Guatemalan organizations for public outreach on water resources of the CMM in the Montañas Mayas-Chiquibul BR.	FCD, CONAP, Pro Petén, TNC							

Chiquibul National Park Management Plan 2008-2013

Objective 3: By 2013 FCD has a vibrant and active integrated education program in the Greater CMM							
Develop a needs assessment among EE practitioners in the MMM	FCD, FD						
Identify and put in effect a communication system among educators	FCD and partner agencies						
Develop and implement a training program	FCD						
Develop an EE methodology for the MMM	FCD						
Liaise and develop strategic partnerships in the MMM	FCD and partner agencies						

Chiquibul National Park Management Plan 2008-2013

Bi-National Relations Programme							
Bi-National Relations Sub-Programme							
Objective 1: By 2013, protected areas officials from Belize and Guatemala have engaged key community leaders from the 18 target communities in Guatemala for the protection of the Chiquibul-Maya Mountains area							
Management Actions	Responsibility	Year					
		2008	2009	2010	2011	2012	2013
Strengthen and expand the bi-national protected areas partnership agreement	FCD, CONAP officials						
Based on this agreement, develop a plan of action for the protection of the bi-national CMM area	FCD, CONAP officials						
Seek funding from the Friends of Belize consortium to support the implementation of the bi-national action plan	FCD, CONAP officials						
Conduct community visits in target communities	FCD, CONAP officials						
Exchange visits for community leaders and protected area officials	FCD, CONAP officials						
Objective 2: By 2013, a permanent program of confidence building measures has been instituted for Belizean and Guatemalan land management and security agencies							
Develop a confidence building program that engages Belizean and Guatemalan agencies	Ministry of Foreign Affairs (Bze & Guat), FCD, FD, CFMC, CONAP						
Conduct cross-border exchanges	FCD, FD, CFMC, CONAP						
Develop and implement a training needs program for Guatemalan/Belizean officials	Ministry of Foreign Affairs (Bze & Guat), FCD, FD, CFMC, CONAP						
Sustainable Livelihoods Sub-Programme							
Objective 1: By 2013, interested farmers from targeted communities in Guatemala are committed to and have initiated sustainable livelihood model programs							
Based on the bi-national protected areas agreement, develop a plan of action for a sustainable livelihoods program for communities of the bi-national CMM area	Ministry of Foreign Affairs (Bze & Guat), FCD, FD, CFMC, CONAP						

Chiquibul National Park Management Plan 2008-2013

Seek funding from the Friends of Belize consortium to support the implementation of the bi-national sustainable livelihoods action plan	FCD, CONAP officials						
Sustainable livelihood workshops	FCD, CONAP officials						
Community visits targeting farmers and community groups	FCD, CONAP officials						
Establish and support one demonstration project in 8 target communities	FCD, CONAP officials						
Replicate model programs into other communities							
Promote certification of sustainably managed xaté concessions and plantations in Guatemala and Belize, through coordination with Rainforest Alliance and other relevant organizations, and by creating awareness of ecological consequences of the xaté trade	FCD, CONAP, Rainforest Alliance						
Promote the establishment of xaté plantations in forested areas, crop plantations (like cacao), and nurseries in Guatemala and Belize, in order to have a more controlled and sustainable source of xaté	FCD, FD, CFMC, CONAP						
Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves	FCD, FD, Agriculture Department, Cooperatives Costs – projects \$\$						

5.9. Financing – Indicative Budget

Readers should note that the budget figures are indicative, and reflect budgetary needs over the duration of this management plan. Where budget figures are based on annual needs, this figure has been multiplied by 5 to reflect the management plan time periods. Furthermore, where a budgetary figure is shown as “-----”, this suggests that salaries outlay covers the cost of the activity.

To understand the projected budgetary outlays for the respective annual time periods, readers should refer to Section 5.8 (Timeline – Activity Schedule).

Readers must note, also, that the indicative budget is specified as “non-staff” or “investments”.

The non-staff budget refers to operations, training, materials & equipment, travel & per diem, and contracting & consulting fees.

The investment budget denotes budgetary requirements for capital investments in infrastructure, vehicles, major equipment, and so on.

Please refer to Section 5.9.2 for the summary of the non-staff and investments indicative budget.

Finally, the staff budget is shown separately (Section 5.9.3), and is based on the proposed Management Structure shown in Figure 22 (Section 5.5).

Chiquibul National Park Management Plan 2008-2013

5.9.1 Indicative Budget – Non-Staff & Investments (Detailed)

Institutional Management and Strengthening Programme	
Governance Development Sub-Programme	
Objective 1: By 2011, develop a governance structure for the CNP that incorporates the multiple stakeholders within the area and ensures an effective and transparent decision-making structure	
Management Actions	Indicative Budget
Review the Terms of Reference and composition of the CNP Advisory Council (CNPAC) to ensure adequate and expanded representation of the various interest and stakeholder groups of the entire Chiquibul Forest, renaming the committee the Chiquibul Forest Advisory Council (CFAC)	\$1,000 (non-staff – meeting costs)
Organize and conduct a comprehensive orientation session for the members of the CFAC, which will include a review of the CNP Management Plan and other related plans	\$2,000 (non-staff – meeting costs)
Develop and institute a management zoning scheme for the Chiquibul Forest, encompassing archaeology, general buffer, mining buffer, conservation, timber and tourism zones	\$2,000 (non-staff – meeting costs)
Develop a medium-term management plan for the Chiquibul Forest, premised on an approved zoning scheme	\$75,000 (non-staff)
Based on the Chiquibul Forest zoning scheme and management plan, prepare a strategy that will guide the execution of a process of re-designation of the three management units (CNP, CFR, and CAR) within the Chiquibul Forest	\$2,000 (non-staff – meeting costs)
Repeal the current designations of the CNP, CFR and CAR, and replace with a designation that creates an integrated management area based on the Chiquibul Forest zoning scheme	-----
Strengthen and expand cross-border working relations with CONAP and the Reserva de la Biósfera Montañas Mayas-Chiquibul	\$5,000 (non-staff – travel and meeting costs)
Expand the Terms of Reference of the CFAC in order that it may have oversight responsibilities for the integrated Chiquibul Forest management area (once this area is declared), renaming the committee the Chiquibul Forest Management Council	\$2,000 (non-staff – meeting costs)
Revise and formalize FCD's role so that it may function as the Secretariat of the CFMC	-----
Objective 2: Negotiate and operationalize a permanent and secure co-management arrangement for CNP	
Re-negotiate FCD's provisional co-management agreement into a formal and comprehensive 5-year co-management agreement granting FCD full responsibility for the overall management of the CNP	\$2,000 (non-staff – meeting costs)
By 2011, negotiate and set in motion a CFMC where FCD plays an integral role in the implementation of a comprehensive and integrated management system in the Chiquibul Forest.	\$2,000 (non-staff – meeting costs)
<i>SUB-TOTAL GOVERNANCE DEVELOPMENT</i>	<i>\$93,000 (non-staff)</i>
Financial Management Sub-Programme	
Objective 1: Strengthen FCD's internal financial processes in order to exhibit sound financial management and to show accountability, transparency and good governance in the financial management of CNP programmes	
Implement accounting software (such as QuickBooks) to strengthen FCD's internal financial management system	\$10,000 (non-staff)
Prepare and disseminate Annual Reports (including Audited Financial Statements) for FCD's operations	\$10,000 (non-staff) (annual X 5 years) = \$50,000
<i>SUB-TOTAL FINANCIAL MANAGEMENT</i>	<i>\$60,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Fundraising Sub-Programme	
Objective 1: Develop and institute a fundraising program geared at diversifying CNP's funding base so that it is not dependent on just grant funding	
Develop and implement a Resource Mobilization Strategy and complementary fundraising plan for the CNP, including provisions for the establishment of an Endowment Fund and for merchandizing	\$25,000 (non-staff)
Develop and implement business plans for the viable income generation opportunities within the CNP	\$30,000 (non-staff – financial plan) \$30,000 (non-staff – business plans)
Develop and implement a revenue generation and cost recovery scheme for the CNP, focusing on entry fees, user fees and concession fees	---- (covered in previous item)
Prepare grant proposals to support the implementation of CNP's management programs	Development Officer
Identify potential donor agencies and cultivate/strengthen donor relations	Development Officer
SUB-TOTAL FUNDRAISING	\$85,000 (non-staff)
Strategic Networks and Partnerships Sub-Programme	
Objective 1: Strengthen collaborative relations with partner organizations, and with local and international NGOs to broaden FCD's scope of interaction	
Institute membership and participation in national, regional and international umbrella organizations (APAMO, IPCA, BACONGO, IUCN, etc.) to strengthen and support FCD's management efforts	\$10,000 (annual X 5 years) = \$50,000
Strengthen relations with international organizations for technical support to the CNP management programs	-----
Objective 2: Facilitate local, regional and international exchange programs geared at strengthening the CNP management capacity of FCD	
Organize and conduct annual community exchanges (farmers, educators, tour guides/operators) – Guatemala	\$15,000 (annual X 5 years) = \$75,000
Organize and conduct technical exchanges (staff) with Reserva de la Biósfera Montañas Mayas-Chiquibul	\$15,000 (annual X 5 years) = \$75,000
Organize and conduct technical exchanges (staff) with other protected areas within the Maya Mountains Massif (e.g., CBWS and BNR)	\$6,000 (annual X 5 years) = \$30,000
SUB-TOTAL STRATEGIC NETWORKS & PARTNERSHIP	\$180,000 (non-staff)
Administrative Programme	
General Administration Sub-Programme	
Objective 1: Develop an effective management structure	
Management Actions	Indicative Budget
Develop an effective management structure for CNP (<i>linked to Staff Recruitment and Retention Sub-Programme</i>)	----- (see Staff Salaries)
Develop close liaison and co-operation in management efforts with the Maya Mountain Massif conservation area initiative, under the NPASP	----- (see Staff Salaries)
Strengthen close liaison and co-operation in management efforts with the Forest Department, IoA, GPD, Chico-Mex and Pine Lumber Company (for the CFR) and the Institute of Archaeology (for CAR)	----- (see Staff Salaries)
Develop partnership agreements with PLC, IOA, Belize Audubon Society and BFREE for co-ordination of research, education and patrolling activities	----- (see Staff Salaries)
Develop Memoranda of Agreement with Las Cuevas Research Station and BFREE for co-ordination of research and education activities	----- (see Staff Salaries)
Objective 2: Maintain baseline administration activities	
Maintain baseline administration activities	----- (see Staff Salaries)
Prepare Annual Work Plans (<i>linked to Monitoring and Review Sub-Programme</i>)	----- (see Staff Salaries)
SUB-TOTAL GENERAL ADMINISTRATION	----- (see staff salaries)

Chiquibul National Park Management Plan 2008-2013

Staff Recruitment and Retention Sub-Programme	
Objective 1: Ensure that CNP has sufficient staff for effective management and biodiversity conservation	
Conduct a comprehensive staff needs assessment for effective management of the CNP	\$10,000 (non-staff)
Prepare clear and detailed Terms of Reference (job descriptions) for all staff posts	----- (see Staff Salaries)
Develop and implement a Staff Recruitment Policy and Plan (including Succession Planning) to fill vacant CNP staff posts	----- (see Staff Salaries)
Develop and implement preferential hiring policy for employment from local communities	----- (see Staff Salaries)
Develop Compensation Framework including compensation philosophy and pay policy	\$5,000 (non-staff)
Review and strengthen an Administrative and Personnel Policy Manual	\$5,000 (non-staff)
Develop and institute a performance evaluation framework for staff	\$5,000 (non-staff)
<i>SUB-TOTAL STAFF RECRUITMENT & RETENTION</i>	<i>\$25,000 (non-staff)</i>
Human Resources Management Sub-Programme	
Objective 1: Strengthen the management of CNP's Human Resources in order to ensure that FCD has the capacity to effectively implement the CNP management plan.	
Conduct a comprehensive training needs assessment (identification of gaps)	\$5,000 (non-staff)
Develop and implement a Human Resource Development plan	\$5,000 (non-staff)
Develop formal Orientation Package for new staff	----- (see Staff Salaries)
Ensure that all new staff take part in orientation activities	----- (see Staff Salaries)
Institute training for staff in priority needs	\$100,000 (non-staff)
Evaluate effectiveness of training	\$5,000 (annual X 5 years) = \$25,000
Assess potential safety and liability issues within CNP, and ensure safety of visiting researchers, students and staff	\$20,000 (non-staff)
<i>SUB-TOTAL HUMAN RESOURCES MANAGEMENT</i>	<i>\$155,000 (non-staff)</i>
Equipment Procurement Sub-Programme	
Objective 1: Ensure adequate administration infrastructure and planning	
Develop and implement a five-year infrastructure development plan	\$50,000 (non-staff)
Construction and equipping of administration facilities	\$200,000 (investment)
<i>SUB-TOTAL EQUIPMENT PROCUREMENT</i>	<i>\$50,000 (non-staff)</i> <i>\$200,000 (investment)</i>
Marketing Sub-Programme	
Objective 1: Improve the public image of and promote FCD and CNP	
Raise the international profile of CNP, and awareness of grant-giving agencies of the need for funding	----- (see below)
Development of a website for FCD and CNP, linked to the websites of other management agencies involved in the Maya Mountains Massif	\$10,000 (non-staff)
Develop and implement a Marketing Plan for the CNP, in line with the CNP Business Plan (<i>linked to the Fundraising Sub-Programme</i>)	\$50,000 (non-staff)
Develop professional and attractive organizational and CNP logos	\$5,000 (non-staff)
<i>SUB-TOTAL MARKETING</i>	<i>\$65,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Monitoring and Review Sub-Programme	
Objective 1: Annual review of management activities	
Review of management effectiveness on annual basis, for submission to Forest Department	\$25,000 (non-staff) (annual X 5 years) = \$125,000
Review of 'Measures of Success' monitoring (<i>linked to Research and Monitoring Sub-Programme</i>)	----- (see Staff Salaries)
Preparation and review of annual work plans	----- (see Staff Salaries)
Review of research and monitoring activities	\$10,000 (non-staff) (annual X 5 years) = \$50,000
Review of education and public awareness activities	\$10,000 (non-staff) (annual X 5 years) = \$50,000
Review of community participation activities	\$10,000 (non-staff) (annual X 5 years) = \$50,000
Objective 2: Periodic review of management plan	
Ensure monitoring information feeds back into adaptive management planning activities	----- (see Staff Salaries)
Review Management Plan after 2½ years	\$10,000
Review Management Plan after 5 years	\$25,000
Full management effectiveness assessment (as per NPASP) for submission to Forest Department at end of 5 years	\$25,000
<i>SUB-TOTAL MONITORING & REVIEW</i>	<i>\$335,000 (non-staff)</i>

Research and Monitoring Programme	
Research & Monitoring Sub-Programme	
Objective 1: Fill in knowledge gaps	
Management Actions	Indicative Budget
Create and implement information management database to contain all research, (biodiversity, water quality etc.) monitoring and socio-economic data, to assist with adaptive management	\$10,000 (non-staff – software and hardware start up) + ----- (Staff Salaries)
Strengthen cross linkages with other organizations involved in research in Belize and the region	----- (see Staff Salaries)
Develop baseline data for the Chiquibul Forests through biodiversity surveys and mapping activities.	----- (see Staff Salaries) + \$25,000 (non-staff)
In cooperation with IoA, build database on archaeological sites particularly geared towards management activities.	----- (see Staff Salaries)
Develop in house skills in database and GIS management	----- (see Staff Salaries) + \$5,000 (non-staff – training)

Chiquibul National Park Management Plan 2008-2013

Objective 2: Develop monitoring programmes covering conservation targets	
Develop and implement standardized biodiversity monitoring protocols in liaison with other national, regional and international initiatives	----- (see Staff Salaries) + \$25,000 (non-staff)
Monitor hunting activity and indicator game species populations	----- (see Staff Salaries) + \$25,000 (non-staff)
Monitor Scarlet macaw populations	----- (see Staff Salaries) + \$25,000 (non-staff)
Monitor other focal vertebrate species of concern such as in liaison with other national and international initiatives	----- (see Staff Salaries) + \$25,000 (non-staff)
Monitor fish populations as a tool to monitor in-stream connectivity.	----- (see Staff Salaries) + \$25,000 (non-staff)
Monitor on an annual basis using GIS tools, land use change (deforestation) within the Chiquibul Forest.	----- (see Staff Salaries) + \$25,000 (non-staff)
Monitor status of archaeological sites and signs of looting activity	----- (see Staff Salaries)
Establish long term water monitoring programme, feeding into national water monitoring initiatives	----- (see Staff Salaries) + \$25,000 (non-staff)
Continued and extended collection of meteorological data.	----- (see Staff Salaries)
Develop and implement visitor impact monitoring – covering education and research users cover: user satisfaction and limits of acceptable change	----- (see Staff Salaries) + \$25,000 (non-staff)
Develop and implement limits of acceptable change for multiple use zones	----- (see Staff Salaries) + \$25,000 (non-staff)
Develop and implement limits of acceptable change for the Chiquibul Cave System	----- (see Staff Salaries) + \$25,000 (non-staff)
Objective 3: Develop “measures of success” monitoring protocol, to verify success of conservation strategies	
Development and implementation of ‘Measures of Success’ monitoring programme, to verify success of conservation strategies, incorporating limits of acceptable change	----- (see Staff Salaries) + \$25,000 (non-staff)
Objective 4: Provide incentives and infrastructure for further research	
Coordinate with RIM (Research, Inventory, Monitoring) working group for further research programs and priorities.	----- (see Staff Salaries)
Develop Las Cuevas Research station as central base for research activities in the Chiquibul Forest.	----- (see Staff Salaries)
Coordinate with BFREE for consolidating research in Greater CMM	----- (see Staff Salaries)
Facilitate research on upper level amphibians as a tool to monitor water chemistry, and other factor affecting these species.	----- (see Staff Salaries)
Develop and implement monitoring program to detect chytridomycosis in upland amphibian populations	----- (see Staff Salaries)
Facilitate research into population structure and densities of key wildlife species including Jaguar, White-lipped Peccary and Scarlet Macaw	----- (see Staff Salaries) + \$50,000 (non-staff)
<i>SUB-TOTAL RESEARCH & MONITORING</i>	<i>\$365,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Natural Resources Management Programme	
General Biodiversity Management Sub-Programme	
Objective 1: Provide the framework for effective biodiversity management of the protected area	
Management Actions	Indicative Budget
Clearly demarcate the boundaries in critical areas	----- (see Staff Salaries)
Implement management zones	----- (see Staff Salaries)
Monitor on an annual basis using GIS tools, land use change (deforestation) within and adjacent to the Chiquibul Forest	----- (see Staff Salaries) + \$25,000 (non-staff)
Raise local awareness of the role of Chiquibul, and the benefits to Belize environmentally and financially	----- (see Staff Salaries)
Integrate research and monitoring results into the adaptive management process	----- (see Staff Salaries)
Develop and implement enforcement plan	----- (see Staff Salaries)
Prioritize enforcement of existing regulations and encourage cooperation of communities towards this objective	----- (see Staff Salaries)
Liaise with FD and BDF on enforcement issues	----- (see Staff Salaries)
Liaise with GOB, British High Commission BDF and BATSUB to ultimately move military training areas out of core conservation zone(s)	----- (see Staff Salaries)
Liaise with management bodies of adjacent protected areas towards joint enforcement	----- (see Staff Salaries)
Work closely and effectively with local communities	----- (see Staff Salaries)
Develop and implement a fire management plan; Develop capacity and infrastructure for fire prevention and control	----- (see Staff Salaries)
<i>SUB-TOTAL GENERAL BIODIVERSITY MANAGEMENT</i>	<i>\$25,000 (non-staff)</i>
Species Protection Sub-Programme	
Objective 1: Protect native flora and fauna species present within the Chiquibul Forest	
Collaborate with other national and regional initiatives towards conservation of all species of conservation concern	----- (see Staff Salaries)
<i>SUB-TOTAL SPECIES PROTECTION</i>	<i>----- (see staff salaries)</i>
Extractive Use Sub-Programme	
Objective 1: Maintain commercial species at ecologically and commercially viable levels	
Monitor extent of logged areas (in case of inclusion of logging zones within the management area)	----- (see Staff Salaries)
Monitor population structure and recruitment of xaté using number of plants and average number of leaves per plant	----- (see Staff Salaries) + \$50,000 (non-staff)
Promote the inclusion of fish-tail xate (<i>Chamaedorea ernesti-agustii</i>) in Appendix II of CITES	----- (see Staff Salaries)
Identify and monitor density of commercial timbers within the Chiquibul Forest	----- (see Staff Salaries) + \$50,000 (non-staff)
Promote or carry out experimental alternative extraction programs of species that show commercial potential	----- (see Staff Salaries) + \$50,000 (non-staff)
Reduce user impact	----- (see Staff Salaries)
Promote working relations with concessionaires in the Chiquibul Forest	----- (see Staff Salaries)
<i>SUB-TOTAL EXTRACTIVE USE</i>	<i>\$150,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Archaeological Sub-Programme	
Objective 1: By the year 2013, conserve 25% of the known cultural sites of the Chiquibul Forest through greater knowledge of sites, more effective management, and greater collaboration with other conservation partners (adapted from MMM CAP)	
Develop a comprehensive list, with mapping and assessment of all sites within the Chiquibul Forest by 2013	----- (see Staff Salaries)
Increase the number of multi-year archaeological research projects in Chiquibul Forest by 2013	----- (see Staff Salaries)
Development of more archaeological sites for tourism purposes, with effective management plans in place for 2 sites, by 2013	\$500,000 (investment); ----- (see Staff Salaries)
Encourage and lobby the IoA to increase management presence at archaeological sites by 2013, through collaboration with other conservation organizations of the Chiquibul Forest	----- (see Staff Salaries)
Training of other conservation partners in mapping and information gathering for archaeological sites within the Chiquibul Forest	----- (see Staff Salaries)
Develop a Management Plan and Visitor Guidelines for the Chiquibul Cave System	\$50,000 (non-staff); ----- (see Staff Salaries)
Propose the Chiquibul Cave System and Caracol as a mixed World Heritage Site designation	----- (see Staff Salaries)
Objective 2: Protection of archaeological sites (including caves) within the Chiquibul Forest	
Close liaison with Institute of Archaeology	----- (see Staff Salaries)
Develop protection protocols between IoA and FCD	----- (see Staff Salaries)
Identification of archaeological sites	----- (see Staff Salaries)
Maintain database of Archaeological Sites	----- (see Staff Salaries)
Increased patrolling efforts with IoA targeted at preventing looting and destruction of these sites	----- (see Staff Salaries)
Increased awareness of national heritage through primary and secondary level education	----- (see Staff Salaries)
Develop management plan for Chiquibul Cave System	Covered above
<i>SUB-TOTAL ARCHAEOLOGICAL</i>	<i>\$50,000 (non-staff)</i> <i>\$500,000 (investment)</i>
Mining Sub-Programme	
Objective 1: Minimize ecological impact of current and future mining activities	
Carry out biodiversity surveys in order to establish ecological importance of areas with mining potential	\$50,000 (non-staff)
Liaise closely with GPD and DOE regarding the issuing of prospecting and mining licenses	----- (see Staff Salaries)
Liaise with any mining company as to use a best practices approach and prevent impacts on wildlife and general ecology of the overall area	----- (see Staff Salaries)
Develop and monitor an Environmental Compliance Plan for the current mining company	----- (see Staff Salaries)
Develop a working partnership with the current mining company	----- (see Staff Salaries)
Objective 2: Protect water quality of any streams affected by mining activities	
Monitor water quality of all streams within and emerging from prospecting/mining license areas, and act appropriately in case of issues	----- (see Staff Salaries)
Develop appropriate methodologies and practices (approved by DOE, FD and Geology and Petroleum Dep't) with respect to mining in the Chiquibul Forest	----- (see Staff Salaries)
<i>SUB-TOTAL MINING</i>	<i>\$50,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Protection and Surveillance Programme	
Demarcation Sub-Programme	
Objective 1: Clearly identify the Chiquibul as a protected area to prevent incursions based on ignorance	
Management Actions	Indicative Budget
Clearly demarcate the boundaries in critical areas	----- (see Staff Salaries); volunteers
Establish boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time	\$50,000 (x 6 O.P.'s) = \$ (investment – see below – Infrastructural Development)
<i>SUB-TOTAL DEMARCATION</i>	<i>\$50,000 (non-staff)</i>
Patrolling Sub-Programme	
Objective 1: Deter and correct any incursions into the Chiquibul, and manage and monitor legal activities	
Create and implement information management database to contain all research, monitoring and socio-economic data, to assist with adaptive patrol management	----- (see Staff Salaries)
Develop and implement an enforcement plan	----- (see Staff Salaries)
Increase management presence at archaeological sites	----- (see Staff Salaries)
Formation of an external multi-agency "Surveillance and Enforcement Team" that reacts to serious enforcement issues	----- (see Staff Salaries)
Objective 2: By the year 2013, the illegal xatero incursions and associated activities have been reduced by 85%	
Involve mining, timber concessionaires, tour operators and other stakeholders in monitoring and surveillance in the Chiquibul Forest, by providing logistical assistance, overnight facilities, transportation and information to patrolling crews	----- (see Staff Salaries)
Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration	----- (see Staff Salaries)
Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP, FCD and Mesa de RR. NN. (bi-national monitoring and surveillance, information exchange, environmental education, community development in the Chiquibul Forest, fundraising)	----- (see Staff Salaries)
Develop a public awareness program targeting the international xaté market	----- (see Staff Salaries)
Objective 3: By the year 2013, all agricultural incursions within Chiquibul Forest are vacated and regenerating into forest and there are no new ones reported	
Strengthen multi-agency, bi-national patrols along the Adjacency Zone through increased resources, presence and collaboration	----- (see Staff Salaries)
Strengthen the coordination and collaboration among departments of the Ministry of Natural Resources, relevant conservation NGO's, national and local politicians towards the protection of the Chiquibul Forest	----- (see Staff Salaries)
Strengthen the implementation of the bi-national institutional action plan between Forest Department, CONAP, FCD and Mesa de RR. NN.	----- (see Staff Salaries)
Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves	----- (see Staff Salaries)
Institute a permanent presence and monitor/surveillance program along the borderline	----- (see Staff Salaries)
<i>SUB-TOTAL PATROLLING</i>	<i>----- (see staff salaries)</i>
Fire Management Sub-Programme	
Objective 1: Prevent damage to conservation targets as a result from wildfires (either through lightning strike, escaped agricultural fires, campfires and/or arson)	
Develop and implement fire management plan; Develop capacity and infrastructure for fire prevention and control	\$50,000 (non-staff) + \$50,000 (investment) = ----- (see Staff Salaries)
<i>SUB-TOTAL FIRE MANAGEMENT</i>	<i>\$50,000 (non-staff) \$50,000 (investment)</i>

Chiquibul National Park Management Plan 2008-2013

Infrastructure Management Programme	
Infrastructure Development Sub-Programme	
Objective 1: Ensure adequate infrastructure is in place to support CNP management and carry out protection and scientific monitoring activities	
Management Actions	Indicative Budget
Evaluate office and administrative needs to support operational efficiency	Covered previously
Develop and implement five year infrastructure development plan	Covered previously
Investigate desirability and options to incorporate Las Cuevas Research Station in the management infrastructure of the Chiquibul Forest	----- (see Staff Salaries)
Develop the Las Cuevas Research Station as the central field headquarters and base of operations for CNP management	----- (see Staff Salaries)
Establish ranger stations and boundary observation posts (the current management building is already serving this purpose) on critical entry points, and have these post manned full-time (protection and surveillance program)	\$300,000 (investment)
Construct watchtowers (1) at strategic locations	\$25,000 (investment)
Establish and maintain heli-pads in strategic positions in order to facilitate research, rescue and general emergency actions	\$50,000 (investment)
Establish hard and software infrastructure in order to be able to maintain an information management database which contain all research (biodiversity, water quality etc.), monitoring and socio-economic data, to assist with adaptive management	\$10,000 (non-staff)
Maintain and/or lobby to maintain the Chiquibul Road and other infrastructural roads in the Chiquibul	----- (see Staff Salaries)
Gate is established at entrance of CNP to conduct monitoring and surveillance	\$10,000 (investment)
Objective 2: Ensure adequate equipment is in place to support CNP management and carry out enforcement and monitoring activities	
Improve enforcement equipment and capabilities	See below
Equip and maintain staff, surveillance, research, education and accommodation facilities	\$25,000 (non-staff)
Provide sufficient communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest	\$25,000 (non-staff)
Provide sufficient first aid materials and emergency rescue materials at key points within the management area	\$10,000 (non-staff)
Maintain an efficient inventory of equipment and supplies	----- (see Staff Salaries)
Obtain and maintain adequate transportation means for enforcement and monitoring	\$300,000 (investment – 4 pickup trucks)
<i>SUB-TOTAL INFRASTRUCTURE DEVELOPMENT</i>	<i>\$70,000 (non-staff) \$685,000 (investment)</i>
Infrastructure Use Training Sub-Programme	
Objective 1: Ensure that CNP staff are adequately trained to operate and maintain CNP infrastructure and facilities	
Develop in house skills in database and GIS management	----- (see Staff Salaries) + \$5,000 (non-staff – training)
Provide communication skills training (using satellite phone, radios)	\$5,000 (non-staff)
Provide first aid and Jungle Rescue training	\$5,000 (non-staff)
<i>SUB-TOTAL INFRASTRUCTURE USE TRAINING</i>	<i>\$15,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Public Use Programme	
Public Use Sub-Programme	
Objective 1: To increase tourism, research and education activity within the Chiquibul Forest and to achieve some level of economic sustainability through expansion of tourism and research that is compatible with biodiversity conservation	
Management Actions	Indicative Budget
Develop and implement a five-year tourism development plan	\$50,000 (non-staff)
Identify a network of outdoor camps to stimulate and promote the Chiquibul experience	----- (see Staff Salaries)
Liaise with BTB, BTIA and Cayo Tour Guide Association to promote Chiquibul as a tourism destination	----- (see Staff Salaries)
Evaluate options and finalize the decision on the location of facilities and infrastructure associated with education and research	----- (see Staff Salaries)
Further investigate options for development of Tourism, Research and Education facilities possibly in conjunction with Las Cuevas Research Station	----- (see Staff Salaries)
Establish and enforce low-impact, no-garbage and other visitor regulations	----- (see Staff Salaries)
Designate a research area for use by school and university groups	----- (see Staff Salaries)
Research the potential for visitation development of the Chiquibul Cave System	Included below
Carry out an impact assessment for the touristic development of the Chiquibul Cave	\$20,000 (non-staff)
Prepare a management plan specifically for the Chiquibul Cave system	Covered previously
A communication infrastructure (radio, satphone) for all levels of use of the Chiquibul Forest	Covered previously
Provide sufficient first aid materials and emergency rescue materials at key points within the management area	Covered previously
Develop and implement Limits of Acceptable Change Program including a monitoring program of user numbers (research and education), activities, and satisfaction	\$25,000 (non-staff)
Creation and maintenance of trails and ensure proper signage	----- (see Staff Salaries)
Develop an OELC	----- (see Staff Salaries)
<i>SUB-TOTAL PUBLIC USE</i>	<i>\$95,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Community Development and Environmental Education Programme	
Community Development and Outreach Subprogramme	
Objective 1: By 2013, at least 5 communities representing buffering communities of the CMM are involved in conservation and sustainable livelihood activities	
Management Actions	Indicative Budget
Conduct adult outreach programming	----- (see Staff Salaries)
Organize and carry out field trips that provide a first hand experience of conservation activities within the CNP and other core areas	----- (see Staff Salaries)
Hire a community extension officer	----- (see Staff Salaries)
Develop a community development promoters program	----- (see Staff Salaries)
Identify pilot communities in the MMM for building capabilities	----- (see Staff Salaries)
Develop a community sustainable livelihood model program	----- (see Staff Salaries)
Produce a trainers manual for community capacity building	----- (see Staff Salaries)
<i>SUB-TOTAL COMMUNITY DEVELOPMENT & OUTREACH</i>	<i>----- (see staff salaries)</i>
Environmental Education Sub-Programme	
Objective 1: By 2013, 75% of the inhabitants of the 22 target communities will know that the Chiquibul-Maya Mountains consists of a network of protected areas.	
Community consultations via surveys and focus group meetings	----- (see Staff Salaries)
Primary school visits	----- (see Staff Salaries)
Costumes of the emblematic species of the CNP	----- (see Staff Salaries)
Secondary school visits	----- (see Staff Salaries)
Production of EE materials	----- (see Staff Salaries)
Design key environmental awareness messages and conduct non-informal education	----- (see Staff Salaries)
Conduct adult outreach and demonstration program	----- (see Staff Salaries)
Objective 2: By 2013, over 50% of inhabitants from the buffering communities are supporting environmental service fees for the conservation of the CMM	
Devise a public outreach program in water resources of the CMM	----- (see Staff Salaries)
Conduct an economic valuation exercise of the water resources of the MMM	\$100,000 (non-staff)
Promote interest among private companies including BECOL, BWS and water bottling companies on environmental fees	----- (see Staff Salaries)
Sensitize government agencies and personnel on the importance of water and the CMM	----- (see Staff Salaries)
Generate local constituency support via letters and working groups about environmental service fees	----- (see Staff Salaries)
Strengthen partnerships with Guatemalan organizations for public outreach on water resources of the CMM in the Montanas Mayas-Chiquibul BR.	----- (see Staff Salaries)
Objective 3: By 2013 FCD has a vibrant and active integrated education program in the Greater CMM	
Conduct a needs assessment among EE practitioners in the MMM	----- (see Staff Salaries)
Identify and put in effect a communication system among educators	----- (see Staff Salaries)
Develop and implement a training program	----- (see Staff Salaries)
Develop an EE methodology for the MMM	----- (see Staff Salaries)
Liaise and develop strategic partnerships in the MMM	----- (see Staff Salaries)
<i>SUB-TOTAL ENVIRONMENTAL EDUCATION</i>	<i>\$100,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

Bi-National Relations Programme	
Bi-National Relations Sub-Programme	
Objective 1: By 2013, protected areas officials from Belize and Guatemala have engaged key community leaders from the 18 target communities in Guatemala for the protection of the Chiquibul-Maya Mountains area	
Management Actions	Indicative Budget
Strengthen and expand the bi-national protected areas partnership agreement	----- (see Staff Salaries) + \$2,000 (non-staff – meeting costs)
Based on this agreement, develop a plan of action for the protection of the bi-national CMM area	----- (see Staff Salaries) + \$2,000 (non-staff – meeting costs)
Seek funding from the Friends of Belize consortium to support the implementation of the bi-national action plan	----- (see Staff Salaries)
Conduct community visits in target communities	----- (see Staff Salaries) + \$5,000 (non-staff – meeting costs) (annual X 5 years) = \$25,000
Exchange visits for community leaders and protected area officials	----- (see Staff Salaries) + \$5,000 (non-staff – meeting costs) (annual X 5 years) = \$25,000
Objective 2: By 2013, a permanent program of confidence building measures has been instituted for Belizean and Guatemalan land management and security agencies	
Develop a confidence building program that engages Belizean and Guatemalan agencies	----- (see Staff Salaries)
Conduct cross-border exchanges	----- (see Staff Salaries) + \$5,000 (non-staff – meeting costs) (annual X 5 years) = \$25,000
Develop and implement a training needs program for Guatemalan/Belizean officials	----- (see Staff Salaries) + \$5,000 (non-staff – meeting costs) (annual X 5 years) = \$25,000
<i>SUB-TOTAL BI-NATIONAL RELATIONS</i>	<i>\$104,000 (non-staff)</i>
Sustainable Livelihoods Sub-Programme	
Objective 1: By 2013, interested farmers from targeted communities in Guatemala are committed to and have initiated sustainable livelihood model programs	
Based on the bi-national protected areas agreement, develop a plan of action for a sustainable livelihoods program for communities of the bi-national CMM area	----- (see Staff Salaries) + \$2,000 (non-staff – meeting costs)
Seek funding from the Friends of Belize consortium to support the implementation of the bi-national sustainable livelihoods action plan	----- (see Staff Salaries)
Sustainable livelihood workshops	\$5,000 (non-staff) (annual X 5 years) = \$25,000
Community visits targeting farmers and community groups	----- (see Staff Salaries) + \$5,000 (non-staff – meeting costs) (annual X 5 years) = \$25,000
Establish and support one demonstration project in 8 target communities	\$10,000 (non-staff) (X 8 projects) = \$80,000
Replicate model programs into other communities	----- (see Staff Salaries)
Promote certification of sustainably managed xaté concessions and plantations in Guatemala and Belize, through coordination with Rainforest Alliance and other relevant organizations,	----- (see Staff Salaries)

Chiquibul National Park Management Plan 2008-2013

and by creating awareness of ecological consequences of the xaté trade	
Promote the establishment of xaté plantations in forested areas, crop plantations (like cacao), and nurseries in Guatemala and Belize, in order to have a more controlled and sustainable source of xaté	----- (see Staff Salaries)
Promote sustainable income-generating activities, such as honey, cacao and xaté production, for farmers in the areas adjacent to Chiquibul Forest, especially near the Vaca and Columbia River Forest Reserves	----- (see Staff Salaries)
<i>SUB-TOTAL SUSTAINABLE LIVELIHOODS</i>	<i>\$132,000 (non-staff)</i>

Chiquibul National Park Management Plan 2008-2013

5.9.2 Indicative Budget – Non-Staff & Investments (Summary)

Programme/Sub-Programme	Indicative Budget
Institutional Management and Strengthening Programme	
Governance Development	\$93,000 (non-staff)
Financial Management	\$60,000 (non-staff)
Fundraising	\$85,000 (non-staff)
Strategic Networks & Partnerships	\$180,000 (non-staff)
Administrative Programme	
General Administration	----- (see staff salaries)
Staff Recruitment & Retention	\$25,000 (non-staff)
Human Resources Management	\$155,000 (non-staff)
Equipment Procurement	\$50,000 (non-staff) \$200,000 (investment)
Marketing	\$65,000 (non-staff)
Monitoring & Review	\$335,000 (non-staff)
Research and Monitoring Programme	
Research & Monitoring	\$365,000 (non-staff)
Natural Resources Management Programme	
General Biodiversity Management	\$25,000 (non-staff)
Species Protection	----- (see staff salaries)
Extractive Use	\$150,000 (non-staff)
Archaeological	\$50,000 (non-staff) \$500,000 (investment)
Mining	\$50,000 (non-staff)
Protection and Surveillance Programme	
Demarcation	\$50,000 (non-staff)
Patrolling	----- (see staff salaries)
Fire Management	\$50,000 (non-staff) \$50,000 (investment)
Infrastructure Management Programme	
Infrastructure Development	\$70,000 (non-staff) \$685,000 (investment)
Infrastructure Use Training	\$15,000 (non-staff)
Public Use Programme	
SUB-TOTAL PUBLIC USE	\$95,000 (non-staff)
Community Development and Environmental Education Programme	
Community Development & Outreach	----- (see staff salaries)
Environmental Education	\$100,000 (non-staff)
Bi-National Relations Programme	
Bi-National Relations	\$104,000 (non-staff)
Sustainable Livelihoods	\$132,000 (non-staff)
TOTALS	\$2,304,000 (non-staff) + \$1,435,000 (investments)
GRAND TOTAL	\$3,739,000

5.9.3 Indicative Budget (Staff Salaries)

The indicative staff budget is shown below, and is based on the proposed Management Structure shown in Figure 22 (Section 5.5). Annual figures are shown.

Staff Post	Indicative Annual Budget (Gross Salaries)
Executive Director	\$60,000
Deputy Executive Director	\$48,000
CNP Manager	\$42,000
Environmental Educator	\$28,000
Finance Manager/Accountant	\$36,000
Development Officer	\$36,000
Administrative Assistant	\$24,000
Clerk/Secretary	\$12,000
CMM Educators (\$24,000 X 2)	\$48,000
Assistant CNP Manager	\$30,000
Deputy Chief Ranger (Forest)	\$24,000
Deputy Chief Ranger (Archaeology)	\$24,000
Research Coordinator	\$36,000
Rangers (\$18,000 X 11)	\$198,000
Field Research Coordinator	\$24,000
GIS/Data Technician	\$18,000
GRAND TOTAL	\$688,000

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6. Appendices

Annex 1 – Listing of Ecosystems found within the Chiquibul

UNESCO Code	UNESCO Description	Acres	Hectares
IA1b(1)	Tropical evergreen broad-leaved submontane forest	38,887	15,737
IA1b(3)	Tropical evergreen broad-leaved submontane palm forest	1,940	785
IA1c(1)	Tropical evergreen broad-leaved lower-montane forest	1,580	639
IA1c(4)	Tropical evergreen broad-leaved lower montane palm forest	1,098	444
IA2a(1)(a)-ST	Tropical evergreen seasonal broad-leaved lowland hill forest, Simarouba-Terminalia variant	24,231	9,806
IA2a(1)(a)K-r	Tropical evergreen seasonal broad-leaved lowland hill forest, on rolling karstic terrain	14,815	5,996
IA2a(1)(a)K-s	Tropical evergreen seasonal broad-leaved lowland hill forest on steep karstic terrain	38,618	15,628
IA2b(1)-ST	Tropical evergreen seasonal broad-leaved submontane forest, Simarouba-Terminalia variant	87,357	35,352
IA2b(1)-VT	Tropical evergreen seasonal broad-leaved submontane forest: Virola-Terminalia variant	64,725	26,193
IA2b(1)K-r	Tropical evergreen seasonal broad-leaved submontane forest on rolling karstic hills	71,795	29,054
IA2b(1)K-s	Tropical evergreen seasonal broad-leaved submontane forest on steep karstic hills	70,681	28,604
IA2b(1/2)	Tropical evergreen seasonal mixed submontane forest	3,152	1,276
IA2b(2)	Tropical evergreen seasonal needle-leaved submontane forest	3,148	1,274
IIIB1b(a)	Deciduous broad-leaved lowland shrubland, well-drained, over poor soils	307	124
IIIB1b(b)	Deciduous mixed submontane shrubland over poor soils	718	291
IIIB1b(f)H	Deciduous broad-leaved lowland riparian shrubland in hills	3,295	1,334
SPA(1)	Agriculture: non mechanized agriculture including unimproved pasture	11,027	4,463

Chiquibul National Park Management Plan 2008-2013

Annex 2 – Species of conservation concern known or expected to occur within the Chiquibul

Order	Species	English Name	IUCN class	Status in Belize
Amphibians	<i>Agalychnis moreletii</i>		CR	DD
Amphibians	<i>Bolitoglossa dofleini</i>		NT	DD
Amphibians	<i>Bufo campbelli</i>		NT	LC
Amphibians	<i>Smilisca cyanosticta</i>		NT	DD
Amphibians	<i>Eleutherodactylus chac</i>		NT	DD
Amphibians	<i>Eleutherodactylus laticeps</i>		NT	DD
Amphibians	<i>Eleutherodactylus leprus</i>		VU	DD
Amphibians	<i>Eleutherodactylus psephosypharus</i>		VU	DD
Amphibians	<i>Eleutherodactylus sabrinus</i>		EN	DD
Amphibians	<i>Eleutherodactylus sandersoni</i>		EN	DD
Amphibians	<i>Hyla bromeliacia</i>		EN	DD
Amphibians	<i>Rana juliani</i>		NT	NT
Birds	<i>Agamia agami</i>	Agami Heron		VU
Birds	<i>Ara macao cyanoptera</i>	Scarlet Macaw		EN
Birds	<i>Asio stygius</i>	Stygian Owl		VU
Birds	<i>Bubo virginianus</i>	Great Horned Owl		VU
Birds	<i>Cairina moschata</i>	Muscovy Duck		VU
Birds	<i>Columba leucocephala</i>	White-Crowned Pigeon	NT	VU
Birds	<i>Contopus cooperi</i>	Olive-Sided Flycatcher	NT	DD
Birds	<i>Crax rubra</i>	Great Curassow	NT	VU
Birds	<i>Dendroica cerulea</i>	Cerulean Warbler	VU	VU
Birds	<i>Electron carinatum</i>	Keel-Billed Motmot		VU
Birds	<i>Falco deiroleucus</i>	Orange-Breasted Falcon		VU
Birds	<i>Fregata magnificens</i>	Magnificent Frigatebird		VU
Birds	<i>Harpia harpyja</i>	Harpy Eagle	NT	CR
Birds	<i>Harpophaliaetus solitarius</i>	Solitary Eagle	NT	CR
Birds	<i>Meleagris ocellata</i>	Ocellated Turkey	NT	VU
Birds	<i>Morphnus guianensis</i>	Crested Eagle	NT	CR
Birds	<i>Nycticorax nycticorax</i>	Black-Crowned Night-Heron		VU
Birds	<i>Penelope purpurascens</i>	Crested Guan		VU
Birds	<i>Pionopsitta haematotis</i>	Brown-Hooded Parrot		DD
Birds	<i>Sarcoramphus papa</i>	King Vulture		VU
Mammals	<i>Alouatta pigra</i>	Mexican Black Howler Monkey	EN	VU
Mammals	<i>Ateles geoffroyi</i>	Central American Spider Monkey	VU	VU
Mammals	<i>Balantiopteryx io</i>	Thomas's Sac-winged Bat	EN	VU
Mammals	<i>Bauerus dubiaquercus</i>	Van Gelder's Bat,	VU	VU
Mammals	<i>Cabassous centralis</i>	Northern Naked-Tailed Armadillo	DD	DD
Mammals	<i>Centronycteris centralis</i>	Shaggy Bat	VU	VU
Mammals	<i>Dicotyles pecari</i>	White-Lipped Peccary	VU	VU
Mammals	<i>Herpailurus yaguarondi</i>	Yaguarundi	VU	LC
Mammals	<i>Leopardus pardalis</i>	Ocelot	VU	VU
Mammals	<i>Leopardus wiedii</i>	Margay	VU	VU

Chiquibul National Park Management Plan 2008-2013

Order	Species	English Name	IUCN class	Status in Belize
Mammals	<i>Lontra longicaudis</i>	Neotropical River Otter	DD	VU
Mammals	<i>Molossops greenhalli</i>	Greenhall's mastiff Bat	VU	VU
Mammals	<i>Mormoops megalphylla</i>	Ghost-faced Bat	NT	NT
Mammals	<i>Myotis elegans</i>	Elegant Myotis	VU	VU
Mammals	<i>Panthera onca</i>	Jaguar	NT	NT
Mammals	<i>Pteronotus gymnonotus</i>	Greater Naked-back Bat	NT	NT
Mammals	<i>Puma concolor</i>	Puma	NT	NT
Mammals	<i>Tapirus bairdii</i>	Central American Tapir	EN	VU

