

Table of Contents

Chapter 1. Introduction and Background	1-1
1.1 Purpose and Need for the CCP	1-2
1.2 Legal and Policy Guidance	1-2
1.2.1 U.S. Fish and Wildlife Service	1-2
1.2.2 National Wildlife Refuge System	1-5
1.2.3 National Wildlife Refuge System Mission and Goals.....	1-5
1.2.4 National Wildlife Refuge System Administration Act of 1966	1-5
1.2.5 Presidential Proclamation 8337	1-6
1.2.6 Other Laws and Mandates.....	1-7
1.3 Refuge Establishment and Purposes	1-8
1.3.1 Refuge Establishment	1-8
1.3.2 Purpose.....	1-8
1.3.3 Land Status and Ownership	1-8
1.4 Refuge Goals.....	1-11
1.5 Relationship to Other Planning Efforts.....	1-12
1.6 Planning and Issue Identification.....	1-13
1.6.1 Issues Addressed in the CCP	1-13
1.6.2 Issues outside the Scope of the CCP.....	1-13
 Chapter 2. Refuge Management Direction.....	 2-1
2.1 Overview	2-1
2.2 General Guidelines.....	2-1
2.3 Rose Atoll NWR Management	2-9
2.3.1 Goal 1: Protect and maintain the lagoon habitats to meet the life-history needs of native species in this community.	2-9
2.3.2 Goal 2: Restore, protect, and maintain the perimeter crustose coralline algal reef to meet the life-history needs of native species in this community.	2-11
2.3.3 Goal 3: Protect and maintain the natural state of the ava (channel) to protect all other Refuge habitats and the hydrology of the lagoon.	2-13
2.3.4 Goal 4: Restore, protect, and maintain the beach strand habitat to meet the life-history needs of native species in this community.....	2-14
2.3.5 Goal 5: Restore, protect, and maintain littoral forest to meet the life-history needs of native species in this community including plants, seabirds, shorebirds, landbirds, waterbirds, reptiles, and land crabs.....	2-16
2.3.6 Goal 6: Gather scientific information (inventories, monitoring, assessments, and research) to support adaptive management decisions under objectives for Goals 1-5.	2-18
2.3.7 Goal 7: Strengthen resource conservation and the public’s shared stewardship of the ecological, geologic, and cultural richness of the Refuge by providing outreach, interpretation, and environmental education opportunities.....	2-22
2.3.8 Goal 8: Identify, protect, preserve, and interpret the Refuge’s Samoan cultural resources and facilitate, where appropriate, cultural practices.	2-25
 Chapter 3. Physical Environment.....	 3-1
3.1 Climate.....	3-1
3.1.1 Climate Change.....	3-1
3.1.2 Climate Change at Rose Atoll.....	3-2

3.2 Hydrology	3-6
3.3 Topography and Bathymetry	3-6
3.4 Geology and Geomorphology	3-7
3.5 Soils.....	3-9
3.6 Environmental Contaminants.....	3-10
3.6.1 Military Use in WWII.....	3-10
3.6.2 Wreck of the <i>Jin Shiang Fa</i> 1993	3-10
3.7 Air Quality	3-11
3.8 Water Quality.....	3-11
3.9 Surrounding Land and Water Use.....	3-12
Chapter 4. Biological Environment.....	4-1
4.1 Biological Integrity Analysis	4-1
4.2 Selection of Priority Resources of Concern.....	4-3
4.2.1 Analysis of Priority Resources of Concern.....	4-3
4.3 Habitat Types	4-7
4.3.1 Ava.....	4-11
4.3.2 Reef (Crest and Back).....	4-12
4.3.3 Lagoon	4-12
4.3.4 Intertidal.....	4-13
4.3.5 Beach Strand	4-14
4.3.6 Littoral Forest.....	4-15
4.4 Threatened, Endangered, and Sensitive Species.....	4-17
4.4.1 Tuli (<i>Numenius tahitiensis</i>) or Bristle-thighed Curlew.....	4-17
4.4.2 Tuli (<i>Pluvialis fulva</i>) or Pacific Golden Plover	4-18
4.4.3 I'a sa (<i>Chelonia mydas</i>) or Green Turtle	4-18
4.4.4 Hawksbill Turtle (<i>Eretmochelys imbricata</i>)	4-19
4.4.5 Faisua (<i>Tridacna maxima</i>) or Giant Clam	4-20
4.5 Seabirds.....	4-22
4.5.1 Tava'e'ula (<i>Phaethon rubricauda</i>) or Red-tailed Tropicbird	4-22
4.5.2 Atafa (<i>Fregata minor</i>) or Great Frigatebird.....	4-23
4.5.3 Atafa (<i>Fregata ariel</i>) or Lesser Frigatebird	4-24
4.5.4 Fua'o (<i>Sula dactylatra</i>) or Masked Booby	4-24
4.5.5 Fua'o (<i>Sula leucogaster</i>) or Brown Booby	4-25
4.5.6 Fua'o (<i>Sula sula</i>) or Red-footed Booby.....	4-26
4.5.7 Gogo Uli (<i>Anous minutus</i>) or Black Noddy.....	4-27
4.5.8 Gogo (<i>Anous stolidus</i>) or Brown Noddy.....	4-28
4.5.9 Manu Sina (<i>Gygis alba</i>) or White Tern	4-29
4.5.10 Gogo Uli (<i>Onychoprion fuscatus</i>) or Sooty Tern.....	4-30
4.5.11 Gogosina (<i>Onychoprion lunatus</i>) or Gray-backed Tern	4-31
4.5.12 Gogosina (<i>Sterna sumatrana</i>) or Black-naped Tern	4-32
4.6 Shorebirds and Wading Birds	4-33
4.6.1 Tuli (<i>Arenaria interpres</i>) or Ruddy Turnstone	4-34
4.6.2 Tuli (<i>Calidris alba</i>) or Sanderling	4-34
4.6.3 Tuli (<i>Tringa incana</i>) or Wandering Tattler.....	4-34
4.6.4 Matu'u (<i>Egretta sacra</i>) or Pacific Reef Heron	4-34
4.7 Land Birds.....	4-35
4.7.1 Aleva (<i>Eudynamis taitensis</i>) or Long-tailed Cuckoo.....	4-35
4.8 Invertebrates.....	4-35

4.8.1 Tuitui (Sea Urchin)	4-35
4.8.2 Terrestrial Invertebrates	4-36
4.9 Reef Building Species	4-37
4.9.1 Coral.....	4-37
4.9.2 Coralline Algae	4-41
4.10 Fish.....	4-44
4.11 Invasive and Nuisance Species	4-47
4.11.1 Mammals.....	4-47
4.11.2 Reptiles	4-49
4.11.3 Invertebrates.....	4-49
4.11.4 Vegetation	4-49
4.12 Wildlife and Habitat Research Inventory and Monitoring.....	4-50
Chapter 5. Social and Economic Environment	5-1
5.1 Cultural Resources	5-1
5.1.1 Historical Background	5-1
5.1.2 Rose Atoll and Manu’a Islands	5-2
5.2 Refuge Facilities	5-6
5.3 Public Use Overview	5-6
5.4 Wildlife-Dependent Public Uses.....	5-6
5.4.1 Hunting	5-6
5.4.2 Fishing.....	5-6
5.4.3 Wildlife Observation and Photography.....	5-6
5.4.4 Environmental Education.....	5-7
5.4.5 Interpretation/Outreach	5-7
5.4.6 Cultural Resources Interpretation	5-7
5.5 Illegal Uses.....	5-7
5.6 Social/Economic Environment	5-8
5.6.1 Communities near Rose Atoll National Wildlife Refuge	5-8
5.6.2 Population, Housing, and Income	5-8
5.6.3 Employment and Business	5-9
5.6.4 Refuge Impact on Local Economies	5-10
5.6.5 Additional Economic Contributions	5-11
Appendices	
Appendix A. Rose Atoll NWR Species Lists	A-1
Appendix B. Appropriate Use Findings.....	B-1
Appendix C. Compatibility Determinations	C-1
Appendix D. Implementation.....	D-1
Appendix E. Wilderness Review for Rose Atoll National Wildlife Refuge.....	E-1
Appendix F. Biological Resources of Concern.....	F-1
Appendix G. Integrated Pest Management (IPM) Program.....	G-1
Appendix H. Statement of Compliance	H-1
Appendix I. Common Acronyms and Abbreviations.....	I-1
Appendix J. Summary of Public Involvement	J-1
Appendix K. Cooperative Agreement and Presidential Proclamations	K-1
Appendix L. Best Management Practices for Visitors to Rose Atoll.....	L-1
Appendix M. CCP Team Members.....	M-1

Appendix N. ReferencesN-1

Figures

Figure 1-1. Regional and local area.1-3
Figure 1-2. Refuge overview and land status.....1-9
Figure 2-1. Management direction.....2-7
Figure 3-1. Atoll formation.....3-8
Figure 4-1. Habitats.4-8

Tables

Table 2-1. Summary of Management Direction2-6
Table 4-1. Biological Integrity, Diversity, and Environmental Health.....4-2
Table 4-2. Priority Resources of Concern.....4-5
Table 4-3. Shorebirds and Wading Birds of Primary Conservation Importance in the U.S. Pacific
Region.....4-32
Table 5-1. Employment and Labor Income 20025-9
Table 5-2. Economic Projections 2000-2015.....5-10