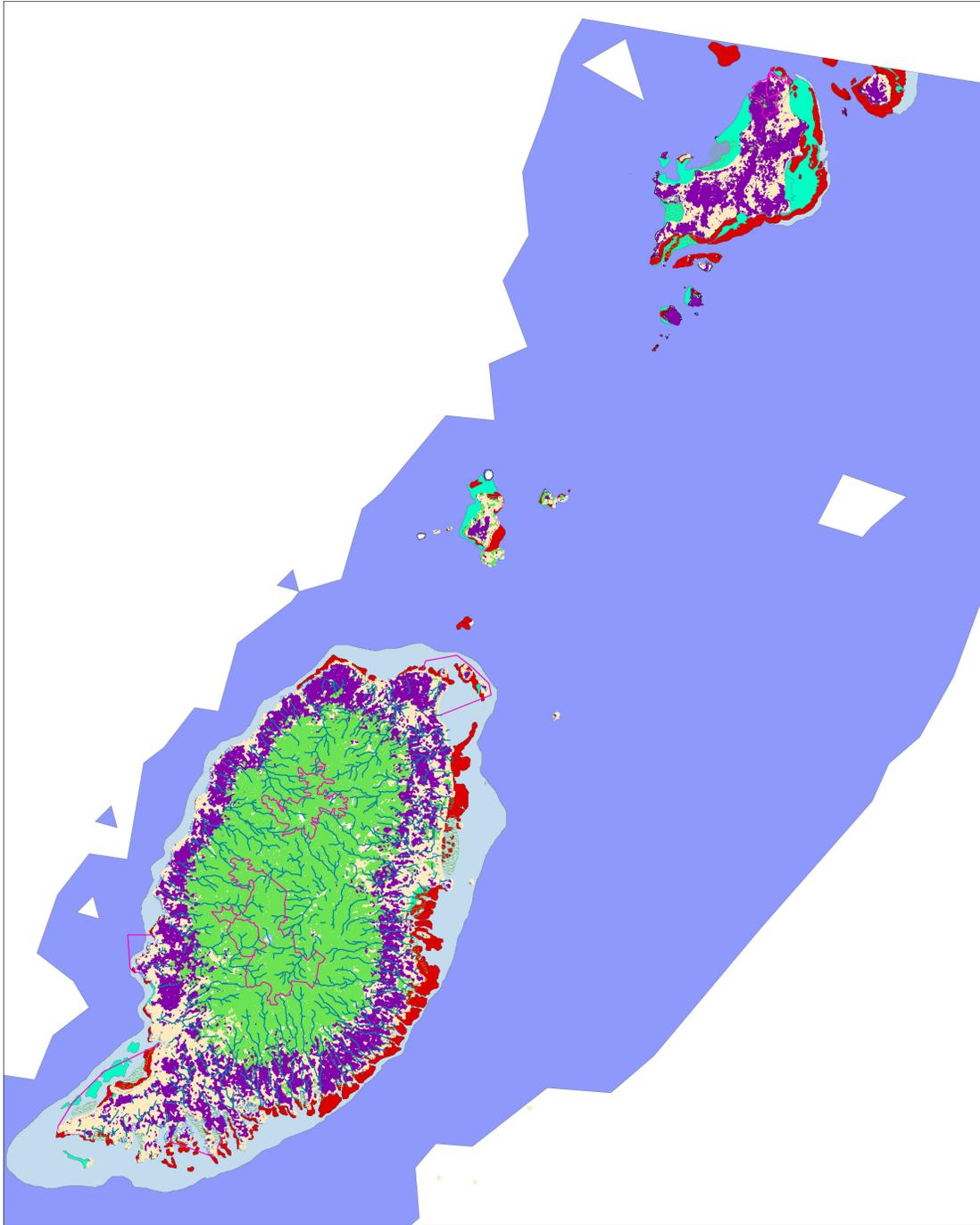


# Grenada Protected Areas System Gap Assessment

## First Workshop, March 6<sup>th</sup> & 7<sup>th</sup>, 2006



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## Introduction:

At the 7<sup>th</sup> Conference of the Parties (COP-7) of the Convention on Biological Diversity (CBD) in 2004, governments adopted an ambitious Program of Work on Protected Areas (PoW). In adopting this PoW, Governments called for rapid “affirmative action” to address the lack of Protected Areas across the globe.

At COP7, a group of 8 international NGOs committed to support the governments in the implementation of this PoW. As a result of this commitment, The Nature Conservancy signed a Memorandum of Understanding (MOU) with the Government of Grenada, in which parties commit to work together in the implementation of this program of work. This MOU is commonly known as the Protected Area National Implementation Support Partnership (NISP).

The Grenada Protected Areas System GAP Workshops will consist of a series of three workshops to guide and approve the analysis. The first workshop focused on determining the goals of the analysis, the selection of the target biodiversity and an assessment of the effectiveness of the management of the existing protected areas. The Second workshop will examine the Human Activity information which will be incorporated into the analysis and the preliminary results of the analysis on how to best fill the representational gap. The final workshop of the analysis will be to finalize the results and identify the strategies to fill the gaps that are identified.

The National Implementation Support Partnership (NISP) Committee had identified the technical leads from various Governmental, Non-Governmental, and Academic institutions to participate in the First Grenada Protected Areas System GAP Assessment Workshop during a meeting in January 2006. The NISP Committee, composed of Ministry of Agriculture, Lands, Forestry and Fisheries, the Ministry of Health and the Environment, the Ministry of Finance and Planning, and The Nature Conservancy, is partnering with the Agency for Reconstruction and Development, St. George’s University, the Sustainable Development Council (SDC), RARE, Ocean Spirits, and NAWASA on this initiative. The Nature Conservancy through the Parks in Peril project supported by The United States Agency for International Aid (USAID) is facilitating this project. The goals of this workshop were to establish the list of Conservation Targets, the goals for each target, and evaluate the effectiveness of the management of the existing Protected Areas.

### Conservation Targets:

The Conservation Targets were discussed and the attendees reviewed the data. The classification scheme ([Appendix 5](#)) was created to integrate the fine scale habitat data into larger, regional efforts utilizing The Nature Conservancy's approach and the Marine Ecoregions of the World. This enables the data to be viewed in various scales and to be comparable to regional and global efforts. The data that is being used for the GAP Analysis is from varying sources and there was some concern about the classifications used for the data. The terrestrial data is derived from the *International Institute of Tropical Forestry, USDA Forest Service*. The data is described in [Appendix 7](#). The classes were acceptable and it was decided that the actual names for the classes should reflect the common terminology on island. This update will be made in the near future when the actual terminology has been decided on by the Forestry Division. It was also decided that the fine scale habitat "Mixed Wood Agriculture" should be included as a target and the other forms of agriculture should not be targets. This habitat was also determined to be a subset of the Windward Island Moist Forest Ecoregion, and drop the Agro-Forestry classification. There were some additional changes to the Freshwater data in that some streams were wrongly classified and these changes were noted. The marine data is based on *The Millennium Coral Reef Maps* produced by Dr. Serge Andréfouët of the University of South Florida, along with other datasets compiled by The Nature Conservancy. The main changes to the data included deleting "Deep Terrace" as a target, since the only occurrence is probably not within the territorial waters of Grenada. The international boundary between Grenada and St. Vincent was determined to be not in the correct place and the boundary was modified to reflect this. The other main change was the "Pinnacle" as this needed to be ground-truthed as to existence and it was decided that it should be merged into the surrounding class. It was also recognized that the data for seagrass is from a regional dataset and that it under represents the occurrence of seagrass.

### Conservation Goals

The results of a preliminary representation GAP analysis ([Appendix 5](#)) were presented. This allowed the group to examine the current status of the targets and to make informed decisions on what would be realistically achievable. The first discussions centered on an overall goal for the country and at what level in the classification scheme should the goals be set. It was decided that the country level goals should be set at the Marine Ecosystem/Terrestrial Ecoregion level. The goal of at least 25% at this level should be effectively conserved within a protected area. The groups then decided to set individual Fine Filter Habitat Goals in order to achieve these larger goals. The goal discussions started off with setting a goal that is considered the best amount ecologically and then was brought down based on what is realistically achievable to the time frame that is selected, by 2020, and considering the limitations on Government resources. The

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targets ecological significance and environmental services were also considered in the process. The goals were selected to provide greater protection to the upland resources and to marine nursery habitats. These decisions were the first effort to include ecological conditions into the analysis. The maps of the current extent of the resources and the protected areas were consulted to determine how realistic the goals were. The following tables illustrate the final goals which were determined during the workshop.

## *Marine Goals*

Level 1: Habitat Medium	Level 2: Major Habitat Type	Level 3: Ecosystems Goal: ≥ 25%	Level 4: Fine Filter Habitats Individual Goals
Marine	Shelf	Reef Habitat	Deep Terrace <b>Delete</b>
			Fore Reef <b>30%</b>
			Inter-tidal Reef Flat <b>40%</b>
			Pinnacle <b>Delete</b>
			Reef Flat <b>25%</b>
			Shallow Terrace <b>20%</b>
			Shoal <b>10%</b>
	Shelf Slope <b>25%</b>	Outer Slope	
		Shelf Slope	
	Seagrass <b>40%</b>	Seagrass	
	Nearshore	Lagoonal Habitat <b>30%</b>	Lagoon Terrace
			Enclosed Lagoon
		Rocky Shore <b>25%</b>	Rocky Shore
Beaches		White Sand Beach <b>50%</b>	

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			Black Sand Beach <b>25%</b>
			Leatherback Nesting Sites <b>60%</b>
			Hawksbill Nesting Sites <b>60%</b>
		Mangroves	Mangroves <b>50%</b>

*Terrestrial and Fresh Water Goals*

Level 1: Habitat Medium	Level 2: Major Habitat Type	Level 3: Ecoregions <b>Goal: ≥ 25%</b>	Level 4: Fine Filter Habitats <b>Individual Goals</b>
Terrestrial	Tropical Moist Forest	Windward Island Moist Forest	Cloud Forest – (Elfin Forest): <b>Current Level - 94%</b>
			Forest Cloud Transitional – (Montane Forest): <b>Current Level – 87%</b>
			Forest Evergreen and Seasonal – (Rainforest): <b>Current Level – 30%</b>
			Mixed Wood Agriculture: <b>20%</b>
	Tropical Dry Forest	Lesser Antillean Dry Forest	Forest Dry Deciduous: <b>25%</b>
			Drought Deciduous Forest: <b>25%</b>
Forest Semi Deciduous: <b>25%</b>			
Freshwater	Tropical Island Fresh Water Systems	Fresh Water Bodies	Emergent Wetlands: <b>50%</b>
			Open Water Bodies: <b>75%</b>
	Streams	Class 4-6 Streams: <b>75%</b>	
		Class 7-8 Streams: <b>100%</b>	

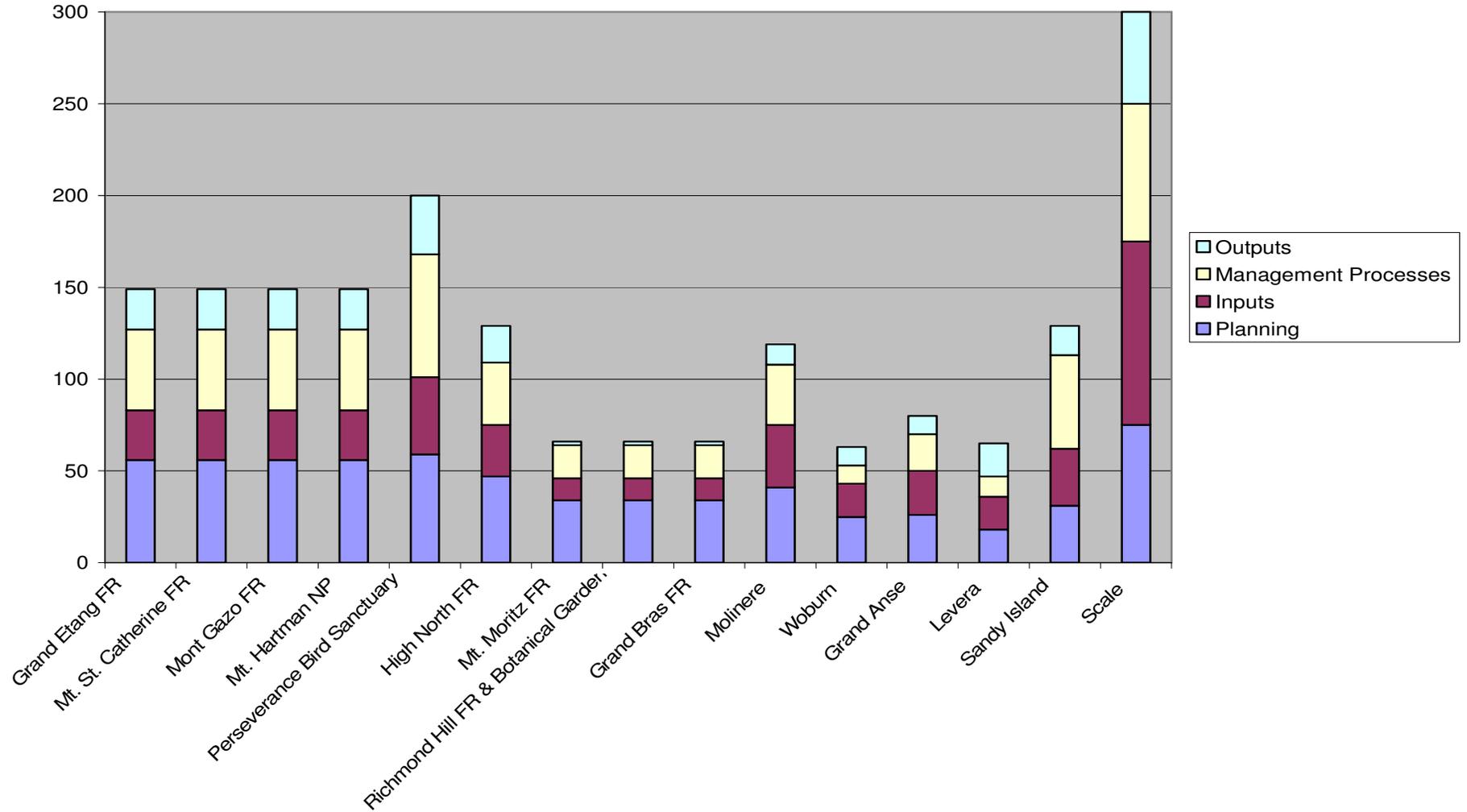
### The Grenada Declaration

Dr. Spencer Thomas, Grenada's CBD Focal Point, presented a draft Declaration of Commitment ([Appendix 6](#)). This draft incorporated the goals set by the working group and was reviewed for content. The revised draft was then edited and then taken by Dr. Thomas to the Minister of Health and Environment for submittal to Cabinet. The declaration was approved by Cabinet and an announcement and press release were prepared for the 8<sup>th</sup> Conference of The Parties, COP8. This is a significant statement by the Government of Grenada, in their commitment to effectively conserve the biodiversity of the country and provide leadership in this effort in the Caribbean Region.

### Protected Area Management Effectiveness Evaluation

By following the official guide put forward by the Convention on Biological Diversity to conduct gap assessments of protected area systems: Dudley, N., Parrish, J. 2005. *Closing the Gap: Creating Ecologically Representative Protected Area Systems*. 105 pp., the three Gaps to evaluate include Representation, Ecological, and Management. The representation Gap was addressed in the selection of conservation targets and goals. The ecological Gap was considered when selecting the goals and will also be addressed in the next phase of the project, the analysis on how to fill the representation gaps. The Management Gap was addressed at this workshop by conducting a rapid assessment of the effectiveness of the management of the existing protected areas. The methodology chosen for this assessment is the Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) created by WWF. This methodology allowed for a systematic approach to quantify the effectiveness of the management of the existing protected areas and identify the gaps in their effective management. The following figure captures in summary the results of the evaluation.

The RAPPAM Results:



This information will be utilized to identify the areas of management of the Protected Area System that need to be improved in order to increase the management effectiveness. This will be included in the final recommendations on how Grenada needs to fill the gaps in the protected area system.

## The Next Steps

The workshop wrapped up with a discussion on what the next steps in the process are. The next step is to incorporate the conservation targets and goals decided in this workshop into a Representation Gap Analysis. The human activities which are causing threats and pressures on the biodiversity will be mapped and their impact on the biodiversity will be modeled through the use of GIS software. The result will be used in the analysis utilizing MARXAN software to determine the best recommendations for filling the gap in the conservation of the biodiversity. It was also decided that the analysis should follow an integrated approach, combining terrestrial, freshwater, and marine into one analysis. This would provide for better connectivity among the resources and more accurately reflect the reality of the island ecosystem, a ridges to reefs approach. Suggestions for the next workshop included inviting the press, and two other NGO's, ART and GRENCODA, to the next meeting. A mailing list will also be established for keeping everyone up to date on the progress of this project.

## References

Dudley, N., Parrish, J. 2005. *Closing the Gap: Creating Ecologically Representative Protected Area Systems*. 105 pp.

Ervin, J. 2003. *WWF: Rapid Assessment and Prioritization of Protected Area Management (RAPAM) Methodology*. WWF, Gland, Switzerland. 52 pp.

Spalding M, Fox H, Davidson N, Ferdana Z, Finlayson M, Halpern B, Jorge M, Lombana A, Lourie S, Martin K, McManus E, Molnar J, Newman K, Recchia C, Robertson J (2006) *Global Coastal and Marine Biogeographic Regionalization as a Support Tool for Implementation of CBD Programmes of Work. COP8 Information Document 34*. Convention on Biological Diversity, Montreal, Canada. 21pp.

## Appendix 1: Invitation



**PROTECTED AREAS SYSTEM GAP ASSESSMENT**  
**Bureau of Standards, Queen's Park**  
**9 AM – 4 PM**  
**March 6<sup>th</sup> and 7<sup>th</sup>, 2006**

Dear Workshop Participant,

On behalf of the National Implementation Support Partnership, I would like to invite you to attend the **Protected Area System Gap Assessment Workshop** to take place at the **Grenada Bureau of Standards (Queen's Park) conference room on March 6 & 7, 2006**.

The National Implementation Support Partnership (NISP) was created as a direct result of the MOU signed between the Government of Grenada and The Nature Conservancy. In this MOU the parties commit to collaborate in the implementation of the Global Program of Work on Protected Areas which was defined by the Convention on Biological Diversity at the COP7 meeting in 2004.

The **Protected Area System Gap Assessment** is one of the early deliverables under the Protected Areas Program of Work (it is due in December 2006). The objective of this analysis is to understand how well the current system of protected areas represents Grenada biodiversity and what actions could be taken to ensure good representation of biodiversity.

This project will follow the official guide put forward by the Convention on Biological Diversity to conduct gap assessments of protected area systems: Dudley, N., Parrish, J. 2005. *Closing the Gap: Creating Ecologically Representative Protected Area Systems*. 105 pp.

This guide builds on the best science available for natural resource planning and regional prioritization. It provides a flexible framework for helping government partners complete rigorous gap assessments that eventually lead to more representative and well-designed protected area systems. Once completed, it will be the guiding tool for future actions to be implemented under the CBD Global Program of Work on Protected Areas. Last but not least, the completion of this assessment will also provide vital information for 3 additional projects ongoing in Grenada, these being:

- OECS Protected Areas and Associated Livelihoods Project
- ARD Human Settlement Task Force – Re-mapping of Grenada Project
- Forestry and National Parks/UNEP - Securing Water Resources through Watershed Rehabilitation in Grenada in the Post Ivan Era

Please do not hesitate to contact me with any questions you may have. You may reach me via phone at 340-773-5575, or via email at [rseybert@tnc.org](mailto:rseybert@tnc.org). I look forward to your response.

Sincerely,  
Raquel Seybert  
*Grenadines Program Manager*

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## Appendix 2: Agenda

**PROTECTED AREAS SYSTEM GAP ASSESSMENT**  
**Bureau of Standards, Queen's Park**  
**9 AM – 4 PM**  
**March 6<sup>th</sup> and 7<sup>th</sup>, 2006**

### Monday, 6<sup>th</sup> March

9:00 – 9:30	<ul style="list-style-type: none"> <li>• <b>Introduction &amp; Status of COP 8</b></li> </ul>	Raquel Seybert
9:30 – 10:15	<ul style="list-style-type: none"> <li>• <b>Preliminary GAP Analysis</b> <ul style="list-style-type: none"> <li>- Presentation of Results</li> </ul> </li> </ul>	James Byrne Raquel Seybert
10:15 – 10:30	<ul style="list-style-type: none"> <li>• <b>Coffee Break</b></li> </ul>	
10:30 – 12:00	<ul style="list-style-type: none"> <li>• <b>Defining the Conservation Targets</b> <ul style="list-style-type: none"> <li>- Objectives</li> <li>- Review of existing data and limitations</li> <li>- Terrestrial and Marine</li> </ul> </li> </ul>	James Byrne Raquel Seybert
12:00 – 13:00	<ul style="list-style-type: none"> <li>• <b>Lunch</b></li> </ul>	
13:00 – 14:30	<ul style="list-style-type: none"> <li>• <b>Defining the Conservation Target Goals</b> <ul style="list-style-type: none"> <li>- Goal Options</li> <li>- Selection of Goals</li> </ul> </li> <li>Terrestrial, Fresh Water &amp; Marine</li> </ul>	James Byrne
14:45 – 15:30	<ul style="list-style-type: none"> <li>• <b>Final Review/Update of Data</b> <ul style="list-style-type: none"> <li>- Complete review of data and Goals</li> </ul> </li> </ul>	James Byrne

### Tuesday 7<sup>th</sup> March

9:00 – 12:00	<ul style="list-style-type: none"> <li>• <b>Updating the Protected Areas Data</b> <ul style="list-style-type: none"> <li>- IUCN Categories</li> <li>- Missing Data</li> <li>- Management Effectiveness</li> </ul> </li> </ul>	James Byrne
10:00 – 10:15	<ul style="list-style-type: none"> <li>• <b>Coffee Break</b></li> </ul>	
12:00 – 13:00	<ul style="list-style-type: none"> <li>• <b>Lunch</b></li> </ul>	
13:00 – 13:45	<ul style="list-style-type: none"> <li>• <b>Next Steps</b> <ul style="list-style-type: none"> <li>- Cost Surfaces</li> </ul> </li> <li>• MARXAN</li> </ul>	James Byrne
13:45 – 14:15	<ul style="list-style-type: none"> <li>• <b>Conclusions and Wrap Up</b> <ul style="list-style-type: none"> <li>- Next meeting</li> </ul> </li> <li>• Background Data Collection Needs</li> </ul>	Raquel Seybert

Appendix 3: National Implementation Support Partnership Members

**National Implementation Support Partnership**  
(as of December 2005)

- Ministry of Agriculture, Lands, Forestry and Fisheries
- Ministry of Finance and Planning (Sustainable Development Council)
- Ministry of Health, Social Security, The Environment and Ecclesiastic Relations
- Ministry of Foreign Affairs & International Trade, Legal Affairs and Carriacou & Petite Martinique Affairs
- The Nature Conservancy

Appendix 4: Attendees

<b>Name</b>	<b>Affiliation</b>	<b>Phone</b>	<b>Email</b>
Rickie Morain	ARD	439-5600	rmorain@avdgrenada.org
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Martin Barriteau	CREP	533-7762	balius2000@yahoo.com
Jerry Mitchell	Fisheries	417-0638	mitchell.jerry@gmail.com
Crafton Isaacs	Fisheries Division	440-3814	spicecraf@hotmail.com
Paul Phillip	Fisheries Division	440-3814	paulephillip@yahoo.com
Alan Joseph	FNDP	440-2934	agjoseph26@yahoo.com
Gordon Paterson	FNDP	440-2934	massaiman2004@yahoo.com
Imhotep Manuto	FNDP	415-8763	nuwubian@yahoo.com
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William Hemilton	FNDP	440-2934	hemi69@yahoo.co.uk
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Carl Lloyd	Ocean Spirits	403-4266	carl@oceanspirits.org
Ryhana Panchoo	RARE	435-5958	
Tyrone Bulkine	RARE	435-5958	tbuckmire@rareconservation.org
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Agathe Sector	TNC	416-4659	alsector@yahoo.com
Raquel Seybert	TNC	340-773-5575	rseybert@tnc.org
James Byrne	TNC	340-773-5575 444-3997	jbyrne@tnc.org
Stephen Nimrod	WINDREF	x2134	steve_nimrod1@yahoo.com

## Appendix 5: Preliminary Representation Results

### Grenada Protected Area GAP Analysis

#### Preliminary Results

*Prepared by James Byrne*

*The Nature Conservancy*

The protected areas included in the GAP Analysis includes protected areas which have been formally declared and also shows the contribution of those protected areas which are in the process of been declared. The protected areas which are included in the “**to be designated**” category include: Sandy Island/Oyster Bed MPA, Northern (Levera) MPA, Grande Anse MPA, and Mt. St. Catherine Reserve. There are also several Forest Reserves which were left out of the analysis because of lack of information on the geographic boundaries. These included: Mt. Hartman, Perseverance, Mt. Gajo (Mt. Delice), Mt. Moritz, Bagatelle, Tiluries, Botanical Gardens, and Richmond Hill.

The seagrass data that was used for the analysis is from a regional dataset and is very poor resolution for the Country level. Thus, the data for seagrass is not reflective of the actual conditions. Also, I included the Agro-forestry categories, as these were considered for other jurisdictions, but will need to be decided on by in Country experts later on.

There are four levels of analysis to demonstrate the different ways of examining the amounts of Habitats protected:

**Level 1** - The broadest level is the **Habitat Medium**, which aggregates all of the Habitats together based on Marine, Freshwater, or Terrestrial. This is good for a larger picture of how the Country is doing.

**Level 2-** The next level is the **Major Habitat Type**, which aggregates the ecosystems into major habitat types which are global in scale. This level is good for comparison and targets on a much larger scale than a country.

**Level 3** - The mid-level is the **Ecosystems**, which aggregates the individual habitat types into major ecosystems. This could be a level used to set the overall Country Goals, i.e. 30 % of each of the Marine Ecosystems and 20% of each of the Terrestrial Ecosystems.

**Level 4** - The finest level is the **Fine Filter Habitats**, which is consisted of each fine scale habitat type. This level could be used for setting the priority habitat protections to achieve the 30% of the Major Habitats, i.e. 10% minimum of each Habitat Type, and 60% of Fore Reef and Reef Flat in the country, 70% of Mangroves, etc....

#### Reference Point – Micronesia Challenge

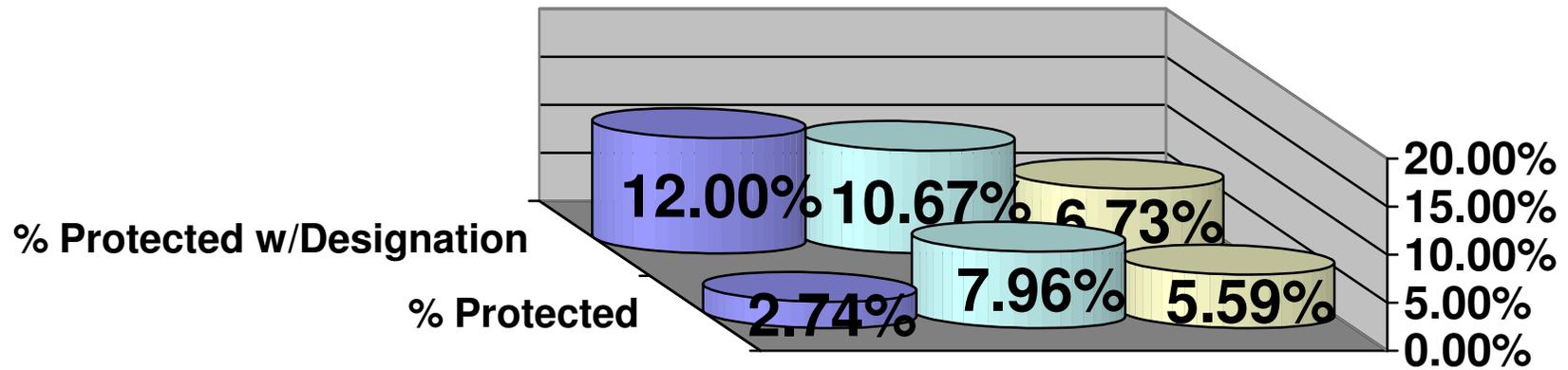
*“By 2020, effectively conserve at least 30% of the marine and 20% of the forest resources across Micronesia.”*

## Habitat Classification Scheme

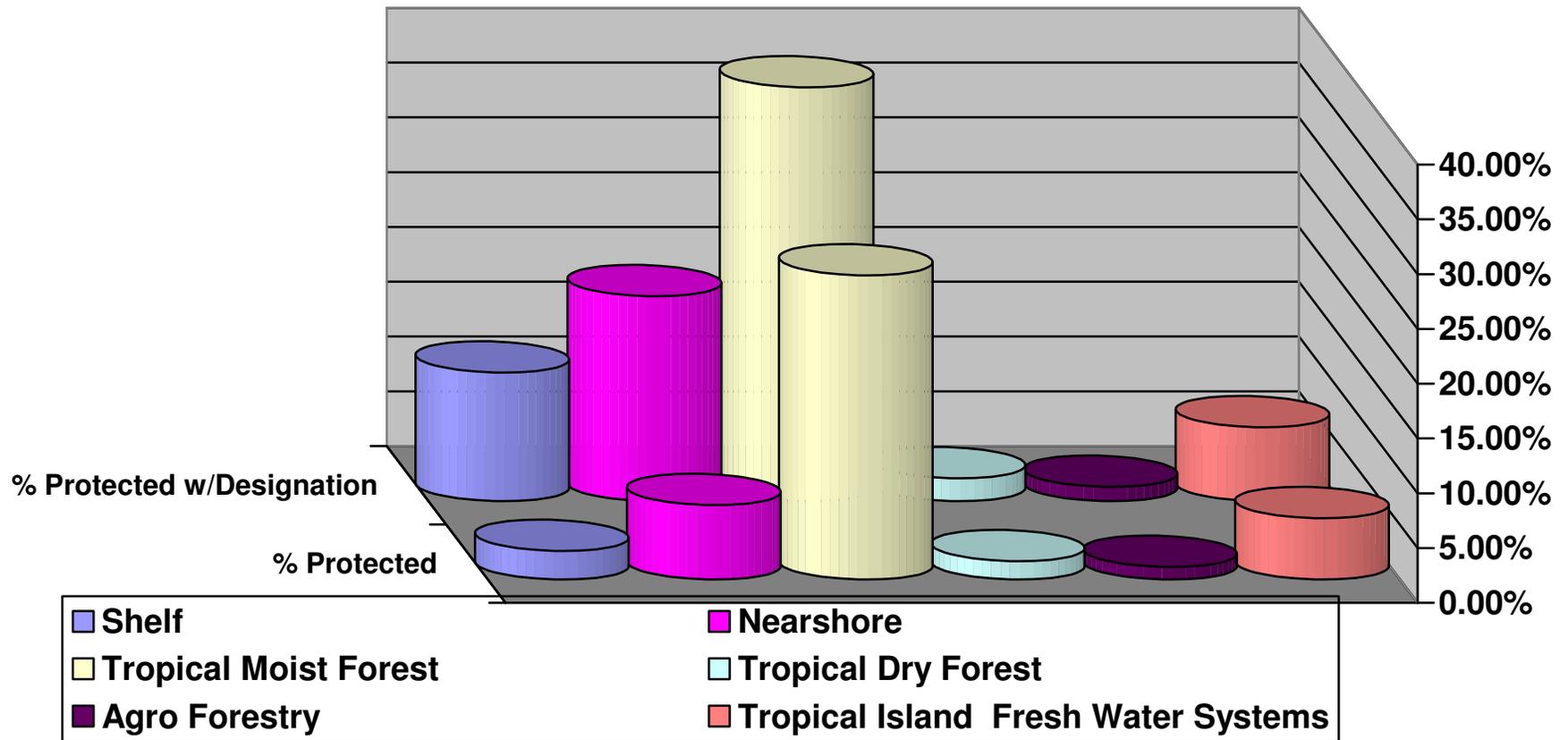
Level 1: Habitat Medium	Level 2: Major Habitat Type	Level 3: Ecosystems	Level 4: Fine Filter Habitats
Marine	Shelf	Reef Habitat	Deep Terrace
			Fore Reef
			Inter-tidal Reef Flat
			Pinnacle
			Reef Flat
			Shallow Terrace
			Reticulated Shallow Terrace
			Sub-tidal Reef Flat
			Channel
			Pass
	Shelf Slope	Outer Slope	
		Shelf Slope	
	Seagrass	Seagrass	
	Nearshore	Lagoonal Habitat	Lagoon Terrace
Enclosed Lagoon			
Rocky Shore		Rocky Shore	
Beaches		White Sand Beach	
		Black Sand Beach	
		Leatherback Nesting Sites	
	Hawksbill Nesting Sites		
Mangroves	Mangroves		
Terrestrial	Tropical Moist Forest	Windward Island Moist Forest	Cloud Forest
			Forest Cloud Transitional
			Forest Evergreen and Seasonal
	Tropical Dry Forest	Lesser Antillean Dry Forest	Forest Dry Deciduous
			Forest Semi Deciduous
	Agro-Forestry	Agro-Forestry	Agriculture Woody
Coconut*			
Freshwater	Tropical Island Fresh Water Systems	Fresh Water Bodies	Emergent Wetlands
			Open Water Bodies
		Streams	Class 4-6 Streams
			Class 7-8 Streams

\* probably should be excluded as targets

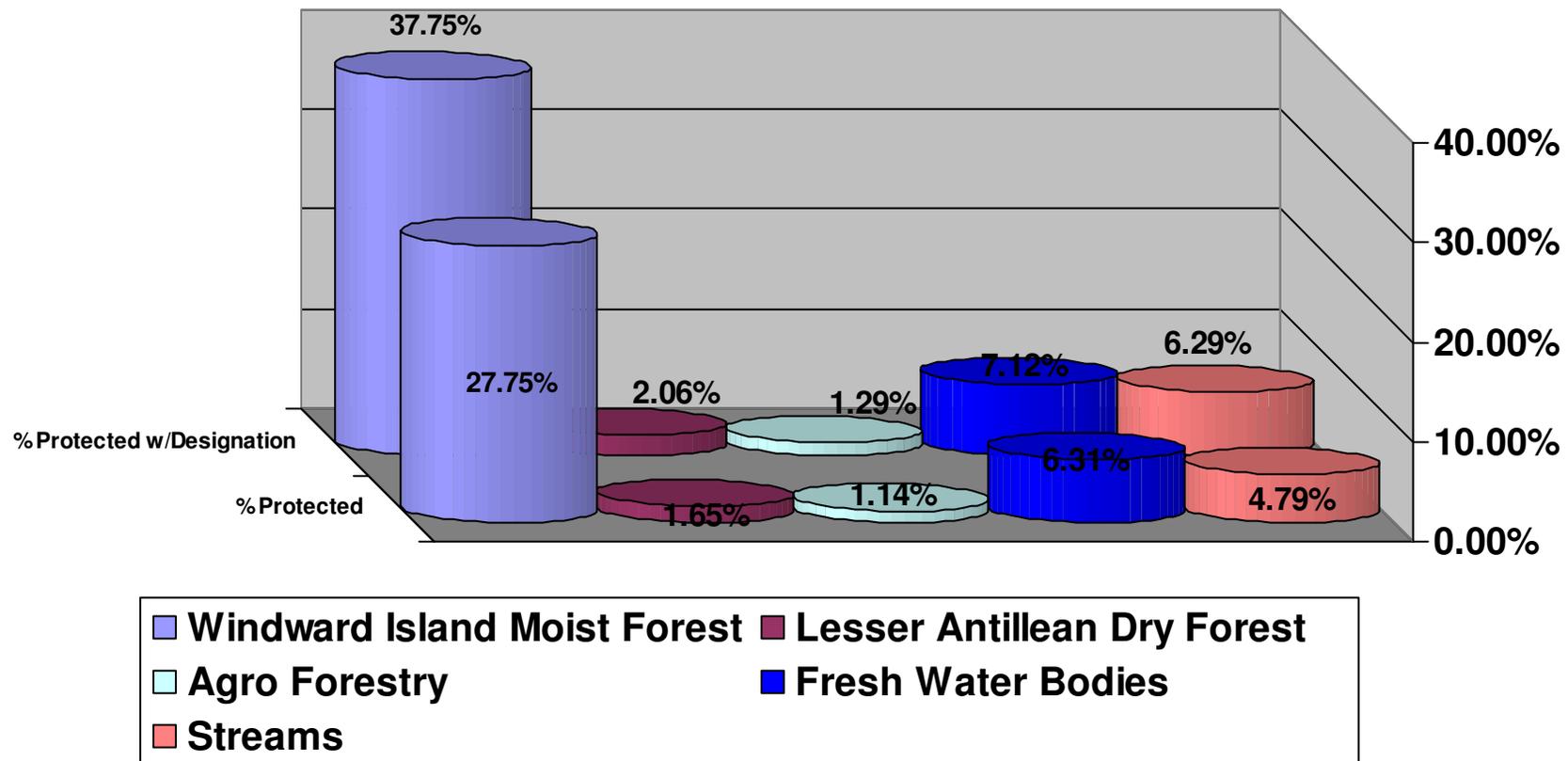
**Grenada**  
**Habitat Medium - Level 1**  
**% Habitat located within Protected Areas**



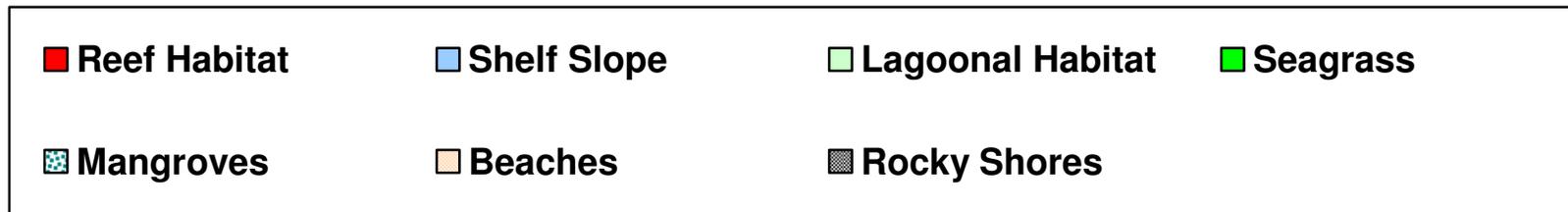
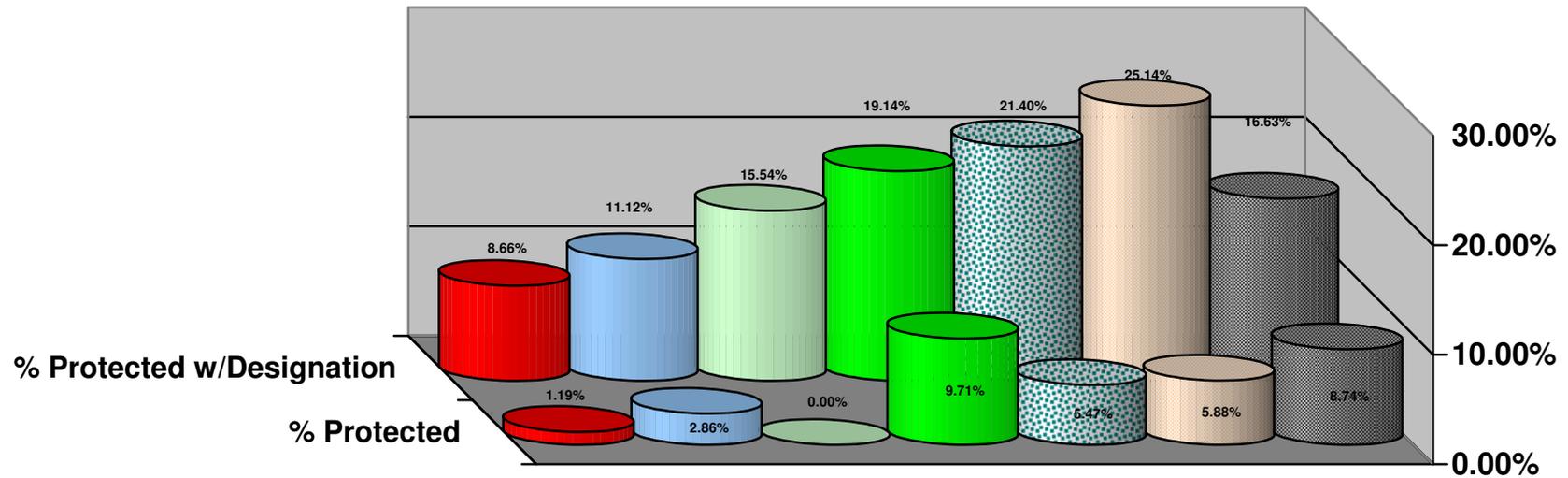
## Grenada Major Habitat Type - Level 2 % Habitat located within Protected Areas



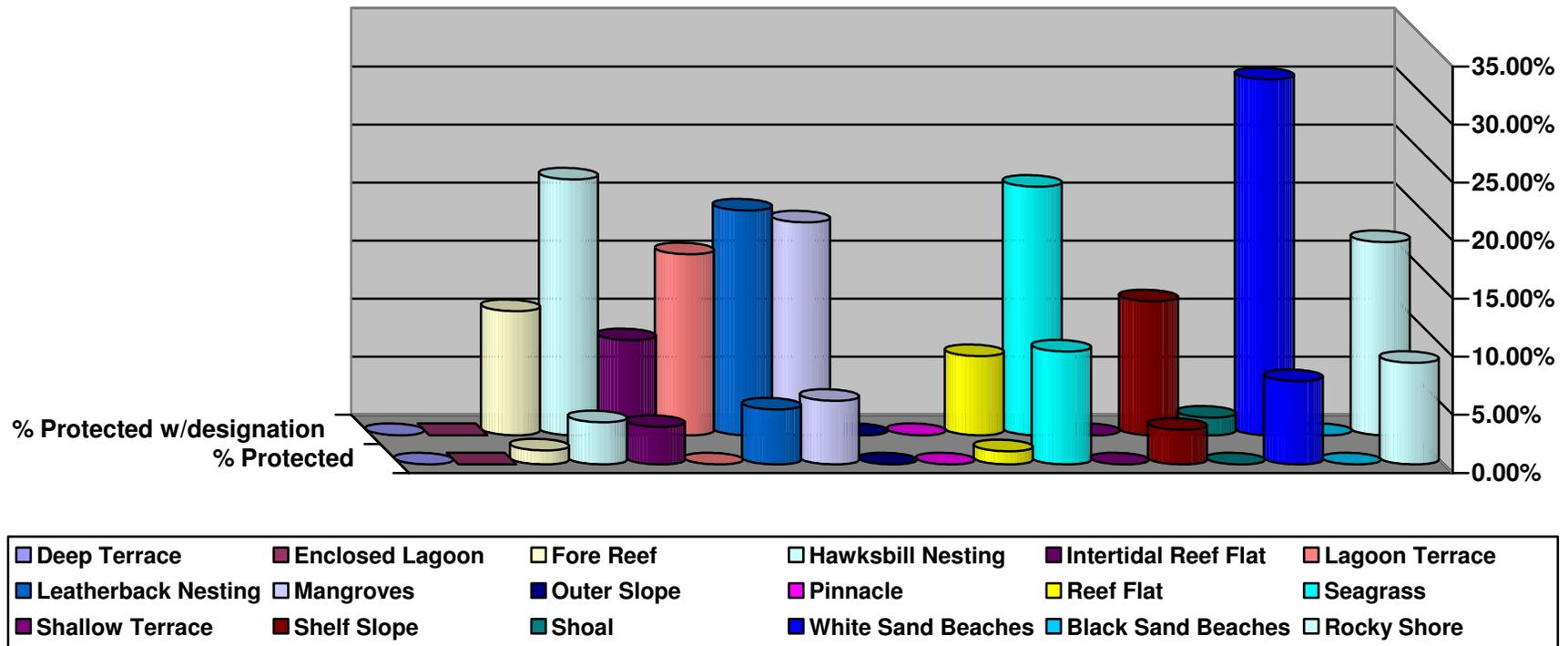
## Grenada Terrestrial Ecosystems - Level 3 % of Habitat located within Protected Areas



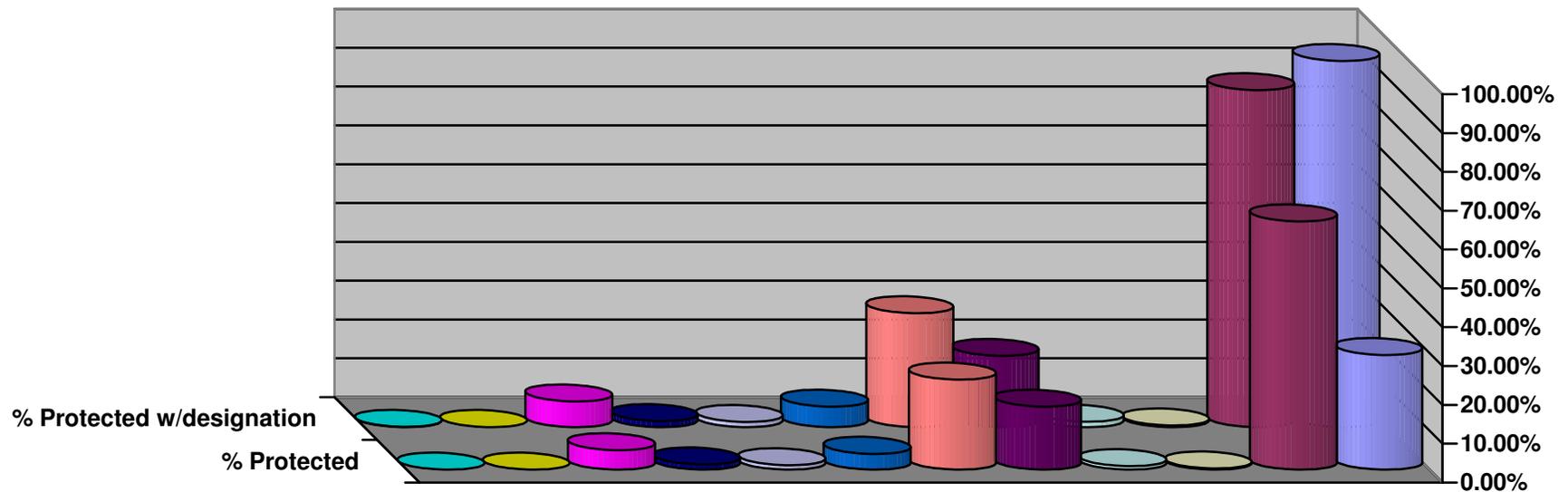
## Grenada Marine Ecosystems - Level 3 % Habitat Located within Protected Areas



## Grenada Marine Fine Filter Habitats - Level 4 % of Habitat located within Protected Areas



## Grenada Terrestrial Fine Filter Habitats - Level 4 % of Habitat located within Protected Areas



## Appendix 6: Draft Declaration

**DRAFT**

### ***Declaration of Commitment: 'The Grenada 25-25 Declaration'***

Recognizing the importance of both conservation and sustainable use of biodiversity for Small Island Developing States;

Recognizing the extreme vulnerability of SIDS and recalling the impact of Hurricanes Ivan and Emily on the economic, social, ecological and environmental infrastructure in Grenada in particular;

Understanding that our efforts to ensure the health, prosperity and cultural heritage of our nation are unlikely to succeed if the ecosystem services on which we rely continue to be degraded;

Recognizing that Protected Areas are the foundation for sustained ecosystem services in Small Island Developing States and are the cornerstone of biodiversity conservation across the world;

Acknowledging that the people of Grenada are the stewards of unique biodiversity;

Reiterating the commitment under *The St. George's Declaration Of Principles For Environmental Sustainability* in the Organization of Eastern Caribbean States, to undertake actions necessary to achieve development goals in ways that ensure that environmental quality is maintained or improved;

Reiterating Grenada's 2005 Vision under its National Environmental Management Strategy which states that "*The Government and People of Grenada, Carriacou and Petit Martinique envision a healthy and productive environment that guarantees the sustainability of development activities and processes and that contribute fully to social and cultural development, to economic prosperity, and to the quality of human life*";

Recognizing the adoption of the Millennium Development Goals and the agreement by the global community during the World Summit on Sustainable Development to reduce the rate of biodiversity loss by 2010;

Acknowledging the international conservation community's commitment to support Grenada in managing its biodiversity and in finding mechanisms for its sustainable use;

Acknowledging the significant financial and technical support are still required in meeting this Declaration;

Recalling the commitments made by Grenada to the Convention of Biological Diversity to establish a comprehensive system of protected areas by 2010 for terrestrial and by 2012 for marine habitats;

Recognizing that the Eighth Conference of the Parties to the Convention on Biological Diversity will adopt a global **Programme of Work on Island Biodiversity**;

We, the people of Grenada are committed to the following:

- Ensure that critical ecosystem services provided by our forests and oceans are kept intact;
- Act responsibly as stewards of unique biodiversity;
- Ensure that we act to sustain our livelihoods and that our children may enjoy the quality of life and beauty that our islands have provided us;
- Contribute to global targets set out in the Millennium Development Goals, the Johannesburg Plan of Implementation for the World Summit on Sustainable Development, the Mauritius Strategy for Small Island Developing States and the relevant Programmes of Work of the Convention on Biological Diversity and related regional and sub-regional initiatives and obligations.

Agree to undertake an expanded commitment to preserve our marine and terrestrial environments by not only meeting the targets established by the Convention for 2010 and 2012 but by further committing to:

**“Effectively conserve at least 25% of the near-shore marine resources and at least 25% of the terrestrial resources across Grenada by 2020.”**

In order to implement this Grenada 25-25 Declaration, we further agree to:

1. Follow through in the commitments made under the National Environmental and Management Strategy and Action Plan, the National Environmental Policy and the National Biodiversity Strategy and Action Plan.
2. To expeditiously establish a coordinating body for Protected Areas.
3. Act strategically in prioritizing integrated management actions, by taking into account the ecosystem approach.
4. Develop and implement integrated management plans for each protected area in collaboration with NGOs and local communities.

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5. Strengthen partnerships between the Government, NGOs, private sector and local communities engaged in conservation of natural resources and sustainable use of biodiversity.
6. Establish financial mechanisms that support and encourage a flow of funds for the conservation and sustainable use of our island biodiversity.
7. Keep a long term vision for the management of our natural resources.
8. Reverse the declining population trend of endemic and endangered species that inhabit the lands and waters of Grenada.
9. Invest in technical capacity building of government staff, NGOs, private sector and local communities engaged in conservation and sustainable use of biodiversity.
10. Commit to a long term program of environmental education and awareness at all levels of government and of all sectors of society.
11. Share experiences, knowledge and tools of the management of our biodiversity at the regional and subregional levels.
12. Strengthen engagement and partnership with the international conservation community, NGOs, multilateral agencies, and other regional partners to ensure the effective implementation of the Grenada 25-25 Declaration.
13. Agree to review progress to achieve the Grenada 25-25 Declaration on a biennial basis.

## Appendix 7: Land-cover Classification

*Developing a Regional Planning Framework for Biodiversity Conservation, Disaster Preparedness and Economic and Agricultural Development in the Insular Caribbean*

### **Tentative land-cover and woody vegetation formation classification hierarchy suitable for remotely sensed classifications with Landsat** Eileen Helmer, International Institute of Tropical Forestry, USDA Forest Service (last update: 4/12/2006)

#### **Notes:**

Items in **boldface type** are the basic classes that we will map for all 5 of the islands (where they occur). Here, however, we place them in a hierarchy for clarity. Parenthetical climatic zone designations (e.g. dry, moist, wet) refer to likely climatic classification in Subtropical latitudinal zone of Holdridge life zone system.

The forest formation names use seasonality terms from the Federal Geographic Data Committee (FGDC) standards. We substitute the term *Elfin cloud forest* for the term *Dwarf woodland*, and we use Beard's term for *Montane thicket*.

Rather than attempting to map forest successional stages, we are seeking to distinguish land uses because they are spectrally more distinct and because they should be more useful for management. In general, we've found that woody vegetation that still undergoes heavy grazing, or that is intensively cultivated, is spectrally distinct from denser woody vegetation that is recovering from disturbance. On the other hand, dense woody vegetation recovering from disturbance is more often difficult to distinguish from older forest.

Consequently, we use the term *woodland* to refer to woody vegetation that disturbances maintain in an early successional, open-canopy state of 25-60% woody vegetation canopy cover. Typically these disturbances are burning and grazing. In contrast, we call anything *forest* that is not used agriculturally and has a) tree cover of 25-60%, with an understory of shrubs, woody seedlings or saplings, as opposed to grass or heavily grazed grass (it may have residual grass that is no longer grazed), and that is apparently recovering from previous grazing or cultivation, or b) >60% tree cover.

#### **1. Urban/built-up**

##### **1.1. Hi density**

##### **1.2. Low density residential**

#### **2. Barren (Sand/rock)**

#### **3. Water**

#### **4. Agriculture**

##### **4.1. Herbaceous agriculture (row crops, sugar cane, etc.).**

###### **4.1.1. Growing or mature crops**

4.1.2. Bare or nearly bare fields

## 4.2. Woody agriculture

4.2.1. Single crop (e.g. coffee, plantain, banana, coconut, citrus, mango)

4.2.2. Mixed woody agriculture (more common, e.g. intermixed or patchy cultivation of 2 or more of the following: banana, plantain, coffee, mango, breadfruit, avocado, soursop, cacao, nutmeg, citrus, acerola, coconut, etc.).

## 5. Pasture and grassland

### 5.1. Pasture and grass with <25% woody vegetation

5.2. Golf course (In St. Kitts/Nevis and Barbados, we can distinguish grass in golf courses from other grass).

### 5.3. Drought-deciduous woodlands (dry) –

Includes: pasture with 25-60% woody vegetation (“rough pasture”) that leguminous shrubs dominate and a fairly open understory of grass or highly grazed grass (as opposed to a dense understory that includes many seedlings and saplings and is apparently undergoing succession). The shrubs can become quite tall. Commonly, woody vegetation may include *Acacia farnesiana*, *Prosopis palida*, Campeche, *Leucaena*, or similar species (Beard’s Logwood thicket, Logwood-Acacia bush, *Leucaena* thicket and Thorn savanna). For St. Kitts/Nevis and Puerto Rico, we included fairly dense stands of shrubs if they were very young and monodominant.

### 5.4. Montane grassland (“hi-altitude pasture”) –

Naturally herbaceous vegetation at very high elevations (not present in St. Lucia)

5.5. Wooded pasture in humid zones (moist, wet, rain) –

In more humid zones, some pasture that is not heavily grazed may have woody vegetation characteristic of early reversion to forest. When canopies are still open and have a grass understory, it’s difficult to know whether these patches will become forest or be burned and remain pasture. In moist regions in Puerto Rico *Albizia procera* may dominate woody vegetation. At higher, wetter elevations woody species would likely include *Cyathea arborea*. Depending on canopy closure, distinguishing these areas from woody agriculture or forest can be difficult. For these reasons, in St. Kitts/Nevis and Puerto Rico, we will include these areas with forest.

## 6. Emergent wetlands and other non-forested wetlands

6.1. Emergent wetlands – wetlands dominated by herbaceous species (e.g. *Typha*).

6.2. Semi-permanently inundated wetlands (may be included with water)

6.3. Tidally or seasonally flooded, non-forested wetlands (e.g. tidal salt or mud flats).

## 7. Forest and shrublands

### 7.1. Semideciduous and drought deciduous forest

7.1.1. Xeric coastal forest (dry) - succulents very common or dominant, coastal effects evident such as many sclerophyllous species and extremely wind-clipped stands that have also been referred to as shrublands or woodlands (e.g. Beard Cactus

scrub). Notes: xeric coastal formations may include patches with evergreen species common, but these areas can be difficult to distinguish from semi-deciduous and drought deciduous stands. In St. Kitts/Nevis and Grenada, the xeric coastal forest is almost all drought deciduous.

- 7.1.2. **Drought deciduous forest (dry)** - deciduous tree species dominant. In most of the islands, this is an advanced successional stage of the “drought deciduous woodland”, where the drought deciduous woody vegetation has had a long time to undergo succession, even though it is still secondary forest. We are generally going by the FGDC definitions of vegetation phenology. The FGDC definition for drought deciduous forest is as follows: “*Vegetation where the leaves drop in response to an annual unfavorable season characterized by drought. The foliage is dropped every year. Applied to vegetation adapted to climates with seasonal drought and little cold-season influence (tropical-subtropical)*”...”*deciduous species make up 75% or more of the canopy.*”

Note: I remember seeing a lot of this in St. Lucia, we saw dry, drought deciduous forest near the coast (but not right at the water .....I can't remember what is right near the water).

- 7.1.3. **Semi-deciduous forest (dry, moist)** – deciduous tree species co-dominate with evergreen tree species (e.g. in Puerto Rico, most of the Guanica forest is semi-deciduous....about FGDC definition of semi-deciduous Vegetation: “*Associations (usually tropical and subtropical) in which most of the upper canopy trees are drought-deciduous and many of the understory trees and shrubs are evergreen. The evergreen and deciduous woody plants are not always separated by layers.*”....”*deciduous and evergreen species each make up 25%-75% of the canopy.*”

Note: in the Caribbean, I don't think the evergreen and deciduous species are separated by layers at all.

- 7.1.4. Note: For Puerto Rico, we also distinguish the mixture of semideciduous and seasonal evergreen forest on karst substrate (see class 7.2.3.2)

## 7.2. Evergreen forest

- 7.2.1. **Hemisclerophyllous evergreen coastal shrubland (dry)** - dense coastal stands of *Coccoloba uvifera*. We will likely manually recode these from other forest for St. Kitts/Nevis but won't distinguish them for Grenada as they are much less prominent.

- 7.2.2. **Seasonal evergreen and evergreen forest (moist, moist/wet and wet)** –Note: Along the continuum of canopy deciduousness on these islands, it may be difficult to accurately distinguish between semi-deciduous, seasonal evergreen and evergreen forest given the scope and resources of this project. In general, but probably not always, moist seasonal evergreen forest will be grouped with wet evergreen forest.

7.2.2.1. Seasonal evergreen forest (moist)

7.2.2.2. Evergreen forest (wet)

7.2.2.2.1. *Dacryodes/Sloanea* forest.

7.2.2.2.2. Palm brake – forest dominated by Sierra Palm that is not cloud forest

- 7.2.3. **For Puerto Rico:**

7.2.3.1. **Seasonal evergreen and evergreen forest on alluvial or volcanic substrate**

7.2.3.2. **Semi-deciduous and seasonal evergreen forest on karst substrate**

7.2.3.3. Seasonal evergreen and evergreen forest on karst substrate

7.2.3.4. Seasonal evergreen and evergreen forest on serpentine substrate

**7.2.4. Cloud forest formations (wet and rain) – forest formations at elevations above the cloud condensation level that receive significant portions of their water input from clouds rather than rain**

7.2.4.1.1. Tall cloud forest and transitional cloud forest – Tall cloud forest, like “Colorado” forest in Puerto Rico and cloud forest that is transitional between wet evergreen forest and elfin cloud forest. One example is dense stands of *Micropholis* spp. (Beard’s Montane thicket).

7.2.4.1.2. Palm cloud forest – cloud forest dominated by Sierra Palm.

**7.2.4.1.3. Elfin cloud forest – very short-statured cloud forest (e.g. Beard Elfin woodland)**

7.2.4.1.4. Miconia thicket – a canopy of grasses and shrubs and virtually no trees. Note: we may be able to distinguish montane thicket from cloud forest in St. Kitts/Nevis, but we may not be able to distinguish them in Grenada.

### 7.3. Forested wetlands

7.3.1. Mangrove

7.3.2. *Pterocarpus* swamp

7.3.3. Other – Wetlands dominated by >25% woody vegetation cover that is indicative of disturbance. Dense woody wetlands, with stands dominated by leguminous shrubs, occur close to the southern coast of Puerto Rico in alluvial soils. Open wooded wetlands, reverting from pasture, occur in Nevis.

Important references:

***Areces-Mallea, A., et al. 1999 (active January 2002). A guide to Caribbean vegetation types: classification systems and descriptions. N. Panagopoulos (Ed.), The Nature Conservancy International Headquarters, Washington, D.C., 166 pp.***  
**<http://edcintl.cr.usgs.gov/tnc/index.html> (click on products)**

Helmer, E.H., O. Ramos, T. del Mar Lopez, M. Quiñones, and W. Diaz. 2002. Mapping forest type and land cover of Puerto Rico, a component of the Caribbean biodiversity hotspot. *Caribbean Journal of Science* 38 (3-4):165-183.

Article: <http://www.caribjsci.org/>

Data: <ftp://ftp2.fs.fed.us/incoming/iitf/ehelmer/>

FGDC. 1997 (active January 2002). National vegetation classification standard. Vegetation Subcommittee, Federal Geographic Data Committee, FGDC-STD-005, June 1997, U.S. Geological Survey, Reston, Virginia, 58 pp. <http://biology.usgs.gov/fgdc.veg/>