TASK FORCE ON BELIZE'S PROTECTED AREAS POLICY AND SYSTEMS PLAN

Biological Corridors

Meso-American Barrier Reef World Heritage Site

Turneffe Crocodile Park

THE BELIZE NATIONAL PROTECTED AREAS SYSTEM PLAN

The Blue Marine Reserve

Maya Mountains - Chiquibul World Heritage Site

IUCN Category

I
II
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V
VI

NOVEMBER 2005

Mopan-Quechi M and Riverbase

20   40 Miles

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The Belize National Protected Area System Plan has been drawn up from the following reports commissioned by the Task Force on Belize's Protected Areas Policy and System Plan.

- ***Work Plan for the formulation of Belize's Protected Areas Policy and Systems Plan:*** Jan Meerman, J. Roger Wilson, John McGill, Jerod Clabaugh, Marydelene Vasquez, Tineke Boomsma and Eden Garcia.

- ***Belize's Policy on Protected Areas***: Eugenia Wo Ching, Angel Chun (Editor), Lisel Alamilla, Roger Morales and Ana Maria Camacho.

- ***National Protected Area Systems Analysis (plus subsidiary reports)***: Jan Meerman

- ***Improving Governance of Protected Areas in Belize: institutional, management and legislative requirements***: Floyd Homer.

- ***Management Capacity in Belize's Protected Area System***: Launchpad Consulting

- ***National Management Plan Framework (plus sub-reports)***: Paul and Zoe Walker (Wildtracks).

- ***Monitoring Effectiveness in Belize's Protected Areas (plus subsidiary reports):*** Roy Young, Larry Woolfe and Victoria Macfarlane.

- ***Sustainable Financing Mechanisms: Belize's Protected Area System:*** Launchpad Consulting.

All these documents are available in their original format on the resource CD (included with this report). See the appendices and the list of "original documents"

This resource CD is appended to the report, and the individual files will also be available on the

Biodiversity Clearing House Mechanism:
http://www.chm.org.bz/

And on the Ministry of Natural Resources and the Environment's website:
http://www.mnrei.gov.bz/

Table of Contents

APPENDIX DOCUMENTS

Provided on resource CD

1. GENERAL DOCUMENTS

1.1. IUCN CATEGORIES GUIDELINES

1.2. INTERNATIONAL CONVENTIONS

1.3. CONFLICT RESOLUTION

1.4. GUIDELINES TO CO-MANAGEMENT

2. PROTECTED AREAS ANALYSIS

2.1. CURRENT PROTECTED AREAS LIST

2.2. PROTECTED AREA ANALYSIS

2.3. GAP ANALYSIS

2.4. CRITICAL SPECIES

2.5. HUMAN FOOTPRINT

2.6. MARXAN ANALYSIS

2.7. SITE SCORING METHOD

2.8. SITE SCORING RESULTS

2.9. PROTECTED AREA PLANNING CASE STUDIES

2.10. SYSNTHESIS REPORT

3. MANAGEMENT PLANNING

MANAGEMENT PLAN FRAMEWORK

3.1.0. NATIONAL MANAGEMENT PLAN FRAMEWORK

3.1.1. MANAGEMENT PLANNING EVALUATION

3.1.2. SYNOPSIS NATIONAL MANAGEMENT PLAN FRAMEWORK

3.1.3. OUTLINE FOR PROTECTED AREA MANAGEMENT PLANNING

3.1.4. GUIDELINES FOR DEVELOPING A MANAGEMENT PLAN (CBO'S)

3.1.5. GUIDELINES FOR DEVELOPING A MANAGEMENT PLAN (NGO'S)

3.1.6. LIMITS OF ACCEPTABLE CHANGE

3.1.7. ZONING IN MANAGEMENT PLANNING

MANAGEMENT EFFECTIVENESS

3.2.1. MANAGEMENT EFFECTIVENESS MONITORING

3.2.2. MANAGEMENT EFFECTIVENESS MONITORING INDICATORS

4.0 IMPROVING GOVERNANCE OF PROTECTED AREAS IN BELIZE: INSTITUTIONAL, MANAMEMENT AND LEGISLATIVE REQUIREMENTS

5.0 MANAGEMENT CAPACITY IN BELIZE'S PROTECTED AREAS

6.0 SUSTAINABLE FINANCING MECHANISMS

7.0 POLICY: FINAL DRAFT

8.0 WORKPLAN (ORIGINAL NPAPSP WORKPLAN)

ORIGINAL CONSULTANCY DOCUMENTS

- WORK PLAN FOR THE FORMULATION OF BELIZE'S PROTECTED AREAS POLICY AND SYSTEMS PLAN: *JAN MEERMAN, J. ROGER WILSON, JOHN MCGILL, JEROD CLABAUGH, MARYDELENE VASQUEZ, TINEKE BOOMSMA AND EDEN GARCIA.* Appendix 8.0.

- BELIZE'S POLICY ON PROTECTED AREAS: *EUGENIA WO CHING, ANGEL CHUN (EDITOR), LISEL ALAMILLA, ROGER MORALES AND ANA MARIA CAMACHO.* Appendix 7.0.

- NATIONAL PROTECTED AREA SYSTEMS ANALYSIS (PLUS SUBSIDIARY REPORTS): *JAN MEERMAN, NPAPSP CONSORTIUM OF NATURAL RESOURCE/CONSERVATION NGO'S AND DEPARTMENTS.* Appendix 2

  - Protected Area Analysis: Appendix 2.2

  - Gap Analysis: Appendix 2.3

  - Critical Species List: Appendix 2.4

  - Human Footprint: Appendix 2.5

  - MARXAN Analysis: Appendix 2.6

  - Site Scoring System: Appendix 2.7

  - Site Scoring Analysis: Appendix 2.8

  - Case studies: Appendix 2.9

  - Synthesis report: Appendix 2.10

- NATIONAL MANAGEMENT PLAN FRAMEWORK (PLUS SUB-REPORTS): *WILDTRACKS.*

  - National Management Plan Framework: Appendix 3.1

  - Outlines for Protected Areas Management Planning: Appendix 3.2

  - Guidelines for developing a Management Plan: Appendix 3.2

- STRENGTHENING AND STANDARDIZING MONITORING EFFECTIVENESS IN BELIZE'S PROTECTED AREAS (PLUS SUBSIDIARY REPORTS): *ROY YOUNG, LARRY WOOLFE AND VICTORIA MACFARLANE:* Appendix 3.3

- IMPROVING GOVERNANCE OF PROTECTED AREAS IN BELIZE: INSTITUTIONAL, MANAGEMENT AND LEGISLATIVE REQUIREMENTS: *FLOYD HOMER:* Appendix 4.0

- MANANGEMENT CAPACITY IN BELIZE'S PROTECTED AREAS SYSTEM: *LAUNCHPAD CONSULTING:* Appendix 5.0

- SUSTAINABLE FINANCING MECHANISMS: BELIZE'S PROTECTED AREA SYSTEM: *LAUNCHPAD CONSULTING:* Appendix 6.0

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And on the Ministry of Natural Resources and the Environment's website:
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Acronyms & Abbreviations:

ASK – Amigos de Sian Ka'an
BAS – Belize Audubon Society
BEL – Belize Electricity Ltd.
BELTRAIDE - Belize Trade and Investment Development Service
BENCO – Belize Environmental Consultants
BERDS – Biodiversity and Environmental Resource Data System for Belize
BEST – Belize Enterprise for Sustainable Technology
BEMAMCCOR - Belize-Mexico Alliance for the Management of the Common Coastal Resources
BTB – Belize Tourism Board
BTIA – Belize Tourism Industry Association
BWSL – Belize Water Service Ltd.
CCAD – Comisión Centroamericana de Ambiente y Desarrollo
CBD – Convention on Biological Diversity
CBO – Community-Based Organisation
CEO – Chief Executive Officer
CHM – Clearing House Mechanism
CITES – Convention on International Trade in Endangered Species
COP – Conference of Parties
CSO – Central Statistics Office
FAMRACC – Forest and Marine Reserve Association of Caye Caulker
Fis – Fisheries Department
FMRA – Fisheries and Marine Resources Authority
FON – Friends of Nature
For – Forest Department
FUNDAECO – Foundation for Eco-development and Conservation
FWA – Forest and Wildlife Authority
GEF – Global Environment Facility
GIS – Geographic Information System
GOB – Government of Belize
IA – Institute of Archaeology
ILO – International Labor Organisation
IUCN – World Conservation Union
LANDSAT – Land Remote-Sensing Satellite
LMP – Land Management Project
LUA – Lands Utilisation Authority
M & E – Monitoring and Evaluation
MARPOL – International Convention for the Prevention of Pollution from Ships
MBC – Mesoamerican Biological Corridors Project
MBRS – Mesoamerican Barrier Reef System Project
MNREI – Ministry of Natural Resources, Environment and Industry
NASA – National Aeronautic and Space Administration
NEAC – National Environmental Appraisal Committee
NEMO – National Emergency Management Organization
NGO – Non-Governmental Organization
NICH – National Institute for Culture and Heritage
NOAA – National Oceanographic & Atmospheric Administration
NPAPSP – National Protected Areas Policy & System Plan
NPAC – National Protected Areas Commission
NPAS – National Protected Areas Service
NPSA – National Parks System Act, 1981 (revised 2000)
NSF – National Science Foundation
NTFP – Non-Timber Forest Product
PA – Protected Area
PACT – Protected Areas Conservation Trust

PAIS – Protected Areas Information System
PCM – Protected Areas Coordinating Mechanism
PfB – Programme for Belize
RAMSAR – Convention on Wetlands (Ramsar, Iran, 1971)
SATIIM – Sarstoon-Temash Institute for Indigenous Management
SPAG – Spawning Aggregation Group
TASTE – Toledo Association for Sustainable Tourism and Empowerment
TEV – Total Economic Value or Valuation
TIDE – Toledo Institute for Development and Environment
TNC – The Nature Conservancy
TRIGOH - Tri-National Alliance for the Conservation of the Gulf of Honduras
UNCCD – United Nations Convention to Combat Desertification
UNEP – United Nations Environment Programme
UNFCCC – United Nations Framework Convention on Climate Change
WCS – Wildlife Conservation Society
WWF – World Wildlife Fund for Nature
YCT – Ya'axche' Conservation Trust

Acknowledgements:

Executive Summary

The National Protected Area System Plan is the end product of 2 years of work by the Protected Areas Task Force, an inter-ministerial group charged with the development of a coherent approach to protected area establishment and management on a national scale. The process has involved numerous expert consultancies and widespread consultation, and thus represents the consensus view among those people directly involved or affected by protected areas in Belize.

Here protected areas include any area where specific measures of some form are put in place to conserve the natural and cultural heritage of the country. It is, however, recognised that cultural sites are selected and managed using different criteria to natural sites. They therefore have many shared aims and the two should continue to cooperate closely but the present document concentrates on natural sites.

There is a tendency to consider only the most protective management regimes as protected areas, a bias that is reinforced by the terms of the National Park Systems Act. Here, however, protected areas are covered in the broad sense to include all management approaches that are in the internationally accepted meaning of the term – i.e. ranging from strict nature reserves and national parks through areas designed to conserve biodiversity while delivering a steady supply of environmental goods and services and on to areas where conservation is fully integrated with human settlement and economic activity. The natural sites therefore embrace all protected areas established under the National Parks System, Fisheries and Forest Acts and include Nature Reserves, National Parks, Wildlife Sanctuaries, National Monuments, Marine Reserves and Forest Reserves. The private reserves are also included where they make an important contribution at a national scale and are managed in a way that that protects that national interest for future generations.

The National Protected Area Policy is the key statement on the role and management of protected areas. The aim is to create a National Protected Area System in which all important sites are included in one coherent framework and that meets all obligations under international agreements to which Belize signatory. The system will:

- 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.
- Be integrated with regional and national approaches promoting biological connectedness (such as the Meso-American Biological Corridors Project) and with other national and regional development plans.
- Economic, social and ecological sustainability is a prime objective for the system which will seek to optimise socio-economic benefits derived from the system as far as these are compatible with maintaining biodiversity values and sustainable resource management. It will also seek to ensure the equitable distribution of these benefits and public awareness of their importance.

- Management of the system will be transparent, geared towards delivery of measurable benefits and emphasise 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.

The National Protected Area System Plan is designed to implement the policy. The plan emphasises the following strategic actions:

- Establish a National Protected Areas Commission to ensure coordinated action in system development;
- Revise the National Parks System Act as the National Protected Areas System Act, to give legislative underpinning to the plan. Present legislation governing Marine Reserves requires no modification. This places overall responsibility for the system to the Ministry of Natural Resources but leaves responsibility for individual sites unaltered.
- Provide support services to protected area managers across the system, to enhance management capacity. This includes a national training programme and site-specific assistance in administration, financial management, survey and research, as well as management and business planning. The aim is make for more cost-effective and efficient management plus a business-like management culture and approach to securing support.
- Secure comprehensive coverage by concentrating attention on gaps in the present network. Action directed towards the following areas will greatly strengthen the system: northern Belize to the south and west of Shipstern, the central northern coastal plain, the east-central Belize Valley, the karst hills of western Toledo, Turneffe Atoll, the Moho River and parts of the Rio Hondo and New, Belize and Temash Rivers. These areas include private lands and suitable incentives must be explored to bring them into the national system.
- Simplify the existing system by consolidating adjacent protected areas into single, multi-zoned, management units. 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. Special attention will be devoted to the Barrier Reef, the Maya Mountain-Mountain Pine Ridge massif and the north-western forests.

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. Implementation costs are estimated at BZ$ 3.2. million p.a., achievable through a combination of funding from government subvention, PACT, self-generated revenue and grant-aid. An additional BZ$ 2-2.4 million p.a. over the initial five years would, however, greatly enhance long-term success.

A. INTRODUCTION

A high proportion of the land and sea resources of Belize are subject to special measures to conserve their intrinsic qualities and their value to society - in other words, they are within protected areas. This network of sites, a natural resource and the various agencies responsible for their administration, has evolved organically over many decades and continues to do so, reflecting changing attitudes and approaches to addressing environmental issues. The level of success, however, has been very variable and there are still calls for additional protected areas. Belize now finds itself at a crossroads: the network represents a wealth of valuable resources but how should it be developed to best effect? And how should it be integrated more effectively with the national economy and its conflicting demands?

In October 2003, the Deputy Prime Minister and Minister of Natural Resources and the Environment, in collaboration with the Minister of Agriculture and Fisheries and the Minister of Tourism, established a Task Force – with high level representation from the relevant administrative agencies – charged with ensuring that a comprehensive National Protected Areas Policy and Systems Plan was prepared. This document is the end-product of the process.

The Constitution is the supreme law of Belize and any other law that is inconsistent with it is considered void. The Constitution states that: -

> " WHEREAS the people of Belize requires policies of state which protect and safeguard the unity, freedom, sovereignty, and territorial integrity of Belize; which eliminate economic and social privilege and disparity among the citizens of Belize whether by race, colour, creed or sex; which protects the rights of the individual to life, liberty and the pursuit of happiness; which preserves the right of the individual to the ownership of private property and the right to operate private businesses; which prohibits the exploitation of man by man or by the state; which ensures a just system of social security and welfare*; which protects the environment*; which promotes international peace, security and co-operation among nations, the establishment of a just and equitable international economic and social order in the world with respect for international law and treaty obligations in the dealing among nations …"

The National Protected Areas Policy and Systems Plan reflects the Constitution and is founded on the need to ensure that biodiversity conservation becomes an important and integral part of national social and economic development. The guiding principle is to ensure that the potential contribution of the protected areas system to national development and poverty alleviation is maximized, thereby putting it on a sound and rational footing.

B. METHOD

The approach to plan development was established immediately after the Vth World Park Congress, the VIIth Conference of the Parties of the Convention on Biological Diversity, and the World Summit on Sustainable Development (Rio + 10). All three conferences dealt with protected areas and the plan therefore incorporates the most recent thinking both in Belize and in the international community.

The plan has a set of underlying principles:

- ***Ecosystem Approach***.
  It provides for integrated management of terrestrial, coastal and marine resources at the scale of functioning ecosystems, which include the human population and its cultural diversity. The plan must therefore promote conservation, sustainable use and equitable sharing of costs and benefits.

- ***Precautionary Principle***.
  The principle states that if the consequences of an action are unknown but that there are reasonable grounds to believe they will be negative, then it is better not to carry it out. This approach also implies that the burden of proof of the suitability and effectiveness of unproven actions lies with the proponent and that democracy and transparency must be brought into the decision-making process at all levels so that concerns can be voiced.

- ***Importance of Science***.
  Good conservation must be based on sound knowledge provided by scientific work on key processes and influences on terrestrial, coastal and marine ecosystems and on their structure, functioning and productivity. Evidently, understanding develops over time and approaches must evolve accordingly.

- ***Importance of Local and Indigenous Community Knowledge***.
  The plan and its implementation must use and draw upon the scientific, technical and traditional knowledge of local and indigenous communities. Participatory approaches involving all parts of society must be used.

- ***Monitoring and Evaluation***.
  The plan must provide for monitoring and evaluation procedures, in order to assess effectiveness in implementing actions. This allows for adaptive management and clear measurement of performance, enabling accountability to all stakeholders in the process.

- ***Cost-effectiveness and Efficiency.***
  Activities that implement the plan must be cost-effective and efficient. Duplication of effort must be avoided and activities must be harmonised through effective coordination at national and regional scales.

It has also been arranged around achieving four '(originally five) 'results'. These are mutually supporting, each establishing a basis for and helping accomplish the others. All four are necessary if the plan is to be comprehensive and effective.

- ***Result One: Formulation of comprehensive protective area policy***. This sets the general policy framework in which the National Protected Area Systems Plan is to be implemented.

- ***Result Two: Protected Area System Assessment and Analysis***. The task here is to assess the present protected area network and assess its characteristics in terms of comprehensiveness, representativeness, adequacy, balance and coherency. Recommendations are made to optimise these qualities in a consolidated system.

- ***Result Three: Management Procedures and Sustainable Use***. The current administrative and management procedures at system and site level are assessed and improvements are identified. This includes all governance issues ensuring that the protected area system and its supporting legal instruments accommodate the full range of interests and rights in natural resource management.

- ***Result Four: Strengthening Management and Monitoring***. This covers the need to achieve effective protected area management through sound procedures, capacity building, adequate financing, obtaining and making good use of information, and through monitoring and self-assessment. Originally it was Result 5, preceded by a Result 4 concentrating on evaluation and delivery of economic benefits and on education, communication and public awareness. These are now moved into the implementation phase.

The Task Force on Belize's Protected Areas Policy and System Plan established the National Protected Areas Systems Policy and Plan Project to coordinate the work, achieving its results through a series of reports commissioned from expert consultants. This also required extensive public consultation on various aspects of the plan and the contribution of all institutions and individuals actively involved in protected area management in the country. The Task Force itself closely followed the development of the reports, formally accepting each one after full review.

This report completes the process and consists of four sections:
- ***The National Protected Area Policy***. Chapter 1. This sets out the guidelines for the development of the National Protected Area System.
- ***The National Protected Area Systems Plan***, Chapter 2. Giving objectives, actions, time-line and critical path for policy implementation.
- ***The Consolidated Report***, Chapters 3 – 6. Derived from the separate 'stand-alone' consultancy reports. This sets out and gives the rationale for the strategic actions underlying the National Protected Area Systems Plan.
- ***The Appendices,*** including procedures and methodologies to be used in implementation. The original consultancy reports are also valuable background material and are available in the appendices on the resource CD.

1: NATIONAL PROTECTED AREA POLICY

'A comprehensive Protected Area Policy is drafted that ensures increased social and economic benefit while guaranteeing core protected area objectives'

<u>NATIONAL POLICY ON PROTECTED AREAS IN BELIZE</u>
<u>(FINAL DRAFT)</u>

Preamble
Protected areas represent approximately 36% of Belize's terrestrial areas and 13% of its marine area. Marine and terrestrial protected areas are key repositories for sustainable development.

The protected areas system comprises national parks, nature reserves, wildlife sanctuaries, natural monuments, forest reserves, marine reserves, archaeological sites and archaeological reserves, as well as private reserves, strategic biological corridors and scenic landscapes of geomorphic significance.

Protected areas are valuable because of the environmental, social, economic and cultural goods and services provided by the ecosystems protected, the flora and fauna comprised in those areas, and the current and potential economic activities related to biodiversity management and conservation.

Belize is committed to the conservation and sustainable use of its natural resources through the designation of the many marine and terrestrial protected areas. Several pieces of legislation have to date provided the legal foundation for the declaration and establishment of protected areas: the National Parks System Act CAP 215 Revised Edition 2000, the Forest Act CAP 213 Revised Edition 2000, the Fisheries Act CAP 210 Revised Edition 2000, and the National Institute of Culture and History Act CAP 331 of the Substantive Laws of Belize. The country has further demonstrated its commitment through the ratification of a number of legally binding multilateral environmental agreements, including the Convention on Biological Diversity, the Convention on World Heritage Sites, Convention on the International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance Especially As Waterfowl Habitat (Ramsar Convention), the United Nations Convention to Combat Desertification (Land Degradation), the United Nations Framework Convention on Climate Change, among others.

This policy document attempts to capture the essence of the role of protected areas and their importance to Belize's economic development by providing a set of policy statements that should be considered in decision making involving these areas.

Objectives and scope
The general objective of this policy document is to provide a set of guiding principles for the declaration, modification and re-designation where necessary; management and administration; socio-economic assessment and analysis; ecological assessment and analysis, and monitoring and evaluation of marine and terrestrial protected areas in Belize.

Additionally the policy document seeks to promote conservation of the rich biodiversity of Belize in perpetuity for present and future generations of Belizeans, to use the nation's biological resources in a sustainable manner that ensures that the resource base is not compromised, and to ensure the fair and equitable sharing of benefits arising from the utilization of the nation's biologically diverse resources among all Belizeans.

The main agencies responsible for the implementation of this policy document are the Ministries/Departments responsible for terrestrial and marine protected areas, archaeological sites and reserves, and tourism as defined by the Laws of Belize. Implementation should occur in consultation with the various stakeholders in conservation, including but not limited to, non-government organizations, community based organizations, indigenous peoples, private/business sector, and educational institutions

Policy Declaration:

The policy declaration for the protected areas is summed up as follows:

Recognising that:
> Protected areas in Belize provide irreplaceable public benefits from ecosystem services such as clean water, clean air, carbon sinks, gene pools, baseline data for research and development, all of which contribute to the local, national and regional economies,

And that:
> Protected areas are an important resource base for the development and strengthening of economic activities and contribute to poverty elimination by supporting industries such as agriculture, tourism, fisheries, timber and non-timber products, research, bio-prospecting, mining, water and energy services among others:
>
> ***The Government of Belize shall promote the sustainable use of Belize's protected areas by educating and encouraging resource users and the general public to properly conserve the biological diversity contained in these areas in order to maintain and enhance the quality of life for all. This shall be achieved by facilitating the participation of local communities and other stakeholders in decision-making and the equitable distribution of benefits derived from them, through adequate institutional and human capacity building and collaborative research and development.***

General Principles:

The Government of Belize shall:

1. ***Assure, for all Belizeans, safe, healthy, productive, aesthetically and culturally pleasing surroundings by preserving important historic, cultural, aesthetic and natural aspects of Belize's natural heritage;***
2. ***Promote the widest range of beneficial uses of biodiversity without degradation, risk to health or safety, or other undesirable and unintended consequences in order to provide for sustainable economic development;***

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3. Achieve a balance between population and biodiversity resource use which will permit a higher standard of living and the conservation of natural resources for future generations;

4. Enhance the quality of renewable resources and strive for the optimum use of non-renewable resources.

For decisions regarding the declaration, modification and re-designation; administration and management; economic and ecological assessment and analysis, and monitoring and evaluation of marine and terrestrial protected areas in Belize, the following policy statements shall be applied:

Policy Statements:

The Protected Areas System

1. Protected areas shall be established based on, *inter alia*, ecosystem functions, environmental services, representativeness, critical habitats, natural genetic resources, and scenic values.
2. Belize's biological and cultural resources are national patrimony that shall be conserved for generations of Belizeans to come.
3. Belize's biological resources shall be conserved in collaboration with regional and global initiatives.
4. Trans-boundary protected areas shall be recognized as important for addressing confidence-building measures, as well as regional, social, economic and environmental issues.
5. Biological corridors shall be established and recognised as part of the system provided they contribute to the effectiveness and interconnectivity among the different protected areas.
6. Private protected areas shall be officially recognised provided the following: that the areas are essential for a comprehensive national protected areas system; or essential for maintaining primary biological corridors; that the management goals and objectives of the private protected areas are compatible with and complementary to the national system, and that their establishment and use is permanent regardless of changes of land ownership that may occur

Administration and Management

7. All protected areas of Belize shall be integrated under a national management strategy and consolidated protected areas system;
8. Belize's biodiversity is best conserved *in-situ*, within the protected areas;
9. Management of protected areas shall respect, preserve and maintain the traditional knowledge, innovations and practices of indigenous peoples and local communities provided that these do not conflict with the ecological integrity of the protected area and the various conventions and multi-lateral environmental agreements signed by the Government of Belize
10. Management of Belize's protected areas shall be accountable and transparent.
11. The management of Belize's protected areas shall be geared to maximise socio-economic benefits and protected area cost recovery and revenue generation schemes without undermining their cultural and ecological integrity.

12. The management of Belize's protected areas shall make provisions for carrying capacity and/or limits of acceptable change based on sound technical and scientific criteria in order to ensure the cultural and ecological integrity of the areas.
13. Monitoring and evaluation mechanisms shall be established for the on-going assessment of protected areas and shall be based on compatible methods, indicators and site-specific standards to ensure management effectiveness and biological and cultural integrity.
14. Declaration, designation, modification, category designation, management and de-reservation of private and public marine and terrestrial protected areas shall involve a process of consultation with the relevant stakeholders before final determination is made.

Socio-economic considerations

15. The appreciation of protected areas and their biodiversity at all levels shall be improved and enhanced through communication, education and public awareness.
16. The protected areas of Belize shall facilitate environmental education, research, monitoring, recreation and ecotourism for the general public.
17. Participatory mechanisms which are vital to optimising socio-economic benefits, such as collaborative management agreements and landscape-level management plans, shall be encouraged to maintain the cultural and ecological integrity of the protected areas.
18. Equal opportunity for access to the benefits derived from protected areas shall be encouraged for all stakeholders, particularly local communities and indigenous peoples living near protected areas.
19. Environmental, economic and social sustainability of protected areas shall be considered paramount to the national development of Belize.
20. The protected areas of Belize shall support the sustainable economic development of the local communities that buffer these areas.
21. Funding of protected areas shall be encouraged through collaboration with relevant stakeholders.
22. The concept of cross-subsidization shall be recognised as a means of funding since some protected areas have more revenue generation potential than others.
23. The protected areas system shall seek to maintain itself financially and to contribute to Belize's national development.

This policy shall be reviewed as often as is required to determine the status of its implementation and make necessary amendments.

2. THE NATIONAL PROTECTED AREAS SYSTEM PLAN

Actions necessary to implement the National Protected Policy are grouped under four objectives. Each objective has an underlying strategy and the actions are arranged following a critical path to be undertaken over a 6-year period – i.e. one year of preparatory work and five years of full implementation (**Table 1**).

Between them the actions cover all the issues covered by the National Protected Area Policy. It is assumed that they will be funded using existing sources – i.e. with PACT playing a pivotal role as the key national funding mechanism, supplemented by user fees and government subvention with the short-fall made up by non-national funding agencies. Accurate costing is beyond the scope of this plan but as an indicative figure, a minimum expenditure on system maintenance and development of BZ 3.2 million p.a. from all existing sources combined should be targeted. The process would, however, be consolidated and strengthened by additional dedicated funding. Further expenditure of BZ$2.0 – 2.4 million p.a. over an initial five-year period would make a significant difference in achieving long-term success.

The four objectives set out an overall strategy – essentially to make the existing network function effectively so that it can assimilate the modifications needed to ensure comprehensive coverage.

Objective 1: An enabling administrative structure is established for policy implementation.
Strategy: consolidate the administrative structure that maintains coordinated action in System Plan implementation and that can evolve into a fully reformed administrative framework for natural resource management.

> **Action 1.1**. *Formal adoption of the National Policy on Protected Areas.*
> This is the essential action embodying the political will to initiate and maintain the process. It is therefore an early action, without which little can be accomplished.

> **Action 1.2.** *Establish a standing National Protected Area Commission.*
> This essentially confirms the continued role of the Protected Area Task Force in coordinating activity through the early stages of implementation. The standing commission should include existing Task Force membership (i.e. Forest Department, Fisheries Department, Tourism, PACT, NGO representation) preferably expanded to representation at senior level of the Institute of Archaeology.

> **Action 1.3**. *Revision of the National Parks System Act (NPSA), re-titled as the National Protected Area System Act (NPASA), to require a Technical Committee.*
> The revision of the NPSA is an important milestone serving several key purposes. Here, the main point is that it grounds the Protected Area Technical Committee in a legal context. It also harmonises the legislative underpinning used for marine and terrestrial protected areas and requires inter-departmental coordination. The effect of using the revised NPASA as the legal vehicle ensuring coordination places ultimate responsibility for the development of the protected area system under the Ministry of Natural Resources and the Environment while leaving

responsibility for individual sites under the Fisheries or Forest Department according to the legislation used for site establishment.

Action 1.4. *Full administrative reform consolidating natural resource management (including protected area management) under a single statutory authority.*
The creation of a unified statutory authority that includes but goes beyond a National Protected Area Service is a radical reform and details on the way it should function remain uncertain or at least untested. It is therefore seen as an end-product of plan implementation, in order to benefit from the experience gained through Action 1.3.

Objective 2: The national protected area system is functional.
Strategy: the existing protected area network is efficiently managed, meeting protecting area policy aims to secure environmental, social and economic benefits and creating a solid foundation for further development as a comprehensive system.

2.1. Procedures.
A range of effective managerial tools are coming into use in Belize. The general aim here is to ensure their application in a coherent manner across the entire protected area system.

Action 2.1.1: *Formal adoption of technical guidelines for site management and business planning models, monitoring and evaluation, and co-management agreements.*
All these procedures have been developed and incorporated as appendices to the system plan. They are ready for immediate introduction as formal guidelines for all statutory protected areas under present legislation and for private and community reserves incorporated in the National Protected Area System.

Action 2.1.2: *Inclusion within the NPASA of clauses relating to management planning and co-management.*
This action reinforces the importance of developing clear management objectives and feasible management approaches for all protected areas included within the national system. The underlying aim is good management, however this is best achieved under site-specific circumstances. This must include scope for participation and can evolve into full co-management. These are key policy aims and are thus embedded in the legislation.

Action 2.1.3: *Provision of technical support to meet required procedural standards.*
Implementation of the guidelines creates a cycle of management planning preparation and revision, monitoring of performance and regular evaluation of delivery of results, in turn implying the need for technical expertise to undertake the work. The government departments are responsible for evaluation and monitoring and have staff dedicated for this purpose. PACT also performs due diligence in tracking the effectiveness of its support. The production of plans, however, is the responsibility of the actual or prospective co-manager. Support is needed at every level and in every

institution to meet these functions and is particularly acute, though not confined to, the smaller NGOs and CBOs.

2.2. Financing.

The overall trend is towards increasing self-reliance for financing. Initially actions must be maintained by the existing mix of PACT, GoB subvention and donor support. The forward strategy is to increase self-generated income at site level by capturing revenues from the full range goods and services the site provides. The immediate priority is to cover the financial needs of the site itself. As these are covered, the mechanisms exist for redistribution at system level. This strategy can be pursued in the absence of further external support but it will be accelerated and consolidated if dedicated funding at system level is secured.

> ### *Action 2.2.1. Seek efficiencies in use of available resources.*
> Financial resources are limited and their efficient use is both necessary in itself and gives leverage in mobilizing external support. Several actions in the plan provide opportunity for financial streamlining (e.g. pooling of resources, removal of duplications) and these should be identified and used wherever possible. Inefficiencies in scale are also possible when site management is spread across many small- to medium-sized organizations. They must be identified and addressed, with the target of reducing administrative overhead across the system as a whole to 12-15% (an acceptable figure to most development aid agencies) by year 6.
>
> ### *Action 2.2.2. Provision of technical support in financial planning, business planning and site administration.*
> Many smaller NGOs and CBOs have difficulty in absorbing, managing and accounting for the financial support they receive. This is already a limiting factor in mobilising support and the problem will be exacerbated by the demands of a 'business orientated' strategy requiring skills in financial and business planning. The issue is to be addressed through provision of a support service available to all site managers in the network in these areas, extending to an accounting service giving assistance in financial administration, auditing and reporting. This makes for increased effectiveness and efficiency, capable of pooling routine administration across a number of management bodies.
>
> ### *Action 2.2.3. Economic evaluation at site and system level.*
> The concept of an economic evaluation of the delivery of benefits from the protected areas has been held over from the development of the system plan into its implementation phase. This is an important action operating at several levels, providing:
> - Justification for the protected areas in terms of their true contribution to the national economy. This information can then be disseminated to the general public via the public awareness programme.
> - Definition of the goods and services provided by specific protected areas to actors in the different economic sectors. This can then be used to develop appropriate means of optimising delivery of benefits within the constraints of good conservation management,

to identify partners in other socio-economic sectors, and also to identify potential revenue sources through user fees.

- Definition of the goods and services provided by the system as a whole, to justify its support by government and development aid agencies.

Total economic evaluation at a system level is an expensive and complex process. It is therefore preferable that it be conducted site by site as part of the management planning process and then amalgamated to obtain system-level benefits.

2.3. Other support systems

Co-managers, and particularly CBOs, are poorly placed to deal effectively with legal and enforcement issues. They often have neither the authority nor the capability to deal with them effectively. Furthermore they may have difficulties in handling problems coming out of the very community they represent and little weight if they attempt to press their case. In theory they have recourse to the statutory authorities but these too are often unable to respond in a timely and sustained manner. Many areas of contention can be removed by participatory planning, management, advocacy and peer pressure but in stubborn cases co-management arrangements can only go so far. There is need to provide effective support in this area.

In fact all site managers need legal advice and services to assist them in drawing up formal (and legally binding) agreements, in transactions involving land and property, occasionally to pursue infractions and infringements of rights, and potentially in cases of non-compliance with agreements where these cannot be settled by mutual agreement. All would also benefit from a greater degree of public awareness of the value of the protected area system and need support in training.

Action 2.3.1. Provision of a 'rapid response' team for resource protection.
The aim here is to form, train and equip a team that can back up routine patrols and respond effectively and reasonably rapidly in difficult situations, if necessary in conjunction with other security services. This is an expensive action and is therefore held back to the full implementation phase of the plan in order to allow to time to secure the necessary resources.

Action 2.3.2. Legal support. programme
The legal support programme consists of a set of measures involving developing awareness of the law and its application both in terms of resource protection and rights, in researching the background and nature of legal issues, and in providing support where infringements occur. This is a new area of activity in Belize and again an expensive one, therefore held back to the full implementation phase.

Action 2.3.3. Public awareness programme.
Public awareness is the key to creating the climate of informed public opinion within which the national protected area system can be developed. There is already considerable action in this area although it tends to be spasmodic and generally speaks to the needs of particular initiatives and organisations. The aim of the programme is to develop a public awareness

programme that informs the public of the importance of protected areas in general and, most importantly, sustain it.

Action 2.3.4. National training programme for protected area management. Again, many training programmes take place but they tend to be project driven, are spasmodic, address needs of particular initiatives or organisations, and are often never followed through. The aim is to develop a national training programme that meets the needs of the protected area system as a whole, is sustained and operates at the several levels needed to support the development of the system. Project-related training courses and workshops are still welcome but should be coordinated within this framework.

Objective 3: The national protected area system is comprehensive.
Strategy: Those areas required to obtain a fully comprehensive national protected area system are brought within its scope.

Action 3.1. Maintain the clearing house mechanism for management and access to information on biodiversity.
Accurate accessible information on the characteristics of the protected areas is crucial for assessing its comprehensiveness, for planning and for evaluation. There is already a substantial body of information and the Clearing House Mechanism allows for its access and dissemination. Initially this will be donor-funded. It is, however, important that it be maintained indefinitely and due provision must be made for the post-funding period.

Action 3.2. Biodiversity base-line and monitoring programme.
Quality of information varies from site to site across the national protected area network, affecting the ability to judge the relative importance of sites, to draw up appropriate management plans and to evaluate performance. This programme involves:
- The development of practical survey techniques that will give the information necessary to meet minimum requirements for management planning and for monitoring.
- Promotion of research targeting recognised gaps in ecosystem coverage where the information base is considered low (e.g. freshwater and open sea systems) and into practical means of maintaining biodiversity values and biological connectivity in areas of heavy human activity (eg roads, agricultural and settled areas).
- Rapid Ecological Assessments to provide base-line information, comparable across the system, in all protected areas where the information is currently inadequate for planning purposes.

Action 3.3. Provisions for inclusion of private and community protected areas within the national system.
Private protected areas make a crucial contribution to the National Protected Area System, their inclusion being made through formal and legally binding agreements between the Government of Belize and the owner. Of the present private areas generally acknowledged to be within the national network only two have such

formal agreements and the status of the remainder must be regularised if they are to continue to be taken into account in implementing the systems plan.

Action 3.4. *Detailed survey and incorporation of areas required to complete the National Protected Area System.*
Seven key geographic areas have been identified where the designation of some form of protected area status would help complete the system. Detailed feasibility studies will be commissioned for these sites
- northern Belize to the south and west of Shipstern,
- the central northern coastal plain,
- the east-central Belize Valley,
- the karst hills of western Toledo,
- Turneffe Atoll,
- the Moho River and
- parts of the Rio Hondo and New, Belize and Temash Rivers)

to confirm their actual or potential importance to the system, and to assess what form(s) of protected area category out of the full range to be allowed for under the NPASA would be most appropriate. On national lands, this will be followed by designation under the procedures established under Action 2.1. Critical areas are, however, to be expected under private ownership and incentives may be needed to bring them into the system as private protected areas. The potential for fiscal incentives, notably under the tax regime applied to land holdings, will therefore be explored to encourage conservation easements for key sites to secure their contribution to the national system.

Objective 4: The national protected area system is consolidated and simplified.
Strategy: The protected area system can be consolidated and simplified by amalgamating adjacent sites into single multi-zoned management units, allowing a more coherent approach at a landscape level.

Action 4.1: *Inclusion within the NPASA of clauses allowing a full range of protected area management options with different levels of extractive use, plus provisions for technical review and public participation in boundary modifications.*
These provisions are necessary precursors to any revision of management regime within the protected areas, whether applied to the entire site, to specific zones. They also apply to any proposal to modify boundaries by adding or excising parts of existing protected areas.

Action 4.2: *Site consolidation.*
Many protected areas are artificial sub-units of single natural units and three are of exceptional importance where consolidation would reinforce national prominence in protected area system management at a regional scale
- the Maya Mountain – Mountain Pine Ridge massif,
- Belize Barrier Reef system and
- the north-western forests.

The action consists of a detailed technical assessment of all the protected areas to identify where the system can be simplified through amalgamation, where additional area would increase system functionality and where areas within the system make no significant contribution and could be considered redundant. This

is then followed through by boundary modification, both internally (where they will tend to be dissolved to be replaced by management zones) and on the outer edge where land may be taken in or out as appropriate. The gap analysis and MARXAN provide the decision-making tools for decision making while the NPASA provides the regulatory environment. This is a radical revision, mirroring the administrative reform and revision of the legislation, and is therefore seen as an end-product of the implementation of the systems plan.

Table 1: Implementation Matrix

National Protected Area Systems Plan

Colour legend for cells: O = orange (preparatory work); R = red (action completed); G = light green (action in full implementation); blank = no activity.

	Preparatory phase				Full Implementation Phase																			
Year	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Objective 1: An enabling administrative structure is established for policy implementation.																								
Action 1.1. Formal adoption of the National Policy on Protected Areas.	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 1.2. Establish a standing Protected Area Technical Committee.	R	G	G																					
Action 1.3. Revision of the National Parks System Act (NPSA), re-titled as the National Protected Area System Act (NPASA), to require a Technical Committee.		O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 1.4. Full administrative reform consolidating natural resource management (including protected area management) under a single statutory authority.													O	O	O	O	O	O	O	O	R	G	G	G
Objective 2: The national protected area system is functional.																								
2.1. Procedures.																								
Action 2.1.1: Formal adoption of technical guidelines for site management and business planning models, monitoring and evaluation, and co-management agreements.	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 2.1.2: Inclusion within the NPASA of clauses relating to management planning and co-management.		O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 2.1.3: Provision of technical support to meet required procedural standards.		O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
2.2. Financing.																								
Action 2.2.1. Seek efficiencies in use of available resources.		O	O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 2.2.2. Provision of technical support in financial planning, business planning and site administration.			O	O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 2.2.3. Economic evaluation at site and system level.					O	O	O	O	O	R														
2.3. Other support systems																								
Action 2.3.1. Provision of a 'rapid response' team for resource protection.													O	O	O	O	R	G	G	G	G	G	G	G
Action 2.3.2. Legal support. programme													O	O	O	O	R	G	G	G	G	G	G	G
Action 2.3.3. Public awareness programme.	O	O	O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 2.3.4. National training programme for protected area management.			O	O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Objective 3: The national protected area system is comprehensive.																								
Action 3.1. Maintain the clearing house mechanism for management and access to information on biodiversity.	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 3.2. Biodiversity base-line and monitoring programme.		O	O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 3.3. Provisions for inclusion of private and community protected areas within the national system.		O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 3.4. Detailed survey and incorporation of areas required to complete the National Protected Area System.					O	O	O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Objective 4: The national protected area system is consolidated and simplified.																								
Action 4.1: Inclusion within the NPASA of clauses allowing a full range of protected area management options plus provisions for technical review and public participation in boundary modifications.		O	O	R	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Action 4.2: Site consolidation					O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	R			

Colour code: orange - preparatory work; red - action completed; light green - action in full implementation.

CONSOLIDATED REPORT

3. PROTECTED AREA SYSTEM ASSESSMENT AND ANALYSIS

'*A comprehensive system of protected areas linked to their surrounding land- and seascapes, is developed based on the Ecosystem Approach'.*

3.1 Introduction

The protected area system is the principal tool used to conserve the natural and cultural heritage of Belize. To fulfil the national protected area policy the system must be:

- Representative and comprehensive, containing viable examples of all ecosystems;

- Large enough to maintain the ecological processes and ecosystem dynamics that maintain their biodiversity and provide the environmental goods and services that support sustainable development;

- Designed to include critical habitat for species of conservation concern or in need of special conservation measures as well as areas of exceptional scenic or cultural importance;

- Interconnected, linked by functional biological corridors both within Belize and across its frontiers.

Belize already has an extensive network of 94 protected areas[1], counting all the statutory sites and those private protected areas recognised as part of the national system (**Figure 1**). Some of these (notably the marine reserves) are zoned according to management regime, making a total of at least 115 management units. Together they cover 26.2% of the national territory, primarily in terrestrial and coastal habitats where the coverage is 36.4%. This compares with 13.6% in the marine zone, due to the large extent of open sea. The need, then, is to assess to what degree this network already meets the desired characteristics of the national system, where the gaps lie and where there are opportunities for rationalization. It should be noted that this assessment considers issues pertaining to the conservation of biodiversity, to natural resource management and provision of environmental services – sites of cultural significance may contribute to conserving these values but are subject to their own criteria.

The first step in the assessment is to establish what area should be under some form of effective conservation management within the system in order to fulfil its primary function for biodiversity protection. This must be based on an ecosystem approach to conform to the Convention on Biological Diversity. An ecosystem map (**Figure 2**) has therefore been prepared that identifies 65 terrestrial, mangrove and freshwater units, a further 14 units in the marine zone and several types under more intensive human use.

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[1] Appendix 2.2.
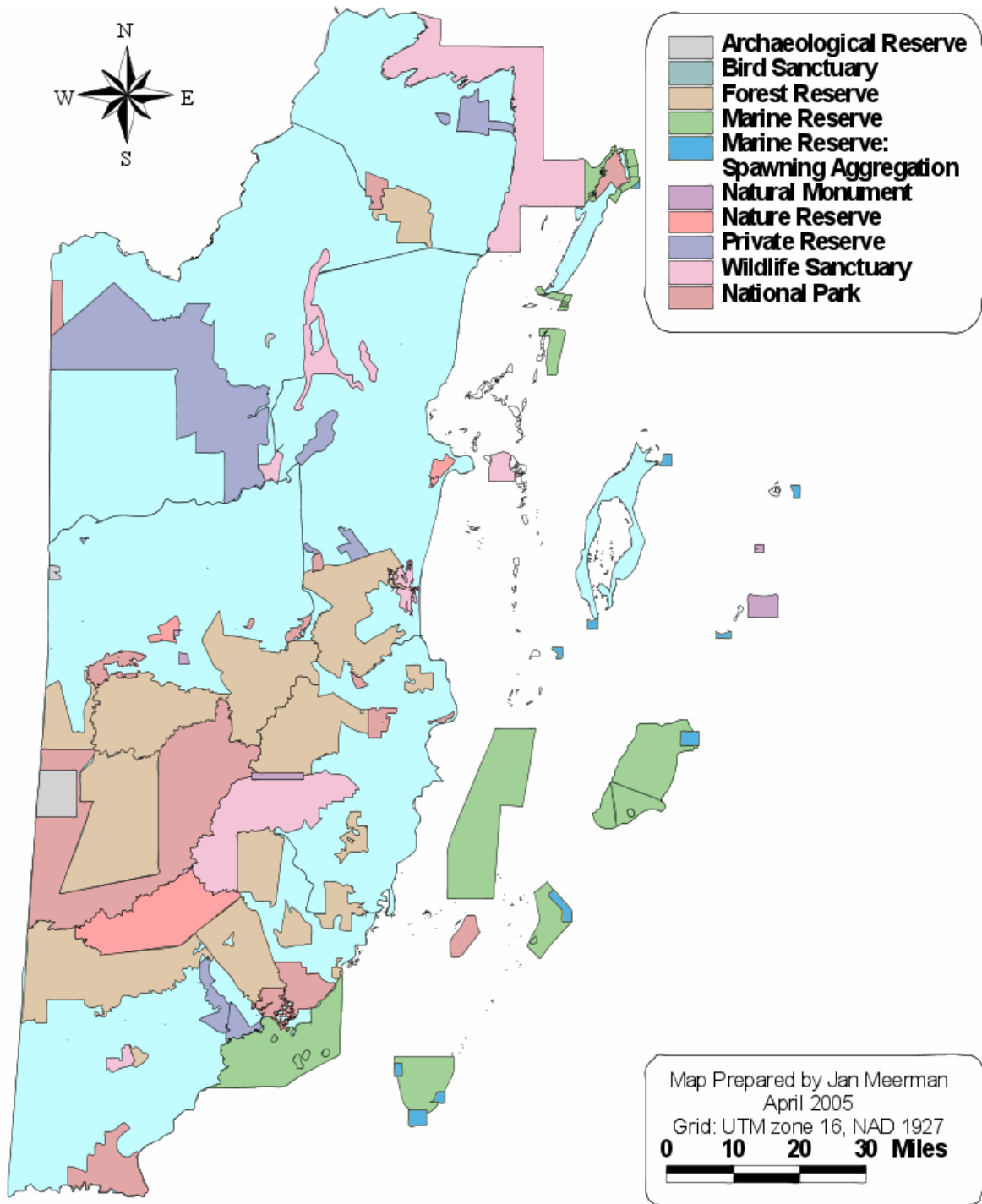
Figure 1. Protected Areas Map of Belize as per January 1, 2005.

Ensuring the conservation of 100% of existing biodiversity is internationally recognized as unrealistic. For Belize, the consensus among managers and administrators is that the

protected area system should aim to conserve 65-85% of present biodiversity for the foreseeable future. To reach this level, effective conservation measures must be applied to at least 30% of each ecosystem – in other words, given that application of 'conservation measures by legal or other effective means' defines a protected area, this guideline sets the <u>minimum</u> coverage for the protected area system. At first sight this may appear excessive; over one third of the land area of the country already has protected status and the current IUCN guidelines set a minimum of only 10% coverage of each ecosystem. It is therefore worth looking from the opposite perspective – the national target for minimum coverage already accepts the risk that Belize loses up to 45% of its present fauna and flora, almost certainly including some of its most charismatic and economically valuable species. The IUCN guideline accepts the loss of a full half.
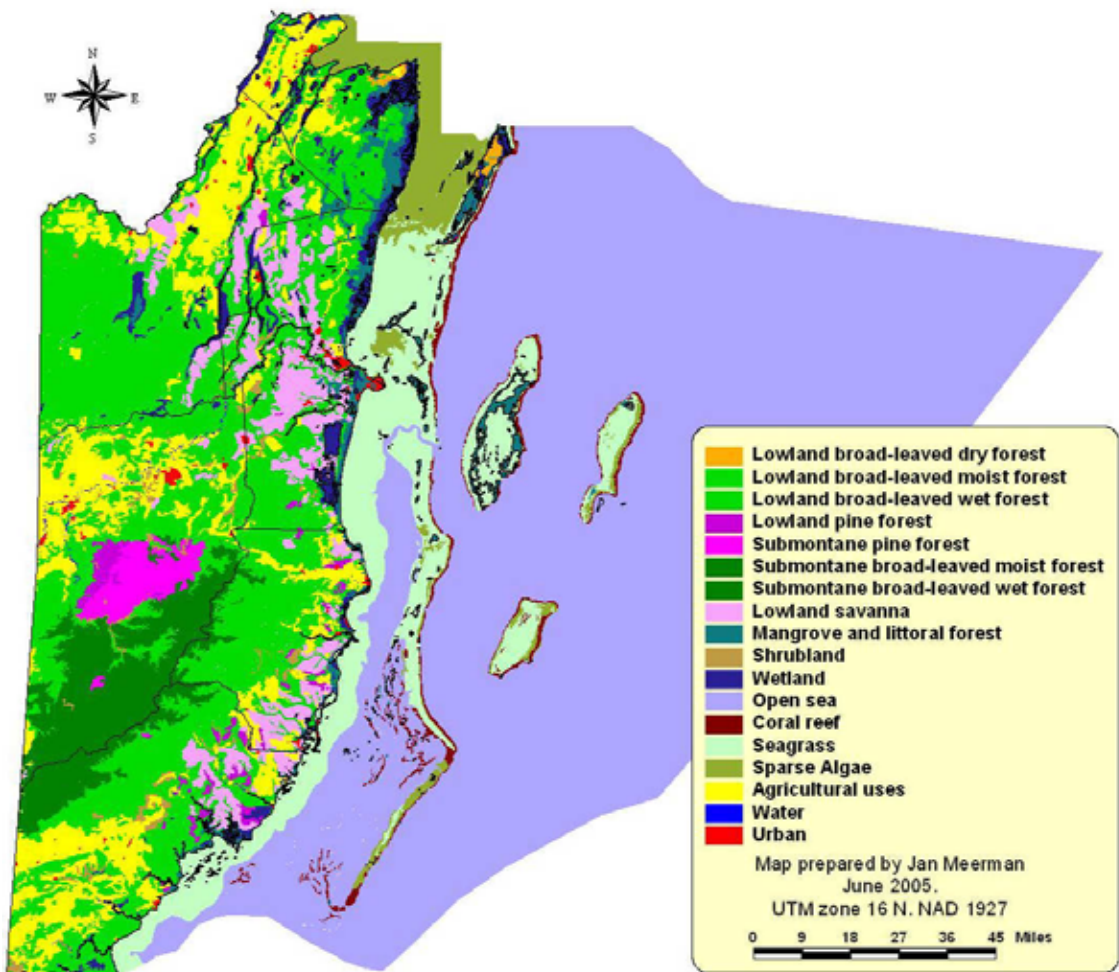
Figure 2. Ecosystems map of Belize - version 2004b (Meerman, 2005). For reasons of scale, the ecosystems have been grouped into 16 broad ecosystem classes

Other considerations must also be taken into account when assessing conservation needs in specific ecosystems. Some are rarer, more fragile, more species-rich or more important for particular species of conservation concern and may therefore need greater protection. Others have high relative importance for natural resource use (e.g. timber, fisheries, tourism) and for environmental services (e.g. water supplies, watersheds, regulation of flood waters, coastal protection). Protected areas must also be strategically placed so that

the selected sites offer the greatest spread of benefits through biodiversity conservation, sustainable resource management and environmental goods and service services while minimising the costs of alternative uses foregone, such as agriculture, settlement, energy supply or mineral extraction. These considerations have been used in a scoring system[2] to:

- Assess target coverage for each ecosystem. This ranges from the 30% minimum to 95% in the case of the most sensitive terrestrial types such as the high ridges of the Maya Mountains.

- Assess the relative importance of existing protected areas in meeting those targets.

The next step is to apply these through two key analytical tools:

- *Gap Analysis[3].* This compares targets with actual coverage, so identifying where there are gaps and where targets are met or exceeded. It therefore builds on the assessment of relative importance of existing sites by identifying the ecosystems that require attention.

- *MARXAN[4].* This conservation planning tool analyses the distribution of a set of given 'conservation features' across the national territory and selects 'best options' for their inclusion in the protected area system. The 'conservation features' are essentially refined site-scoring criteria, taking account of features that denote preference for conservation and those that indicate high human pressure. The latter includes a range of factors such as settlement, roads, poverty levels, distribution of good agricultural land and trans-boundary incursions that together constitute a 'human footprint'. The deeper the footprint, the more difficult effective conservation management becomes.

  MARXAN output can then be used as a tool to help decision-makers design an ecologically, socially and politically acceptable protected area system. The approach is described fully in **appendix 2.4** but it should be noted that there are several ways of running the system of which two have been used here:

    o The 'locked' option. This first finds its conservation targets within the existing protected area system. Where they are not fully covered it then locates the best areas elsewhere that would make up the requirement. This is another form of gap analysis. It also assumes that inclusion in a protected area is in itself sufficient to cover conservation need.

    o The 'seeded' option. Here the system starts to fit its targets inside existing protected areas but does not assume that simple inclusion guarantees their conservation and will place them outside if there are better alternatives. It therefore performs a gap analysis but also indicates parts of the protected area network that are experiencing problems and pressures that compromise their effectiveness. It even indicates to some degree which parts may be redundant.

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[2] Appendices 2.7 & 2.8
[3] Appendix 2.3
[4] Appendix 2.4

It must also be recognised that MARXAN is highly sensitive to changes in the 'conservation features' that are used. If these are modified, for instance to reflect better information or to take new issues into account, the results can be very different. Furthermore, any change in status in one location (e.g. reservation or de-reservation) will have repercussions elsewhere. It is a powerful and flexible tool but it needs to be used regularly.

The entire assessment process has been coordinated with the on-going tri-national ecoregional planning effort for 'Las Selvas Maya, Zoque y Olmeca', undertaken as a joint project by Pronatura-Península de Yucatán (Mexico), Ecosur (Mexico), Defensores de la Naturaleza (Guatemala), TNC (Mexico, Guatemala, Belize), WCS (Mexico, Guatemala, Belize) and Programme for Belize. It also integrates information from comparable efforts in the wider Caribbean undertaken by the World Resources Institute and TNC. This underscores the commitment to fully integrate the Belizean system within regional initiatives.

3.2 Characteristics of the current protected area system.

3.2.1 Ecosystem representation (gap analysis)

An overlay of the protected areas on the ecosystems and comparison with target coverage[5] provides a measure of the degree the present network meets system requirements. This shows that a full forty ecosystems are under-represented in the present protected area network. Some twenty-seven are poorly represented (i.e. 20% or more below target) and at least nine fail to meet the 10% IUCN target or are not captured in the network at all. Conversely, another twenty-seven are well covered (i.e. coverage is within 10% of the target) and twenty-one exceed target coverage by over 10%. The distribution of poorly represented ecosystems is given in **Figure 3**.
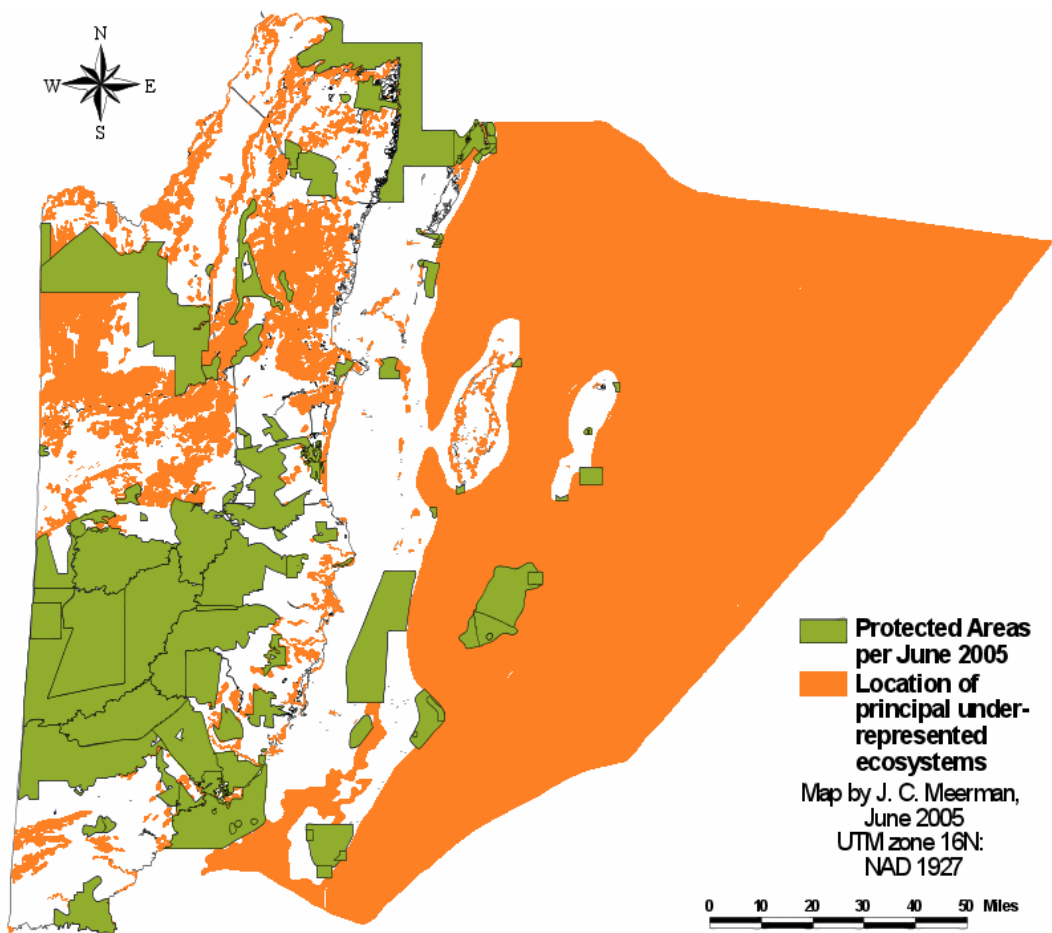
Figure 3. Principal under-represented ecosystems within the current Protected Areas System.

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[5] Appendix 2.3.

3.2.2. Relative contribution of individual sites.

Obviously, not all protected areas are equally important in their contribution to national coverage. The site-scoring system[6] assigns points to a total of 160 for a full range of bio-physical and management/resource use criteria, and relative importance can be assigned by percentage score.

Table 2: Relative importance of sites (Homer 2006, adapted from Cifuentes et al, 2001)

Importance	*Percentage score*	*Absolute Score (from 160)*
Very high	> 90	>145
High	76-90	121-144
Medium	51-75	81-120
Low	36-50	57-80
Very low	< 35	< 56

Only four sites fall into the 'high importance' category and some 28 are classed 'low' to 'very low'. Some of the latter are extensive but many are archaeological reserves (which are selected on different criteria) or small areas.

These results cannot be used as they stand for decision-making regarding site modification and allocation of resources. What they do give are valuable pointers to the nature of the present system:

- The grouping of values in the 'medium' range reflects the diffuse nature of biodiversity and natural resources in a country where large tracts of land outside the system still make a substantial contribution to the national 'stock'. Essentially it shows a land- and seascape that retains a high degree of interconnectivity, an advantage in designing a coherent system that preserves that quality as intensification of land use progressively concentrates biodiversity values within the protected area system.

- Many individual protected areas are artificial administrative and legal subdivisions of larger natural units. The true importance of the natural unit is then diluted among the constituent parts. Furthermore, low-scoring sites often display specific qualities that make them key parts of the larger area.

- In many cases, scores on biophysical and management/resource criteria do not coincide – i.e. less important sites may receive greater management attention than more important ones. This could suggest there is need for extra funding and/or scope for redirection of existing resources but caution is required. Lower biophysical scores may reflect deficient information rather than lower relative importance. Some sites may, because of their location, need more intensive management (so scoring higher) than an equivalent site elsewhere – indeed some very important areas – those on the Maya Mountain divide being a case in point - may be extremely well-protected by their location and need no management whatsoever. The two types of score are not necessarily linked and the appropriate response must be judged on a case-by-case basis.

- Nonetheless, private reserves are very well represented in the upper echelons on both biodiversity and management/resource scores. This indicates the effectiveness of private management as a general approach.

3.2.3. MARXAN.

The 'locked' and 'seeded' MARXAN[6] runs give similar, but not identical, results (**Figures 4 and 5**).
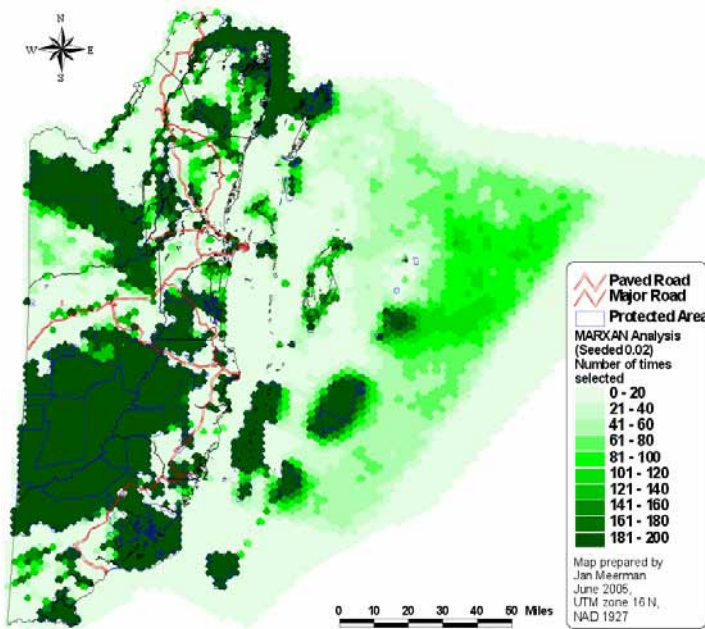

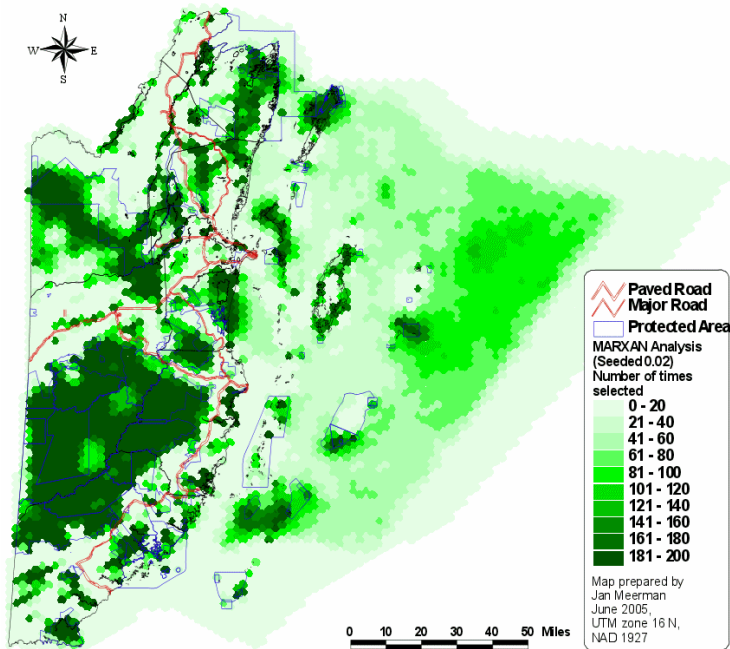*Figure 4. June 2005 MARXAN Analysis Results "Locked" option*

Figure 5. June 2005 MARXAN Analysis Results "Seeded" option

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[6] Appendix 2.6

Both options show that many but not all of the most important areas are within the existing system. The biological corridors also show up well. However, it also shows a difference between the terrestrial and the marine zones, where placement of conservation targets is much more diffuse. This is at least partly due to:

- The extensive but poorly known 'blue water' zone;

- The less well defined 'human footprint' from boat traffic, trawling and incursion by fishermen, agricultural run-off etc.

Further research and survey will undoubtedly refine the analysis.

3.3. Implications for protected area system design.

The assessment shows that the present protected area network provides a strong base for a consolidated National Protected Area System (Figure 6) but also highlights the following issues:

- Ecosystem coverage is presently incomplete. Efforts are needed to extend protected area status (or to put in place other effective conservation measures) for those that are under-represented and especially for those that are not represented at all. Four of these are terrestrial or coastal but the most significant gaps lie in the river systems and open sea.

- Five main biological corridors and five riverine corridors are identified as important by the Mesoamerican Biological Corridor Project but only one is totally contained in the protected area network. This is the south-eastern corridor, running from the Maya Mountains to the sea. Appropriate and practical means of bringing the remaining connections into the protected areas system are needed if interconnectivity is to be maintained.

- Establishment of protected areas in the following localities would contribute significantly, both in ecosystem coverage and in maintaining connectivity. They are therefore priority areas:
  - The general area to the south and west of Shipstern;
  - The general area around Crooked Tree, making the biological linkages across the northern coastal plain;
  - The east-central Belize Valley area;
  - The steep karst hills of western Toledo;
  - Turneffe Atoll;
  - The Moho River
  - Parts of the Rio Hondo and the New, Belize and Temash Rivers.

- The open and deep sea ecosystems are also unrepresented but their characteristics are very poorly known. This is a priority area for research as a basis for future action.

- The highways carry a heavy human footprint on the landscape, breaking biological connectivity. Special measures need to be devised to reduce this impact in key areas.

- Private protected areas already perform a crucial role in the national network and will play an even bigger role in filling gaps in coverage and in creating functional biological corridors.

- There is room for adjustments and modifications to the existing protected area network and to site management approaches without jeopardy (and sometimes with enhancement) to core values. Proposals must be judged on a case-by-case basis to assess the impacts upon the functionality of the system on a national scale and the array of analytical methods used here can assist decision-making. At this time the following general points can be made:

  o Many protected areas are grouped and are in reality components of one functional unit. Administration and management would be greatly simplified, and the system as a whole both rationalised and made more efficient, if they were treated as such. Wherever possible, clusters of adjacent protected areas should be treated as single multi-zoned conservation management units. The Maya Mountains, Laughing Bird Caye/Gladden Spit, and the protected fish spawning aggregations associated with Marine Reserves are examples but there are others. These units are substantially more important than any of their parts, which should therefore never be judged in isolation. Consolidating the protected areas in the Maya Mountain-Mountain Pjne Ridge massif, the Belize Barrier Reef and in the north-western forests would in fact create some of the most important conservation units in Central America.

  o Valuable contributions in protected area coverage can be made by extensions to existing protected areas or proposals for the creation of new ones. In principle, however, extensions to the National Protected Area System should only be made where technical assessment shows a significant improvement to system functionality.

  o There are nonetheless instances where protected areas could be de-reserved in whole or in part without compromising functionality at system level, particularly where it is made up again in more strategic areas. In even more cases, a change in management category within a zoned management regime would serve the purpose.

Applying these measures requires reformed administrative and legal measures and improved management capacity and procedures. These are set out in subsequent sections.
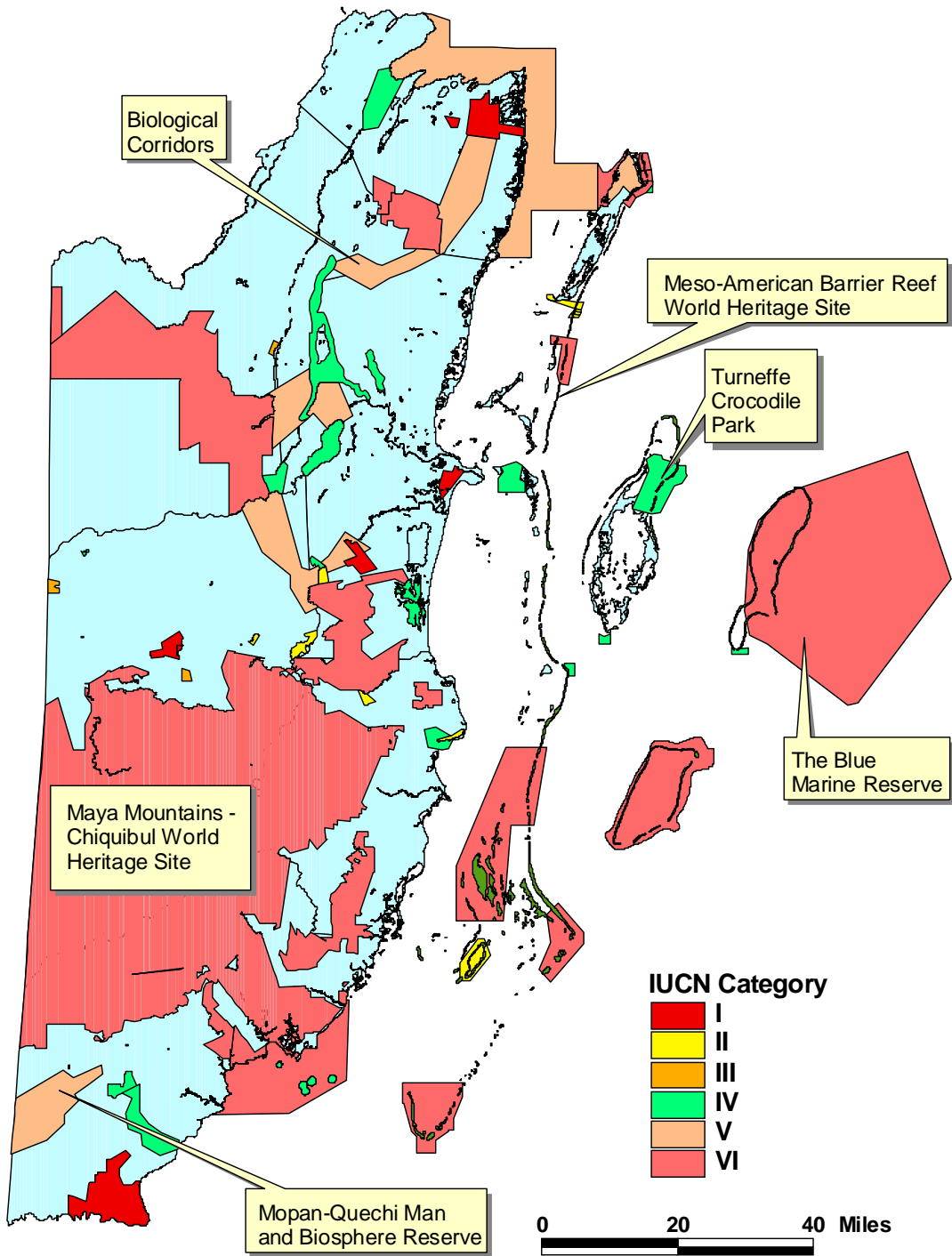
Figure 6: The vision: A consolidated National Protected Areas System with management attributes following the IUCN system (indicative only)

4. MANAGEMENT PROCEDURES AND SUSTAINABLE USE

'Mechanisms for forms of governance over the Protected Areas system, both as a whole and in its parts, are designed to reflect the full range of interests and rights in, and options for, natural resource management that are compatible with effective biodiversity conservation'.

A range of issues have been identified concerning the governance of protected areas and the need for participation in their establishment, administration and management. This section sets out proposals to address those issues and so meet the requirements of the National Protected Area Policy. It is noted throughout that *'Governance is about power, relationships and accountability. It can be defined as the interactions among structures, processes and traditions that determine how power is exercised, how decisions are taken on issues of public concern, and how citizens and other stakeholders have their say ... Good governance depends on the legitimacy of the political system and on the respect shown by the people for its institutions. It also depends on the capacity of such institutions to respond to problems, and to achieve social consensus through agreements and compromise.' (Borrini-Feyerabend et al, 2000).*

4.1. System administration.

The protected areas are currently the responsibility of the Forest Department, Fisheries Department and National Institute of Culture and History (NICH), each under a different ministry. Management priorities and management effectiveness differ across the three bodies and the need for close coordination has been long recognised but remains deficient.

The consensus within the Protected Areas Policy and System Task Force is that there is urgent need for close coordination between the two departments – Forest and Fisheries – responsible for protected areas as part of natural resource management. This has been recognised for a long time (at least ten years) but *ad hoc* solutions have proved inadequate. A formal arrangement reinforced by statute is needed, and several options have been considered of which the favoured approach is the establishment of a statutory National Protected Areas Service. This is also the most radical, amalgamating the Fisheries Department, Forest Department and the Institute of Archaeology and assuming their full range of natural resource and protected area management functions. Recognising that such a profound re-organisation will take time to achieve, an interim arrangement is proposed. Here the three bodies continue to be responsible for marine reserves, protected areas established under the Forest and National Parks (System) Acts and Archaeological Reserves respectively. The Fisheries and Forest Departments, however, follow the lead of the NICH by evolving into autonomous Fisheries and Marine Resources and Forest and Wildlife Authorities (with the former also taking in the Coastal Zone Management Authority/Institute), assuming full control of their finances, staffing and operations. A national mechanism appointed by Cabinet, essentially the evolution of the present NPASP Task Force into a standing body and preferably expanded to include high-level representation from the NICH, ensures coordinated administration at system level.

Even so, the principle may be clear but the practical aspects are complex and hasty action could compound problems. Furthermore, the plan requires that significant reform go to the

House twice – first to establish the two authorities and then to consolidate them into a single service. In practice the interim approach is liable to pre-empt the 'ideal' option, pushing it well into the future. The immediate solution proposed here, therefore, is to take those formal steps that can be accommodated by the present administrative framework to maintain impetus and ensure the necessary coordination for joint implementation of the national protected area policy. These comprise the establishment of the standing NPAS committee (the National Protected Area Commission) and enactment of proposed amendments to the enabling legislation, initiating the process that addresses the practical issues of collaborating on protected area policy, harmonising working practices and approaches, and integrating protected area management within the wider resource management context. As working solutions to these issues are found, the most appropriate form of administrative re-structuring will present itself over the medium term.

The relationship of the archaeological reserves to the other protected areas is one issue that requires early attention. The archaeological reserves fall within the definition of protected areas and some (such as Caracol) are enclaves within other larger conservation areas. Others, such as Lamanai, possess substantial biodiversity conservation importance while all the other types of protected area, including marine reserves, have known or potential features of cultural or historic importance within them. At the same time the management priorities and methods for sites of cultural importance are fundamentally different to those covering natural heritage, conservation of biological diversity, promotion of sustainable management of natural resources, and maintenance of environmental goods and services. They do reinforce each other, however, a fact recognised in World Heritage designations combining cultural and natural criteria and in site-specific cooperative arrangements such as that between the NICH and Belize Audubon Society for Actun Tunichil Muchnal. Nonetheless the reality is that the NICH has not formed part of the NPASP Task Force, has had very limited input in the development of the protected area policy and plan, and has indeed established a highly successful but parallel approach to the management of cultural resources. The key bodies are therefore the Forest and Fisheries Departments but the closer involvement by the NICH is highly desirable as the development of the national protected area system enters its implementation phase.

4.2. Policy implementation.

4.2.1. Governance and participation by civil society.
The number and range of stakeholders in protected areas and their management is extremely large. They can, however, be arranged in broad categories:
- *Local communities and indigenous people*. The local communities have the largest, most direct and deepest-seated stake in protected areas. They may use them for basic materials and essential resources (thatch, poles, firewood, medicines, bush-meat and fish etc) and/or for employment and income (tourism, timber, fisheries, direct involvement in protected area management activities). As they may know them intimately and have used them for generations, the local communities are also repositories of traditional knowledge on their qualities, values and potential use of their resources. This extends to their alternative use in whole or part for the subsistence and small-scale agriculture on which many communities depend.
- *Commercial interests*. The protected areas give substantial, even crucial, support to the national economy in the tourism, forestry and fishery sectors. The

stakeholders here include tour operators, guides, sea-transport operators, hotel and resort owners, restaurant and gift-shop operators, commercial timber operators and wood product manufacturers, and commercial fishermen. This category also includes interests seeing important alternative uses for the protected areas, such as power generation, property development and medium to large-scale agriculture and fisheries. All of these are more or less well-organised and influential groups, socially, politically and economically.

- *Recreational users of protected areas*. This group includes all people, Belizean and non-Belizean, who visit the protected areas for recreation and to learn about and appreciate the wildlife, cultural and scenic values that constitute their natural and cultural heritage. It also includes recreational hunters and sport fishermen.
- *The international conservation and scientific community*. Belizean institutions, NGOs, CBOs and individuals are integral to this community, which is interested in research and educational opportunities and the contribution made by the country to safeguarding the environment at a regional and global scale.

All of these groups influence the protected areas in one way or another:
- Physically, by affecting air quality, hydrology, surface water, coastal water, soil, and land use;
- On the flora and fauna, by affecting habitats and species;
- Through socio-cultural/economic factors, affecting land use and resource availability, cultural heritage, and human beings.

The impacts may be significant or insignificant, positive or negative, long term or short term, reversible or irreversible, and localised or regional in effect, and in terms of the local context, either important or unimportant. Interests may coincide or conflict but all these groups nonetheless have a legitimate stake in the national protected area system and its management. Furthermore it should be borne in mind that categorising stakeholders may be convenient when speaking of a national system but at site level they are represented by specific individuals with well-defined places in society.

The relationship of local communities and indigenous people to protected areas needs special consideration for these are the groups most affected by their creation yet least well catered for in the decision-making process and in operational management. Consultations held in the development of this report indicate that most communities do use protected areas to fill basic needs, do not see alternatives to secure these needs and claim traditional rights of access and use. The laws of Belize, however, do not recognise such rights and these forms of use are often not provided for under the present protected area legislation. They are therefore illegal but still often tolerated, so leading to poor enforcement. At the same time the communities themselves are fully aware of a wide range of negative impacts that affect their interests. Meanwhile the international agreements to which Belize is party uphold the rights of local communities and indigenous people to access to their basic needs but also note their responsibilities towards good resource management – hence the emphasis on local participation and recognition of the importance of traditional knowledge. These issues must be addressed when revising the governance of the national protected area system.

Four types of governance of protected areas can be distinguished:
- ***By government***: Authority, responsibility and accountability is founded on legislation and rests with a government agency. Although management may be

exercised directly or be delegated, and consultation or communication with concerned parties may be required, government retains full ownership and control. This is the mode of governance implicit under present legislation but that has proved largely ineffective through chronic deficiencies in financial, human and material resources.

- *Joint governance (co-management)*: Authority, responsibility and accountability are shared among a variety of concerned parties, which are likely to include government agencies, local communities, private landowners and other stakeholders. The parties recognize the legitimacy of their respective entitlements and choose or are required to collaborate. Examples include co-managed protected areas and conservation easements. ***This approach has been encouraged over the past decade, has proved effective, and is the preferred option for the development of the national protected area system***. There is room for improvement, however. To date co-management arrangements have been between the Government and an NGO or CBO In many cases, the communities adjacent to the protected areas seem to have been more or less excluded from meaningful participation.

- *Private governance*: Authority and responsibility rest with the landowners, which may exercise it for profit (e.g., tourism businesses, resource extraction) or not for profit (e.g., foundations, universities, conservation NGOs). Usually, the landowners are fully responsible for decision-making and their accountability to the society at large is quite limited. Private governance does have its role where land-owners elect to use their holdings under a conservation management regime, as an individual decision made in their own interests. It is not, however, deemed suitable for the national protected area system, given the wide range of interests, including community interests, in its sites and the arrangements proposed here for inclusion of private protected areas are in reality forms of joint governance.

- *Community governance*: Authority and responsibility for managing the natural resources rest with the indigenous peoples and/or local communities with customary and/or legal claims over the land and natural resources. It is therefore analogous to private governance and accountability to society at large usually remains limited, although it is at times achieved in exchange for recognised rights or economic incentives. This form of governance is usually associated with areas (including those under partial private ownership) that are collectively controlled or managed under traditional or locally agreed rules. There are good examples in Belize (e.g. Community Baboon Sanctuary, Aguacate Lagoon) and community this form of governance, under similar guidelines to those applied to private protected areas, should be accommodated in the national protected area system. In most cases, however, individual, institutional and managerial capacity must be strengthened within local communities and CBOs before the approach can be effectively used more widely.

Co-management is a type of governance involving a range of different interest groups with varying capacities, sharing responsibility for and benefits of managing a protected area. It has been defined as 'a situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources'. Being a negotiated process, every co-management agreement will differ, although the underlying aim – to render management more effective for a given site – remains the same. Those already applied in Belize range from an agreement to manage in a way that furthers the public interest (in the case of the Rio Bravo Memorandum of Understanding) through lead

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roles for NGOs and CBOs (where these are strong), equality of input (e.g. Belize Audubon and the Institute of Archaeology) to a lead role for the government agency (where CBOs have limited management capacity). They should, however, all include:

- The purpose of the agreement, the parties in the agreement and the relevant territory, area or natural resources;
- Benefits and responsibilities assigned to the parties;
- Means of protecting the investment each party;
- Means of resolving disputes;
- A specified duration;
- Schedules and procedures for review, reporting, monitoring and evaluation;
- Confidentiality and other special clauses as may be appropriate.

Most agreements will be between NGOs, CBOs and government agencies. The existing co-management agreements provide good models but all should in future include:

- *A requirement that key stakeholders, with local communities specified among them, participate in both management planning and, wherever practicable, in operations.* Consultation is the minimum requirement and the intent goes beyond that - agreements that fail to prescribe community stakeholders participation in the planning and management of protected areas are really missing the point of co-management. This approach broadens ownership, minimises conflict and sets or strengthens the foundation for meaningful co-management of common resources. It also facilitates the integration of protected area management with local and national socio-economic concerns, given that the key stakeholders are best placed to identify what form these take and how then can best be addressed.
- *Clear responsibility for enforcing regulations.* The regulations will always place ultimate responsibility for the protection of national resources on the statutory body. This is true even for private protected areas, though they also have additional recourse for trespass, damages and theft. Strong co-managers with dedicated protection staff are in a position to take an active enforcement role but they do so in the name of the statutory body and with its support and backing. In the case of many CBOs, assumption of such responsibility would be unjust and unrealistic. The relative roles will vary from site to site but they must be spelt out. It should be noted that if there has been proper participation in setting up an appropriate management regime then many (but never all) problems become self-regulated.
- *More definition covering dispute resolution.* Procedures recommended for best industrial relations practice should be adopted.
- *Clear procedures protecting investments made by each party in the event that the agreement is terminated.* This involves recognition and a means of assessing fair market value of the investments made by each party in infrastructure, site improvements, revenue-generating activities etc. An equitable mechanism for settling up these issues must also be established.
- *Unambiguous statement that the agreement is legally binding on all parties.* Certain co-management agreements have proved weak because one or both parties are overlooking or unable to meet their obligations and this aspect needs hardening. The agreements must be signed by individuals with the requisite authority in the institutions they represent, which must themselves be legal entities. Should any party require the court to settle a dispute, the agreement provides the basis of determining agreed roles, responsibilities and entitlements.

- *Removal of PACT share of fee revenue.* The PACT Act was amended in 2002, removing the requirement that 20% of concession fees go to the PACT. Future agreements will not carry this clause.

Guidelines and checklists are provided in **Appendix 1.3 & 1.4**. These are directed primarily at agreements with CBOs and local communities. Agreements with private protected area owner/managers will also increase as the national protected area network is consolidated. Existing models can be adapted for this purpose but the checklists remain useful during the negotiation process.

4.2.2. Categories of protected area.

Under the present network, the various protected areas can be categorised as sites designated for:

- Biodiversity protection and research (Nature Reserves);

- Biodiversity protection, research, recreation, education and visitation (National Parks);

- All of the above but protecting particular species or communities requiring special interventions. In practice these areas meld human activity and conservation management (Wildlife Sanctuaries, Bird Sanctuaries, Spawning Aggregations);

- Protection of significant landscape features alongside research, recreation, education and visitation (Natural Monuments);

- Protection of cultural heritage alongside research, education and visitation (Archaeological Reserves);

- Multiple use, zoned to allow controlled extraction of natural resources as well as biodiversity protection, research, education, recreation and visitation (Marine Reserves, Forest Reserves).

There is considerable overlap between these various protected area types, largely due to designations made under three different enabling laws each giving responsibility to a different ministry. Management precepts in the private reserves may also correspond to one or more of these categories. Finally it has been observed that the designations do not always correspond to the most effective management regime.

Despite a persistent belief that protected areas take territory out of the productive sector, the multiple use areas allowing for good management of natural resources are in fact the most extensive category on land and sea. This coverage is even larger when multiple use zones in the private protected areas (eg Rio Bravo Conservation and Management Area) and Wildlife Sanctuaries and National Parks that are *de facto* multiple use areas (eg Crooked Tree, Sarstoon-Temash) are taken into account. The reality is that management regimes are a form of land use and usage tends towards the most practical and appropriate form for a given area, whatever its formal designation.

The International Union of Conservation of Nature and Natural Resources – World Conservation Union (IUCN), of which Belize is a member, recognises seven international categories for protected areas[7]. These give a complete spread of options from total

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[7] Appendix 1.1

protection (Category 1) to maintaining a harmonious interaction of mutual benefit to man and nature at a landscape level (Category V) and a sustainable flow of products and services to meet the needs of all levels of society (Category VI).

All the Belizean protected areas fall into one of these international categories although the category indicated by the designation and that indicated by actual management may differ. The intent here is to rationalise and optimise the National Protected Area System so that it serves its conservation function while delivering maximum economic and social benefit. The starting point should therefore be to ensure that management of all areas should be efficient, effective and focused on the best use of the land itself. The amalgamation of adjacent protected areas into single multi-zoned units gives opportunity for a major rationalisation on the ground following these principles. It also carries the following implications:

- Most forest reserves would cease to exist as separate entities. Their production forests would become managed resource zones (i.e. under an IUCN category V1 regime) where current Forest Department policies would hold sway, such as the issue of long-term forest management licenses that are based on acceptable forest management plans and with strictly observed terms. Their protection forests would be re-assigned to other zones with appropriate management regimes. The reverse may also hold true in that parts of protected areas that currently do not allow extraction could also be re-assigned if it is clearly shown that core conservation values are not compromised. The entire approach is analogous to that used for marine reserves, designed to reinforce the role of the protected areas in the national economy. It also creates leverage for sustainable resource use by exacting high standards for access to the resources in question.

- The approach also puts the emphasis on effective management zoning set out in management plans, allowing the most appropriate use of the land within the protected areas.

- The protected areas and their management zones should be clearly referable to a given category under the IUCN system, according to the management regime set out in the management plan. All the categories save Ia and Ib allow for some degree of extractive use, at least by local and indigenous communities, but special attention should be given to the use of categories V and VI which are specifically designed to accommodate integrated conservation management and sustainable/ traditional land use patterns.

4.2.3. Declaration, alteration and de-reservation of protected areas.
The CBD states that contracting parties should establish a protected area network. It also states that parties should, where necessary, establish guidelines for their selection, establishment and management. Belize has long fulfilled the first requirement but has not followed through with the second obligation, producing problems.

The procedure for protected area establishment differs between the Forest, National Parks and Fisheries Act. The forest reserves are established on national lands by the Minister on the advice of the Forest Department. Most of these reserves were created 50-60 years past, many have since been re-designated under the National Parks Act and the amalgamations proposed here would continue this trend. Proposals for designation under the National Parks System Act have generally been made by interests external to the Forest Department. The department then investigates them, records the boundaries and

submits a report for ministerial decision in establishment. The Marine Reserves belong to a later generation of protected area creation, requiring extensive consultations and an acceptable plan before the Minister is advised to declare the area.

All three laws also contain provisions allowing the Minister to alter, vary or revoke the declaration order and the problems lie in applying this power. Circumstances do change and may warrant adjustments in the size or status of particular protected areas. Nonetheless, doing so in the absence of any provision for review, consultation and transparent justification based on set criteria is widely regarded as the most serious weakness in the national protected area network, deeply impacting upon its permanence.

This section therefore outlines biological and socio-economic criteria that could rationalise the declaration, de-reservation or alteration of protected areas. Additionally a process is described for utilising the criteria to guide decision-making. This is important in view of the proposals made in **Section 3** both for making the system more comprehensive and especially for rationalising it by amalgamating contiguous areas, implying changes in management regime through zoning and scope for boundary adjustments where they may be appropriate. The key point is that there should be clear statements on:
- The national interest in establishing a protected area as part of the national system on the site in question; and …
- The needs and interests of the majority of stakeholders in the site.

These provide the basis for decision-making on declaration of specific areas, the most suitable management regime (c.f. the IUCN guidelines for management options), and on altering the status (i.e. change in management regime or de-reservation in whole or part) of existing protected areas.

To be eligible for inclusion in the National Protected Area System the site must display one or more important bio-physical and cultural characteristics. Present information allows the following to be assessed in an acceptably uniform way across the national territory, using the site scoring[8], gap analysis[9] and MARXAN[10] (c.f. **Section 3**) to indicate the relative value of a site to the system as a whole. The following considerations, modified from WWF guidelines, must be taken into account:

- Significant contribution to overall representation of ecosystems within the national protected area system.
- Provision of a critical landscape function (e.g. biological connectivity or restocking capacity).
- Contain exemplary and intact ecosystems.
- Sufficiently large to support minimum viable populations of key species or be relatively large for the region.
- Globally or regionally threatened ecosystems.
- Unusual features of aesthetic or cultural importance (e.g. important archaeological or historic/cultural sites, caves, scenic vistas …)

The following biodiversity characteristics are also important and may be used where information is available. Precise data is, however, often lacking and its absence does not

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[8] Appendix 2.7
[9] Appendix 2.3
[10] Appendix 2.6

necessarily mean absence of importance. Expert opinion must therefore be used. A provisional listing of species of conservation concern has been drawn up as an aid[11] and information gathering (**Section 5.1**) will refine use of these criteria.

- Populations of rare, threatened or endangered species at a global, regional and national level;
- High levels of endemic species;
- High levels of biological diversity;
- Contains important, high quality habitat types for key species.

The following socio-economic considerations condition decision-making on the most appropriate conservation management regime within the spread of options within the meaning of a protected area. They may also help guide decision-making (operating positively or negatively) on whether a site or part of a site should be protected or not, though the tendency should be towards protection at some level if only to assure conservation issues are taken into full account alongside economic activities and their development. Some have been taken into account in the MARXAN analyses and all can be included in the 'conservation features' or 'human footprint' when assessing particular areas;

- High level of provision of environmental services (coastal protection, watersheds etc.)
- Provision of economic opportunities for individuals within or near the site;
- Opportunities for sustainable economic activity and development, consistent with protected areas objectives;
- A high level of subsistence and/or traditional use by local communities;
- Religious or spiritual significance;
- Species of high social or economic value as resources (timber, fisheries, species of medicinal value, genetic importance such as food prototypes);
- High value for education and or scientific research;
- High value for recreation.
- High value for mineral or petroleum exploitation, power generation, settlement and agriculture;
- Significant dependence whether direct or indirect, national or local, upon the resources in the protected area.

Protected area site design is also a consideration:

- The layout and configuration of the area optimizes the conservation of biodiversity on a wider scale;
- Land use in the surrounding landscape enables effective site management (e.g. The site is surrounded in whole or part by a buffer zone of undeveloped territory, the boundary of a neighbouring country or by designated low-impact land use zones);
- The area creates a linkage to another area of conserved and/or protected land.

Where there are proposals for a new protected area or modification of an existing one, the site scoring, Gap and MARXAN analyses should be re-run with 'before' and 'after'

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[11] Appendix 2.4

scenarios in order to assess the relative importance of the area and the impact of the action. This constitutes a 'technical assessment', subject to regular refinement, that helps guide the process.

- In the case of proposals for additional protected areas, any area that scores 'high' would constitute a very desirable addition and thus become a priority site. Areas with a medium score may be valuable for specific reasons but would probably allow a more relaxed management regime. The specific reasons would have to be compelling to justify inclusion of a new area with a low score within the national system. The justifications must be included in the site management plan, drawn up with public participation and incorporating co-management arrangements (**Section 5.1.4**). The area will not be declared until a satisfactory plan has been produced, generalising the approach presently used for marine reserves.
- In the case of proposed modification of existing areas, there should be a presumption against actions that result in a significant drop in site score (i.e. >10% reduction) for any area of medium to high value. There is greater room for manoeuvre in lower scoring areas but in all cases excision or relaxation in one part of the system should be mitigated by expansion elsewhere in ways that increase the coherence and value of the system as a whole. The process will involve a socio-economic and ecological impact assessment (i.e. be consistent with the Environmental Protection Act and the Environmental Impact Assessment regulations), include a cost/benefit analysis for the proposed change, and give opportunity for public consultation involving all major stakeholders. The decision-making process must be transparent, offer sound justification and take full account of technical and social concerns.

4.2.4. Private Protected Areas.

Private protected areas already perform a crucial role in the national network and will play an even bigger one in filling gaps in coverage and in creating functional biological corridors. At the same time safeguards are needed to ensure that these sites make a significant and permanent contribution to the national system and only two (Rio Bravo Conservation and Management Area and Block 127) currently have effective legal instruments ensuring permanence of conservation management. Private protected areas can therefore qualify for formal recognition within the national protected area system if:

- Technical assessment indicates that they make a significant contribution to the coherence and comprehensiveness of the system in terms of ecosystem coverage, biological connectivity and meeting other 'conservation targets' used to assess the relative importance of lands within the system (cf **Appendix 2.2 & 2.3**);
- Management (as practiced and as expressed in a management plan) conforms to standards required for sites within the National Protected Area System (c.f. **Section 4.2**).
- Adequate provision is made by the land-holder to assure the permanence of conservation management, backed by a legally binding agreement with the GoB.

Under these circumstances the private protected area becomes part of the national protected area system, furthering implementation of national policy with regard to the protection and sustainable management of natural and cultural resources. In return, the managing body becomes eligible for the incentives offered as part of that policy (**Section 4.3**).

4.3. Legislative measures
The legislative framework operates at two levels:
- *Fulfilment of national obligations and responsibilities under international agreements.* The pivotal agreement here is the Convention for Biological Diversity, which sets out clear provisions for protected areas. These are developed further in the World Heritage and Ramsar Conventions and the agreements governing the UNESCO 'Man and Biosphere' programme. The first two have had limited use in Belize and third not at all, although they are powerful instruments for reinforcing protected area status and have been used to good effect in neighbouring countries. This suite of agreements is formally associated with the international agreements on sustainable development (Rio and Rio+10) and thus to poverty reduction and the achievement of the Millennium Development Goals. Protected areas are therefore fully embedded in the international thrust towards socio-economic improvement. The national policy creates a framework that allows all the provisions of international agreements to be met. The international commitments do, however, form the background context of policy implementation and should be widely known. A summary of commitments under the CBD and referring to protected areas is given in **Appendix 1.2**.

- *National legislation based on policy.* Judicious amendment of the enabling legislation is the key action initiating full inter-departmental collaboration to meet policy aims in an acceptable time-frame. The main weaknesses lie in the National Parks System Act (NPSA), where the provisions are largely inconsistent with the needs of key stakeholders and do not include appropriate management prescriptions that cater to forms of sustainable use compatible with conservation management. It does, however, provide for co-management. The following amendments to the Act, duly renamed *The National Protected Areas System Act*, will allow for better, more inclusive and transparent management of protected areas in Belize. The provisions for marine reserves are already adequate while most forest reserves will be subsumed in the larger multi-zoned units proposed as part of system rationalisation.

4.3.1. Standardised protected area categories.
Part I Section 2 of the NPSA defines the present protected area categories and should be deleted. They are instead listed in Part II Section 3 (1) as: -

> *'Category Ia: Protected area managed mainly for science or wilderness protection.*
>
> *Category Ib: Protected area managed mainly for wilderness protection.*
>
> *Category II: Protected area managed mainly for ecosystem protection and recreation.*
>
> *Category III: Protected area managed mainly for conservation of specific natural features.*
>
> *Category IV: Protected area managed mainly for conservation*

through management intervention.

Category V: Protected area managed mainly for landscape/seascape conservation and recreation.

Category VI: Protected area managed mainly for the sustainable use of natural ecosystems.'

The categories are then defined in Part II Section 4, which should note that the protected area should have the following qualities and at least 75% of the extent of a given site must be managed for one of the following purposes:

'Category Ia: An area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Category Ib: A large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

Category II: Natural areas 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 detrimental to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Category III: An area containing one or more specific natural or natural/cultural features that are of outstanding or unique value because of their inherent rarity, representativeness or aesthetic qualities or cultural significance.

Category IV: An area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

Category V: An area of land with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

Category VI: Area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services.'

This brings the legislation into line with international criteria and guidelines for their application are given in **Appendix 1.1**. It should be noted the names of the areas are often well known and the law does not require any formal change in that respect. Signage should, however, note what category the area is designated under and information on the area should explain the implications for management regime.

4.3.2. Management plans.

Good management planning is an essential precursor to good management. It also defines the most appropriate management category for a site and its constituent zones and so guides the content of the regulations for the area. For all new areas, management planning involving wide stakeholder consultation (and thus stakeholder 'buy-in') should take place prior to declaration. For existing protected areas, this should apply to future revisions of the plans. This Fisheries Act addresses this issue satisfactorily. *Similar wording should be used to amend Part II Section 9 (2) of the NPSA.*

4.3.3. Declaration, alteration and de-reservation.

'Before any protected area is established, de-reserved, reclassified or altered, the Minister in consultation with the agencies responsible for protected areas management shall publish at least three weeks in advance, three consecutive Notices in the Gazette and the local newspapers, that:

> *(a) specifies the situation and limits of the area of land or sea which is to be established as a protected area, de-reserved or modified;*
> *(b) provides reasons why the area has been selected for protected area status or for de-reservation, or for modification;*
> *(c) invites all persons or agencies who enjoy any rights or interests within the area specified in the Notice to submit their claims and objections to the Minister;*
> *(d) appoints a date and a place for the hearing of any claims and objections relating to such area of land and sea specified in the Notice;*
> *(e) appoints an independent technical committee to analyse and advise on the validity of claims and feasibility of change in the status of the area as specified in the Notice.'*

The work carried out by the technical committee (the National Protected Area Commission) will include the site-scoring, gap and MARXAN analyses and a cost-benefit analysis of the proposed change in use. Where alteration or de-reservation is proposed, it should also undertake the necessary socio-economic and environmental impact assessments. The composition of the technical committee must be defined in the revised legislation and, given the requirement that the Minister consult with 'the agencies responsible for protected area management', will therefore include representatives of the Forest and Fisheries Departments. The technical committee thus gives legal form to the coordinating mechanism (c.f. **Section 4.1**.) and also places statutory responsibility for the system (as against its individual sites) under the Minister for Natural Resources and the Environment. There must also be two NGO representatives, two CBO representatives, and senior representatives for the Tourism Board and PACT. In addition it must be able to call on specialist expertise as necessary and allow for other representation (e.g. Lands Department, Geology and Petroleum Department, other key stakeholders) as and when desirable.

4.3.4. Strengthened provisions for co-management.

The NPSA already allows for delegation of management, opening the way for the present generation of co-management arrangements. As this approach is to be promoted, the provisions should be strengthened and more explicit. The wording below also strengthens the role of zoning in management planning. The new text uses the term 'Administrator' to denote the body responsible for protected area management. This is normally the Chief Forest Officer, acting for the Technical Committee and so representing the coordinated group, but the term gives flexibility.

'(1) The Minister, on the advice of the technical committee, may delegate management responsibility in whole or in part for any protected area declared under this Act, to any legally registered local body that:

> *(a) is willing, and has the capacity or will soon acquire the capacity to manage the protected area;*
> *(b) agrees to implement the management plan that exists for the site;*
> *(c) agrees to prepare or periodically update the management plan, based on the inputs from broad-based protected area stakeholder consultations;*
> *(d) agrees to comply with any other requirements consistent with the purposes for which the site was declared a protected area.*

(2) The Minister shall cause the preparation of a legally binding agreement that details the duration, terms and conditions for the co-management of the protected area between the State and the body to whom delegation of management responsibility is intended. '

This then requires amendment of Part II sections 6,7 and 8.

> • *No person shall, within any protected area, except with the written authorisation of the Administrator, and subject to zoning prescriptions and to other authorisations required under any other Act:--*
>> *(a) permanently reside in or build any structure of whatever nature whether as a shelter or otherwise;*
>> *(b) damage destroy or remove from its place therein any species of flora or fauna;*
>> *(c) remove or destroy any antiquity, cave formation, coral or other object of cultural or natural value;*
>> *(d) deface, destroy or remove any sign, facility or infrastructure provided for public use and enjoyment;*
>> *(e) carry firearms, spears, traps, nets or other means for hunting or fishing or animal capture in areas not so designated;*
>> *(f) introduce organic or chemical pollutants or any waste materials;*
>> *(g) clear lands for cultivation or other purposes in areas not so designated;*
>> *(h) graze domestic livestock in areas not so designated;*
>> *(i) introduce exotic species of flora and fauna;*
>> *(j) catch fish by any means whatsoever in areas not so designated;*

(k) do any other act which may be prohibited by any Order made by the Minister from time to time.

• (1) Any person who––
(a) carries out any development in a protected area, except in accordance with the terms of a grant of development permission made under the Act; or
(b) fails to comply with any restriction imposed by an Order made under the Act;
shall be guilty of an offence and shall be liable on summary conviction to a fine not exceeding $10,000 dollars or to six months imprisonment or to both such fine and imprisonment.

(2) The court before which any person is convicted under the provisions of this section may order the demolition of any structure erected or the reinstatement of anything altered or removed in contravention of the provisions referred to in this Act, and in default of compliance with any such order of the court, the Minister may cause the necessary work to be carried out and may recover as a civil debt the cost of so doing from the person in default.

(3) An appeal shall lie to the High Court from any decision or order of the Magistrate's Court made under this section.

• The Minister may make regulations for carrying into effect the purposes and provisions of this Act:––
(a) for the control and management of protected areas;
(b) the conditions subject to which members of the public shall be permitted to enter and use any category of protected area, and for the issue of licences to permit persons to enter any protected area for any particular purpose;
(c) for the zoning and control or prohibition of any hunting or fishing in or the removal of any living organism or plants or any substance from any protected area.

5. STRENGTHENING MANAGEMENT & MONITORING

Mechanisms are developed to improve management quality and effectiveness to the extent where the core values of the Protected Area system are maintained and the benefits of the system are delivered at all scales – local to global.

The consultancy reports note that management effectiveness varies greatly between individual sites within the national system. The system, of course, is made up of its sites and the system-level remedies addressed in the preceding sections enable rather than deliver improvement on the ground. This section deals with the site-level issues.

The World Commission on Protected Areas (WCPA), an arm of IUCN, identifies three main components of management effectiveness:

- *Design issues relating to protected area systems and to sites.* These are the issues covered in **Section 3**.
- *Appropriateness of management systems and processes.* The structure of system administration and its supporting legislation is covered in **Section 4**. This leaves issues of how management is conducted within this framework and how well it can respond to challenges. Areas covered here include planning, training, capacity building, social relations and implementation ability.
- *Delivery of protected area objectives.* This area consists of monitoring and assessment of performance of system and sites against stated goals. 'Performance' includes biological, economic and social aspects.

The final challenge is to identify the means of *financing* all the above.

5.1. Enhanced management capability.

5.1.1. Effective use of existing capability.
The assessment indicates that there is substantial in-country capacity for the administration and management of the national protected area system. The recommendations made at system level add to that capacity and make for more efficient deployment by:

- Coordination between the Forestry and Fisheries Departments, essentially a form of pooling of resources that can be developed incrementally as an ongoing process;
- Creating structures (i.e. the technical committee) that co-opt expertise from other bodies – government departments, NGOs, other sources of technical input – as needed to implement policy.
- Strengthening co- and participatory management, thus increasing human resources and mobilizing new reserves of special, traditional or local knowledge.
- Amalgamating sites into larger units, so achieving efficiencies in scale.

There are, however, significant gaps and most protected area management agencies do not have adequate:

- *Financial management capacity*, leading to a lack of business plans and financial strategies;
- *Human resource development capacity*, demonstrated through a lack of structured training and staff development plans;
- *Access to legal advice*. There is no resident legal council and no established mechanism for management bodies to obtain legal support.

Two further weaknesses are also widespread:
- *Lack of biodiversity evaluation and monitoring capability*. For particular sites this is partly an issue of human capacity and partly lack of sufficient finance to bring the necessary expertise as needed. Either way, the result is that the biodiversity characteristics are often poorly known, impacting effective planning at site and system level.

- *Lack of enforcement capability*. Enforcement of regulations protecting natural resources is the responsibility of the statutory authorities and some stronger NGOs have developed some capability to supplement enforcement work. In general, however, the level and effectiveness of enforcement is low and slow to react in urgent cases. The problem can be compounded when managers attempt to address the problem with personnel lacking the necessary training and authority.

The real weakness, however, is a lack of guidance at a system level, leaving each management body to do the best it can with the resources it can marshal. Essentially, site managers need consistent guidelines and support services applied throughout the system in order to do their work effectively.

5.1.2. Capacity building and support services
The aim here is to provide system-wide services that assist and strengthen site management. The way in which they are best organized may differ – as a service under the Technical Committee, as an arm of PACT to facilitate most efficient use of its funding, or contracted out to an NGO or other competent agency. The common factor is that they are initiated from the centre, applied consistently across the system, and intended to be cost-efficient by circumventing site-by-site duplication.
- **Skills training**. Currently, skills training tends to be included in project activity. Plenty of training takes place but it usually supports project aims and/or funding agency objectives, and thus suffers the usual short-comings of project-driven activity – i.e. usually sporadic, patchy in coverage, given to duplication, short-term and unconsolidated. Such training and skills/technology transfer opportunities are, of course, always welcome but the intent is to be more proactive in placing them within a structured and sustained national training programme designed to address locally-perceived needs. The training programme must also work at several levels – from full or part time field staff to tertiary level students destined to be the senior conservation managers of the future – and their design will be a major undertaking in itself.

- **Site administration/management support services**. Protected area co-managers include a wide variety of NGOs and CBOs of varying degrees of institutional capacity, supported more or less effectively by advisers, volunteers etc. Administrative and managerial capacity will, of course, grow with skills training. In the interim more reliable forms of practical hands-on support are needed. Furthermore this need may, in the interests of efficient use of human resources, be long-term. Financial management capability has been identified as a

key issue, but it is best seen as a special case in a spread of administrative demands. These extend to ability to meet donor requirements and the proposals made here – monitoring and meeting management planning standards, for example – add to the burden of small institutions already operating beyond their capacities. The recommendation, then, is to develop an administrative support unit, containing specialist expertise (accountancy, audit, preparation of proposals, meeting financial planning, management planning and reporting requirements) and accessible as needed by all site managers. These skills are already developed in-house by the larger NGOs and the aim is to make them equally available to smaller bodies and CBOs. One unit also leads to savings in scale as it is certainly not necessary to duplicate these capabilities within every management body in the country. The action effectively out-sources routine tasks, liberating the smaller organizations to concentrate on their real strengths in advocating the local interest.

- *Legal advice*. The objective here is to develop at least one centre of in-country expertise that is readily accessible to any management agency for legal advice on issues concerning site management, rights, obligations, and conflicts of stakeholder interest. The aim is to ensure that management actions are securely embedded in their legal framework and to avoid or otherwise deal with disputes and conflicting claims.

- *Enforcement*. The lack of trained, equipped and authorized enforcement personnel is cruel – there is at this time, for instance, only one Forest Officer to cover the statutory responsibilities of the Forest Department across the three northern districts. The resulting problems are documented in the consultancy reports. This is obviously an area needing concerted attention in the implementation phase but it again lends itself to a system-wide approach – some form of centralized unit that can be called at need and with rapidity to address problems at specific sites. It is worth noting that some enforcement problems affecting protected areas (e.g. territorial issues, trafficking) exceed the competence of any conservation manager. The advantage of one unit (or two if one concentrates on marine and the other on terrestrial areas) is that it facilitates close and effective coordination with other enforcement agencies that are competent in these areas.

5.1.3. Biodiversity evaluation and monitoring
Assistance at system level in evaluating and monitoring biodiversity information is a form of support service but operates at a large scale and thus treated separately. There are two essential needs:

Management and access to the growing body of information on the biodiversity and ecological dynamics of Belizean ecosystems. This need is being addressed through clearing house mechanisms for collating, rendering accessible, exchanging and re-distributing information. The development of these mechanisms is to be strongly encouraged and supported.

Capability to gather site-specific information. Biodiversity information on specific sites is needed to comply with and refine the management planning process (**Section 5.1.4.**) and the procedures for declaration, adjustment and de-reservation (**Sections 4.2, 4.3**). Whenever a management plan is developed or revised, deficiencies in available information must be filled. Furthermore, monitoring of biodiversity indicators is also

necessary (**Section 5.2**). Some information may be available (e.g. through the clearing house) or obtainable by site managers but other kinds require specialist expertise or techniques. There is substantial in-country expertise in a variety of domains, through institutions and individuals. External support is also available. The need is to develop a procedure to mobilise these resources and direct them as a support unit to specific sites as the planning cycle requires, essentially conducting a series of rapid ecological assessments.

5.1.4. Site management planning.

All the protected areas in the national system need management plans, as a matter of policy implementation and as a requirement in the revised legislation. There is recognized need for a standardized planning format sufficiently flexible for adaptation to local circumstances and the full range of management regimes, yet firm enough to set the necessary standards.

This need has been recognized for some time and approaches have been developed both internationally and within Belize. These have been reviewed (**Table 3**) and their strong points combined to produce standard guidelines that can be used as manuals (**Appendix 3.1**) to be used throughout the national protected area system, both in drafting and in quality assessment of site management plans.

Table 3: Management Frameworks Currently in Use		
Department/Institution	**Framework Used**	
Forest Department	Outline for Protected Areas Planning	Developed with assistance from PROARCA/PRODOMA, under a CCAD initiative
Fisheries Department	Training Manual on Design and Development of Management Plans for Marine Protected Areas	A regional initiative developed under the Mesoamerican Barrier Reef Systems Project (MBRS)
Institute of Archaeology	Based on the National Parks Service Management Policies	US Department of the Interior
Programme for Belize, Toledo Institute for Development and Environment	Site Conservation Planning	TNC (The Nature Conservancy)

The management planning process includes an assessment of the limits of acceptable change in the site. This is based on the concept that any level of human activity will change the system from its pristine condition. This is a normal state of affairs and the management decision lies in estimating what degree of change is acceptable so that levels of natural resource use (including visitor use) are set below that threshold. There is a degree of subjectivity but the approach is better adapted than estimation of carrying capacity in terms of user satisfaction compatible with good conservation of biodiversity. This approach has been incorporated in the planning guidelines, particularly to assess the limits of visitor use. The concept, however, can be applied to all forms of use, including extractive use.

5.2. Measurement of performance

The protected area plans set objectives and a necessary part of the management plan and its implementation is to measure to what degree those objectives are actually achieved. A number of analytical tools have therefore been developed to assess management practices and their effectiveness. Management itself is about using people and resources to achieve desired results, and effectiveness can be assessed in two complementary ways:

By management functions. This is about getting the work that was planned actually done. Work can be grouped under distinct activity headings or 'management functions' that, in a protected area, may include governance, planning, financial management, human resource management, maintenance, natural and cultural resource management, communication and education, visitor management, enforcement, research and others. The assumption is that if all these work programmes are carried out as planned, the desired outcomes will be achieved. This is, of course, not strictly true – nonetheless, strengthening management functions of the organization will normally improve its performance and increase the likelihood of achieving desired outcomes. They can therefore be used as a measure of effectiveness.

By outcome. This is oriented towards processes and the closeness of their result to management targets. The TNC 5S methodology is a good example of an outcome-based system. It sets objectives based on maintained or improved viability of 'conservation targets' within the protected area. Effectiveness is assessed on that maintained or improved viability rather than on the activities undertaken to achieve it. The desired results of management are stated as an objective.

Some approaches emphasise management functions and some give weight to outcomes. They may have strong and weak points and be complex or easy to implement but all involve monitoring of performance against set, measurable, indicators. A broad spread of methods in use in Belize and elsewhere have therefore been reviewed and themselves assessed to develop a model adapted for general use in national protected area system.

This model has been designed following a set of principles (**Table 4**)

It also includes analysis by management function and by outcome, and allows for self-evaluation, external evaluation, and broad participation. The approach is built into the management planning process (**Appendix 3.1**) and detailed in **Appendices 3.1.4, 3.1.5**). It is worth noting that the Management Effectiveness Tracking Tool developed for use in WWF and World Bank projects is a particularly simple, straight-forward approach, easily followed and ideal for regular self-evaluation. It has been adopted without modification.

Table 4. Principles for Design of Monitoring Strategy

Useful	The process should produce assessment results that are usable by managers and stakeholders for improving protected area management (Pomeroy et al. 2004)
Timely	The process should produce initial information quickly and more detailed information over time
Practical	The process should be usable by protected area managers for first level assessments, with the option of more comprehensive and expert assessments when greater depth of analysis is warranted.
Cost effective	The process uses human resources and funds carefully
Adaptable	The process can be used in a variety of protected areas and contexts of Belize. This includes the protected area system vs. individual sites, ecological and archaeological sites, marine vs. terrestrial sites, government and nongovernment sites, large vs. small sites, and strict protection vs. multiple use sites.
Participatory	The process should involve managers, local stakeholders and communities, government agencies, and outside experts.
Progressive	The process should encourage protected area managements to develop and use management planning to guide management. It should promote excellence in the conservation of protected areas (Courrau 2005).
Evolving	The process should be improved based on experience.
Impartial	The process should be as unbiased as possible, and use subjective judgments carefully. Measures should be based on solid theoretical and practical and designed to produce consistency among different raters.
Holistic	The process should focus on a range of outcomes and strategies.
Consistent	The process should produce results are comparable between sites and from one period to another.
Comprehensible	The process should be clear and understandable by the average person.

5.3. Sustainable financing mechanisms.

The national policy is that the protected areas system shall seek to maintain itself financially. It must be noted that the ability to gain support for national financing mechanisms and supplementary external funding is closely linked to the performance of the system in delivering socio-economic gains and to the level of public recognition of that performance. These components of protected area system planning, the original 'Result 4', have been assigned to the implementation phase but it is stressed that they are early actions of key importance.

Adequate financing is, of course, an absolute necessity and shortfalls have hindered effective protected area management on a national scale. This has led to a shift away from total reliance on government funding and towards self-generated income, greatly assisted by the growth of the tourism industry. Tourism user fees, augmented by other tourism-related activities (tourism services, sales), are now the most widespread mechanism for self-generated income. Furthermore the symbiotic relationship is widely recognized between protected areas (and the environment in general) and the tourism

sector though the two are not seen as formal partners. Funding difficulties have also led to a willingness to experiment in other areas. The impetus behind the move to co-management approaches and the openness towards private sector initiatives comes from an accepted need to open all avenues to funds and mobilize all available resources. Some mechanisms (e.g. Debt-for-Nature swaps, the Tourism Conservation Fee, the Rio Bravo Carbon Sequestration Project) have been truly innovative when first introduced, while protected area managers have also developed other forms of resource use compatible with conservation aims and based on business lines (e.g. sustainable timber extraction on the Rio Bravo, butterfly farming at Shipstern).

The funding base for protected area management nonetheless remains fragile. Across the network as a whole, some 20% still derives from orthodox subvention under GoB budgets and 45% comes from international donors. The first is under downward pressure and the second is inherently unstable, while the overall sum remains insufficient and the proposals for policy implementation made here only widen the gap between needed and available financial resources. Evidently there is an urgent need to define the financing strategy for the national system and its sites.

The recommended approach is to reinforce the 'business approach' to protected area management, identifying the consumer groups obtaining goods and services from them and attempting to capture a fair return for re-investment in improved management. Generally speaking, good management attracts and creates financing opportunity so many of the issues already dealt with in preceding sections will have positive impacts on financing at both system and site levels. Actions at system level create an enabling environment in which individual protected area managers can seek financing on an 'à la carte' basis, according to the opportunities presented by the characteristics of their site and by local circumstance. Some sites will have greater finance-generating opportunities than others that are equally worthy of support on biodiversity grounds – this is covered by the policy of cross-subsidization.

The existing mix of funding sources should be maintained, but within a revised conceptual framework. These sources can be summarized as:
- Government allocation – but as an underpinning for other revenue-generating actions only;
- Donor grants/multi- and bi-lateral project funding – but as a supplement, built on an active programme to optimize self-generated revenues;
- Protected Area Conservation Trust (PACT) support – as the main system-level mechanism capturing funding justified by the general role of the protected area system in the national economy and redistributing/re-investing that income in actions promoting improved management at site and system level.
- Self-generated income – based on user fees (in the widest sense) and the main development area for site financing.

The general strategy places a premium on increased capacity at site level for management and financial planning, on business planning (for which models have been developed), and on institutional capacity. Special attention must also be given to stream-lining costs – i.e. making most effective use of available financing – as well as attracting new revenue sources.

Three types of system-level action are designed to facilitate financing of sites:

- Support services. There is great need for assistance to managers in identifying funding opportunities, in financial and business planning. This is part of the 'support service' package outlined in **Section 5.1.2** and is fundamental if the site-specific approach is to work across the system as a whole, as against only in certain sites managed by organizations with greater institutional capacity. Training in financial planning and management, as part of the Skills Training Programme' will reduce but not remove the need for support.

- Total Economic Evaluation and Public Awareness Programme. These are the actions originally envisaged as 'Result 4' and now transferred to the implementation phase. The Total Economic Evaluation (TEV) provides the justification for financial support and development of incentives and other financial mechanisms to help develop and maintain the system. The Public Awareness Programme helps create a climate of opinion conducive to effective implementation of protected area policy.

- Introduction of financial incentives. These require negotiation with the Ministry of Finance but two potential incentives present themselves:
  - o Tax deduction/alleviation for private lands that contribute to the National Protected Area System. This must be highly targeted mechanism, dependant on technical assessment that the area does or could contribute to the system, agreement by the landowner to follow practices that maintain that contribution, and clear compliance with any agreement made.
  - o Re-investment of revenues from resource use within the national protected area system in the system, rather than to general government revenues. This approach is implicit within the proposals for the creation of autonomous natural resource management authorities.
  - o Recognition of formal and mutually supportive partnership between the tourism sector and the national protected area system, as a basis for collaborative actions at site level.

6. LITERATURE

Combines all literature for the combined consultancy reports

Almada-Villela, P. et al., "Status of Coral Reefs of Mesoamerica," in *Status of Coral Reefs of the World: 2002* . C. Wilkinson, ed. (Townsville: Australian Institute of Marine Science, 2002)

Anon. 1998. Belize's First Interim National Report, Ministry of Natural Resources, January 1998.

Anon. Common Standards Monitoring. Joint Nature Conservation Committee. www.jncc.gov.uk

Anon. *Conservation Finance Guide*, URL:http://guide.conservationfinance.org

Anon. 1997. Towards a National System of Protected Areas Country Report. Report on two workshops 4-5 July 1996 and 8-9 April 1997. 48 pp.

Anon. 2003. Belize Marine Protected Area Safeguards World's Largest Fish, Environment News Service, July 17, 2003.

Aukerman, Dr. Robert, and Haas, Dr. Glenn, Policy Formulation for Protected Lands and Wildlife and Fees and Concessions for Protected Areas and Forest Reserves In Belize, Progress Report submitted to Conservation Division and Consultative Committee, Ministry of Natural Resources, September 30, 1991.

Awad, Nancy, Naser Waleed. Exploring Options for Sustainable Financing of Protected Areas in the Mediterranean Context: Lebanon's Experience, Vth world Parks Congress: sustainable Finance Stream, September 2003, Durban, South Africa.

Bayon, Ricardo and Carolyn Deere, Ruth Norris, Scott E. Smith. 1999 Environmental Funds: Lessons Learned and Future Prospects. IUCN/GEF.

Belize Audubon Society, 2004 Annual Report.

BERDS, 2005. Biodiversity and Environmental Resource Data Service of Belize. http://www.biodiversity.bz/

Bird, N. 1993. A First Approximation at Estimating the Country's Forest Resources" Internal Report Forest Department.

Bladen Consortium / Conservation Division (Forest Department) (1998). Bladen Nature Reserve Management Plan

Borrini-Feyerabend G., A. Kothari and G. Ovieda. (). Local communities and protected areas: Towards Equity and enhanced conservation. Best Practice Protected Area Guildines Series No. 11. World Commission on Protected Areas (WCPA). Series Editor: Adrian Phillips

Borrini-Feyerabend, G. and J. Johnston. 2003. Workshop Stream III. Governance of Protected Areas (New ways of working together). V[th] IUCN World Parks Congress, Durban, South Africa. Typescript

Borrini-Feyerabend, G., M. Pimbert, M. T. Favar, A. Kothari and Y. Renard. 2004. Sharing Power. Learning by doing in co-management of natural resources throughout the world. IIED and IUCN/CEESP/CMWG, Cenesta, Teheran.

Borrini-Feyerbend, G., M. T. Farvar, J. C. Nguinguiri and V. A. Ndangang. 2000. Co-management of Natural Resources: Organising, Negotiating and Learning-by-doing. GTZ and IUCN, KasparekVerlag, Heidelberg (Germany).

Brokaw, N. V. L., and E. W. Sabido 1998. Vegetation of the Rio Bravo Conservation and Management Area, Belize. Manomet Bird Observatory, Manomet, Massachusetts, U.S.A.

Budget Speech 2005/2006, Prime Minister of Belize, www.belize.gov.bz

Burke L., J. Maidens. 2004. Reefs at Risk in the Caribbean. World Resource Institute. Washington DC. 84 pp.

CANARI. 2001. Understanding and managing forestry conflict. Workshop report. CANARI/FAO/Forestry Dept of Jamaica/Trees for Tomorrow Project.

Caribbean Environment Programme and the Nature Conservancy (2001). Funding Protected Areas in the Wider Caribbean. A Guide for Managers and Conservation Organizations. International Publications Program. The Nature Conservancy.

CCAD and MNREI, Proceedings of the Meso-American Biological Corridor and Local Community Consultation, Conservation Division, Forest Department, Belmopan, October 1997, 68 p.

CEDARENA, Manual de legislación ambiental (multimedia), 2 edición, San José, Costa Rica, 2003, 1 disco digital, 4 pulgadas. (Belize: Martín Alegría)

Chevalier, J. 2001. Stakeholder Analysis and Natural Resource Management. Carleton University, Ottawa. http://www.carleton.ca/~jchevali/STAKEH2.html

Ching, E.W., Alamilla, L., Morales, R., Camach, A.M. 2005. *Final Report: Belize's Policy on Protected Areas.* National Protected Areas Policy and Systems Plan Project. (Executive Summary, Part I, II)

Cifuentes, M., A. Izurieta and H. Henrique de Faria. 2000. Measuring Protected Areas Management Effectiveness. Technical Series No. 2.WWF Centroamerica, Turrialba, Costa Rica.

CMWG and TILCEPA. 2004. Governance of Natural Resources—the key to a just world that values and conserves nature? Briefing Note 7, Nov'04. CENESTA, Iran.

Coastal Zone Management Authority and Institute. 2001. State of the Coastal Zone Report. 57 pp.

Coastal Zone Management Authority and Institute. 2003. *State of the Coast Report 2000-2001* (Belize: Coastal Zone Management Authority and Institute)

Cornec, J. H. 2003. Geology map of Belize. Private Publication.

Courrau, José. 1999. *Strategy for Monitoring the Management of Protected Areas in Central America.* PROARCA/CAPAS (Programa Ambiental Regional para Centroamérica/Central America Protected Areas System) in consultation with Central American Council of Protected Areas and Forests.

CSO. 2005. Environmental statistics 2004.

Davey, A. (1998). National System Planning for Protected Areas. Best Practice Protected Area Guildines Series No. 1. World Commission on Protected Areas (WCPA). Series Editor: Adrian Phillips

Day, Michael, Conservation of KARST in Belize, Journal of Cave and Karst Studies, 58(2): 139-144.

De Vries, G., M. Haines, S. Hufnagel, A. Laird, K. Rearick and O. Salas. 2003. Enhancing Collaboration for Conservation and Development in Southern Belize. A project submitted in partial fulfillment of the requirements for the degree of Master of Science in Resource Policy and Behaviour or Master of Landscape Architecture. School of Natural Resources and Environment, University of Michigan.

De Vries, Gregory et al. Enhancing collaboration for conservation and development in Southern Belize, April 2003, 261 p.

Defensores de la Naturaleza, El Colegio de la Frontera Sur, Pronatura Península de Yucatan, Programme for Belize, Conservation International, The Nature Conservancy, Wildlife Conservation Society. 2002. A Workplan to Guide the Selva Maya Ecoregional Planning Process. 35 pp.

Dickinson, E. and A. Dubon. 2004. A Needs Assessment of the Community Based Organisations in Belize that are Involved in Protected Areas Management. PACT. Belize. Typescript.

Drumm, Andy, Sustainably Financing Protected Areas: Applications for Success, Tourism-Based Revenue Generation Mechanisms, http://www.nature.org/event/wpc/files/drumm_paper.pdf.

Dudley, N., A. Belokurov, O. Borodin, L. Higgins-Zogib, M. Hockings, L. Lacerda and S. Stolton (2004). How effective are protected areas? A preliminary analysis of forest protected areas by WWF. Prepared for: Seventh Conference of the Parties of the Convention on Biological Diversity, February, 2004.

Earthtrends. Biodiversity and Protected Areas – Belize, http://www,earthtrends.wri.org/pdf_library/country_profiles/Bio_cou_084.pdf

ECONDEV. Improving Policy Coherence and Integration for Sustainable Development, A Checklist, Organization for Economic Co-operation and Development, October 2002.

Economic Survey of the Caribbean and Latin America 2003-2004, Country Report – Belize, www.eclac.cl/publicaciones/desarrolloEconomico/ 5/LCG2255PI/Belize.pdf.

ECUNCIL. Policy Gaps and Constraints, Results and Perspectives for Sustainable Development in Costa Rica. URL: http://www.ecuncil.ac.er/rio/national/reports/america/costarica/cos5.htm.

Eken, G., Bennun, L., Boyd, C., Protected Areas Design and Systems Planning: Key Requirements for Successful planning, site selection and establishment of protected areas, Key Biodiversity Issues for protected areas, Birdlife International; Conservation International.

Ellis, Zoila, MAYAFOR: Land Tenure/Conservation Conflicts in Belize: The case of the El Pilar Archaelogical Reserve for Maya Flora and Fauna, CEDARENA, Mesoamerican Biodiversity Legal Project, August 1995, 40 p.

English heritage - Avebury World Heritage Site Management Plan.

Environmental Funds, Conservation Finance Guide, http://guide.conservationfinance.org.

Ervin J. (2003) .WWF: Rapid Assessment and Prioritisation of Protected Area Management (RAPPAM) Methodology

Extraction of Non-Renewable Resources, Conservation Finance Guide, http://guide.conservationfinance.org.

Ferroukhi L. and A. Aguilar Schramm (2003). Progress and challenges of municipal forest management in Costa Rica. In: Municipal Forest Management in Latin America. Editor: L. Ferroukhi.

Florida Fish and Wildlife Conservation Commission (2003). A Conceptual Management Plan for The Everglades Complex of Wildlife Management Areas, 2002 – 2007.

Forest Department, Belize Second National Report to the Convention on Biological Diversity, Preliminary Draft, MNREI, Belmopan, Belize, November 2001, 100 p.

Fulmer, Robert M. 1988. *The New Management*. Fourth Ed. New York:P Macmillan Publishing.

Furtado, Jose I. dos R and Tamara Belt with Ramachandra Jammi. Economic Development and Environmental Sustainability: Policies and Principles for a Durable Equilibrium. World Bank Institute. Washington, D.C., 1999.

Geoghegan, Tighe, financing Protected Area Management" Experiences from the Caribbean, Caribbean Natural Resources Institute, http://www.canari.org/finance.pdf

Gibson J. (Wildlife Conservation Society) (2003). Glover's Reef Marine Reserve and World Heritage Site Management Plan. Coastal Zone Management Authority and Institute / Fisheries Department.

Gibson, J. & J. Carter, "The reefs of Belize," in *Latin American Coral Reefs.* J. Cortés, ed. (Amsterdam: Elsevier Press, 2003)

Government of Belize, 2000. The Belize Territorial waters extend follows the Maritime Areas Act.

Government of Belize. 2000(a). Ancient Monuments and Antiquities Act – Chapter 330. 20 pp.

Government of Belize. 2000(b). Coastal Zone Management Act – Chapter 329. 29 pp.

Government of Belize. 2000(c). Environmental Protection Act – Chapter 328. 51 pp.

Government of Belize. 2000(c). Wildlife Utilisation Act – Chapter 220. 15 pp.

Government of Belize. 2000(d). Fisheries Act – Chapter 210. 14 pp.

Government of Belize. 2000(e). Forest Act – Chapter 213. 28 pp.

Government of Belize. 2000(f). Land Utilization Act – Chapter 188. 11 pp.

Government of Belize. 2000(h). National Institute of Culture and History Act – Chapter 331. 48 pp.

Government of Belize. 2000(i). National Lands Act – Chapter 191. 40 pp.

Government of Belize. 2000(j). National Parks System Act. – Chapter 215. 16 pp.

Government of Belize. 2000(l). Private Forests (Conservation) Act. 5 pp.

Government of Belize. 2000(m). Protected Areas Conservation Trust – Chapter 218. 35 pp.

Government of Belize. 2003(e). Forest Act – Subsidiary – Chapter 213S. 137 pp.

Government of Belize. 2003(f). Land Utilization Act – Subsidiary – Chapter 188S. 57 pp.

Government of Belize. 2003(g). National Institute of Culture and History Act – Subsidiary – Chapter 331S. 37 pp.

Government of Belize. 2003(h). National Lands Act – Subsidiary – Chapter 191S. 47 pp.

Government of Belize. 2003(i). National Parks System Act – Subsidiary – Chapter 215S. 121 pp.

Government of Belize. 2003(n). Wildlife Utilisation Act – Subsidiary – Chapter 220S. 12 pp.

Government of Belize. 2005. Draft Ministry of Natural Resources, Forest Department Strategic Plan 2005-2010. Typescript.

Government of Belize. Rev Ed. 2000. Fisheries Act.

Government of Belize. Rev Ed. 2000. Forest Act.

Government of Belize. Rev Ed. 2000. National Institute of Culture and History Act.

Government of Belize. Rev Ed. 2000. National Parks System Act.

Government of Belize: Maritime Areas Act, Chapter 11, Revised Edition 2000. Government printers 30 pp.

Green Reef, Know the general principles of marine ecosystems and environmental conservation, Conservation Module 2, IUCN, Fisheries Department, BMZ, Belize, 2002, 12 p.

Green Reef, Protected Areas in Belize and Hol Chan Marine Reserve, Conservation Module 1, IUCN, Fisheries Department, BMZ, Belize, 2002, 8 p.

Green Reef, The negative impacts on coastal habitats, Conservation Module 3, IUCN, Fisheries Department, BMZ, Belize, 2002, 8 p.

Green Reef, Why local conservation issues in Belize?, Conservation Module 4, IUCN, Fisheries Department, BMZ, Belize, 2002, 8 p.

Groves, C.R. Drafting a Conservation Blueprint: A Practitioner's Guide to Planning for Biodiversity

Haeruman, Herman, Financing Integrated Sustainable Forest and Protected Areas Management in Indonesia: Alternative Mechanisms to Finance Participatory Forest and Protected Areas Management, International workshop on experts on financing sustainable forest management, Oslo, Norway, 22-25th January 2001.

Halcrow Group. 2000. The National Integrated Coastal Zone Management Strategy for Belize. 97 pp.

Hart, N and P. Castro (eds).\ 2000. Conflict and natural resource management. FAO, Rome.

Hass, Glass and Robert Aukerman. A Financial Strategy for Sustainable Tourism, Resources, and Management of Coastal Zone of Belize. Coastal Zone Management Authority Institute, Belize (2001).

Herrera, A. (2005). Sarstoon Temash National Park, Toledo, Belize: Protected Area Management Plan (2nd Revision). Sarstoon Temash Institute for Indigenous Management (SATIIM), Belize.

Herrera, A., J. Meerman, J. McGill & F. Griffith, 2002. Phase II of the characterization study: Belize National Report of the Participation Planning Process. Report to the Mesoamerican Biological Corridor Office.

Hesselink, F. 2004. How to manage change? How to manage people? Skills and knowledge for effectiveness in communicating protected areas and biodiversity values. In *Communicating Protected Areas.* Hamu, D., Auchincloss, E., Goldstein, W. (editors). Commission on Education and Communication, IUCN, Gland.

Heyman, Will and Graham, Heather, editors, The Voice of the Fishermen of Southern Belize, TIDE, TRIGOH, Punta Gorda, Belize. 2000. 44 p.

Hockings M., Stolton S., Dugley N., Evaluating Effectiveness, A Framework for Assessing the Management of Protected Areas, World Commission on Protected Areas, Best Practice Protected Area Guidelines Series No. 6, IUCN, 2000.

Hockings, Marc, with Sue Stolton and Nigel Dudley. 2000. *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas.* IUCN.

Homer, F. 2005. *Improving Governance of Protected Areas in Belize: Institutional, Management and Legislative Requirements.* National Protected Areas Policy and Systems Plan Project. 106 pp.

Homer, Floyd, Alternative Institutional Arrangement for Managing Protected Areas in Belize, March 2005.

Homer, Floyd, Dr., "Current Protected Area Co-management Agreements in Belize and Recommended Guidelines," 20th March 2005

Homer, Floyd, Guidelines for Approaches to Site Management of Protected Areas in Belize, April 2005.

Homer, Floyd, Proposed Regulatory Criteria and Procedures For Declaration, De-Reservation, Reclassification or Alteration of Protected Areas in Belize, April 2004.

ICRAN Strategic Plan, January 2001, International Coral Reef Initiative, http://www.icran.org/icranplc.htm.

Inamdar, A. and Emmanuel de Merode, "Towards Financial Sustainability for Protected Areas: Learning from a Business Approach," The Environmental Working Group, December 1999.

Information Technology and Protected Areas, www.mekong-protect-areas.org/mekong/docs/tcp-01.pdf

Iremonger, S. & N.V.L.Brokaw. 1995. Vegetation classification for Belize. In: Programme for Belize. Towards a National protected areas system plan for Belize. Synthesis report. Appendix 1. 32 pp.

IUCN. (1994). Guidelines for Protected Area Management Categories. CNPPA with assistance of WCMC. IUCN Gland, Switzerland and Cambridge, UK.

IUCN. Fifth World Parks Congress, September 2003, Durban, South Africa

IUCN. Guidelines for Protected Area Management Categories. CNPPA with the assistance of WCMC. IUCN, Gland, Switzerland and Cambridge, UK. 1994. 262 p.

IUCN. Best Practice Protected Area Guidelines Series No. 5, IUCN.

IUCN. Financing Mechanisms for Protected sites, IUCN Economics Unit, Workshop on Financing Culture and Nature for generations to Come, October 1999, Florence, Italy.

IUCN. Sustainable Finance Stream, Vth World Parks Congress, September 2003, Durban, South Africa, http://www.iven.org/themes/WCPA/WPC 2003/pdfs/streamleads/sustainable financing 0303.pdf

Jacobs, N.D. and Castañeda, A., editors, Belize National Biodiversity Action Plan, National Biodiversity Committee, Ministry of Natural Resources and the Environment, Belmopan, Belize, September 1998, 134 p.

King, R.B., I.C. Baillie, T.M.B. Abell, J.R. Dunsmore, D.A. Gray, J.H. Pratt, H.R. Versey, A.C.S. Wright and S.A. Zisman, 1992. Land resource assessment of northern Belize, volume 1 and 2. *Natural Resource Institute Bulletin* No 43. Pp 1-513 + 8 maps.

Kramer, P.A. & P. A. Richards-Kramer. 2002. Ecoregional Conservation Planning for the Mesoamerican Caribbean Reef. Washington DC. World Wildlife Fund. 140 pp.

Lambert, Alain. 2000. Environmental Funds: Much More Than Financial Mechanisms. 63-75pp, proceedings of a DFID seminar on Economic Instruments for Environmental Management, Cuiaba, Brazil; 22-23 March 2000. Available in English and Portuguese.

Launchpad Consulting, 2005. Management Capacity In Belize's Protected Areas System; An Assessment Of The Management Of Eight Protected Area Sites And Discussion On System Implications. Draft. National Protected Areas Policy and Systems Plan. 108 pp + app.

Launchpad Consulting, 2005. Sustainable Financing Mechanisms. Final Draft. National Protected Areas Policy and Systems Plan. 70 pp.

Leikam G., S. Otis, T. Raymond, N. Sielken and T Sweeney (2004). Evaluation of the Belize Audubon Society Co-Management Project at Crooked tree Wildlife Sanctuary and Cockscomb Basin Wildlife Sanctuary. Masters Thesis. University of Michigan.

Lindberg and Enriquez "An Analysis of Ecotourism's Economic Contribution to Conservation and Development in Belize", and the Ecotourism Group's study on an Integrated Conservation Tourism Initiative for Belize involving eight of Belize's conservation NGOs.

Lindberg, Kreg and Jeremy Enriquez, An Analysis of Ecotourism's Economic Contribution to Conservation and Development in Belize, Vol 2: Comprehensive Report, World Wildlife Fund (WWF)

Lindberg, Kreg, Halpenny, Elizabeth, Protected Areas Visitor Fees, Summary, August 6, 2001 Version, http://ecotourism.org/onlineLib/uploaded/ecotourismFactsheet_2000.pdf.

Mackler, R and O. Salas (1994). Crooked Tree Wildlife Sanctuary Management Plan. Belize Audubon Society.

Margolius, R. and N. Salafsky, (1998). Measures of Success – Designing, managing and monitoring conservation and development projects. Island Press. ISBN 1-55963-612-2

Margolius, R. and N. Salafsky. (2001). *Is our project succeeding? A guide to Threat Reduction Assessment for conservation.* Washington, D.C.: Biodiversity Support Program.

MBRS, Sustainable Development Policies for Fisheries Resources, Tourism and Transboundary Marine Protected Areas in the MBRS, CCAD, Conservation and Sustainable Use of the Mesoamerican Barrier Reef Systems Project, April 2004, 24 p.

MBRS. 2003. *Recommendations on Methodology for Monitoring the Effectiveness of MPA Management.* Conservation and Sustainable Use of the Mesoamerican Barrier Reef System.

MBRS. 2004. Community relations for the effective management of marine protected areas in the MBRS region. MBRS Technical Document No. 9. Mesoamerican Barrier Reef Systems Project. Belize-Guatemala-Honduras-Mexico.

MBRS. 2004. *Manual for Rapid Evaluation of Management Effectiveness in Marine Protected Areas of Mesoamerica.* Project for the Conservation and Sustainable Use of the Mesoamerican Barrier Reef System. Guatemala City & Belize City.

McCalla, Winston. Compendium on Environmental Protection and Natural Resource Management Legislation in Belize. Department of Environment, Belmopan, Belize. USAID. 1995. 234 p.

McConney, P., R. Pomeroy and R. Mahon. 2003. Guidelines for coastal resource co-management in the Caribbean: Communication the concepts and conditions that favour success. Caribbean Cosatal Co-management Guidelines Project. Caribbean Conservation Association, Barbados.

McField, M.D. 2001 "The Influence of Disturbances and Management on Coral Reef Community Structures in Belize." Ph.D. thesis., University of South Florida, 2001.

McLaughlin W. J. (2001). Building a Practical Management Planning Approach for Belize's Protected Areas – Participatory Forum. February 14/15, 2001. Facilitated by Dr. W. J. Mc Laughlin

McNeely J. A. and Miller K. R. (1984). National Parks, Conservation and Development: The Role of Protected Areas in Sustainaing Society. IUCN. Smithsonian Institution.

Meerman, J. C. & W, Sabido. (2001). Central American Ecosystems Mapping Project: Belize. 2 volumes. Programme for Belize.

Meerman, J. C. 2005. Ecosystems Map of Belize – 2004 edition: http://biological-diversity.info/Ecosystems.htm

Meerman, J. C. 2005. National List of Critical Species: 1st draft. National Protected Areas Policy and Systems Plan. 8pp.

Meerman, J. C. 2005. Site Scoring System. National Protected Areas Policy and Systems Plan. 12pp.

Meerman, J. C., B. Holland, A. Howe, H. L. Jones, B. W. Miller. 2003. Rapid Ecological Assessment Mayflower Bocawina National Park. Report to Friends of Mayflower. 2 vols.

Meerman, J. C., J. R. Wilson, J. McGill, J. Clabaugh, M. Vasquez, T. Boomsma & E. Garcia; 2004. Work Plan for the formulation of Belize's Protected Areas Policy and Systems Plan. Report to NPAPSP Task force. 110 pp + app.

Meerman, J. C., M. Vasquez, E. McRae. N. Arnold, T. Boomsma & R. Wilson. 2000. Feasibility Study of the Proposed Northern Biological Corridors Project (NBBCP). Report to Programme for Belize. Volume 1: 72 pages + maps.

Meerman, J. C., P. Herrera, A. Howe & E. Bustamante. 2003. Rapid Ecological Assessment Aguas Turbias National Park, Orange Walk District, Belize. Report to Conservation Division of the Forest Department. 26 pp + app.

Meerman, J. C., P. Herrera, A. Howe. 2003. Rapid Ecological Assessment Sarstoon Temash National Park, Toledo District, Belize. Report to SATIIM. 2 volls.

Meerman. J. C. 2005. Belize Protected Areas Policy and System Plan: Result2: Protected Area System Assessment and Analysis.

Mesoamerican Barrier Reef Systems Project (MBRS), 2003. Training Manual on Design and Development of Management Plans for Marine Protected Areas. http://www.mbrs.org.bz

Miller K. (1980). Planning National Parks for Eco-Development

Ministry of Natural Resources (2003). Outline for Protected Areas Planning

Ministry of Natural Resources, Environment and Industry, Forestry Dept., Conservation Division, Belize. 1997. The Second National Protected Areas Workshop 8-9 April 1997. 52 pp.

Ministry of Natural Resources, Environment and Industry, Forestry Dept. Conservation Division, Belize. 1996. The National Protected Areas Workshop. 4-5 July 1996. 68 pp.

Ministry of Natural Resources, Environment and Industry. 2000. Final Draft of National Protected Areas Policy (Belize). 16 pp.

Ministry of Tourism, A Tourism Strategy Plan for Belize, IADB, Belize, June 1998.

Ministry of Tourism, Belize Cruise Ship Policy, BTB, 2003, 20 p.

Mondy, R. Wayne, Aruthur Sharplin, and Shane R. Premeaux. 1991. *Management Concepts, Practices, and Skills.* Boston: Allyn and Bacon (Simon and Schuster, Inc.).

Moore A. (1984). FAO Conservation Guide: Operations Manual for a Protected Areas System

Mulongoy, K., Chape S., Protected Areas and Biodiversity, An Overview of Key Issues, United National Environmental program, UNEP-WCMC Biodiversity Series No. 21. February 2004.

Mumby, P. J. & A. R. Harborne, 1999. Classification Scheme for Marine Habitats of Belize. 5th Draft. UNDP/GEF Belize Coastal Zone Management Project. 45 pp + GIS shapefiles.

Munasinghe, Mohan and McNeely, Jeffrey (editors), Protected area economics and policy: linking conservation and sustainable development. World Bank, IUCN. 1994. 364 p.

Murray, M. R., S. A. Zisman & C. D. Minty, 1999, Soil-plant relationships and a revised vegetation classification of Turneffe Atoll, Belize., Atoll Research Bulletin, 464, 32 pp.

National Parks Services (2001). Management Policies. www.nps.gov

National Protected Areas Policy Committee (Belize). 1999. Draft National Protected Areas Policy, Belize 1999. Last Update January 10, 2000. 17 pp.

National Report on Protected Areas, Belize, March 2003

New Forest SAC Management Plan (2001). Hampshire Country Council /LIFE

Nicolait, Lou and Wright, Terry. Wildlife Legislation and Institutional Framework in Belize. The Wildlife Thematic Area for Central America. ORMA-UICN. San José, Costa Rica. 1998. 72 p.

Operationalizing a Financing System for Coastal and Marine Resource Management in Belize, Coastal Zone Management Authority and Institute, Strategy Paper, December 2003.

Organization for Tropical Studies (1997). Master Plan for the Management and Development of the La Selva Biological Station. OTS, Costa Rica.

Pagiola, Stefano, Platais, Gunars, Economic Valuation of Protected Area Benefits and its Role in Financing Conservation, Presentation at the World Parks Congress, Durban, South Africa, September 2003.

Palacio, J. 2005. Solutions 2005: Resetting a Solid Foundation for Coordinated and Sustainable Development with the People of Toledo. Report of the January 15, 2005 Symposium: Proceedings and Recommendations for Continuation of the Planning Process.

Penn, M. G., D. A. Sutton & A. Munro. 2004. Vegetation of the Greater Maya Mountains, Belize. *Systematics and Biodiversity* 2(1): 21-44.

Phillips, Adrian, Economic Values of Protected Areas, Guidelines for Protected Area Managers, Task Force on Economic Benefits of Protected Areas of the World Commission on Protected Areas (WCPA) of IUCN in collaboration with the Economics Service Unit of IUCN, Best Practice Protected Area Guidelines Series No. 2.

Phillips, Adrian, Financing Protected Areas: Guidelines for Protected Areas Managers, Financing Protected Areas Task Force of the World Commission o Protected Areas (WCPS) of IUCN, in collaboration with the Economics Unit of IUCN, Best Practice Areas Guidelines Series No. 9.

Pinelo, J. A. 2000. A Critical Analysis of the Management Constraints Within the National Parks System of Belize. Dissertation submitted in partial fulfillment of the requirements for the MSc in Rural Resources and Environmental Policy. Imperial College at Wye, University of London. 63 p.

Pitman, R., N. Pitman and P. Alvarez (eds), Alto Purus – Biodiversidad, Conservacion y Manejo. Duke University.ISBN 9972-40-288-6

Pomeroy et al. 2004. *How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN.*

Pomeroy, Robert S., and Tara Goetze, "Belize Case Study: Marine Protected Areas Co-Managed by Friends of Nature," 2003, URL://www.ccanet.net/Downloads/BelizeMPAs.pdf, page 37.

Poverty Assessment Report – 2002, Central Statistical Office, Belize, www.cso.gov.bz.

Programme for Belize (2000). Rio Bravo Conservation and Management Area Management Plan.

Programme for Belize. 1995. Towards a National Protected Areas System Plan for Belize. 189 pp.

Programme of Work on Protected Areas, Secretariat of the Convention on Biological Diversity.

Protected Areas Technical Committee (1997). Half Moon Caye Management Plan. Belize Audubon Society.

Protected Areas Technical Committee (1998). Cockscomb Basin Wildlife Sanctuary Management Plan. Belize Audubon Society.

Protected Areas Technical Committee (1998). Crooked Tree Wildlife Sanctuary Management Plan. Belize Audubon Society.

Protected Areas Technical Committee. El Pilar – Adaptive Management in the Maya Forest – The Conriguous Parks at El Pilar. Draft Management Plan. www.marc.ucsb.edu/elpilar

Ramos, H. 2004. Human Footprint and last of the Wild: Mesoamerica. Powerpoint Presentation to WCS.

Ramsar (1999). Guidelines for establishing and strengthening local communities' and indigenous people's participation in the management of wetlands. Annex to Resolution VII.8

Ramsar Convention on Wetlands (2002) New Guidelines for Management Planning for Ransar (www.ramsar.org)

Ravndal (2002) Community Co-Managed Park System for Belize – Final project Evaluation. UNDP/GEF BZE/98/G32/A/1G/99

Ravndal, V. 2002. Community Co-managed Park System for Belize. Final Project Evaluation. Typescript.

Ravndal, Virginia. Community co-managed park system for Belize – Final Project Evaluation, UNDP/GEF/PACT, October 2002, 43 p.

Recommendations of the Vth IUCN World Parks Congress. URL: http://www.iucn.org/wcpa/wpc2003/pdf/outputs/wpc/recommedations.doc

Robbins, Stephen P. 1987. *Management: Concepts and Applications.* Englewood Cliffs, NJ: Prentice Hall (Simon an Schuster, Inc.).

Robinson, J.S., N. Cushion, R. Coleman, L. Gomez, E. Diamond, J. Villafranco, D. Garbutt, L. Martin, and M. Muschamp, (2004). A Biological Baseline Study and Resource Value Assessment of the Port Honduras Marine Reserve. Toledo Insitute for Development and Environment.

Salas, Osmany. Who owns this land anyway?: An examination of the conflict over land in Southern Belize. December 2002. 19 p.

Sanderson, E.W., K.H. Redford, A. Vedder, P.B. Coppolillo & S.E. Ward, 2001. A conceptual model for conservation planning based on landscape species requirements. Landscape and Urban Planning 58 (2002) 41-56.

Spergel, Barry, 1996. Belize's Protected Areas Conservation Trust: A Case Study, World Wildlife Fund, http://www.ecotourism.org/onlinelib/uploaded/Belize%2DConservation%20trust.pdf.

Spergel, Barry, Raising Revenues for Protected Areas, A Menu of Options, Center for Conservation Finance, World Wildlife Fund.

Stolton, S., M. Hockings, N. Dudley, K. MacKinnon & T. Whitten, (2003). Reporting Progress in Protected Areas – A Site-Level Management Effectiveness Tracking Tool. The World Bank / WWF Alliance for Forest Conservation and Sustainable Use, pp.1-15.

Sustainable Development and the Need for Strategic Responses, www.nssd.net

The Nature Conservancy (2000). Stakeholder Analysis Exercise – A quick process for identifying stakeholders and developing community outreach strategies

The Nature Conservancy (2000). The Five-S Framework for Site Conservation: A practioner's Handbook for Site Conservation Planning and Measuring Conservation Success. Volume I & II.

The Nature Conservancy (2001). Recommended Template for Written Site Conservation Plans. Version 1.0

The Nature Conservancy (2003). Landscape-scale Conservation. A Practioner's Guide. (G.Low).

The Nature Conservancy (2003). The Enhanced 5-S Project Management Process: An overview of proposed standards for developing strategies, taking action, and measuring effectiveness and status at any scale.

The Nature Conservancy. 2001. *Institutional Self-Assessment: A Tool for Strengthening Non-Profit Organizations*

The Nature Conservancy. 2003. *The 5-S Framework for Site Conservation: A Practitioner's Handbook for Site Conservation Planning and Measuring Conservation Success.* Volume 1, 3rd Ed.

The World Conservation union (IUCN). World Parks Congress Recommendations. Vth IUCN World Parks Congress, Durban, South Africa. 8-17 September 2003.

Thomas Lee and J. Middleton. Guidelines for Management Planning for Protected Areas. Best Practice Protected Area Guildines Series No. 10. World Commission on Protected Areas (WCPA). Series Editor: Adrian Phillips

Thomas, L. and Middleton, J. (2003). Guidelines for Management Planning of Protected Areas. IUCN Gland, Switzerland and Cambridge, UK.

Thomas, L., Middleton, J., Guidelines for Management Planning of Protected Areas, Best Practice Protected Area Guidelines, Series No. 10, World Commission on Protected Areas.

Toledo Institute for Development and Environment (2002). Maya Mountain Marine Area Transect Site Conservation Plan.

Tourism Based User Feed: Understanding the Mechanism – How Does it Work?, Conservation Finance, http://guide.conservationfinance.org/chapter/main.cfm?IndexID=20&Page=1&Bullet=0, 4/14/2005.

UNEP. 2004. Report of the seventh meeting of the Conference of Parties to the Convention on Biological Diversity. UNEP/CBD/COP/7/21. UNEP/CBD Secretariat, Montreal.

UNESCO. Operational guidelines for the implementation of the World Heritage Convention. (2005). WHC 05/2. Intergovernmental Committee for the protection of the World Cutural and Natural Heritage. http://whc.unesco.org

Vega, Alberto (editor). Conservation Corridors in the Central American Region. Proceedings of a Regional Conference sponsored by the Paseo Pantera Project. Tropical Research and Development, Inc. Gainesville, Florida, USA. 1994. 432 p.

Vreugdenhil D. (2003). Protected Areas System Planning and Monitoring.

W.K. Kellogg Foundation. 2004a. *Logic Model Development Guide.* W.K. Kellogg Foundation, Battle Creek, Michigan. www.wkkf.org.

W.K. Kellogg Foundation. 2004b. *Evaluation Handbook: Philosophy and Expectations.*. W.K. Kellogg Foundation, Battle Creek, Michigan. www.wkkf.org.

Walker, Z. & P. Walker (2005a). Cockscomb Basin Wildlife Sanctuary: 5-Year Management Plan (Final Draft). Belize Audubon Society, Belize.

Walker, Z. & P. Walker (2005b). Crooked Tree Wildlife Sanctuary: 5-Year Management Plan (Final Draft). Belize Audubon Society, Belize.

Walpole, Matthew J., Goodwin Harold J., Ward, Kari G.R., Pricing Policy for Tourism in Protected Areas: Lessons from Komodo National Park, Indonesia, Durrell Institute for Conservation and Ecology (DICE), University of Kent, Canterbury, Conservation Biology, pages 218-227, Volume 15, No. 1, January 2001.

Wildlife Conservataion Society, 2004. Glover's Reef Threat Assessment Workshop Report. WCS Belize, 6 pp.

Wildlife Conservation Society Living Landscape Programme – Brief Guidelines for Creating a Conceptual Model www.wcslivinglandscapes.org

Wildlife Conservation Society Living Landscape Programme (2004). Technical Manual 1. Participatory Spatial Assessment of Human Activities – A Tool for Conservation Planning.

Wildtracks, 2005. Evaluation of Protected Areas Management Planning and Management Planning Tools. National Protected Areas Policy and Systems Plan. 21 pp + 6 app.

Wilson, J.R. (2000). Rio Bravo Conservation and Management Area: Mansagement Plan. For Programme for Belize.

Wilson, J.R. (2001). Guidelines for the Preparation and Content of Terrestrial Protected Areas under Co-Management Agreements. For the Protected Areas Conservation Trust (PACT), Belize.

Wo Ching, E., L. Alamilla, R. Morales, and A.M. Camacho. 2005. Final report on Belize's policy on protected areas. Angela Chun (Ed.). Cedarena/NPAPSP. Typescript.

World Resource Institute. 2005. Reefs at risk in the Caribbean Data CD.

World Wildlife Fund. 2001. WWF Rapid Assessment & Prioritization Methodology for Protected Areas Systems. 59 pp.

Wright, A.C.S., D.H. Romney, R.H.Arbuckle & V.E. Vial. 1959. Land in British Honduras. Colonial Res. Publ. No. 24.

WWF. 2001. Rapid Assessment and Prioritization Methodology for Protected Area Systems. WWF. Gland, Switzerland.

WWF. 2004. Belize Reef Threat Assessment Workshop Report. WWF, Belize. 12 pp.

Young, R., L. Wolfe, V. Mc.Farlane. 2005. Strengthening and Standardizing Monitoring Effectiveness in Belize's Protected Areas System. National Protected Areas Policy and Systems Plan. 31 pp + app.

Zisman, S. 1996. *Directory of Belizean protected areas and sites of nature conservation interest*. Second edition. WWF-US/NARMAP.185 pp.

Zisman, Simon (compilator), The Directory of Belizean Protected Areas and Sites of Nature Conservation Interest, NARMAP, USAID, WWF, GOB, WI, second edition, April 1996, 186 p.