

# Priority Sites for Conservation in the Cook Islands: Key Biodiversity Areas and Important Bird Areas



**CRITICAL ECOSYSTEM**  
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# 1. Introduction

## Approach and Criteria

The Key Biodiversity Areas and Important Bird Areas (KBAs & IBAs) approach is a simple, effective means of implementing the protected areas elements of the Convention of Biological Diversity (CBD). KBAs and IBAs are places of international importance for the conservation of biological diversity through protected areas and other governance mechanisms.

Sites are selected based on criteria that account for the distribution of (apparently viable) populations of species requiring conservation. These criteria are:

1. A1 Globally threatened species – based on the presence of species with high probability of extinction in accordance with the IUCN Red List classification. Such sites must have a regular occurrence of one or more critically endangered, endangered or vulnerable species. Provision thresholds are: for critically endangered and endangered, 1 individual; for vulnerable, 10 pairs or 30 individuals
2. A2 Restricted range species – based on the presence of populations of species that are geographically concentrated. They depend on a network of irreplaceable sites within at least part of their range or life cycle. Sites must have regular occurrence of one or more restricted range species. Provisional threshold: 5% of global population of restricted range species (<50,000km<sup>2</sup>)
3. A3 Bioregionally-restricted species assemblages – sites holding a significant proportion of the group of species whose distributions are restricted to a biome or subdivision of it.
4. A4 Globally significant congregations – sites holding large proportions of the global population of a species at a given time e.g. breeding colonies, foraging and roosting sites, bottleneck sites. Provisional threshold: 1% of the global population of the congregatory species

## Identifying and Delineating KBAs and IBAs in Cook Islands

In 2010, with the assistance of Conservation International and the Critical Ecosystems Partnership Fund, Birdlife International in partnership with the Cook Islands environmental NGO Te Ipukarea Society commenced a project to identify and delineate KBAs and IBAs in the Cook Islands. A Project Steering Committee was established which together with international biodiversity experts from Birdlife International and Conservation International, forms an expert network. The first task was to identify species in the Cook Islands listed on the IUCN Red List as critically endangered, endangered or vulnerable. Endemic species listed in the Cook Islands National Biodiversity Strategy and Action Plan (NBSAP, 2002) were added to this list because they meet the restricted range criterion. In the Cook Islands, seabirds are known to be most likely to meet the criterion of globally significant congregations. Sites that qualify for this criterion must have at least 1% of the global population of seabirds or at least 10,000 pairs on a regular basis. One percent thresholds are tabulated in Appendix 3 for species that may lead to IBA designation in the Cook Islands. Bottleneck sites must have threshold numbers of migratory species. With the assistance of the Packard Foundation, population estimates were made of seabirds on islands most likely to meet IBA criteria and for which population numbers have not recently been assessed (Karika, 2011). The Cook Islands do not qualify under the criterion of bioregionally-restricted species assemblages.

Except for Rarotonga, the small size of the islands (100ha to 5,200ha) and the widespread distribution of some species on each island mean that it is sensible to make the entire island a KBA/IBA. Such delineation is important considering that each island must be managed as a single unit where the introduction of invasive species can have a devastating effect on the biodiversity.

For the Rarotonga Marine KBA, delineation is seawards to the greatest depth where the species listed can be found (450 feet or 151m). The entire reef area that encircles Rarotonga is delineated as the KBA (1600ha).

## Cook Islands Natural Heritage Database

The Cook Islands benefit significantly from a biodiversity database developed by the Cook Islands Natural Heritage project, a 21 year project to record the species, biogeography, local names and uses of all plants and animals in the Cook Islands. The database is used by schools, government agencies, researchers and members of the public to find information on Cook Islands biodiversity. The database has more than 100 fields of data for more than 4,300 species. It is available online <http://cookislands.bishopmuseum.org>. The database was used extensively throughout the development of this publication.

## Monitoring KBAs and IBAs

To measure progress towards the objective of safeguarding all KBAs the following indicators have been adopted:

1. Change in percentage of KBAs with official protection status
2. Change in percentage of KBAs with governance structures in place
3. Change in percentage of KBAs with management plans in place
4. Change in percentage of KBAs with required infrastructure in place as identified in a management plan

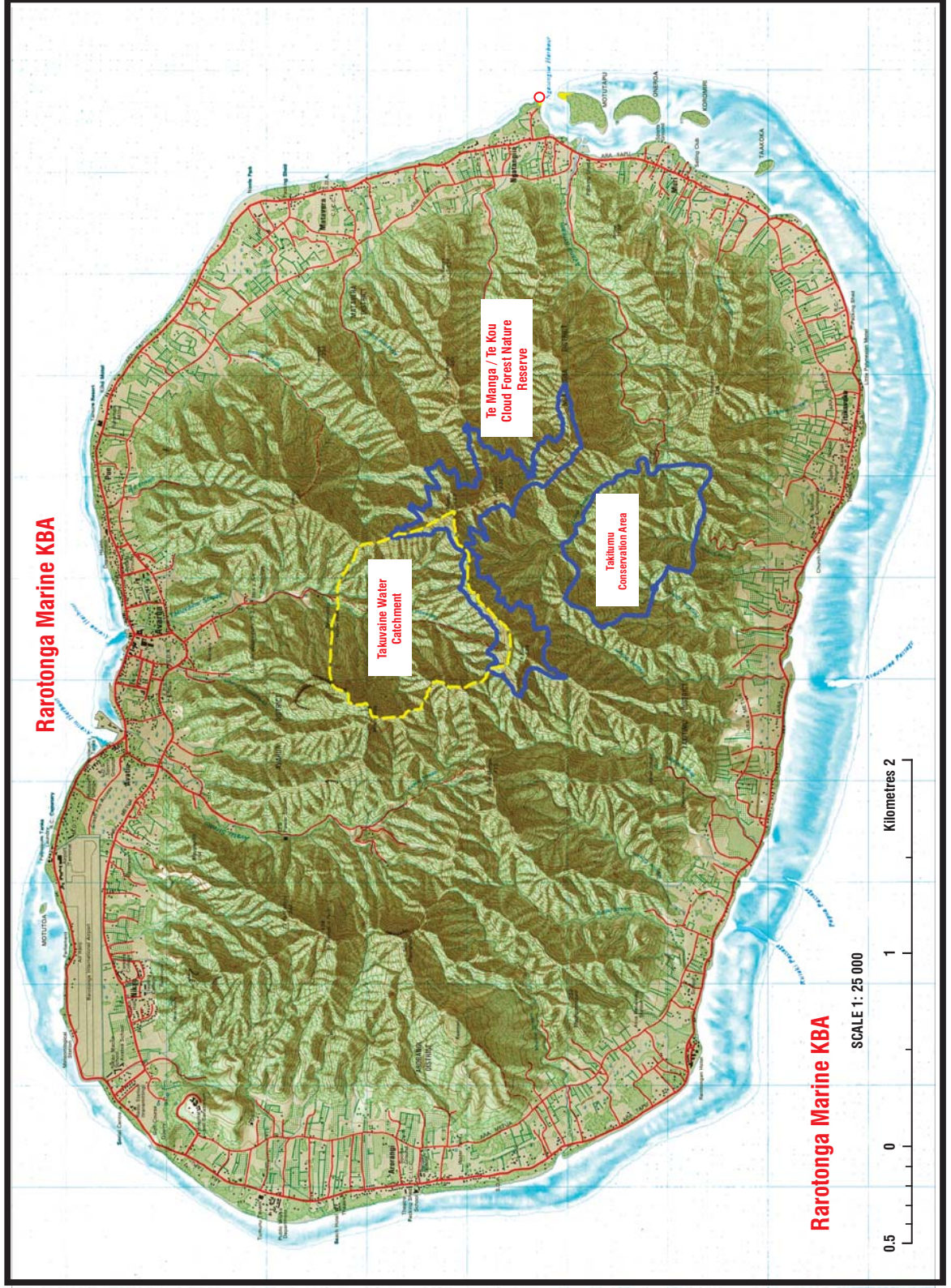
Through monitoring trends in these key indicators, the ability to communicate conservation successes and failures to government agencies, investment bodies, industry and society as a whole is strengthened, thereby informing future decisions regarding strategic planning and investment within KBAs, and also influencing conservation policy more broadly.

Figure 1: Ngaputoru Pandanus (*Pandanus arapepe*), Mauke (J.Evans)



## 2. Profiles of Key Biodiversity Areas and Important Bird Areas

Figure 2: Key Biodiversity Areas of Rarotonga. Yellow lines demarcate candidate KBAs. Blue lines demarcate identified KBAs. Red lines demarcate identified KBAs.



Site Name: Takitumu Conservation Area  
 Site Number: CK01  
 Identification: Key Biodiversity Area  
 Area: 155 ha

Current Protection Status: Nature Conserved Area managed by a committee of landowner representatives

Important Bird Area: Yes

Habitat Status: Native vegetation. Primary growth tropical forest. There is no development in this area except for a shelter  
 Threats: Rats, cats and other invasive species.

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Birds</b>				
Rarotonga Flycatcher	<i>Pomarea dimidiata</i>	Kākerōri	Endangered, Restricted Range	Increasing
Rarotonga Starling	<i>Aplonis cinerascens</i>	Ūoi	Vulnerable, Restricted Range	Stable
Cook Islands Fruit Dove	<i>Ptilinopus rarotongensis</i>	Kūkupa	Vulnerable, Restricted Range	Stable
<b>Other fauna</b>				
Avana landsnail	<i>Sinployea avanaensis</i>		Restricted Range	Unknown
Landsnail	<i>Sinployea peasei</i>		Restricted Range	Unknown
Rarotonga Giant Weevil	<i>Rhyncogonus lineatus</i>		Restricted Range	Unknown
Cook Islands fruit fly	<i>Dacus melanotus</i>		Restricted Range	Unknown but common
<b>Flora</b>				
Rarotonga Cyrtandra	<i>Cyrtandra rarotongensis</i>		Critically Endangered, Restricted Range	Uncommon
Rarotonga Coprosma	<i>Coprosma laevigata</i>		Critically Endangered, Restricted Range	Uncommon
Rarotonga Psychotria	<i>Psychotria whistleri</i>		Critically Endangered, Restricted Range	Uncommon
Rarotonga Ground Orchid	<i>Habenaria amplifolia</i>		Restricted Range	Uncommon, seriously endangered
Rarotonga Filmy Fern	<i>Hymenophyllum involucreatum</i>		Restricted Range	Unknown but very common
Rough Tree Fern	<i>Cyathea parksiae</i>	Panga Tua Taratara	Restricted Range	Unknown but common
Asplenium	<i>Asplenium parksii</i>		Restricted Range	Unknown
Cook Islands Peperomia	<i>Peperomia rhomboidea</i>		Restricted Range	Unknown but uncommon
Rarotonga Peperomia	<i>Peperomia wilder</i>		Restricted Range	Unknown but uncommon
Cook Islands Homalium	<i>Homalium acuminatum</i>	Mato	Restricted Range	Least Concern. Very common
Cooks Islands Myrsine	<i>Myrsine cheesemanii</i>	Ka'ika Makatea	Restricted Range	Unknown but very common
Cook Islands Pittosporum	<i>Pittosporum rarotongense</i>	Kakakava	Restricted Range	Unknown but common
Rarotonga Meryta	<i>Meryta pauciflora</i>	Kakavatua	Restricted Range	Least Concern. Common
Rarotonga Geniostoma	<i>Geniostoma rarotongensis</i>	'Ange	Restricted Range	Unknown but very common
Rarotonga Fitchia	<i>Fitchia speciosa</i>	Neinei	Restricted Range	Least Concern. Very common
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Collared Petrel	<i>Pterodroma brevipes</i>		Vulnerable	Decreasing

Site Name: Rarotonga Marine KBA  
 Site Number: CK02  
 Identification: Key Biodiversity Area  
 Area: 1,600 ha

Current Protection Status: Customary ra'ui (traditional marine protected areas) in some parts: Aroa 33ha, Tokerau 4ha, Pouara 5ha, Aroko 71ha, Tikioki 40ha  
 Important Bird Area: No

Habitat Status: Inshore species listed here are located on the outer reef slope of Rarotonga's fringing coral reef. The outer reef slope is reported to be degraded as a result of a Crown Of Thorns starfish outbreak in the 1990's but is now recovering with 86% of coral colonies being new recruits (Rongo et al, 2006). Offshore species include pelagic species.

Threats: Invasive species, Habitat destruction, Overharvesting

Marine Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Inshore species</b>				
Fairy basslet	<i>Pseudanthias privaterae</i>		Restricted Range	Unknown
Sea bass	<i>Belonoperca pylei</i>		Restricted Range	Unknown
Peppermint Angelfish	<i>Centropyge boylei</i>		Restricted Range	Least Concern, Stable
Narcosis Angelfish	<i>Centropyge narcosis</i>		Restricted Range	Least Concern, Stable
Claire's Wrasse	<i>Cirrhilabrus claire</i>		Restricted Range	Unknown
Green Turtle	<i>Chelonia mydas</i>	'Onu	Endangered	Decreasing
<b>Offshore species</b>				
Sei Whale	<i>Balaenoptera borealis</i>		Endangered	Unknown
Big Eye Tuna	<i>Thunnus obesus</i>	'A'ai	Vulnerable	Needs updating
Cook Islands flashlightfish	<i>Photoplepharon rosenblatti</i>		Restricted Range	Unknown but rare
<b>Candidate Trigger Species</b>				
Scientific Name	Maori Name	Applicable Criteria	Global Population Trend	
<i>Acropora palmerae</i>		Vulnerable	Decreasing	
<i>Turbinaria reniformis</i>		Vulnerable	Unknown	
<i>Rhincodon typus</i>		Vulnerable	Decreasing	
<i>Carcharhinus longimanus</i>		Vulnerable	Decreasing	
<i>Isurus oxyrinchus</i>	Mangō Pāra	Vulnerable	Decreasing	
<i>Alopias pelagicus</i>		Vulnerable	Decreasing	
<i>Balaenoptera musculus</i>		Endangered	Increasing	
<i>Malacanthus sp.</i> Boyle		Restricted Range	Unknown	
<i>Paraperca n.sp.</i> Boyle		Restricted Range	Unknown	
<i>Cirrhilabrus n.sp.</i> Boyle		Restricted Range	Unknown	
<i>Cirrhilabrus n.sp.</i> Randall2		Restricted Range	Unknown	
<i>Pseudocheilinus ocellatus n.sp</i>		Restricted Range	Unknown	
<i>Powellichthys ventriosus</i>		Restricted Range	Unknown but rare	

Figure 3: Matavera dropoff, Rarotonga. (Graham McDonald, Waterworx CI)





Site Name: Te Manga-Te Kou Cloud Forest Nature Reserve  
 Site Number: CK03  
 Identification: Key Biodiversity Area  
 Area: 118 ha  
 Current Protection Status: None (Proposed by Philipson (1969), McCormack (1989) and Koutu Nui (formal body of traditional chiefs))  
 Important Bird Area: No  
 Habitat Status: Native vegetation. Undeveloped primary growth tropical cloud forest.  
 Threats: Invasive species.

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Fauna</b>				
Te Kou Snail	<i>Tekoulina pricei</i>		Restricted Range	Seriously endangered
<b>Flora</b>				
Te Manga Cyrtandra	<i>Cyrtandra lillianae</i>		Critically Endangered, Restricted Range	Rare, seriously endangered
Rarotonga Cyrtandra	<i>Cyrtandra rarotongensis</i>		Critically Endangered, Restricted Range	Uncommon, seriously endangered
Rarotonga Sclerotheca	<i>Sclerotheca viridifolia</i>		Critically Endangered, Restricted Range	Rare, seriously endangered
Cloud Grass Fern	<i>Grammitis cheesemanii</i>		Vulnerable, Restricted Range	Unknown
Rarotonga Fitchia	<i>Fitchia speciosa</i>	Neinei	Restricted Range	Least Concern. Very common
Rarotonga Balanophora	<i>Balanophora wilderi</i>		Restricted Range	Data Deficient. Rare, seriously endangered
Rarotonga Filmy Fern	<i>Hymenophyllum involucreatum</i>		Restricted Range	Unknown but very common
Armatum Moss	<i>Spiridens armatus</i>		Restricted Range	Unknown
Site Name:	Takuvaive Water Catchment			
Site Number:	CK04			
Identification:	Candidate Key Biodiversity Area			
Area:	229 ha			
Current Protection Status	Community Managed Area. Established in 2006 under the Environment (Takuvaive Water Catchment) Regulations			
Important Bird Area:	No			
Habitat Status:	Secondary growth vegetation with primary growth native tropical forest in cloud forest region. The catchment is severely affected by invasive alien vine species particularly <i>Cardiospermum grandiflorum</i> .			
Threats:	Invasive species, Habitat destruction			
Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Rarotonga partula	<i>Partula assimilis</i>		Restricted Range	Uncommon, seriously endangered



Site Name: Aitutaki Island KBA  
 Site Number: CK05  
 Identification: Key Biodiversity Area  
 Area: 1,800 ha (land); 4,300 ha (reef)  
 Current Protection Status: Four marine reserves: Ootu ra'ui (220ha), Maina ra'ui 1 (128ha) Maina ra'ui 2 (81ha) Motikitiu ra'ui (407 ha),

Important Bird Area: Yes  
 Habitat Status: Deforested island with secondary growth vegetation. Human population of 2,035. Reef islets uninhabited and comprising atoll vegetation. The coral reef has been affected by Crown of Thorns starfish outbreaks but is in recovery (Rongo, 2008).  
 Threats: Rats, cats and other invasive species. Habitat destruction. Over-harvesting.

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Birds</b>				
Blue Lorikeet	<i>Vini peruviana</i>	Kurāmo'o	Vulnerable	Decreasing
<b>Other fauna</b>				
Landsnail	<i>Mautodantha imperforata</i>		Restricted Range	Unknown
Landsnail	<i>Minidonta rotellina</i>		Restricted Range	Unknown
Spider	<i>Paratheuma andromeda</i>		Restricted Range	Seriously endangered
Marine Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Humphead Wrasse	<i>Cheilinus undulatus</i>	Maratea	Endangered	Decreasing
Green Turtle	<i>Chelonia mydas</i>	'Onu	Endangered	Decreasing
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Teuea	Vulnerable	Decreasing
Acropora Coral	<i>Acropora microclados</i>		Vulnerable	Decreasing
Acropora Coral	<i>Acropora palmerae</i>		Vulnerable	Decreasing
Yellow Necklace-Shell	<i>Orobophana flavescens</i>		Restricted Range	Unknown
Brown Necklace-Shell	<i>Orobophana parvula</i>		Restricted Range	Unknown
Landsnail	<i>Sinployea atiensis</i>		Restricted Range	Unknown
Landsnail	<i>Libera fratercula</i>		Restricted Range	Unknown



Site Name: 'Ātiu Island KBA  
 Site Number: CK06  
 Identification: Key Biodiversity Area  
 Area: 2,900 ha  
 Current Protection Status: None  
 Important Bird Area: Yes

Habitat Status: Upraised limestone island with volcanic centre. Population of 481 living in villages in the centre. Outer ring of makatea undeveloped and consisting of mostly native vegetation.

Threats: Invasive species, Habitat destruction

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Birds</b>				
'Ātiu Swiftlet	<i>Collocalia sawtelli</i>	Kopeka	Vulnerable, Restricted Range	Stable
Cook Islands Fruit Dove	<i>Ptilinopus rarotongensis</i>	Kūkupa	Vulnerable, Restricted Range	Stable
Rimatara Lorikeet	<i>Vini kuhii</i>	Kura	Endangered	Decreasing, but increasing in Cook Islands
Rarotonga Flycatcher	<i>Pomarea dimidiata</i>	Kākerōri	Endangered, Restricted Range	Increasing
<b>Other fauna</b>				
Landsnail	<i>Mautodontha rarotongensis</i>		Restricted Range	Unknown
<b>Marine Trigger Species</b>	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Inshore Species</b>				
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	Onu	Critically endangered	Decreasing
Green Turtle	<i>Chelonia mydas</i>	Onu	Endangered	Decreasing
<b>Candidate Trigger Species</b>	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Teue	Vulnerable	Decreasing
Yellow Necklace-Shell	<i>Orobophana flavescens</i>	Pūpū	Restricted Range	Unknown
Brown Necklace-Shell	<i>Orobophana parvula</i>	Pūpū	Restricted Range	Unknown
Landsnail	<i>Libera fratercula</i>		Restricted Range	Unknown
Landsnail	<i>Sinployea atiensis</i>		Restricted Range	Unknown
Whale Shark	<i>Rhincodon typus</i>		Vulnerable	Decreasing
Ngaputoru Pandanus	<i>Pandanus arapepe</i>		Restricted Range	Unknown but common

Site Name: Takūtea Wildlife Sanctuary  
 Site Number: CK07  
 Identification: Key Biodiversity Area  
 Area: 100 ha  
 Current Protection Status: Community Conserved Area (Atiu & Takutea Environment Regulations 2008)  
 Important Bird Area: Yes  
 Habitat Status: Undeveloped, uninhabited sand cay with atoll vegetation  
 Threats: Invasive species, Habitat destruction

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Birds</b>				
Red Tailed Tropic Bird	<i>Phaethon rubricauda</i>	Tavake	900-2000 pairs (>1% global population)	Stable
<b>Other Fauna</b>				
Spider	<i>Paratheuma andromeda</i>		Restricted Range	Seriously endangered
Green Turtle	<i>Chelonia mydas</i>	Onu	Endangered	Decreasing
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Teue	Vulnerable	Decreasing





Site Name: Mangaia Island KBA  
 Site Number: CK08  
 Identification: Key Biodiversity Area  
 Area: 5,200 ha (land); 400ha (reef)  
 Current Protection Status: None  
 Important Bird Area: Yes

Habitat Status: Upraised limestone island with volcanic centre. Population of 572 living in three villages. Outer ring of makatea mostly undeveloped. The coral reef has not been surveyed to determine its status.

Threats: Rats, cats and other invasive species. Habitat destruction. Over-harvesting.

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Birds</b>				
Mangaian Kingfisher	<i>Todiramphus ruficollaris</i>	Tanga'eo	Vulnerable, Restricted Range	Stable
Cook Islands Warbler	<i>Acrocephalus kerearako</i>	Kereārako	Restricted Range	Near Threatened, Stable
<b>Other fauna</b>				
Andrew's Landsnail	<i>Sinployea andrewi</i>		Restricted Range	Unknown
<b>Flora</b>				
Makatea Geniostoma	<i>Geniostoma sykesii</i>	'Ange	Restricted Range	Unknown but very common
Cook Islands Myoporium	<i>Myoporium wilderi</i>	Ngaio	Restricted Range	Unknown but very common
<b>Candidate Trigger Species</b>	<b>Scientific Name</b>	<b>Maori Name</b>	<b>Applicable Criteria</b>	<b>Global Population Trend</b>
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Kau'a	Vulnerable	Decreasing
Acropora Coral	<i>Acropora palmerae</i>		Vulnerable	Decreasing
Polynesian Tree Snail	<i>Partula hyalina</i>		Vulnerable	Decreasing
Yellow Necklace-Shell	<i>Orobophana flavescens</i>	Pūpū	Restricted Range	Unknown
Brown Necklace-Shell	<i>Orobophana parvula</i>	Pūpū	Restricted Range	Unknown
Polynesian Nesoluma	<i>Nesoluma polynesianum</i>		Vulnerable	Needs updating
Cook Islands Fruit Fly	<i>Dacus melanotus</i>		Restricted Range	Unknown but common
Giant Grouper	<i>Epinephelus lanceolatus</i>	Tonu	Vulnerable	Decreasing
Black Saddled Grouper	<i>Plectropomus laevis</i>	Tonu Roi	Vulnerable	Decreasing
Shortfin Mako	<i>Isurus oxyrinchus</i>	Mangō Kaku	Vulnerable	Decreasing
Whale Shark	<i>Rhincodon typus</i>	Mangō	Vulnerable	Decreasing
Blue Whale	<i>Balaenoptera musculus</i>		Endangered	Increasing
Cook Islands Oak Leaf Fern	<i>Phymatosorus katuii</i>		Restricted Range	Seriously endangered

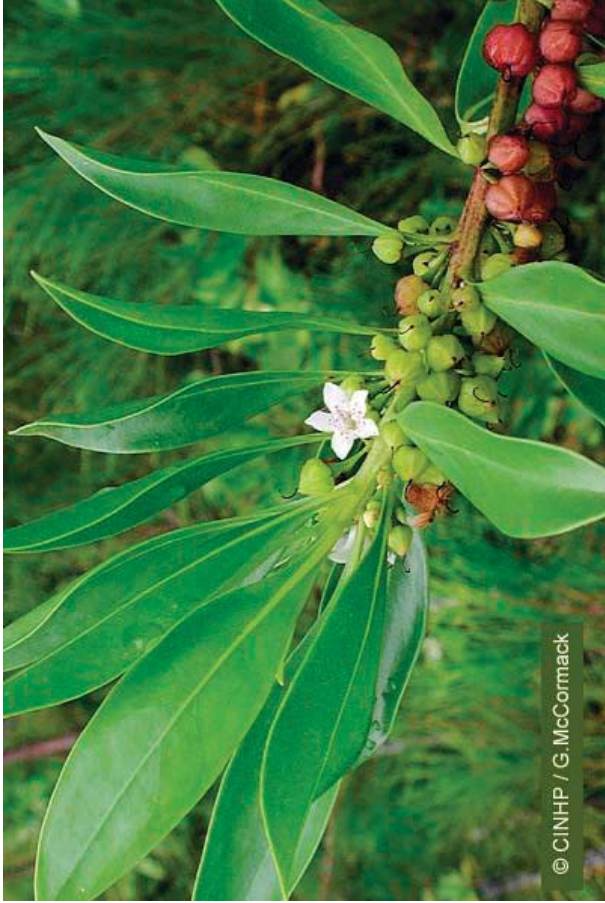


Figure 4: Some of the Biodiversity on Mangaia. Clockwise from left: Cook Islands Myoporum, Mungaian Kingfisher, Polynesian Tree Snail, Cook Islands Warbler (Cook Islands Natural Heritage Trust)



Site Name: Miti'āro Island KBA  
 Site Number: CK09  
 Identification: Key Biodiversity Area  
 Area: 3,000 ha  
 Current Protection Status: None but Te Roto Nui lake is protected  
 Important Bird Area: Yes  
 Habitat Status: Upraised limestone island with natural lakes and swampland in centre.  
 Population of 189 living on the western side of the island. Outer ring of makatea mostly undeveloped  
 Threats: Invasive species, Habitat destruction

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Birds</b>				
Cook Islands Warbler	<i>Acrocephalus kerearako</i>	Ka'oko	Restricted Range	Near Threatened, Stable
Rimatara Lorikeet	<i>Vini kuhlii</i>	Kura	Endangered	Decreasing, but increasing in Cook Islands
<b>Fauna</b>				
Green Turtle	<i>Chelonia mydas</i>	'Onu	Endangered	Decreasing
<b>Flora</b>				
Cook Islands Myrsine	<i>Myrsine cheesemanii</i>	Ka'ika Makatea	Restricted Range	Unknown but very common
Mitiaro Fan-Palm	<i>Pritchardia mitiarioana</i>	Iniao	Restricted Range	Uncommon, seriously endangered
Mitiaro Daisy	<i>Tetramolopium mitiarioense</i>		Restricted Range	Common
Cook Islands Pittosporum	<i>Pittosporum rarotongense</i>	Kavakava	Restricted Range	Unknown but common
Makatea Geniostoma	<i>Geniostoma sykesii</i>	'Ange	Restricted Range	Unknown but very common
<b>Candidate Trigger Species</b>	<b>Scientific Name</b>	<b>Maori Name</b>	<b>Applicable Criteria</b>	<b>Global Population Trend</b>
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Kiovi	Vulnerable	Decreasing
Whale Shark	<i>Rhincodon typus</i>	Mangō To'orā	Vulnerable	Decreasing
Cook Islands Oak Leaf fern	<i>Phymatosorus katuui</i>		Restricted Range	Seriously endangered
Cook Islands Myoporium	<i>Myoporium wilderi</i>	Ngaio	Restricted Range	Unknown but very common
Mitiaro Peppercress	<i>Lepidium n.sp Sykes</i>	Naunau	Restricted Range	Uncommon, seriously endangered

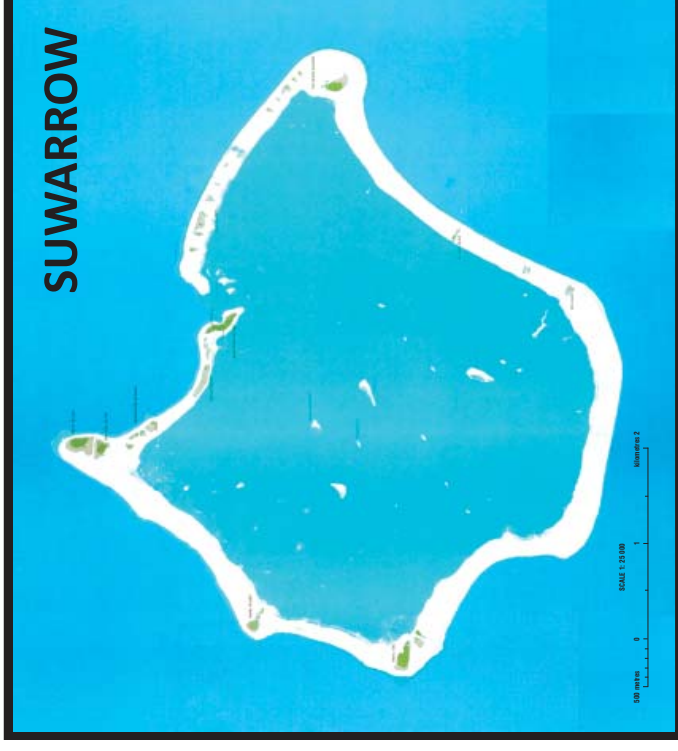


Site Name: Ma'uke Island KBA  
 Site Number: CK10  
 Identification: Key Biodiversity Area  
 Area: 2,000 ha  
 Current Protection Status: None  
 Important Bird Area: No  
 Habitat Status: Upraised limestone island with volcanic centre. Population of 307 living in two villages. Outer ring of makatea is mostly undeveloped and consists of native vegetation.

Threats: Invasive species, Habitat destruction

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Fauna</b>				
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	'Onu	Critically endangered	Decreasing
Green Turtle	<i>Chelonia mydas</i>	'Onu	Endangered	Decreasing
<b>Flora</b>				
Ngaputoru Pandanus	<i>Pandanus arapepe</i>	'Ara Pepe	Restricted Range	Unknown but common
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Teue	Vulnerable	Decreasing
Acropora Coral	<i>Acropora anthocercis</i>		Vulnerable	Decreasing
Acropora Coral	<i>Acropora palmerae</i>		Vulnerable	Decreasing
Landsnail	<i>Libera fratercula</i>		Restricted Range	Unknown
Yellow Necklace-Shell	<i>Orobophana flavescens</i>	Pupu	Restricted Range	Unknown
Shortfin Mako	<i>Isurus oxyrinchus</i>	Mangō Kaku	Vulnerable	Decreasing
Whale Shark	<i>Rhincodon typus</i>	Mangō Maru	Vulnerable	Decreasing
Cook Islands Oak Leaf fern	<i>Phymatosorus katuui</i>		Restricted Range	Seriously endangered
Cook Islands Myrsine	<i>Myrsine cheesemanii</i>	Ka'ika Makatea	Restricted Range	Unknown but very common





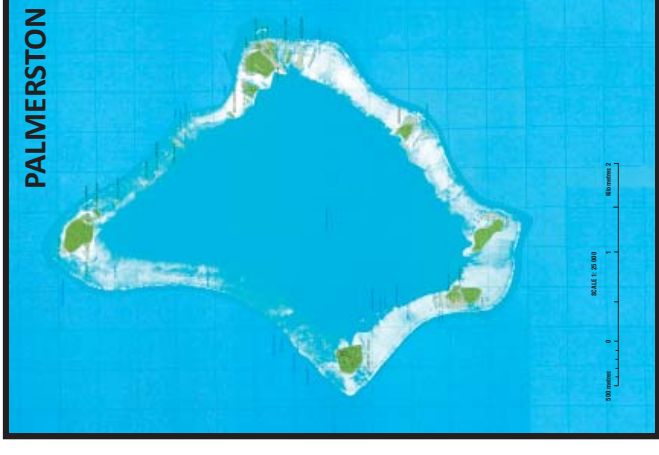
Site Name: Suwarrow National Park  
 Site Number: CK11  
 Identification: Key Biodiversity Area  
 Area: 200ha (land), 1,240ha (marine)  
 Current Protection Status: National Park declared 1978  
 Important Bird Area: Yes  
 Habitat Status: Uninhabited atoll except for two caretakers for six months of each year. Undeveloped except for a cyclone shelter on Anchorage islet. Native atoll vegetation dominates the islets.  
 Threats: Invasive species, Habitat destruction,

Terrestrial Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Red Tailed Tropicbird	<i>Phaethon rubricauda</i>	Tavake	285 pairs	
Sooty Tern	<i>Sterna fuscata</i>	Tara	41,243 pairs	
Lesser Frigatebird	<i>Fregata ariel</i>	Kōta'a	5,509 pairs	
Marine Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Humphead Wrasse	<i>Cheilinus undulatus</i>	Maratea	Endangered	Decreasing
Green Turtle	<i>Chelonia mydas</i>	'Onu	Endangered	Decreasing
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Bristle-Thighed Curlew	<i>Numenius tahitiensis</i>	Teue	Vulnerable	Decreasing
Whale Shark	<i>Rhincodon typus</i>		Vulnerable	Decreasing
Giant Grouper	<i>Epinephelus lanceolatus</i>	Urutuki	Vulnerable	Decreasing
Black Saddled Grouper	<i>Plectropomus laevis</i>	Tonu Roi	Vulnerable	Decreasing
Sperm Whale	<i>Physeter macrocephalus</i>	To'ōra	Vulnerable	Unknown
Wrasse	<i>Cirrhilabrus n.sp. Randallii</i>		Restricted Range	Unknown

Site Name: Palmerston Marine KBA  
 Site Number: CK12  
 Identification: Key Biodiversity Area  
 Area: 5,400 ha (reef and lagoon)  
 Current Protection Status: None  
 Important Bird Area: No

Habitat Status: Undeveloped atoll except for Palmerston islet where a population of 60 live. Frozen reef fish are exported to Rarotonga to generate revenue.

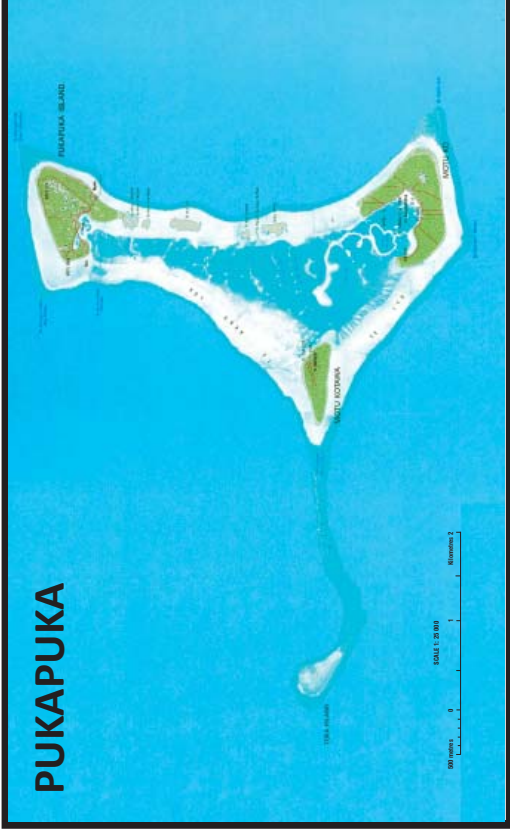
Threats: Invasive species, Habitat destruction, Overharvesting



Marine Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Inshore species</b>				
Humphead Wrasse	<i>Cheilinus undulatus</i>	Maratea	Endangered	Decreasing
Loggerhead Turtle	<i>Caretta caretta</i>	'Onu	Endangered	Needs updating
Green Turtle	<i>Chelonia mydas</i>	'Onu	Endangered	Decreasing
<b>Offshore species</b>				
Big Eye Tuna	<i>Thunnus obesus</i>	Tuava	Vulnerable	Needs updating
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Black Saddled Grouper	<i>Plectropomus laevis</i>	Tonu	Vulnerable	Decreasing

Site Name: Pukapuka Marine KBA  
 Site Number: CK13  
 Identification: Key Biodiversity Area  
 Area: 2,800 ha (reef and lagoon)  
 Current Protection Status: Customary Marine & Terrestrial Protection  
 Motu Kotawa 90ha, Motu Ko 300ha, Motu Uta 50ha, Motu Niua 10ha.

Important Bird Area: No  
 Habitat Status: Remote atoll with a population of 453 living a subsistence lifestyle based on fishing and some planting  
 Threats: Invasive species, Habitat destruction



Marine Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Inshore Fauna</b>				
Hawksbill turtle	<i>Eretmochelys imbricata</i>	Kea	Critically endangered	Decreasing
Green turtle	<i>Chelonia mydas</i>	Tua Yilivalu	Endangered	Decreasing
Humphead Wrasse	<i>Cheilinus undulatus</i>	Malatea	Endangered	Decreasing
<b>Offshore Fauna</b>				
Big Eye Tuna	<i>Thunnus obesus</i>	Matawula	Vulnerable	Needs updating
Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
Giant Reef Ray	<i>Taeniura meyeni</i>	Wai Lepu	Vulnerable	Unknown
Giant Grouper	<i>Epinephelus lanceolatus</i>	Pātuki Wala	Vulnerable	Decreasing
Black Saddled Grouper	<i>Plectropomus laevis</i>	Tonu	Vulnerable	Decreasing
Whale Shark	<i>Rhincodon typus</i>	Āyeni	Vulnerable	Decreasing
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	Palata	Vulnerable	Decreasing
Pelagic Thresher Shark	<i>Alopias pelagicus</i>		Vulnerable	Decreasing



Site Name: Tongareva Marine KBA  
 Site Number: CK14  
 Identification: Key Biodiversity Area  
 Area: 22,700ha (reef and lagoon)  
 Current Protection Status: None  
 Important Bird Area: Candidate IBA for Red Tailed Tropic Bird  
 Habitat Status: Remote atoll with a population of 203 living a subsistence lifestyle based on fishing and some planting.  
 Threats: Invasive species, Habitat destruction

Marine Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
<b>Inshore Fauna</b>				
Hawksbill turtle	<i>Eretmochelys imbricata</i>	Honu tara	Critically endangered	Decreasing
Green turtle	<i>Chelonia mydas</i>	Honu	Endangered	Decreasing
Humphead Wrasse	<i>Cheilinus undulatus</i>	Maratea	Endangered	Decreasing
<b>Offshore Fauna</b>				
Big Eye Tuna	<i>Thunnus obesus</i>	Kakasi	Vulnerable	Needs updating
<b>Candidate Trigger Species</b>				
Giant Reef Ray	<i>Taeniura meyeni</i>	Maori Name Hai	Applicable Criteria Vulnerable	Global Population Trend Unknown
Giant Grouper	<i>Epinephelus lanceolatus</i>	Urutuki	Vulnerable	Decreasing
Whale Shark	<i>Rhincodon typus</i>	Mango	Vulnerable	Decreasing
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	Lūhia	Vulnerable	Decreasing
Red Tailed Tropic Bird	<i>Phaethon rubricauda</i>	Tavake	209 pairs (rough estimate)	Least Concern
Pelagic Thresher Shark	<i>Alopias pelagicus</i>		Vulnerable	Decreasing

Site Name: Manihiki Marine KBA  
 Site Number: CK15  
 Identification: Candidate Key Biodiversity Area  
 Area: 5,200ha (reef and Lagoon)  
 Current Protection Status: None except lake Porea & Tepuka Roto which are customary managed fish ponds for *Chanos chanos*  
 Important Bird Area: No  
 Habitat Status: Islets dominated by native atoll vegetation with two small villages and a total population of 243. Black lipped pearl oyster farming (*Pinctada margaritifera*) in the lagoon is the main source of revenue.  
 Threats: Invasive species, Habitat destruction



Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
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**Inshore Fauna**

Giant Grouper	<i>Epinephelus lanceolatus</i>	Urutuki	Vulnerable	Decreasing
Black Saddled Grouper	<i>Plectropomus laevis</i>	Tonu Roi	Vulnerable	Decreasing
Green Turtle	<i>Chelonia mydas</i>	Fonu Pokaikai	Endangered	Decreasing

Site Name: Rakahanga Marine KBA  
 Site Number: CK16  
 Identification: Candidate Key Biodiversity Area  
 Area: 700ha (reef and lagoon)  
 Current Protection Status: None  
 Important Bird Area: No  
 Habitat Status: Atoll islets dominated by native atoll vegetation with a total population of 77  
 Threats: Invasive species, Habitat destruction



Candidate Trigger Species	Scientific Name	Maori Name	Applicable Criteria	Global Population Trend
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**Inshore Fauna**

Giant Grouper	<i>Epinephelus lanceolatus</i>	Urutuki	Vulnerable	Decreasing
Green Turtle	<i>Chelonia mydas</i>	Fonu Pokaikai	Endangered	Decreasing

### 3. Main Findings and Recommendations

This analysis has revealed many gaps in information that can be used to plan focussed research that will help conservation in the long term. The analysis has also highlighted species that are important to an area, that were previously not considered in conservation planning. For example, the Takitumu Conservation Area was established for the purpose of protecting the Rarotonga Flycatcher (*Pomarea dimidiata*), yet there are many other species in the Takitumu Conservation Area that benefit from protected area establishment.

Islands have high numbers of endemic species and for this reason several places in the Cook Islands have either qualified as a KBA, IBA or both. There are nine terrestrial Key Biodiversity Areas, four marine Key Biodiversity Areas, one terrestrial Candidate Key Biodiversity Area and two marine Candidate Key Biodiversity Areas.

It is the lack of data and not necessarily the absence of restricted range species that caused some islands not to qualify (Rakahanga, Nassau, Manuae). Data on the presence and abundance of marine species in particular is sparse. Data is also needed on the specific distribution of inshore marine species around each island to enhance information available when making management decisions.

Takuvaine Water Catchment (229ha) has an endemic landsnail *Partula assimilis* identified by W.H. Pease in 1868. The catchment was the focus of a community-based catchment management project under the SPREP International Waters Programme. The catchment is therefore identified as a Candidate KBA until more field research is done to determine the extent of *Partula assimilis*.

The Avana Passage rocky shore has a rare and endemic spider *Paratheuma ramseyae* discovered in 1988. A subsequent search for the spider did not relocate it but more extensive searches are needed before the spider can be classified as extinct. Until it is demonstrated the spider still exists, this site will not be listed as a Candidate KBA.

In searching for Cook Islands species on the IUCN Red List, the Goulds Petrel (*Pterodroma leucoptera*; vulnerable) is listed as present in the Cook Islands and the Collared Petrel (*Pterodroma brevipes*; vulnerable) has been observed nesting in the Takitumu Conservation Area. There is insufficient information on numbers or distribution of these species for them to be used as trigger species. They are therefore Candidate Species. The Bristle Thighed Curlew (*Numenius tahitiensis*; vulnerable) has been recorded as present on most of the Cook Islands but there has been no documentation of numbers of individuals in any of these islands. This bird is therefore a Candidate Species.

The Polynesian Tree Snail (*Partula hyalina*; vulnerable) present on Mangaia and Mauke also requires further field work to estimate numbers. *Partula hyalina* is therefore a Candidate Species. The Micronesian skink (*Emoia adspersa*; endangered) is listed as present in the northern Cook Islands but it is unknown on which of these islands it is present. Therefore, the Micronesian skink is also a Candidate Species requiring further research. The Polynesian Nesoluma (*Nesoluma polynesianum*; vulnerable) is a Candidate Species for the same reason. A survey is needed to find the number of plants of this species in Mangaia. Three coral reef species also have insufficient data and require field research. These are the Giant Grouper (*Epinephelus lanceolatus*; vulnerable), the Black Saddled Grouper (*Plectropomus laevis*; vulnerable) and the Giant Reef Ray (*Taeniura meyeni*; vulnerable).

Some threatened pelagic marine species are Candidate Species due to insufficient information on their population size and the difficulty of assigning a location for them due to their pelagic nature. These include the Whale Shark (*Rhincodon typus*), Oceanic Whitetip Shark (*Carcharhinus longimanus*), Shortfin Mako (*Isurus oxyrinchus*), Pelagic Thresher Shark (*Alopias pelagicus*), Blue Whale (*Balaenoptera musculus*), and Sperm Whale (*Physeter macrocephalus*). Defining boundaries for a Key Biodiversity Area for pelagic marine trigger species was problematic.

While 25 coral species are listed on the IUCN Red List as being present in the Cook Islands, only four of these species have any data on their distribution within the Cook Islands. The paucity of information on the distribution and abundance of marine species demonstrates the need for particular effort to be made to survey and inventory Cook Islands marine threatened species.

Until their identification is confirmed, *Malacanthus sp.* Boyle, *Parapercis n.sp.* Boyle, *Cirrhilabrus n.sp.* Boyle, *Cirrhilabrus n.sp.* Randall<sup>2</sup> and the new subspecies of *Pseudocheilinus ocellatus* have been flagged as Candidate Species on the basis of them being new to science and restricted in range to Rarotonga's coral reef (16km<sup>2</sup>) until they may be discovered elsewhere. The same applies for *Lepidium n.sp.* Sykes.

Of the endemic species listed in the Cook Islands NBSAP report, the plants *Acrophorus leucorhachis* and *Pseudophegopteris paludosa* are now considered Polynesian endemics and so are not listed as trigger species. This is also the case for the Latticed Goby *Stiphodon n.sp.* The Barchin Scorpionfish (*Sebastapistes nachalis*) listed in the NBSAP report is also not endemic to the Cook Islands. The Mitiaro Daisy (*Tetramolopium mitiarioense*) was unlisted in the NBSAP report but was noted by the Mitiaro community during the IBA/KBA workshop on Mitiaro. It is listed as endemic to the Cook Islands in the Cook Islands Natural Heritage Database.

Suvarrow and Takutea qualify as IBAs through the A4 criterion (globally significant congregations of species). This is likely because they are uninhabited and provide suitable habitat for congregations of seabirds. For this reason, they are extremely fragile and sensitive to changes in the habitat. Any proposed development activity must be carefully considered in these cases and attempts to populate the islands, as has been proposed for Suvarrow once in the past, is best avoided.

## 4. Conclusion

The Cook Islands KBAs and IBAs demonstrate where conservation efforts should be prioritised. They also highlight species that are sometimes overlooked when planning conservation on these islands. The analysis revealed that particular effort must be made to collect more data on the presence and distribution of species, with marine species requiring significant attention.

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## Appendices

### Appendix 1: Terrestrial Key Biodiversity Area Trigger Species in Cook Islands

Table 1: Threatened Terrestrial Species (According to IUCN 2010 Threatened Species List)<sup>1</sup>

Species #	Scientific Name	English Name	Cook Islands Name	Status	Threats (IUCN-listed)	Location	Population Trend (IUCN)
1	<i>Pomarea dimidiata</i>	Rarotonga Flycatcher	Kākerōri	Endangered, Restricted Range	Cyclones, invasion of weeds, forest clearance. Ship rat ( <i>Rattus rattus</i> ) and possibly Long-tailed Cuckoo ( <i>Eudynamys taitensis</i> )	Takitumu Conservation Area Rarotonga. Introduced to Atiu	Increasing
2	<i>Vini kuhlii</i> <sup>2</sup>	Rimatara Lorikeet	Kura	Endangered	Ship rat, cats	Recently re-introduced to Atiu followed by a small population establishing itself on Mitiaro. Extinct on Rarotonga, Mangaia, Mauke and Aitutaki.	Decreasing (but Cook Islands assessment shows local population is increasing)
3	<i>Collocalia sawtelli</i>	Atiu Swiftlet	Kopeka	Vulnerable, Restricted Range	Ecotourism, Polynesian rat?	Endemic to two caves in Atiu	Stable
4	<i>Ptilinopus rarotongensis</i>	Cook Islands Fruit Dove	Kūkupa	Vulnerable, Restricted Range	Ship rat, habitat loss, possibly Common Myna	Very common in Atiu both throughout makatea and inland. Common inland mountains of Rarotonga. Extinct on Mauke. Absent on other islands	Stable
5	<i>Todiramphus ruficollaris</i>	Mangaia Kingfisher	Tanga'eo	Vulnerable, Restricted Range	Common Myna, Ship Rat, Pacific Rat, Cats, Long-tailed Cuckoo, habitat loss and forest fragmentation from agriculture, pine plantations and goats. Pigs affect forest regeneration. Possibly human disturbance in	Uncommon on and endemic to Mangaia. Found on north-west and eastern Mangaia.	Stable

<sup>1</sup> When using 2010 IUCN Redlist, used search criteria: Cook Islands, Native/introduced/Vagrant/Uncertain, CR/EN/VU, all years assessed, terrestrial/freshwater except turtles threatened plant species assessed in 2011 were also added.

<sup>2</sup> An introduced species – not listed on the IUCN red list as being present in the Cook Islands

3. Based on all population estimates including that in 2011

Species #	Scientific Name	English Name	Cook Islands Name	Status	Threats (IUCN-listed)	Location	Population Trend (IUCN)
6	<i>Vini peruviana</i>	Blue Lorikeet	Kurāmo'o	Vulnerable	the south west. Ship rat, cats, cyclones, Swamp Harrier	Uncommon on Aitutaki. Absent other islands.	Decreasing
7	<i>Aplonis cinerascens</i>	Rarotonga Starling	Ō'oi	Restricted Range, Vulnerable	Possibly ship rat. Habitat loss.	Common on Rarotonga. Absent other islands.	Stable <sup>3</sup>
8	<i>Acrocephalus raiatensis</i>	Rarotonga Acrocephalus	Unknown	Critically Endangered, Polynesian endemic		Present on Rarotonga and Mangaia. Absent other islands.	
9	<i>Asplenium schizotrichum</i>	Polynesian Asplenium	Unknown	Critically Endangered, Polynesian endemic	Ongoing habitat loss	Present on Rarotonga. Absent other islands.	
10	<i>Coprosma laevigata</i>	Rarotonga Coprosma	Unknown	Critically Endangered, Restricted Range		Uncommon on Rarotonga. Absent other islands.	
11	<i>Cyrtandra lillianae</i>	Te Manga Cyrtandra	Unknown	Critically Endangered, Restricted Range		Rare on Rarotonga. Absent other islands.	
12	<i>Cyrtandra rarotongensis</i>	Rarotonga Cyrtandra	Unknown	Critically Endangered, Restricted Range		Uncommon on Rarotonga. Absent other islands.	
13	<i>Garnotia cheeseemanii</i>	Rarotonga Garnotia grass	Unknown	Critically Endangered, Restricted Range		Rare on Rarotonga. Absent other islands.	
14	<i>Haloragis stokesii</i>	Rarotonga Haloragis	Unknown	Critically Endangered, Restricted Range		Rare on Rarotonga. Absent Pukapuka Tongareva. No data other islands. Cloud forest	
15	<i>Psychotria whistleri</i>	Rarotonga Psychotria	Unknown	Critically Endangered		Uncommon on Rarotonga. Absent other islands.	
16	<i>Sclerotheca viridifolia</i>	Rarotonga Sclerotheca	Unknown	Critically Endangered		Rare on Rarotonga. Absent other islands.	
17	<i>Radiogrammitis cheeseemanii</i>	Cloud grass fern	Unknown	Vulnerable		Present on Rarotonga. Absent other islands	
18	<i>Nesoluma polynesianum</i>	Polynesian Nesoluma	Unknown	Vulnerable	Habitat loss	Tamarua, Mangaia	Needs updating
Candidate Terrestrial Trigger Species with Threatened Status							
19	<i>Partula hyalina</i> <sup>4</sup>	Polynesian Tree Snail	Unknown	Vulnerable	The carnivorous snail <i>Euglandina rosea</i> and possibly Little Fire Ant <i>Wasmannia auropunctata</i>	Mangaia, Mauke	Decreasing

<sup>3</sup> Based on all population estimates including that in 2011

<sup>4</sup> Found using the "introduced" criterion

Species #	Scientific Name	English Name	Cook Islands Name	Status	Threats (IUCN-listed)	Location	Population Trend (IUCN)
20	<i>Eoia adpersa</i>	Micronesian Skink	Unknown	Endangered	Deforestation, cats, rats and pigs	Northern group	Unknown
21	<i>Pterodroma leucoptera</i>	Gould's Petrel		Vulnerable	Habitat loss, pigs and possibly rats and cats		Decreasing
22	<i>Numenius tahitiensis</i>	Bristle-thighed Curlew	Teue	Vulnerable	Cats, dogs and possibly pigs, future gold mining in Alaska is a potential threat,	All Islands	Decreasing

Table 2: Terrestrial KBA Trigger Species in Cook Islands (Restricted Range Plants) Note: None of these plants are found on the IUCN red list

Species #	Scientific Name	English Name	Cook Islands Name	Location	Population Trend (IUCN/Cooks)
1	<i>Phymatosorus katuii</i>	Cook Islands Oak-leaf fern	Unknown	Present on Mangaia, Mauke, Mitiaro and Manuae. Absent all other islands. Restricted to within 24,066km <sup>2</sup> of ocean and four islands totalling 108km <sup>2</sup> of land area.	Seriously endangered in Cook Islands
2	<i>Balanophora wilderi</i>	Rarotonga Balanophora	Unknown	Rare on Rarotonga. Mountains. Parasitic on tree roots	Data Deficient. Seriously endangered in Cook Islands Rare
3	<i>Pritchardia mitiarioana</i>	Mitiaro Fan-Palm	Iniao	Uncommon on Mitiaro. Absent other islands.	Seriously endangered in Cook Islands Uncommon
4	<i>Habenaria amplifolia</i>	Rarotonga Ground-Orchid	Unknown	Uncommon on Rarotonga. Absent other islands. Low elevation valleys	Seriously endangered in Cook Islands Uncommon
5	<i>Moenkemeyera rarotongae</i>	Rarotonga Moenkemeyera (a moss)	Unknown	Rarotonga	Stable?
6	<i>Spiridens armatus</i>	Moss	Unknown	Rarotonga, no data on other islands	Stable?
7	<i>Hymenophyllum involucreatum</i>	Rarotonga filmy fern	Unknown	Rarotonga only. Absent all other islands Mountains	Unknown but very common
8	<i>Cyathea parksiae</i>	Rough tree fern	Panga Tua Taratara	Rarotonga only. Absent all other islands. Mountains	Least Concern. Unknown but common
9	<i>Asplenium parksii</i>	Asplenium	Unknown	Rarotonga only. Absent all other islands. Mountains, rocks, low elevation	Unknown
10	<i>Peperomia rhomboidea</i>	Cook Islands Peperomia	Unknown	Uncommon on Rarotonga. Rare on Mangaia. Absent all other islands. . Restricted to within 2,679km <sup>2</sup> of ocean and two islands totalling 119km <sup>2</sup> of land area.	Unknown but uncommon
11	<i>Peperomia wilder</i>	Rarotonga Peperomia	Unknown	Uncommon on Rarotonga. Absent all other islands.	Unknown but uncommon

Species #	Scientific Name	English Name	Cook Islands Name	Location	Population Trend (IUCN/Cooks)
12	<i>Homalium acuminatum</i>	Cook Islands Homalium	Mato	Very common on Rarotonga lowlands. Uncommon on Mangaia. Absent all other islands.	Least Concern. Unknown but very common
13	<i>Myrsine cheesemanii</i>	Cook Islands Myrsine	Ka'ika Makatea	Very common in Mitiaro. Common in Rarotonga. Uncommon in Mauke. Rare in Mangaia. Absent other islands. Mountains and makatea mountains 100-550+m.	Unknown but very common
14	<i>Pittosporum rarotongense</i>	Cook Islands Pittosporum	Kavakava	Common on Rarotonga and Mitiaro. Uncommon on Mangaia and Mauke. Absent other islands. Mountains.	Unknown but common
15	<i>Meryta pauciflora</i>	Rarotonga Meryta	Kakavatua	Common on Rarotonga. Absent other islands	Least Concern. Unknown but common
16	<i>Geniostoma rarotongensis</i>	Rarotonga Geniostoma	'Ange	Uncommon on Rarotonga	Unknown but uncommon
17	<i>Geniostoma sykesii</i>	Makatea Geniostoma	'Ange	Very common Mangaia and Mitiaro. Absent other islands. No data on Suwarrow. Present on Rarotonga (Meyer, 2009).	Unknown but very common
18	<i>Myoporum wilderi</i>	Cook Islands Myoporum	Ngaio	Rare on Mitiaro. Very common on Mangaia. Absent or rare on Rarotonga. Absent other islands.	Unknown but very common
19	<i>Fitchia speciosa</i>	Rarotonga Fitchia	Neinei	Very common on Rarotonga. Cultivated on Mangaia. Absent other islands	Least Concern. Unknown but very common
20	<i>Pandanus arapepe</i>	Ngaputoru Pandanus	'Ara Pepe	Common on Mauke. Uncommon on Atiu. Absent other islands.	Unknown but common
21	<i>Tetramolopium mitiaraense</i>	Mitiaro Daisy		Common on Mitiaro. No data for Takutea. Absent all other islands.	Unknown but common.
Candidate Terrestrial Trigger Species (Restricted Range Plants)					
22	<i>Lepidium</i> n.sp. Sykes	Mitiaro Peppergrass	Naunau	Uncommon on Mitiaro. Makatea	Seriously endangered in Cook Islands. Uncommon

Table 3: Terrestrial KBA Trigger Species in Cook Islands (Restricted Range Animals)

Species #	Scientific Name	English Name	Cook Islands Name	Status	Location	Population Trend (IUCN/Cooks)
1	<i>Acrocephalus kerearako</i>	Cook Islands Warbler	Kereārako	Restricted Range. Near Threatened	Very common on Mitiaro. Uncommon on Mangaia. Absent other islands. Scrubland and horticultural areas.	Stable

Species #	Scientific Name	English Name	Cook Islands Name	Status	Location	Population Trend (IUCN/Cooks)
2	<i>Tekoulina pricei</i>	Te Kou Landsnail	Unknown	Restricted range (endemic), not on red list	Present on Rarotonga. Absent other islands.	Seriously endangered
3	<i>Partula assimilis</i>	Rarotonga Partula	Unknown	Restricted range (endemic), not on red list	Uncommon on Rarotonga. Absent other islands. Mid-elevation mountain valleys 200-450m.	Seriously endangered
4	<i>Paratheuma andromeda</i>	A spider	Unknown	Restricted range. Not on red list	Present on Aitutaki and Takutea. Absent Rarotonga. No data for other islands. Rocky beaches under rubble and in crevices.	Seriously endangered
5	<i>Mautodontha imperforata</i>	A landsnail	Unknown	Restricted range (endemic), not on red list	Present on Aitutaki. Absent Rarotonga, Mangaia, Atiu, Mauke, Mitiaro. No data for other islands	Unknown
6	<i>Mautodontha rarotongensis</i>	A landsnail	Unknown	Restricted range (endemic), not on red list	Present on Atiu lowlands. Absent Rarotonga, Mangaia, Mauke, Mitiaro, Aitutaki, Palmerston. No data for other islands.	Unknown
7	<i>Minidonta rotellina</i>	A landsnail	Unknown	Restricted range (endemic), not on red list	Present on Aitutaki. Absent Rarotonga, Mangaia, Atiu, Mauke, Mitiaro, Palmerston. No data for other islands.	Unknown
8	<i>Sinployea andrewi</i>	A landsnail	Unknown	Restricted range (endemic), not on red list	Present on Mangaia. Absent Rarotonga, Atiu, Mauke, Mitiaro, Aitutaki, Palmerston. No data for other islands	Unknown
9	<i>Sinployea avanaensis</i>	A landsnail	Unknown	Restricted range (endemic), not on red list	Present on Rarotonga. Absent on Mangaia, Atiu, Mauke, Mitiaro, Aitutaki, Palmerston. No data for other islands.	Unknown
10	<i>Sinployea peasei</i>	A landsnail	Unknown	Restricted range (endemic), not on red list	Present on Rarotonga. Absent other islands.	Unknown
11	Eyeless oonopid n.sp.Beatty	A spider	Unknown	Restricted range (endemic), not on red list	Present on Rarotonga. No data for other islands. Lowland mountains.	Unknown
12	<i>Rhyncogonus lineatus</i>	Rarotonga Giant-Weevil	Unknown	Restricted range (endemic), not on red list	Present on Rarotonga. No data for other islands.	Unknown
13	<i>Dacus melanotus</i>	Cook Islands Fruit-Fly	Ongaonga	Restricted range. Not on red list	Common on Rarotonga, uncommon on Mangaia	Unknown but common
Candidate Terrestrial Trigger Species (Restricted Range Animals)						
14	<i>Orabophana flavescens</i>	Yellow Necklace-Shell	Pūpū	Restricted range. Cook Islands endemic. Not on red list	Very common on Atiu and Mangaia, common on Mauke, uncommon on Rarotonga and Pukapuka, rare on Aitutaki. Absent on Tongareva. No data on other	Unknown

Species #	Scientific Name	English Name	Cook Islands Name	Status	Location	Population Trend (IUCN/Cooks)
15	<i>Orobophana parvula</i>	Brown Necklace-Shell	Unknown	Restricted range. Not on red list	islands. Land, coastal forests, on tree trunks and under rubble and debris Present on Mangaia, Atiu and Aitutaki. Possibly extinct on Rarotonga. No data for other islands.	Unknown
16	<i>Libera fratercula</i>	A landsnail	Unknown	Restricted Range	Present on Rarotonga, Mangaia, Atiu, Mauke, Aitutaki. No data for other islands. Coastal forest.	Unknown
17	<i>Sinployea atiensis</i>	A landsnail	Unknown	Restricted range. Not on red list.	Present on Atiu and Aitutaki. Absent on Rarotonga and Mangaia. No data for other islands.	Unknown
18	<i>Paratheuma ramseyae</i>	A spider	Unknown	Restricted range (endemic), not on red list	Present on Rarotonga. Only in Muri village and its islets. Absent other islands. Rocky beaches under rubble and in crevices.	Unknown

## Appendix 2: Marine Key Biodiversity Area Trigger Species in Cook Islands

Table 1: Threatened Marine Species (according to IUCN 2010 Threatened Species List)

Species #	Scientific Name	English Name	Cook Islands Name	IUCN 2010 Threat Category	Threats (IUCN-listed)	Location	Population Trend (IUCN)
1	<i>Eretmochelys imbricata</i> <sup>5</sup>	Hawksbill Turtle	'Onu	Critically endangered	Tortoiseshell trade, egg collection, slaughter for meat, destruction of nesting habitat, destruction of foraging habitat, hybridisation with other species, entanglement and ingestion of marine debris, oil pollution	No data for most islands except Atiu, Mauke, and Tongareva where it is rare and Pukapuka where it is uncommon.	Decreasing
2	<i>Chelonia mydas</i>	Green Turtle	'Onu	Endangered	Harvests, bycatch in marine fisheries, dynamite fishing, nesting and feeding habitat degradation, disease	No data for most islands except Rarotonga, Atiu, Mauke where it is rare and Tongareva and Pukapuka where it is common. Reported on Palmerston (CCRC, 2004), Takutea (Atiu Island Council, 2011), Suwarrow, Manihiki, Rakahanga, Nassau and Aitutaki (McCormack, pers comm., 2011) and Mitiaro (personal observation 2012).	Decreasing
3	<i>Caretta caretta</i> <sup>5</sup>	Loggerhead Turtle	'Onu	Endangered	Needs updating	No data for most islands except absent on Pukapuka and Rarotonga and present on Palmerston	Needs updating
4	<i>Cheilinus undulatus</i>	Humphead Wrasse	Maratea	Endangered	Live reef food fish trade, SCUBA and spearfishing (especially at night), lack of coordinated management, selective fishing for juveniles to grow-out, illegal, unregulated and unreported fishing, habitat destruction, sodium cyanide fishing.	Absent on Mangaia, common in Palmerston, Present on Suwarrow and Pukapuka, rare on Tongareva, present on Aitutaki, no data for other islands.	Decreasing

<sup>5</sup> When using 2010 IUCN Redlist, used search criteria: Cook Islands, Native, CR/EN/UU, all years assessed, marine. This species is not recorded from Cook Islands on the 2010 IUCN Redlist, but is known to occur in Cook Islands so is included here.



5	<i>Thunnus obesus</i>	Big-eye Tuna	'A'ai	Vulnerable		Present in Rarotonga, Palmerston, Pukapuka. Rare in Tongareva. No data for other islands	Needs updating
Candidate Marine Trigger Species (Threatened Species)							
6	<i>Balaenoptera musculus</i>	Blue Whale		Endangered	No threats today but commercial whaling reduced populations in the past	Presence on Rarotonga and Mangaia not verified. Absent all other islands.	Increasing
7	<i>Balaenoptera borealis</i>	Sei Whale		Endangered	No major threats today but commercial whaling reduce populations in the past	Rare on Rarotonga. No data for Mangaia. Absent all other islands.	
8	<i>Physeter macrocephalus</i>	Sperm Whale		Vulnerable	Previously commercial whaling. Presently entanglement in fishing nets	Rare on Pukapuka. Present on Suwarrow (McCormack, pers comm. 2011). No data for Rarotonga or Mangaia. Absent all other islands.	
9	<i>Alopias pelagicus</i> <sup>6</sup>	Pelagic Thresher Shark		Vulnerable	Slow life history combined with overfishing frequently by longline and pelagic gillnet fishing, shark fin trade,	Present on Rarotonga, Tongareva and Pukapuka. No data for other islands.	Decreasing
10	<i>Carcharhinus longimanus</i>	Oceanic Whitetip Shark	Lūhia (Tongareva)	Vulnerable	Longline fishing and pelagic driftnet fishing	Present in Rarotonga, Tongareva and Pukapuka. Not present in Mitiaro. No data for other islands.	Decreasing
11	<i>Epinephelus lanceolatus</i>	Giant Grouper	Urutuki	Vulnerable	Live reef food fish trade	Mangaia, Tongareva, Manihiki, Rakahanga, Pukapuka, Suwarrow	Decreasing
12	<i>Isurus oxyrinchus</i>	Shortfin Mako	Mangō Pāra	Vulnerable	Longline, driftnet and set gillnet fishing, sports fishing	Rare in Rarotonga, present in Mangaia and Mauke, no data for other islands	Decreasing
13	<i>Plectropomus laevis</i>	Black Saddled Coral Grouper	Tonu Roi	Vulnerable	Aquarium fish trade	Present in Manihiki, Mangaia and Pukapuka, common in Palmerston and Suwarrow	Decreasing

<sup>6</sup> Unlisted in Cook Islands Natural Heritage Database

14	<i>Rhincodon typus</i>	Whale shark	Āyeni (Pukapuka)	Vulnerable	Harpoon and entanglement fishing (purse seining, driftnetting, and gillnetting)	Rare in Rarotonga and Suvarrow. Uncommon in Tongareva. Present in Mangaia, Mauke, Mitiaro and Pukapuka. Absent in Atiu. No data for other islands	Decreasing
15	<i>Taeniura meyeni</i>	Giant reef ray	Tāmanu	Vulnerable	Trawling, demersal longlining, habitat destruction (dynamite fishing)	Present in Tongareva and Pukapuka. No data for other islands	Unknown
16	<i>Acropora anthocercis</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Present on Mauke. No data for other islands.	Decreasing
17	<i>Acropora globiceps</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
18	<i>Acropora horrida</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	No data on distribution in Cook Islands Natural Heritage Database	Decreasing
19	<i>Acropora microclados</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Present on Aitutaki. No data for other islands	Decreasing
20	<i>Acropora palmerae</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Present on Rarotonga, Mangaia, Mauke and Aitutaki. No data for other islands.	Decreasing
21	<i>Acropora paniculata</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
22	<i>Acropora polystoma</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
23	<i>Acropora retusa</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
24	<i>Acropora speciosa</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
25	<i>Acropora striata</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
26	<i>Acropora vaughani</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
27	<i>Alveopora allingi</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
28	<i>Alveopora verrilliana</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
29	<i>Leptoseris incrustans</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	No data on distribution in Cook Islands Natural Heritage Database	Unknown

30	<i>Montipora angulata</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
31	<i>Montipora australiensis</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
32	<i>Montipora calcareo</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
33	<i>Montipora caliculata</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
34	<i>Montipora lobulata</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Decreasing
35	<i>Pavona bipartita</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
36	<i>Pavona cactus</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
37	<i>Pavona decussata</i>	Cactus coral		Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
38	<i>Pocillopora elegans</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
39	<i>Turbinaria mesenterina</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Not listed in Cook Islands Natural Heritage Database	Unknown
40	<i>Turbinaria reniformis</i>			Vulnerable	Coral bleaching, sedimentation, cyclones	Present on Rarotonga. No data for other islands.	Unknown

Table 2: Marine KBA Trigger Species in Cook Islands (Restricted Range)

Species #	Scientific Name	English Name	Cook Islands Name	Applicable Criteria	Location	Population Trend
1	<i>Photoplepharon rosenblatti</i>	Cook Islands Flashlightfish	Unknown	Restricted range (endemic), not on red list	Rare on Rarotonga. Absent in Northern Group. No data for other islands. Marine, nearshore, deep bottom, about 250m, demersal.	Unknown but rare
2	<i>Pseudanthias privatereae</i>	Fairy Basslet		Endemic to Cooks according to NBSAP, not on red list	Present on Rarotonga. No data for other islands.	Unknown
3	<i>Belonoperca pylei</i>	Sea Bass	Unknown	Endemic to Cooks according to NBSAP, not on red list	Present on Rarotonga. No data for other islands. Marine, nearshore, lower outer reef slope 50m+	Unknown
4	<i>Centropyge boylei</i>	Peppermint Angelfish	Unknown	Restricted Range, Least Concern	Present on Rarotonga. No data for other islands. Marine, nearshore, lower outer reef slope 50m+	Stable

5	<i>Centropyge narcosis</i>	Narcosis Angelfish	Unknown	Restricted Range, Least Concern	Present on Rarotonga. No data for other islands. Marine, nearshore, outer reef slope below 90m.	Stable
6	<i>Cirrhilabrus claire</i>	Claire's Wrasse	Unknown	Restricted Range, Least Concern	Present on Rarotonga. Uncommon. No data for other islands. Marine, nearshore, outer reef slope below 80m	Unknown
Candidate Marine Trigger Species (Restricted Range)						
7	<i>Cirrhilabrus</i> n.sp. Boyle	A marine fish		Endemic to Cooks according to NBSAP, not on red list. Candidate species.	Not on Cook Islands Natural Heritage Database	
8	<i>Cirrhilabrus</i> n.sp. Randall2	A marine fish	Unknown	Endemic to Cooks according to NBSAP, not on red list. Candidate species.	Present on Rarotonga and Suwarrow. No data for other islands. Marine, nearshore, lagoon.	Unknown
9	<i>Parapercis</i> n.sp.Boyle	Deepwater Sandperch	Unknown	Endemic to Cooks according to NBSAP, not on red list	Present on Rarotonga. No data for other islands. Marine, nearshore, outer reef slope, around 90m	Unknown
10	<i>Powelllichthys ventriosus</i>	Powell's Xenoconger-Eel	Unknown	Restricted range (endemic), not on red list	Rare on Rarotonga. No data for other islands. Marine, pelagic.	Unknown but rare
11	<i>Malacanthus</i> sp.Boyle	A marine fish	Talitaliuli	Endemic to Cooks according to NBSAP, not on red list	Present on Rarotonga and Pukapuka. No data for other islands. Marine, nearshore.	Unknown
12	<i>Pseudocheilinus ocellatus</i> n.sp.	White barred pink wrasse	Unknown	Endemic to Cooks according to NBSAP	Present on Rarotonga. Uncommon. No data for other islands. Marine, nearshore, outer reef slope about 75m	Unknown

### Appendix 3: Globally Significant Congregations Threshold Analysis

Table 6: Globally Significant Congregations Threshold Analysis for breeding seabird species in the main seabird islands of the Cook Islands (Note: all of these species have Least Concern Status; list is adapted from Carter and Carter, 2000, main seabird islands are northern group islands and Takutea).

English Name	Scientific Name	Cook Islands Name	1% thresholds/pairs (c = under review)	Location	Population Estimate (pairs)	IBA qualifying
Blue-Grey Noddy	<i>Procelsterna cerulean</i>	Kāra'ura'u		Suwarrow Mangaia Tongareva Pukapuka	Not mentioned (Jones, 2008) Rare Rare No data	No No No NA
Sooty Tern	<i>Sterna fuscata</i>	Tara	20,000	Suwarrow Tongareva Manihiki	41,243 (Jones, 2008) 550 (Karika, 2011) 0 (Karika, 2011)	Yes No No
Black naped Tern	<i>Sterna sumatrana</i>	Kakavai Māui	c. 1,000	Suwarrow Tongareva Manihiki	Not mentioned (Jones, 2008) Not mentioned (Karika, 2011) 1 individual (Karika, 2011)	No NA No

English Name	Scientific Name	Cook Islands Name	1% thresholds/pairs (c = under review)	Location	Population Estimate (pairs)	IBA qualifying
				Rakahanga Pukapuka	Present Rare	No No
Red-tailed tropic bird	<i>Phaethon rubricauda</i>	Tavake	80	Suvarrow Tongareva	285 (Jones, 2008) 209 (Karika, 2011)	Yes Yes but repeat survey needed
				Pukapuka Manihiki Takutea	Data deficient 5 (Karika, 2011) 900-2000 pairs (Carter & Carter, 2000)	NA No Yes
White-tailed tropic bird	<i>Phaethon lepturus</i>	Rākoa		Rarotonga Aitutaki	50 (McCormack, pers com 2011) 20-30 (McCormack, pers 2011)	
Brown Booby	<i>Sula leucogaster</i>	Kena	500	Suvarrow Tongareva Pukapuka Manihiki Takutea	26 (Jones, 2008) 31 (Karika, 2011) Data deficient 3 individuals (Karika, 2011) 18-22 pairs (Carter & Carter, 2000)	No No NA No No
Masked Booby	<i>Sula dactylatra</i>	Lulu	500	Suvarrow Tongareva Manihiki Takutea	9 (Jones, 2008) 5 (Karika, 2011) Not mentioned (Karika, 2011) 0-1 pairs (Carter & Carter, 2000)	No No No No
Red-footed Booby	<i>Sula sula</i>	Toroa	1,500	Suvarrow Tongareva Pukapuka Manihiki Rakahanga Takutea	559 (Jones, 2008) 1,365 (Karika, 2011) Data deficient >141 (Karika, 2011) Data deficient <100 pairs (Carter & Carter, 2000)	No No NA No NA No
Great Frigatebird	<i>Fregata minor</i>	Kōta'a Nui	850	Suvarrow Tongareva Manihiki	329 (Jones, 2008) Total <i>F. minor</i> and <i>F. ariel</i> was >519 (Karika, 2011) Total <i>F. minor</i> and <i>F. ariel</i> was >281 (Karika, 2011)	No No No
Lesser Frigatebird	<i>Fregata ariel</i>	Kōta'a Iti	500	Suvarrow Tongareva Manihiki	5509 (Jones, 2008) Total <i>F. minor</i> and <i>F. ariel</i> was >519 (Karika, 2011) Total <i>F. minor</i> and <i>F. ariel</i> was >281 (Karika, 2011)	Yes No No



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