
MANAGEMENT PLAN

FOR THE

BIRD ISLAND WILDLIFE CONSERVATION AREA

AND

BIRD ISLAND MARINE SANCTUARY

MAY 15, 2007

DEPARTMENT OF LANDS AND NATURAL RESOURCES

DIVISION OF FISH AND WILDLIFE
COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
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The Division of Fish and Wildlife of the CNMI Department of Lands and Natural Resources is pleased to present this Management Plan for the Bird Island Conservation Area and the Bird Island Marine Sanctuary. The Bird Island Wildlife Conservation Area was first established by the Tenth Legislature of the Commonwealth of the Northern Mariana Islands in 1998, to “designate public lands owned by the Commonwealth Government that will be preserved in perpetuity for wildlife conservation and managed to enhance habitat functions for targeted endangered and threatened species”. The Bird Island Marine Sanctuary was created by the Twelfth Legislature in 2001 for the conservation of wildlife and marine life.

This Management Plan is an essential first step in conserving and managing terrestrial and marine wildlife resources in these two conservation areas. The plan designates which uses are compatible with the mandates of laws and regulations, which uses will require permits, and which uses will not be allowed. Also provided herein are management goals, objectives and strategies, and recommendations for implementation.

We wish to thank Greg Schroer of Resources Northwest for researching the background, compiling data, consulting with staff, and writing this management plan under contract. We also wish to acknowledge the efforts of the many professionals on the staff of the Division of Fish and Wildlife and the Department of Lands and Natural Resources who have provided valuable insight and experience in the development of this document.

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Acknowledgements

Numerous managers and staff in the Department of Lands and Natural Resources reviewed the drafts of this plan, or the similar Bird Island Management Plan. These included Secretary Dr. Ignacio T. dela Cruz, D.V.M., Special Assistants to the Secretary Henry S. Hofschneider and Manny Pangelinan, Director for the Division of Fish and Wildlife (DFW) Sylvan O. Igisomar, and Director Donald Flores and Vic Guerrero for the Division of Agriculture. Gayle Martin, DFW Natural Resources Planner, provided valuable guidance and comments in her role as the contract administrator. Numerous DFW staff also provided comments for the drafts, including Greg Moretti (Marine Protected Area Specialist), Mike Trianni (Fisheries Biologist), Mike Tenorio (Fisheries Biologist), Laura Williams (Wildlife Biologist), Paul Radley (Wildlife Biologist), and Joe Ruak (CNMI Sea Turtle Program Coordinator). Ann Jordan of the Pacific American Title Company evaluated the title of DLNR land potentially remaining under a golf resort lease, and Ted Hitzroth, Digital Mapping Specialist with International Forestry Consultants, provided subcontract expertise for preparing the maps.

Funding for the research and writing of this management plan was provided by the U.S. Fish and Wildlife Service, Division of Federal Assistance, under the State Wildlife Grant, grant number T-1-P.

Contents

1.0 INTRODUCTION	1
2.0 LEGISLATIVE AND AGENCY MANDATES.....	3
2.1 BIRD ISLAND WILDLIFE CONSERVATION AREA	3
2.1.1 ENABLING LAND GRANT	3
2.1.2 REGULATIONS	4
2.1.3 LEASES	4
2.1.4 COMMONWEALTH MITIGATION BANK	5
2.2 BIRD ISLAND MARINE SANCTUARY	6
2.2.1 ENABLING LAND GRANT	6
2.2.2 REGULATIONS	7
3.0 AREA DESCRIPTION	8
3.1 GENERAL CHARACTERISTICS	8
3.1.1 BIRD ISLAND WILDLIFE CONSERVATION AREA	8
3.1.2 BIRD ISLAND MARINE SANCTUARY	8
3.1.3 OTHER CONSERVATION AREAS IN THE VICINITY	9
3.2 TERRESTRIAL RESOURCES	9
3.2.1 GEOLOGY AND SOILS	9
3.2.2 FLORA	12
3.2.3 FAUNA.....	14
3.2.4 STRUCTURES AND FACILITIES.....	15
3.2.5 CULTURAL AND HISTORIC RESOURCES	16
3.3 MARINE RESOURCES	17
3.3.1 GEOMORPHOLOGY AND BIOLOGICAL SUBSTRATES	17
3.3.2 FAUNA.....	17
3.3.3 WATER QUALITY	18
4.0 AREA USES.....	21
4.1 TYPES OF USES	21
4.2 COMPATIBILITY OF USES	22
4.2.1 COMPATIBILITY WITH THE CONSERVATION PURPOSE.....	22
4.2.1.1 COMPATIBLE USES.....	22
4.2.1.2 PROHIBITED USES EXCEPT WHEN ALLOWED BY DFW PERMIT	23
4.2.1.3 PROHIBITED USES	24
4.2.2 MANAGEMENT ZONES	24
4.2.3 COMPATIBILITY WITH LAWS AND REGULATIONS	25
5.0 MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES	26
5.1 GOALS, OBJECTIVES AND IMPLEMENTATION STRATEGIES.....	26
6.0 IMPLEMENTATION.....	34
6.1 SCHEDULE	34
6.2 COSTS AND FUNDING OPTIONS	34
7.0 REFERENCES	37

LIST OF FIGURES

Figure 1.	Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary as seen from Bird Island Overlook	1
Figure 2.	Location of the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary	2
Figure 3.	Other conservation areas in the vicinity of the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary	10
Figure 4.	Soils and previously leased lands in the Bird Island Wildlife Conservation Area	11
Figure 5.	Aerial photo (1945) of the Bird Island Wildlife Conservation Area and surrounding area.....	13
Figure 6.	Benthic geomorphology of the Bird Island Marine Sanctuary	19
Figure 7.	Benthic biological cover of the Bird Island Marine Sanctuary	20

LIST OF TABLES

Table 1.	Size of the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.....	8
Table 2.	Soils of the Bird Island Wildlife Conservation Area (Young 1989).....	9
Table 3.	Endangered or threatened animal species known to inhabit the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary	14
Table 4.	Number of water quality samples taken in the Bird Island Marine Sanctuary that showed violations of federal clean water standards.....	18
Table 5.	Number of visitors using major Saipan tourism sites from January through August, 2006	21
Table 6.	Compatible uses for the Bird Island Wildlife Conservation Area and the Forbidden Island Marine Sanctuary	22
Table 7.	Prohibited uses for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary except when allowed by DFW permit.....	23
Table 8.	Prohibited uses for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary	24
Table 9.	DFW management goals and objectives for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.....	26
Table 10.	Preliminary schedule for accomplishing management strategies for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary during the first 15 years	35
Table 11.	Preliminary costs and funding needed (beyond current budgets) for implementing the Management Plan for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary Management Plan during the first 15 years	36

LIST OF APPENDICES

Appendix A:	Planned or Proposed Surveys, Research, and Ecosystem Restoration in the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.
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ACRONYMS AND ABBREVIATIONS

Agencies and Organizations

CNMI	= Commonwealth of the Northern Mariana Islands
CRMO	= CNMI Coastal Resources Management Office
DEQ	= CNMI Division of Environmental Quality
DFW	= CNMI Division of Fish and Wildlife
DLNR	= CNMI Department of Lands and Natural Resources
DPL	= CNMI Department of Public Lands
DPW	= CNMI Department of Public Works
EPA	= U.S. Environmental Protection Agency
HPO	= CNMI Historic Preservation Office
MPLA	= Marianas Public Land Authority
MVA	= Marianas Visitors Authority

Other

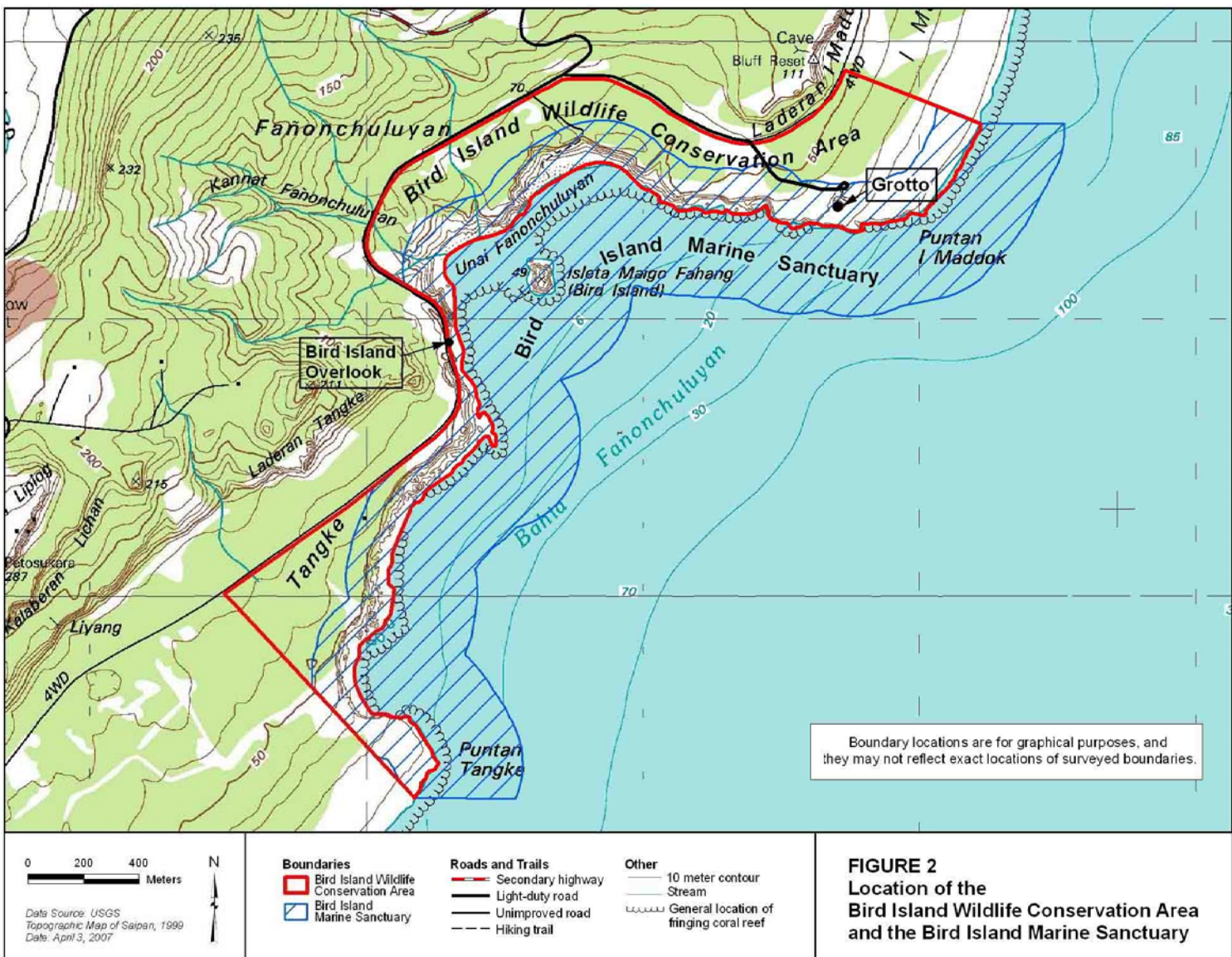
Ac	= acre
C	= Celsius
Cm	= centimeters
Dbh	= tree diameter at breast height (4.5 ft. above ground)
ESA	= Endangered Species Act
F	= Fahrenheit
Ft	= feet
Ha	= hectare
In	= inch
Km	= kilometer
M	= meter
Mi	= mile
PL	= public law
Spp	= species

1.0 INTRODUCTION

The **Bird Island Wildlife Conservation Area** and the **Bird Island Marine Sanctuary** are adjoining (and overlapping) conservation areas encompassing 268 ha (662 ac) of land and ocean on the northeastern coast of Saipan, Commonwealth of the Northern Mariana Islands (CNMI) (Figures 1 and 2). The Division of Fish and Wildlife (DFW), within the Department of Lands and Natural Resources (DLNR), is responsible for managing these areas. As part of that responsibility, the DFW has developed the following management plan which describes: 1) legislative and agency mandates; 2) resources; 3) uses; 4) management goals, objectives, and strategies; and 5) the proposed management schedule, costs, and funding options.



Figure 1. Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary as seen from the Bird Island Overlook.



2.0 Legislative and Agency Mandates

2.1 BIRD ISLAND WILDLIFE CONSERVATION AREA

2.1.1 ENABLING LAND GRANT

The Bird Island Wildlife Conservation Area was created on July 16, 1991 when the Marianas Public Land Corporation (now the Division of Public Lands [DPL]) transferred title of those lands to the Department of Natural Resources (now the Department of Lands and Natural Resources [DLNR]). This “Grant of Public Domain Lands” was recorded as file no. 91-3404 at the Commonwealth Recorder’s Office on July 18, 1991. The original name of the conservation area was “Bird Island Wildlife Preserve;” however, the area is now known as the “Bird Island Wildlife Conservation Area” (2 NMIAC §85-30.1-330 (c) (1)). Key provisions of the land grant are described here.

Purpose: The purpose of the land transfer is to provide: “...wildlife conservation, public enjoyment of wildlife resources and other uses consistent with these purposes....Any other use inconsistent with the above stated purpose shall cause the title to revert to the Grantor.” The land grant identified the following premises for the land transfer.

- WHEREAS, all public lands in the Northern Mariana Islands belong collectively to the people of the Commonwealth and it is intended that the management and disposition of public lands should ultimately benefit the people of the Commonwealth; and
- WHEREAS, the Grantor [DPL] desires that a certain parcel of public land to be called the Bird Island Wildlife Preserve [now referred to as the Bird Island Wildlife Conservation Area] be used for the conservation of wildlife species; and
- WHEREAS, a primary objective of Grantee [DLNR] is to conserve and protect fish, plant, and wildlife resources for the people of the Commonwealth’s use and enjoyment.
- WHEREAS, the creation of the Bird Island Wildlife Preserve to be managed by DNR [now the DLNR] through the Division of Fish and Wildlife ensures the survival of endemic plant and animal species and provides for public recreation, aesthetic enjoyment, scientific and education opportunities, and for other public purposes.

Location and Ownership: As stated above, the DLNR owns the land and resources within the boundaries of the Bird Island Wildlife Conservation Area. Specifically, the land grant states the Grantor [DPL] will:

“...hereby grant, remise, release, convey, and quitclaim forever to the Grantee, its successors and assigns, all of Grantor’s right, title, interest, claim or demand in or to those parcels of public lands situated, lying and being located at Saipan, Northern Mariana Islands, and described as follows:

Lot No. 044 A 01 as described on DLS Check No. 044 A 00, recorded in the Recorder’s Office as File No. 89-1651 on May 26, 1989.

To have and to hold, the above-described property, together with the rights, title and interest thereto, and the hereditaments and appurtenances thereunto belonging to the Grantee, its successors and assigns, forever, but reserving and excepting therefrom all existing roadways, easements, and rights-of-way.”

2.1.2 REGULATIONS

The following regulations, codified at 2 NMIAC § 85-30.1-330, apply to CNMI Wildlife Conservation Areas, including the Bird Island Wildlife Conservation Area.

(d) General Prohibitions

Except as provided for in subsection (e) below, no person shall, in any wildlife conservation area,

- 1) Hunt or fish,
- 2) Be in possession of any firearm, slingshot, bow and arrow, shot or any instrument that could be used for the purpose of hunting,
- 3) Have in his possession any animal, carcass, nest, egg or a part of any of those things,
- 4) Damage, destroy or remove a plant except those plants used for traditional medical purposes,
- 5) Carry on any agricultural activity, graze livestock or harvest any natural or cultivated crop,
- 6) Allow any domestic animal to run at large,
- 7) Camp or light or maintain a fire,
- 8) Operate a conveyance,
- 9) Destroy or molest animals or carcasses, nests or eggs thereof,
- 10) Remove, deface, damage or destroy any artifact, natural object, building, fence, poster, sign or other structure,
- 11) Carry on any commercial or industrial activity,
- 12) Disturb or remove any soil, sand, gravel or other material, or
- 13) Dump or deposit any rubbish, waste material or substance that would degrade or alter the quality of the environment.

(e) Permits

- (1) The DFW Director may, on application, issue a permit to any person authorizing that person to carry on an activity described in subsection (d) in any wildlife conservation area where that activity will not interfere with the conservation of wildlife. A person to whom a permit has been issued shall:
 - (i) have the permit in his/her possession at all times while in the wildlife area; and
 - (ii) show the permit to any conservation officer immediately on request.
- (2) Every permit expires on the expiry date set out in the permit or, where a permit does not contain an expiry date, on December 31st of the year in which it was issued. The DFW Director may cancel or suspend a permit where it is necessary to do so for the conservation of wildlife or wildlife habitat in a wildlife area.

(f) Restricted Entry

Where the DFW Director has published a notice in a local newspaper or posted a notice at the entrance of any wildlife area or on the boundary of any part thereof prohibiting entry to any wildlife area or part thereof, no person shall enter the area or part thereof set out in the notice.

2.1.3 LEASES

On March 1, 1997, 24 ha (59 ac) of DLNR's Bird Island Wildlife Conservation Area was included in a large (135 ha) golf resort lease made to the Bird Island Development Incorporated by the Division of Public Lands (Commonwealth Recorder's Office Document No. 97-1743, July 23, 1997). Figure 4 shows the location of that lease.

The lease was approved by Joint Session Resolution 10-7 on June 27, 1997, and further amended on September 24, 1997. The 40-year lease was scheduled to begin 24 months after legislative approval, and the lease was conditioned on the Lessee's timely completion of all phases of development, including the following conditions.

Phase 1: The construction of Phase 1 shall be completed within 48 months of the date of commencement of the lease, and shall include the following: an 18-hole PGA standard golf course; clubhouse and related facilities; maintenance buildings; employees' quarters and infrastructure including water storage; water treatment plant; deep wells; and wastewater treatment facility.

Phase 2: The construction of Phase 2 shall be completed within 36 months of the completion of Phase 1 and shall include the following: a 150 room hotel with amenities; 60 low-rise two-story duplex condominium units; art movie house and theater; botanical garden and sea water aquarium; and recreational park for horseback riding, jogging and related exercise activities.

Article 6(C)(1) of the amended lease states: "In the event that Lessee fails to timely complete construction of Phase 1 of the project, this Lease shall terminate with no further notice to Lessee and the land, together with any improvements thereon, shall revert to the Government..."

Therefore, upon termination of the proposed commercial use of that certain portion of the Bird Island Wildlife Preserve [currently named Bird Island Wildlife Conservation Area] by the Department of Public Lands, or its statutory successor, DLNR's authority to control and manage the preserve consistent with the objective of Public Law 10-84 and that certain Grant of Public Domain Lands, dated 16 July 1991, will immediately restore in DLNR, as the fee simple grantee to Lot No. 044 A 01, the Bird Island Wildlife Preserve. Regardless of the existing encumbrance on that certain portion of the Lot No. 044 A 01 by that certain lease agreement between the Bird Island Development Inc. and CNMI Division of Public Lands, as amended, DLNR is still and remains the legal, fee simple owner of record.

2.1.4 COMMONWEALTH MITIGATION BANK

The Bird Island Wildlife Conservation Area also is part of the Commonwealth Mitigation Bank, which was established in January 1998 under Public Law 10-84. This mitigation bank consists of three land conservation areas: the Bird Island Wildlife Conservation Area, Kagman Wildlife Conservation Area, and the Marpi Commonwealth Forest, with the option of adding other areas in the future.

The purpose of the mitigation bank is to: "...designate public lands owned by the Commonwealth government that will be preserved in perpetuity for wildlife conservation and managed to enhance habitat functions for targeted endangered and threatened species." Public Law 10-84 also states: "The Commonwealth, through the Department of Lands and Natural Resources, shall protect, maintain and manage the protected areas in perpetuity in accordance with this Act, with any Agreement between the CNMI and the United States Fish and Wildlife Service, and with any Management Plan developed pursuant to such Agreement."

2.2 BIRD ISLAND MARINE SANCTUARY

2.2.1 ENABLING LEGISLATION

The Bird Island Marine Sanctuary was created by Public Law 12-46 in April 2001 - which also established the Forbidden Island Marine Sanctuary. The law contains the following key provisions.

Purpose: Public Law 12-46 established the Bird Island and Forbidden Island Marine Sanctuaries for the conservation of wildlife and marine life, as well as to:

- promote the concept of conserving and protecting natural resources;
- serve as a natural laboratory for the continued propagation of wildlife and marine species, which gradually and naturally can re-populate depopulated areas; and
- provide a laboratory for students, teachers, and research groups to study wildlife and marine species

Location: As stated in Public Law 12-46: “The Bird Island Sanctuary shall have boundaries beginning at Lichan Point and extending south inclusive of the Grotto, Bird Island, Bird Island Bay to and inclusive of Bird Island Lookout. This sanctuary shall extend one thousand feet from the low tide line seaward and five hundred feet up the face of the cliff line; provided that, the boundaries shall not affect any pre-existing public land leases.”

The original description of the marine conservation area boundary, as stated above, was found to be partially incorrect because it does not meet the ecological conservation purposes that were originally intended by the author of Public Law 12-46 (Pangelinan 2007, pers. comm.). Therefore, the DFW is currently in the process of making regulatory changes that will clarify and correct those boundary locations - those boundary corrections are shown in Figure 2. It is important to note that these boundary changes do not significantly change the size of the marine conservation area, as it was originally defined by Public Law 12-46. These changes only shift the boundaries south so that they better protect the most important and sensitive ecological and scenic tourism resources of Bird Island Bay, which was the original purpose for establishing the marine conservation area.

Management and Monitoring: The Division of Fish and Wildlife will be responsible for clearly marking the boundaries with signs, written in three languages (Chamorro, Carolinian, and English), and permanently placing these signs at the northern and southern boundaries of the sanctuary and at intervals in between. The signage shall state the purpose of the marine sanctuary, the boundaries, and the benefits derived from the sanctuary, prohibited activities within the sanctuary, and the penalty for engaging in prohibited activities in the sanctuary.

The Division of Fish and Wildlife shall monitor these marine sanctuaries on a periodic basis at different times, reporting their findings and maintaining a written record of those findings, which shall be available to the public upon reasonable request.

Collaboration: The Department of Public Lands, Coastal Resources Management Office, and the Marianas Visitors Authority shall work together with the Division of Fish and Wildlife in developing this sanctuary to be a model for replication throughout the Pacific. Activities to be undertaken which can benefit through collaboration include: fencing the perimeters of the land

side of the sanctuary and installing gates for entry and exit, building rest areas with pavilion and bathroom facilities, marking trails and installing rails for safety purposes, providing signage that is educational, promotes conservation, and clearly states prohibited activities and the penalty for engaging in these prohibited activities. Marker buoys should also be installed to indicate the seaward parameters of these sanctuaries.

Permissible Activities: Permissible activities within these sanctuaries include educational fieldtrips, documentary filming, hiking, picnics, and other activities that do not detrimentally affect the wildlife. This determination will be made upon written application to the Director of the Division of Fish and Wildlife. The Director may also elect not to allow any individuals into these sanctuaries if the Director so determines that at certain times and in certain seasons that it is detrimental and contrary to good wildlife conservation practices to have any intrusion into a wildlife sanctuary at that time or season.

Fees:

The Division of Fish and Wildlife may elect to charge a nominal entry fee for the purposes of maintenance of these sanctuaries and for enforcement, research, and improvement of the sanctuary.

Prohibited Activities:

Destruction, harassment and/or removal of plants, wildlife including birds, turtles, fish and marine species of any kind, fishing in any form, operation of jet skis, walking on exposed sections of the reef, harvesting or removal of fish, shellfish or marine life in any form is prohibited within the confines of the sanctuary.

Penalties:

A fine of \$500 and/or prison sentence of not more than one year shall be imposed on any individual who engages in any of the prohibited activities within the sanctuary.

2.2.2 REGULATIONS

CNMI marine reserves are protected by regulations defined under 2 NMIAC § 85-30.1-450. At this time however, those regulations do not apply to the Bird Island Marine Sanctuary because that area is not specifically identified as a marine reserve within the regulations.

In order to establish regulations for this marine sanctuary, the DFW may simply amend 2 NMIAC § 85-30.1-450 to include the Bird Island Marine Sanctuary, or develop a new set of regulations. In the interim, enforcement actions taken by the Department of Lands and Natural Resources within this area are limited to the statutory prohibitions and limitations defined by Public Law 12-46 (Section 2.2.1), as well as any other DLNR and DFW regulations that may apply.

3.0 AREA DESCRIPTION

3.1 GENERAL CHARACTERISTICS

3.1.1 BIRD ISLAND WILDLIFE CONSERVATION AREA

The Bird Island Wildlife Conservation Area consists of 118 ha (292 ac) of land that extends from mean high-tide line inland an average of approximately 300 m to the roadways shown in Figure 2. The northern boundary of the conservation area is about 200 m north of the Grotto and the southern boundary extends to Tangke Point (Figure 2).

Table 1. Size of the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.^a

Area	Hectares	Acres
Total Area of the Bird Island Wildlife Conservation Area	118	292
Total Area of the Bird Island Marine Sanctuary^b	215	532
- Marine area (including Bird Island, which is 1 ha)	157	387
- Land Area	59	145

^a All boundaries of these conservation areas are final, and they may be obtained from the DLNR Division of Land Registration and Surveys for the most accurate coordinates.

^b Total figures were added from the marine and land area using three decimal points, and then rounded.

Note: Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary overlap by 65 ha (161 ac) (Fig. 2); therefore, the total size of both areas combined is 268 ha (662 ac).

3.1.2 BIRD ISLAND MARINE SANCTUARY

The Bird Island Marine Sanctuary encompasses a total of 215 ha (532 ac), which consists of 157 ha (387 ac) of marine area (including Bird Island which is about 1 ha), and 59 ha (145 ac) of land (Figure 2).

Marine: Fringing reefs are found along approximately 90% of the marine sanctuary shoreline, with the widest sections centrally located in Bird Island Bay. Here, near Bird Island, the reef extends as much as 300 m (984 ft) from shore and contains a shallow lagoon ecosystem that averages about 1-3 m (3 to 6 ft) deep. Substrates within the lagoon include reef flats, reef patches, sand flats, and rubble zones. At the outer edge of the fringing reef, the reef descends generally at 30 to 50 degrees into deep-water habitats.



Land: The land portion of the sanctuary includes the beaches and a 152 m (500 ft) inland buffer from the shoreline (base of the cliffs), but extends no further than the boundaries of Bird Island Wildlife Conservation Area (Figure 2). This land extension overlaps the Bird Island Wildlife Conservation Area by 65 ha (161 ac). The beaches generally are coarse coralline cobble and sands, are found along approximately 900 m (2,953 ft) of the shoreline, and the beaches range from just a few meters wide to a maximum of about 40 meters (120 ft) wide in the central portion of Bird Island lagoon.

3.1.3 OTHER CONSERVATION AREAS IN THE VICINITY

Marpi Commonwealth Forest (380 ha [938 ac]) is immediately west of the Bird Island Wildlife Conservation Area (Figure 3). This commonwealth forest was established in 1998 as part of the Commonwealth Mitigation Bank, for the purpose of conserving, in perpetuity, wildlife and wildlife habitats (Public Law 10-84; also refer to Section 2.1.4). The mitigation bank also includes the Bird Island and Kagman Wildlife Conservation Areas.

Bird Island Marine Sanctuary fully overlaps the 80 ha (198 ac) Bird Island Sea Cucumber Reserve (Figure 3). No sea cucumber may be taken from this area except as permitted by the DFW Director, and any permit issued by the Director is subject to special conditions (2 NMIAC §85-30.1-420). Sea cucumbers and any other echinoderms, as well as seaweed and seagrass, also are protected throughout the CNMI by a moratorium on harvest established through Public Law 11-63, for a period of at least ten years from February 1999. The moratorium may be extended by the Secretary of the DLNR, after ten years, if those populations have not sufficiently recovered to allow harvest.

3.2 TERRESTRIAL RESOURCES

3.2.1 GEOLOGY AND SOILS

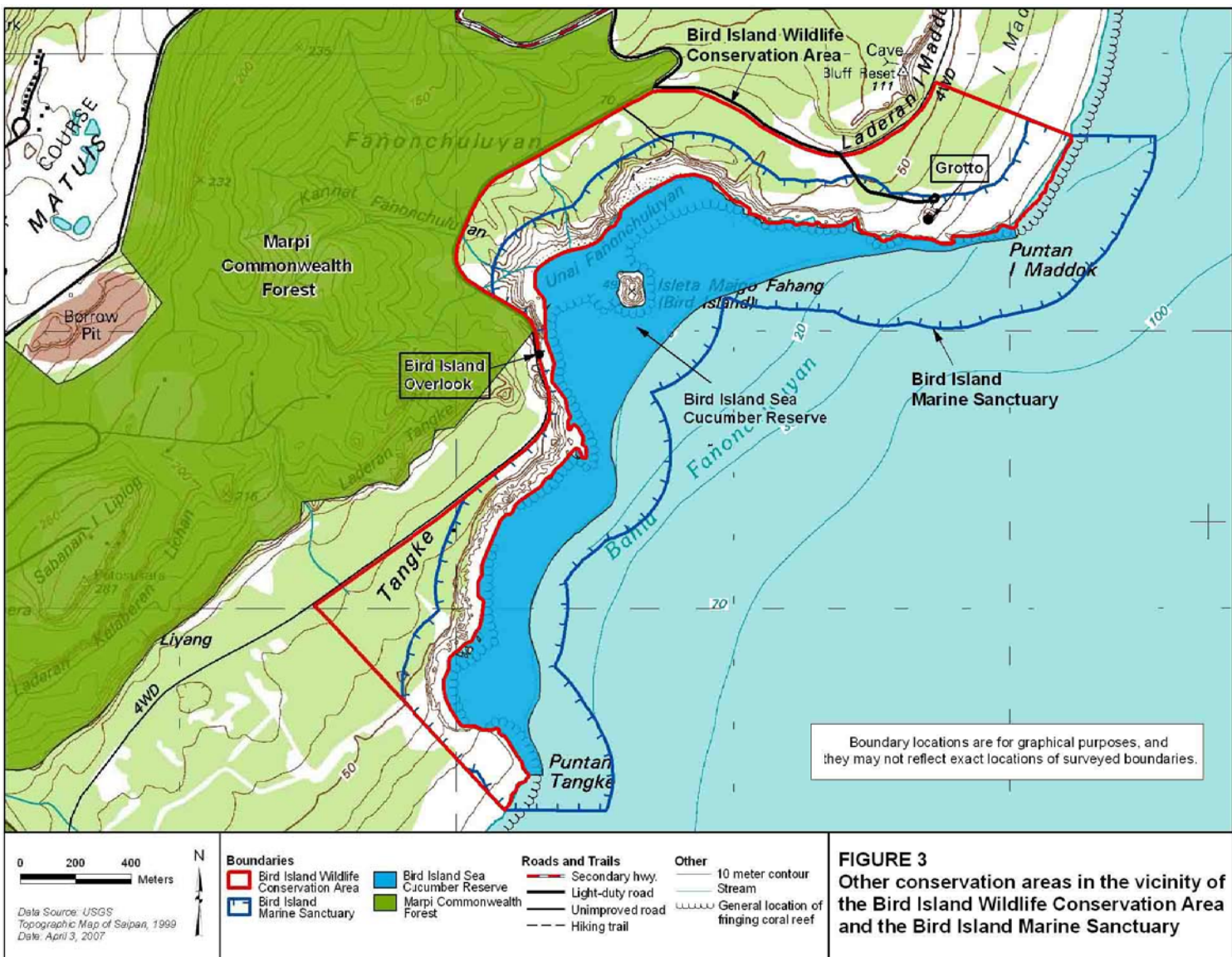
Limestone bedrock underlies the conservation area except for most of the rugged coastal cliffs of Bird Island and the vicinity of the Bird Island Overlook, both of which primarily have basalt rock at or near the surface (CRMO 1997). This basalt is generally more resilient to weathering than limestone hence the rugged, steep cliff formations in those areas.

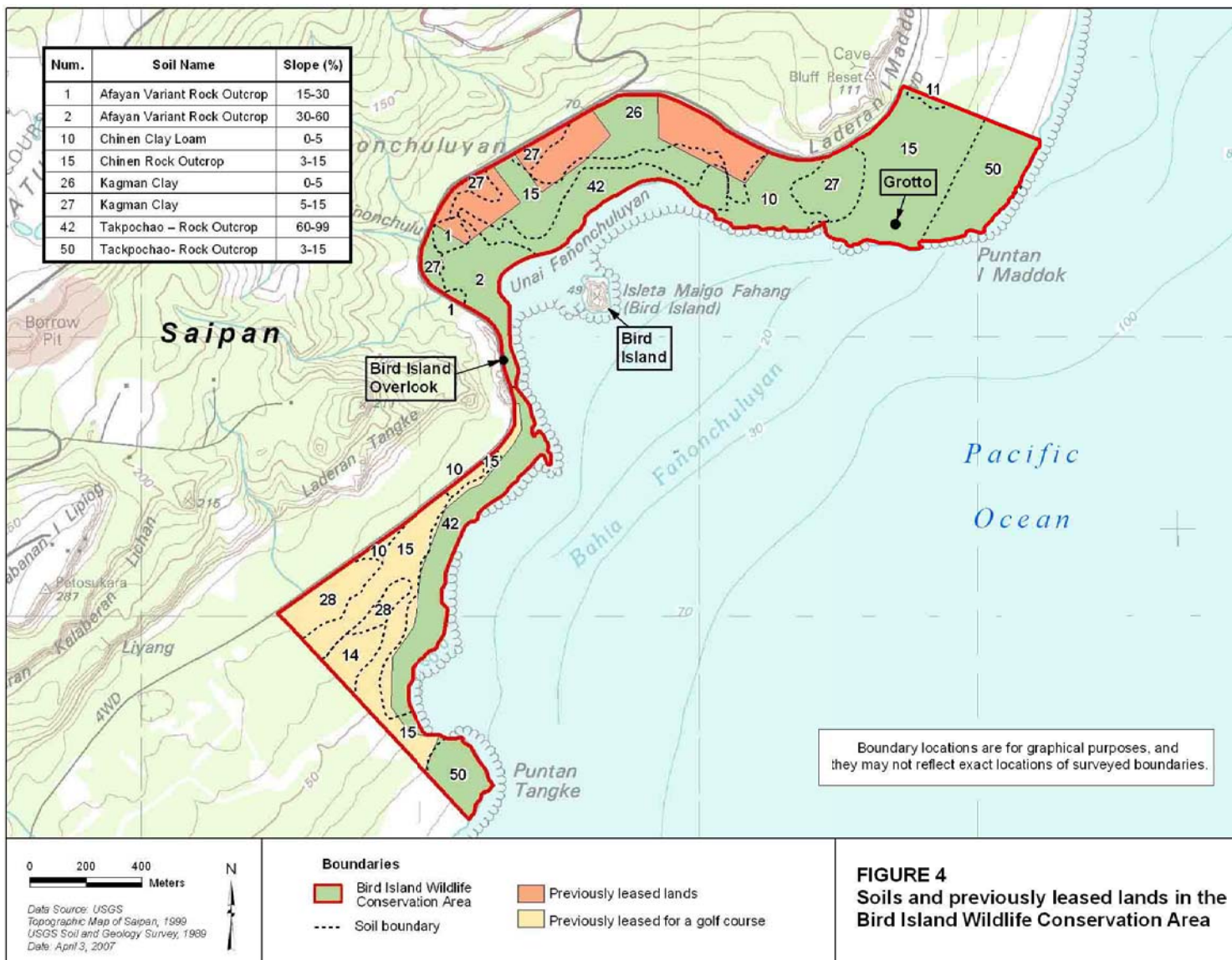
Soil in the Bird Island Wildlife Conservation Area generally consists of rock outcrop soils (Afayan Variant Rock Outcrop, Chinen Rock Outcrop, and Takpochao Rock Outcrop) and clay or clay-loam soils (Chinen Clay Loam, Kagman Clay) (Table 2; Figure 4; Young 1989). The rugged, steep cliffs of Bird Island and the Bird Island Overlook vicinity primarily consist of rock outcrop soils, which are generally unsuitable for forest growth. The clay and clay-loam soils found further inland are more suitable for forest growth.

Table 2. Soils of the Bird Island Wildlife Conservation Area (Young 1989).

Map #	Name	Slope (%)
1	Afayan Variant Rock Outcrop	15-30
2	Afayan Variant Rock Outcrop	30-60
10	Chinen Clay Loam	0-5
15	Chinen Rock Outcrop	3-15
26	Kagman Clay	0-5
27	Kagman Clay	5-15
42	Takpochao – Rock Outcrop	60-99
50	Takpochao- Rock Outcrop	3-15

Collapsed coastal cliffs exist in the southern and northern portions of the marine sanctuary coastline. In the northern area, the collapsed cliff line appears to have eliminated most remnants of a narrow fringing reef that may have previously existed. A geologic feature known as the





Grotto also was formed in this area when a massive section of limestone bedrock dislodged from the mainland limestone rock – thus creating a large gap approximately one hectare in size. The lowest point of the Grotto contains an alcove of seawater about 3 to 10 m (9 to 30 ft) deep which is connected to the open ocean via underwater tunnels.

3.2.2 FLORA

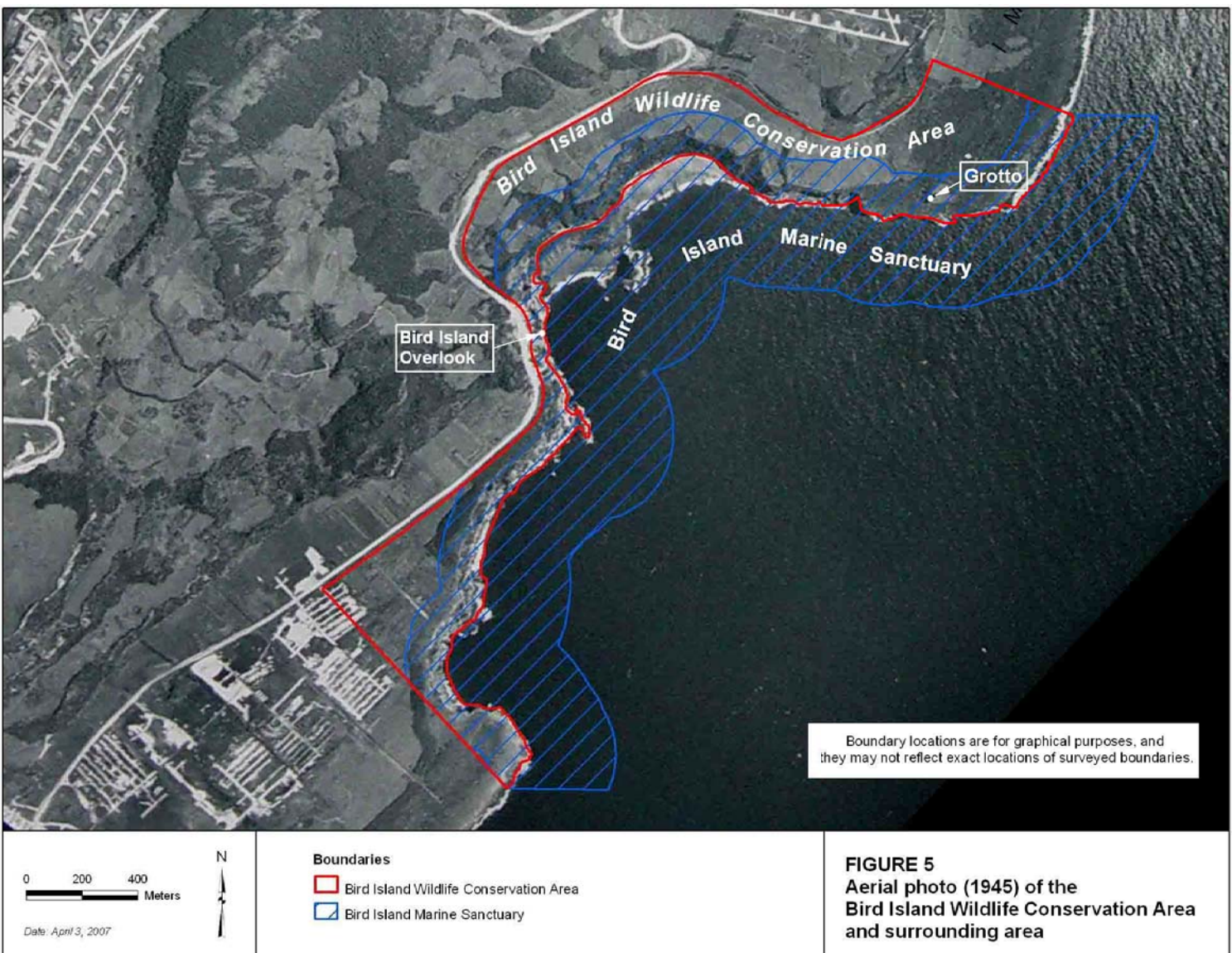
Vegetation surveys were conducted in the Bird Island Wildlife Conservation Area in 2001-2002 along the same transects used for forest bird surveys (de Cruz et al. 2003). A summary of those results is quoted here.

“A total of 16 tree species were identified throughout the Bird Island Wildlife Preserve during vegetation surveys, two of which were non-native introduced species, *Leuceana leucocephala* [tangantangan] and *Albizia lebbeck*. These two species and the native *Cynometra ramiflora* dominated the forest in terms of density, frequency of occurrence, and importance value. The average density of all tree species in the area was 33.45 trees / 100 m² and the most abundant species in all size classes was *L. leucocephala*. The understory was dominated by small sized *C. ramiflora*, a native species, while the larger size classes were composed completely of non-native species. Canopy cover was fairly high throughout the conservation area and the ground cover was quite variable.

The Bird Island Wildlife Preserve Area was a forest mosaic in December 2001. Native forest was concentrated in the ravine areas, whereas the flat, inland areas were dominated by *L. leucocephala* overstory. Spatially, the conservation area is composed of a patchwork of tangantangan forest, stands of mixed native and introduced trees, and a low percentage of native forest. Native tree species such as *Aidia cocochinensis*, *Ochrosia marianneisis* and *Cynometra ramiflora* were most common in the smaller size classes where *L. leucocephala* was less prevalent.”

During the early 1900's, native vegetation was cleared from significant portions of the conservation area lands, as shown by aerial photos taken in 1945 (Figure 5); and many of those previously cleared lands also were leased for livestock grazing in the 1980's (de Cruz et al. 2003; Figure 4). From 1989 until 1995, forest restoration plots were established in some of those areas as mitigation for the Saipan Air Force Radar station and the Kan Pacific Raceway (Figure 4; de Cruz et al. 2003). However, that effort was reversed in the late 1990's when squatters farmed or grazed livestock in some of those areas (de Cruz et al. 2003). The squatters were removed in 2001, and since that time the DLNR has reestablished some restoration sites in the former farm plots by planting trees such as daok (*Calophyllum inophyllum*), nunu (*Ficus prolixa*), gulos (*Cynometra ramiflora*), ifit (*Intsia bijuga*), kafu (*Pandanus fragrans/tectorius*), lemai (*Artocarpus altilis*), and talisai (*Terminalia catappa*) (de Cruz et al. 2003).

Non-native plants and plant communities have established in the conservation area, particularly where forests were cleared or significantly altered. As with many other areas of Saipan, the presence of invasive, non-native plant species is a serious management concern due to the adverse impacts those plants can have on native plant and animal communities.



3.2.3 FAUNA

A survey of forest birds was conducted in the Bird Island Wildlife Conservation Area from December 11 to 15, 2001 (de Cruz et al. 2003). A total of 424 individual birds were recorded from 15 species. The most common species detected were: Saipan bridled white-eye (nosa) (*Zosterops conspicillatus saypani*), rufous fantail (na'abak) (*Rhipidura rufifrons*), and golden white-eye (canario) (*Cleptornis marchei*). Other species often detected were the Micronesian starlings (sali) (*Aplonis opaca*), collared kingfishers (sihek) (*Halcyon chloris*), Mariana fruit-doves (totot) (*Ptilinopus roseicapilla*), and Micronesian honeyeaters (egigi) (*Myzomela cardinalis*). The white-throated ground dove (paluman apaka) (*Gallicolumba xanthonura*) and Philippine turtle-dove (paluman senesa) (*Streptopelia bitorquata*) were rarely found. Over 20 feral chickens were also recorded. Seabirds incidentally recorded during these forest bird surveys consisted of one white-tailed tropicbird (*Phaethon lepturus*), 19 brown noddies (*Anous stolidus*), and 12 white terns (*Gygis alba*).

Three endangered bird species also were reported to inhabit the conservation area forests, albeit in small numbers (Table 3). The nightingale reed-warbler (gaga karisu) (*Acrocephalus luscini*) and the Micronesian megapode (sasangat) (*Megapodius laperouse laperous*) were rarely recorded during the 2001 surveys, and the Micronesian swiftlet (chachaguak) (*Aerodramus bartschi*) was occasionally observed foraging over the forests (de Cruz et al. 2003).

Historically, the Marianas fruit bat (fanihi) (*Pteropus mariannus*) was most likely present in the area, although it has not been observed in recent years, including no detections during the surveys conducted in 2001 and 2002. Non-native mammals known to inhabit the conservation area include mice, rats, shrews, feral dogs, and feral cats. These and other feral animals compete with native wildlife, impact habitat, and may potentially impact the visitor recreation experience. However, surveys have not been done for these particular animals in the conservation area, therefore their numbers and potential impacts to the conservation resources are unknown at this time.

Table 3. Endangered or threatened animal species known to inhabit the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.

Common name	Scientific name	CNMI Status	Federal Status
Nightingale reed warbler	<i>Acrocephalus luscini</i>	TE	E
Mariana swiftlet	<i>Aerodramus bartschi</i>	TE	E
Micronesian megapode	<i>Megapodius laperouse laperous</i>	TE	E
Green sea-turtle (haggan)	<i>Chelonia mydas</i>	TE	E
Hawksbill sea-turtle (haggan)	<i>Eretmochelys imbricata</i>	TE	E

TE = CNMI Threatened- Endangered Species, and E = Federal Endangered Species

Green sea turtles (*Chelonia mydas*) and hawksbill sea turtles (*Eretmochelys imbricata*) inhabit the marine sanctuary, and green sea turtles have consistently nested on Bird Island beach within the past two years, 2006 and 2007 (Ruak 2007, pers. comm.). Bird Island Beach is currently not part of a systematic monitoring for sea turtle nesting, although nesting surveys were conducted there in 2006 and 2007, and at other beaches as well (Ruak 2007, pers. comm.). Systematic cliff side surveys also are conducted from three points at or near the Bird Island Overlook to count the number and types of turtles within the near-coastal areas. These surveys are conducted for one hour (during mid-day), five days a week, every third week of the year (Ruak 2007, pers. comm.).

Herpetofauna also was surveyed in the Bird Island Wildlife Conservation Area during December 2001 and January 2002 (Hawley 2006, pers. comm.). Diurnal and nocturnal lizards were sampled using sticky traps placed along ten transects - four of those transects were representative of tangantangan (*Leucaena leucocephala*) forest, four representative of native forest, and two representative of mixed forest.

Four fingered skinks (*Carlia fusca*) were by far the most common diurnal species captured in tangantangan and native forests, and they were also abundant in coastal beach forests dominated by *Barringtonia asiatica*. Only a few blue tailed skinks (*Emoia caeruleocauda*) were captured in ground-level diurnal traps, but others were seen in trees and vines 4 to 15 feet above the ground. This particular habitat use pattern may be due to the relative high population of *Carlia fusca* on the forest floor, which is a strong territorial species (Hawley 2006, pers. comm.).

Nocturnal trapping methods had limited success, possibly due to rainy weather, however the house gecko (*Hemidactylus frenatus*), mutilating gecko (*Gehyra mutilata*), mourning gecko (*Lepidodactylus lugubrus*) and monitor lizards (*Varanus indicus*) were detected in all the habitats surveyed (Hawley 2006, pers. comm.). Surveyors also noted a large number of female guardian butterflies (*Hypolimnys anomala*) roosting along the survey transects. *Hypolimnys anomala* is a unique species because it exhibits parental protective behavior over their egg clusters by beating their wings against potential predators, such as ants (Hawley 2006, pers. comm.).

3.2.4 STRUCTURES AND FACILITIES

The visitor service facilities in these conservation areas are primarily limited to two major tourism sites: the Bird Island Overlook and the Grotto. A few roadways and short trails also exist within the wildlife conservation area.

The primary road accessing these conservation areas is a two-lane paved road extending from tourist sites at the Last Command Post/Banzai Cliff areas, which are about 2 km (1.2 mi) northwest of the Bird Island Conservation Areas. This paved road extends along approximately 85 percent of the western boundary of the wildlife conservation area, with the remaining 15 percent is bordered by a narrow, unimproved road (Figure 2). A paved two-lane road also extends into the northern part of the conservation area where it accesses the Grotto parking lot and Grotto stairs. An unimproved road also extends into the central portion of the wildlife conservation area where it accesses a trailhead and parking area for the Bird Island Beach Trail, which is approximately 150 m in length (Figure 2).

The Bird Island Overlook is one of the most popular tourism sites on Saipan in terms of the number of visitors (refer to Section 4.1 for details). From this overlook, visitors have an expansive view of the Bird Island Wildlife Conservation Area and the Bird Island Marine Conservation Area, including a clear view of Bird Island. The primary infrastructure here consists of concrete steps and walkways with hand rails that extend down slope about 40 m to the lowest level of the overlook. Other infrastructures include three picnic tables and an old outhouse that is rarely used. There also is an unpaved parking area large enough for about 30 passenger vehicles, and a small wood guard shack. The DLNR is planning to construct a 16 ft by 20 ft concrete pavilion at the overlook to provide visitor protection from sun and rain.



The Grotto is one of the most popular SCUBA diving sites on Saipan, as well as being an internationally ranked recreation dive site. The primary infrastructure here consists of a short, steep concrete stairway (approximately 100 steps) that extends from the parking lot to the Grotto seawater pool. Infrastructures at the parking area were upgraded in 2005, including a parking area large enough to accommodate about 25 passenger vehicles, a large concrete overlook platform and toilets.



Major signs are located at the three primary tourism points (Grotto, Bird Island Overlook, and Bird Island Beach trailhead), yet these signs only identify the existence of the Bird Island Marine Sanctuary and not the Bird Island Wildlife Conservation Area. These signs are approximately 3 ft by 5 ft in size and contain the text shown below. A few small (10 inch by 16 inch) “Conservation Area” signs also are posted at or near the Bird Island Beach trailhead.

Bird Island Sanctuary

Public Law No. 12-46

SECTION 5

- NO Destruction, harassment and or removal of any plants
- NO Destruction, harassment and or removal of any wildlife including birds, turtles, fish and marine species of any kind.
- Absolutely NO FISHING in any form.
- NO Operation of jet skis.
- NO walking on exposed sections of reef.
- NO Harvesting or removal of any fish, shellfish, or marine life in any form.

SECTION 6

- A Fine of \$500.00 and/or a prison sentence of not more than one year shall be imposed on any individual who engages in any of the prohibited activities within the area designated as sanctuary.

REPORT ANY VIOLATION TO DIVISION OF FISH AND WILDLIFE

664-6045 OR 664-6030

3.2.5 CULTURAL AND HISTORIC RESOURCES

The Bird Island Wildlife Conservation Area has some archeological sites although they have not been well documented (Cabrera 2006, pers. comm.). Some of these sites include historic artifacts from the Japanese and American occupations and wartime battles, such as a World War II military dump site submerged on the reef between the Bird Island Overlook and Tangke Point.

3.3 MARINE RESOURCES

3.3.1 GEOMORPHOLOGY AND BIOLOGICAL SUBSTRATE COVER

Coral reefs in the Northern Mariana Islands belong to the highly diverse Indo-West Pacific fauna (USFWS 1996). These coastal waters have an international reputation for their clarity and complex reef systems, including at least 240 species of hard corals and 41 species of soft corals and sea fans. Comprehensive coral reef surveys have not been conducted in the Bird Island Marine Sanctuary, although generalized geomorphologic and biologic mapping was completed by the National Ocean Service Biogeography Program, which is part of the National Oceanic and Atmospheric Administration (NOAA National Centers for Coastal Ocean Science NCCOS, 2005).

The two primary geomorphic structures in the Bird Island Marine Sanctuary are Aggregate Reef (relatively continuous aggregations of high relief coral formations lacking major sand channels) and Pavement (flat or low-relief solid carbonate rock) (Figure 6; NOAA National Centers for Coastal Ocean Science NCCOS, 2005). Three other less prevalent geomorphic structures include spur and groove; sand; and pavement with sand channels.

The predominant biological substrates in the Bird Island Marine Sanctuary are coral (with 10-50 percent coverage), and macroalgae (with 10-50 percent coverage), which is primarily within the Bird Island Lagoon (Figure 7; NOAA National Centers for Coastal Ocean Science NCCOS, 2005). Coral species in the marine sanctuary include, but are not limited to, species within the scientific families of: Pocilloporidae, Acroporidae, Poritidae, and Fungiidae (Trianni and Tenorio 2007, pers. comm.).

3.3.2 FAUNA

The Bird Island Marine Conservation Area is a complex marine coastal ecosystem that includes hundreds of vertebrate and invertebrate species. Invertebrate species present in the conservation area include, but are not limited to, crabs (Grapsidae, Diogenidae, Portunidae); lobsters (Scyllaridae, Palinuridae); shrimp (Stomatopoda); sea worms (Polychaete); sea slugs (Nudibranchia); and octopus/squids (Cephalopodia), just to name a few of the most obvious species (Trianni and Tenorio 2007, pers. comm.). Green sea turtles (*Chelonia mydas*) and hawksbill sea turtles (*Eretmochelys imbricata*) also inhabit the marine sanctuary, and green sea turtles periodically nest on the adjoining beaches (Ruak 2007, pers. comm.; also refer to Section 3.2.3).

Fish species found within the marine sanctuary include, but are not limited to: squirrelfish, trumpetfish, coronetfish, pipefish, cardinalfish, groupers, snappers, morey eels, lizardfish, emperors, brems, goatfish, hawkfish, butterflyfish, anglefish, damselfish, wrasses, parrotfish, surgeonfish, moorish idol, rabbitfish, blennies, gobies, triggerfish, filefish, sharks, and puffers. Preliminary fish surveys have been completed in the sanctuary and the results of these surveys will be used to design future long-term surveys for the marine sanctuary (Trianni 2006, pers. comm.; also refer to Appendix A).

3.3.3 WATER QUALITY

The Division of Environmental Quality (DEQ) monitors water quality at approximately 50 coastal sites on Saipan, including the Grotto and Bird Island Beach sites, both of which have been monitored since 1993 (Bearden et al. 2006; Tanaka Bearden 2006, pers. comm.). Water collected from this sampling is analyzed for microbiological and chemical parameters including salinity, dissolved oxygen, temperature, pH, turbidity, and enterococci bacteria. The levels of enterococci bacteria are used to determine whether coastal waters violate federal water quality standards.

From 1993 until 2002 water quality samples were collected during each quarter of the year, and during that ten year period, the Grotto and Bird Island Beach sites had only one water quality violation each. Beginning in 2003 water quality sampling intensity increased to an eight week cycle, and from that time until September 2006 the Grotto site had 0 to 5 water quality violations each year and the Bird Island Beach site had 3 to 7 violations (Table 4).

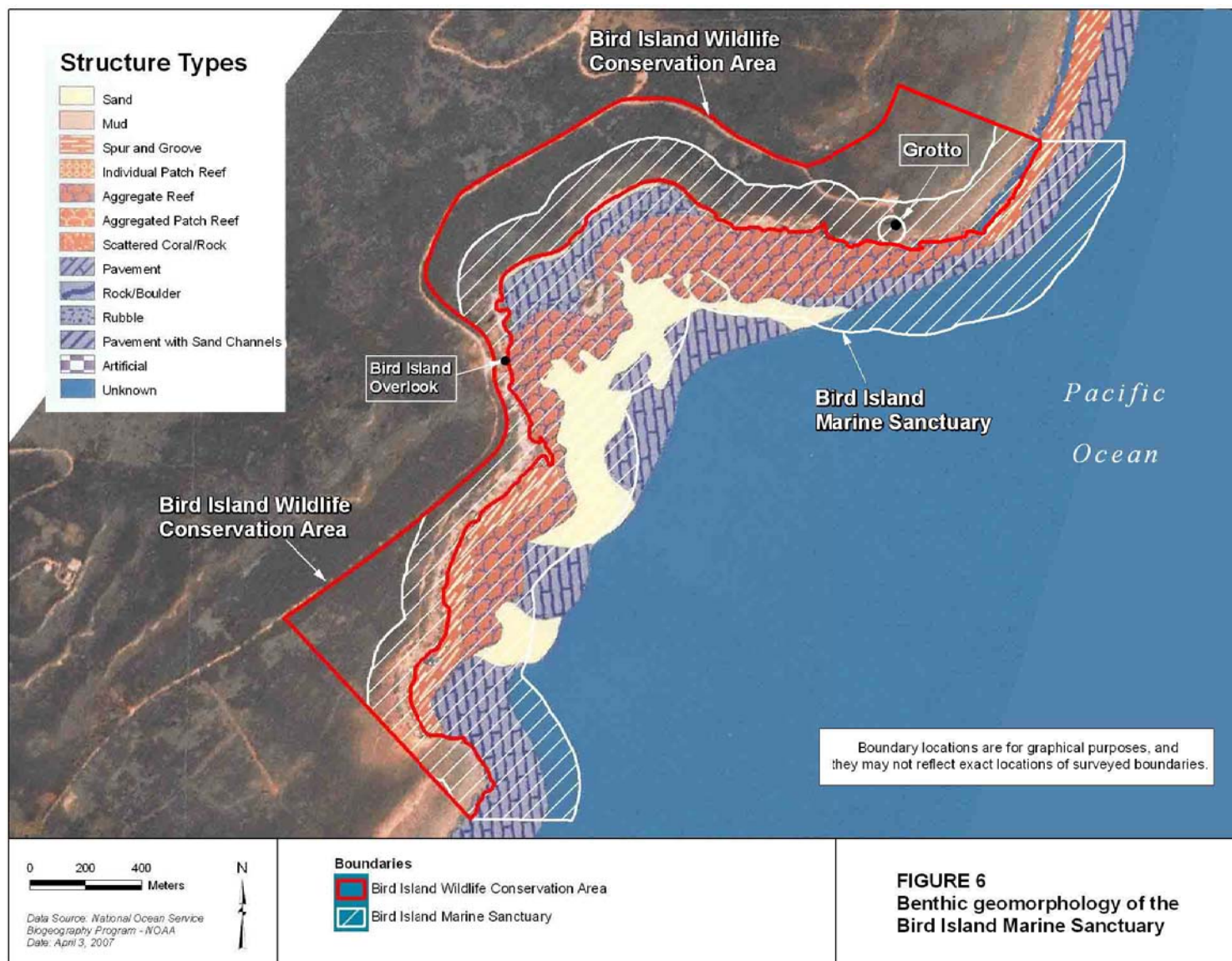
Table 4. Number of water quality samples taken in the Bird Island Marine Sanctuary that showed violations of federal clean water standards.

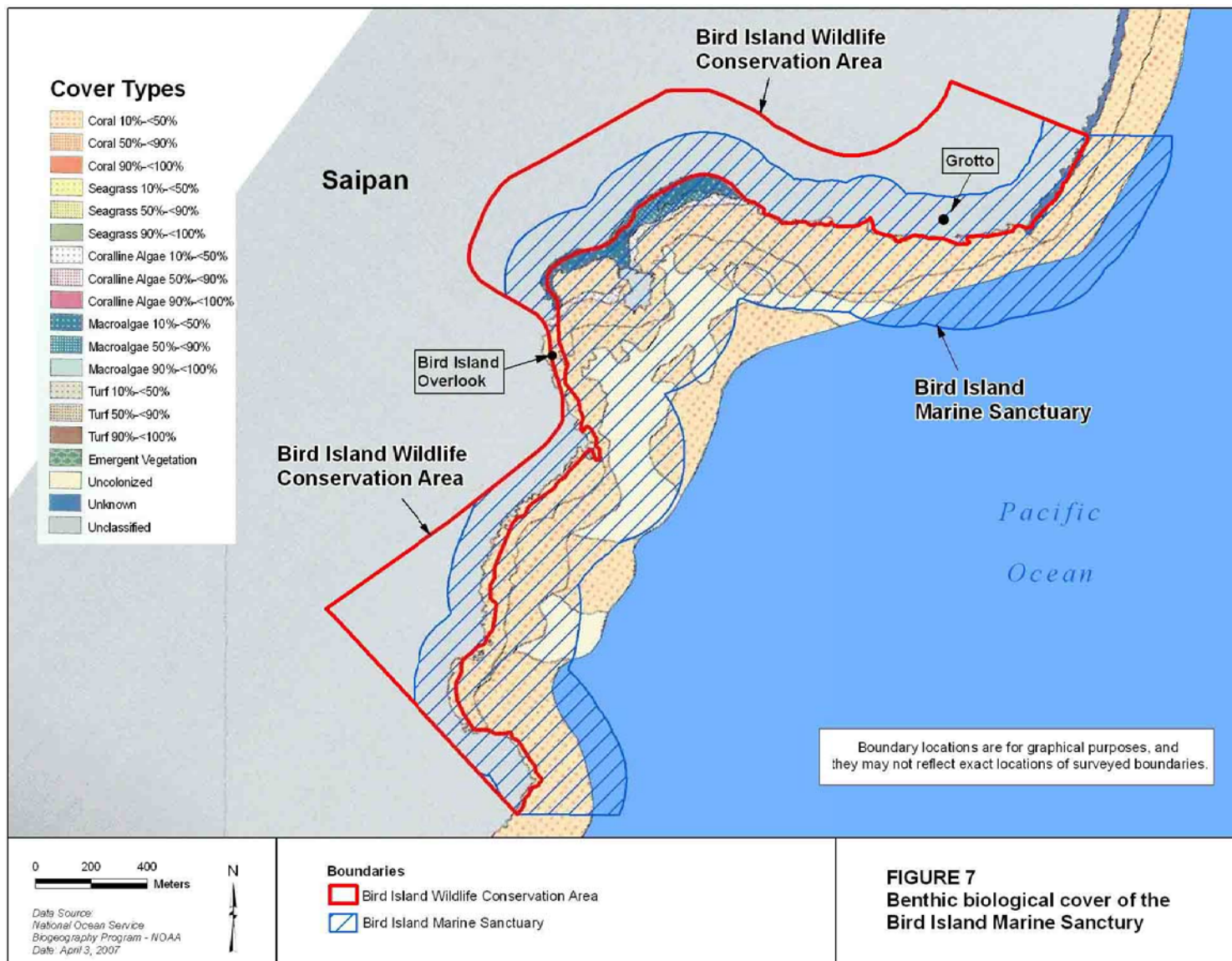
Location	1993-2002	2003	2004	2005	2006 (Jan-Sep)
Grotto Cave	1	2	5	1	0
Bird Island Beach Grotto	1	3	7	7	5

* Data provided by the CNMI Division of Environmental Quality.

Saipan's northeastern coastline, including the area of the Bird Island Marine Sanctuary, is the least developed coastline on Saipan. This coastline does not have the major developments found on Saipan's western coast, such as the sewage treatment plants, seaports, marinas, major residential centers, commercial product industries, and hotels. This relative isolation from major commercial and residential developments has helped keep the sanctuary waters and ecosystems in relatively pristine condition. However, the sanctuary waters are at some risk of degradation from trash and waste left by visitors; surface and subsurface contaminants, such as those from rainwater flushing from paved roads and parking lots; limestone erosion from unpaved roads and parking lots; and toilet facilities.

At this time it is unclear what may be the source of water quality violations detected by the DEQ at the Grotto and the Bird Island Beach sites. Further analysis is necessary to determine possible sources and the extent of their potential impacts.





4.0 AREA USES

4.1 TYPES OF USES

Nearly all uses occurring in the Bird Island conservation areas are related to tourism and recreation, and nearly all those uses occur at two sites – the Bird Island Overlook and the Grotto. A relatively small number of people also visit Bird Island Beach via the Bird Island Beach trail. Scientific research and educational field trips also occur in the conservation areas, although those uses are relatively uncommon.

The Marianas Visitor Authority (MVA) has monitored visitor use at the Bird Island Overlook and the Grotto, as well as at three other key tourism sites on Saipan since January 2005 (Table 5). Monitoring occurs from approximately 8 AM to 5 PM, seven days a week throughout the year. The data accumulated from this work indicate the Bird Island Overlook and the Grotto are some of the most popular tourism sites on Saipan. For example, during the first 8 months of 2006, the Bird Island Overlook received a total of 137,796 visitors, which is the highest visitation of the five sites that were monitored (Table 5). This equates to a monthly average of about 17,225 visitors, and an estimated daily average of about 574 visitors. During this same period the Grotto received a total of 87,803 visitors for an average of 10,975 visitors per month and an estimated daily average of 366 visitors per day. These visitation rates are relatively high, but they also occurred during a period with relatively low CNMI tourism levels, as compared with previous years. As CNMI tourism levels increase in the future, the numbers of visitors to these sites is also expected to increase, possibly significantly, such as increasing to more than 1,000 visitors per day at the Bird Island Overlook.

Table 5. Number of visitors using major Saipan tourism sites from January to August 2006.

Tourism Site	Total	Monthly Average	Estimated Average Daily Visitation
Bird Island Overlook	137,796	17,225	574
Grotto	87,803	10,975	366
Banzai Cliff	128,018	16,002	533
Laolao Bay	41,683	5,210	174
Obyan	19,383	2,423	81

* Data provided by the Marianas Visitor Authority.

Uses occurring at the Bird Island Overlook are almost all passive activities, such as viewing nature. Visitors also use the site for general relaxation, including eating, resting, photography, stretching, etc. In contrast, a majority of the visitors to the Grotto typically hike down the stairway (approximately 100 steps) to the sea-level pool, where an estimated 60 percent of them swim, snorkel or SCUBA dive. Many of the SCUBA divers also swim through the underwater tunnels. Relatively few divers also access the open ocean by boats, which typically run from the west side of Saipan.

The Grotto is internationally ranked as one of the most popular SCUBA diving sites in the world. Its unique topography, seawater pool and sea life, and its underwater tunnel system make it a premier dive site for SCUBA divers and



commercial diving companies alike. This unique resource also is much more vulnerable to visitor impacts than most other Saipan tourism sites because that intensive use (i.e., hundreds of visitors per day) is focused on a comparatively small area of water which is not readily flushed by open ocean currents. Although most visitors are conscientious about reducing their impacts to the site, waste and trash is occasionally deposited within the watershed and the pool. Incremental impacts of trash and other visitor waste can cumulatively build through time to become a significant future problem. Therefore, this site, in particular, requires close monitoring to ensure its natural resources remain healthy for current and future generations.

4.2 COMPATIBILITY OF USES

4.2.1 COMPATIBILITY WITH THE CONSERVATION PURPOSE

The DFW has reviewed known and potential visitor uses of these conservation areas to determine which uses should be considered compatible with the conservation mandate and which should be prohibited.

The following preliminary classifications will be used as a foundation from which DFW can review and revise existing regulations or develop new regulations, to manage visitor uses in a manner that protects conservation area resources (also refer to Section 4.2.3).

4.2.1.1 Compatible Uses

Table 6 lists the known or potential uses of the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary that are compatible with the conservation mandates for those areas. That compatibility, however, only occurs if those uses are conducted in a manner that does not significantly impact the conservation area resources.

Table 6. Compatible uses for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.

Compatible Uses ^a
Conducting non-motorized recreation on land, including hiking, sightseeing, resting, picnicking, photography, adventure sports, and games
Conducting non-motorized recreation in water, including swimming, snorkeling, skin diving, and SCUBA diving
Operating non-motorized watercraft, such as sail boats, kayaks, canoes, surf boards, and wind and kite surf equipment
Operating motorized watercraft except for personal watercraft (jet skis, wave runners, etc.) and submersible vessels, which are not permitted
Mooring to buoys – in the absence of mooring buoys, watercraft operators shall employ “live boat diving” techniques ^b
Operating motor vehicles on roads designated for such use
Conducting educational programs for individuals, groups, or schools
Conducting cultural ceremonies

^a These uses are compatible when they are conducted and regulated in a manner that does not significantly impact the conservation area resources. All activities conducted contrary to Public Law 12-46 or DFW regulations are prohibited.

^b Live boat diving involves an unanchored or unmoored watercraft that remains idling while the watercraft operator tracks the movements of diver(s).

4.2.1.2 Prohibited Uses Except When Allowed By DFW Permit

Table 7 identifies uses that are prohibited in the conservation areas, but may be allowed under a limited scope and duration as defined by a DFW permit issued by the DFW Director. These permits would only be granted if the uses do not pose a significant threat to the natural resources in the conservation areas.

Table 7. Prohibited uses for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary except when allowed by DFW permit.

Prohibited Uses, Except When Allowed By DFW Permit^{a, b, c}
Operating commercial services for a fee or other compensation ^c
Constructing or erecting permanent or non-permanent structures or buildings
Operating above-water breathing mechanisms, such as “hooka,” “snuba” or “sea-walker” systems
Overnight camping
Building or maintaining open fires
Bringing pets or domesticated animals (such as dogs, cats, and birds) into the conservation areas

^a These prohibited uses exclude actions conducted by the DFW, and by individuals or organizations sanctioned and permitted by DFW, to manage, maintain, monitor, survey, study, or protect the conservation area resources and visitors in a manner that meets the conservation mandates.

^b A few of these activities may be allowed in the future within DFW designated management zones (refer to Section 4.2.2), such as a campfire management zone that could allow those specific uses in locations that are compatible with the conservation mandates.

^c The term “Commercial Services” are those activities conducted in a conservation area for any type of fee or other compensation, such as the preparation, delivery, or sale of food, beverages, goods, equipment, or services, including providing tours or guide services for a fee in or from a conservation area.



4.2.1.3 Prohibited Uses

Table 8 identifies uses that are prohibited in the conservation areas. These uses exclude actions conducted by the DFW, and individuals or organizations sanctioned and permitted by DFW, to manage, maintain, monitor, survey, study, and protect the conservation area resources and visitors in a manner that meets the conservation mandates.

Table 8. Prohibited uses for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.

Prohibited Uses ^a
Operating submersible vessels or personal watercraft (jet skis, wave runners, etc.)
Operating motorized vehicles off roads designated for such use
Anchoring, except in the case of an actual emergency
Fishing of any kind, or using any type of food or other attractant for the purposes of attracting or feeding fish or other marine life (e.g., feeding, chumming, and baiting of fish, including sharks)
Dumping, discharging, depositing, or littering items such as trash, food, fish food, dead vegetation, oil, gas, poisons, or other pollutants on or in land or water
Leaving trash in containers that allow rodent access
Killing, harming, harassing, baiting, collecting, or removing animals, fish, coral, or their live or dead parts, including shells, nests, burrows, and dens, including causing adverse impacts to coral as a result of watercraft operation
Killing, cutting, collecting, removing, or relocating plants or plant parts
Introducing, establishing, planting, raising, growing, or sustaining non-native plants, animals, or fish species
Removing, excavating, disturbing, destroying, defacing, or damaging cultural or historic artifacts
Extracting, removing, or excavating minerals, sand, rock, limestone, or soil.
Discharging or depositing, from beyond the conservation area boundaries, any material or other foreign matter that subsequently enters the conservation area and causes injury or damage to the resources therein.
Igniting fireworks or other explosive devices in, on, or over land or water

^a These uses exclude actions conducted by the DFW, and by individuals or organizations sanctioned and permitted by DFW, to remove non-native plants, to manage, maintain, monitor, survey, study, and protect the conservation area resources and visitors in a manner that meets the conservation mandates.

4.2.2 MANAGEMENT ZONES

As provided by 2 NMIAC § 85-30.1-330(f), the DFW Director can create “Restricted Entry Zones” in wildlife conservation areas, including within the Bird Island Wildlife Conservation Area (refer to Sec. 2.1.4). These zones may be established to protect visitors from hazards or to protect rare or vulnerable natural resources for which existing regulatory capabilities are inadequate (e.g., regulations that are too broad or too narrow to adequately protect visitors or vulnerable resources). These Restricted Entry Zones would be selectively designated, on a short-term or long-term basis, depending on the specific nature of the visitor hazards or the resources needing protection. For example, these areas could be used to protect visitors from hazardous trails or unstable structures, or to protect vulnerable natural resources, such as vegetation restoration sites, critical bird nesting sites, or areas with rare native plants.

In the future, the DFW may also create management zones to provide for visitor uses in a manner that makes them compatible with the conservation mandate. For example, the DFW may decide to create campfire management zones where beach campfires could be legally made within the conservation area. These special management zones have not been defined for these two conservation areas at this time, but

may be established in the future, if deemed necessary by DFW to allow for, or to better manage, visitor uses.

4.2.3 COMPATIBILITY WITH LAWS AND REGULATIONS

The compatible and prohibited uses identified in Tables 6-8, as well as the management zone concept, provide an overview of how DFW foresees future use of the conservation areas that would occur in a manner that best protects the resources while also allowing for their use and enjoyment. As previously stated in Sections 2.1 and 2.2, the Bird Island Wildlife Conservation Area has existing regulations, while the Bird Island Marine Sanctuary has statutory laws (Public Law 12-46), but no regulations. In some cases those regulations and Public Law 12-46 may, or may not correlate with the proposed use patterns defined in Tables 6 through 8. Therefore, one of the goals for DFW's future management of these areas is to amend the existing regulations or create new regulations that correlate with these proposed uses and prohibitions.

Some current uses are inconsistent with the existing regulatory structure of these conservation areas. For example, under current regulations for the Bird Island Wildlife Conservation Area (refer to Sec 2.1.2), all commercial activities (e.g., guide services for clients) must be permitted by DFW (at this time, these permits are not required for the Bird Island Marine Sanctuary). Yet, every day of the year tour operators and guide services bring hundreds of clients to the Grotto and the Bird Island Overlook without obtaining a permit for commercial operations. Other existing uses, such as camping, campfires, and unleashed dogs are also inconsistent with existing regulations for the Bird Island Wildlife Conservation Area (refer to Sec. 2.1.2). For example, occasionally the Bird Island Beach is used for camping, campfires, and visitors walking unleashed dogs, yet those uses currently are prohibited within wildlife conservation areas (2 NMIAC § 85-30.1-330; refer to Sec. 2.1.2). Some of these uses, including camping and campfires may be compatible with the conservation area mandates, if they are conducted with minimal impact. Yet, these uses require a DFW permit, and those permit requirements are unknown to many of the visitors that partake in those activities. As part of the future management of these conservation areas, the DFW will assess whether the above uses should be sanctioned as compatible without regulations or if those uses should continue to be prohibited unless conducted under a DFW permit, or conducted within special management zones.

5.0 MANAGEMENT GOALS, OBJECTIVES, AND STRATEGIES

5.1 GOALS, OBJECTIVES AND STRATEGIES

This section defines the goals, objectives, and implementation strategies for managing the conservation areas in a manner that conserves their natural and historic resources while also providing tourism and recreation opportunities. Table 9 summarizes those goals and objectives.

Table 9. DFW management goals and objectives for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.

Goal 1: Develop and promulgate regulations, and develop visitor use guidelines.	
Objective 1.1:	Within three years of completing this management plan, DFW will develop and promulgate regulations for the Bird Island Marine Sanctuary, as well as review and possibly amend the existing regulations for the Bird Island Wildlife Conservation Area.
Objective 1.2:	DFW will update visitor use guidelines for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary at least every five years.
Goal 2: Inform and educate visitors about the conservation area resources, regulations, and recommended visitor use practices.	
Objective 2.1:	DFW will annually review the information and distribution of visitor information brochures, flyers, or posters for the conservation areas, and will revise and distribute those materials as needed to meet public education needs.
Objective 2.2:	DFW will annually review signs in the Bird Island Wildlife Conservation Area and refurbish or replace those signs, or install new signs, as needed to educate visitors about resources, safety, regulations, and recommended visitor use practices.
Objective 2.3:	DFW will annually assist schools, individuals, and groups in using the conservation areas for educational programs.
Goal 3: Implement specific management actions to address conservation area needs.	
Objective 3.1:	DFW will annually evaluate structures in the conservation areas to determine whether they need maintenance or removal, or if new structures are needed, and then implement actions to meet those needs, as funding allows.
Objective 3.2:	DFW will annually evaluate trails in the Bird Island Wildlife Conservation Area to determine if they need maintenance, rerouting, or other changes to improve resource protection, visitor safety and visitor opportunities, and then implement actions to meet those needs, as funding allows.
Objective 3.3:	Within three years, DFW will assess and implement a conservation area user fee system and hire a Conservation Area Manager to manage the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.
Goal 4: Survey natural resources and visitor uses in the conservation areas to assess their status through time, and work towards restoring native ecosystems.	
Objective 4.1:	DFW will survey marine resources in the Bird Island Marine Sanctuary at least every two years to assess marine ecosystem health and provide a baseline which future conditions will be compared.
Objective 4.2:	DFW will survey native and non-native vegetation and wildlife in the Bird Island Wildlife Conservation Area at least once every ten-years, to provide a baseline of conditions against which future survey results will be compared.
Objective 4.3:	DFW, and the DLNR Forestry Section, will begin within three years to remove or minimize non-native plants in the Bird Island Wildlife Conservation Area, and use those preliminary projects to develop a longer-term plan for native plant restoration.
Objective 4.4:	DFW will assess the needs and capabilities for surveying visitor use patterns in the conservation areas at least every five years and implement such surveys as needed to adequately monitor visitor uses.
Goal 5: Evaluate and report on the status, trends, and needs of the conservation area resources, management, surveys, and visitor uses.	
Objective 5.1:	DFW will prepare a brief report at least every three years, and prepare a comprehensive report every five years, for the conservation areas, including the resource status, visitor uses, and surveys.

Goal 1: Develop and promulgate regulations, and develop visitor use guidelines.
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Objective 1.1: Within three years of completing this management plan, DFW will develop and promulgate regulations for the Bird Island Marine Sanctuary, as well as review and possibly amend the existing regulations for the Bird Island Wildlife Conservation Area.

Short and Long-term Strategies:

- With possible assistance from the CNMI Attorney General's Office and others, the DFW will develop and promulgate regulations for the Bird Island Marine Sanctuary that meet requirements of Public Law 12-46.
- DFW will review, and possibly revise, the existing regulations that apply to the Bird Island Wildlife Conservation Area to help better protect and manage it, and design the regulations so they better blend with expected uses and prohibitions as well as regulations of other conservation areas.
- DFW will enforce regulations, and periodically review (i.e., every five years) their effectiveness, and amend regulations when needed to protect conservation area resources.
- DFW will inform other CNMI agencies (e.g., the Department of Public Safety [DPS], CRMO, DEQ, HPO, DPL, etc) about these regulations and request their assistance in educating the public about them, and in notifying DFW of any known or possible infractions.

Adaptive Management:

- If DFW finds that existing personnel and funding is inadequate to develop, revise, and promulgate regulations for the conservation areas, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue to not be available to accomplish this work, then DFW will delay this work until such support becomes available.

Objective 1.2: DFW will update visitor use guidelines for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary at least every five years.

Short and Long-term Strategies:

- At least every five years, DFW will update or develop guidelines for visitor use practices that reduce or prevent adverse impacts to natural resources in the conservation area as well as reduce hazards to visitors. These guidelines may include recommendations for hiking (on-trail and off-trail), wading, snorkeling, and SCUBA diving.
- DFW will consult with user groups (tour companies, SCUBA diving companies, environmental groups, etc.) and government agencies to assess their needs and preferences for guidelines, as well as review and possibly incorporate other user guidelines from other sources that may be applicable to these and other conservation areas.

Adaptive Management:

- If the DFW finds that existing personnel and funding is inadequate to accomplish this work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue to not be available to accomplish this work, then the DFW will delay this work until such support becomes available.

Goal 2: Inform and educate visitors about the conservation area resources, regulations, and recommended visitor use practices.

Objective 2.1: DFW will annually review the information and distribution of visitor information brochures, flyers, or posters for the conservation areas, and will revise and distribute those materials as needed to meet public education needs.

Short and Long-term Strategies:

- DFW will update and distribute, as needed, visitor information materials (i.e., brochures, maps, flyers, or posters) to convey the purposes, needs, regulations, and recommended visitor use practices for conservation area uses.
- These visitor information materials will be distributed to the public through a variety of means and at a variety of locations, such as at the DFW and DLNR main offices, offices of other agencies (i.e., MVA, CRMO, DEQ, DPL), public news sources (i.e., newspapers, television, and radio), and various visitor information distribution centers.
- DFW will conduct other forms of public education to convey the importance of the conservation areas to the CNMI, as well as inform the public about the conservation area resources, research, assessments, laws, and use guidelines. Some means for this communication include TV programs, special events, newspaper articles, workshops, volunteer work outings, but there are many others.
- DFW will discuss visitor education needs with CNMI, federal agencies, and groups or organizations (i.e., the Coral Reef Initiative) that also have a stake in protecting the conservation area resources to determine whether there are shared opportunities for creating and funding visitor education materials.

Adaptive Management:

- If the DFW finds that existing personnel and funding is inadequate to accomplish this work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue to not be available to accomplish this work, then DFW will delay this work until such support becomes available.

Objective 2.2: DFW will annually review signs in the Bird Island Wildlife Conservation Area and refurbish or replace those signs, or install new signs, as needed to educate the visitors about resources, safety, regulations and recommended visitor use practices.

Short and Long-term Strategies:

- DFW will review signs in the Bird Island Wildlife Conservation Area and refurbish or replace them, or install new signs, as needed to educate the public about resources, safety, regulations and recommended visitor use practices.

- DFW will discuss signage needs with CNMI agencies, federal agencies, and other groups or organizations that also have a stake in the conservation of the resources in the conservation areas, to determine whether there are opportunities for shared visitor education and funding for developing and installing signs.

Adaptive Management:

- If the DFW finds that existing personnel and funding is inadequate to accomplish this work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue not to be available to accomplish this work, then DFW will delay this work until such support becomes available.

Objective 2.3: DFW will annually assist schools, individuals, and groups in using the conservation areas for educational programs.

- DFW will assist schools, groups, and individuals with using the conservation areas for educational purposes, provided that such uses are consistent with the conservation purpose of those conservation areas.

<p>Goal 3: Implement specific management actions to address conservation area needs.</p>

Objective 3.1: DFW will annually evaluate structures in the conservation areas to determine whether they need maintenance or removal, or if new structures are needed, and then implement actions to meet those needs, as funding allows.

Short and Long-term Strategies:

- DFW, in collaboration with other DLNR divisions and sections, will assess the condition of structures in the conservation areas, such as buoys, roads, parking lots, fences, hand railings, overlook facilities, and picnic facilities to determine whether they need maintenance, removal, or if new facilities are needed.
- DFW, in collaboration with other DLNR divisions and sections, will maintain or refurbish existing structures, or install new structures, as needed to provide resource protection and safe visitor access.

Adaptive Management:

- If DFW finds that existing structures need maintenance, refurbishment, or replacement, or new structures are needed, and personnel and funding are not available to accomplish that work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If DFW finds visitor facilities are not safe for visitor use, and funding is not available to repair or replace those structures, then DFW will close those structures to visitor use until corrections can be completed.

Objective 3.2: DFW will annually evaluate trails in the Bird Island Wildlife Conservation Area to determine whether they need maintenance, relocating, or new trails to improve resource protection, visitor safety and visitor opportunities, and then implement actions to meet those needs, as funding allows.

Short and Long-term Strategies:

- DFW will assess the condition of Bird Island Beach Trail to determine what actions are needed to protect resources, such as reducing trail soil erosion, and reducing visitor hazards.
- DFW will work with other DLNR sections and divisions (i.e., Parks and Recreation) to either contract or internally design a trail system that meets the above needs and implement that work through grants, local funding, volunteer assistance or other means.

Adaptive Management:

- DFW or other DLNR Divisions or Sections find that the existing trails need maintenance or rerouting, or if new trails are needed, and personnel and funding are not available to accomplish the work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If DFW finds that trails in the Bird Island Wildlife Conservation Area are in serious need of maintenance to protect resources or visitor safety, and funding is not available for those corrective actions, then DFW may close those trails to public use until corrective actions can be completed.

Objective 3.3: Within three years, DFW will assess and implement a conservation area user fee system and hire a Conservation Area Manager to manage the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.

Short and Long-term Strategies:

- DFW will assess, plan, and implement a user fee system for commercial guides and operators, and potentially non-resident visitors, that use the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary.
- DFW will develop and hire a person to fill a Conservation Area Manager staff position within DFW.
- The Conservation Area Manager will be responsible for managing and tracking the user fee payments; overseeing the management, protection, and assessments of the natural resources and visitor uses in these conservation areas; assist in developing and revising regulations; and developing, updating and implementing management plans for these conservation areas.

Adaptive Management:

- If DFW finds that assistance is needed to implement a user fee system for the conservation areas, then DFW will garner the needed support and expertise from whatever source is needed, such as from CNMI legislators and CNMI Attorney General's Office.

Goal 4: Survey natural resources and visitor uses in the conservation areas to assess their status through time, and work towards restoring native ecosystems.

Objective 4.1: DFW will survey marine resources in the Bird Island Marine Sanctuary at least every two years to assess marine ecosystem health and provide a baseline which future conditions will be compared.

Short and Long-term Strategies:

- DFW biologists will conduct fish surveys at least every two years in the Bird Island Marine Sanctuary to provide population and trend assessments through time. Appendix A summarizes existing and proposed fish surveys and research.
- DFW biologists will assess the need and funding ability to conduct surveys of marine invertebrate species in the Bird Island Marine Sanctuary to develop population trend assessments through time, and DFW will implement those surveys, if needed and when funding is available. Appendix A identifies the estimated costs for this work.

Adaptive Management:

- If additional surveys and research are needed to adequately assess fish species and populations, DFW will design plans, obtain funding, and implement that additional work as needed, and as funding allows.
- If surveys or research show fish and other marine resources or their ecosystems have been degraded, the DFW biologists will consult with the DFW Director and the DLNR Secretary to assess the means for reducing, minimizing, or eliminating that resource damage, and restoring those resources, as funding allows.

Objective 4.2: DFW will survey native and non-native vegetation and wildlife resources in the Bird Island Wildlife Conservation Area, at least every ten years, to provide a baseline of conditions against which future survey results will be compared.

Short and Long-term Strategies:

- DFW scientists will conduct native and non-native wildlife surveys at least every ten years in the Bird Island Wildlife Conservation Area to assess their status and changes through time. Appendix A summarizes existing and proposed terrestrial wildlife surveys and research.
- DFW scientists will conduct native and non-native vegetation surveys at least every ten-years in the Bird Island Wildlife Conservation Area to assess their status and changes through time. Appendix A summarizes existing and proposed vegetation surveys.

Adaptive Management:

- If additional surveys and research are needed to assess terrestrial resources, and changes to them, then DFW will design plans, obtain funding, and implement the work as needed, and as funding allows.
- If surveys or research show that non-native wildlife species could have, or may be significantly degrading the conservation area resources, then DFW will consult with the DFW Director to develop and implement a plan to minimize or eliminate that resource damage, as funding allows.

Objective 4.3: DFW, and the DLNR Forestry Section, will begin within three years to remove or minimize non-native plants in the Bird Island Wildlife Conservation Area, and use those preliminary projects to develop a longer-term plan for native plant restoration.

Short-term Strategies:

- Within three years, the DFW and the DLNR Forestry Section will begin removing non-native plant species from the Bird Island Wildlife Conservation Area, and this process also will be used as a pilot project for developing a more comprehensive, longer-term action plan.

Long-term Strategies:

- Within five years, the DFW and DLNR Forestry Section will develop a ten-year plan to restore native plant communities in the Bird Island Wildlife Conservation Area, including removing or minimizing non-native plants, and this plan will use information collected from the pilot projects conducted for the short-term strategies of Objective 4.3.
- Within six years, the DFW and DLNR Forestry Section will begin to implement the vegetation restoration plan.

Adaptive Management:

- If DFW and the DLNR Forestry Section finds that existing personnel and funding is inadequate to conduct these short-term or long-term strategies, then the DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue to not be available to accomplish this work, then DFW will delay this work until such support becomes available.

Objective 4.4: DFW will assess the needs and capabilities for surveying visitor use patterns in the conservation areas at least every five years and implement such surveys as needed to adequately assess visitor uses.

Short and Long-term Strategies:

- DFW will evaluate the needs for assessing and monitoring visitor uses in the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary, including reviewing visitor use data that may have been collected by other agencies or organizations (e.g., Marianas Visitor Authority), and implement visitor use surveys when such surveys are deemed necessary to adequately assess and manage visitor uses.

Adaptive Management:

- If DFW finds that existing personnel and funding is inadequate to accomplish the work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue to not be available to accomplish this work, then the DFW will delay this work until such support becomes available.

Goal 5: Evaluate and report on the status, trends, and needs of the conservation area resources, management, surveys, and visitor uses.

Objective 5.1: DFW will prepare a brief report at least every three years, and prepare a comprehensive report every five years, for the conservation areas, including the resource status, visitor uses, and surveys.

Short and Long-term Strategies:

- DFW will prepare a brief report at least every three years, and prepare a comprehensive report every five years, for the conservation areas, including resource status, visitor uses, research and surveys. Suggested topics are:

Introduction

- Brief introductory overview of the conservation areas and their management.

Resource and Visitor Use Status and Trends

- Status and trends of the conservation area resources and visitor uses.

Management and Surveys

- Progress made toward accomplishing the management plan goals, objectives, and strategies.
- Status of surveys or research completed or on-going during the assessment period.
- Results of surveys or research that have been peer-reviewed.
- Proposed or planned future management and surveys.
- Recommendations for changes in existing, proposed or planned management and surveys, goals and objectives, personnel, funding and implementation strategies, including funding sources.

Adaptive Management:

- If DFW finds that existing personnel and funding is inadequate to accomplish this work, then DFW, in consultation with the Secretary of the DLNR, will work to identify appropriate funding sources.
- If funding and personnel continue not to be available to accomplish this work, DFW will delay this work until such support becomes available.

6.0 IMPLEMENTATION

6.1 SCHEDULE

Table 10 shows a general outline for implementing the management objectives during the first 15 years. The DFW has intentions for meeting this schedule, although changes may be necessary due to funding and personnel availability. As with any management plan, additional tasks will be needed to effectively manage the conservation area. Therefore, the DFW will periodically assess the status of the conservation area, update this management plan, and implement unplanned management actions as needed to meet the mandate for these conservation areas.

6.2 COSTS AND FUNDING OPTIONS

The DLNR's Division of Fish and Wildlife is responsible for implementing this management plan and enforcing the associated regulations, including the commitment of personnel, materials, and equipment. As shown by Table 11, DFW will need at least an estimated \$700,000 of additional funds to adequately manage and survey these conservation areas during the next 15 years. This total, however, does not include additional funding needed for conservation officers and their expenses to adequately monitor these areas. Currently conservation officers can only spend a small portion of their time monitoring these conservation areas because of limited staff and funding, and their existing federal funding could expire within the next few years. The additional funds identified above also do not include funding that potentially may be needed to implement adaptive management actions.

All, or nearly all, the costs for implementing this plan will be borne by the DLNR - DFW. However, existing DFW budgets are inadequate to meet many of these demands, let alone the needs of the current DFW responsibilities and mandates. Therefore, the DFW, in consultation with the Secretary of DLNR, will explore and implement strategies for obtaining additional and alternative funding to meet these management needs, such as seeking additional grants from federal and non-governmental organizations, teaming with existing conservation organizations for volunteers or funding, or implementing a fee system for non-residents, as well as for companies that use the conservation areas for their commercial business benefits.

As stated in the goals and objectives, the DFW will assess options for implementing a fee system for visitors using these conservation areas. DFW permits currently are required for commercial operations in the Bird Island Wildlife Conservation Area, and a fee could be levied on commercial operators at the time those permits are issued. However, a statutory provision will most likely be needed for the DFW to charge visitor fees above those for administrative purposes. In the case of the Bird Island Marine Sanctuary, the DFW already has the legal authority to charge visitors a nominal entry fee, yet there is no requirement for commercial operators to obtain a DFW permit (refer to Section 2.2). Ideally, these discrepancies will be resolved to create a fee system that is consistent for all conservation areas, and one that focuses on commercial operators. Any DFW fee system should be created so that it is streamlined and easy for operator compliance, as well as for DFW implementation and tracking.

Table 10. Preliminary, and generalized, schedule for accomplishing management strategies for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary Management Plan during the first 15 years.

Num	Management Plan Objective	Year														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.1	Develop, promulgate and implement regulations	X	X	X												
1.2	Update visitor use guidelines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.1	Update or create, and distribute educational materials	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.2	Refurbish, replace existing signs or install new signs	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.3	Assist with educational programs or activities	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.1	Evaluate, maintain, or install structures	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.2	Evaluate, maintain or create trails	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.3	Develop and implement a user fee & hire a manger	X	X	X												
4.1	Survey fish resources		X		X		X		X		X		X		X	
4.2	Survey terrestrial resources and restoration planning										X					
4.3	Remove non-native plants and restore native veg.			X	X	X	X	X	X	X	X	X	X	X	X	X
4.4	Survey visitor uses					X					X					X
5.1	Evaluate and report on the conservation areas		X		X		X		X		X		X		X	

X = Generalized year that objectives will be completed, although it does not represent the specific year of the work. The timing for accomplishing each objective will vary depending on the exact language of the objectives (i.e. at least once every 10 years, versus every 10 years), as well as availability of personnel and funding.

Table 11. Preliminary costs and funding needed (beyond current budgets) for implementing the Management Plan for the Bird Island Wildlife Conservation Area and the Bird Island Marine Sanctuary during the first 15 years.

Num.	OBJECTIVE	ESTIMATED LABOR SOURCE	ESTIMATED ADDITIONAL LABOR COST	ESTIMATED ADDITIONAL EXPENSE COST ^A	TOTAL NEEDED YEARS 1-15
1.1	Develop and promulgate regulations	New DFW staff (nonfederal funding)	\$12,000	0	\$12,000
1.2	Develop visitor use guidelines	New DFW staff required	\$12,000	\$6,000	\$18,000
2.1	Update and distribute brochures, posters, etc.	New DFW staff required	\$27,000	\$15,000	\$42,000
2.2	Refurbish, replace existing signs or install new signs	New DFW staff required	\$27,000	\$20,000	\$47,000
2.3	Assist with educational programs or activities	New and existing DFW staff	\$12,000	\$15,000	\$27,000
3.1	Evaluate, maintain or install structures	New DFW staff required	\$27,000	\$120,000	\$147,000
3.2	Evaluate, maintain or create trails	New DFW staff required	\$27,000	\$35,000	\$62,000
3.3	Develop and implement a user fee & hire a manger	Existing DFW staff	0	0	0
4.1	Survey marine resources	New DFW staff or funding required	\$110,000	\$30,000	\$140,000
4.2	Survey terrestrial resources	New DFW staff or funding required	\$25,000	\$5,000	\$30,000
4.3	Remove non-native plants and restore natives	New DFW staff or funding required	\$100,000	\$50,000	\$150,000
4.4	Survey visitor uses	New DFW staff or funding required	\$27,000	\$30,000	\$57,000
5.1	Evaluate and report on the conservation areas	New DFW staff required	\$27,000	\$6,000	\$33,000
	Totals		\$433,000	\$332,000	\$765,000

^A These 15 year labor costs are general estimates only and may need to be adjusted upward or downward through time depending on a variety of needs and issues. The labor costs were approximated using the percentage of time required of a full time staff person that requires approximately \$40,000 for salary and benefits in 2007 dollars.

^B Expense costs includes potential materials, supplies, and contract fees.

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APPENDIX A

PLANNED OR PROPOSED SURVEYS, RESEARCH, AND ECOSYSTEM RESTORATION

BIRD ISLAND WILDLIFE CONSERVATION AREA AND THE BIRD ISLAND MARINE SANCTUARY

Marine

Fisheries Assessments

From 2000 to 2006, the Fisheries staff of DFW has conducted preliminary surveys of fish species in portions of the Forbidden Island Marine Sanctuary (Trianni and Tenorio 2007, pers. comm.). The results of these surveys will be used to design surveys for longer-term assessments that can be implemented at least every two years in the future. Thus far, this work has been funded by the U.S. Fish and Wildlife Service, but in the future, additional funding will be needed for this work (Trianni and Tenorio 2007, pers. comm.). Therefore, Table A-1 includes an estimate of the additional funding for that work, as well as a funding estimate for invertebrate surveys that also may occur.

Coral Reef Monitoring

DFW will continue to focus on surveys of fish species to assess marine sanctuary health, while other CNMI agencies (e.g., DEQ and CRMO) and federal agencies (e.g., NOAA) may provide at least partial monitoring of coral reef populations in the marine sanctuary. DFW will keep apprised of those other ongoing studies.

Terrestrial

Wildlife and Vegetation Assessments

DFW conducted the first quantitative surveys of forest birds, herpetofauna, and plants in the Kagman Wildlife Conservation Area in early 2000, and those transects will be resurveyed at least once every ten years.

Non-Native Plant Assessment and Native Plant Restoration

Non-native invasive plants cover a portion of the Kagman Wildlife Conservation Area. Some of these species have the potential for spreading and dominating native plant communities, which subsequently can significantly degrade ecosystems and potentially the visitor experience. Therefore, as a first step in dealing with this issue, the DFW proposes begin a pilot or experimental project at removing non-native plants and information obtained from that effort will be used to develop a longer-term and more comprehensive native plant restoration for the Kagman Wildlife Conservation Area. Table A-1 includes the preliminary estimates of these costs.

Table A-1. Estimated additional funding needed for surveys, research, and habitat enhancement measures in the Bird Island Wildlife Conservation Area and Bird Island Marine Sanctuary during the first 15 years.

SURVEY AND RESEARCH TASKS	TOTAL ADDITIONAL COST FOR YEARS 1- 15	COMMENTS
Marine		
Fisheries Surveys	\$50,000	Supplements existing federal funding
Invertebrate Surveys	\$90,000	Requires entirely new funding
Marine Subtotal	\$140,000	
Terrestrial		
Ten-yr wildlife surveys	\$15,000	Supplements expected federal funding
Ten-yr vegetation surveys	\$15,000	Supplements expected federal funding
Non-native plant assessment and restoration planning	\$150,000	New funding to plan and implement vegetation restoration
Terrestrial Subtotal	\$180,000	
Total for the first 15 yrs	\$320,000	

A FRAMEWORK FOR HABITAT RESTORATION

The following are components that could be included in vegetation restoration plans.

- Project goals
- Maps and description of the extent of non-native plant distribution
- A map of proposed restoration site boundaries
- Description of the restoration methods, such as clearing non-natives, and seeding, transplanting, care of native plants, as well as erosion control, as needed.
- A list of native plant species that will be established, their sources, and care required for 3-5 yrs
- Fencing, signing, or other visitor use controls needed to protect the site
- Personnel and resources needed for preparing the sites, planting, and follow-up maintenance and monitoring
- Schedule for plant propagation, site preparation, planting, and maintenance
- Needs for removing and disposing non-native plant materials

Prospective restoration sites could be prioritized according to the following criteria.

- Area size, types of species present, and degree of adverse impacts
 - The amount and dominance of non-native species on the site
 - The potential for non-native species to spread
 - Location and ease of access to the sites (which affects resources needed for the restoration)
- The availability of native planting stock and capabilities to produce such stock
- The costs, time, and personnel needed to restore each site
- The overall cost/benefit effectiveness of restoring each area
- The effects of restoration on the area ecosystems