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Secretariat of the Pacific Regional Environment Programme

State of conservation in Oceania

REGIONAL REPORT

2013

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Our vision: The Pacific environment, sustaining our livelihoods and natural heritage in harmony with our cultures.

Cover images: Coral Reef lagoon, Vanua Levu,Fiji. Araucaria forest in Gondwanna, New Caledonia.
Photo credit: Stuart Chape.

State of conservation in **Oceania**

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Preface

In 2013 the Secretariat of the Pacific Regional Environment Programme (SPREP) commissioned the State of Conservation in Oceania (SOCO) assessment of the status of biodiversity and conservation in Oceania, defined as the large region of the Pacific Ocean and its islands that comprise the 26 member countries and territories of the Pacific Regional Environment Programme. This membership includes Australia, France, New Zealand, United Kingdom, United States of America and 21 Pacific island countries and territories. Preparation of the SOCO was contracted to a consortium of experts led by the International Union for Conservation of Nature (IUCN) Oceania office, including LandCare Research New Zealand, BirdLife Pacific Secretariat, Island Conservation, Pacific Invasives Initiative, University of the South Pacific, James Atherton - Environmental and GIS Consultant and a number of other individual experts. SPREP acknowledges the input of all contributors in undertaking the challenge of collating and analysing data for this first SOCO assessment.

The purpose in producing the SOCO is not just to understand the current status of conservation in the region but to establish a process for periodic reviews of the status of biodiversity and implementation of conservation measures in the Pacific islands region. Only by undertaking regular assessments will Pacific island countries and territories be able to measure their progress in conserving and managing the biodiversity that supports Pacific cultures and economies, which is part of Pacific and global natural heritage, and essential for nationally endorsed global commitments including meeting the Convention on Biological Diversity Aichi Targets by 2020.

The preliminary findings of the SOCO regional report were presented to the 9th Pacific Islands Conference on Nature Conservation and Protected Areas held in Suva, Fiji, in December 2013. During 2014-2015 work continued on the analysis and presentation of the regional report and individual country assessments for the countries and territories. However, it should be noted that the information gathered for the assessments is based on data collected in 2013. The report also serves to highlight gaps in the data that may occur, and where incorrect or out of date data exists in national, regional or international data sources. It serves to illustrate the importance for countries and organisations to review the existing data and maintain up to date reporting. Pitcairn Island is also included in many analyses. Although the United Kingdom is a member of SPREP, Pitcairn Island is not formally included as a SPREP territory. The assessment was produced as three components: this comprehensive regional report; a synthesis report summarising key findings; and individual assessments for the countries and territories of the Pacific Regional Environment Programme region.

This regional report summarises the key findings on the state of conservation in Oceania, examining the following key areas:

- Historic and current status of biodiversity values of Oceania using key indicators and assessment methodologies.
- Cultural relationships to biodiversity in Oceania, including traditional governance management systems;.
- Critical pressures, threats and vulnerabilities on ecosystems and species, including mapping of 'threat hotspots' and analysis of current and predicted drivers of change.
- Vulnerability of biodiversity and ecosystems to predicted climate change, extreme events and natural disasters, and their function in enhancing resilience and adaptation for Pacific islands through approaches such

as ecosystem-based adaptation to climate change.

- Status of governance of terrestrial and marine conservation
- Future prospects, including priority conservation issues and needs; role of communities, governments and regional organisations; recommendations for advancing the conservation agenda in the Pacific by countries and territories, donors, SPREP and other regional organisations, NGOs and civil society.

About this assessment

This report assesses the overall state of conservation in the Pacific Islands region of Oceania, that is, the 21 countries and territories covered by SPREP plus Pitcairn Island (see Figure i.1). The report uses an analysis of 16 indicators chosen in consultation with SPREP and based on the Global Biodiversity Indicator project (http://www.bipindicators.net/). The indicators used are those considered to best provide an overview of the key issues facing conservation in Oceania, whilst recognising the need to use indicators for which a reasonable amount of information was thought to be available. The indicators provide information about the state of ecosystems and species, pressures acting upon these ecosystems and species, and what action is being taken to halt further loss or degradation and improve long-term sustainability.

Approach to reporting on the key findings from the review of the state of conservation in Oceania

The assessment is structured in two related parts:

- State, pressures and threats considers the current health of key habitat types and resources across Fiji as well as the factors and drivers of environmental change affecting Fiji biodiversity.
- Response details action being taken to improve the health and sustainability of Fiji biodiversity considering two key aspects: Environmental Governance and Conservation Initiatives.

In each case, a mixture of habitat-related (such as forest or mangroves) and biodiversity-related (such as threatened species) indicators have been used to present a picture of how biodiversity is threatened and where action is needed to protect it.

The indicators encompass:

Ecosystems

- Terrestrial ecosystems status and rates of change of forest cover
- Freshwater ecosystems – status and threats to rivers, lakes and wetlands
- Coastal ecosystems – status and threats to mangroves, seagrasses and coral reefs
- Marine ecosystems status and threats to ocean health and utilised species

Species

- Threatened species – distribution, status and extinction risk of IUCN Red Listed species
- Endemic species – status and threats
- Migratory marine species of conservation concern – status and threats to marine turtles, cetaceans and dugongs

Response

- **Environmental governance:**
  - Ratification and implementation of Multilateral Environment Agreements (MEAs)
  - National policies and legislation relating to MEAs and biodiversity laws

  - National Biodiversity Strategy and Action Plans (NBSAPs) and other reports to the Convention on Biological Diversity
  - Traditional governance of land and marine resources
- **Conservation initiatives:**
  - Establishment of protected areas for the preservation of ecosystems and species, including Alliance for Zero Extinction Sites, Important Bird Areas, Key Biodiversity Areas, ecologically or biologically significant marine areas
  - Protected Area coverage and invasive alien species management.

Each indicator aims to provide a measure of the current situation and demonstrate whether it is getting better or worse. Because the amount and quality of available information varies among the indicators, a measure of confidence in the data is also provided.

Status

Using each indicator, an attempt is made to summarise and quantify the present situation with respect to the status of species and ecosystems.

For **STATE**, the current condition of biodiversity, habitats and ecosystems is rated from GOOD to FAIR to POOR.

For **PRESSURES**, the assessed level of threat is rated from GOOD (minimal threat) to FAIR to POOR (high threat).

For **RESPONSES**, the assessed level and effectiveness of actions to protect and safeguard biodiversity, habits and ecosystems is rated from GOOD to FAIR to POOR.

Trend

For each indicator, trends were examined in order to assess whether things are getting better or worse or staying about the same. For some indicators, there was insufficient information to judge the trend or even to determine the current state at the regional level.

MIXED: Some aspects have improved, and some have worsened

DETERIORATING: The state of biodiversity related to this indicator has worsened

IMPROVING: The state of biodiversity related to this indicator has improved

UNDETERMINED or UNKNOWN: Not enough information was available to determine a baseline.

Data confidence

The amount and quality of data available for assessing any trends were examined. The quality, quantity and reliability of data varied due to a number of factors—for example, by country, by species or by ecosystem. This term allowed a measurement of the level of data confidence.

High: A large amount of recent data available

Medium: A moderate amount of recent and relatively recent data available

Low: Not enough information was available to determine a baseline

The progress toward meeting the Aichi Convention on Biological Diversity 2020 Goals and Targets is assessed here at the regional level for each indicator, in addition to assessing whether or not current measures provide an adequate level of protection for the species and ecosystems in question.

Figure i.2 Interpreting the indicator icons

Status is represented by colour:

POOR = red

FAIR = yellow

GOOD = green

Trend is indicated by the direction of one or two arrows:

DETERIORATING = downward

MIXED = one upward, one downward

IMPROVING = upward

Data confidence is indicated by a highlighted word:

LOW, MED (medium) or HIGH

INDICATORS

Status **Poor**

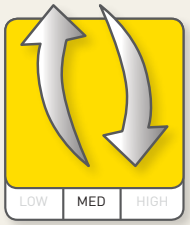
Trend **Deteriorating**

Data confidence **Low**

Status **Fair**

Trend **Mixed**

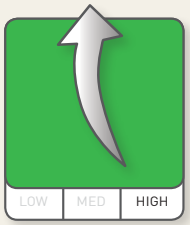
Data confidence **Medium**



Status **Good**

Trend **Improving**

Data confidence **High**



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Key Acronyms

ACRONYM	DEFINITION
AFD	Agence Française de Développement
AUSAID	Australian Aid
CBD	Convention on Biological Diversity
CEPF	Critical Ecosystem Partnership Fund
CCCPIR	Coping with Climate Change in the Pacific Island Region
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GEFPAS	Global Environment Facility Pacific Alliance for Sustainability. United Nations Environment Programme
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IOSEA	Indian Ocean South East Asia (Marine Turtle MoU)
IUCN	International Union for Conservation of Nature
MEA	Multilateral Environmental Agreement
MoU	Memorandum of Understanding
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-Governmental Organisation
PACC	Pacific Adaptation to Climate Change
PAS	Pacific Alliance for Sustainability
PIF	PIF: Pacific Islands Forum
PII	Pacific Invasives Initiative
PILN	Pacific Invasives Learning Network
PIP	Pacific Invasives Partnership
PIRTNC	Pacific Islands Roundtable for Nature Conservation
PIGGAREP	Pacific Islands Greenhouse Gas Abatement through Renewable Energy project
Ramsar	Convention on Wetlands of International Importance
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USP	University of the South Pacific
WCPFC	Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
WHC	World Heritage Convention

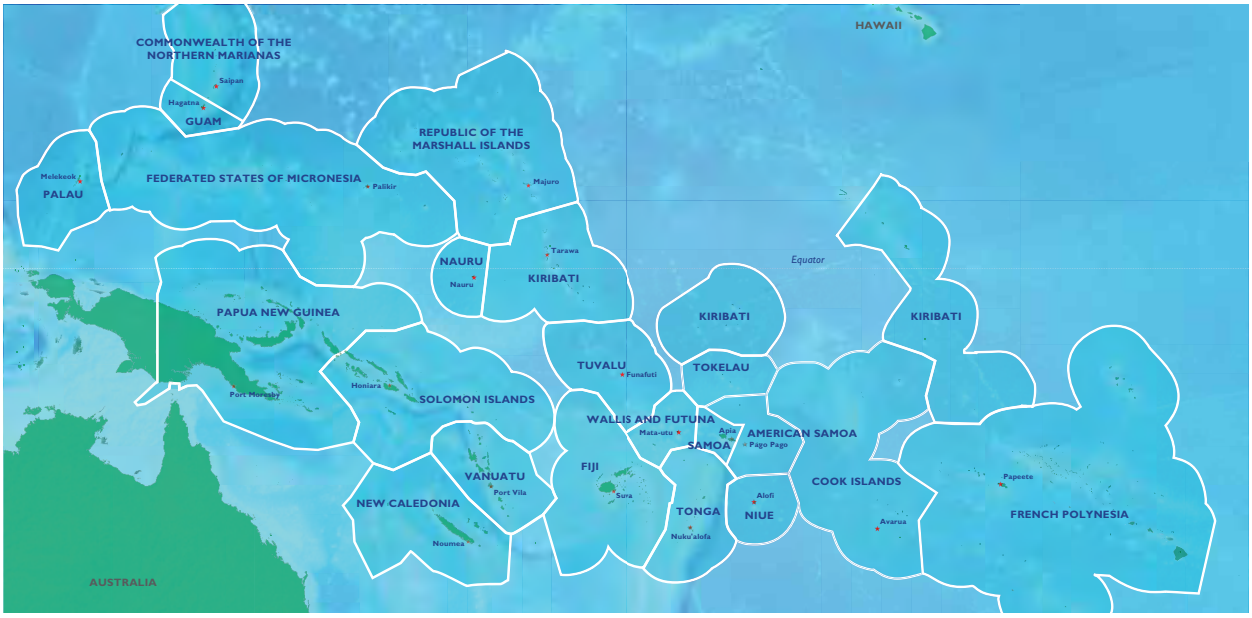
Introduction: Oceania

The plants and animals that inhabit Pacific islands and seas are diverse, unique and under pressure. They are often adapted to specialised habitats and may be found on only a handful of islands, where they are especially vulnerable to the threats and pressures posed by habitat destruction, pollution, invasive alien species, over-exploitation and over-fishing as well as the direct and indirect effects of climate change. Most of these threats are caused by human activities.

Recognition of the significance and value of biological diversity is growing rapidly within the region, through a wider appreciation of the ecosystem services it provides. Most Pacific Islanders are dependent on local biological and other natural resources for survival. Biological resources not only provide food, clothing, tools, medicines and other material products but are also a critical component of Pacific island cultures, providing the objects of traditional cultural practices, myths and legends. Biodiversity conservation is therefore much more than an economic and an ecological issue for Pacific Islanders: it is also a social, political and cultural issue. While great strides have been made to protect biodiversity in the region in recent years, the rapid increase in the number and magnitude of threats to biodiversity highlights the need for much greater effort to be placed on biodiversity conservation in the future.

To protect biodiversity, we need to understand it. This report provides an overview of the status of biodiversity conservation across the Pacific Islands of the Oceania region, highlighting the threats and pressures on Pacific biodiversity, identifying where more protection or research is needed and showing where progress has been made in improving the state of biodiversity. It should be read in conjunction with the 22 country and territory reports, which provide detailed information on the state of conservation in each Pacific island country.

Figure i.1 The Pacific island countries and territories of the SPREP region



Crimson-crowned fruit dove *(Ptilinopus porphyraceus)*.
Photo credit: S.Chape

STATE, PRESSURES AND THREATS

The many and significant pressures and threats impacting the biodiversity of Oceania undoubtedly have a serious impact on many terrestrial, freshwater and marine ecosystems and species.

There is an urgent need to take stock of the current state of natural systems and resources, so the greatest risks can be identified and mitigation and recovery actions can be developed.

The greatest current threats to biodiversity conservation result from human activities: habitat loss; invasive alien species; urban, agricultural and industrial pollution; and over-exploitation. The direct effects of climate change in combination with these major threats will only exacerbate the risks to biodiversity. Pressures work singly or in tandem with each other in complex ways, and the magnitude of each pressure varies from country to country.

This section looks at the current state of the region's natural systems and the species that inhabit those systems as well as the impact of pressures and threats acting upon them.

1 Pressures and threats

The greatest threats to biodiversity conservation currently result from direct or indirect human activities. With human population growth comes increased demand for resources and increased consumption of resources. Associated activities include conversion of native land, habitat loss, the introduction and impact of invasive alien species, urban, agricultural and industrial pollution, and over-exploitation. The direct effects of climate change and interactions with these other threats will exacerbate the risks to biodiversity.

The identified pressures work singly or in tandem with each other in complex ways, and the actual magnitude of each pressure varies from country to country, making it difficult to measure the relative magnitude of each pressure at a regional scale. Due to interactions between species as well as linkages between marine and terrestrial ecosystems and species on islands, adverse effects on one ecosystem will have follow-on impacts on linked ecosystems even if far removed from the impacted ecosystem.

1.1 Habitat loss and degradation

In many countries across Oceania, habitat conversion remains a major pressure on native ecosystems and species. Native ecosystems are often converted to non-native ecosystems as a result of economic activities, such as logging and agriculture, and to a lesser extent due to mining or infrastructure development, such as roads and settlements (CEPF 2007). Habitat conversion directly impoverishes biodiversity through destructive activities, whilst indirect impacts, such as the influx of weeds and browsing animals, increasing soil erosion, reduced water quality and sedimentation of lagoon areas, are also witnessed. These impacts can seriously affect the livelihoods of the rural majority of the island nations of Oceania (ibid.).

Commercial logging remains a major cause of deforestation in Melanesia (for example, see CEPF 2012) but is less of an issue in Polynesia and Micronesia where most merchantable forest has already been logged, and deforestation is now related to agricultural activities, such as subsistence agriculture and cash cropping of taro, kava, copra and cocoa (CEPF 2007). A development in the past 10 years in part of Melanesia has been the conversion of forest to oil palm plantations, as for example in the lowlands of West New Britain and New Ireland of Papua New Guinea (CEPF 2012).

In most parts of Oceania, it is the coastal and lowland ecosystems and habitats that are being impacted the most by habitat degradation. This pattern is not only due to the ease in accessibility for logging operations—they are closest to fast-growing population centres on the coast—but also because of the suitability of these sites for conversion to agriculture or other land use. However, as populations grow and interior areas of large islands are opened up, there is increasing pressure on more remote, higher-altitude montane and cloud forests.

In the coastal and marine environments, marine habitats are lost to destructive fishing practices, poor agricultural land use and inappropriate

coastal developments. Such practices can reduce fishery productivity, create erosion, reduce coastal ecosystem health and limit livelihoods. Sedimentation as a result of habitat destruction for coastal developments and land reclamation is a severe impact (Center for Ocean Solutions 2010).

1.2 Invasive alien species (IAS)

Ever since Pacific islands were first colonised by humans, introduced plants and animals have had a profound impact on native ecosystems and biodiversity. Invasive alien species (IAS) are arguably perhaps the major threat to native biodiversity, species and ecosystems in the Pacific islands (CEPF 2007). In addition to being implicated in the extinction of many native plants and animals (such as land mammals, birds, amphibians, snails and plants), IAS have also degraded native ecosystems and ecological communities, caused declines in agricultural productivity and caused a reduction in key ecosystem functions (CEPF 2012).

Pacific islands are particularly vulnerable to IAS because indigenous plants and animals (including human societies) evolved in the absence of mammalian predators, grazing herbivores and aggressive weeds found on the larger continental land masses of Africa, Asia and tropical America—in other words, native island species had no natural resistance to the more competitive IAS. Furthermore, the small size and isolated nature of many Pacific islands makes them more vulnerable to disturbances that could be relatively minor on larger land masses.

Invasive plants have had a profound impact on forest structure and composition. At least 30 invasive plants are considered to have become serious threats to native habitats on Pacific islands, resulting in decreased dominance of native species, decreased overall species richness and a lower range of biodiversity overall (Meyer 2000). Invasive ungulates such as pigs, cattle and goats degrade forests by eating or damaging tree seedlings, thereby reducing native plant diversity and slowing regeneration (Sherley and Lowe 2000). Rats eat fruits and seeds, causing a reduction in native plant

Herpestes auropunctatus (Indian mongoose)
Photo credit: Helen Pippard

diversity. Invasive birds, such as mynah birds and bulbuls, can spread invasive plants in their droppings.

The threats to biodiversity from marine IAS, via both deliberate and accidental introductions (for example, in contaminated ballast water or as encrusting organisms on ships, where an estimated 10,000 organisms are in transit at any time), are an increasingly serious, but very poorly understood, concern throughout Oceania. The negative economic, environmental and social costs of the use of toxic pesticides to control IAS are also a major cause of the loss of biodiversity, a form of environmental pollution and a threat to human health, all of which seriously undermine conservation efforts. Table 1.1 attempts to highlight some of the more serious IAS and the impacts they have had on the islands of Oceania.

1.3 Over-exploitation

A number of forest plant species are in serious decline because of overharvesting for timber, fuel, medicines or food. A good example is *Intsia bijuga* (Mollucan ironwood), a timber tree that is in decline across its range but especially in Samoa and Fiji (CEPF 2007). The wood is highly valued for carving and for timber, and the tree has been extirpated from many places due to unsustainable harvest rates (CEPF 2007). It is classified as Vulnerable on the IUCN Red List (IUCN 2013).

Unsustainable resource use is especially notable in coastal ecosystems throughout the

Table 1.1 IAS observed in the Pacific Islands along with their impacts

Invasive alien species	Impacts	Islands most affected
Brown tree snake	Extinction of almost all native and endemic birds and many bats and reptiles	Guam
Avian malaria, rats, mongooses, cats, pigs, goats, ants and predatory snails	Local extinction and population losses of birds, land snails and land crabs	Hawaii, French Polynesia and many other Pacific Islands
Taro leaf blight	Loss of almost all traditional taro varieties, at recurrent annual costs of millions of dollars	Samoa
Taro beetle	Devastation of taro, bananas, sweet potatoes and other crops	Solomon Islands, Kiribati and Fiji
Electric or little fire ant	Loss of endemic insects, birds, geckos and dogs and decreased farming and tourist numbers	New Caledonia, Hawai'i and Guam
Yellow crazy ant	Serious damage to native, agricultural and urban ecosystems	Hawai'i, Tokelau, Kiribati and other islands
Oriental fruit fly	Losses in export earnings and food security on over 30 economically important fruits and vegetables. (Unsuccessful attempts at fruit fly eradication have been carried out on Nauru and other islands at costs of millions of dollars)	Rarotonga and Aitutaki in the Cook Islands, Nauru and other islands
Introduced moths and wasps	Extinction of coastal *Cordia* and *Erythrina* trees that have for millennia protected coastlines and garden areas from erosion and salt incursion, two of the main threats from climate change and sea-level rise	Tuvalu, Hawaii and other islands
Asian subterranean termites	Millions of dollars of damage to housing and destroyed livelihoods, in addition to driving millions of dollars spent on control costs since the mid-2000s	Fiji
Green or American iguana	Deliberately introduced into Fiji, it threatens vegetation and the endemic Fiji iguanas	Fiji and four additional islands

(Thaman 2013)

Pacific, reducing fish stocks, limiting fish catch and often causing ecological shifts that further reduce biodiversity and productivity. When the needs of local communities are greater than the supply, artisanal fisheries suffer, and this can have the effect of reducing income and decreasing food supply. The *Status of Coral Reefs of the Pacific and Outlook* (Chin *et al.* 2011) reported that coastal fisheries resources are over-exploited in 55% of the Pacific islands but did not report widespread declines in coral cover, although noting the paucity of data and the need for systematic monitoring.

A related issue in tropical coastal ecosystems is the overgrowth of macroalgae (seaweeds) due to the overexploitation of grazing fishes, particularly parrotfishes (Hughes et al. 2007). Large macroalgal plants also inhibit coral recruitment by shading and space competition, creating a 'phase shift', whereby recovery to a coral-dominated ecosystem is inhibited (ibid.). Unfortunately, since 2008, there has been no systematic monitoring across much of the south Pacific region to determine relative trends in hard coral versus macroalgal cover.

1.4 Natural phenomena

The Pacific islands are in a region of the world that is prone to a large number of natural disasters, including cyclones, floods, drought, fire, earthquakes, tsunamis, etc. Such events can have a profound impact on native ecosystems and are a contributing factor to the accidental extirpation of many species in the region. Cyclones can have a particularly major impact on the health of forest ecosystems as well as faunal populations. In Samoa, for example, more than 90% of trees were defoliated by cyclones Ofa (1990) and Val (1991), and 70% were defoliated by cyclone Evan.

The Pacific 'ring of fire', where tectonic plate boundaries meet, is a seismically active region capable of generating large earthquakes and, in some cases, major tsunamis that can travel great distances. All countries in the region are to some degree influenced by these events, but especially the Melanesian countries of PNG, Vanuatu and Solomon Islands, in addition to Samoa and Tonga in recent years.

Droughts and floods are often ephemeral events linked to the El Niño Southern Oscillation phenomenon. While native forests are often resilient to flood damage, rainfall runs off more readily from degraded forest, often resulting in soil erosion and flooding downstream with impacts on human infrastructure, coastal zones and lagoon areas.

1.5 Climate change

Climate change is a complex problem, which, although environmental in nature, has consequences for all spheres of existence on our planet, impacting poverty, economic development, population growth, sustainable development and resource management. Arguably, increasing sea surface temperatures, sea-level rise and ocean acidification will become the greatest threats to the biodiversity and ecosystems of the Pacific region in the future. There have already been observed changes to sea surface temperatures of 0.08 to 0.20°C per decade over the past 50 years, with predictions of a further 2 to 2.5°C rise over 1990 levels by 2090 (Australian Bureau of Meteorology and CSIRO 2011).

Furthermore, it is predicted that sea level rise in the range of 0.18 to 0.59 metres will be observed by the end of the century (relative to average sea level in the period 1980 to 1999), and increases in annual mean rainfall are projected to be most prominent near the South Pacific Convergence Zone (SPCZ) and Inter-Tropical Convergence Zone (ITCZ), with little change elsewhere in the region.

Secondary effects predicted due to rising sea surface temperatures are changes in rainfall patterns and tropical storm frequency and intensity. Tropical cyclones are generated and maintained by heat energy from the ocean and quickly dissipate over land, so increased cyclone activity might be predicted from rising sea surface temperatures. It is predicted that there will be a decrease in the frequency of tropical cyclones by the late 21st century but an increase in the proportion of more intense storms in the southern Pacific. However, there has been no significant trend in south Pacific cyclone frequency since the early 1980s (Australian Bureau of Meteorology and CSIRO 2011). Rainfall has increased significantly over the period 1950–2008 at one location across the region, in eastern Kiribati, and only the Marshall Islands has shown a significant decline over the same period. However, there has been an overall trend of increasing rainfall in the last 10 years in countries south of the South Pacific Convergence Zone (SPCZ) and decreasing rainfall north of the SPCZ. Therefore, aside from individual cyclones and extreme rainfall events, there is currently no clear regional trend in cyclone activity or increased rainfall due to increased sea surface temperatures.

The combination of temperature rise, causing bleaching mortality, coupled with a rapid decline in surface ocean pH due to increased atmospheric CO_2 concentration affecting carbonate accretion has been predicted to lead to 'devastation' of coral reef ecosystems globally within the next 50–100 years. The threat to coral reefs from such acidification is likely to be rapid, and a threshold of 480 ppm CO_2 is widely quoted as the point at which net carbonate accretion approaches zero (Hoegh-Guldberg et al. 2007). Although sea temperatures and acidification have been increasing steadily across the region

in recent decades, there has been little or no observable impact on coral reefs of the change in surface ocean pH to date. However, there is a serious threat of rapid, severe and irreversible impacts in the next few decades.

There is a high probability that projected changes in climate will result in the degradation and/or fragmentation of ecosystems and the loss of biodiversity, species and ecosystem services in the coming decades (Hill et al. 2011). Changes in precipitation and temperature may result in the disappearance of fragile ecosystems, such as montane cloud forests and their associated biodiversity, which only exist within narrow envelopes of physical, topographic and climatological parameters. Such changes are also likely to increase the susceptibility of forests to threats such as invasive species and fire, which may lead to broad changes in ecosystems or the loss of habitats completely. Ecosystems that are already degraded or are fragmented will be the most vulnerable to these impacts. Loss of forest cover will undoubtedly have dramatic impacts on a wide range of forest-dependent plant and animal species.

Although it has become an increasingly important issue, there are many data gaps, and many countries and territories lack research documenting the present and future impacts of climate change.

1.6 Pollution

Pollution can occur from a single site (point source) or more generally throughout the environment. In terrestrial ecosystems, pollution is mainly observed in the form of air pollution, soil contamination (such as from chemical spills) and water pollution (such as from industrial waste, sewage, chemical waste and sedimentation as a result of habitat destruction). Pollution can have great negative impacts on the basic structure of ecosystems, as well as affecting specific habitats or species through point-source contaminants.

In coastal and marine environments, pollution from nutrients is a major threat, occurring as a result of fertiliser runoff and organic pollutants from sewage, plastic marine debris, solid waste disposal, toxic dumping and oil spills, and urban runoff. Chemical pollution is also a threat, but there is little documentation on the extent or types of chemicals involved in such pollution. Pollution can create dead zones, algal blooms, and acidic areas, posing human health risks and stressing economies (Centre for Ocean Solutions 2010).

The Great Pacific Garbage Patch is a gyre of marine debris particles seen in the central North Pacific Ocean. The patch contains very high concentrations of pelagic plastics, chemical sludge and other debris that have been trapped by the currents of the North Pacific Gyre (Gassel et al. 2013). Many of the plastics also break down into smaller particles. The major effects to marine life are the direct ingestion of the debris by marine birds and animals (such as albatross and turtles), leading to death as a result of not being able to break down the plastic inside their stomachs; and indirectly, the build-up of plastic toxins in fishes can cause the ingestion of toxic chemicals when these animals are consumed by humans.

2 Ecosystems: state and pressures

The Pacific Islands of Oceania display a diverse range of ecosystems, from offshore marine realms to coral reefs, shoreline atolls, mangroves and coastal plains to lowland forests, wetlands and montane forests. The size and ecological diversity of islands generally decreases from southwest to northeast, from the high, forested islands of Melanesia to the many tiny, sparsely vegetated atolls scattered across the central and eastern Pacific. The low-lying islands of the region are dominated by coastal systems and often have little or no natural forest. Higher volcanic islands see a greater diversity in ecosystem types, ranging from coral reef systems to coastal forests and grasslands to montane cloud forests.

Due to the many thousands of isolated islands, varying climates and a wide geographic range, the oceanic islands support a great diversity of terrestrial and aquatic habitats and associated species.

For the purposes of this report, the following ecosystems were examined as indicators to biodiversity health across the Pacific islands of Oceania: terrestrial forest systems, mangroves, seagrasses, coral reefs and open ocean/ high seas.

Moorea, French Polynesia
Photo credit:Stuart Chape

2.1 Terrestrial ecosystems – Forest cover

State

Historically, Pacific islands were completely covered in tropical rainforest from the centre to the coasts. The exception was where geological, topographic or weather factors created conditions unsuitable to forest growth, such as recent lava flows, volcanoes, rocky areas of mountain tops, steep slopes or areas prone to flooding or drought. Cloud and montane forests remain relatively intact across the countries and territories of Oceania: the hillier and steeper the land, the more likely it is to be preserved. This pattern is especially true in the higher islands of Melanesia, with the majority of cloud forest in Oceania seen in Papua New Guinea.

There is a great variability in the state of forest land across Oceania. However, the overall area of forest cover in Oceania is high compared to the global average of 31% cover, with an average of 61% of land area still covered in forest (FAO 2010 – see Table 2.1). Some countries have areas of almost undisturbed natural forest. In Palau, for example, much of the lowland tropical forests are intact, and American Samoa has some of the most pristine forests in Oceania. In other countries, most of the forest land is highly altered. The forests of Guam have been damaged by World War II as well as by fire and invasive species and are now highly disturbed, fragmented and full of introduced species, with no primary forest left. In French Polynesia, the natural forest has been degraded, and agroforestry plantations are changing the proportions of natural to introduced forest lands. By contrast, the Federated States of Micronesia has the highest percentage of forest cover in the region at 92% (CEPF 2007 and 2012).

Whilst there are no comprehensive data available on the areas of each forest type that are being lost, evidence suggests that the more accessible coastal and lowland forests are declining fastest as a result of logging and agricultural expansion. That said, Oceania still contains the most extensive areas of coastal littoral and atoll forest in the world (Thaman and Fong 2012). Coastal forests are the only forests on atolls and most small heavily inhabited islands, providing critical ecosystem services, such as protection from erosion and king tides, and providing the main habitats and breeding areas for seabirds, migratory birds, sea turtles and crabs. The integrity and intactness of coastal and atoll forests could perhaps be the best indicator of the future resilience of small island communities to extreme events and environmental change. Montane and cloud forests, where they exist, are still relatively intact in most countries, but as human populations grow and interior areas of large islands are opened up, there is increasing pressure on these more remote forest areas.

Pressures

Aside from natural phenomena, the major pressures on native forests are from human impacts.

Coastal lowland forests have often been developed and converted to plantation forest, agricultural plantations, pasturelands, secondary re-growth forests, grasslands and built-up areas such as settlements and infrastructure (Mueller-Dombois and Fosberg 1998).

Pressures on forest resources from growing human populations are also a factor and are set to continue; according to SPC population projections, the population of Oceania is expected to increase by 35% by 2030, with the biggest increases in Melanesia (Dahl 1980). Not surprisingly, countries with limited land areas and high population densities, such as Tokelau, Tuvalu and Kiribati, have converted most of their native forest cover to other land use. The larger countries with lower population densities, such as the Solomon Islands and Papua New Guinea, have retained much of their native forest, although deforestation rates in these countries are the highest in the region, largely mirroring their high population growth rates. Figure 2.1 displays the change in forest cover in all countries across the region.

The rate of deforestation in the region as a whole has been higher than the global average since 1990, with 7.3% of the region's forest lost between 1990 and 2010, at a rate of 0.4% loss,

Table 2.1 Forest cover in the Pacific island countries and territories

Country/area	Land area						Country area (1,000 ha)
	Forest		Other wooded land		Other land (1,000 ha)		
	1,000 ha	% of land area	1,000 ha	% of land area	Total	with tree cover	
American Samoa	18	89	0	0	2	-	20
Cook Islands	16	65	0	0	9	-	24
Fiji	1,014	56	78	4	735	66	1,827
French Polynesia	155	42	0	0	211	50	400
Federated States of Micronesia	64	92	0	0	6	-	70
Guam	26	47	0	0	29	-	55
Kiribati	12	15	0	0	69	65	81
Marshall Islands	13	70	0	0	5	-	18
Nauru	0	0	0	0	2	-	2
New Caledonia	839	46	371	20	618	-	1,858
Niue	19	72	0	0	7	-	26
Northern Mariana Islands	30	66	0	0	16	-	46
Palau	40	88	0	0	6	-	46
Papua New Guinea	28,726	63	4,474	10	12,086	-	46,284
Pitcairn Islands	4	83	1	12	n.s.	0	4
Samoa	171	60	22	8	90	63	284
Solomon Islands	2,213	79	129	5	457	-	2,890
Tokelau	0	0	0	0	1	-	1
Tonga	9	13	0	0	63	57	75
Tuvalu	1	33	0	0	2	-	3
Vanuatu	440	36	476	39	304	-	1,220
Wallis and Futuna Islands	6	42	2	11	7	5	14
Oceania	**33,816**	**61**	**5,553**	**10**	**14,725**	**306**	**55,248**
World	**4,033,060**	**31**	**1,144,687**	**9**	**7,832,762**	**79,110**	**13,434,232**

Definitions

Forest: Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10%, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Other wooded land: Land not classified as 'Forest', spanning more than 0.5 hectares, with trees higher than 5 metres and a canopy cover of 5–10%, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10%. It does not include land that is predominantly under agricultural or urban land use.

Other land: All land that is not classified as 'Forest' or 'Other wooded land'

compared with 3.2% of the world's forest lost, at a rate of 0.14%. Commercial logging remains a major cause of deforestation in Melanesia, but less so in Polynesia and Micronesia. A new development in the past 10 years in parts of Melanesia (such as West New Britain and New Ireland in Papua New Guinea) has been the conversion of forest to oil palm plantations (Buchanan et al. 2008).

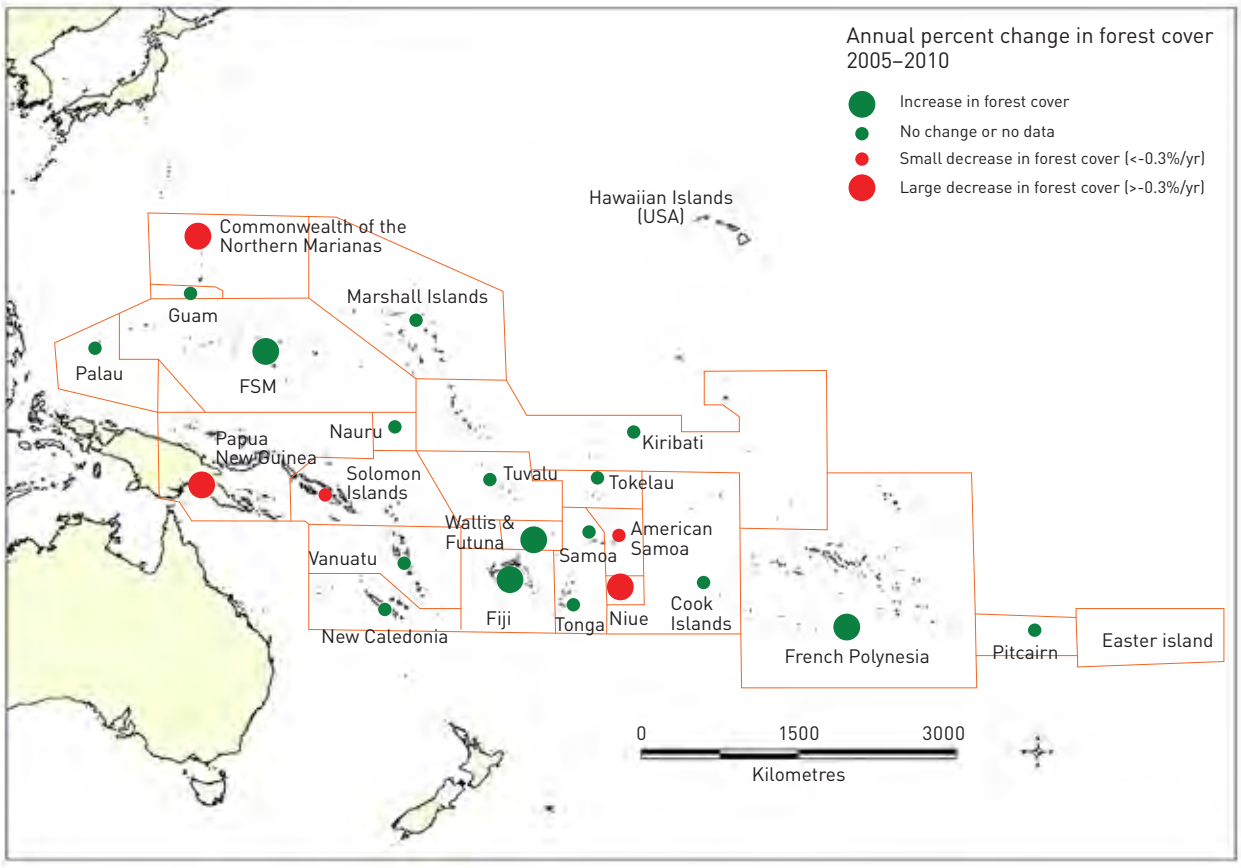
In many countries in the Pacific, there has been a change in *forest quality* as well as in *forest area*. The area of unlogged, primary forest varies significantly across the region, with the largest remaining area in Papua New Guinea and smaller countries, such as Guam, the Cook Islands and Kiribati, having no primary forest left. The quality may be significantly reduced due to large increases in 'open forests' and forests dominated by introduced invasive species (for example, in Samoa; FAO 2010). Alternatively, areas of primary forest (higher quality) may decrease, whilst areas of planted forest increase, causing an overall net increase in forest area, such as in Fiji and French Polynesia (FAO 2010), as seen in Figure 2.1.

Analysis

Two indicators were used to assess the state of the region's forests and the pressures acting upon them. The first measured the health and vitality of forest land and the extent to which native habitats have already been impacted in terms of habitat extent and quality. It considered the area of land under forest and the proportion that is primary forest (never logged). The second indicator measured the rate of change of forest cover, identifying key pressures and threats.

Data were obtained from the *FAO Forest Resource Assessment* 2010, with additional data from FAO 2005 and CEPF 2010. The *FAO Forest Resource Assessment* is recognised as the most comprehensive, objective global approach for evaluating the status of forest resources in the world and is undertaken every five to ten years. Confidence in the data was rated **Medium** because of variability in the completeness and currency of data provided by countries on their forest resources.

Figure 2.1 Trends in the extent of forest cover from 2005–2010



Samoa Cloud Forest.
Photo credit: Stuart Chape

The status of the region's forests was deemed **Fair**, with the majority of Pacific islands still having relatively high forest cover, higher than the global average. The area of unlogged primary forest varies across the region, with large areas in Papua New Guinea and countries like Cook Islands and Kiribati having no primary forest left. With the increase in deforestation in many countries (especially in the higher islands of Melanesia, such as Papua New Guinea and Solomon Islands), the overall trend in the extent of forest coverage and quality is considered to be **deteriorating**. However, in the smaller countries and territories, there has generally been either no significant change or in some cases a small increase in forested area: such increases in forest area have most often been due to increases in commercial forest plantations or increased coverage of secondary re-growth forest, both of which have lower biodiversity value than native forests. The overall trend when looking at pressures on forests is therefore **mixed.**

Conclusions and recommendations

Although the extent of forest cover across the 22 Pacific island countries and territories was analysed as Fair, native forests continue to be impacted by human activities in the form of deforestation, conversion and invasion by

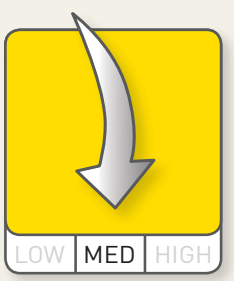
INDICATORS

STATE

Status **Fair**

Trend **Deteriorating**

Data confidence **Medium**

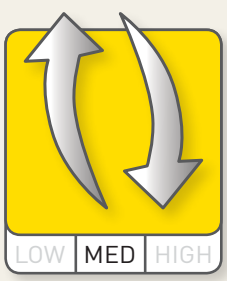


PRESSURES

Status **Fair**

Trend **Mixed**

Data confidence **Medium**



introduced invasive species. Future loss is likely as a result of such human activities exacerbated by population increase and climate change. Intact forests are key for the maintenance of terrestrial biodiversity, and the loss of coastal forest in particular is a major conservation priority in Oceania.

It has also been observed that the extent of forest cover may not be a good indicator of the health of the ecosystem in terms of biodiversity because there are differences in the type of forest and therefore in the quality of forest: replanting of monoculture (commercial) forest may increase the overall coverage in terms of area but will not necessarily produce a rich, biodiverse ecosystem.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, ***Target 5*** states that "***By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced***".

It appears from the data on current extent of forest cover and the rate of change in cover that meeting this Target will be a challenge at the regional level. Deforestation rates are high, and even if the extent of forest cover is compensated by planting new forest, this new forest is predominantly for commercial use and as such will do nothing to meet the requirement of avoiding degraded or fragmented forest. It is also likely that a lack of integrated land-use planning, inappropriate development of land and/or a lack of effective monitoring and enforcement may be contributing to the loss or degradation of natural habitats across the region.

The current lack of consolidated data for assessing this indicator will make it difficult for countries to meet the Aichi Targets related to habitat conservation and preservation. Governments and organisations working in the region can help to protect and restore forest ecosystems by collaboratively sharing research findings relating to forests and other terrestrial habitats.

2.2 Freshwater ecosystems

State

Wetlands have not been well studied in the Pacific island countries and territories. On the larger volcanic islands, there are significant areas of wetlands, including rivers, freshwater lakes, marshes, swamps and intertidal mangrove forests. The smaller atoll countries and territories generally have few, if any, wetlands other than reef systems, although there may be small areas of mangrove or Pandanus swamp. Many Pacific island countries have limited surface and groundwater freshwater resources. Freshwater resources on atolls and coral and limestone islands are generally limited to groundwater, rainwater and surface reservoirs, and the island nations of Nauru, Niue, Kiribati, Tonga, Tuvalu and the Republic of the Marshall Islands have no significant surface water resources, relying heavily on rainwater harvesting and desalination. An assessment of inland wetlands in Oceania shows a reduction from 36 million to 28 million hectares between 1999 and 2004 (Ellison 2009).

Rivers and streams tend to be short and steep on Pacific Islands and generally have low-gradient alluvial (sometimes with mangrove) plains. River flows are prone to relatively rapid changes when specific weather occurrences take place, such as cyclonic floods or droughts. Only the larger, high volcanic islands of Oceania have large rivers, with associated coastal floodplains. The Fly River floodplain in Papua New Guinea is the largest wetland in the whole Pacific Islands region, occupying an area of 4.5 million hectares (SPREP 2011).

Oceania lakes include crater lakes, lakes in highland valleys or basins, freshwater lakes in the coastal zone of high islands and coastal lakes, either freshwater or saline, on coralline limestone islands. Some coastal lakes of high islands have the potential function of water supply for growing urban centres.

Lake Lanoto'o Ramsar Site, Samoa
Photo credit: Stuart Chape

Most accessible lakes in the region have high aesthetic values and thus offer potential eco-tourism opportunities. The largest areas of freshwater swamps are in Melanesia. Smaller countries particularly to the east of the region lack this wetland type. Freshwater forested wetlands are found on many of the high islands of Micronesia. Marshes and peat bogs are found in Papua New Guinea and Fiji. Amongst the freshwater fauna, there are high levels of endemism (Schabetsberger et al. 2009).

Pressures

Threats to freshwater ecosystems, such as rivers, lakes and wetland systems, generally result from direct and indirect human impacts. The number and severity of threats appears to be increasing rapidly.

Wetlands are impacted directly by clearance for cultivation, logging and destruction. More indirectly, mining discharges, industrial wastewater and urban growth are significant pollution sources. Faecal waste from humans and animals (mostly pigs and cattle) pollutes surface waters and water supplies in nearly all countries. Eutrophication of waters from these nutrient sources and agricultural chemical pollution threaten aquatic ecosystems in some catchments. Changes to upper catchments are often felt downstream—for example, sediment loads arising from deforestation, mining and agriculture are a significant threat to ecosystems and water supplies (Schabetsberger et al. 2009). Poorly planned eco-tourism activities can have direct and indirect impacts on wetland systems, again from pollution and the destruction of adjacent land. River systems are also vulnerable to climate-change-driven sea level rise as seawater migrates upstream into river systems whose freshwater flows are already depleted by water resource development. The availability and reliability of water resources limit economic and social development, especially in countries that rely almost entirely on a single source of supply, such as groundwater (Kiribati), rainwater (Tuvalu, northern Cook Islands), surface reservoirs, or rivers and other surface flows.

Physical barriers are a major threat to rivers, especially to freshwater fauna such as fishes and invertebrates. Dams for providing water supply and electricity alter water flow and can affect fish migrations. Migratory fishes and crustaceans that colonise these systems spawn in freshwater, and after hatching, the free embryos drift downstream to the sea where they undergo a planktonic phase before returning to

Labasa town, Vanua Levu
Photo credit: Stuart Chape

the rivers to grow and reproduce. Barriers such as dams can prevent these migrations from occurring. In addition, juveniles of these species migrating upstream are an important source of food for local human populations in certain island archipelagos, such as Vanuatu and Solomon Islands. Because most of the fish are colourful, there is also pressure from aquarium trade collectors (Ellison 2009; Keith et al. 2013).

Reduced freshwater species richness is being witnessed as a result of river flow alteration, barriers to species migration, habitat and water quality degradation, the introduction of invasive species, such as tilapia and weeds, and overharvesting. The cumulative effects of these threats are exacerbating the risk of extinctions, with several endemic fish species reported in the IUCN Red List as threatened, and are compromising the sustainable use of freshwater ecosystems by local human communities.

Analysis

Two indicators were used to assess the state of the region's freshwater ecosystems and the pressures acting upon these rivers, lakes and wetland ecosystems. The first indicator measured the health and vitality of freshwater ecosystems as well as the extent to which native habitats have already been impacted in terms of habitat extent and quality. The second indicator measured the rate of change in quality and extent of these systems, identifying key pressures and threats.

INDICATORS

STATE

Status
Fair

Trend
Deteriorating

Data confidence
Low

PRESSURES

Status
Fair

Trend
Deteriorating

Data confidence
Low

Data were obtained from IUCN and SPREP reports, augmented by information from other research reports and papers, such as Cushing et al. 1995, Abell et al. 2007, Jenkins et al. 2010, Secretariat of the Pacific Regional Environmental Programme (SPREP) 2011, Gehrke et al. 2012, International Union for Conservation of Nature (IUCN) 2012 and Keith et al. 2013.

Confidence in the data was rated as **low**. Information on freshwater ecology and freshwater fisheries is sparse. Freshwater ecosystems across Oceania have never been systematically assessed, and existing Convention of Wetlands of International Importance (Ramsar) information is dated.

The state of the region's freshwater ecosystems, as well as the impact of pressures, were deemed to be **Fair**, largely due to variations in the systems seen across the region and the effects of threats across the region. However, the trend in the quality of freshwater systems was found to be **deteriorating** across the region.

Conclusions and recommendations

Although the extent of wetlands across the 22 Pacific island countries and territories was examined as Fair, all wetland ecosystems continue to be affected by human activities that are placing stress on these systems. The maintenance of freshwater and wetland ecosystems is vital for the Pacific islands of Oceania because these systems are a vital provider of ecosystem services to much fauna and flora, including human livelihoods.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, there are three targets that relate to wetlands in some way:

Target 8 – By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 11 – By 2020, at least 17 per cent of terrestrial and inland water and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 14 – By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

It appears from the data examined that meeting these Targets will be a challenge for some countries in the region. The combination of a current lack of consolidated data as well as poor efforts to conserve wetland systems (for example, slow implementation of the regional Wetland Action Plan) will make it difficult for countries to meet the Aichi Targets related to freshwaters and wetlands. Section 5.4 examines current efforts in meeting Target 11, whilst Section 4 considers biodiversity treaties and laws related to wetlands, such as the Ramsar Convention.

The long-term sustainability of freshwater resources is predicted to become significantly worse as a result of depleted resources, mismanagement, poor governance and increasing pressure from human populations. The current lack of coordinated actions to address current threats will lead to further, worsening impacts. It is likely that a lack of integrated land-use planning, inappropriate development of land and/or a lack of effective monitoring and enforcement may be contributing to the loss or degradation of natural habitats, including wetlands, across the region.

Governments and organisations working in the region should work collaboratively to share research findings relating to wetlands. There remains, in particular, a lack of baseline assessments, national inventories and identification of management needs, as well as systematic wetland mapping and classifications with which to develop a robust

assessment of trends. This lack of data is a hindrance to our knowledge on how to protect the freshwater ecosystems of the region. We need more and better meteorological, hydrological, hydrogeological and water-quality data to generate adequate water resource assessments.

There is also a need for more information on the effects of pressures and threats acting on freshwater ecosystems. For example, the effects of habitat loss from development, especially in relatively new sectors such as tourism and mining, and the effects of land-use practices, such as conversion to agriculture or infrastructure developments, are largely unknown.

The ridge-to-reef monitoring and conservation approach must be advocated by all stakeholders. There is an ecological connectivity seen across the Pacific islands, with cloud forest, riparian forest, groundwater systems and subterranean flows, forests, agricultural wetlands and estuaries considered of critical importance for freshwater wetland management.

2.3 Coastal and marine ecosystems

Coastal ecosystems are of critical importance to countries and territories of Oceania because they are areas of remarkable biological productivity and high accessibility. These ecosystems provide a wide array of goods and services: they host the world's primary ports of commerce; they are the primary producers of fish, shellfish, and seaweed for both human and animal consumption; and they are also a considerable source of fertiliser, pharmaceuticals, cosmetics, household products and construction materials. Coastal ecosystems store and cycle nutrients, filter pollutants from inland freshwater systems and help to protect shorelines from erosion and storms. This section examines the state of mangrove forests, seagrass beds, coral reefs and the offshore high seas, as well as assessing the pressures acting upon these intricately linked ecosystems. The existence of functional links between mangroves, seagrass beds, coral reefs and to some extent the open ocean means that degradation of one habitat type will adversely affect the health of neighbouring habitats.

Coastal and marine ecosystem on Aniwa Island, Vanuatu.
Photo credit: Stuart Chape

Mangroves cleared for development.
Photo credit: Helen Pippard

2.3.1 Mangroves

State

Mangroves are one of the region's most important coastal ecosystems. Their complex root structures allow them to survive the roughest of weather and to protect coastal communities from coastal erosion. They also provide nursery and feeding grounds for fish and other marine animals that Pacific islanders rely on for food security and income.

The total mangrove area in Oceania is reported to be 5717 square kilometres, which is approximately 4% of the total global mangrove cover (Spalding et al. 2010). The largest area and species diversity is found in the western Pacific, such as Papua New Guinea (as shown in Table 2.2), Solomon Islands and Fiji, and decreases significantly eastwards. The high islands of Melanesia have the largest mangrove stands due to the significant river systems, plentiful rainfall and sediment supply, with the low-lying limestone islands having significantly fewer mangroves. However, the quality of these large mangrove stands is declining compared to those in the eastern Polynesian islands, due to the pressures outlined below.

Table 2.2 Number of mangrove species recorded in each country

Country	Number of mangrove species
Federated States of Micronesia	14
Fiji	12[a]
Guam	10
Kiribati	4
Marshall Islands	5
Nauru	2
Northern Mariana Islands	3
Palau	19
New Caledonia	23
Papua New Guinea	43
American Samoa	3
Niue	2
Samoa	5[a]
Tonga	10[a]
Tuvalu	3
Wallis and Futuna	3
Solomon Islands	29[a]
Vanuatu	23[a]

Source: Spalding et al. (2010)
a = updated figures from IUCN Mangrove Ecosystems for Climate Change Adaptation and Livelihoods Project (MESCAL) 2012

Pressures

Mangroves, particularly in the Melanesian countries, are under increasing threat from a variety of factors. Habitat conversion and reclamation for urban housing and industrial and tourism-related development is perhaps the biggest threat. In addition, pollution such as the disposal of solid waste is affecting the health of large tracts of mangroves. Conversion of mangrove land for aquaculture and agriculture is also increasing in some countries. Overharvesting of resources for fuelwood and

housing materials, as well as other traditional use, directly impacts mangrove stands.

These pressures may also reduce mangrove resistance and resilience to the additional stress of sea level rise and climate change. Mangroves are functionally linked to neighbouring coastal ecosystems, including seagrass beds, coral reefs and upland habitat. For instance, mangroves of low islands and atolls, which receive a proportion of sediment supply from productive coral reefs, may experience lower sedimentation rates and increased susceptibility to relative sea level rise if coral reefs become less productive from climate change and sea level rise. The importance of mangroves in mitigating the adverse effects of climate change in the Oceania region cannot be overestimated.

The predicted loss of mangroves from climate change-driven sea level rise is expected to exacerbate the impacts of climate change-driven flooding on vulnerable coastal areas and communities. Mangroves may experience serious problems due to rising sea level, and low-island mangroves may already be under stress. A reduction in area by 13% of the current 524,369 hectares of mangroves of the 16 Pacific island countries and territories where mangroves are indigenous is predicted using an Intergovernmental Panel on Climate Change (IPCC) upper projection for global sea level rise by the year 2100.

Analysis

Two indicators were used to assess the state of the region's mangrove ecosystems and the pressures acting upon them. The first measured the **extent and condition** of mangroves, whilst the second indicator identified **key pressures and threats**.

Information on mangrove area, diversity, threats and climate change predictions was sourced from various reports and publications. Many of the statistics and pressures cited are from studies done as part of the project Mangrove Ecosystems for Climate Change Adaptation and Livelihoods (MESCAL), which was implemented in Samoa, Tonga, Vanuatu, Fiji and Solomon islands from 2010–2013, with further information from Bhattari and Giri 2011, FAO 2005, Waycott et al. 2011 and Gilman et al. 2006. Data confidence is **low**: there is little quantitative information available on pressures on mangroves or on trends in the area and health of Pacific island mangroves.

The extent and quality of mangroves in the Pacific was rated to be **fair** but variable depending on the country concerned. In Melanesia, there are larger mangrove resources, but the quality is lower due to the observed threats acting on them. In Polynesia, the mangrove areas are smaller but generally in better condition due to a lower intensity of threats impacting them. There is a range of pressures on mangrove ecosystems, which are likely to increase with climatic changes and continuing human population growth and development. However, with increased awareness-raising and strengthened governance at the community and national level, the state of mangroves could **improve**.

Conclusions and recommendations

The extent of mangroves across the 22 Pacific island countries and territories was examined as variable, with the larger mangrove ecosystems of Melanesia being impacted by human activities more so than the smaller areas of mangroves in the eastern part of the region. The maintenance of mangroves is vital as they provide important

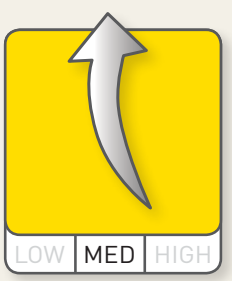
INDICATORS

STATE

Status
Fair

Trend
Improving

Data confidence
Medium



PRESSURES

Status
Fair

Trend
Deteriorating

Data confidence
Low

ecosystem services to much fauna and flora, including human livelihoods.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (See Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, there are three targets that relate to mangroves in some way:

Target 8 – By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 11 – By 2020, at least 17 per cent of terrestrial and inland water and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 14 – By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

It appears from the data examined that meeting these Targets will be a challenge for some countries in the region, especially those in the western part of the Pacific.

Many issues exist relating to the management of mangroves. Weak governance, a disconnect between formal and traditional management systems, weakening traditional management and limited capacity are key challenges facing mangrove management in the Pacific. In addition, the range of pressures on mangrove ecosystems is likely to increase with climate change and on-going human population growth and development, especially in the western Pacific, which has the greatest extent of mangrove cover. There is also an increasing threat from tourism and development for housing and industry.

There remains, in particular, a lack of baseline assessments on mangroves, and due to limited monitoring efforts, there is little information available on trends in area and health of Pacific Island mangroves. NGOs and governments should focus efforts on gathering and consolidating such data.

The ridge-to-reef monitoring and conservation approach must be advocated by all stakeholders. There is an ecological connectivity seen across the Pacific Islands, with cloud forest, riparian forest, groundwater systems and subterranean flows, forests, agricultural wetlands and estuaries considered of critical importance for freshwater mangrove management.

Mangroves, Labasa River estuary.
Photo credit: Stuart Chape

However, despite the deteriorating trend in mangrove cover and increase in pressures observed in some countries, there has been an increase in awareness of the role that mangroves play in coastal protection, along with efforts to strengthen governance both at community and national level.

Governments and organisations working in the region should continue to work together not only to improve our knowledge on the status, extent and trends of mangroves but also to collaboratively share research findings and improve governance efforts. By doing so, these actions have the potential to improve the status of mangrove stands in the region.

2.3.2 Seagrasses

State

The islands of Micronesia, Melanesia and Polynesia are typically surrounded by coral reef flats with extensive seagrass habitat. Most seagrasses in the tropical Pacific are found in waters shallower than 10 metres and usually close to island shores.

The shallow subtidal and intertidal zones around the coasts of Pacific island countries and territories often support large areas of seagrass, extending long distances away from the shoreline in lagoons and sheltered bays and often adjoining coral reefs. Seagrasses are of special interest to coastal fisheries worldwide because of the role they play in providing nursery areas for commonly harvested fish and invertebrates.

In addition to their roles as nursery areas, seagrasses provide feeding habitats for many species of fish as well as sea turtles and the dugong. Seagrasses and intertidal flats are also permanent habitats for several species of sea cucumbers, the main group of invertebrates targeted as an export commodity in the region, and for a wide range of molluscs gleaned for subsistence. Movement of nutrients, detritus, prey and consumers between mangrove, seagrass and intertidal habitats can have major effects on the structure and productivity of food webs, with nutrients and detritus increasing primary and secondary productivity both directly and indirectly. Both mangroves and seagrasses improve water quality by trapping sediments, nutrients and other pollutants.

Near-shore seagrass, Mamanuca Islands, Fiji

Photo credit: Helen Pippard

Table 2.3 Number of seagrass species and estimated area of seagrass habitat in the Pacific Islands

Pacific island territory	Country	Total land area (km2)	No. of species of Seagrass	Seagrass area (km2)	Seagrass as % of land area
Melanesia	Fiji	18,272	6	16.5[a]	0.01
	New Caledonia	19,100	11	936	5.00
	Papua New Guinea	462,243	13	117.2	0.03
	Solomon Islands	27,556	10	66.3	0.24
	Vanuatu	11,880	11	?[a]	?
Micronesia	Federated States of Micronesia	700	10	44	6.29
	Guam	541	3	31	5.73
	Kiribati	690	2**	?[b]	
	Marshall Islands	112	3	?[b]	
	Nauru	21	0	0	0
	Northern Mariana Islands	478	4	6.7	1.40
	Palau	494	11	80	16.19
Polynesia	American Samoa	197	4	?[c]	
	Cook Islands	240	0	0	0
	French Polynesia	3521	2	28.7	0.82
	Niue	259	0	0	0
	Pitcairn Islands	5	0	0	0
	Samoa	2935	5	?[b]	
	Tokelau	10	0	0	0
	Tonga	699	4	?[b]	
	Tuvalu	26	1*	0	0
	Wallis and Futuna	255	5	24.3	17.00

*: Local contacts report no seagrass, but Ellison (2009) noted the presence of one species

**: based on observations by P. Anderson

a: mapping in progress at time of report

b: not mapped

c: Seagrass not encountered during September 2002 and May 2003 surveys of Tutuila, Manu Group, Rose Atoll and Swains Island (Analytical laboratories of Hawaii 2004) (Waycott et al. 2011)

Across Oceania, the greatest species diversity is found in the west (Palau), declining to the east as seen in Table 2.3. The amount of seagrass habitat also varies considerably across the region: some countries (Cook Islands, Nauru, Cook Islands, Niue, Pitcairn, Tokelau and Tuvalu) have apparently no seagrass cover, and others (Vanuatu, Kiribati, Marshall Islands, American Samoa, Samoa and Tonga) have no or very little data on seagrass (Duarte et al. 2008, Coles et al. 2011).

Pressures

Detailed information on seagrass health is lacking for most Pacific island countries. However, the health and extent of seagrass beds are primarily affected by changes in water clarity and nutrient availability, which are frequently altered by coastal development in heavily populated areas, and by deforestation upstream. Many of the leading threats to coastal seagrass in the Pacific Islands region of Oceania are land-based, such as watershed logging, mining, coastal development and agriculture, which can all lead to increased water turbidity. Physical disturbance of seagrass beds by cyclones ranks in the top six threats for the Indo-Pacific region (Coles et al. 2012).

Climate change threatens large areas of seagrass as a result of increased heat stress, sedimentation and turbidity due to higher rates of runoff, changes in suitable sites for growth of mangroves and seagrasses due to rising sea levels, and possibly more physical damage from the combination of sea-level rise and severe cyclones and storms. The amount of seagrass that is likely to be lost due to climate change varies depending on the emission scenario/ climate projection used, but it is estimated that between 5 and 30% loss is possible across the region by the year 2035, with the greatest losses projected for Northern Mariana Islands and Tonga (Waycott et al. 2011).

Analysis

Two indicators were used to assess the state of the region's seagrass beds and the pressures acting upon them. The first indicator measured the **extent and condition** of seagrasses, whilst the second indicator examined the health of seagrasses, taking into account **key pressures and threats**.

Data for the indicators were extracted predominantly from a recent report (Waycott et al. 2011) as well as from a literature search of relevant papers and reports (Ellison et al. 1999, Coles et al. 2011).

High/Medium/Low threat level was based on projected percentage loss under three possible climate change scenarios, where less than 5% loss = Low threat, 6–20% = Medium, and 21–35% = High. Confidence levels were taken as 5–32% = Low, 33–66% = Medium, and 67–100% = High.

Data confidence was assessed as **Medium to Low**. Estimates of recent changes in seagrass habitats across the tropical Pacific are difficult to make because (1) seagrass meadows are known to fluctuate seasonally and change from year to year, and (2) maps of the distribution of seagrass area and biomass are either limited or imprecise. Detailed information on seagrass health is lacking for most Oceania countries and territories; however, with increasing pressures, the trend is likely to be one of **deterioration.**

The extent of seagrasses in the Pacific Islands appears to be **fair** with coverage relatively stable: the tropical Indo-Pacific region has widespread and abundant seagrass beds, and a high number of seagrass species, including several endemic species. However, whilst current seagrass beds appear fairly stable, pressures are likely to increase, especially impacts from coastal developments and climatic changes, leading to an overall trend towards degradation in both the number and type of pressures and the resulting state of seagrass beds.

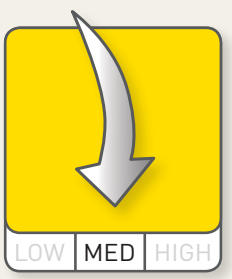
INDICATORS

STATE

Status
Fair

Trend
Deteriorating

Data confidence
Medium



PRESSURES

Status
Fair

Trend
Deteriorating

Data confidence
Low

Seagrass in the Rock Islands, Palau
Photo credit: Helen Pippard

Conclusions and recommendations

The extent of seagrasses across the 22 Pacific island countries and territories was examined and found to be fairly stable, with abundant seagrass beds observed throughout the region along with a high number of species recorded.

Nevertheless, some loss in cover is observed, and pressures are likely to increase: there are many local reports of individual seagrass beds being destroyed by physical development-related processes or increased sedimentation, so small losses are recorded and the overall trend is towards degradation. Many seagrass beds have been destroyed or severely affected by localised coastal developments. It is likely that over the next 30 to 90 years, climatic changes will heavily impact seagrass beds. Seagrass is also the favoured food of the dugong, and changes in its availability are likely to affect dugong populations.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (See Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, there are three targets that relate to mangroves in some way:

Target 8 – By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 11 – By 2020, at least 17 per cent of terrestrial and inland water and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 14 – By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

It appears from the data examined that meeting these Targets is within reach for most countries.

The main barriers will be due to pressures that are more difficult (or impossible) to control, such as those related to changes in climate.

Although detailed data are available for some countries, many have no or extremely limited data on the location or state of their seagrass beds. Therefore, governments and organisations working in the region should continue to work together, not only to improve our knowledge on the status, extent and trends of seagrasses but also to collaboratively share research findings and improve governance efforts. By doing so, these actions have the potential to maintain the current stable status of seagrass beds in the region.

2.3.3 Coral reef ecosystems

State

There are over 650,000 square kilometres of coral reefs within the Pacific islands of Oceania (Wilkinson 2008). Coral reefs are critically important ecologically and socially. They not only offer islands with protection from storms but are also an integral part of the livelihood and cultures of Pacific island peoples, providing goods and services such as food from fish, molluscs and algae, tourism benefits and shoreline protection.

The Pacific island countries and territories contain extensive coral reefs covering a huge area, with a multitude of reef types, including fringing, barrier, double barrier, submerged barrier, platform, patch, oceanic ribbon, mid-ocean, atolls, oceanic atolls and near-atolls. Although many reefs in the Pacific have undergone severe and high-mortality crisis events during the past decade, in general, many of the reefs in the Pacific have shown great resilience and are currently in reasonable coral health (Wilkinson 2008).

The trends in coral cover vary considerably from country to country. Current reef status is a reflection of recent damaging events, predominantly 'natural', and most damaged reefs appear to be recovering. While trends in reefs can be detected for individual countries and territories, no strong Pacific-wide or regional trend is evident (Chin et al. 2011).

The reefs of the Pacific are generally faring better than those in other parts of the world—almost 52% of Pacific reefs were recently assessed as being at Low Risk. The Southwest Pacific has the largest area of coral reef (38,460 square kilometres) but the highest percentage at risk (57%); Polynesia has the second-largest area (12,588 square kilometres), and the second-highest percentage at risk (42%); while Micronesia has the smallest area of reef (9,855 square kilometres) and also the lowest percentage at risk (30%) (Bryant et al. 1998).

Pressures

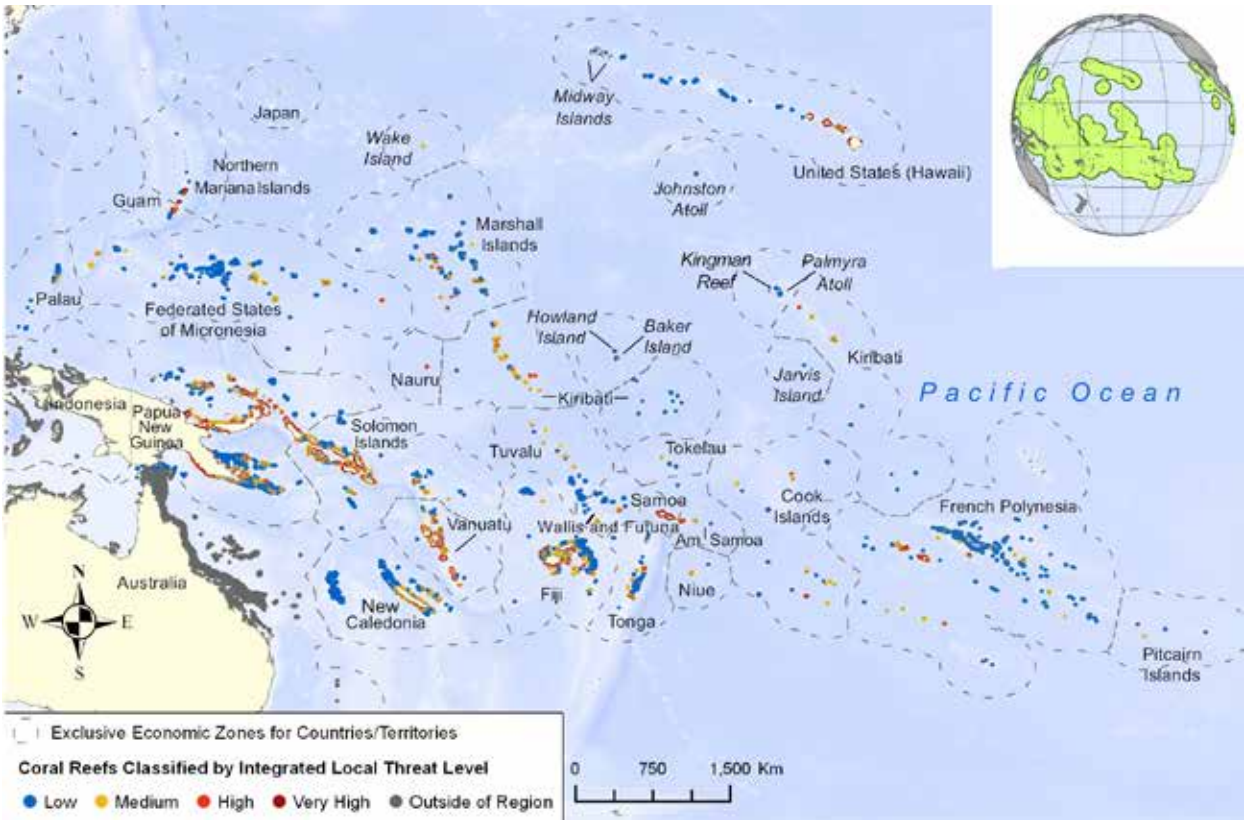
The most pressing threats to coral reefs across the countries and territories of the Oceania region include elevated sea temperature and ocean acidification, cyclones, predation (by Crown of Thorns Starfish, *Drupella* snails, etc.) and disease, increased water turbidity, overfishing and pollution as well as physical breakage from coastal developments.

The impacts of global climate change have already been observed on coral reefs due to a strong link between sea surface temperature increases and coral bleaching.

The combination of temperature rise, causing bleaching mortality, coupled with a rapid decline in surface ocean pH due to increased atmospheric CO2 concentration has also been predicted to lead to devastation of coral reef ecosystems globally within the next 50–100 years. All areas across the Pacific region are expected to suffer damaging acidification by 2065. At CO2 concentrations projected for

Crown of Thorns Starfish
Photo credit: Helen Pippard

Figure 2.2 Map of estimated threat level to coral reefs of Oceania



Source: World Resources Institute, *Reefs at Risk Revisited*, 2011

2030–2050, erosion will exceed calcification in the coral reef-building process, resulting in the extinction of some coral species, significant effects on coral reefs and declines in biodiversity overall (Hoegh-Guldburg 2007).

Sea level rise poses a severe threat to the low-lying atolls and coral islands in the Pacific. Such factors can drive large-scale changes in coral cover, affect coral reefs in all regions and are the greatest future threat to reefs in the region as a whole. To date, Pacific reefs have generally shown high resilience to, and recovery from, such events (Burke et al. 2011). Coral loss due to temperature-related bleaching and mortality, although sometimes extensive, has usually been found to be reversible as temperatures moderate and corals re-grow.

These impacts from climatic changes are expected to increase, with the proportion of threatened reefs likely to reach 90% by 2030. By 2050, almost all reefs in the Pacific are predicted to be rated as threatened, with more than half rated as at high, very high or critical levels (Bryant et al. 2008 and Chin et al. 2011; see Figure 2.2).

Reef area and threat level varies greatly across the region. In some cases, countries with very low amounts of reef area have a high percentage under high levels of threat (for example, Nauru, Niue and Samoa), while some states with widely scattered islands may have large areas of reef but only a relatively small portion of it under high local threat (such as French Polynesia, Marshall Islands and Federated States of Micronesia).

This high resiliency of coral reefs is usually attributed to low levels of local threats, such as:

- coastal development: including coastal engineering, land filling, runoff from coastal construction, sewage discharge and impacts from unsustainable tourism;
- watershed-based pollution: focusing on erosion and nutrient fertiliser runoff from agriculture delivered by rivers to coastal waters;
- marine-based pollution and damage: including solid waste, nutrients, toxins from

oil and gas installations and shipping, and physical damage from anchors and ship groundings; and

- overfishing and destructive fishing: including unsustainable harvesting of fish or invertebrates as well as damaging fishing practices, such as the use of explosives or poisons.

Although reefs in Oceania are currently faring better than those in other parts of the world, as Pacific populations rise, often in areas with inadequate infrastructure to control such local threats, most pressures, particularly on coastal reefs, will rise and are likely to affect a reef's ability to resist and recover from global stresses.

Analysis

Two indicators were used to assess the state of the regions coral reef ecosystems and the pressures acting upon them. The first measured the extent and condition **of coral reef ecosystems.** The second indicator **identified key pressures and threats**.

Data for the indicator were extracted predominantly from the Global Coral Reef Monitoring Network (GCRMN) and Reefs at Risk assessments for the region and each specific country (Brooke and Hepburn 1992, Bryant et al. 1998, Wilkinson 2008, Spalding et al. 2010, Chin et al. 2011). The GCRMN has been the repository of the most long-standing cross-regional coral reef data since 2000, and even in the face of such variability, common patterns have emerged over time. High/Medium/Low threat levels were taken from the Reefs at Risk assessments within the GCRMN report (2011). Local threats (marine pollution, watershed-based pollution, coastal development and over-fishing) were combined into an integrated local threat index for each country. Projected threats from climate change-related thermal stress were then added.

Data confidence was rated as **medium**. GCRMN reef monitoring varies greatly country to country, and while some countries have comprehensive and long-term data, others are based on single or limited observations. The last full data compilation was in 2007. Because Pitcairn is not included in these reports, information was sourced from the Pitcairn Islands Study Centre (Brooke and Hepburn 1992).

The extent and condition of coral reefs in the Pacific islands appears to be fairly stable, but most reefs show declining quality around heavily populated areas. Other local threats, such as coastal development, deforestation of watersheds, pollution and over-fishing, are largely unaddressed and will continue to increase, especially with human population growth and climatic changes. Many remote reefs are in good condition, while those close to developed or developing coastal areas are frequently in poor condition.

Conclusions and recommendations

The status and extent of coral reefs across the 22 Pacific island countries and territories was analysed as stable. Although many reefs have undergone severe and high-mortality crisis events during the past decade, in general, many of the reefs in the Pacific have shown great resilience and are currently in reasonable coral health.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known

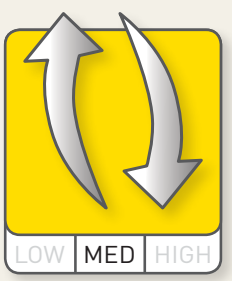
INDICATORS

STATE

Status **Fair**

Trend **Mixed**

Data confidence **Medium**

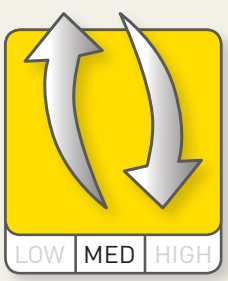


PRESSURES

Status **Fair**

Trend **Mixed**

Data confidence **Medium**



as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, there are three targets that relate to coral reefs in some way:

Target 8 – By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 11 – By 2020, at least 17 per cent of terrestrial and inland water and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 14 – By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

It appears from the data examined that, at this time, meeting these Targets is within reach for most countries in the region.

However, while Pacific Island reefs are in better state than many others in the world, there is no room for complacency. More than 60% of reefs are now at risk of some level of degradation and environmental damage in the long term (Chin et al. 2011, Bryant et al. 1998). Local threats to reefs from a rising human population, coastal development, watershed deforestation, pollution and overfishing remain largely unaddressed at the country and regional scale and are predicted to increase. The rising impacts of climate change, such as rising sea levels and temperatures and acidification, are a particular risk.

Advocating the ridge-to-reef monitoring and conservation approach will assist in the protection of coral reefs. There is an ecological connectivity seen across the Pacific islands, with cloud forest, riparian forest, groundwater systems and subterranean flows, wetlands, mangroves and estuaries considered of critical importance for coral reef management. By taking such an approach, these actions have the potential to maintain and improve the status and extent of coral reefs in the region.

Without significant management intervention and definitive actions from policy makers and governments to control threats, the coral reefs of the Pacific will likely experience widespread degradation and loss over the next 50 years. This loss will have widespread and damaging consequences in a region where so many local communities are dependent on coastal and reef resources for their survival.

2.3.4 Marine ecosystems

State

Marine ecosystems of Oceania include lagoonal coral reefs and reef slopes (covered in the previous section on coastal ecosystems), seamounts, deep-sea beds and the open ocean water column. These marine environments of Oceania sustain numerous activities that fuel local, national and international economies and provide livelihoods and food security for millions of people. The oceans are fundamental to the earth's carbon cycle, climate and weather patterns, which ultimately maintain all life on the planet. While ocean ecosystems are relatively low-production areas, their vast size means that their contribution to global production is relatively large. The vast size also correlates with great biodiversity resources, although much of it is under-explored and relatively unknown, particularly the deeper ocean systems.

The Pacific Ocean covers half of the world's surface and is the largest ecosystem in the world. Its coastal and offshore marine environments sustain numerous species and activities that support local, national and international economies, providing livelihoods and food security for millions of people. However, as discussed below, evidence is mounting that this unique ecosystem is being adversely affected by overfishing leading to deterioration in stocks; habitat destruction; pollution; and climate change. Fishing of large predators (such as sharks, tunas and billfish) has a particularly negative effect on the ocean by, for example, allowing an increase in the

abundance of their prey or influencing prey species by causing behavioural changes to their habitat use, activity level and diet.

Pressures

The biggest threats to ocean health are climate change, particularly through the effects of rising sea temperatures, de-oxygenation and acidification; habitat destruction; pollution; extractive activities; introduction of invasive species; and over-exploitation, mainly over-fishing.

The small island developing states of the Pacific are amongst the most vulnerable to climate change, especially sea level rise, as was outlined in Section 1.5. The ocean is undergoing significant **warming**, with direct and well-documented physical and biogeochemical consequences. The impacts of continued warming in the decades to 2050 are predicted to include increasing stratification of ocean layers, leading to oxygen depletion and increased incidence of anoxic and hypoxic (no or low oxygen) events. Evidence is mounting to suggest that **ocean oxygen levels** are already declining due to increased sea surface temperatures, and acidification is increasing. Estimates indicate a decline in the total mass oxygen content of the oceans of between 1 and 7% by 2100 (Pitcher and Cheung 2013). If current levels of greenhouse gas emissions continue, serious consequences are expected for ocean life. At carbon dioxide concentrations projected for 2030–2050, erosion will exceed calcification in coral reef-building processes, resulting in the potential extinction of some species and a decline in biodiversity overall (Siedel and Lal 2010).

Human actions and activities can and are changing the marine environment. Most **pollution** in the ocean originates from industry, agriculture or domestic sources on land. The exception is the extraction of gas and oil from the sea floor. Such **deep-sea mineral extraction** is a potential future threat, particularly in relation to exploitation of manganese nodules (Kiribati, Cooks Islands, Tuvalu and Niue), cobalt-rich crusts (CRC) (Niue, Papua New Guinea, Vanuatu, Solomons, Fiji, Tonga and Palau), and seafloor massive sulphide (SMS) (Kiribati, Tuvalu, Samoa, Marshall Islands and Federated States of Micronesia) (State of the Ocean 2013, Centre for Ocean Solutions 2010). While ocean systems are generally less exposed to land-based sources of pollution, and the vast bulk of the oceans means that dilution is extreme, there are accumulations of persistent pollutants in the oceanic gyres, such as the South Pacific Subtropical Gyre (Eriksen et al. 2013). The most visible of these pollutants is plastic litter, but persistent organic pollutants

Coombe Reef, Viti Levu, Fiji.
Photo credit: Helen Pippard

have also been shown to accumulate in the gyres and may be bio-concentrated in the fish food chain (Gassel et al. 2013).

Marine ecosystems are also significantly threatened by **invasive species**. Shipping transports marine species and their larvae over huge distances and introduces them as invaders into new ecosystems. This transport can happen deliberately (for example, when ballast water taken aboard a ship in one region is dumped in another) or accidentally.

Across Oceania, commercial **fishing** is currently the key contributor to threats from over-exploitation of marine resources, with recreational/subsistence fishing also a significant threat. This pressure is outlined in more detail in Section 2.3.5, which looks at utilised marine species.

Analysis

Two indicators were used to assess the health of the ocean, examining the current status as well as the effects of pressures and threats on the Pacific Ocean.

Data were obtained from the recent International Programme on State of the Ocean (IPSO) Center for Ocean Solutions reports and scientific papers and reports to identify key threats to ocean health (Siedel and Lal 2010, Rogers and Laffoley 2013), with additional information from SPREP 2007, Herr and Galland 2009, Morgan et al. 2009, Harley et al. 2012, Miller and Prideaux 2013, Harris 2014 and Clarke et al. 2011. Key findings from the Center for Ocean Solutions reports were used to identify key threats to ocean health.

The confidence in this information was rated **medium**: future outcomes are strongly dependent on climate change predictions. Information is incomplete for some countries.

The overall state of the Pacific Ocean is **fair**: compared to other regions of the world, Oceania's marine systems are in a relatively good state. However, the overall health of the Pacific Ocean is expected to decline, as all currently known pressures remain stable or are increasing in severity or impact.

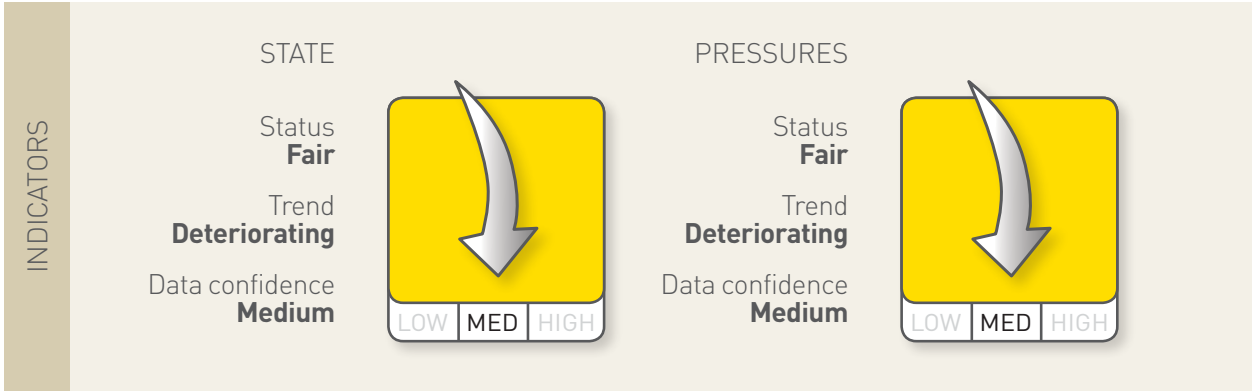
Conclusions and recommendations

The overall status and extent of ocean covering the 22 Pacific island countries and territories was analysed to be **Fair**. The maintenance of the Pacific Ocean is vital not just for the Pacific but also for the planet as a whole. Any further deterioration of the ocean could have a significant impact on the economic well-being of Pacific Islanders, particularly those residing in or near coasts who rely on the ocean for their survival.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, there are three targets that relate to mangroves in some way:

Target 8 – By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 11 – By 2020, at least 17 per cent of terrestrial and inland water and 10 per cent of coastal and marine areas, especially areas



of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 14 – By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

It appears from the data examined that meeting some aspects of these Targets will be a challenge for the region as a whole. Section 5.4 examines the progress that countries have met with regards to Target 11.

Due to the nature of the Pacific Ocean and its interconnectedness, the issues relating to its management must be collectively shared and addressed. A lack of knowledge on the habitats and species of the high seas, coupled with somewhat weak governance, a disconnect between formal and traditional management systems, and a lack of ability to monitor and enforce any protection of the high seas are challenges facing management of the Pacific Ocean. The range of pressures is likely to increase with climate change impacts and on-going human population growth and development.

Governments and organisations working in the region should continue to work together, not only to improve our knowledge on ocean processes but also to collaboratively share research findings and improve governance efforts. Such collaborative actions have the potential to not only maintain the Pacific Ocean in its current state but also improve it.

2.3.5 Utilised marine species

Oceania's waters provide food and livelihoods for people both within and outside the region. Fishing activities range from subsistence reef food gathering to foreign fishing vessels licensed to fish in national waters under quota. Utilised species range from large marine mammals and sharks, to reef fish and turtles, to snails, crabs, bivalves and sea cucumbers. This section details the state of coastal and offshore fisheries as well as the pressures acting on them.

State

Coastal fisheries

In the coastal areas of the Pacific Islands, the majority of fishing that occurs is for subsistence: 70–80% of the catch. Often, the excess (around 20%) is sent to local or export markets for a supplementary income. Subsistence fishing involves reef gleaning, hook-and-line fishing and spearfishing. Commercial fishing supplies fish to urban food markets and food items (such as finfish) and non-food commodities (such as trochus for buttons or aquarium fish) to the export market.

Because of their relative accessibility, inshore marine species, which include an extremely diverse range of finfish, invertebrates and seaweeds found on reefs and in lagoons, streams and other near-shore coastal habitats, are the main species targeted by both commercial and subsistence fishers and form the basis of most of the region's small-scale fisheries. Commonly targeted food finfish, invertebrates and plants include *Lethrinidae* (emperors), *Serranidae* (groupers), *Carangidae* (trevallies), *Lutjanidae* (snappers), *Mugilidae* (mullets), *Scombridae* (tunas), *Acanthuridae* (surgeonfishes), *Scaridae* (parrotfishes) and *Sphyraenidae* (barracudas), sea cucumbers (bêche-de-mer), bivalve molluscs, seaweeds, prawns, lobsters and octopus.

Offshore fisheries

The vast majority of offshore fishing in the region targets tuna, with a relatively tiny amount of activity targeting billfish, allied species and sharks. The main types of tuna fishing are purse seining (surrounding an entire fish school with a net), long-lining (a line with thousands of baited hooks attached at regular intervals), and pole-and-line fishing (catching fish by pole with a single hook while broadcasting live bait). Some species are caught by by-catch during the capture of other targeted species.

The historical tuna catches by these methods is given in Figure 2.3. The substantial expansion of purse seining in recent decades is notable.

The total tuna catch for 2012 in the western and central Pacific Fisheries Commission was estimated at 2,613,528 metric tons, the highest on record, eclipsing the previous record in 2009 (2,603,346 metric tons). This catch represents 82% of the total Pacific Ocean catch of 3,205,980 metric tons and 59% of the global tuna catch (Harley et al. 2012).

Around 25% of the fish stocks in the Western Central Pacific are of unknown status; however, analysing fishing pressure data as presented in reports to the Western and Central Pacific Fisheries Commission (WCPFC) Scientific Committee allows general population trends of offshore fisheries species to be estimated. There are four main species of tuna found (and fished) in the Pacific region: albacore, big-eye tuna, yellowfin tuna and skipjack.

The albacore tuna (*Thunnus alalunga*) population appears to be fairly stable. There is no indication that current levels of catch are causing recruitment overfishing, particularly given the age selectivity of the fisheries. It should be noted that long-line catch rates are declining, and catches over the last 10 years have been at historically high levels and are increasing. These trends may be significant for management (Clarke et al. 2011).

Populations of bigeye tuna (*Thunnus obesus*) are declining dramatically in the Western and Central Pacific. Recent analysis indicates that overfishing is occurring for the bigeye tuna stock and that in order to reduce fishing mortality to the maximum sustainable yield, a 32% reduction in fishing mortality is required from 2006–2009 levels or a 28% reduction from average 2001–2004 levels (Harley et al. 2012).

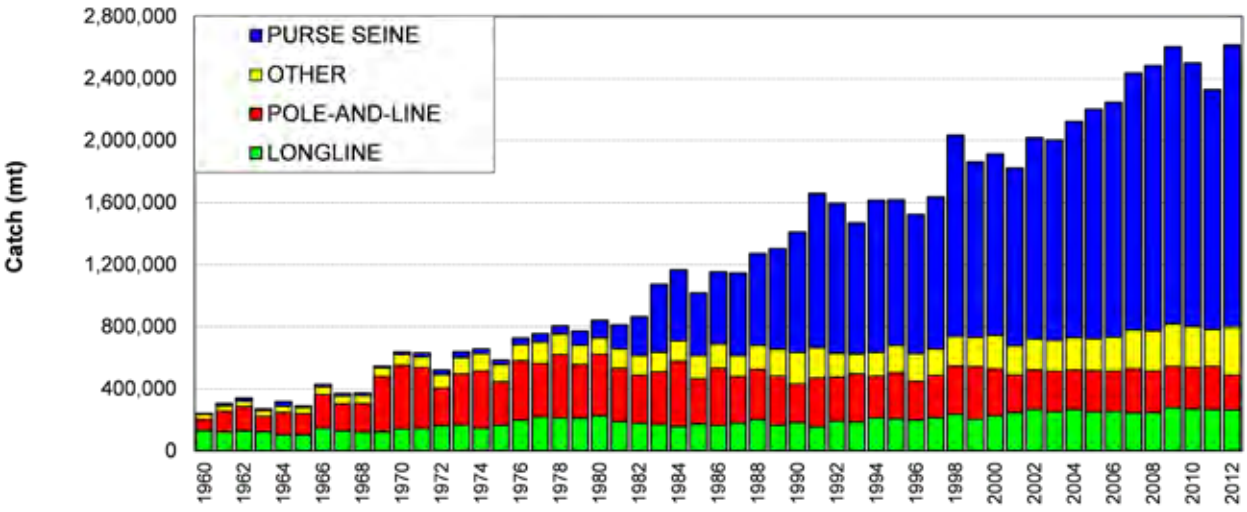
The Western and Central Pacific skipjack tuna (*Katsuwonus pelamis*) population is the largest and perhaps most stable of all tuna species. The stock assessment shows that populations are currently only moderately exploited, and fishing mortality levels are sustainable (Harley et al. 2012).

Populations of yellowfin tuna (*Thunnus albacares*) are declining dramatically in the Western and Central Pacific. The current total biomass and spawning biomass are higher than at levels associated with maximum sustainable yields. Therefore, yellowfin tuna are not considered to be in an overfished state. However, while the exploitation rates differ among regions, they continue to be highest in the western equatorial region (Harley et al. 2012).

In terms of other fish species, there is generally a lack of information not only on abundance but also on basic biology, hindering the accurate determination of population sizes. Populations of billfish such as swordfish, black marlin and blue marlin generally appear stable, whilst the southwest and north Pacific striped marlins are experiencing population declines (Lawson 2011).

Catch rate data from long-line and purse seine fisheries has shown declines in size

Figure 2.3 The region's tuna catch by fishing method



Source: Williams and Terawasi (2013)

and abundance of most known shark and ray populations throughout the region. Species such as silky sharks, thresher sharks, and blue sharks are commonly found in purse-seine catches and on long-lines. Clear, steep declines in the abundance of silky sharks and oceanic white-tip sharks are particularly drastic, with two datasets confirming that oceanic white-tip sizes decreased so much that samples were too scarce for analysis (Clarke et al. 2011).

Pressures

Coastal fisheries

Whilst the utilisation of inshore fisheries resources is vital to local communities both for subsistence and for income, over the last 30–40 years, human populations have increased, and the commercialisation of the fishery has increased, with dramatic impacts. Reefs, rivers, mangrove spawning grounds and other inshore fisheries, particularly those near urban areas and villages, have been dangerously overfished and degraded.

For example, the bêche-de-mer, trochus, live coral, live reef fish and aquarium fish trades have increased over this time, and fragile spawning aggregations of large finfish and seasonal migrations of smaller species have suffered, with some 79% of all documented spawning aggregations reportedly in decline from the 1970s and 1980s until the late 2000s (Sadovy et al. 2008). The effect is a dramatic collapse of inshore fisheries, with a vast number of species at all trophic levels disappearing or become economically or ecologically extinct. International markets for bêche-de-mer, trochus shells, live coral and live reef fish may lead to local or regional declines in certain populations if unregulated.

Fish for sale in Apia Maket, Samoa.
Photo credit: Adam Jones, Realpasifik.com

Other environmental pressures acting upon these coastal ecosystems (as identified in Section 1) compound the threats from overfishing, such as pollution, increased sedimentation from habitat destruction and changes in climate.

Coastal overfishing and the loss of inshore marine biodiversity arguably constitute one of the most serious threats to conservation in Oceania. As shown by the exciting work of locally managed marine area (LMMA) initiatives in Oceania (see section 4.4 and 5.4), there is great scope for conservation to reverse this trend of overfishing which brings with it a loss of food and livelihood security.

Offshore fisheries

The main threat to utilised marine species and their populations is over-exploitation. There is a rapid continued harvesting of many populations of fish largely related to commercial fishing operations and in conjunction with an increase in fishing pressure from an ever-increasing human population. Oceanic megafauna populations are unlikely to be able to support the massively increasing fishing pressure to which they are currently subjected: more than 5,645 commercial vessels alone were actively fishing in the Pacific Ocean in 2011 (Harley et al. 2012).

The albacore population does not appear to be overfished, but increases in catch or effort are likely to lead to declines in catch rates in some regions, especially for long-line catches of adults. The Western and Central Pacific skipjack tuna population supports the largest tuna fishery in the world, accounting for 40% of worldwide tuna landings. Purse seining accounts for 85% of the catches (ISSF 2012a). The stock is moderately exploited, and overfishing is likely not occurring (ibid.). The populations of bigeye tuna and yellowfin tuna are potentially overfished and declining dramatically in the Western and Central Pacific.

For billfish, such as swordfish, black marlin and blue marlin, it seems that populations are overexploited at current levels of fishing effort (Harley et al. 2012). It appears that the

southwest Pacific striped marlin and the North Pacific striped marlin are overexploited (WCPFC 2012b).

Most types of fishing, including tuna fishing, catch fish and other animals in addition to those that are intended to be captured. These animals are collectively known as non-target catch or by-catch. Many sharks are targeted (or kept if caught as by-catch) primarily for their fins and to a lesser degree for meat. Some have value and are retained and sold, some are discarded dead, and some (especially those species of concern) are released alive. Global awareness of by-catch in fisheries is increasing: over the past few decades, a public consensus has developed that by-catch can have significant consequences for populations, food webs and ecosystems. The amounts and types of non-target species from offshore tuna fishing in the western and central Pacific vary among the various fishing methods. SPC studies show:

- in the purse seine fishery, 0.35–0.77% of the total catch for fishing on tuna schools not associated with floating objects is by-catch. For sets on tuna aggregating around floating objects, the level is higher at an estimated 3.0–7.3%. The most common by-catch species observed are amberjack (*Seriola ivoliana*), mackerel scad (*Decapterus macarellus*), rainbow runner (*Elagatis bipinnulata*), drummer (*Kyphosus cinerascens*), mahimahi (*Coryphaena hippurus*) and ocean triggerfish (*Canthidermis maculatus)*;
- in the long-line fishery, over 50 non-target fish species have been observed in the catch in the tropical and subtropical waters of the WCPO. The SPC study had insufficient data to estimate relative quantities. The non-target fish species can be categorised into sharks (21 species), non-target tuna (7 species), billfish (6 species) and other fish (21 species). The blue shark (*Prionace glauca*) was observed as the most common shark species taken throughout the WCPO; and
- the pole-and-line fishery produces far less by-catch than purse seining or long-lining. The most common fish species are mahimahi, rainbow runner and non-target tuna.

With respect to sharks, the level of understanding of the status of stocks in the offshore fisheries of the region tropical western Pacific is low. In **long-line fisheries**, the species composition of shark catch is silky shark (53%), blue shark (14%), oceanic whitetip shark (6%), pelagic stingray (4%) and bigeye thresher (3%). In **purse seine fisheries**, silky shark (81%), unidentified sharks (8%), oceanic whitetip shark (6%) and manta rays (3%) were the main species caught. The WCPFC Scientific Committee (WCPFC 2012a) indicates that two species of sharks, the silky shark and the oceanic whitetip shark, are overfished.

Harvesting and fishing of large predators, such as sharks, tunas and billfish, can also have a particularly dramatic effect on the populations of numerous other species, for example, allowing an increase in the abundance of their prey. These effects can indirectly or directly affect entire ecosystems and ultimately lead to a decrease in biodiversity. Spawning biomass, total biomass and recruitment levels of most oceanic megafauna have declined.

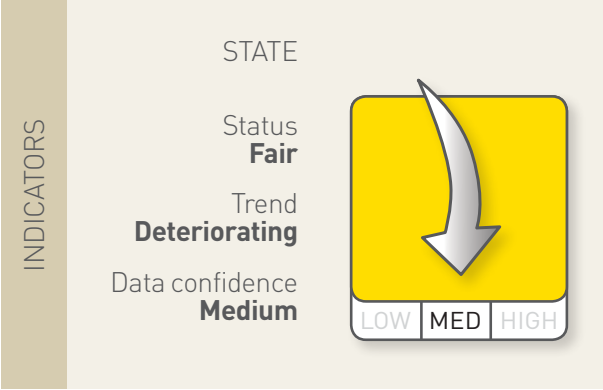
Analysis

One indicator was used to determine the extent of pressures on utilised species.

Data for this indicator were compiled from the IUCN Red List of Threatened Species' online public database (Version 2013.1) and from various reports including IUCN Oceania report 2010 and ISSF with additional information from Miller 2009, Herr and Galland 2009, Harris 2014, Morgan 2009, WCPFC and SPREP 2007. The Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC) has been assessing the condition of offshore fishery resources in the region since the late 1970s, and in recent years, the status of those resources has been reported to the annual meeting of the Scientific Committee of the Western and Central Pacific Fisheries Commission (WCPFC). The reports of the Scientific Committee are often considered the most authoritative source of information on stock condition due to the large number of scientists involved and significant degree of scientific scrutiny undergone. Accordingly, most stock assessment information in this section has been obtained from reports associated with the Scientific Committee.

The confidence in this information was rated **medium**: whilst the data sources were objective and up-to-date, gaps in data availability and

quality remain. The extent of species targeted by coastal and offshore fisheries in the 22 Pacific island countries and territories was examined as generally fair although variations are clearly seen amongst taxonomic groups. It is not possible to calculate a trend for all utilised species in the region because there is such variety in the species examined, and data are not available for all taxonomic groups. However, due to the general rise in observed pressures, it is likely that the status and distribution of all utilised species is generally **deteriorating** overall.



Conclusions and recommendations

The extent and trends of species targeted by coastal and offshore fisheries in the 22 Pacific island countries and territories were examined as variable, yet on a general decline.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, ***Target 6*** directly relates to fisheries: ***By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.***

Under Strategic Goal C, which aims to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, ***Target 12*** is relevant to fisheries: ***By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.***

It appears from the data examined that meeting these Targets will be a challenge for some countries in the region.

The threat of overfishing is undermining the resilience of ocean systems as a whole, and in many cases, current fisheries management is failing to halt the decline of key species and damage to marine ecosystems.

In offshore areas, oceanic megafauna cannot support the massively increasing fishing pressure to which it is currently subjected. This is an extremely important aspect of the tuna fisheries of the region, in that most of the catch from all major gear types is taken by vessels based outside the region, with the license fees paid by those vessels forming an important source of revenue for many Pacific island countries. From the analysed data, bigeye and yellowfin tuna are of the greatest conservation concern in terms of the targeted fishery, whilst many species of shark, but especially blue, silky and oceanic white tip, are under great threat as a result of by-catch.

Research efforts in offshore areas have been largely focused on species that are frequently encountered rather than those which may be under the greatest risk: for example, preliminary risk assessments suggest that the shark species most frequently captured and studied are not the species at greatest risk from fishing. Possible conservation efforts for offshore areas include the implementation of a shark tagging information system to support stock assessments of Oceania's key shark species (for example, hosted by SPC); moving towards 'watching' instead of 'catching' when undertaking big game fishing; restricting the capture of adult bigeye and yellowfin tuna by long-line gear or restricting the capture of smaller fish by purse seine gear.

In coastal areas, the threat of overfishing is undermining the resilience of coastal

ecosystems, and in many cases, current fisheries management is failing to halt the decline of key species and damage to ecosystems. The creation of locally managed conservation areas with agreed levels of protection has the potential to slow down the rate of overharvesting ocean-wide.

For governments, decision-makers and NGOs to prioritise conservation efforts and to ensure that impacts from development are minimised, we must increase our baseline knowledge of species throughout the coastal, reef and offshore marine ecosystems of the Pacific Islands.

The ridge-to-reef monitoring and conservation approach must also be advocated by all stakeholders. There is an ecological connectivity seen across the Pacific islands, with cloud forest, riparian forest, groundwater systems and subterranean flows, forests, agricultural wetlands and estuaries considered of critical importance for the management of coastal ecosystems and fisheries.

3 Species: state and pressures

3.1 Native species diversity: abundance, distribution and extinction risk

State

The Pacific islands of Oceania are characterised by a high degree of ecosystem and species diversity. The region contains thousands of isolated small coral atolls and higher volcanic islands, which has led to the high diversity of species found today. Extinction rates are disproportionately high on islands: approximately 80% of all known species extinctions have occurred on islands.

The Melanesian island nations of Papua New Guinea, the Solomon Islands, New Caledonia, Vanuatu and Fiji are the most species-rich countries and also contain a high proportion of endemic species. The western Micronesian islands, which are closer to Papua New Guinea and other islands of Melanesia, tend to be more species-rich than the isolated islands in the eastern parts of Polynesia; this pattern equates to a much higher species biodiversity in Melanesia compared to the true islands in the east of the region, which contain proportionately more endemic species because of their isolation. The smaller low-lying nations, such as Kiribati, Nauru, Niue, Tokelau and Tuvalu, are generally less diverse and have fewer species.

The current distribution, status and extinction risk of species found in Oceania were examined according to the IUCN Red List of Threatened Species (Red List) Categories and Criteria. The 2013 Red List includes assessments for 5,797 species found in the Pacific Islands, as displayed in Figure 3.1.

- 1,327 are threatened with extinction (Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) categories).
- 127 are Extinct, and 12 are Extinct in the Wild.
- 448 are Near Threatened.
- 825 are Data Deficient; there is insufficient information to determine their threat status.
- 3,070 are of Least Concern with a lower probability of extinction (this figure includes 29 species assessed as Lower Risk/ conservation dependent, a now-defunct category).

Figure 3.1 Red Listed Species by Category

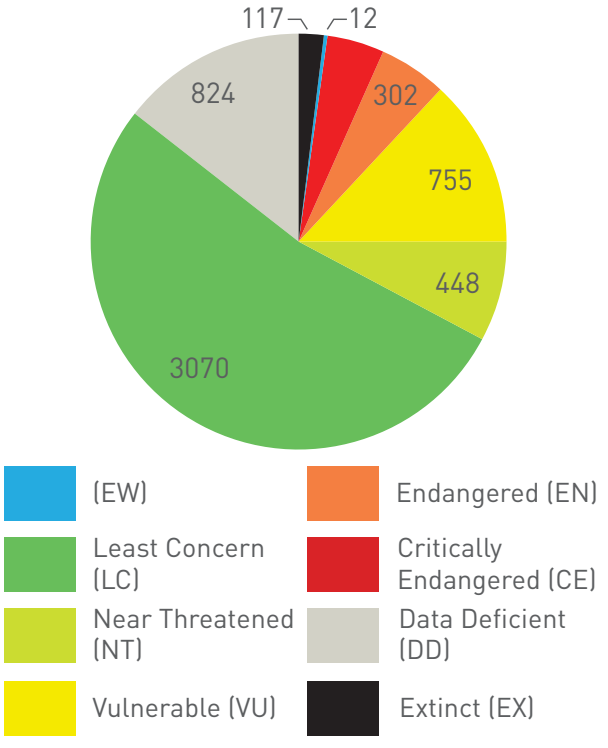


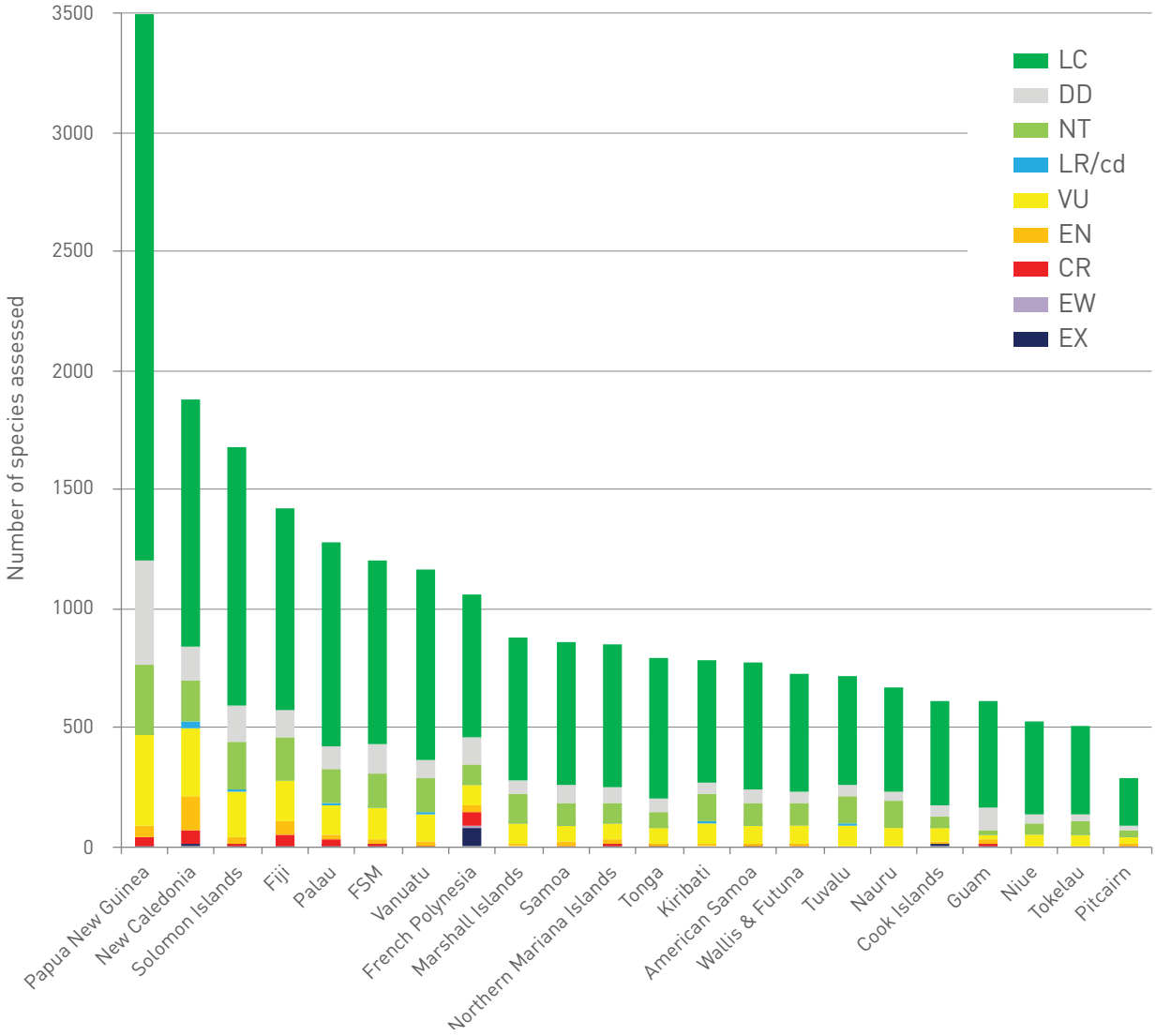
Figure 3.2 displays the number of species assessed in each Category by country across the region. As might be expected, the higher and larger islands of Melanesia contain the highest number of assessed species as well as species assessed as threatened. French Polynesia contains the highest relative number of threatened species, including many Extinct species.

This analysis is most concerned with species that have been assessed as threatened: those species in categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). The high percentage (23%) of threatened species indicates that several taxonomic groups face a severe threat of extinction. However, this figure does not mean that only 23% of all of the Pacific's biodiversity is known to be threatened—not all of the currently described species have been assessed, and some of the 824 Data Deficient species are almost certainly threatened. The proportion of Data Deficient species is high for many groups, even those that have been completely or fairly comprehensively assessed, such as amphibians (42%), crustaceans (27%), gastropods (25%), cartilaginous fishes (18%), mammals (16%) and bony fishes (16%).

For completely assessed species found in the Pacific Islands:

- over a third of all sharks and rays are threatened with extinction;
- 25% of hard (reef-building) warm-water corals are threatened;
- almost a quarter of conifers and cycads are threatened;

Figure 3.2 Red Listed Species by country and Category



- of the 316 mammal species, almost a fifth are threatened with extinction;
- one in eight species of bird are threatened, and less than 2% are listed as Data Deficient;
- 6% of the 45 species of mangrove are listed as threatened; and
- the majority of amphibians are endemic to Papua New Guinea, and 5% are threatened.

For other well assessed groups found in the Pacific Islands:

- gastropods are particularly threatened: 40% of assessed species are threatened or Extinct;
- reptiles are one of the most threatened groups, with over 30% of species in categories CR, EN or VU. Two of the 33 sea snakes assessed are listed as threatened;
- there are no threatened species of seagrass; all 14 species are classed as Least Concern; and
- just over 10% of the bony fish (marine and freshwater species) are in a threatened category, although a large number (40%) are Data Deficient.

The number of threatened species listed in each Class is seen in Figure 3.3. This graph also shows the number of species in each Class that were assessed as Data Deficient. The number of total assessed species must be taken into account when interpreting this graph: many taxonomic groups have not been completely assessed. For Aves, Coniferopsida, Chondrichthyes, Anthozoa, Mammalia and Amphibia, all described species have been assessed. Other Classes (especially plants and invertebrates) have only had a small number of assessments carried out in comparison to the estimated number of species that exist.

Many taxonomic groups have not been comprehensively or representatively assessed, meaning that the species included on the Red List may give a biased picture of the overall degree of threat. As Table 3.1 indicates, our knowledge of Pacific Island species (at least according to IUCN Red List Categories and Criteria) is therefore far from complete.

Figure 3.3 Threatened species by Class

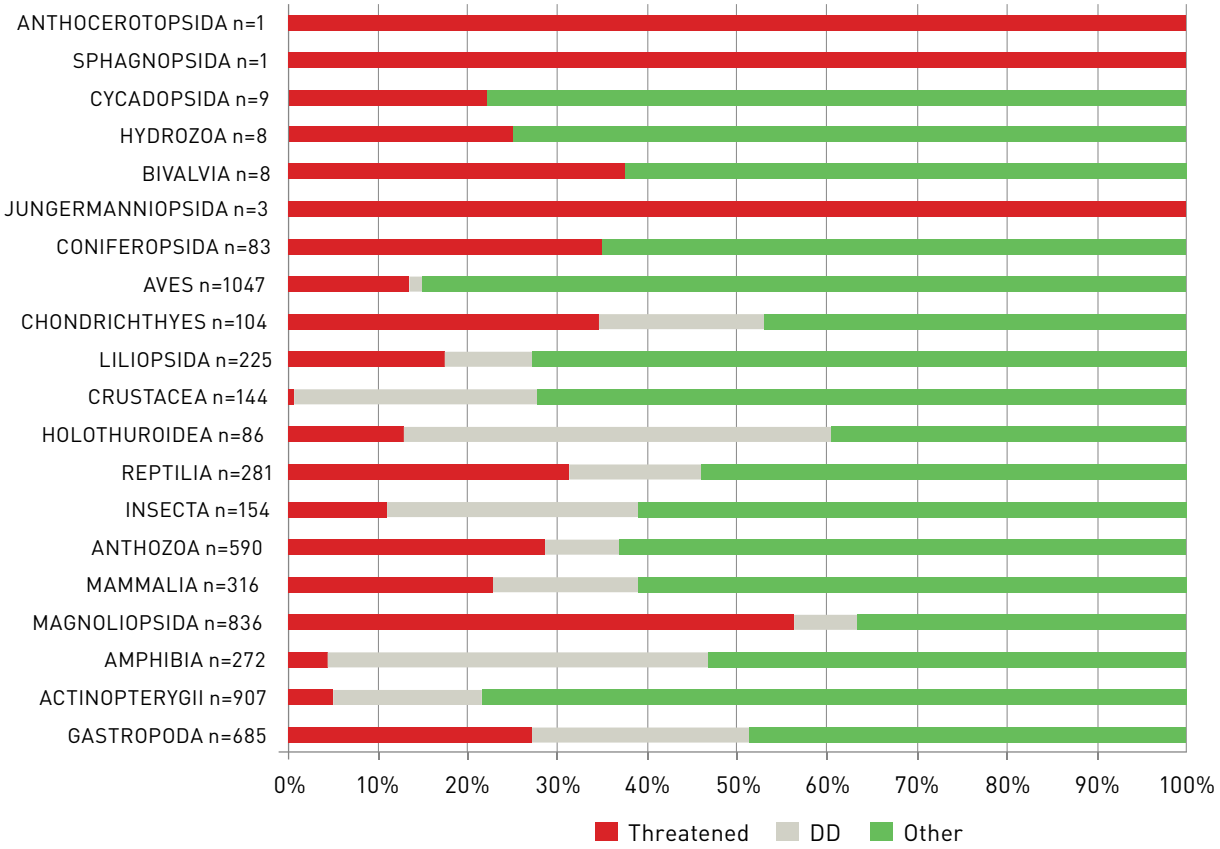


Table 3.1 A summary of Pacific Island species on the 2013 IUCN Red List

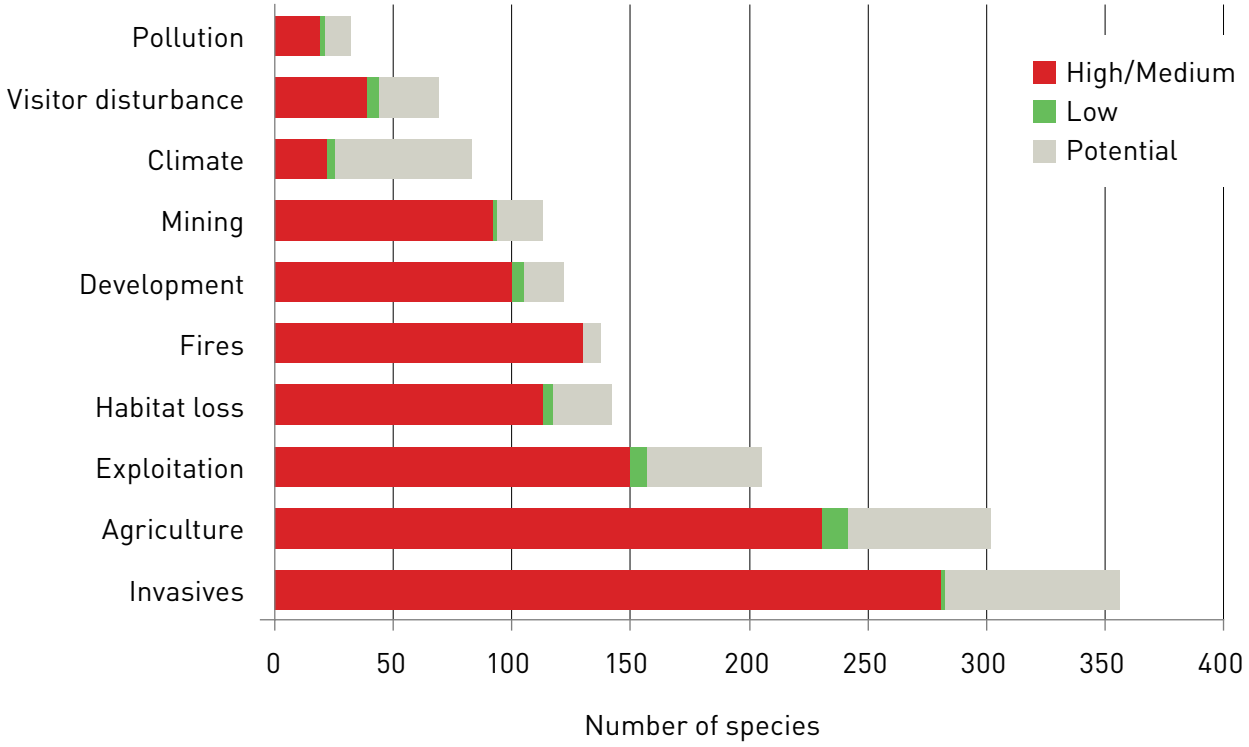
Group	Detail
Comprehensively assessed (or almost comprehensively assessed)	
Plants	Gymnosperms including Cycads and Conifers, Mangroves, Seagrasses
Vertebrates	Amphibians, Mammals, Sharks and rays, Birds, Seasnakes, Marine turtles, Tunas and billfishes, Reef fishes: groupers, wrasses, angelfishes, parrotfishes, butterflyfishes, damselfishes and gobies
Invertebrates	Hard (reef-forming) corals, Sea cucumbers (Aspidochirotida)
Gaps in representation	
Vertebrates	Fishes (marine and freshwater) and reptiles, such as lizards and snakes, are under-represented. Recent assessments aimed to fill some of the gaps for freshwater fishes and reptiles in the Pacific.
Invertebrates	Invertebrate representation is extremely low for all countries and for almost all groups, such as insects, arachnids, crustaceans, echinoderms and sponges. Only hard corals, gastropods and sea cucumbers have been assessed in any detail. Recent assessments were carried out for land snails.
Plants	Plant representation is low for all countries. Mosses, tree ferns, ground ferns, algae and lichens lack assessments. Monocotyledons and Dicotyledons are under-represented.
Fungi	No fungi have been assessed.
Freshwater systems	Recent assessments have been carried out for freshwater fishes, but further assessments are needed. Assessments are required for freshwater molluscs, insects, such as dragonflies, and aquatic plants.
Marine systems	There are relatively few Pacific island marine species on the Red List, especially compared to the number of known species. Recent assessments have been carried out for seagrasses, mangroves, sea cucumbers and coral reef fishes such as damselfishes. Some families are still incomplete. Gaps exist for seaweeds, marine invertebrates such as echinoderms (starfish and sea urchins), sponges, worms, seahorses and pipefish, and shore fishes.

Pressures

A variety of threats were observed to be impacting species assessed using the IUCN Red List Categories and Criteria. Threats were categorised as follows: Residential and commercial development and transport (Development); Agriculture, farming and forestry (Agriculture); Energy production and mining (Mining); Biological resource use (Exploitation); Anthropogenic otherwise uncategorised habitat loss/degradation (Habitat loss); Invasive species (Invasives); Genetic hybridisation/inbreeding (Genetic); Pollution; Geological events; Extreme weather and climate change (Climate); Fire, either natural or anthropogenic (Fires); and Other, such as disease (Other).

For each species, a High, Medium, Low or Potential threat level was assigned to each threat category, the results of which are seen in Figure 3.4. For terrestrial and freshwater species, Invasive species affected the largest number of threatened species, followed by land-use change due to agriculture, farming and forestry activities and exploitation/biological resource use. For the sub-group of Critically Endangered species, the worst threats were

Figure 3.4 Threats to IUCN Red List Threatened Species showing the estimated level of threat (high, medium, low or potential)



invasives, exploitation, development and habitat loss (in that order). There is a paucity of information on direct impacts of climate change on biodiversity in the Pacific, but the potential threat due to climate change is likely to be very high.

In marine ecosystems, the majority of threatened species are corals. Of the 196 threatened species, approximately 70% are reef-building corals, all of which had the same six potential threats listed (Polidoro 2011): climate change (with temperature rise and ocean acidification the greatest threat), eutrophication, physical disturbance, over-fishing, loss of habitat, sedimentation and competition and predation by crown-of-thorns starfish. This pattern presented a problem for data collection and analysis by introducing a probable bias into the dataset. All corals had the general disclaimer *"The severity of these combined threats to the global population of each individual species is not known"*. For this reason, all coral species were excluded from the dataset by filtering out species in the phylum Cnidaria. Non-coral marine species that were analysed therefore included sharks, rays and skates, sea birds, shore fish, marine mammals, sea turtles and sea snakes.

Analysis

The current status of the region's threatened species was identified by examining the **current distribution and status**, as well as extinction risk, of species found throughout Oceania, concentrating on species that have been assessed according to the IUCN Red List Categories and Criteria. The **pressures on species** that face the greatest risk of extinction—those species classified as 'Threatened' (species belonging to the categories Critically Endangered, Endangered and Vulnerable) on the IUCN Red List of Threatened Species—were also examined. Cnidaria (such as corals, jellyfish and sea anemones) were excluded from the much of the analysis because specific threats are not identified in the Red List database. Non-coral marine species that were retained and analysed include sharks, rays and skates, sea birds, shore fish, marine mammals, sea turtles and sea snakes.

Data for this indicator were compiled from the IUCN Red List of Threatened Species' online public database (Version 2013.1). The confidence in this information was rated **medium**: whilst the IUCN Red List is the most comprehensive, reliable, objective and up-to-date resource for measuring a species' extinction risk, gaps in data availability and quality do remain. Information was extracted from the text by identifying threat categories that were relevant in the assessment and interpreting the absolute estimated threat level. For each species, a High/Medium, Low or Potential threat level was assigned to each threat category. Threats were categorised as follows: Residential and commercial development and transport (Development); Agriculture, farming and forestry (Agriculture); Energy production and mining (Mining); Biological resource use (Exploitation); Anthropogenic otherwise uncategorised habitat loss/degradation (Habitat loss); Invasive species (Invasives); Genetic (hybridisation/inbreeding) (Genetic); Pollution; Geological events; Extreme weather and climate change (Climate); Fire, unclear whether natural or anthropogenic (Fires); and Other, such as disease (Other).

It is not possible to calculate a trend for all species in the region because data are not available for all taxonomic groups. However, due to the rise in pressures, it is likely that the status and distribution of species is on a general decline overall. Whilst the majority of threats (especially those from anthropogenic impacts) are increasing in scope and severity, it is not possible to gauge a consistent trend, due to a lack of recent and historical information.

Conclusions and recommendations

By examining the current status and distribution of Pacific island species according to the IUCN Red List Categories and Criteria, we are able to see a snapshot of the situation with regard to species conservation in the region. It is not possible to determine a trend overall because only a small percentage of the estimated number of species that exist in the Pacific have been assessed according to these criteria.

The 2013 IUCN Red List provides the most up-to-date information for the extinction risk of species in the Pacific islands. However, knowledge and information is still lacking for certain taxonomic groups.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal C, which aims to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, ***Target 12*** directly relates to species: ***By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.***

It appears from the data examined that meeting this Target may be a challenge for some countries in the region.

Preventing the extinction of species is a huge responsibility and task, especially given the huge number of observed potential and actual threats acting upon different taxonomic groups.

On a positive note, governments and organisations working in the region are

INDICATORS

STATE

Status **Fair**

Trend **Unknown**

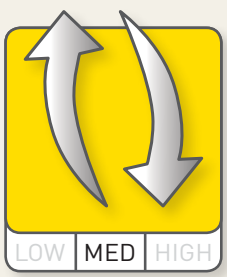
Data confidence **Medium**

PRESSURES

Status **Fair**

Trend **Mixed**

Data confidence **Medium**



improving efforts in researching, collaborating, managing and conserving species, which may assist in improving and sustaining the conservation status of species.

However, the existence and compilation of species lists is a challenge throughout the region, and many areas and taxonomic groups remain to be adequately sampled or collected, especially plants, fungi and invertebrates. For governments, decision-makers and NGOs to continue to prioritise conservation efforts and ensure that impacts from development are minimised, baseline knowledge of species throughout the Pacific Islands must be increased.

3.2 Single-country endemic species

State

The current status of endemic species found throughout Oceania was examined, and the key pressures and threats were identified, concentrating on species that have been assessed according to the IUCN Red List Categories and Criteria. Most of these endemic species are terrestrial because information about marine endemic species is lacking.

Worldwide, there is a high level of endemic species on islands, due to their isolation and distance from larger land masses. The Pacific Islands are no exception: the occurrence of endemic species is extremely high—up to 90% for particular groups, especially of certain plants and invertebrates—and often such endemic species are adapted to very specialised habitats and limited to small areas of a few islands. To date, 2,189 single country endemics have been recorded amongst the 22 Pacific island countries and territories. Of these, 115 are Extinct, and 12 are Extinct in the Wild (exist only in captivity). At present, 45% are classified as threatened (Critically Endangered, Endangered or Vulnerable).

Endemic Tongan Whistler *(Pachycepha lajacquinoti)*.
Credit: M. Bonford

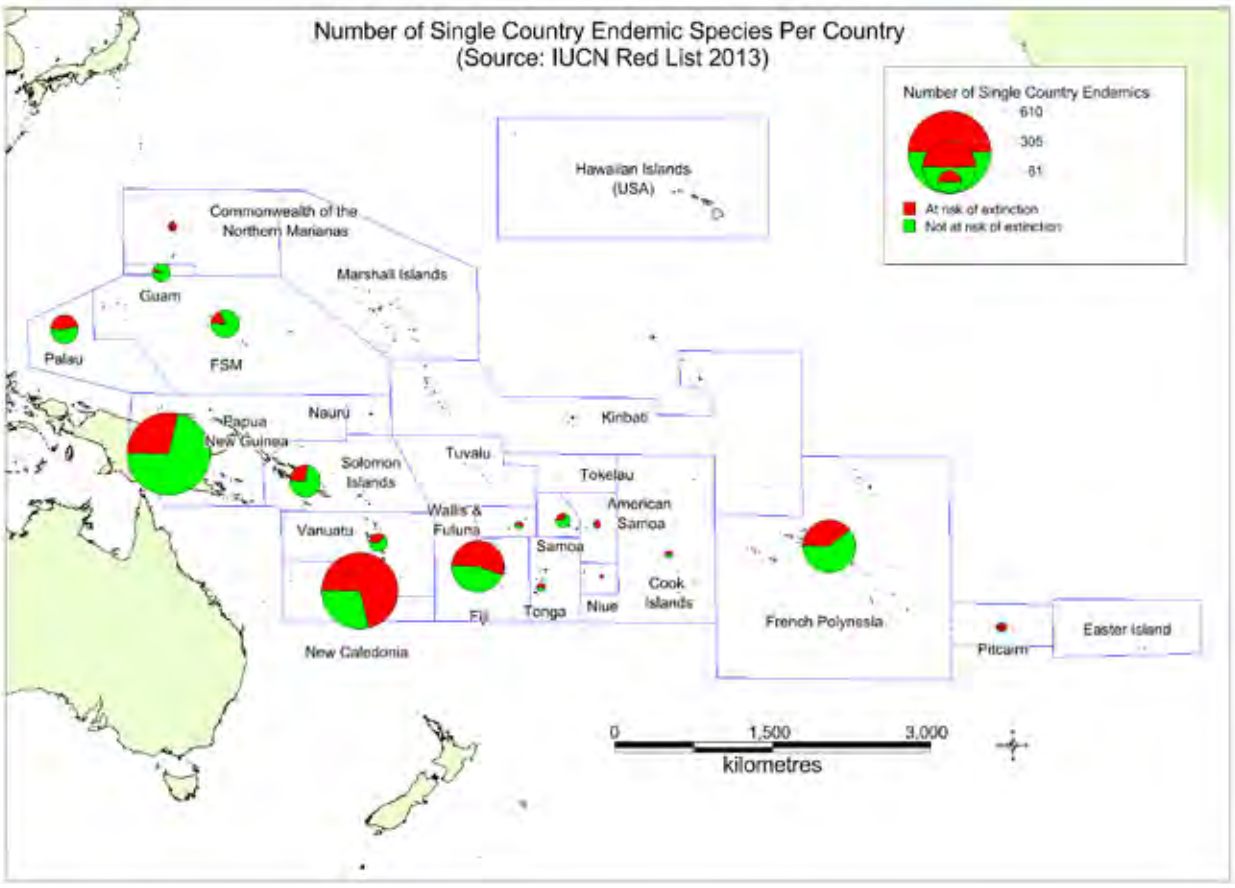
Table 3.2 provides a summary by country of the number of endemic species and the percentage assessed as threatened. The countries with the greatest percentages of Red Listed endemic species are French Polynesia (32% of assessed species are endemic), New Caledonia (27%), Fiji (18%) and Papua New Guinea (17%). The smaller island countries, and those countries in the eastern and northern parts of the region, have a lower number of endemic species. Two countries (Tokelau and Tuvalu) have no assessed endemic species.

The eastern and northern Pacific island countries of American Samoa, Kiribati, Niue, Northern Mariana Islands, Nauru and Pitcairn, although containing a lower number of endemic species, have the greatest percentages of threatened endemic species (see Figure 3.5 and Table 3.2). In New Caledonia, 69% of assessed endemics are threatened, whilst in Fiji, over half of the endemic species fall into the CR, EN or VU categories. Approximately one-third of assessed endemics in French Polynesia, Papua New Guinea, Samoa, Vanuatu and Solomon Islands are threatened. The islands of western Micronesia (Palau, Guam and the Federated States of Micronesia) have a greater than average number of Data Deficient endemics, perhaps indicating the smaller amount of research that has occurred in these countries.

Pressures

Endemic species that by definition are found only on one island or group of islands in the Pacific Islands are particularly vulnerable to the consequences of human activity. The major pressures on endemic species in the Pacific islands are land-use changes due to agriculture and activities such as farming and forestry (Agriculture), the spread of invasive species

Figure 3.5 Number of endemic species by country and by threat status



(Invasives), fires (Fires), habitat degradation and alteration (Habitat loss), mining activities (Mining) and biological resource use such as hunting, fishing and logging (Exploitation). For each endemic species, a High, Medium, Low or Potential threat level was assigned to each threat category, the results of which are seen in Figure 3.6.

The biggest threat to those classified as 'threatened' (Critically Endangered, Endangered and Vulnerable) is the spread of invasive species (Invasives) followed by land-use change due to agriculture and allied activities, fires and habitat loss.

Analysis

The current distribution and status, as well as extinction risk, of endemic species found throughout Oceania was examined, focusing on species that have been assessed according to the IUCN Red List Categories and Criteria. Pressures on endemic species that face the highest risk of extinction—those species classified as 'Threatened' (species belonging to the categories Critically Endangered, Endangered and Vulnerable) on the IUCN Red List of Threatened Species—were identified.

Data for this indicator were compiled from the IUCN Red List of Threatened Species online public database (Version 2013.1). The confidence in this information was rated medium: whilst the IUCN Red List is the most comprehensive, reliable, objective and up-to-date resource for measuring a species' extinction risk, gaps in data availability and quality do remain. A High/Medium, Low or Potential threat level was assigned to each pressure in order to compare actual and potential threats as well as their relative estimated level of severity. The relative importance of different pressures was also analysed in relation to current conservation status using the IUCN Red List categories (CR/EN/VU = Critically Endangered/Endangered/Vulnerable; LR/LC/NT = Low Risk/Least Concern/Near Threatened; DD = Data Deficient).

Table 3.2 Summary of our current knowledge of Red-Listed endemic species in the Pacific Islands

Country	Total no. of species	No. of endemic species	% of endemic species	No. of endemic species that are threatened	% of endemic species that are threatened
American Samoa	777	7	1%	5	71%
Cook Islands	612	25	4%	5	20%
Fiji	1,417	260	18%	145	56%
French Polynesia	1,059	344	32%	102	30%
FSM	1,201	88	7%	16	18%
Guam	876	48	5%	4	8%
Kiribati	783	1	0%	1	100%
Marshall Islands	876	1	0%	0	0%
Nauru	669	1	0%	1	100%
New Caledonia	1,881	511	27%	355	69%
Niue	528	1	0%	1	100%
Northern Mariana Islands	848	7	1%	5	71%
Palau	1,278	81	6%	38	47%
Papua New Guinea	3,498	602	17%	172	29%
Pitcairn	284	16	6%	16	100%
Samoa	858	21	2%	7	33%
Solomon Islands	1,674	116	7%	32	28%
Tokelau	509	0	0%	0	0%
Tonga	794	12	2%	6	50%
Tuvalu	721	0	0%	0	0%
Vanuatu	1,160	40	3%	15	38%
Wallis and Futuna	722	7	1%	4	57%

INDICATORS

STATE

Status **Fair**

Trend **Unknown**

Data confidence **Medium**

PRESSURES

Status **Fair**

Trend **Mixed**

Data confidence **Medium**

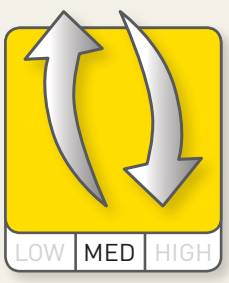
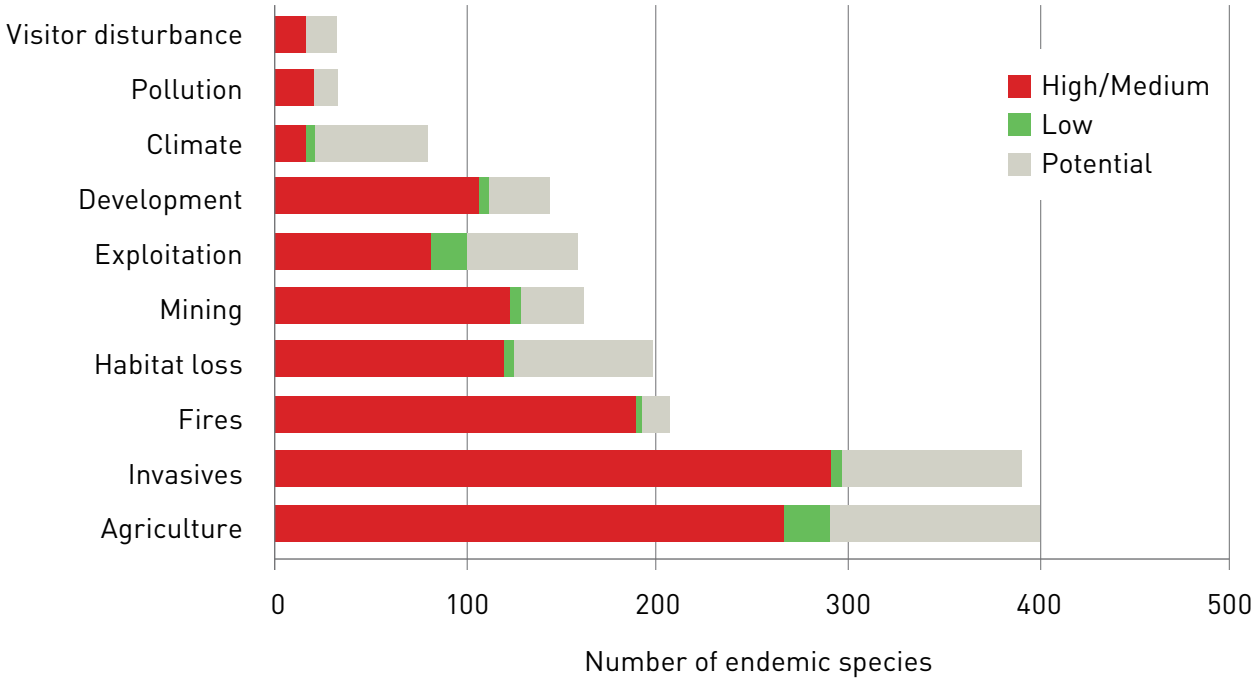


Figure 3.6 Nature and extent of various pressures on single-country endemic species



It is not possible to calculate a trend for all species in the region because data are not available for all taxonomic groups. However, due to the rise in pressures, it is likely that the status and distribution of species is on a general decline overall. Whilst the majority of threats are increasing in scope and severity, it is not possible to gauge a consistent trend, due to a lack of recent and historical information.

Conclusions and recommendations

By examining the current status and distribution of Pacific island endemic species according to the IUCN Red List Categories and Criteria, we are able to see a snapshot of the situation with regard to species conservation in the region. It is not possible to determine a trend overall because only a small percentage of the estimated number of endemic species that exist in the Pacific have been assessed according to these criteria. The 2013 IUCN Red List provides the most up-to-date information for the extinction risk of endemic species in the Pacific islands. However, knowledge and information is still lacking for certain taxonomic groups.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal C, which aims to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, ***Target 12*** directly relates to species: ***By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.***

It appears from the data examined that meeting this Target may be a challenge for some countries in the region.

Preventing the extinction of species is a huge responsibility and task, especially given the huge number of observed potential and actual threats acting upon different taxonomic groups. On a positive note, governments and organisations working in the region are improving efforts in researching, collaborating, managing and conserving species, which may assist in improving and sustaining the conservation status of species.

However, the existence and compilation of species lists is a challenge throughout the region, and many areas and taxonomic groups remain to be adequately sampled or collected, especially plants, fungi and invertebrates. For governments, decision-makers and NGOs to

continue to prioritise conservation efforts and ensure that impacts from development are minimised, baseline knowledge of species throughout the Pacific Islands must be increased.

3.3 Migratory marine species of conservation concern

The Pacific Ocean is inhabited by a diverse range of marine animals, including dugongs, marine turtles and cetaceans (whales and dolphins). This section examines the present status and pressures on these marine species of conservation concern, all of which are afforded protection under international and regional Conventions or Agreements, not least the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species (CITES); see also Section 4.

State

Cetaceans

Over half of the world's known species of whales and dolphins (approximately 35 species) are found in the Pacific region, and cetaceans are widely regarded as flagship species for Pacific marine ecosystems. Commercial whaling reduced the breeding populations of several species (such as humpback and sperm whales) to very low levels, and the capture of dolphins for export or drive hunts (for example, in Solomon Islands) has caused significant declines. While population levels of some species (such as humpback whales) are increasing, the status and trends of most cetacean populations are poorly known. All cetaceans are listed on either Appendix I or Appendix II of CITES and CMS.

Dugongs

The dugong is native to five countries in the Pacific: Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia and an isolated population in Palau in Micronesia. The dugong is currently listed as Vulnerable on the IUCN Red List and is included on Appendix I of CMS and CITES. The status of dugong populations is unknown in all countries except Palau and Papua New Guinea, where they are likely to be declining (IUCN Red List 2013).

Humpback whale in Samoa
Photo credit: Juney Ward

Sharks and rays

The Pacific Islands region is home to a number of sharks and rays that are listed on the CMS Appendices (whale shark, great white shark, shortfin and longfin mako, porbeagle and spiny dogfish) and CITES Appendix II (manta rays, whale shark, oceanic white-tip shark and three species of hammerheads). Information on population sizes of sharks are difficult to ascertain, yet models that do exist (such as FAO and SPC datasets) indicate that the overall trends in population show significant declines in abundance. Manta rays are recorded in near-shore, reef and oceanic waters, yet information on population size and trends is largely unknown.

Turtles

Six of the seven marine turtle species (leatherback, hawksbill, green, loggerhead, olive ridley and flatback) occur in the Pacific Islands. All except for the flatback turtle (listed as Data Deficient) are listed in one of IUCN's threatened categories: Critically Endangered, Endangered or Vulnerable. They are all listed on the CMS Appendices and on CITES Appendix I in order to offer protection to these highly migratory animals. The green and hawksbill turtles are the most widely distributed whilst the flatback turtle is only found in Australia and southern Papua New Guinea (IUCN Red List 2013).

Pressures

Marine species of conservation concern are vulnerable to a range of threats, including fisheries by-catch; human harvest; habitat loss and degradation from coastal development; pollution and pathogens; and climate change.

The key threats to **cetaceans** include by-catch and entanglement from fisheries operations, boat strikes, habitat degradation, pollution (especially inhalation of plastic debris) anthropogenic noise from boats, military sonar and seismic exploration, unregulated tourism which can alter behaviour, live capture for display (especially dolphins), traditional drive hunts and climate change. There is no commercial whaling in the Southern hemisphere, and in April 2014, Japan was ordered by the International Court of Justice to cease its annual take of minke and fin whales on their Antarctic feeding grounds in the Southern Ocean. These pressures can negatively impact migration patterns, population distribution and species survival. Many Pacific island countries and territories have declared their Exclusive Economic Zones (EEZs) to be whale sanctuaries, providing significant opportunities to improve the conservation management of cetaceans in their waters.

Human take is the major threat to **dugong** populations in the Pacific islands. Accidental entanglement in mesh nets and fish traps is a major but largely un-quantified cause of dugong mortality in the Pacific. Dugongs are vulnerable to anthropogenic influences on seagrass beds, which are restricted to coastal habitats populated by humans. Because dugongs depend on seagrasses, any threats to these ecosystems can impact dugong populations.

All species of **sharks and rays**, especially pelagic species, are highly vulnerable to intentional and unintentional by-catch from commercial long-liners (see section 2.3.5), entanglement in purse seine fishing nets and fishing for their fins or as trophies.

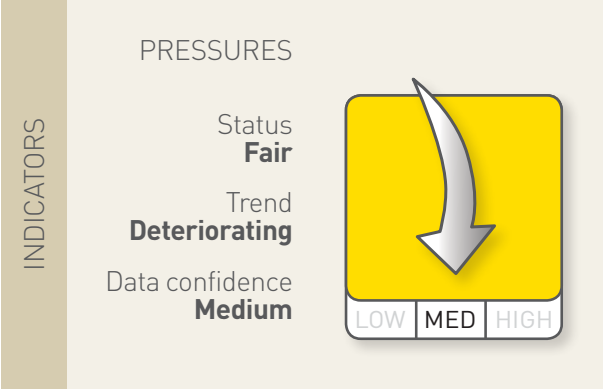
The major threat to **marine turtle** populations remains the direct and often unsustainable harvest and illegal poaching of eggs and adults of all species. Unintentional capture in fishing nets and on long-lines can be associated with turtle mortality, as can the ingestion of plastic debris. Habitat degradation has implications for turtle rookeries, and light pollution may disrupt turtle nesting and hatchling behaviour. Invasive species may also threaten turtle hatching success and modify nesting habitats. Climate change is an emerging threat because greater storm intensity may threaten turtle rookeries, food resources and coral reef habitats, and elevated temperatures may change the sex ratio of hatchlings or, if temperatures exceed 34 degrees Celsius, cause egg mortality. Because green turtles depend on seagrasses, any threats to these ecosystems can indirectly impact populations of this species. Hawksbill turtles continue to face human exploitation and threats including loss of nesting and coral reef foraging habitat, incidental capture in fisheries operations and marine pollution.

Analysis

One indicator was used to determine the extent of pressures on migratory marine species (turtles, whales and dolphins) of conservation concern.

Data for this indicator were compiled from the IUCN Red List of Threatened Species' online public database (Version 2013.1 for dugong, marine turtles and cetaceans). Key sources of information on population status and threats to marine species included IUCN Red List assessments, peer-reviewed journal articles and regional and global reports on marine species (Polidoro et al. 2011, Wallace et al. 2011, the Coral Reef Research Foundation 2012). Threats were ranked from 0 (data deficient) to 3, with threat levels of 1 (low), 2 (medium) and 3 (high). The confidence in this information was rated **medium**: whilst the IUCN Red List is the most comprehensive, reliable, objective and up-to-date resource for measuring a species' extinction risk, gaps in data availability and quality do remain.

It is not possible to calculate an overall trend for all species in the region because data are not available for all taxonomic groups. The trends for cetaceans and turtles were calculated as **mixed**, due to differences observed in different species—for example, threats to hawksbill turtles appear particularly high. The population trend for dugongs is one of **decline**. Despite differences among species, due to the general



rise in observed pressures, it is likely that the status and distribution of all marine species is on a general **decline** overall.

Conclusions and recommendations

By examining the current status and distribution of marine species of conservation concern, we are able to see a snapshot of the situation with regard to species conservation in the region. The 2013 IUCN Red List provides the most up-to-date information for the extinction risk of marine species in the Pacific islands.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal C, which aims to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, ***Target 12*** directly relates to species: ***By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.***

It appears from the data examined that meeting this Target may be a challenge for some countries in the region.

Preventing the extinction of species is a huge responsibility and task, especially given the huge number of observed potential and actual threats acting upon different taxonomic groups. For example, threats to hawksbill turtles were ranked particularly high, and this ranking, coupled with a decreasing population, indicates that this species is a conservation priority.

On a positive note, governments and organisations working in the region are improving efforts toward researching, collaborating, managing and conserving these marine species of conservation concern. Species-specific action and management plans are being produced and adopted, and there have been numerous discussions on the creation of sanctuaries aimed at protecting and sustaining populations of these vulnerable marine species. In addition, there is the potential for increasing the conservation status of some species through species specific actions—for example, raising awareness and maintaining populations of whale sharks, hammerhead sharks and manta rays through dive tourism.

The ability to quantify and address threats is often hampered by the absence of regular research and monitoring of distributions and abundance of marine species in the Pacific region. Improving our baseline knowledge of species throughout the Pacific Islands is much needed. However, such research and monitoring is expensive, and it is therefore imperative that governments, decision-makers and NGOs continue to work collaboratively in order to prioritise conservation efforts.

3.4 Introduced and Invasive Alien Species (IAS)

Invasive alien species (IAS) are the second biggest drivers of biodiversity loss worldwide, second only to habitat destruction. Invasive species are introduced species (plants, animals and other organisms taken beyond their natural range by people, deliberately or unintentionally) that become destructive to the environment or human interests; they can also include native species that proliferate and become destructive following environmental changes caused by human activities.

State

This section examines the current numbers and types of introduced and invasive species in the Pacific Islands. Section 5.5 goes into further detail on how invasive species can be and are managed. The countries with the highest

Mikania micrantha
Photo credit: Konrad Englberger, SPC

Crazy Ants, Samoa.

numbers of known invasive species are Fiji, Federated States of Micronesia, Niue, Palau and Guam. Terrestrial environments contain the highest number of documented invasions by introduced species. However, there is less information available concerning invasive species that occur in the marine environment, which could mean that this observation is skewed. Most introduced species are plants (89%), followed by animals (10%) and other taxa such as fungi and micro-organisms (3%).

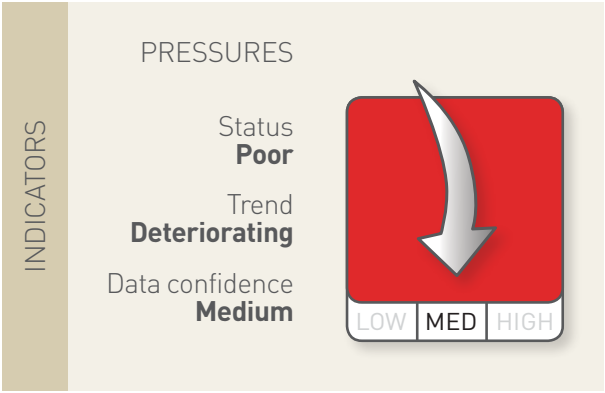
Invasive plants alter ecosystems in many ways, causing a reduction in native plant diversity, changes in soil fertility, altered nutrient cycling and increased erosion. Changes in plant diversity may impact on other species like insects and birds that are dependent on specific native species. The most widespread invasive plant is purple nutsedge (*Cyperus rotundus*), which occurs in all 22 countries and territories, followed by blue rat's tail (*Stachytarpheta cayennensis*), castor-bean plant (*Ricinus communis*) and mile-a-minute (*Mikania micrantha*). Other species include the well-known *Lantana camara* and the stinking passion flower vine (*Passiflora foetida*).

Invasive animal species include predatory mammals, which have devastating impacts on native bird species—75% of threatened birds on oceanic islands are impacted by predation by introduced invasive mammals (rats, cats, mongooses and feral dogs) that prey on eggs, juveniles and adults; ungulates (goats, deer, cattle, sheep and pigs), which trample, browse and degrade habitats; invertebrates such as ants (big-headed ant, crazy ant and fire ant), which are not only a nuisance to humans but also a threat to native fauna, and snails (the Rosy wolf-snail (*Euglandina rosea*) and the giant African snail (*Achatina fulica*) prey on native snails); freshwater fishes, such as tilapia and *Gambusia*, which compete with native species; and birds (common myna, red-vented bulbul), which can out-compete native species for food resources.

Analysis

Both introduced and invasive species are considered under this indicator, which measured the number of invasive species present across the Pacific islands region. It is not known how many introduced species will, over time, become invasive and affect biodiversity.

Annotated inventories of introduced and invasive species were compiled from a range of databases, including the Global Invasive Species Database, the CABI Invasive Species Compendium, the regional database Pacific Island Ecosystems at Risk (PIER) and thematic databases (FishBase and SeaLifeBase), national reports (NBSAPs, NISSAPS, Country and Thematic reports submitted to the CBD), peer-reviewed journal articles and key country contacts. Lists from all these resources were merged, and biological status was determined based on descriptions used in the source information. Data confidence was assessed as Medium because there are still some gaps in



our knowledge related to invasive species and their impacts.

The state of invasive species is deemed **poor.** There have been some success stories with regards to eradication of invasive species from some islands, but most invasive species remain unmanaged, with their populations increasing and spreading.

Conclusions and recommendations

The extent of impact of invasive species across the 22 Pacific island countries and territories was examined, and the status was deemed to be poor, with only a small number of success stories overall: the majority of invasive species are not managed, are spreading and continue to have devastating impacts on native species and ecosystems.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal C, which aims to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, ***Target 9*** specifically relates to invasive species: ***By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment.*** The management of invasive species also contributes in some way to the achievement of Aichi Targets 5, 11, 12 and 17.

It appears from the data examined that meeting this Target will remain a challenge for most countries in the region.

Successful management and control of IAS is critical if Pacific island countries and territories are to meet the relevant Aichi targets. Failure to successfully address the continuing invasion and spread of IAS in Oceania will lead to a state from which our islands could never recover and which will undermine all efforts to promote biodiversity conservation and food, health and livelihood security in Oceania.

The spread and effects of invasive species remain out of control, with invasive species continuing to pose a threat to biodiversity conservation, sustainable development and human wellbeing. The impact is massive, poorly quantified, poorly understood and not seriously recognised or addressed by policy makers.

There is an urgent need to raise awareness of the nature and seriousness of the vast diversity of IAS threats and identify relevant policy interventions at all levels (internationally, within government, the private sector and civil society) in order to stop the spread, eradicate or control the impacts of IAS. The continuous incursions of new introduced and invasive species necessitate on-going biosecurity improvements.

That said, efforts to change this situation are underway, and there are a growing number of national, regional and international actions in development to address this major threat.

Freycinetia species in Samoa.
Photo credit: Stuart Chape

RESPONSE

Responses to protect and conserve Oceania's terrestrial and aquatic biodiversity must be built on a sound platform of national and international legislation and traditional governance mechanisms. The establishment of protected areas is a key component of national biodiversity programmes, as is direct action to mitigate impacts of invasive species, over-exploitation, habitat loss and climate change guided by appropriate national action plans, such as National Biodiversity Strategy and Action Plans.

This section examines the extent of protected areas, participation in and national implementation of international biodiversity agreements and specific policy and management actions to deal with invasive species.

4 Environmental governance

Environmental governance in the Oceania region can be gauged by the level of commitment of Pacific island countries to international and regional Conventions and MEAs that govern and/or are related to the conservation of biodiversity as well as the subsequent implementation of the Convention and MEAs at the national or sub-national levels. Details of each country's status relative to the relevant International Conventions and Treaties are contained in Appendix A and vary depending on a number of factors, including the relevance to the country, the ability to implement the requirements of the Convention and financial considerations.

Of the 22 Pacific islands countries in the Oceania region, eight countries are territories of a foreign nation. These territories include American Samoa, Guam and the Northern Mariana Islands (United States of America Territories); French Polynesia, New Caledonia and Wallis and Futuna (French Territories); Pitcairn Islands (United Kingdom Territory); and Tokelau (New Zealand self-governing Territory). Territories are not able to sign Conventions and Treaties, and each of the Governing States of these Territories have their own rules for extending Convention and Treaties they have signed, ratified and/or acceded to the Territories.

American Samoa [USA]

American Samoa is an unincorporated territory of the United States of America. Section 1 of Delimitation of Government Authority restricts powers of the territorial government to exercise unrestricted jurisdiction. It is instead "exercised under the jurisdiction of the Secretary of the Interior pursuant to Executive Order No 10264 (1951)". Section 3 vests Executive authority in the Governor to be "exercised under the supervision and direction of the Secretary of the Interior". As such, American Samoa is not a Party to any MEAs. As an American territory, it is only party to those MEAs ratified by the USA and extended to American Samoa. No MEAs have been extended to the territory. On select occasions, the government of American Samoa has been authorised to conclude and ratify treaties, as it did with the Agreement Establishing the South Pacific Applied Geoscience Commission (SOPAC).

French Polynesia [France]

French Polynesia is an autonomous country within the French Republic. This status sets a complex share of competences for French Polynesia, the French Republic and French Polynesia townships. French Polynesia is granted the management, conservation and protection of the environment, including natural resources. France has control over implementation of sanctions, control and surveillance of maritime zones and signing of international conventions, among other competences. French Polynesia is entitled to sign regional agreements. French Polynesia is included in the following MEAs: CBD, CITES and CMS.

Guam [USA]

Guam is an organised and unincorporated territory of the USA. MEAs ratified by the USA are extended to Guam. However, certain related Treaties, such as International Plan Protection Convention and International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, have been extended to Guam.

New Caledonia [France]

New Caledonia is a sui generis autonomous government within the French Republic according to organic law n0 99-209 of 19 March 1999, which determines the division of competences for the different authorities, and title XIII of the French Constitution. The French Republic has competence in monitoring and surveillance over the entire maritime area of New Caledonia. New Caledonia has competence over the management of natural resources in the EEZ. The three provinces are competent in managing the environmental and natural resources on land and in the interior waters since 1989. International regulations that have been ratified by France apply in the provinces through repartition of competences as provided by the 1999 organic law. Under the organic law, France signs international conventions, and New Caledonia and the provinces, depending on the domain of competency, can make adequate regulations to apply them. New Caledonia is included in the following MEAs: CBD, CMS and CITES.

Northern Mariana Islands [USA]

In 1975, the USA and the people of the Northern Mariana Islands entered into a Covenant of political union, which established a self-governing Commonwealth of the Northern Mariana Islands under the Sovereignty of the USA. Although the Northern Mariana Islands are listed as self-governing, their international affairs do remain the responsibility of the USA. No biodiversity conservation MEA has been extended to Northern Mariana Islands.

Pitcairn Islands [UK]

Pitcairn Islands are a UK overseas territory. MEAs are extended to Pitcairn Islands by the UK through inclusion in those MEAs that the UK has signed. It has been included in 12 MEAs, with four being biodiversity conservation MEAs that include CITES, CMS, Ramsar and WHC. CBD has not been included in the Pitcairn Islands.

Tokelau [New Zealand]

Tokelau is a non-self-governing territory of New Zealand. Tokelau does not have an international legal personality separate from that of New Zealand, and New Zealand may extend treaty obligations into which it enters to Tokelau, if Tokelau expressly requests to be included. New Zealand supports Tokelau's aspirations to enter into arrangements with other countries or join regional or international organisations in its own right, where such participation is consistent with Tokelau's status as a non-self-governing territory.

Wallis and Futuna [France]

Wallis and Futuna is a territory of the French Republic. International MEAS are signed and ratified by France and apply in Wallis and Futuna. MEAs applicable in Wallis and Futuna include CBD, CMS and CITES.

4.1 International Conventions and Multilateral Environment Agreements (MEAs)

International Environmental Conventions and Treaties provide a mechanism for national and multi-jurisdictional protection of certain aspects of our environment. Within the Pacific, the relevant Conventions and Treaties related to environmental governance include those provided below, although there are others that are not covered but may be very broadly relevant.

Convention on Biological Diversity

The Convention on Biological Diversity is a global agreement addressing all aspects of biological diversity: *genetic resources, species, and ecosystems, with the specific goals of conservation of biological diversity (or biodiversity), the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources.* The Convention was opened

for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993.

Most Pacific island countries and territories have signed and ratified or acceded to the Convention on Biological Diversity. Ten Pacific island countries have ratified the Convention, while Kiribati, Niue, Palau and Tonga have all acceded to the Convention (refer to Appendix A). All French Territories have been included in the CBD by France. Pitcairn Islands has not been extended the CBD, and because the USA is a non-Party to the Convention, none of the USA territories are Party either. Section 4.3 further outlines the status of implementation of national laws in line with the CBD, as well as progress related to NBSAPs.

Under the Convention of Biological Diversity, a number of Protocols have been established.

The **Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol)** governs the movements of living modified organisms resulting from modern biotechnology from one country to another. It was adopted on 29 January 2000 as a supplementary agreement to the Convention on Biological Diversity and entered into force on 11 September 2003. Of the 22 Pacific island countries and territories, six have acceded to the Cartagena Protocol, and five have signed and/or ratified the Protocol, as seen in Appendix A.

The **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity (Nagoya Protocol)** aims to share the benefits arising from the utilisation of genetic resources in a fair and equitable way. It was adopted at the tenth Conference of the Parties meeting to the Convention on Biological Diversity on 29 October 2010 in Nagoya, Japan. The Nagoya Protocol will enter into force 90 days after the date of deposit of the fiftieth instrument of ratification. Only the French and United Kingdom Territories, Fiji, the Federated States of Micronesia, Palau and Vanuatu have acceded to and/or signed the Nagoya Protocol; see Appendix A.

The United Nations Convention to Combat Desertification (UNCCD)

The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, or UNCCD, aims to combat desertification and mitigate the effects of drought. The Convention stemmed from a direct recommendation of the Rio Conference's Agenda 21 and was adopted in Paris on 17 June 1994, entering into force in December 1996. The Convention is based on the principles of participation, partnership and decentralisation.

Most Pacific island countries and territories have signed, acceded to and/or ratified the Convention (refer to Appendix A). There is a specific provision with the Convention relating to the development of the self-government of Tokelau by the New Zealand Government, and accordingly, Tokelau has not signed/acceded to the Convention. While it is noted that Oceania is unlikely to experience the types of serious droughts witnessed in African countries, the future impacts of climate change could result in localised droughts or in significant rainfall events across Pacific island countries. Accordingly, being a party to the Convention is beneficial.

United Nations Framework Convention on Climate Change (UNFCCC)

The 1992 UNFCCC aims to limit average global temperature increases and the resulting changes to climate. In 1995, the international community realised that emission-reductions provisions in the Convention were inadequate, and following international negotiations, the **Kyoto Protocol** was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. The Kyoto Protocol legally binds developed countries to emission reduction targets.

Of the 22 Pacific island countries and territories, eleven of the fourteen States have signed and ratified the UNFCCC. The remaining three States—Niue, Palau and Tonga—have acceded to the Convention. Nine States have signed and

ratified the **Kyoto Protocol**, and five States have acceded to the Protocol. None of the French, UK, USA or NZ Territories has been extended the Convention or the Protocol, as seen in Appendix A. Importantly, it is noted that the USA refuses to ratify the Kyoto Protocol due to the exclusion of States such as China and India.

The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention)

The Ramsar Convention is an international treaty for the conservation and sustainable utilisation of wetlands through local, national and regional actions and international cooperation. The Convention was adopted in the city of Ramsar, Iran, on 2 February 1971 and came into force in 1975.

Most States, including Fiji, Kiribati, Marshall Islands, Palau, Papua New Guinea and Samoa, have signed/acceded to the Ramsar Convention, as Appendix A shows. Tokelau specifically requested the New Zealand Government to be included within the Ramsar Convention. The Cook Islands, Federated States of Micronesia, Niue, Solomon Islands and Tuvalu have taken no action with respect to signing of the Ramsar Convention. While they have not acceded yet to Ramsar, Nauru, Tonga and Vanuatu have initiated preparatory work for joining the Convention.

Convention concerning the Protection of the World Cultural and Natural Heritage

The Convention concerning the Protection of the World Cultural and Natural Heritage adopted by UNESCO in 1972 encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. By signing the Convention, a nation pledges to conserve not only the World Heritage sites situated on its territory but also to protect its national heritage.

Of the 22 Pacific island countries and territories, Cook Islands, Fiji and Vanuatu have ratified the Convention, Solomon Islands has acceded to the Convention, and eight States have accepted the Convention (refer to Appendix A). Nauru and Tuvalu are the only States that have not signed, ratified, acceded or accepted the Convention. A reason for this could be that they may not have a site that would be considered as being of outstanding value to humanity. The Pitcairn Islands is the only territory that has been extended the Convention (by the UK).

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is a multilateral treaty to protect plants and animals from extinction as a result of international trade. The convention was opened for signature in 1973 following a meeting of the International Union for Conservation of Nature (IUCN) and entered into force on 1 July 1975. Although CITES is legally binding on the Parties, it does not take the place of national laws: instead, it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that the Convention is implemented at the national level.

Of the 14 Pacific island countries, only six have signed the Convention: Fiji, Palau, Papua New Guinea, Samoa, Solomon Islands, and Vanuatu; see Appendix A. The Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Tonga and Tuvalu have taken no action with respect to the Convention, but Marshall Islands has expressed to the Secretariat its interest in acceding to the Convention. Many of these countries trade in endangered species as non-Parties to the Convention.

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

The CMS (or Bonn Convention) aims to conserve terrestrial, aquatic and avian migratory species throughout their range. Concluded under the United Nations Environment Programme, it came into force on 1 November 1983.

A number of States have become Parties to the Convention, including the Cook Islands, Fiji, Palau and Samoa; see Appendix A. Nineteen Memoranda of Understanding (MoU) have been concluded to date under the auspices of the Convention, such as the Conservation of Cetaceans and their Habitats of the Pacific Island Region. These States have also signed MoUs that are relevant to Oceania, including an MOU on Pacific Island Cetaceans (Cook Islands, Fiji and Samoa) and an MoU on Dugongs and Sharks (Palau). Eight States (Federated States of Micronesia, Nauru, Niue, Papua New Guinea, Solomon Islands, Tonga, Tuvalu and Vanuatu) are not Parties to the Convention but have signed MoUs relevant to Oceania. Marshall Islands and Kiribati are not Parties to the Convention and have not taken any action to sign any of the MOUs relevant to Oceania.

France, New Zealand and the United Kingdom have signed the CMS Convention. France has extended the Convention to the three French Territories; the UK, whilst a Party, has not extended the Convention to the Pitcairn Islands. The United States of America has not signed the Convention and therefore it is not entered into in its three territories. For Tokelau, the CMS Secretariat provides that "Accession shall not extend to Tokelau unless and until a Declaration to this effect is lodged by the Government of New Zealand with the Depositary." Nothing to this effect has been received by the CMS Secretariat.

United Nations Convention on the Law of the Sea (UNCLOS)

The UNCLOS is an international agreement that defines the rights and responsibilities of States in their use of the world's oceans, establishing guidelines for business, the environment and the use, management and conservation of marine natural resources. The Convention came into force in 1994.

Part XII of the Convention is specifically devoted to protection of the marine environment, allowing States to take measures to prevent, reduce and control pollution of marine environments from land-based activities, from vessels and from the atmosphere as well as from sea-bed activities subject to national jurisdiction and dumping at sea.

The Convention creates Exclusive Economic Zones (EEZs) up to 200 nautical miles from the coasts of signatory countries, except where countries such as island countries are closer together, in which case the EEZ is split between them. From the perspective of the Oceania States, the EEZs are of great significance, giving jurisdiction to many of these States over vast areas of ocean. For example, the EEZ provisions give Solomon Islands jurisdiction over some 1,340,000 square kilometres of ocean; Republic of Marshall Islands 2,061,000 square kilometres; Cook Islands 1,830,000 square kilometres; Federated States of Micronesia 3,051,000 square kilometres; and Tonga 700,000 square kilometres.

The sovereign Territories of France, New Zealand and the United Kingdom have signed UNCLOS, as Appendix A indicates. The United States of America has not signed the Convention and therefore it is not entered into in its three Territories. Of the remaining 14 independent States, only Fiji has not signed the Convention, which is surprising given it has signed all the other Conventions and Protocols and would have strictly defined jurisdiction (it has claimed an EEZ) over 1,290,000 square kilometres of ocean.

Under UNCLOS, an Agreement for the Implementation of the Provisions of the UNCLOS was established on 10 December 1982, relating to the **Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.** This Agreement sets out principles for the conservation and management of those fish stocks. The Agreement calls for States to cooperate to ensure conservation and optimal utilisation of fisheries resources both within and beyond their EEZs. Highly migratory fish are those which undertake ocean migrations and have wide geographic distributions (such as tuna, shark or marlin); straddling fish stocks are those found in more than one EEZ and are especially vulnerable to overexploitation because of ineffective management regimes and noncompliance by fishing interests.

Analysis

This indicator identifies the status of signature and ratification of environmentally related Conventions and MEAs for the Pacific island countries and territories of the Oceania region. It concentrates on biodiversity conservation-related Conventions and MEAs and shows the extent of commitment of Pacific island countries and territories to international cooperation for the good of all humankind and the conservation of our natural habitats.

The data for each Pacific island country's or territory's status of commitment to the Convention or MEAs were extracted from numerous sources, including relevant Convention and MEA websites, SPREP, NGOs and specific State reports prepared by State legal specialists for the purpose of this section. Where additional information was required, this was obtained through relevant searches. The confidence in utilised data is **High.**

The following Conventions were analysed as having a High status in terms of signing CBD, UNCCD, UNFCCC and UNCLOS; ratification of the CBD is High, whilst the ratification of UNCCD, UNFCCC and UNCLOS is Medium. The signing and ratification of Ramsar, UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage, CITES and CMS was deemed to be low. Therefore, with respect to the signing and ratification of Conventions, Treaties and MEAs, the regional status is considered to be **Good** overall. That said, the status of adherence to these conventions is **low** across the region. The trend in countries signing or ratifying Conventions can be viewed as **Improving.**

INDICATORS

Status
Good

Trend
Improving

Data confidence
High

Conclusions and recommendations

Whilst Pacific island countries and territories have shown fairly good commitments in terms of signing and ratifying Conventions related to biodiversity, the lack of accession and ratification especially in relation to the marine environment and endangered and migratory species is of concern given the nature of Oceania. In a region covering such enormous areas of marine environments and ecosystems, with a large number of endangered and migratory fauna, it is vital that Pacific island countries and territories sign and subsequently ratify the relevant Conventions that will allow the management and protection of such ecosystems and species, such as CMS, CITES and Ramsar.

The ratification of Conventions appears to be improving, and it is recommended that support be provided by international and regional organisations and NGOs to assist Pacific island states especially in establishing the mechanisms for ratifying and adhering to the Conventions that they have signed. Many organisations are already providing such support: SPREP for example has dedicated officers to assist governments for specific Conventions, such as CBD and Ramsar, whilst IUCN and SPC provide governments with technical support, for instance, for CITES implementation. By continuing and improving such support, countries will have better means with which to protect, manage and sustainably utilise their species and habitats.

4.2 Regional Conventions and MEAs

As well as relevant environmental International Conventions, there are a number of Conventions and regional level MEAs that are relevant to the protection of species and their environment. The following section provides an overview of these agreements along with a discussion on the steps that States or Territories have taken in signing and undertaking actions under these regional level agreements. Due to the nature of many of these agreements for which very few parties have signed and/or acceded to the agreement,

only those that are signed by numerous member countries are discussed below.

Convention for the Protection of the Natural Resources and Environment of the South Pacific

The Convention for the Protection of the Natural Resources and Environment of the South Pacific, the **Noumea Convention**, was adopted in 1986, together with Protocols on cooperation in combating pollution emergencies and on the prevention of pollution by dumping. The Noumea Convention is the most significant regional convention operating in the South Pacific in terms of the broad duties it places on countries in relation to the marine environment. This Convention allows for regional enactment of the Convention on Biological Diversity.

The Convention highlights the threat to the marine and coastal environment posed by all sources of pollution as well as mining and coastal erosion, suggesting that parties develop and agree to bilateral or multilateral agreements for the protection, development and management of the marine and coastal environment. The provision that countries shall "endeavour to establish laws and regulations for the effective discharge of the obligations prescribed in this Convention" (Article 5(5)) is of particular significance. It puts an obligation on member countries to take all appropriate measures to protect and preserve rare and fragile ecosystems and depleted, threatened or endangered flora and fauna as well as their habitat in the convention area. They are thus obliged to establish protected areas, such as parks and reserves, and prohibit or regulate any activity likely to have adverse effects on species, ecosystems or biological processes. It is noted that the Noumea Convention applies generally to the marine environment and has no specific application to the land; however, land-based activities related to the marine environment are covered. Article 3 allows any Party to add areas under its jurisdiction "within the Pacific Ocean", which means that land could be included in the future.

Half of the States or Territories in Oceania have signed the Noumea Convention, including the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tuvalu and Vanuatu; refer to Appendix A for details. The four foreign States, France, New Zealand, United Kingdom and the United States of America, have also signed the Convention, and accordingly, it has been accepted across the region.

There are two protocols that cover dumping of wastes at sea and cooperation in combating marine pollution emergencies. They are similar to two international Conventions but reflect a more regional perspective on the problem of pollution prevention and mitigation. The first is the SPREP Dumping Protocol: **SPREP Protocol for the Prevention of Pollution of the South Pacific Region by Dumping (1986)**, which is the Pacific Islands regional equivalent to the London Convention (on dumping wastes at sea). The same countries that have signed the overriding Noumea Convention have signed this Protocol. The second protocol is the SPREP Pollution Emergencies Protocol: **SPREP Protocol concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region, which is the** Pacific Islands regional equivalent to the International Convention on Oil Pollution Preparedness, Response and Cooperation (1990). As with the overriding Noumea Convention, the same countries have signed the Protocol. The Pacific islands region has also developed and adopted the Pacific Islands Regional Marine Spill Contingency Plan to prepare for any pollution emergencies. SPREP has also provided assistance for member countries to develop National Marine Spill Contingency Plans.

Convention on Conservation of Nature in the South Pacific

The Convention on Conservation of Nature in the South Pacific—the Apia Convention—was drafted in 1976; however, it did not come into force until 1990. The Convention stresses the creation of protected areas and the continued existence of national parks, ensuring that their resources are not to be subject to commercial exploitation, hunting and collection of species are to be prohibited, and provision is to be made for visitors. Parties agree to maintain lists of indigenous fauna and flora in danger of

extinction and to give such species as complete protection as possible. Provision may be made as appropriate for customary use of areas and species in accordance with traditional cultural practices. This Convention allows for regional enactment of the Convention on Biological Diversity. The Parties agreed at the Joint Eighth Conference of the Parties to the Apia and Noumea Conventions (Noumea, September 2006) to suspend the operation of the Apia Convention until further notice (meeting record refers – 72/15/E).

Four countries have signed or acceded to the Apia Convention: the Cook Islands, Fiji, Papua New Guinea and Samoa, along with the French Territories of French Polynesia, New Caledonia and Wallis and Futuna.

South Pacific Forum Fisheries Convention

The South Pacific Forum Fisheries Convention was written in response to the need for effective cooperation for the conservation and optimum utilisation of highly migratory species of the region. The Convention established the Forum Fisheries Agency to give strength to member countries in all matters connected with fishing in the Pacific. Sixteen countries in the Pacific region are participating members of the Forum Fisheries Convention, including the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau (through New Zealand), Tonga, Tuvalu and Vanuatu (Australia is also a party to the Convention).

The Convention and Forum Fisheries Agency also have the authority to administer and provide support for negotiations and meetings regarding several fishing treaties. This Convention and collection of treaties allows for regional enactment of the United Nations Law of the Sea Convention and Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Species Agreement. These include the following:

The **Niue Treaty** is an agreement on cooperation between Forum Fisheries Agency members about monitoring, control and surveillance of fishing as well as procedures for cooperation in monitoring, prosecuting and penalising illegal fishing vessels.

The **US Treaty** (Treaty on Fisheries between the Governments of Certain Pacific Islands States and the Government of the United States of America) is an agreement reached between the United States of America and Pacific Island States who are members of the Forum Fisheries Agency Convention. The Treaty sets conditions on United States of America fishing in the region and guarantees annual technical assistance to help Pacific Island States to develop their own fishing industries.

The Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest—the Nauru Agreement—is a regional agreement between the Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu. The eight signatories collectively control 25–30% of the world's tuna supply and approximately 60% of the western and central Pacific tuna supply. These eight member state Parties to the Nauru Agreement (PNA) have extended the prohibition on tuna purse-seine fishing in approximately 4.5 million square kilometres of the Pacific Ocean high seas by purse-seine vessels licenced to fish in their combined Exclusive Economic Zones. The Nauru Agreement and other joint fishery management arrangements made by the PNA have been concerned mainly with the management of tuna purse-seine fishing in the tropical western Pacific. The Agreement is administered with assistance from the Forum Fisheries Agency.

The **Federated States of Micronesia Arrangement for Regional Fisheries Access** is a mechanism for domestic vessels of the Parties to the Nauru Agreement to access the fishing resources of other parties. It was signed on the 30 November 1994 and came into force on the 23 September 1995. Parties to the Agreement are the Federated States of Micronesia, Marshall Islands, Nauru, Palau, Papua New Guinea and Solomon Islands.

The **Palau Arrangement for the Management of the Purse Seine Fishery in the Western and Central Pacific** was developed by the Parties to the Nauru Agreement and entered into force in November 1995. The Arrangement set a limit on the number of purse seine vessels that

could be licensed by the Parties and allocated these licences by fleet. Signatories to the Palau Arrangement are Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Papua New Guinea, Palau, Solomon Islands and Tuvalu.

The Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific

The Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific, also known as the Wellington Convention, entered into force on 24 November 1989. The Convention was established due to the concern of the impacts on pelagic fisheries, especially albacore tuna, from driftnet fishing. The Convention prohibits the use of driftnets longer than 2.5 metres in length. The Convention was signed by Australia, Cook Islands, Federated States of Micronesia, Fiji, France, Kiribati, Marshall Islands, New Zealand, Niue, Palau, Solomon Islands, Tuvalu, United States of America and Vanuatu. Of the states that signed the Convention, it has not been ratified by France, Marshall Islands, Tuvalu and Vanuatu. Samoa, which did not sign the Convention, has acceded to it. Papua New Guinea has agreed to the Convention, and the prohibitions of the Convention are taken into account under their Fisheries Act 1994.

The Western and Central Pacific Fishing Convention

The **Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean**—the Western and Central Pacific Fishing Convention—was established to conserve and manage tuna and other migratory fishes across the western and central areas of the Pacific Ocean. It was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, which entered into force in 2004.

Member countries are the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. American Samoa, French Polynesia, Guam, the Northern Mariana Islands, New Caledonia, Tokelau and Wallis and Futuna all hold Participatory roles because their foreign Governments are members of the Convention.

Pacific Islands Framework for Action on Climate Change

In 2005, Pacific Leaders endorsed the Pacific Islands Framework for Action on Climate Change 2006 to 2015. This Framework builds on the previous Pacific Islands Framework for Action on Climate Change, Climate Variability and Sea Level Rise (2000–2004) The Framework aims to promote an integrated and multi-sectoral climate change response and build the capacity and resilience of the Pacific islands to the impacts and risks of climate change. This Convention allows for regional enactment of the United Nations Convention on Climate Change and Kyoto Protocol.

The Parties to the Framework are American Samoa, Cook Island, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Wallis and Futuna.

The Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (Waigani Convention)

This Convention was prepared in Waigani, Papua New Guinea, in 1995 and entered into force in 2001. The Secretariat of the Pacific Regional Environment Programme serves as the Convention's Secretariat, while the Secretary

General of the Pacific Islands Forum Secretariat serves as Depositary. The primary goal of the Convention is the establishment of a system to prevent hazardous and radioactive waste entering or being dumped in the region.

Regional Framework on Nature Conservation and Protected Areas 2014–2020 and the Action Strategy 2008–2012

This Framework provides guidance to Pacific island countries and territories, regional organisations, NGOs, the international donor community and other partners to achieve the global 2020 Aichi Targets of the Convention on Biological Diversity through the implementation of National Biodiversity Strategies and Action Plans (NBSAP) and other international, regional and local conservation initiatives, including that relating to Protected Areas. It is based on best conservation practices drawn from the experience of the conservation practitioners who attended the Ninth Pacific Conference on Nature Conservation and Protected Areas held in Fiji in December 2013. At this Conference, the objectives included formulating the new Action Strategy; promoting natural solutions to address impacts of climate change; reviewing NBSAPs and assessing progress; and continuing work on the Convention on Biological Diversity (CBD) Programme of work on protected areas and islands. In addition, the objective also focuses on the review of the 2008–2012 Action Strategy, a product of the earlier Eighth Pacific Islands Conference on Nature Conservation and Protected Areas at Alotau, Papua New Guinea, in October 2007.

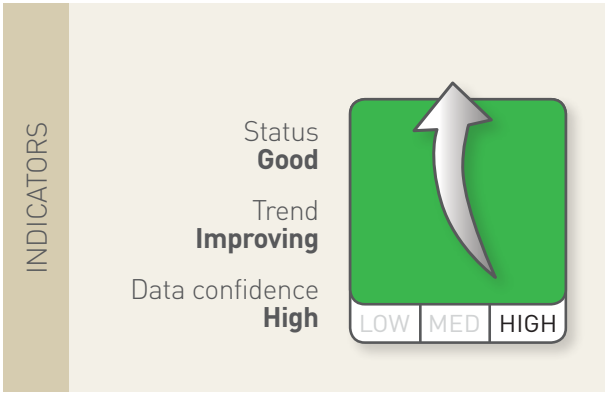
The Conference was hosted by SPREP and partner organisations of the Pacific Islands Roundtable for Nature Conservation (PIRT), including the Fiji Government and the IUCN Oceania Regional Office, gathering together government agencies, NGOs, community-based organisations, donor agencies, partners and experts from across the region. The regional countries involved in this initiative include Fiji, Samoa, Tonga, Solomon Islands, Vanuatu, Papua New Guinea, FSM, Palau, Tokelau, Cook Islands, New Caledonia, Kiribati, Nauru, American Samoa, Niue, French Polynesia, Australia and New Zealand, also including participants from outside the region, namely South Africa, Wales, Japan, the USA, Switzerland and France. The timeframe of the Action Strategy is the 6 year period 2014–2020.

Analysis

This indicator identifies the status of ratification of regional environmentally related Conventions and MEAs in Oceania. It shows the extent of commitment of Pacific Island countries to regional cooperation for the good of all humankind and natural habitats.

The data for each Pacific Island State's status of commitment to the MEAs were extracted from numerous sources, including relevant Convention and MEA websites, SPREP, NGOs and specific State reports prepared by State lawyers. Where additional information was required, this was obtained through relevant searches. The confidence in the utilised data is **High.**

With respect to undertaking actions concerning the regional agreements to which States and Territories have acceded, the Status is considered as being **Good**, and the overall regional trend in signing and taking actions to meet the obligations of the regional agreements is **Improving.**



Conclusions and recommendations

Actions taken under regional environmental agreements ratified by States and Territories appear to be increasing. For example, under the Nauru Agreement, Parties have recently

prohibited setting purse-seine nets around whale sharks, placed a ban on fishing near fish aggregation devices during the months of July, August and September and made it a requirement that there is 100% observer coverage aboard purse-seiners.

The major problem observed in taking actions for implementing the requirements of regional MEAs (and this applies to international and domestic level laws) is the lack of internal governmental capacity to practically implement the laws, including a lack of financial and human resources to manage such tasks as enforcement.

It is therefore recommended that where governments require additional capacity, international and regional organisations and non-government organisations assist Pacific island countries and territories with the implementation of laws wherever feasible.

4.3 National Laws and Policies

This section provides an overview of the integration of international and regional Conventions and agreements into domestic legislation, identifying specific legislation and policies that Pacific island countries and territories have developed at the national level. Initiatives or programmes at the national level that relate or feed into each Convention or Policy are also discussed.

States and Territories are required under the Conventions and MEAs to take appropriate legal and administrative measures to achieve the objectives of the Conventions and MEAs. The Conventions and MEAs all provide simplistic frameworks for establishing legal and policy goals for conservation of specific aspects of the environment; however, for substantive implementation within a State, the specific Government must enact laws rather than develop policy only. Details of each State's domestic laws and policies in relation to the relevant Conventions and MEAs are contained in Appendix B. Further, internal domestic laws, policies, arrangements and procedures related to terrestrial and marine systems are contained within Appendix C. Where the available information has not been specifically identified, it has been considered to be terrestrial in nature.

For the purpose of this section of the report, 'law' refers to statutory law enacted by the legislature or a governing body in the Pacific island countries and territories. Reference to National Biodiversity Strategies and Action Plans and National Policy is included, although these are not considered as law for the purpose of this report. Where no specific law has been enacted specifically to follow the relevant Convention or MEA, the focus is on related law that has aspects relevant to the objectives of the specific MEAs.

With respect to the regional Conventions and MEAs identified below, their enactment has been included under the following International Conventions:

Convention of Biological Diversity:

(a) The Convention for the Protection of the Natural Resources and Environment of the South Pacific and Protocols;

(b) Convention on Conservation of Nature in the South Pacific; and

(c) Action Strategy for Nature Conservation and Protected Areas (now replaced with the Regional Framework for Nature Conservation and Protected Areas 2014–2020).

United Nations Convention on Climate Change and Kyoto Protocol:

(a) Pacific Islands Framework for Action on Climate Change.

United Nations Law of the Sea Convention and Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Species Agreement:

(a) South Pacific Forum Fisheries Convention and other Fisheries Agreements within the Region, as listed previously.

The *Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region* has not been considered within the following section but is discussed later with respect to pollution and waste management.

With respect to Territories, national legislation and policies are influenced by the status on MEAs that the foreign Governing States have extended to them. However, this structure does not stop a Territory from passing national legislation relating to biodiversity conservation. The following paragraphs provide a description of the Territories' local or national legislation pertaining to biodiversity conservation.

American Samoa [USA Territory]

Because American Samoa has not been extended any MEAs that the USA has signed, national legislations specific to the MEAs cannot be measured. However, national legislations relating to conservation in American Samoa are influenced by the funding of the American Samoa EPA by the USA EPA under the Environmental Program Grant based on the following USA statutes: Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act, Clean Air Act, Federal Fungicide, Insecticide and Rodenticide Act and Beach Grant Act. Conservation legislations currently enforced in American Samoa include Environment Quality Act (ASC Title 24 – Capter 1), Coastal Management Act 1990 (ASC Title 24 – Chapter 5), Village Soil Conservation Laws (ASCA Titles 24 – Chapter 2), Office of Marine and Wildlife Resources (ASCA Title 24 – Chapter 3), Parks and Recreation (ASCA Title 18 – Chapter 1), Pesticides (ASCA Title 24 – Chapter 12), and Endangered Species (ASCA Title 24 – Chapter 7).

French Polynesia [French Territory]

The entity in French Polynesia with the competence in the domain covered by a particular international convention is responsible to make adequate local policies and regulations. Biodiversity conservation-related legislations include Environmental Code, Urban Planning Code, Country Law n° 2012-5 of 23 January 2012 and Environmental Code Book 1.

Guam [USA Territory]

Although the USA has not extended the main biodiversity conservation MEAs to Guam, national legislations relating to biodiversity conservation include the Guam Environmental Protection Agency Act, Water Resources Conservation Act, Water Pollution Control Act, Toilet Facilities and Sewage Disposal Act, Air Pollution Control Act, Guam Pesticides Act, Solid Waste Clean Indoor Air Act and Storage of Hazardous Materials.

New Caledonia [French Territory]

Under the French Constitution (article 55), international conventions signed and ratified by the French Republic have a superior authority than all laws. Although overseas territories such as New Caledonia have to be consulted prior to ratification of an international convention, the notice given is not an assent. Despite the obligation of New Caledonia and the provinces to adopt international dispositions to the local legislation framework, there are still many legal gaps. Environment and Conservation related laws include Organic Law and French Environmental Code.

Northern Mariana Islands [USA Territory]

The USA has the power through the USA Congress (of which NMI is not a member) to enact new legislations that are effective in the Islands.

Pitcairn Islands [UK Territory]

Pitcairn Islands have five environmental ordinances implemented by the Government of Pitcairn and Natural Resources Division that are of environmental interest: Apiaries, Fisheries Zone, Land Tenure Reform, Landing and Residence and Local Government.

Tokelau [New Zealand]

The Tokelau Amendment Act passed by the New Zealand Parliament in 1996, which came into force on 1 August of that year, conferred on the General *Fono* the authority to make rules for the peace, order and good government of Tokelau, including the power to impose taxes. The Rules of the General *Fono* have legal effect

in Tokelau. Although Rules may be disallowed by the Administrator within a particular period of time, in practice, this power has never been exercised. New Zealand statute law does not apply to Tokelau unless it is expressly extended to Tokelau. In practice, no New Zealand legislation is extended to Tokelau without Tokelauan consent. Information relating to environmental legislation in effect in Tokelau was not available, except for the Biosecurity Rules 2013.

Wallis and Futuna [French Territory]

Wallis and Futuna is responsible for developing national legislation toward MEAs ratified by France and extended to Wallis and Futuna. The Environmental Code is the only environmental related legislation that is in effect in Wallis and Futuna.

Convention on Biological Diversity (CBD) and NBSAPs

Across Oceania, only three States or Territories can be considered as fully implementing the CBD through domestic law: the Marshall Islands, Palau and Samoa. Others have enacted law that in some way enacts the provisions of the Convention; however, they are largely generic in form and not specific to the actual Convention; for example, most States have enacted some form of generic broad-based environmental law. Accordingly, the status of adherence to the Convention of Biological Diversity is low, with specific legislation required by many Pacific Island countries to enact the provisions of the Convention.

With respect to National Policy, American Samoa, Cook Islands, French Polynesia, New Caledonia, Tokelau and Wallis and Futuna have no National Policy that relates to aspects of the Convention. The Federated States of Micronesia, Fiji, Marshall Islands, Nauru, Niue, Northern Marianas, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu have all developed a National Policy that could be considered consistent with the Convention. Guam, Kiribati and the Pitcairn Islands have developed broad documents that in some way relate to the Convention. These national policies and laws can be seen in Appendix B.

Under the Convention of Biological Diversity, Parties are required to develop **National Biodiversity Strategies and Action Plans,** the principal instruments for implementing the CBD at the national level. The Convention requires countries to prepare a national biodiversity strategy (or equivalent instrument) and to ensure that this strategy is mainstreamed into the planning and activities of all those sectors whose activities can have an impact (positive and negative) on biodiversity.

Current NBSAPs are based on the CBD Strategic Plan 2001–2010, and none have yet been updated to reflect the Aichi Biodiversity Targets of the CBD Strategic Plan 2011–2020. Some progress has been made by all States and Territories towards meeting most targets of the CBD Strategic Plan 2001–2010, as seen in Table 4.1.

All Pacific island countries and territories except for the three territories of the USA have taken action to develop National Biodiversity Strategies and Action Plans. All other Pacific island countries and territories except for Nauru and Tuvalu have fully developed National Biodiversity Strategies and Action Plans. Niue has had a National Strategy in place since 2001 which is currently being updated, and its Action Plan is still being developed, while Nauru and Tuvalu are currently awaiting Cabinet decisions on their respective National Biodiversity Strategies and Action Plans. Most NBSAPs do not have measurable targets or indicators, and progress reports are largely incomplete (see Table 4.2). The progress that has been made in meeting the targets of the CBD Strategic Plan 2001–2010 is seen in Table 4.1.

The United Nations Convention to Combat Desertification (UNCCD)

Across the region, no State has taken any substantive action to develop laws related to the UNCCD. This is not surprising given that the Convention is specifically related to Africa, but it does have broad international implications. Over half the States or Territories have taken some action in relation to the Convention, these being the Federated States of Micronesia,

Table 4.1 The average scores given to Pacific Island countries in relation to their reporting of NBSAP implementation against the Goals and Targets of the CBD Strategic Plan 2001–2010 in their fourth country report to the CBD

CBD Strategic Plan 2001–2010: Goals and Targets		Progress score
1.1	At least 10% of each of the world's ecological regions effectively conserved.	Little progress
1.2	Areas of particular importance to biodiversity protected.	Little progress
2.1	Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.	Little progress
2.2	Status of threatened species improved.	Little progress
3.1	Genetic diversity of crops, livestock, and harvested species of trees, fish, and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.	Some progress
4.1	Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity.	Little progress
4.2	Unsustainable consumption of biological resources, or consumption that has an impact on biodiversity, reduced.	Little progress
4.3	No species of wild flora or fauna endangered by international trade.	Little progress
5.1	Rate of loss and degradation of natural habitats decreased.	Deteriorating
6.1	Pathways for major potential alien invasive species controlled.	Little progress
6.2	Management plans in place for major alien species that threaten ecosystems, habitats, or species.	Little progress
7.1	Maintain and enhance resilience of the components of biodiversity to adapt to climate change.	Little progress
7.2	Reduce pollution and its impacts on biodiversity.	Little progress
8.1	Capacity of ecosystems to deliver goods and services maintained.	Little progress
8.2	Biological resources that support sustainable livelihoods, local food security, and health care, especially of poor people, maintained.	Little progress
9.1	Protect traditional knowledge, innovations, and practices.	Little progress
9.2	Protect the rights of indigenous and local communities over their traditional knowledge, innovations, and practices, including their rights to benefit sharing.	Little progress
10.1	All access to genetic resources are in line with the Convention on Biological Diversity and its relevant provisions.	Little progress
10.2	Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions.	Deteriorating
11.1	New and additional financial resources are transferred to developing-country Parties to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.	Little progress
11.2	Technology is transferred to developing country Parties to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.	Deteriorating

Key to progress scores

Some work/progress made towards reaching target	Little work/progress has been made to achieve target	Deterioriating, situation is getting worse

Table 4.2 Summary of CBD reporting up to 2013 for the 14 Oceania countries that are Parties to the CBD

Party to the CBD	NBSAP developed	NBSAP with measureable targets	NBSAP with indicators	First Report to CBD	Second Report to CBD	Third Report to CBD	Fourth Report to CBD	PoWPA Action Plan	NCSA Report
Cook Islands	✓	×	×	×	×	×	✓	✓	✓
Federated States of Micronesia	✓	×	×	✓	×	×	✓	✓	×
Fiji	✓	×	×	✓	×	×	✓	✓	✓
Kiribati	✓	✓	✓	✓	×	×	✓	✓	✓
Marshall Islands	✓	×	×	✓	×	×	×	×	×
Nauru	×	×	×	×	×	×	×	✓	×
Niue	✓	×	×	✓	✓	✓	✓	✓	✓
Palau	✓	✓	✓	×	✓	✓	×	✓	✓
Papua New Guinea	✓	×	×	×	×	×	✓	×	✓
Samoa	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solomon Islands	✓	×	×	×	✓	✓	✓	✓	✓
Tonga	✓	✓	✓	✓	×	×	✓	✓	✓
Tuvalu	×	×	×	×	×	×	✓	✓	×
Vanuatu	✓	×	×	✓	✓	✓	×	×	✓

Fiji, Kiribati, Marshall Islands, Nauru, Niue, Northern Marianas, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. No action has been taken by American Samoa, Cook Islands, French Polynesia, Guam, New Caledonia, Palau, Pitcairn Islands, Tokelau and Wallis and Futuna, although this is likely to be as a result of limited action by their Sovereign Governments (France, United Kingdom and the United States of America).

United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol

The Oceania region is highly susceptible to the impacts of climate change and the international community is currently spending significantly in mitigation and adaptation actions.

Only Vanuatu has taken substantive action in enacting laws related to the Convention on Climate Change, including the *Framework Convention on Climate Change Ratification Act*. The Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Tuvalu have taken some actions in relation to the Convention and Protocol. Like the UNCCD, the territories of American Samoa, French Polynesia, Guam, New Caledonia, Northern Marianas, Pitcairn Islands, Tokelau and Wallis and Futuna have taken no action in relation to the development of laws due to limited action by their Sovereign States. It is not surprising that the United States of America's territories have not taken any action with respect to the Kyoto Protocol given the refusal of the USA to ratify the Protocol. Further, both the Marshall Islands and Niue, which are independent States, have

not taken any steps to enact laws related to the Convention or Protocol.

However, the Federated States of Micronesia, French Polynesia, Kiribati, Nauru, Niue, Palau and Tuvalu have developed national policy, strategies or action plans, and it should be noted that American Samoa has developed a Territorial Climate Change Adaptation Framework outside the laws of the USA.

In terms of activities relating to the Convention, New Caledonia has one project in place that directly relates to actions coming from the Convention on Climate Change (see Appendix C). Numerous Pacific island countries and territories are undertaking broad programmes and initiatives in relation to the Convention and Kyoto protocol, including the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. The majority of these programmes and initiatives are regionally based or have been funded through specific investments such as the Climate Investment Fund and are often only related to the Pacific Adaptation to Climate Change programme run by the Secretariat of the Pacific Regional Environment Programme. Of concern, however, is that given the current knowledge of the potential impacts of climate change, many States or Territories are currently undertaking no initiatives that relate to the Convention and Protocol directly.

The Ramsar Convention

Across the region, no State has taken any substantive action to develop law related to the Ramsar Convention. Fiji, Kiribati, Papua New Guinea, Samoa and Tuvalu have taken some action to enact laws that relate to wetlands, although from the reading of the laws, drawing a parallel with the Convention is tenuous particularly with respect to Tuvalu, which has not joined the Convention. No action has been taken by Cook Islands, Federated States of Micronesia, Marshall Islands, Nauru, Niue, Palau, Solomon Islands, Tonga or Vanuatu. In 2006, Tonga underwent a review of its legislation as part of their process of joining the Convention. The result of this review was that they do not need to enact specific wetland legislation because the legislation in place adequately provides for the protection and wise use of their wetlands. Ramsar-related legislative reviews have been also completed for Fiji and Marshall Islands, with the same outcome as seen in Tonga's case. Similar legislative reviews are planned for Kiribati, Samoa, Palau and PNG.

Despite no State having taken any substantive action to develop laws related to the Ramsar Convention, there are numerous Ramsar Wetlands in Oceania: in Fiji (Upper Navua Conservation Area), Kiribati (Nooto-North Tarawa), Marshall Islands (Jaluit Atoll Conservation Area and Namdrik Atoll), New Caledonia (Les Lacs du Grand Sud Néo-Calédonien), Palau (Lake Ngardok Nature Reserve), Papua New Guinea (Lake Kutubu and Tonda Wildlife Management Area), Samoa (Lake Lanoto'o National Park) and French Polynesia (Lagon de Moorea). Developing laws in Oceania is one of the priority actions of the Regional Wetlands Action Plan for Pacific Islands 2011–2013. Progress on the implementation of the action plan will be reviewed in 2015.

Convention concerning the Protection of the World Cultural and Natural Heritage

Like the Convention on Biological Diversity, numerous States and Territories in Oceania have enacted laws in relation to the Convention concerning the Protection of the World Cultural and Natural Heritage. These States and Territories include the Cook Islands, Fiji, Marshall Islands, Niue, Northern Marianas, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. The Cook Islands, Fiji, Marshall Islands and Northern Marianas have indicated to UNESCO that they have specifically ratified the Convention concerning the Protection of the World Cultural and Natural Heritage. Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu have only accepted the Convention, and accordingly, they have not advised UNESCO (responsible for the management of the Convention) that they have enacted laws. Whilst they have laws that relate specifically to aspects of the Convention, it could be suggested that

their Governments have not enacted the laws to comply with their requirements under the Convention.

The Federated States of Micronesia, Kiribati, Pitcairn Islands and Tuvalu have enacted laws that broadly relate to the requirements of the Convention; however, neither the Federated States of Micronesia nor Tuvalu has signed the Convention. Again, consistent with other Conventions, the foreign Territories of American Samoa, French Polynesia, Guam, Nauru, New Caledonia, Tokelau, and Wallis and Futuna have not enacted any laws relating to the specific requirements of the Convention.

There are few World Heritage sites within the Oceania region, although a number have been suggested as World Heritage properties for their natural or cultural importance. Only the Cook Islands and French Polynesia are undertaking initiatives that are consistent with the Convention, although neither has a property on the list. Importantly, four States, Fiji (Levuka Historical Port Town), Kiribati (Phoenix Islands Protected Area), New Caledonia (Lagoons of New Caledonia), Tonga and Vanuatu (Chief Roi Mata's Domain) are involved in broad programmes related to the Convention. Of significant concern, however, is that the Marshall Islands (Bikini Atoll Nuclear Test Site), Papua New Guinea (Kuk Early Agricultural Site) and the Solomon Islands (East Rennell), which all have World Heritage properties, have no conservation initiatives in place consistent with the Convention for the protection and management of their properties.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Six States are Party to CITES and have taken differing steps toward ratifying the Convention and enacting national laws, with Fiji, Papua New Guinea and Vanuatu taking some major steps to implementing the Convention. The French, US and UK Territories along with Samoa and Solomon Islands have taken some steps to enact the provisions of the Convention. Marshall Islands has indicated its interest in working towards signing the Convention.

Fiji and Papua New Guinea are engaged in proactive conservation initiatives that are directly related to their obligations under the Convention, such as a sea turtle restoration project in Papua New Guinea. Only five other States or Territories (Guam, Nauru, Pitcairn Islands, Samoa and Tonga) are involved in other conservation programmes, which are detailed in Appendix C. Despite Palau not enacting specific domestic laws relating to the Convention, it is taking steps toward the protection of marine fauna in trade, with the establishment of a marine sanctuary throughout its EEZ, banning all fishing and effectively prohibiting the trade in CITES-listed species, such as sharks and cetaceans. In addition, the majority of countries and territories that are Party to CITES are also members of the WCPFC, which has provisions for the protection of key species that are also CITES-listed, for example, the oceanic white-tip shark.

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

The CMS, like CITES, has six committed Parties in the Oceania region. Fiji, Tonga and Samoa have undertaken major steps in the enactment of laws and development of policy for the protection of migratory animals, although Tonga and Samoa are not Parties to the Convention (they have signed MOUs with respect to Pacific island cetaceans). For instance, Tonga had its whale-watching regulations approved by Cabinet, which specifically protects humpbacks and other species of cetaceans; Samoa has the Marine Wildlife Regulations (2008), which also protects marine turtles, sharks and cetaceans. The Cook Islands, Federated States of Micronesia and Tuvalu have taken steps toward compliance with the provisions of the Convention, although interestingly, the Federated States of Micronesia and Tuvalu have not signed the Convention but have signed MOUs with respect to Pacific island cetaceans. Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea Samoa, Solomon Islands, Tonga and Vanuatu have not undertaken any steps to enact the provisions of the Convention; however, all but Kiribati have signed MoUs relating to Pacific island cetaceans (Niue, PNG,

Samoa, Solomon Islands, Tonga, and Vanuatu), dugongs (Palau, Solomon Islands PNG and Vanuatu), sharks (Nauru, Palau and Vanuatu) or marine turtles (PNG). This is an indication of the spirit of willingness to protect species that are significant to these States.

Although New Caledonia is a French Territory that has not enacted actual laws related to the Convention, it has established shark and whale sanctuaries within its territorial waters for the protection and conservation of these marine species (Operation Cetaces). Vanuatu has established a similar initiative in the form of the Vanuatu Whale Sanctuary. Palau and Kiribati (through the Phoenix Islands Protected Area) contribute to the protection of CMS-listed species, including whales, turtles, dolphins, sharks and rays. Projects related to CMS-listed species in Guam, Nauru, the Pitcairn Islands and Samoa are broader projects including the Micronesia Challenge, Pacific Oceanscape Framework and other marine reserve programmes.

United Nations Convention on the Law of the Sea (UNCLOS) and Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks Agreement

The Pacific island countries and territories have significant marine zones, which they are able to manage through signing international conventions and subsequently enacting laws. Consistent with this, 11 Pacific Island States have signed and enacted legislation consistent with UNCLOS, these being Cook Islands, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. All but Vanuatu have also enacted laws in relation to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Vanuatu has not signed this). Both the Federated States of Micronesia and Kiribati have enacted laws relating to fisheries and marine resources; however, these laws are not considered to be in full compliance with the requirements of the Convention and Agreement. American Samoa, Fiji, French Polynesia, Guam, New Caledonia, Northern Marianas, Pitcairn Islands, Tokelau and Wallis and Futuna have not taken any steps toward enacting laws to be in compliance, although this is consistent for the territorial nations. Fiji has taken no steps to sign either the Convention or Agreement.

Despite 11 Pacific Island States having signed and enacted legislation consistent with the United Nations Convention on the Law of the Sea, only three countries are currently participating in broad Convention- and Agreement-based conservation initiatives, these being the Federated States of Micronesia, Pitcairn Islands and Vanuatu. As noted previously, Vanuatu has not signed the Agreement.

Analysis

This indicator identifies the status of relevant biodiversity laws developed and implemented at the national level for the 22 countries and territories of Oceania. It shows the extent of commitment of Pacific island countries and territories to the protection of their natural habitats.

The data for each Pacific Island State's status of national implementation commitments to the Conventions and MEAs were assessed through desktop research and extracted from various relevant government websites, published reports and articles, such as country reports to the CBD, NBSAPs, the Pacific Environment Information Network (PEIN-SPREP), the Programme of Work on Protected Areas Action Plans and National Capacity Self-Assessment Reports, the Pacific Islands Legal Information Institute (PACLII) and Ecolex. Whilst every endeavour was made to obtain the current law, policies, strategies and action plans, consultation with relevant government departments is needed to ensure more recent developments have been considered. Where additional information was required, this was obtained through relevant searches. Because these information sources are not always up-to-date, the data confidence was rated as **Medium.**

Enactment of domestic laws

Most Pacific island countries have either enacted legislation for environmental protection or enacted sectoral legislation containing

environmental and natural resource protection provisions. However, most States have not enacted specific or comprehensive legislation to enable compliance with their obligations under relevant Conventions and MEAs, and existing laws do not predominantly address these obligations. That said, not all Conventions require legislation to be adopted in order to comply with the Convention requirements; for example, under the CMS, the fact that species are listed in existing legislation is enough.

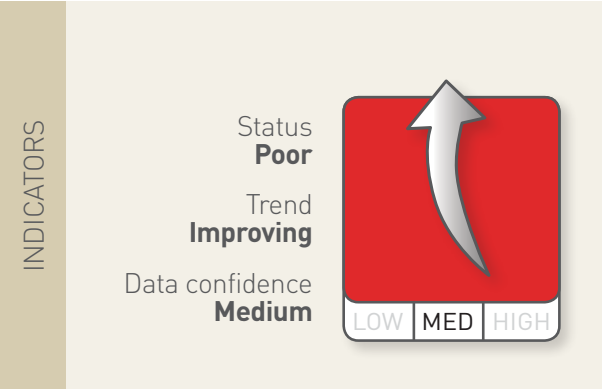
The following Conventions were deemed to have a **Low** status in terms of enactment of related national laws: UNCCD, Ramsar, UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage, CITES and CMS. The status of enactment of the CBD and the UNFCCC is considered **Medium** although the status of adherence to these conventions is low across the region.

Conservation efforts related to conventions

In terms of conservation activities, some countries are conducting activities that may feed into meeting the objectives of a Convention, despite not having national laws in place for implementation of that specific Convention.

In line with the **Low** enactment of laws for certain Conventions, there is an urgent need to improve the status of conservation initiatives and efforts relating to Ramsar, World Heritage, CITES and CMS. The Status regarding initiatives that are consistent with the UNFCCC and with the UNCLOS is deemed to be **Medium**. In terms of activities and projects related to the CBD outcomes, progress has been made by all Pacific island countries and territories toward meeting most targets of the CBD Strategic Plan 2001–2010, and the status of carrying out conservation initiatives is therefore considered **High** with an improving trend in the uptake of such initiatives.

At the regional level, significant gaps remain in country level legislation relating to the majority of MEAs and treaties, and the current status is therefore analysed as **Poor**. However, countries are showing signs of improvement in the signing and ratification of MEAs and in enacting specific legislation that addresses country level commitments and obligations related to legal frameworks for sustainable development and natural resource management.



Conclusions and recommendations

Most of the Pacific island countries have made commitments to the main biodiversity Multilateral Environmental Agreements (MEA), in particular the Convention on Biological Diversity (CBD). However, overall, the current status of domestic law within the Oceania region related to international environmental law is considered to be low. There is also a distinct lack of substantive mechanisms present in the Territories. Further, on the available information, there are no specific conservation institutional arrangements in either the Pitcairn Islands or Tokelau. The low effort, ratification and implementation may be due to a number of reasons, from a lack of interest in the Convention (such as UNCCD) to a lack of capacity within government departments to actually implement the provisions of Conventions.

Under the Aichi Targets, Strategic Goal E aims to "Enhance implementation through participatory planning, knowledge management and capacity building". ***Target 17*** specifically states: ***By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.***

As Table 4.2 indicates, all Pacific island countries and territories (aside from the USA territories, Tuvalu and Nauru) have taken some steps in relation to drafting and implementing a NBSAP in line with the CBD and with Target 17. As such, meeting Target 17 by 2015 is achievable across the region. The implementation of

NBSAPs in relation to the goals of the CBD is mixed, with many still lacking measurable targets and progress indicators. Most NBSAPs also require updating to reflect the Aichi targets of the CBD 2011–2020 strategic plan.

It is a concern that many island countries and territories are not strategically involved in programmes or initiatives outside those related to the Convention for Biological Diversity. In a region with such enormous areas of marine environments and ecosystems, with many threatened and migratory species, the distinct lack of engagement in marine-based conservation initiatives is very concerning. Given the number of threatened species (many endemic) within the region and recognising the international illegal trade in species, it is vital that Pacific island countries and territories particularly those trading endangered species) sign and subsequently ratify CITES with appropriate domestic laws. Similarly, with the high number of migratory species found in terrestrial and predominantly marine habitats within Pacific island countries and territories, these species could be protected through the accession to the CMS or relevant daughter MoUs.

Whilst it is recognised that a lack of resources and capacity often hinders development, monitoring and enforcement of environmental legislation, it is recommended that governments take substantive actions to ratify and implement environmental Conventions through domestic laws. Specific legislation is still required by many States or Territories to enact the provisions of Conventions they have signed, such as the CBD and UNFCCC.

There is an urgent need for the enactment of laws in the territorial nations that have no provisions to comply with the provisions of the Conventions and MEAs that their sovereign States have often signed. In this regard, a key recommendation is for sovereign nations to provide support to their Pacific island territories to enact laws and/or codes that protect specific aspects of the environment related to specific Conventions. Furthermore, international and regional organisations should continue to provide support to those States that have signed Conventions and MEAs in order to increase the capacity of institutional arrangements and to improve their laws to ensure conservation outcomes are achieved.

4.4 Traditional governance

In many Pacific island countries and territories, customary practices and law relating to land ownership and, therefore, the conservation and use of natural resources are an important historical element in policy making. This section examines the role of traditional governance and the conservation and management of species and their habitats and identifies the percentage of land customarily owned and whether customary land ownership extends to foreshores and beyond. It also briefly covers the impact of customary ownership on environmental governance.

With the enactment of legislation relating to environmental issues and the ratification of international and regional Conventions and MEAs, the concept of incorporating customary concepts and practices into Western legal frameworks, while sometimes difficult, is critical for the successful management of the natural resources. In many countries, customary law cannot be inflexibly defined, and the term should be interpreted broadly.

When considering the issue of customary law and how it should be interpreted within Western legal systems, there are two sources that must be considered: written and unwritten laws. In some States, customary law and practices are codified into Western legal systems. Indigenous or customary land ownership is usually recognised by the Constitutions of most of the island countries and territories, which also recognise the customary access and use of land and marine resources for communal use. In all the Pacific Island States, the foreshore is public land owned by the State (or Kingdom); however, the State does not restrict the traditional or customary use of marine resources within these areas, except, for example, in Tonga, where a specific lease must be obtained. Where no codification exists, customary law for any particular area becomes extremely difficult to define and is very often the cause of significant conflict. For example, custom may not be a set

of rules but rather a process or way of solving or providing alternatives to problems.

Traditional practices based on traditional knowledge and governed by customary law play a vital role in the governance of biodiversity in the Pacific island countries. Table 4.3 below indicates customary land ownership in each of the countries and territories covered under this report, including the recognition of customary rights of access and use of land in each country. It is common that customs and traditional law have had some success in the protection of the natural resources and environment of countries in the Pacific. However, with the changes in attitude of more recent generations, some customs and laws have been forgotten or are not considered to be of critical importance.

Analysis

This indicator assesses the recognition of customary land ownership and customary rights of access and use of land and marine resources in each Pacific island country and territory.

The data for each country's status of traditional governance were assessed through desktop research and extracted from relevant government websites and the Pacific Environment Information Network (PEIN-SPREP) for each of the Pacific island countries and territories as well as from published reports and various articles. Whilst every endeavour was made to obtain the current legislations, policies, strategies and action plans, the information provided in the State status reports prepared by local legal specialists was not verified through consultation with relevant government departments and might therefore not include all recent developments. The assessment was made on the reliance that the information was correct. Data confidence was rated as **Medium** because databases are not always up-to-date and considering the absence of in-country consultations with all relevant ministries and departments.

The status of traditional governance was rated as **Good.** Although customary law is unwritten in most Pacific island countries, it is widely recognised and embedded in supreme law in most countries. Conflict resolution often remains with the Courts when inconsistencies arise between customary law and the Constitution. Indigenous law plays a vital and influential role in the conservation of biodiversity across the region and is being increasingly recognised as doing so.

INDICATORS

Status
Good

Trend
Improving

Data confidence
Medium

Conclusions and recommendations

Most land in Oceania remains in customary ownership, and traditional governance continues to play a key role in land and natural resource management. Most, if not all, indigenous peoples of the Pacific island countries and territories are landowners, and almost all countries have a high proportion of indigenous land ownership. For example, American Samoa (90%), Cook Islands (95%), Fiji (87%), Marshall Islands (over 95%), Papua New Guinea (97%), Samoa (81%), Solomon Islands (88%) and Vanuatu (100%) have very high levels of customary ownership. This pattern allows for the management of terrestrial and marine natural resources through traditional means, although competing interests often impact on this management regime in many Pacific island states.

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal E, which aims to enhance implementation through participatory planning, knowledge management and capacity building, ***Target 18 states: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to***

national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Although customary practices are not always captured by the formal laws and policy frameworks of each country, indigenous and local communities play an essential role in the conservation and management of natural resources, habitat and biodiversity. This role must continue to be taken into consideration when working to protect and conserve biodiversity across the Pacific Islands of Oceania and in order to meet Target 18 of the Aichi Targets.

Table 4.3 Traditional governance in Pacific island countries and territories

Country	Customary land ownership and the recognition of customary rights of access and use of land
American Samoa	Over 90% of total land in American Samoa is communally owned by aiga (extended family groups) subject to the authority of the matai (chief). Such lands cannot be alienated to any person "less than one-half native blood." One percent of land is held in freehold status, with the remainder held under the ownership of the territorial government or by churches. The law requires every registration of land to specify whether registered as 'family-owned communal land' or 'individual owned land'. As at 2010, approximately 25% of registered land was individual owned land.
Cook Islands	The imposition of the ra'ui system, a traditional system whereby access to a particular resource or area is forbidden for a given period, is still practised in the Cook Islands. Approximately 95% of land in the Cook Islands is customarily owned. The Crown formally recognises the rights of traditional landowners through legislative means and protections. Native customary title is limited to land above the high-water mark.
Federated States of Micronesia	Land is managed under a complex mix of modern and traditional systems. Land in Kosrae and Pohnpei is either privately owned or State owned. Most of the land in Chuuk is privately owned and acquired through inheritance, gift or, more recently, purchased. Almost all land in Yap is owned or managed by individual estates and under traditional control. In each State, land cannot be sold to non-citizens. The majority of transactions in commercially important areas and for commercial ventures in other areas transpire with survey and title documentation completed using modern land-management institutions, Chuuk being an exception due to long-standing unresolved disputes between individuals and clan groups.
Fiji	Over 87% of land in Fiji is customary owned land and is owned communally by the Mataqali, which is the landowning unit. Such ownership is recognised by the Constitution of the Republic of Fiji. Customary rights of access to Mataqali fishing areas and land for communal use is recognised by the Fisheries Act and the Forest Decree. The Fisheries Act prescribes rights given to customary landowners to fish and collect shellfish without a permit within their respective mataqali fishing areas registered by the iTaukei Fisheries Commission. This is complimented by the Environmental Management Act, which provides recognition that indigenous people have with their land. A prominent feature of environmental governance is the Fiji Locally Managed Marine Area (FLMMA); despite the ambiguity concerning ownership of marine areas, FLMMA promotes and encourages the preservation, protection and sustainable use of marine resources in Fiji by the coastal land owners of marine resources. The Forest Decree allows for the customary rights of native Fijians on native land and the right to exercise any rights established by native custom, such as hunting and/or collecting fruits and vegetables growing wild.

continued

Table 4.3 Traditional governance in Pacific island countries and territories (continued)

Country	Customary land ownership and the recognition of customary rights of access and use of land
French Polynesia	There is no customary land ownership in French Polynesia (the French civil code applies, which means that there is no customary land) except in Rapa. Land ownership stops at the foreshore. Land in Rapa is communal and managed by a wise men council, the toohitu. Marine resources are managed by a fishing committee who follow the traditional rahui system. It decides on seasonal fisheries closures and re-opening. A similar system for marine resources management is used in other communities, including Maiao in the Leeward islands.
Guam	Customary land ownership is recognised under the Land Trust Act. The Federal Government controls 32% of Guam's total land area as military reservations. The Government of Guam owns approximately 20%, while the remaining 48% is under private ownership.
Kiribati	The land tenure system in Kiribati is very complex and complicated. Customary land ownership is recognised in Kiribati, and most land is customary land owned by family groups except on the Phoenix and Line Islands, where land is owned by the Government. The land system is divided into Native Lands and Non Native Lands (owned by a person other than a native) under the Gilbert and Phoenix Islands Land Code Ordinance 1956. Native land does not cease to be native. Native land cannot be alienated by sale, gift (except define in code), lease or otherwise to a foreigner, with the exception of the alienation to the crown.
Marshall Islands	Land ownership is complex, but all land is owned and managed under a traditional system. Land (>95% is customary) is a focal point for social organisation. All Marshallese have land rights as part of a clan, or jowi, that owes allegiance to an Iroij (chief), is supervised by the Alap (clan head) and supported by the Rijerbal (workers). The Iroij have ultimate control of such things as land tenure, resource use and distribution, and dispute settlement. The Alap supervises the maintenance of lands and daily activities. The Rijerbal are responsible for all daily work on the land, including cleaning, farming and construction activities. The society is matrilineal, and therefore, land is passed down from generation to generation through the mother. Non-citizen investors must negotiate lease agreements directly with customary groups, or in the case of alienated land. The Government does not impose any restrictions on the term of a lease.
Nauru	All land in Nauru prior to the 1920s was held under traditional ownership. Today land is governed under the Lands Act 1976. Under the Customs and Adopted Laws Act, customary law is part of the law of Nauru but is subordinate to legislation. Informal social control is still maintained within Nauruan families, but formal control rests with the Nauru police force and the judiciary. All land in Nauru is customarily owned under traditional ownership, with access only allowable if registered under the maternal lineage.
New Caledonia	Approximately27% of land in New Caledonia is customary land. The foreshore, which also includes the littoral zone, is under the jurisdiction of each province. The Organic Law includes customary law. There are eight areas where customary law is applicable. Whenever one or a group wants to use or extract natural resources, one has to be granted permission by the owners. Dispositions regarding the management of public maritime zone (whether under provincial, New Caledonia or French jurisdiction) are elaborated after opinion from customary councils.

continued

Table 4.3 Traditional governance in Pacific island countries and territories (continued)

Country	Customary land ownership and the recognition of customary rights of access and use of land
Niue	Niuean custom, traditions and indigenous rights are recognised by the Niue Constitution Act 1974. Almost all land is under customary land ownership by family groups called magafoa. All the members of the magafoa have the right to use the land and to participate in land-use decisions. The traditional protocol on the exercise of power is enshrined in the Constitution with respect to land laws, customary rights, Christian values and adoption. Land is increasingly becoming a key concern in many family circles with respect to customary rights as opposed to Western law. Cultural values such as proper court procedures on land matters are provided for in the Land Act 1969. Legislation regarding the protection of Niue's traditions is contained within the Niue Cultural Act 1986.
Northern Mariana Islands	Land in Northern Mariana Islands is either publicly or privately owned. In 2011, the Government was undertaking a process of redistributing some of the public land to indigenous private land owners.
Palau	In Palau, land under the traditional tenure is divided into Public Domain and/or Clan Lands. Public domain/lands, chutem bwai, are the lands in the interior of Balbeldaob, Koror, Peleliu and Airai, islands in the Chelebacheb complex including the mangrove swamps and the sea. Public lands are controlled in most cases by Klobak village council or in other cases by District Council or a group of villages in a District. Clan lands are private lands for the aboriginal Palau and cannot be alienated except through the Omeluchel System in exchange for money or a debt/service owed. Historically, land and natural resources were managed through traditional leadership and clan tenureship. Today, a complex and layered natural resource management framework has evolved, although there is a need to improve the existing management framework. There are on-going tensions between state and national government regarding land and resource ownership.
Papua New Guinea	Customary landowners in Papua New Guinea own the land and sea and are an integral part of the land and seascapes. About 97% of land is customary owned and held by local community clan group. All decisions on land use must be negotiated on a case-by-case basis with the landowners and the authorities. These include any conservation, protected area or sustainable resource management initiatives. The Environment Act 2000 recognises the important role and position of landowners and obligates the State to involve them in the development of natural resources located on their land.
Pitcairn Islands	Land tenure in the Pitcairn Islands has had a mixture of customary, communal, freehold, leased and community land. A large part of the land tenure was unrecorded until the late nineteenth century, with a number of customary rights applying on the Island. These rights involved the use of island resources, although, as the Islanders have gained more freehold rights over land, the customary rights have fallen away. Common land falls under the Island Council, which maintains it for public use, including public land such as the school grounds and landing bay for the long boats.
Samoa	Approximately 81% of land in Samoa is customary owned land (15% is Government Land, and 4% is freehold). Customary land is held in accordance with the custom and usage of Samoa under the trusteeship of the family matai (Chief). The extended family of the matai all have rights to the land. While the intertidal land zone and adjacent marine areas are effectively public, the village Fono (Council) exercises discretion in how these areas are managed. Customary land cannot be alienated except by the Minister in accordance with s 4 of the Alienation of Customary Lands Act 1965.

continued

Table 4.3 Traditional governance in Pacific island countries and territories (continued)

Country	Customary land ownership and the recognition of customary rights of access and use of land
Solomon Islands	About 88% of the total land area of the Solomon Islands is under customary ownership. The Constitution recognises the right of landowners to exercise control over their lands and customary fishing rights. However, the legal definition and extent of customary land ownership is unclear. High Court rulings have found that traditional owners do not own land under the high water mark, although customary landowners have in practice been consulted and compensated when land is taken up by the government for public purpose. The Solomon Islands Law Reform Commission recommended that the Land and Titles Act be amended to clarify that land below high water mark is tribal land to the extent of provincial boundaries, unless it is registered land.
Tokelau	All the land in Tokelau is under customary ownership, mostly by family groups, although some land is common land. Customary ownership of land is acknowledged by the Government, and this also extends to fishing grounds of the villages. A Council of Elders, comprised of most adult males over the age of sixty years, has historically has had responsibility for the management of marine resources. Traditional marine conservation measures fall into three categories: those that are specifically designed for conservation, those aspects of the Tokelau traditional system that indirectly result in a reduced amount of fishing effort on particular species and finally the elaborate process of perfection of fishing skills, which has the effect of reducing the need for destructive fishing. Probably the most important explicit conservation measure is the lafu system, whereby all types of fishing are banned in specific areas of the main reef.
Tonga	Under the Constitution, the ownership of all land is vested in the King, who may grant hereditary estates to nobles and titular chiefs. However, these lands cannot be sold and are subject to allotment although they can be leased. Every male child over the age of 16 years is entitled to two allotments of land, which can be allowed out of these hereditary estates or Crown land. The King has the power to retrieve land from any holder for public purposes, in which case the dispossessed may be compensated with replacement land, money or both. All the beach frontage of the Kingdom belongs to the Crown from fifty feet above high-water mark (15 metres), and it shall be lawful for the Government to lease any portion of the beach frontage for erecting a store jetty or wharf.
Tuvalu	Approximately 95% of the total land area in Tuvalu is owned by individuals, although there is some communal and crown land. Tuvalu's land tenure system is based on inheritance from the father or mother to sons and daughters and sub-division of land between and amongst the landowners themselves. Under the Native Lands Act and Native Land Lease Regulations, land can be leased.
Vanuatu	All land in Vanuatu belongs to the indigenous 'custom owners', and almost all land is held under customary tenure, whether leased (9.3%) or un-leased (89.7%). Constitutionally vested, inalienable land ownership rights rests with customary tenure, with recognised leasing arrangements under Ministerial consent.

5 Conservation efforts

International conservation measures within and between neighbouring States or Territories are an important aspect to the overall protection of the environment. These measures can greatly enhance environmental protection through a cooperative arrangement between two parties and, in the case of Oceania, provide regional improvement.

5.1 Participation in Regional Conservation Initiatives

Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific (Phase II)

The Coral Triangle is a geographical term for a marine biodiversity hotspot, covering a roughly triangular area of the tropical marine waters of Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor-Leste and containing at least 500 species of reef-building corals. The region encompasses portions of two biogeographic regions: the Indonesian-Philippines region and the southwest Pacific region. The Coral Triangle covers 5.7 million square kilometres of ocean and provides a biological resource to sustain the lives of over 120 million people. The Coral Triangle is the subject of high-level conservation efforts by the region's governments, nature conservation organisations, such as World Wide Fund for Nature, The Nature Conservancy and Conservation International, and donor agencies, such as the Asian Development Bank, the Global Environment Facility and USAID.

The Asian Development Bank (ADB) is providing technical assistance to five Pacific countries (Fiji, the Marshall Islands, Papua New Guinea, the Solomon Islands and Vanuatu) through the project "Strengthening Coastal and Marine Resources Management in the Coral Triangle of the Pacific (Phase II)" with the aim of improving the resilience of their coastal and marine ecosystems and climate change. The project members work closely with Indonesia, Malaysia, the Philippines and Timor Leste. The assistance is a 4-year project, from January 2011 to December 2014.

The objectives and scope of the project include efforts to (a) ensure food security through increased resilience of coastal and marine resources; (b) support more effective management of coastal and marine resources; and (c) build resilience of those involved in ecosystems in periods of increased threats from human-induced and climate change impacts.

It is envisaged that the following outputs will be achieved through the project: (a) capabilities of national and local institutions will be strengthened for sustainable coastal and marine resource management; (b) coastal communities will gain experience in applying best practices in ecosystem-based management and climate change adaptation; (c) resilience of coastal ecosystems to climate change will be enhanced; and (d) effective programme management will be established by ADB and the participating governments.

For the Regional Learning component, the objective is to facilitate the Pacific CTI Countries to share lessons learned and synthesise

these lessons learned into Best Management Practices (BMPs). The following activities are being undertaken to achieve the objective noted above: (a) establishment of 'learning framework mechanisms'; (b) organisation of Annual Learning exchanges (roundtable meetings and exchange visits); (c) synthesis of lessons learned and best management practices; (d) production of a Best Management Practices Manual and communication of the lessons (via a website and policy briefs).

Implementation of the project activities in these countries is progressing and coming to an end in April 2014. These activities vary from country to country and include strengthening the capacity of environmental lawyers through the formation or revival of environmental law associations modelled on the success formation of the Fiji Environmental Law Association, capacity building and consultation workshops on environmental governance and documenting best management practices with special focus on ADB CTI in-country project sites.

Pacific Oceanscape Framework

The Pacific Oceanscape Framework was designed to catalyse action in support of the Pacific Islands Regional Oceans Policy to protect, manage and sustain the cultural and natural integrity of the ocean for present and future generations and for the broader global community.

The Pacific Oceanscape was conceived by His Excellency Anote Tong, President of Kiribati, in early 2009, and the concept was endorsed by Pacific Islands Forum leaders at their Fortieth Meeting in August 2009: *"Leaders welcomed the Pacific Oceanscape concept and its companion Pacific Ocean Arc initiative tabled by Kiribati aimed at increasing marine protected area investment, learning and networking. Leaders tasked the Secretariat, together with relevant CROP agencies and key partners, to develop a framework for the Pacific Oceanscape, drawing on the Pacific Islands Regional Ocean Policy, as a priority area for attention under the Pacific Plan."*

The overall intent of the Pacific Oceanscape Framework is to foster stewardship at all levels and to ensure in perpetuity the health and wellbeing of our oceans and ourselves. The Pacific Oceanscape Framework follows a holistic approach that aims to support and build on national commitments, regional partnerships and on collaboration and leadership. The Oceanscape supports priority areas set out in the Pacific Plan that relate to marine resource conservation, habitat protection and fisheries management.

The ensuing Framework endorsed by leaders in 2010 looks to address six strategic priorities identified for immediate implementation, namely:

- establishing 'jurisdictional rights and responsibilities';
- fostering 'good ocean governance';
- supporting 'sustainable development, management and conservation';
- promoting 'listening, learning, liaising and leading';
- sustaining action; and
- facilitating adaptation to a rapidly changing environment.

Fourteen Pacific Island States have signed their participation in the Framework, including the Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. Further, the Environment Ministers of American Samoa, Fiji, French Polynesia, Guam, New Caledonia, Northern Marianas and Wallis and Futuna endorsed the Framework, but Fiji and the Territories have not signed to be parties to the Oceanscape Framework. For the Framework to be fully effective, Fiji and the Territories should engage fully.

Micronesia Challenge

The Micronesia Challenge is a regional inter-governmental initiative in the western Pacific region that facilitates more effective conservation of marine and forest resources in Micronesia.

The Challenge brings together more than 2,000 isolated islands, over five countries, inhabited by nearly 500,000 people speaking 12 different languages. The area covered by the Challenge spans 6.7 million square kilometres, representing more than five percent of the

Pacific Ocean. It includes 66 threatened species, more than 1,300 species of reef fish, 85 species of birds and 1,400 species of plants—200 of which are found only in Micronesia.

The Challenge is designed to conserve 30% of near-shore coastal waters and 20% of forest land by 2020. The Micronesia Challenge itself began in 2006, and is a multi-jurisdiction commitment between the Federated States of Micronesia, Guam, the Marshall Islands, Northern Mariana Islands and Palau. The effort is supported by the United States Department of Interior, the National Oceanographic and Atmospheric Administration and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany. In addition, the Challenge is supported by the David and Lucile Packard Foundation and the Nature Conservancy.

Since its inception in 2006, technical workshops and monitoring meetings have been held to monitor progress and to work on strategic actions for countries to follow in order to meet the objective of the Challenge.

This region-wide initiative began with local, on-the-ground conservation projects across Micronesia and is now a large-scale partnership between governments, non-profit and community leaders, and multinational agencies and donors. Since its inception in 2006, members of the Challenge have been involved in a variety of activities to meet the goals set by the leaders of the Micronesian countries. Priority areas for biodiversity are being identified, protected area networks are beginning to be established based on science, capacity and training has been provided to local organisations, threats such as invasive species and destructive fishing practices are being addressed, and government policies that protect biodiversity are being developed. Some specific actions include the following:

- the government of Palau, along with partners, created a comprehensive Protected Areas Network (PAN) to help to conserve its natural resources. The first site to become part of Palau's PAN is Lake Ngardok, which supplies vital drinking water to the nation's capital, Melekeok State, and is the largest natural lake in all of Micronesia;
- communities from the island of Yap in the Federated States of Micronesia created the Nimpal Channel Marine Conservation Area (MCA) to revitalise their marine resources; and
- each of the five countries is developing sustainable finance plans, and the Micronesia Conservation Trust has been endorsed as a regional finance tool to ensure that the Challenge remains sustainable for generations to come.

The Micronesia Challenge has been the most ambitious outcome of the Global Island Partnership (GLISPA), a partnership that assists islands in protecting and sustainably managing the invaluable natural resources that support people, cultures and livelihoods in their island homes.

Mangrove EcoSystems for Climate Change Adaptation and Livelihood Project (MESCAL)

Under the Pacific Mangrove Initiative led by IUCN (the International Union for Conservation of Nature), the Mangrove EcoSystems for Climate Change Adaptation and Livelihood project was developed to address key challenges to mangrove management and conservation in five countries: Fiji, Samoa, Solomon Islands, Tonga and Vanuatu. The conservation of mangroves and associated ecosystems is a key natural adaptation strategy and mitigation measure to climate change. To manage resources effectively, countries need to know what and how much is there.

In each of the five countries, baseline scientific data on the mangrove resources in the demonstration sites were recorded. Species records increased in at least three of the five countries, national mangrove maps were produced for three countries, socio-economic studies were conducted in all demonstration sites, and economic assessments were done for Samoa and Vanuatu. These fed into the co-management plans for two of the demonstration sites and a national mangrove management plan produced for Fiji.

The overall goal of the project was to assist Pacific islanders in effectively managing their

mangrove and associated coastal ecosystems in order to build resilience to the potential consequences of climate change and variability on coastal areas and to support/enhance livelihoods.

To be fully effective across the region, additional States should be involved in future activities under the MESCAL programme, although obtaining additional funding may be an issue. Accordingly, while the project is beneficial, the status could be considered low because fewer than 25% of the region's States and Territories are involved in the project.

Pacific Adaptation to Climate Change

The Pacific Adaptation to Climate Change programme is the first major climate change adaptation initiative in the Pacific region. It commenced in 2009. The programme is designed to enhance adaptive capacity on the ground and ensure climate risks are included in national development planning, decision-making and activities. It is funded by the Global Environment Facility and the Australian Government, with the United Nations Development Programme as its implementing agency and the Secretariat of the Pacific Regional Environment Programme as its implementing partner. The Project is supported by the United Nations Institute for Training and Research C3D+programme.

The Pacific Adaptation to Climate Change is currently the largest climate change adaptation initiative in the region and involves 14 Pacific island countries and territories, including the Cook Islands, the Federated States of Micronesia, Fiji, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tokelau, Tuvalu and Vanuatu. The programme is designed to demonstrate good practice adaptation in three key climate-sensitive areas: coastal zone management, food security and food production, and water resources management. Each country is hosting a pilot project in one of these theme areas to demonstrate how climate change adaptation can work on the ground.

Pacific Islands Round Table for Nature Conservation

The Roundtable for Nature Conservation in the Pacific Island Region (PIRT) was formed in 1997 at the request of Pacific island countries and territories. It serves as a forum whereby organisations working on nature conservation in the Pacific can improve collaboration and coordination in order to effectively achieve conservation actions. It comprises a coalition of conservation NGOs, regional organisations and donor agencies.

The PIRT works in close collaboration with SPREP to coordinate the implementation of the Action Strategy for Nature Conservation in the Pacific Islands Region 2014–2020, which is outlined in section 4.2. The Framework is based on best conservation practices and provides guidance to Pacific island countries and territories, regional organisations, NGOs, the international donor community and other partners to achieve the global 2020 Aichi Targets of the Convention on Biological Diversity through the implementation of National Biodiversity Strategies and Action Plans (NBSAP) and other international, regional and local conservation initiatives.

A number of Working Groups have been established under the Round Table, in order to group interested and capable individuals and organisations together and work toward the goals not only of the Action Strategy but also of other relevant and related conservation initiatives at the regional level. These working groups include the Species Working Group, Economic and Sustainable Resources Working Group, Coral Triangle Working Group and Monitoring Working Group. There have been varying degrees of success with these groups, with the most effective being the Invasive Species Working Group, which is now known as the Pacific Invasives Partnership (see below). Other groups rely on individuals to take an active lead, and often the lack of funds and the voluntary nature of the leadership roles, in particular, mean that the groups are not as effective as they could be if funds were available to pay for staff time. Because it is a non-legally binding consortium of organisations, the effectiveness of the Round Table and its Working

Groups relies heavily on the goodwill and passion of its members.

Pacific Invasives Partnership (PIP)

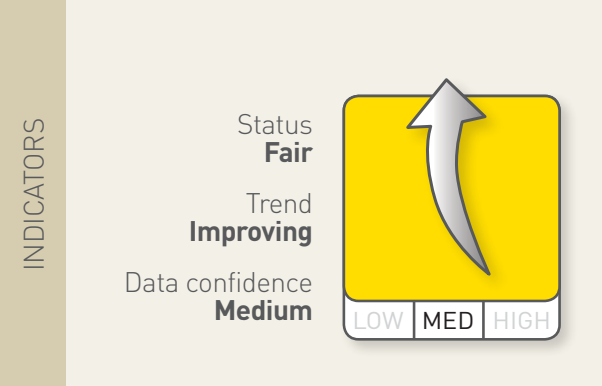
PIP is the Invasive Species Working Group of the Roundtable for Nature Conservation in the Pacific Islands. It acts as the umbrella regional coordinating body for agencies working on invasive species (pests, weeds and diseases introduced from other places) in more than one country of the Pacific. PIP promotes coordinated planning and assistance from regional and international agencies to meet the invasive species management needs of the countries and territories of the Pacific. It does this by building local capacity to help tackle the problems related to invasive species. PIP has its own guiding document, the *Guidelines for Invasive Species Management in the Pacific*, which have been endorsed by 26 countries with a presence in the Pacific islands region. It is seen as the most effective and successful group of the PIRT, being completely self sufficient and achieving great results on the ground. For example, PIP has been involved in the eradication of rats from the Aleipata Islands in Samoa, a project that was implemented by the Samoan Ministry of Natural Resources and Environment in partnership with PIP members, SPREP, New Zealand Department of Conservation, Pacific Invasives Initiative and Conservation International. The project dropped aerial baits on the island; since this action in 2009, no rats have been seen, and native populations of birds and plant species are already showing signs of recovery.

Analysis

This section provides an overview of the conservation initiatives that countries are currently undertaking in Oceania outside of those specified under specific laws and Conventions.

The data for each Pacific island country's and territory's conservation initiatives were assessed through desktop research and extracted from various sources, relevant government and non-government organisation websites for each Pacific island country and territory, published reports and various articles. Whilst every endeavour was made to obtain the current status of the relevant programmes, consultation with relevant government departments and non-government organisation is required to ensure all projects and programmes have been considered. Where additional information was required, this was obtained through relevant searches and links with relevant focal points for each initiative. Data confidence was deemed to be **Medium**.

The status of participation in conservation initiatives was assessed as **Fair** at the regional level, with marked improvements in the level and commitments shown by governments.



Conclusions and recommendations

It is international good practice for countries to be proactively engaged in conservation initiatives that are in line with their obligations under the Conventions and MEAs that they have signed and/or ratified. It not only demonstrates a commitment to biodiversity conservation but also helps to forge partnerships at all levels, between NGOs, local communities, government and donors.

Through the initiatives examined above, it is clear that Pacific island island countries and territories are involved in a diverse set of activities and implementation programmes that will help to conserve and protect the region's natural resources. Some have been more effective than others to date; for instance, the Micronesia Challenge has set a global example of collaborative, sustainable island conservation and, along with GLISPA, has encouraged more than 20 island countries to take steps to conserve and sustainably use their natural resources. The Pacific Invasive Partnership has

been an equally effective mechanism for uniting different sectors of the conservation community to work toward the control of invasive species across the Pacific islands region.

Governments, NGOs, donors and communities must continue to share expertise, build relationships, and utilise resources to help these initiatives succeed and to share and replicate lessons learned from successful strategies between island countries in the Pacific.

5.2 Laws for the protection of habitats and species

Domestic governance and institutional arrangements are commonly focused at a habitat and/or species-specific level. This focus can be with respect to protection from threats and/or setting aside specific areas for the maintenance of a habitat or species. Predominantly, habitats are conserved by a range of mechanisms that include land-use planning, regimes that manage the environmental impact-assessment process, pollution and waste-management laws and policies, and sector-specific aspects, such as the impacts of forestry and mining and the direct and indirect impacts of disasters and climate change. While these can also be predominantly habitat related, they can also have follow-on effects to species conservation arrangements. Species-specific governance and institutional arrangements can also include endangered species protection measures, protection from invasive species, the management of genetic resources consistent with the aspects of the Convention on Biological Diversity and associated Protocols and biosafety and biosecurity protection measures. This section provides an overview of the specific arrangements in place within each State and Territory. Appendices 3, 5 and 6 list these laws and associated initiatives.

Land-Use Planning

Land-use planning is an effective means to ensure that inappropriate development does not occur within particular habitats and that any developments are consistent with their surrounding environment. Generally, land-use planning arrangements can include specific laws, codes, planning schemes and policy documents. These can be developed by nation governments, provincial and, in larger locations, even local authorities.

The most effective means of land-use planning is to have overriding laws that manage development. Only Fiji, French Polynesia, Guam, Kiribati, Palau, Papua New Guinea and the Solomon Islands have specific laws in relation to land-use planning, which is a low number considering the critical importance of these instruments for the conservation and protection of important habitats. An additional ten countries and territories (American Samoa, Cook Islands, Nauru, New Caledonia, Niue, Northern Marianas, Pitcairn Islands, Samoa, Tonga and Vanuatu) have broad legislation that covers the topic of land-use planning.

To support land-use planning laws, many States have developed national, regional and local planning documents that support their planning laws. These documents generally come in two forms: a specific policy or an overarching strategy that provides guidelines and an action plan for governments, corporations and individuals to adhere to when proposing developments. With respect to national policy, only Samoa and the Solomon Islands have a specific national policy on land-use planning. By contrast, Fiji, New Caledonia and Tonga have strategies and/or actions plans in relation to land-use planning. The Northern Mariana Islands and Tonga have broad national policies on land-use planning, whilst American Samoa, Cook Islands, Nauru, Niue, Northern Mariana Islands, Solomon Islands, Tuvalu and Vanuatu have broad non-specific strategies and/or action plans that relate to both terrestrial and marine land-use planning. The Marshall Islands and Wallis and Futuna have land-use plans that only relate to the coastal and marine environments.

Environmental Impact Assessment

Environmental Impact Assessments (EIAs), when undertaken correctly, are extremely beneficial in allowing an informed decision to be made in relation to a proposed project. An EIA includes information on the type and magnitude of the proposed development, the

type of environments within or surrounding the proposed development site and, importantly, the likely impacts of the proposed development on surrounding species and ecosystems. An effective EIA will identify appropriate avoidance and mitigation techniques, to nullify or significantly reduce any potential impacts on the environment and the species that found within. An EIA should, where these impacts cannot be avoided or mitigated, establish appropriate offsets to ensure there is no net environmental loss.

To ensure that EIAs follow a set process, there is a need for this to be enshrined in law. Fiji, the Federated States of Micronesia, Marshall Islands, Niue, Palau, Samoa, Solomon Islands and Tonga all have laws that are specifically related to and/or contain specific provisions related to the process and the undertaking of an EIA. American Samoa, Cook Islands, French Polynesia, Kiribati, Northern Mariana Islands, Papua New Guinea, Tuvalu, Vanuatu and Wallis and Futuna have broad environmental laws that deal with EIAs in some way.

Importantly, processes and guidelines need to be established that include specific requirements for the undertaking of an EIA in greater detail than can be contained within law and regulation. Considering this need, Fiji, Guam, Pitcairn Islands and the Solomon Islands have specific national policies and guidelines related to general EIA requirements, while Palau has a specific strategy. Kiribati, Samoa and Tonga have broader policy documents, and the current procedures in the Northern Mariana Islands relate to coastal projects only.

At present, Nauru, New Caledonia and Tokelau have no available laws, national policies or strategies related to EIAs.

Pollution and Waste Management

The release of pollutants and waste into terrestrial, aquatic and marine environments can have significant deleterious impacts on both habitats and species. Pollution can be in the form of air, noise, dust, water and other emissions and be released from point sources or be diffuse pollution. Most pollution-control measures manage point source only, and accordingly, there is a need to ensure laws cover both point source and diffuse pollution.

Within Oceania, the Cook Islands, Fiji, Guam, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Samoa, Tonga and Vanuatu have laws related to pollution. The Northern Mariana Islands, Solomon Islands and Tuvalu have broader environmental laws that in some way control the release of pollutants and waste. These laws include but are not limited to solid and liquid waste management, litter control and other sources.

The use of policy documents and strategies to manage waste is common, particularly when there are numerous sources of waste and pollutants that are too great to be included in a specific law. In this regard, Kiribati, Nauru and Samoa have a National Policy related to pollution and waste, while Fiji, Guam, Kiribati, Palau, the Solomon Islands and Tokelau have a specific strategy and/or action plan for the management of pollution and waste. In addition, American Samoa, Cook Islands, Marshall Islands, Tonga, Vanuatu (coastal only) and Wallis and Futuna have broad non-statutory documents related to pollution and waste. While it is noted that the population size of, for example, American Samoa, Marshall Islands and Wallis and Futuna may not be large, the failure to have supporting laws for the management of pollution and waste and the overall conservation and protection of the environment is a substantial failing. Of greater concern is that the Federated States of Micronesia, French Polynesia, New Caledonia and Pitcairn Islands have no laws or policy documents with respect to waste, and this status should change to improve the trends of pollution and waste control across the region.

Deforestation and Mining

There are many projects that can have extremely significant impacts on habitats, the species living in those habitats and the social fabric of societies. These include hydropower projects, linear infrastructure and, with respect to this section, forestry and mining.

There has been a significant increase in resource extraction (such as land-based open cut mining as well as oil and gas exploration and

extraction both on- and offshore) and forestry in certain locations of Oceania in recent years. These projects can have major implications for habitats and species, potentially resulting in species becoming threatened due to the cumulative impacts of these projects.

In terms of laws, Fiji, Niue, Palau, Papua New Guinea, the Solomon Islands, Tonga and Vanuatu have laws for the management of both forestry and mining. The Cook Islands and Samoa have laws that regulate forestry only. French Polynesia, Kiribati, Nauru, New Caledonia and Tuvalu have laws related to mining only. The Northern Mariana Islands has broad laws that cover both aspects.

It is good practice for Pacific island countries and territories to have policy documents that accompany laws and that target specific sectors. Fiji, Guam, Nauru, Niue, Tokelau and Tonga have developed strategies and/or action plans related to mining and forestry. The Cook Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu have national policies directly related to forestry but nothing with respect to mining.

American Samoa, the Federated States of Micronesia, Marshall Islands, Pitcairn Islands and Wallis and Futuna have no laws or policies related to either forestry and/or mining.

Natural Disasters

Climate change and resulting impacts, such as cyclones, and other natural occurrences, such as earthquakes and tsunamis, have the potential to significantly affect not only the natural environment but also the built and social environments of Oceania. Often, laws and policies are developed that cover both climate change and natural disasters. The statuses of laws and policies in relation to climate change were discussed in Section 4.1 and 4.2.

With respect to disaster risk and management, Fiji, Papua New Guinea, Samoa, the Solomon Islands and Tonga have enacted laws in relation to natural disaster and emergency management. However, a number of these laws focus on powers being conferred on government, military and police during a natural disaster rather than the effect of disasters on the conservation of habitats and species.

The majority of Pacific island countries and territories have either a national policy, strategy or action plan related to either climate change, disaster management or both. The Cook Islands, Guam and Samoa have a national policy, strategy or action plan related to disaster management, and Fiji, the Solomon Islands and Tonga have developed a specific national policy, strategy and/or action plan related to both climate change and disaster impact management. Given the known impacts of both climate change and natural disasters, it is surprising that the Marshall Islands, New Caledonia, Northern Marianas, Pitcairn Islands and Tokelau have not enacted any laws, nor have their Governments developed any national policy, strategies or action plans in relation to either issue.

Endangered Species Laws

The vast majority of developed and developing nations have enacted specific legislation for the protection of their endangered flora and fauna, whether they are listed on the IUCN Red List of Threatened Species or not. As seen in section 3.1, only 5,797 species found in the Pacific are currently included in this database. There are therefore many species not included on the Red List that are certainly impacted by pressures and which require protection and management.

Within Oceania, 16 States and Territories have enacted their own or rely on their foreign State's endangered species laws for protection of flora and fauna within their jurisdiction. These are American Samoa, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Solomon Islands, Tonga and Vanuatu. The Cook Islands and Wallis and Futuna have broad-based laws that include some aspects of endangered species conservation and protection measures. A number of the Pacific island countries and territories have enacted laws targeting particular groups of animals for protection (such as birds). For instance, French Polynesia's Environmental Code protects specific species: for terrestrial species: all molluscs (*Partula* spp.) are protected; 33 bird species are

protected; and 165 flora species are protected (42 families, 86 genera); and for marine species: four mollusc species, manta ray, marine turtles; five sea bird species; marine mammals (sanctuary); and sharks (sanctuary).

National policies, strategies and action plans are broadly aimed at protecting and conserving endangered species or are specifically targeted at individual species. American Samoa and Fiji both have targeted national policy and strategies/action plans, like the Marine Turtle Action Plan for Fiji and Village Fisheries Management Plans for American Samoa, while the Solomon Islands, Tokelau and Tonga have broader national policy, strategies and action plans. Only the Federated States of Micronesia, Samoa and Tuvalu have not enacted any form of endangered species conservation and protection measures.

Invasive Alien Species (IAS)

Invasive alien species are flora, fauna and/or other organisms introduced by humans into places out of their natural range of distribution, where they establish and disperse, often generating very significant deleterious impacts on local ecosystems and the species native to those habitats. Internationally, invasive species are the second most significant cause of species extinction worldwide after habitat destruction, and on islands such as in Oceania, that have controlled environments without the incursion of human impacts, they are considered the primary cause of extinctions. The impacts of alien invasive species are often irreversible and can cause substantial damage to ecological, economic and social systems. Invasive species can be terrestrial, aquatic or marine-based. The spread of invasive species can be facilitated by increasing trade, travel and the transport of goods through the movement of, for example, ships, containers, cars and soil. Section 3.4 examines the current status and distribution of invasive species, and section 5.5 analyses current efforts in terms of specific IAS management.

Despite the actual and potential significant negative impacts, only nine Pacific island countries and territories have enacted specific laws in relation to invasive species, these being the Cook Islands, Fiji, Kiribati, Niue, Palau, Papua New Guinea, Solomon Islands, Tokelau and Tonga. Many of these laws are in the form of quarantine, biosecurity and wildlife protection and management laws. American Samoa, French Polynesia, New Caledonia, Vanuatu and Tuvalu have laws that cover the issue of invasive species in some way.

American Samoa, Cook Islands, Fiji, the Marshall Islands, Nauru, Palau, Samoa, the Solomon Islands and Tonga have developed national policy and strategies/action plans for the protection of their environments from invasive species. The Pitcairn Islands and Tokelau also have broad strategies and action plans, in the form of a policy on the importation of domestic animals and a national strategic plan, respectively. The Federated States of Micronesia, Guam, Northern Mariana Islands and Wallis and Futuna have not enacted any laws or developed any particular policy documents.

Genetic Resources

Genetic resources are, according to the CBD, living material that includes genes of present and potential value for humans. Genetic material is any material of plant, animal, microbial or other origin containing functional units of heredity. Examples include material of plant, animal or microbial origin, such as medicinal plants, agricultural crops and animal breeds. Specifically, Island States can have high levels of genetic material that have not been hybridised either naturally or anthropogenically due to their isolation.

Given this importance, it is noteworthy that not one of the Pacific island countries and territories has enacted legislation targeted at genetic material, despite this being a requirement of the signing of the CBD and its Protocols. Only Tonga has laws that in any way target genetic resources, although the closest law is considered to be related to plant diseases.

In addition, no Pacific island countries and territories has a dedicated national policy or strategies/action plans related to genetic resources, although Cook Islands, Fiji, Palau, Solomon Islands, Tonga and Tokelau have broad policies relating to genetic resources. American Samoa, the Federated States of Micronesia,

French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Marianas, Papua New Guinea, Pitcairn Islands, Samoa, Tuvalu, Vanuatu and Wallis and Futuna do not have any policies in relation to genetic resources.

Biosafety

Biosafety is the term given to the prevention of large-scale loss of biological integrity, focusing both on ecology and human health. Ecologically, biosafety refers to the importation of life forms from other islands or States. Within agriculture, biosafety refers to mechanisms to reduce the risk of alien viral or transgenic genes, genetically engineered organisms or prions, such as mad cow disease, that therefore improve protection from the risk of food bacterial contamination.

Like invasive species discussed above, 11 Pacific island countries and territories have taken direct steps to protect their environments by enacting laws related to biosafety: the Cook Islands, French Polynesia, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, the Solomon Islands, Tokelau, Tonga and Tuvalu. Vanuatu has enacted broader laws related to plant protection, but these laws are still related to biosafety.

While not law, Fiji, Kiribati, Niue, Palau, Samoa and Wallis and Futuna have developed dedicated national policy and strategies/action plans related to biosafety. Solomon Islands, Tuvalu and Vanuatu have also developed dedicated national policy and strategies/action plans on top of their commitments contained within their laws. Tonga is currently undertaking a fruit tree project, and it is understood that part of that project includes biosafety.

As with invasive species, it is concerning that American Samoa, the Federated States of Micronesia, Guam, the Marshall Islands, Nauru, Northern Marianas and Pitcairn Islands have not undertaken any steps to develop any laws or dedicated national policy and strategies/action plans related to biosafety.

Analysis

This section provides an overview of the habitat and species conservation governance and institutional arrangements that Pacific island countries and territories have enacted and developed. These arrangements include laws, national policies and strategies and action plans.

The data for each Pacific island country's domestic governance and institutional arrangements were assessed through desktop research and extracted from various sources, including relevant government websites for each Pacific island state and territory, published reports and various articles. Whilst every endeavour was made to obtain the current status of the relevant include laws, national policies and strategies and action plans, consultation with relevant government departments and non-government organisation is required to ensure all arrangements have been considered. Where additional information was required, this was obtained through relevant searches.

- The status of species protection laws is considered **High.**
- In terms of land-use planning, although there is a substantial lack of specific national policy, strategies and action plans, it is good to note that the vast majority of States and Territories have some form of land-use planning instrument, whether legally enacted or in a policy form. The current status in relation to land-use planning across Oceania is considered **High.**
- While broader laws may not specifically comply with international good practice, the status of laws related to EIAs is considered as **High-Medium.**
- Because only half of the States and Territories have specific waste-management laws, the status of pollution laws is considered **Medium** and in need of improvement.
- The current status of policies and laws related to forestry and mining are **Medium** given the limited laws with regard to mining.
- As with the laws in relation to climate change, the status of domestic laws concerning disaster management related to

the conservation of habitats and species is **Low.**

- The status of policies and activities related to disaster impacts is **Medium.**
- The status of laws related to the establishment of invasive species and biosecurity and to genetic resources is **Low.**
- Overall, in terms of laws and policies related to species and habitats, the overall level of protection is assessed as **Medium.**

Conclusions and recommendations

Many of the more developed Pacific island countries and territories have taken excellent steps to conserve and protect their habitats and species through a range of measures.

It is noted that many of the laws and policies developed by Pacific island countries and territories are broad in context (for example, in relation to land-use policies), and there is therefore an urgent need to make these more specific. It is also recommended that international standards are applied wherever feasible—for example, in the EIA process—so that a defined and agreed standard is met.

In terms of forestry and mining, it is noted that whilst some locations have a history focussed on one issue, such as mining in Nauru and New Caledonia, it would be beneficial for laws to relate to both mining and forestry in order to control current and future activities. It is concerning that Papua New Guinea and the Solomon Islands do not have policies related to mining given current activities in those States.

Similarly, given the nature of Pacific Islands and the potential impacts on delicate habitats and their species should an invasive species become established, there is a need to rapidly improve protection mechanisms within and between islands and to establish and strengthen laws and policies related to invasive species management. The conservation, management and use of the region's genetic resources must also be strengthened through the development of relevant and specific laws and/or policies.

The issue of enforcement is one with which Pacific island countries and territories require assistance, and it is recommended that international organisations and NGOs assist with this wherever practicable.

Some countries—such as Pitcairn Islands and Tokelau in terms of specific conservation institutional arrangements and the Federated States of Micronesia, where there are significant gaps in relation to domestic laws and policies on a broad range of issues—require significant support to increase the capacity to develop domestic law and policy.

5.3 Priority Areas for Conservation

The establishment of Protected Areas is a key mechanism for countries to conserve their biodiversity. Under Aichi Target 11, Parties to the CBD have committed to expanding protected areas (and other effective area-based mechanisms) to cover 17% of the terrestrial surface and 10% of the marine surface, "especially areas of particular importance for biodiversity". The identification of Priority Areas for conservation is a key component and requirement of Aichi Target 11, and the number and extent of Priority Areas or Sites is therefore a measure of the current state of the environment. This section examines examples of Priority Areas and the extent to which such Priority Sites have been identified throughout the Pacific island countries and territories.

Important Bird Areas (IBAs)

Important Bird Areas (IBAs) are sites of global biodiversity conservation importance that are chosen using internationally agreed, objective, quantitative and scientifically defensible criteria (Birdlife International 2013). The IBA process uses birds to select key sites for conservation, identifying sites that are directly important for bird conservation and which therefore represent potentially high priorities for formal protection and conservation actions. In addition, birds have been shown to be extremely good indicators of overall biodiversity. IBAs rely on the IUCN Red Listing process to identify those sites that are the highest priority, and IBAs are selected because they may hold threatened birds, birds restricted to particular regions or

biomes or significantly large populations of congregatory waterbirds (Birdlife International 2013). Throughout the world, IBAs themselves protect a high percentage of many nations' total biodiversity.

The International IBA Programme is designed to identify areas of global significance. To be listed as an IBA of global significance, sites must meet one or more of four criteria relating to how globally threatened a species is, whether it has a restricted range and the amount of congregations. The criteria utilised within the Pacific Islands region are listed in Table 5.1. The application of the criteria involves assessment of the data provided for each relevant bird species at a site regarding whether the population represented 1% of the regional population of the species (A4) or whether the known presence of a species at a site implied that it occurred there regularly and/or in significant numbers (A1).

To date, 281 IBAs covering an area of 1,845,320 square kilometres have been identified in the Pacific islands. New Caledonia and French Polynesia hold the largest number of IBAs, each with 52 sites. In total, 189 of these IBAs are on land, encompassing a total area of 12,445 square kilometres, and 92 are marine, covering 1,831,898 square kilometres (a further 16 IBAs have been identified in international waters in the region, covering 1,239,995 square kilometres). The total area of IBA coverage is 1,844,298 square kilometres. Some new priority seabird areas may come to light as modern technology identifies further hotspots. The IBA list is largely complete, although the Melanesian countries of Papua New Guinea, Solomon Islands and Vanuatu still require further assessment (Birdlife International 2013).

Alliance for Zero Extinction Sites (AZEs)

The Alliance for Zero Extinction (AZE), a joint initiative of biodiversity conservation organisations from around the world, aims to prevent extinctions by identifying and safeguarding key sites. As with IBAs, the process for identifying key sites relies on the IUCN Red-Listing process to identify highest priority sites that are the last remaining refuge of one or more Endangered or Critically Endangered species of bird, mammal,

Table 5.1 Criteria for establishing Important Bird Areas (IBAs)

Category		Criterion	
A1.	Globally threatened species	The site regularly holds significant numbers of a globally threatened species or other species of global conservation concern.	
A2.	Restricted-range species	The site is known or thought to hold a significant component of the restricted-range species whose breeding distributions define an Endemic Bird Area (EBA) or Secondary Area (SA).	
A4.	Congregations	(i)	The site is known or thought to hold, on a regular basis, ≥1% of a biogeographic population of a congregatory waterbird species.
		(ii)	The site is known or thought to hold, on a regular basis, ≥1% of the global population of a congregatory seabird.
		(iii)	The site is known or thought to hold, on a regular basis, ≥20,000 waterbirds or ≥10,000 pairs of seabirds of one or more species.

Source: Birdlife International and IBAT.

As a general rule, for sites within the Pacific Islands:

- the regular presence of any species classed as Critically Endangered or Endangered meant that the site qualified under A1;
- the presence of at least 30 individuals, or 10 pairs, of a Vulnerable or Near-threatened species qualified the site under A1;
- for category A2, the presence of a suite of restricted-range species, the application process required assessments of the assemblages of relevant species at a given site, in comparison with those same assemblages at other sites potentially qualifying for the same category; and
- some sites based on land are classed as Marine IBAs because they include an important population of marine species

amphibian, reptile, conifer or coral. AZE is first focusing on species that face extinction either because their last remaining habitat is being degraded at a local level or because their tiny global ranges make them especially vulnerable to external threats (Table 6.7). Outside the scope of the Alliance, many AZE members are also working to protect highly endangered species that are more wide-ranging and require different conservation measures. To be designated as an AZE site, a site must meet all three criteria: it must contain at least one Endangered (EN) or Critically Endangered (CR) species, as listed on the IUCN Red List; it must be the only area where an EN or CR species occurs and contain the overwhelmingly significant known resident population (over 95%) of the EN or CR species; and it must have a definable boundary (reference).

A total of 37 AZE sites have been identified in Oceania covering 8,666 square kilometres across 11 countries (Table 5.2). The AZE list is likely to be complete based on the current set of Red List taxa, but as more taxa are included, more sites are likely to be identified as AZEs. Sites can drop off the AZE list either because a species goes extinct or because a conservation success story means that the species is no longer Endangered. For example, Takitumu Conservation Area, Rarotonga, Cook Islands, was an AZE for the Rarotonga Monarch (*Pomaria dimidiata*). The spectacular recovery of this species at the site, together with a successful translocation to a second island, means that the species is no longer considered Endangered, and the site is therefore no longer an AZE. Twenty of the AZE sites are listed due to a threatened bird species, 12 for a mammal, four for a conifer, one for a lizard and one for an iguana.

Key Biodiversity Areas (KBAs)

The Key Biodiversity Area (KBA) is an alternative indicator of Priority Sites and has been used in the region to determine priority conservation actions within CEPF funded applications (CEPF 2007 and 2012). The KBA approach builds on and complements other conservation priority setting approaches by extending to all taxonomic groups the methodology employed by BirdLife International and Plantlife International to identify Important Bird Areas (IBAs) and Important Plant Areas (IPAs), respectively. KBAs can be used as a tool by governments, inter-governmental organisations, NGOs, the private sector and other stakeholders to expand protected area networks and, more generally, for targeting conservation action. Additionally, KBAs provide the building blocks for landscape-level conservation planning and for maintaining effective ecological networks aimed at preventing biodiversity loss. In the Pacific, KBAs have been identified in three biodiversity hotspots, namely the Polynesia-Micronesia hotspot, the East Melanesia Islands hotspot and the New Caledonia hotspot, which collectively include all Pacific island countries and territories except for mainland PNG; see Table 5.2.

The goal of the KBA approach is to identify, document and safeguard networks of marine and terrestrial sites that are critical for the conservation of globally important biodiversity. Here, a 'site' means an area of any size identified based on biological criteria that can be delimited and actually or potentially managed for conservation. KBAs are identified using transparent, globally standardised criteria based on the widely accepted conservation planning principles of vulnerability and irreplaceability. The vulnerability criterion captures sites important for species that are at risk of extinction, while sites meet the irreplaceability criterion if they hold geographically concentrated species or those with few spatial options for their conservation (CEPF 2007).

Ecologically or Biologically Significant Areas (EBSAs)

Another way of prioritising areas is provided by Ecologically or Biologically Significant Marine Areas (EBSAs): marine areas in need of protection in open-ocean waters and deep-sea habitats. Under the CBD, the following scientific criteria have been adopted for identifying ecologically or biologically significant marine areas in need of protection in open-ocean waters and deep-sea habitats: Uniqueness or Rarity; Special importance for life-history stages of species; Importance for threatened, endangered or declining species and/or habitats; Vulnerability, Fragility, Sensitivity

Table 5.2 Priority areas in the Pacific Islands region, indicating the number of AZEs, IBAs, KBAs and EBSAs along with their extent in square kilometres

Country	AZE coverage in km² (number)	IBA coverage in km² (number)		Number of identified KBAs		EBSA coverage in km² (number)	Terrestrial area (km²)	Territorial marine area (km²)
		Terrestrial	Marine	Terrestrial	Marine			
American Samoa	0	194 (4)	18,416 (4)	11	27	-	199	434, 503
Cook Islands	0	190 (8)	63,056 (2)	0	0	1,239,252 (5)	240	1,972,850
Federated States of Micronesia	73 (2)	186 (18)	2,519,693 (7)	52	-	580,420 (4)	816	3,011,942
Fiji	556 (5)	3,116 (22)	57,023 (10)	13	5	-	3,748	5,229,493
French Polynesia	331 (7)	850 (33)	218,100 (19)	11	27	-	3,829	4,767,242
Guam	0	46 (2)	-	-	-	-	561	4,586
Kiribati	16 (1)	688 (13)	340,628 (11)		1	750,026 (1)	1031	3,459,400
Marshall Islands	0	206 (6)	107,174 (4)	3	4	0	279	2,004,580
Nauru	0	0	0	0	0	0	23	310,524
New Caledonia	892 (5)	3,708 (38)	162,900 (14)	25	12	-	19,139	1,421,719
Niue	0	54 (1)	0	0	0	0	268	318,244
Northern Mariana Islands	49 (1)	0	0	0	0	-	483	25,502
Palau	-	244 (8)	11,910 (2)	5	2	811,243 (2)*	501	608,154
Papua New Guinea	4,239 (7)	0	0	7		(2) 1,192,749*	469,806	664,750
Pitcairn Islands	52 (2)	75 (4)	-	3	-	-	41	839,480
Samoa	767 (1)	1,004 (6)	-	7	173 (7)	-	2,894	132,297
Solomon Islands	1,366 (5)	660 (1)	800 (1)	5	-	-	29,188	1,607,263
Tonga	0	(6)		4	-	177,221*	769	89,968
Tokelau	0	0	0	0	0	0	10	370,64
Tuvalu	0	0	0	0	0	0	26	900,000
Vanuatu	326 (1)	0	0	0	0	107,380 (1)	12,189	642,816
Wallis and Futuna	0	0	0	1	-	-	180	259,769
High Seas	-	n/a	1,240,000 (16)					34,116,075
EEZs								28,645,345
TOTAL ACROSS REGION	**8,666 (37)**	**5745**	**1,415,610**	**147**	**251**	**4,858,291**	**546,220**	**91,031,999**

*Includes multi-country EBSAs. '-' denotes no information available or not applicable.

or Slow recovery; Biological Productivity; Biological Diversity; and Naturalness. EBSAs are therefore targeted at a range of taxa, and as such they cover a wider area than IBAs, which are predominantly concerned with the range of avian species.

In the Pacific Islands, 26 EBSAs have been identified by Parties to the CBD and international and national NGOs (see Tables 5.2 and 5.3 and Figure 5.1). The majority of EBSAs overlap with more than one country and with international waters, with a combined area within the region of 13,755,764 square kilometres. Figure 5.1 also compares the distribution of EBSAs with marine IBAs, showing that marine IBAs can help with the identification of some EBSAs.

Ecoregions

Ecoregions are ecologically and geographically defined areas that cover relatively large areas of land or water. WWF developed its definition of ecoregion to assist in biodiversity conservation planning, defining an ecoregion as a large area of land or water that contains a geographically distinct assemblage of natural communities that share a large majority of their species, ecological dynamics and similar environmental conditions and which interact ecologically in ways that are critical for their long-term survival. Ecological representativeness can be assessed by examining the protected area coverage of eco-regions.

A total of 36 terrestrial ecoregions (Olson et al. 2001) and 23 marine ecoregions (Spalding et al. 2007) are found in the Pacific islands region.

Analysis

This indicator examined the extent to which priority areas for biodiversity protection have been identified throughout the Pacific Islands. In particular, Alliance for Zero Extinction Sites, Important Bird Areas, Key Biodiversity Areas and Ecologically and Biologically significant marine areas were examined.

Information on AZE sites was obtained from www.zeroextinction.org. IBA information came from BirdLife International, the Marine IBA Inventory, IBAT and the IUCN Red List. Information on EBSAs is available from online

Figure 5.1 The distribution of marine Priority Sites (EBSAs and marine IBAs) across Oceania

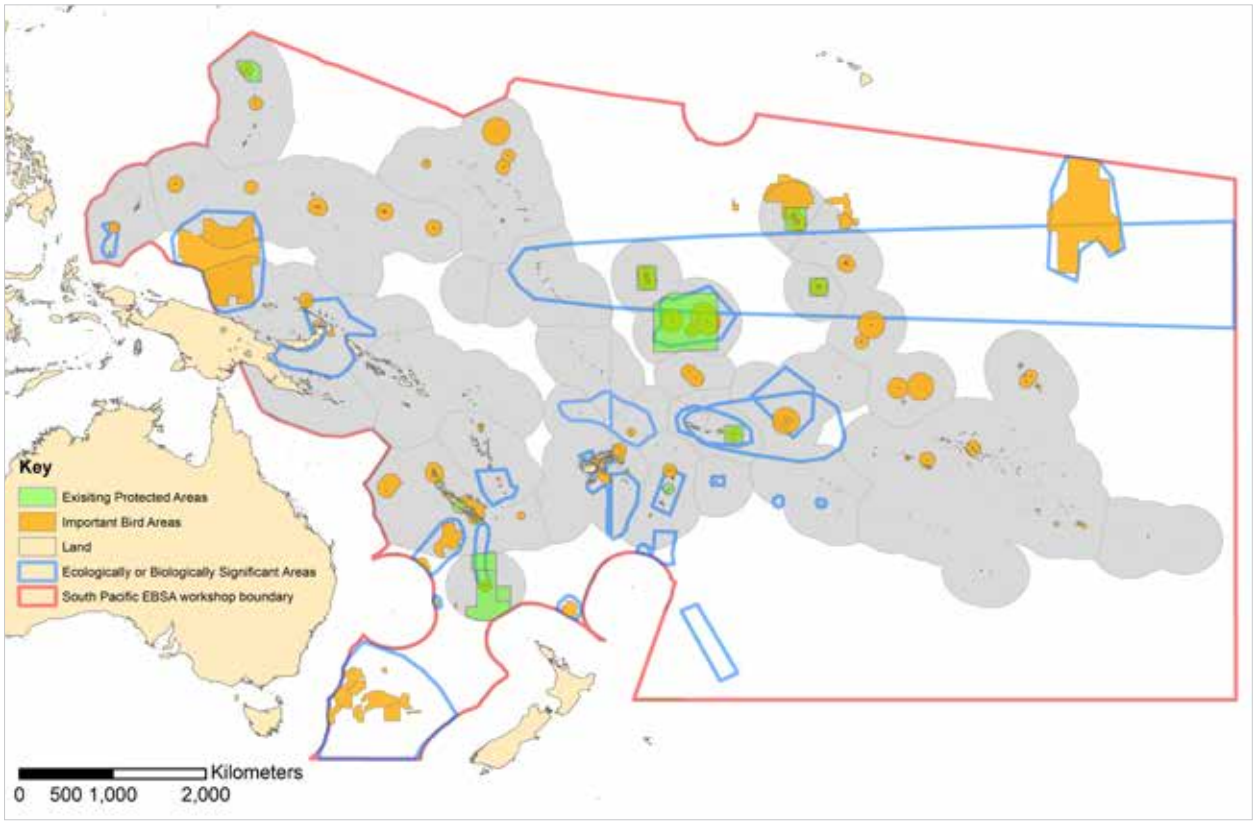


Table 5.3 EBSAs identified in the Pacific islands region

Name of EBSA	Country	Area (km²)
Phoenix Islands	Kiribati	750,026
Ua Puakaoa Seamounts	Cook islands	10,080
3 Seamounts of West Norfolk Ridge	New Caledonia/Norfolk Island (Australia)	81,146
Remetau Group: South-west Caroline Islands and Northern New Guinea	Micronesia/Indonesia/Palau/Papua New Guinea/ International waters	767,791
Kadavu and the Southern Lau Region	Fiji	212,182
Kermadec-Tonga-Louisville Junction	Tonga/International waters	73,007
Monowai Seamount	Tonga/International waters	11,049
New Britain Trench Region	Papua New Guinea	424,958
New Hebrides Trench Region	New Caledonia/Vanuatu	107,380
Rarotonga Outer Reef Slopes	Cook Islands	6,882
Samoan Archipelago	American Samoa/Samoa	232,972
Suwarrow National Park/Seabird Foraging Area	Cook Islands	5,446
South of Tuvalu/Wallis and Fortuna/ North of Fiji Plateau	Tuvalu/Fiji/Wallis Fortuna	325,000
Vatu-i-Ra/Lomaiviti, Fiji	Fiji	24,828
South Tasman Sea	International waters	1,241,288
Equatorial High Productivity Zone	Kiribati/Palmyra Atoll/Jarvis Island/Howard Island/Marshall Islands/Nauru/International waters	?
Central Louisville Seamount Chain	International waters	?
Western South Pacific High Aragonite Saturation State Zone	Cook Islands/American Samoa/Samoa/ International waters	933,144
Clipperton Fracture Zone Petrel Foraging Area	International waters	723,642
Northern Lord Howe Ridge Petrel Foraging Area	New Caledonia/International waters	186,379
Northern New Zealand/South Fiji Basin	International waters	42,510
Taveuni and Ringgold Islands	Fiji	18,410
Manihiki Plateau	Cook Islands	289,900
Niue Island and Beveridge Reef	Niue	11,930
Palau Southwest	Palau	43,452
Tonga Archipelago	Tonga/International waters	93,165

resources of the Convention on Biological Diversity and Birdlife International. Most of the EBSAs were nominated at an Expert Workshop convened by the CBD Secretariat in Nadi, Fiji (November 2011). The confidence in data quality was rated as Medium: priority sites would benefit from greater acceptance at country levels. Little information is available concerning trends because most priority sites have only been identified in the last 5 years: few sites in the Pacific have been assessed more than once, so trends in the integrity of the important biodiversity areas are uncertain.

INDICATORS

Status
Fair

Trend
Unknown

Data confidence
Medium

Conclusions and recommendations

Important sites (priority areas) for biodiversity conservation have been successfully identified throughout the region, based on multi-taxa and various habitats and representing potential targets for protected areas. A summary of the identified sites is seen in Table 5.2.

Further work is now required to incorporate priority areas into Protected Area coverage, and this is examined in more detail in the proceeding section (section 5.4).

5.4 Protected Area Coverage

Important priority sites for biodiversity conservation and protection have been identified throughout the region and were presented in the previous section (section 5.3). This section examines the extent of Protected Area coverage throughout the Pacific Islands, especially in relation to Protected Areas set up as a result of identifying these priority areas and sites for biodiversity conservation. Table 5.4 summarises the extent to which priority sites are also protected areas across the Pacific Islands of Oceania, and Figure 5.3 shows the protected area coverage in relation to meeting Aichi Target 11.

Terrestrial Protected Areas

Oceania has a total land area of approximately 559,591 square kilometres. Protected Terrestrial Areas cover 27,805 square kilometres of this land, or 5% of the total land across the region. Only four countries have reached the terrestrial target set out under CBD Aichi Target 11: Pitcairn Islands (81%), New Caledonia (51%), Guam (27%) and Kiribati (22%), as seen in Table 5.4. Five countries have a negligible proportion (less than 2%) of their land protected.

Marine Protected Areas

Oceania has an area of ocean of approximately 62,761,420 square kilometres, which includes international waters and covers 28,645,345 square kilometres of EEZs. Protected Marine Areas cover 575,857 square kilometres of this area (approximately 2%). Only Kiribati has exceeded the marine target set out under CBD Aichi Target 11, with 12% of its territorial waters protected. Most countries and territories (17 of 22) have a negligible proportion (less than 2%) of their territorial waters protected; see Table 5.4.

The two large increases in marine protected areas since 2000 relate to the Phoenix Islands Protected Area and the Pacific Remote Islands Monument in 2006 and 2009, respectively.

IBAs

To date, 189 Terrestrial IBAs have been identified, covering 12,445 square kilometres (an additional 4 sites covering 976 square kilometres have been identified in the USA Minor Outlying Islands, which do not form part of the 22 countries and territories, but which are important areas for seabirds in the region). At present, 92 Marine IBAs covering 1,831,898 square kilometres have been identified, with a further 16 IBAs identified in International

Waters in the region, covering 1,239,995 square kilometres.

Only 41 IBA sites are completely protected, and another 29 are partially protected (between 2 and 98% covered). This means that the remaining 215 IBAs (75%) are unprotected (less than 2% coverage), equating to 10% of marine IBAs and 20% of terrestrial IBAs being encompassed by Protected Areas. None of the 16 IBAs in international waters in the region are protected.

Whilst these numbers are low, they do indicate that Protected Areas are being targeted at "areas of particular importance for biodiversity", as noted in Aichi Target 11.

KBAs and IBAs generally overlap, in that all IBAs are KBAs, but some KBAs do not require birds as a key indicator.

AZEs

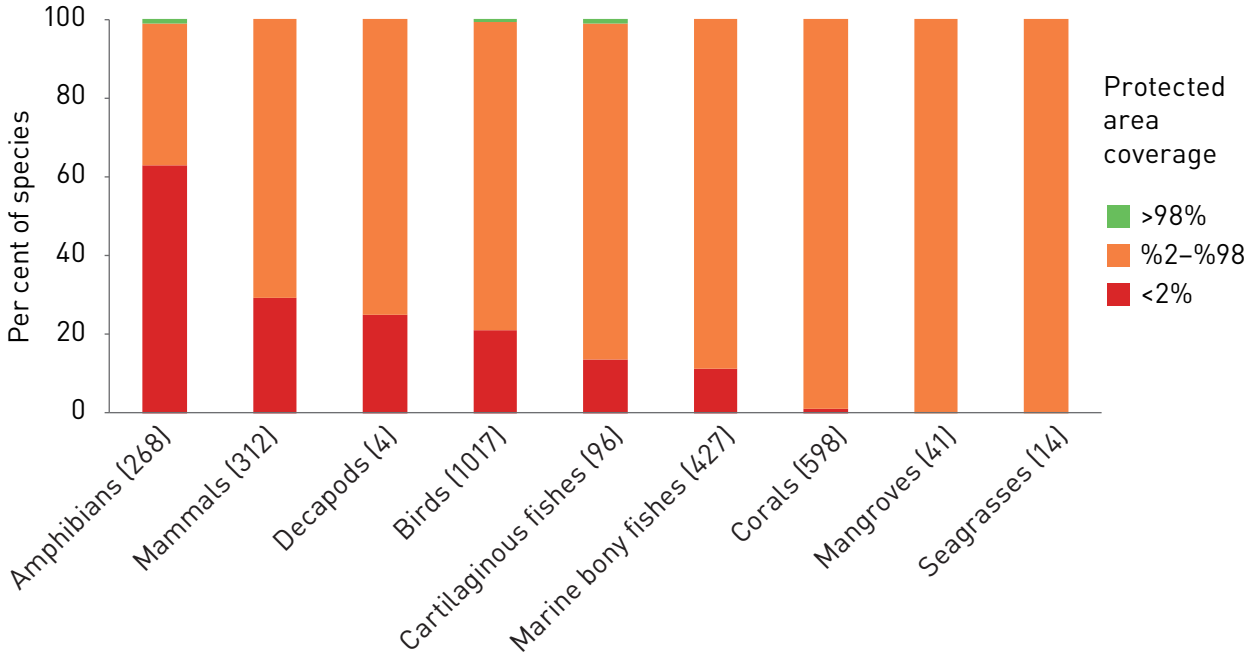
To date, 37 AZEs have been identified in the region, covering 8,666 square kilometres in 11 countries. At present, 20 of the AZE sites are listed due to a Threatened bird species, 12 for a mammal, four for a conifer and one each for a lizard and an iguana. No sites are listed for reef-building corals. Of the 37 AZEs, three (8.1%) are completely protected, eight (22%) are partially covered by Protected Areas, and the remaining 26 (70%) have no Protected Area status. In total, 645 square kilometres (7%) of AZEs are covered by Protected Areas.

Ecoregions

Ecological representativeness can be assessed by examining the protected area coverage of eco-regions. Of the 36 terrestrial ecoregions (Olson et al. 2001), less than one-fifth are adequately protected in line with Aichi Target 11 (only 19% have more than 17% of their area protected), and in fact, 25% of terrestrial ecoregions have negligible (less than 2%) coverage. Of the 23 marine ecoregions (Spalding et al. 2007), one-third are adequately protected in line with Aichi Target 11 (30% of marine ecoregions have more than 10% of their respective area protected), and 44% of marine ecoregions have negligible (less than 2%) coverage.

Spatial data on the distribution of individual species are available for nine taxonomic groups, comprising 2,777 species of mammals, birds,

Figure 5.2 Proportion of species in different groups in the region with different levels of coverage by protected areas



Note: Figures in parentheses indicate number of species

amphibians, marine bony fishes, cartilaginous fishes, corals, decapods, mangroves and seagrasses. Protected areas in the region provide very little coverage for these species (as seen in Figure 5.2). Only 1% or less of birds, amphibians and cartilaginous fishes have their distributions completely covered by protected areas. While some species are partially protected, 63% of amphibians, 29% of mammals, 25% of decapods and 21% of birds are completely unprotected by any formal protected areas in the region.

Community Conserved Areas (such as LMMAs)

The Pacific Islands region does not have an effectively developed protected area system in the formal 'western' sense. The practice of conservation through such conventional forms of protected areas is largely ineffective, having historically been applied without due respect for customary land and resource tenure arrangements or traditional practices and rights.

The south Pacific has experienced a proliferation of Marine Managed Areas (MMAs) in the last decade. The approaches being developed at national levels are built on the feature of customary tenure and resource access, making use of existing community strengths in traditional knowledge and governance, combined with, most importantly, awareness by local fishers and communities of the need for action. The secret to the witnessed impressive improvements in reef ecosystems and marine biodiversity was stressed by Aalbersberg et al. (2005) as the fact that participatory management planning and "involving communities in all phases, including monitoring, helped to ensure that communities maintain their enthusiasm for carrying out their marine management action plans."

The study by Govan et al. (2009) of the status of LMMAs in Oceania clearly shows their value, with over 500 communities spanning 15 countries having established community managed areas, most of which include some form of 'closed' marine protected area (MPA). The authors stress that the main motivation behind this has been the "community desire to maintain or improve livelihoods, often related to perceived threats to food security or local economic revenue." In Fiji, more than 200 villages have established LMMAs. Most anecdotally report rapid and appreciable increases of marine resources within closed areas, and an increasing body of literature seems to confirm these observations.

This traditional approach to conservation, in the form of community conserved areas, must be considered when assessing protected area coverage. These areas have played a fundamental role in the conservation of biodiversity in the Pacific islands region and will continue to do so. Locally Managed Marine Areas (LMMAs) are a contributor to biodiversity conservation (Table 5.4), and the fact that they are implemented by over 500 communities in the region represents a unique achievement. However, whilst important, LMMAs cover only approximately 126,000 square kilometres, making a relatively small contribution to the overall protected area picture.

Analysis

One indicator was used to assess the extent to which Protected Areas provide real terrestrial and marine coverage and encompass key areas for biodiversity protection.

Data were extracted from official data supplied by governments and held in the World Database on Protected Areas (WDPA), a joint project of IUCN and UNEP that provides the most comprehensive global database on terrestrial and marine protected areas. It is the only global, spatially referenced information source on parks and protected areas. However, there are large information gaps for the Pacific as well as issues surrounding data quality, which temper conclusions about protected area coverage. The analysis presented here used the best available information at the time of writing. The information on ecoregions was obtained primarily by analysis of the Birdlife International databases and World Wildlife Fund ecoregions databases. BLI and WWF databases provide substantial information, but gaps remain. The confidence in the data quality was rated as **Medium.**

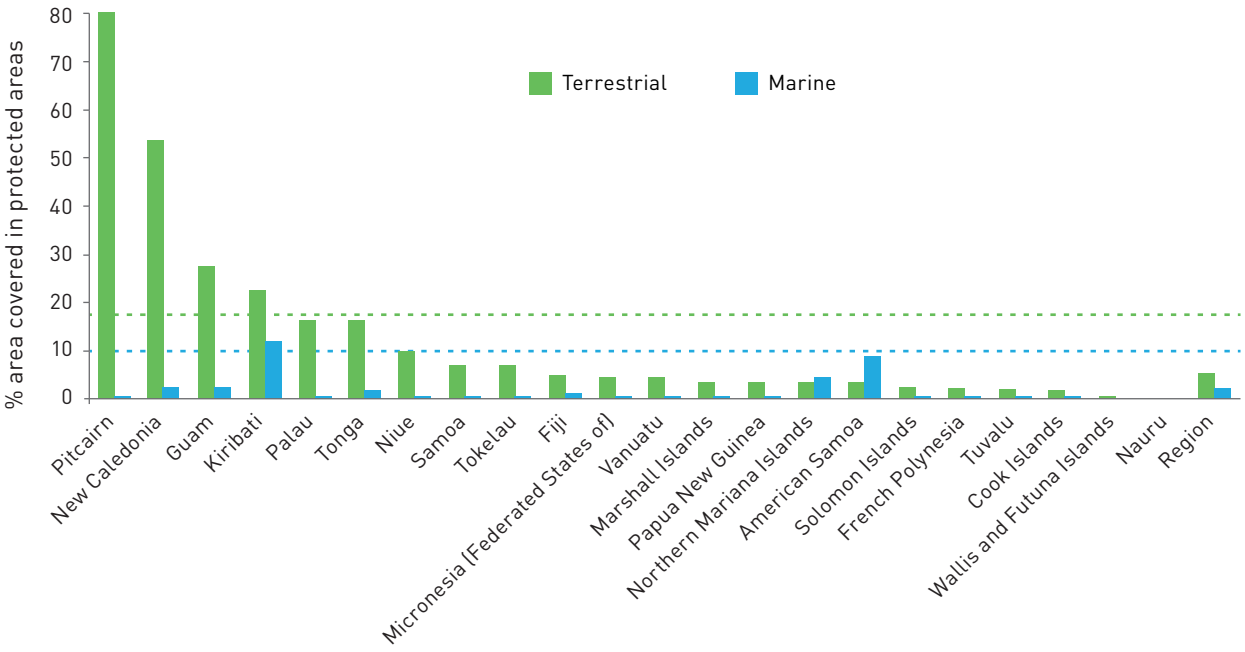
Table 5.4 Total Protected Area coverage in relation to priority sites (See also Table 5.2)

Country	Area of AZE covered by PAs in km² (percentage)	Area of IBA covered by PAs in km² (percentage)		Area of KBAs covered by PAs in km² (percentage)		LMMA coverage in km² (number)	Area covered by PAs in km² (percentage)		Total extent of PAs in km² (percentage)
		Terrestrial	Marine	Terrestrial	Marine		Terrestrial	Marine	
American Samoa	-	36 (92)	15,658 (85)	-	-	>2.6	86 (11)	60 (0)	146 (0)
Cook Islands	-	6.25 (3)	7.6 (<1)	-	-	18 (23)	3 (1.35)	15 (0.1)	18 (0.1)
Fiji	105 (19)	-	-	14.7	10.6	-	829 (4.3)	11,911 (6.2)	12,739 (6)
French Polynesia	-	48.53 (5.4)	59.31 (<0.1)	3.9	11.6	– (217)	74 (2)	196 (0.1)	270 (0.1)
Guam	-	44.7 (97)	-	-	-	441	152 (27)	95 (2)	247 (5.3)
Kiribati	-	-	-	618 (90)	144,615 (42)	-	229 (22.2)	408,389 (11.8)	408,618 (11.8)
Marshall Islands	0	5.5 (3)	158 (<0.15)	0	8	0	9 (3)	790 (0.04)	799 (0)
Federated States of Micronesia	51 (1)	51 (27)	0	-	-	9	33 (4)	56 (0.1)	89 (0.1)
Nauru	-	-	-	-	-	-	0	0	0
New Caledonia	-	-	()	73.4%	37.6%	440	11,731 (61.3)	28,025 (25.2)	39,756 (30.5)
Niue	-	-	-	-	-	30.5 (3)	24 (9.1)	36 (1.2)	61 (1.9)
Northern Mariana Islands	-	-	-	-	-	-	15 (3.1)	5,177 (20.3)	5,192 (20)
Palau	-	54 (22%)	163 (1.4%)	23.6%	50%	-	80 (15)	1,392 (0.23)	1,472 (0.23)
Papua New Guinea	189 (4%)	-	-	-	-	59 (86)	14,564 (3.2)	2,659 (0.4)	17,223 (1.4)
Pitcairn Islands	31 (60%)	-	-	-	-	0	37 (81.3)	4 (0.6)	41 (5.5)
Samoa	0	115 (11%)	-	41.4%	0%	120 (59)	195 (6.7)	120 (2.6)	316 (2.3)
Solomon Islands	3.3 (0.2)	()	()	1.9%	0%	941 (113)	644 (2.2)	1,926 (0.9)	2,543 (1.1)
Tokelau	-	-	-	-	-	93 (6)	1 (6.1)	4 (0.6)	11 (0.2)
Tonga	-	-	-	-	-	-	120 (15.6)	8,457 (9.4)	8,577 (9.5)
Tuvalu	-	-	-	-	-	76 (10)	1 (1.9)	62 (0.3)	63 (0.3)
Vanuatu	0	-	-	-	-	58 (80)	531 (4.2)	45 (0)	576 (0.5)
Wallis and Futuna	-	-	-	-	-	0	3 (0.17)	0	0
TOTAL ACROSS REGION	**1,024.3**	**360.98**	**16,046**	**-**	**-**	**< 2267**	**27,805 (4.97)**	**548,052 (1.91)**	**575,857 (0.06)**

'-' denotes no information available or not applicable.

Source: The KBA statistics presented here derive from a spatial analysis of Important Bird and Biodiversity Areas (IBAs), Alliance for Zero Extinction sites (AZEs) and data from the World Database of Protected Areas (WDPA). The analysis was undertaken using the January 2013 release of the WDPA (with supplementary data for Estonia and Australia), the 2010 update for AZEs and the March 2013 spatial dataset for IBAs (supplemented with local knowledge where available). KBAs identified as part of the CEPF hotspot profiling process were not included unless they were also an IBA or AZE site. (Figures here are means of the number of priority sites completely or partially covered by/overlapping Protected Areas)

Figure 5.3 Protected Area coverage of the terrestrial and marine areas in each country and for the region



Note: Dotted lines indicate the percentage coverage committed under Aichi Target 11 of the Convention on Biological Diversity

Throughout the Pacific Islands, coverage of the terrestrial and marine surface by protected areas is **Low**, with just under 5% of the terrestrial area and just under 2% of territorial waters (0.9% of all marine areas) covered by protected areas (see Figure 5.3). These values are considerably lower than the 17% of terrestrial area and 10% of marine area that parties to the CBD committed to protecting under Aichi Target 11. Only four countries appear to have met the Aichi Target 11 commitment made through the CBD for terrestrial coverage, and just one has met the commitment for marine coverage. There are no protected areas in international waters.

For both terrestrial and marine IBAs, coverage across Oceania is poor, with only 10% of the area of marine IBAs and 20% of the area of terrestrial IBAs encompassed within Protected Areas. Of the Alliance for Zero Extinction sites, which hold the last remaining populations of Critically Endangered or Endangered species, only three (8.1%) are completely protected, and eight (22%) are partially protected by inclusion in protected areas.

In terms of ecological representativeness, coverage of both terrestrial and marine ecoregions is poor and therefore rated **Low**.

Protected areas in the Oceania region provide inadequate (**Low**) coverage for all species groups for which information is available. At present, 10% or less of birds, amphibians and cartilaginous fishes (and no species in any other groups) have their distributions completely covered by Protected Areas. Little information is available on trends in the state of Priority Sites because most sites have been identified only in the last 4–5 years. However, the number of identified priority sites and designated protected areas is improving across the region.

INDICATORS

Status
Poor

Trend
Improving

Data confidence
Medium

Conclusions and recommendations

The majority of Pacific island countries and territories have ratified the Convention on Biological Diversity (see Section 4.1). Under this Convention, Parties have agreed to meet a set of biodiversity-related targets by 2020, known as the Aichi Targets. Under Strategic Goal B, which aims to reduce the direct pressures on biodiversity and promote sustainable use, ***Target 11*** states: ***By 2020, at least 17 per cent of terrestrial and inland water and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and are integrated into the wider landscapes and seascapes.***

While the extent of protected areas in both Terrestrial and Marine habitats currently falls well short of Aichi Target 11, Protected Areas in Oceania are at least targeted at ''areas of particular importance for biodiversity'', as required under the Target. However, the current overlap between such identified priority sites and sites established as Protected Areas is low overall: 5% for terrestrial areas and 2% for marine areas. That said, the situation does appear to be improving as protected area coverage increases.

Governments must focus on increasing and improving coverage of terrestrial and marine Protected Areas if they are to meet the figures required under the CBD Aichi Targets by 2020.

In general, due to land tenure arrangements and customary resource rights, it appears that co-managed protected areas between communities and states or NGOs, and community conservation with government or NGO support, may be the most appropriate governance models for protected areas in the Oceania region.

Placing a greater emphasis and importance on Priority Sites at the country level would be one step toward meeting the Targets. Considering only the waters of Exclusive Economic Zones may also help countries to achieve Aichi Target 11 for marine Protected Areas, given that presently there are no Protected Areas in international waters.

5.5 Invasive species management

The threat of invasive species' on island populations has long been recognised, and countries are increasingly aware of the threat posed by invasive species to their people and natural heritage. The impacts of invasive alien species are a primary reason for the loss, through extinction, of many native and endemic species since humans arrived on islands in the Pacific.

In recent years, a number of IBAs have been monitored using a standard protocol developed by BirdLife International to identify pressures at key biodiversity sites. IBAs were found to be threatened by climatic changes and pollution but most severely impacted by invasive alien species (83% of terrestrial and 47% of marine sites). As was seen in section 1.2 and 3.4, the impacts of invasive alien species also affect native species' survival and are perhaps the biggest threat to island ecosystems.

Invasive species management is recognised globally, and is increasingly being used in Oceania, to protect native biodiversity, natural resources, food security, economic development, human health and ecosystem services, such as water resources, nutrient cycles, erosion and fire regimes.

Invasive species management is an effective conservation tool increasingly being used to protect threatened species and natural ecosystems in Oceania. There have been many regional developments to address the invasive species threat since 1997 (Table 5.5). A cadre of dedicated and able invasive species practitioners (for example, the Pacific Invasive Partnership that was outlined in section 5.1) is active in the region, and there is an increasing commitment to take action against invasive species at the national level. Reported management projects involve invasive animals and plants, including ants, feral cats, feral pigs, feral goats, rodents, birds, vines, shrubs and trees (see Table 5.6).

Table 5.5 Regional landmarks for Invasive Species Management in the Pacific

Year	Landmark
2013	SPREP Members endorse the development of a regional invasive species programme for submission to GEF 6
2013	Capacity Development Strategy for Invasive Species Management in the Pacific endorsed by SPREP member countries
2013	Birdlife International establishes global invasive species programme based in Fiji
2013	PIF Leaders reaffirm their support for invasive species management at their Majuro, Marshall Islands meeting
2012	PIF Leaders declare their support for invasive species management at their Rarotonga, Cook Islands meeting
2011	SPREP launches a USD 7,461,818 multi-year regional invasive species project funded by GEFPAS
2011	A major international collaborative expedition was conducted to protect threatened species through the eradication of rats on Palmyra Atoll, Henderson Island and Phoenix Islands
2009	Guidelines for Invasive Species Management in the Pacific endorsed by SPREP and SPC member countries
2008	PII and PILN merge with the ISWG of the Pacific Islands Roundtable for Nature Conservation to form the PIP
2008	CEPF launches USD 7,002,489, 5-year investment in the Polynesia-Micronesia Biodiversity Hotspot. A total of USD 2,796,467 was invested in 36 invasive species projects
2007	Ecosystem Profile for Polynesia-Micronesia Biodiversity Hotspot finalised. Strategic Direction 1 is dedicated to invasive species: to prevent, control and eradicate invasive species in key biodiversity area
2007	Invasive species objective in the Action Strategy for Nature Conservation and Protected Areas in the Pacific Islands Region 2008–2012
2006	PILN established
2006	Initial CEPF investment in the Polynesia-Micronesia Biodiversity Hotspot dedicated invasive species management
2004	PII established
2004	Micronesia Invasive Species Council established
2004	CEPF completes draft Ecosystem Profile for Polynesia-Micronesia Biodiversity Hotspot
2002	Invasive species recognised as a threat to biodiversity in the Action Strategy for Nature Conservation in the Pacific Islands Region 2003–2007
2000	SPREP member countries endorse SPREP report Invasive species in the Pacific: a technical review and draft regional strategy (SPREP 2000)
1997	SPREP establishes Invasive Species Programme and Officer position

The *Guidelines for Invasive Species Management in the Pacific* were endorsed by SPREP and SPC member countries in 2009 and provide the essential components of a comprehensive and effective invasive species management programme. The guidelines were compiled in consultation with Pacific island countries and territories to support them in developing their invasive species work and to guide regional and international agencies in providing assistance.

Table 5.6 Number of known successful eradications of invasive animals in each country

Country	Successful eradications	Target species eradicated
American Samoa	1	Pacific rat
Cook Islands	2	Cat, wild boar/pig
Federated States of Micronesia (Pohnpei)	3	Black rat, Pacific rat
Fiji	14	Cat, goat, Pacific rat
French Polynesia	6	Black rat, Pacific rat
Guam	2	Pacific rat, house mouse
Kiribati (Phoenix Islands, Kiritimati motu)	36	Asian house rat, Pacific rat, rabbit, wild boar/pig
New Caledonia	20	Black rat, house mouse, Pacific rat
Northern Mariana Islands	2	Goat, wild boar/pig
Palau	8	Black rat, Pacific rat, wild boar/pig
Pitcairn Islands	3	Cat, Pacific rat
Samoa	2	Pacific rat
Tonga	1	Pacific rat

Source: Island Conservation (2012). Database of Island Invasive Species Eradications. Hosted by the IUCN SSC Invasive Species Specialist Group

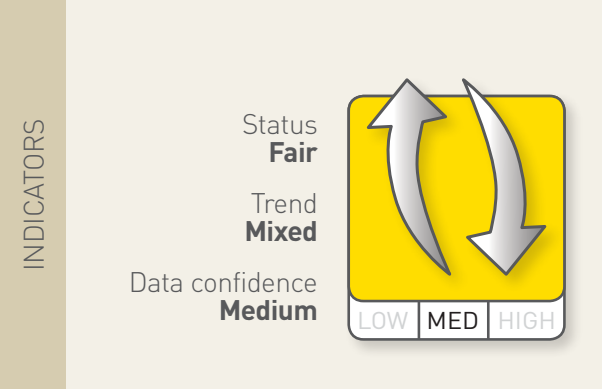
Analysis

The threat from the introduction of invasive species is recognised as one of the key pressures acting upon the island countries and territories of Oceania. Invasive species management is an effective conservation tool increasingly being used to protect threatened species and natural ecosystems in Oceania.

The framework provided by the SPREP *Guidelines for Invasive Species Management in the Pacific* was used to assess progress with invasive species management. The Guidelines provide the essential components of a comprehensive and effective invasive species management programme, and were compiled in consultation with countries and territories of the SPREP region and endorsed by SPREP and SPC member countries in 2009. Confidence in data quality was deemed to be **Medium** due to partially complete records for some countries.

All countries and territories in the region are now engaged in some invasive species management activity. Six countries have a National Invasive Species Strategy and Action Plan (NISSAP), and a further six NISSAPs are planned under the GEF-PAS Invasive Species Project. In 2013, 13 of the States and Territories have cross-sectoral, cross-agency national invasive species committees to strengthen cooperation between agencies and mainstream invasive species management across sectors. In some countries, much of the on-the-ground work is being done by non-government agencies.

At least 89 successful eradications of invasive animals (rodents, feral cats, feral pigs, feral goats and rabbits) have taken place in 12 States and Territories. Rapid responses to mongoose incursions have successfully prevented establishment of those predators in Samoa and New Caledonia.



Conclusions and recommendations

Progress is being made, especially with regard to the management of established invasive species and in terms of management planning

efforts at the national level: 11 of the 12 countries with NBSAPs have included objectives and/or actions to address invasive species threats.

Most countries in the Oceania region have adopted the SPREP guidelines as a framework for their invasive species management and are developing National Invasive Species Strategy and Action Plans. However, activity under the Guidelines themes to date has mostly focused on capacity building and management of existing invasive species. Considerable effort is still required across all thematic areas of the Guidelines to comprehensively address the invasive species threat. In particular, biosecurity remains a challenge, and additional efforts are required to strengthen national and internal biosecurity, establish baseline information and prioritise investment and resources.

Whilst invasive species management capability and confidence are increasing, the lack of resources is limiting implementation, without which the state of native biodiversity will continue to decline: Invasive animals have been eradicated from many islands across the Oceania region, but funding for further eradications remains an on-going issue. Much invasive species management activity is also dependent on external donors, resulting in a short-term project-based approach to a long-term, complex issue. Governments, NGOs and other organisations must therefore focus on sustainable financing mechanisms in order to allow for longer-term projects and management of this major problem.

There is very little information on efforts to address invasive species threats in the marine environment, and efforts must be improved in this realm.

Children in canoe, Solomon Islands.
Photo credit: Stuart Chape

ADDENDA

6 Summary and conclusions

This analysis has used a set of indicators to assess the current state of conservation in the Pacific islands of Oceania. These indicators are summarised in Table 6.1. Progress in relation to meeting the Aichi Targets has also been analysed in relation to this set of indicators; Table 6.2 maps the indicators with the relevant Aichi Targets.

From this analysis, it is clear that a number of actions should occur by 2020, not only to allow countries to meet their obligations under CBD and achieve the Aichi Targets but also to ensure a region that retains its rich diversity of resources. Maintaining ecosystem health and sustainability should be as fundamental a goal as economic development. The adoption of sustainable practices can empower local communities, help maintain the cultural richness of Pacific Ocean countries and territories and reduce the human footprint on the Pacific.

Climate change mitigation is a global task, yet a united Pacific can be instrumental in promoting frank global dialogue about establishing and achieving mitigation targets. In addition to mitigation, each region within the Pacific must adopt sustainable adaptation strategies for ecosystems and human communities in the face of climate change. Effective and enduring solutions require capacity building within the Pacific Ocean community and integrated problem solving.

In terms of ecosystems and species, the following actions are recommended:

1. ensuring ecosystem approaches to conservation, at all levels and scales, to ensure collaboration not only across different ecosystems but also amongst all stakeholders in order to better link threats, environmental impacts, and socioeconomic impacts;
2. focussing on protecting biodiversity in order to sustainably support livelihoods and food security;
3. identifying the necessary resources (specifically related to finance and capacity) required to improve access and commitments to research and knowledge efforts, and identifying and providing adequate resources for monitoring and assessment;
4. identifying the necessary resources (specifically related to finance and capacity) required to deal with identified threats, especially those related to invasive species management and the impacts of climate change through employing nature-based solutions;
5. addressing the significant gaps in knowledge of the current state of and threats to Pacific organisms and ecosystems, particularly for freshwater and marine ecosystems and for lower-order taxa, such as micro-organisms and fungi;
6. considering in future reviews not only the direct effects of threats to native biodiversity but also the interactive effects of land-use change, climate change and invasive species; and
7. because of the widespread nature of threats to and growing pressure on biodiversity conservation and limited resources and capacity to address them, prioritising effort at both the country and regional level.

Table 6.1 Summary of indicator assessments at the regional level for the Pacific islands of Oceania

a. State, pressure and threats

Topic	Section	Indicator	Status		Trend		Data Quality	
			State	Pressures and threats	State	Pressures and threats	State	Pressures and threats
ECOSYSTEMS								
Terrestrial	2.1	Forest cover	Fair	Fair	Deteriorating	Mixed	Medium	Medium
Freshwater	2.2	Freshwater ecosystems	Fair	Fair	Deteriorating	Deteriorating	Low	Low
Coastal	2.3.1	Mangroves	Fair	Fair	Improving	Deteriorating	Medium	Low
	2.3.2	Seagrasses	Fair	Fair	Deteriorating	Deteriorating	Medium	Low
	2.3.3	Coral reefs	Fair	Fair	Mixed	Mixed	Medium	Medium
Marine	2.3.4	Ocean health	Fair	Fair	Deteriorating	Deteriorating	Medium	Medium
	2.3.5	Utilised species		Fair		Deteriorating		Medium
SPECIES								
Native species	3.1	Threatened species	Fair	Fair	Unknown	Mixed	Medium	Medium
	3.2	Endemic species	Fair	Fair	Unknown	Mixed	Medium	Medium
	3.3	Migratory marine species		Fair		Deteriorating		Medium
Introduced species	3.4	Invasive species		Poor		Deteriorating		Medium

b. Response

Topic	Section	Indicator	Status	Trend	Data Quality
Governance	4.1 and 4.2	Multilateral Environmental Agreements and regional policies and frameworks	Fair	Improving	High
	4.3	National policies and legislation and NBSAPs	Poor	Improving	Medium
	4.4	Traditional governance	Good	Improving	Medium
Conservation initiatives	5.1	Conservation initiatives	Fair	Improving	Medium
	5.3 and 5.4	Protected area coverage	Poor	Improving	Medium

Table 6.1 Summary of indicator assessments at the regional level for the Pacific islands of Oceania

a. State, pressure and threats

			State			Pressures and threats		
Topic	**Section**	**Indicator**	**Status**	**Trend**	**Data**	**Status**	**Trend**	**Data**
ECOSYSTEMS								
Terrestrial	2.1	Forest cover	Fair	Deteriorating	Medium	Fair	Mixed	Medium
Freshwater	2.2	Freshwater ecosystems	Fair	Deteriorating	Low	Fair	Deteriorating	Low
Coastal	2.3.1	Mangroves	Fair	Improving	Medium	Fair	Deteriorating	Low
	2.3.2	Seagrasses	Fair	Deteriorating	Medium	Fair	Deteriorating	Low
	2.3.3	Coral reefs	Fair	Mixed	Medium	Fair	Mixed	Medium
Marine	2.3.4	Ocean health	Fair	Deteriorating	Medium	Fair	Deteriorating	Medium
	2.3.5	Utilised species				Fair	Deteriorating	Medium
SPECIES								
Native species	3.1	Threatened species	Fair	Unknown	Medium	Fair	Mixed	Medium
	3.2	Endemic species	Fair	Unknown	Medium	Fair	Mixed	Medium
	3.3	Migratory marine species				Fair	Deteriorating	Medium
Introduced species	3.4	Invasive species				Poor	Deteriorating	Medium

b. Response

Topic	**Section**	**Indicator**	**Status**	**Trend**	**Data Quality**
Governance	4.1 and 4.2	Multilateral Environmental Agreements and regional policies and frameworks	Fair	Improving	High
	4.3	National policies and legislation and NBSAPs	Poor	Improving	Medium
	4.4	Traditional governance	Good	Improving	Medium
Conservation initiatives	5.1	Conservation initiatives	Fair	Improving	Medium
	5.3 and 5.4	Protected area coverage	Poor	Improving	Medium

In terms of governance, the following actions are recommended:

1. translating MEA and national commitments to concrete action beyond policies: laws, enforcement, capacity, awareness and education, and community participation;

2. increasing the number of substantive mechanisms in the Territories. States should provide immediate support to their individual territories to develop institutional capacity in relation to environmental law and governance;

3. garnering efforts between international and regional organisations and governments to provide support to increase the capacity of institutional arrangements in small Pacific Island States as a matter of urgency to ensure arrangements are in place to enable the achievement of conservation outcomes; and

4. stimulating countries to support their on-the-ground efforts in biodiversity conservation with appropriate governance through full implementation of National Biodiversity Strategy and Action Plans and National Invasive Species Plans and by enacting and implementing appropriate national legislation aligned to Multi-lateral Environmental Agreements, while maintaining the key role in the Pacific of traditional governance.

The state of conservation in Oceania should be reviewed at regular intervals because there are currently few datasets available from which reliable trends can be determined. Some or all of the indicators reported in the 2013 review could form the basis for future reviews so that trends can be more readily identified.

Table 6.2 Mapping of Aichi Biodiversity Targets with indicators used in this assessment

Aichi Biodiversity Target	Target	Indicator
By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	5	Terrestrial ecosystems: Forest cover
By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	6	Marine ecosystems: Ocean health and Utilised species Coastal ecosystems: Coral reefs, Mangrove ecosystems and Seagrass beds
By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	7	Terrestrial ecosystems: Forest cover Freshwater ecosystems
By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	8	Marine ecosystems: Ocean Health and Utilised species Freshwater ecosystems
By 2020, invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	9	Conservation initiatives: Invasive alien species management
By 2015, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimised, so as to maintain their integrity and functioning.	10	Marine ecosystems: Ocean health and Utilised species Coastal ecosystems: Coral reefs, Mangrove ecosystems and Seagrass beds
By 2020, at least 17% of terrestrial and inland water and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	11	Conservation initiatives: Protected area coverage
By 2020, the extinction of known threatened species has been prevented, and their conservation status, particularly of those most in decline, has been improved and sustained.	12	Native species: Threatened species, Endemic species, Marine migratory species
By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	14	Terrestrial ecosystems Freshwater ecosystems Marine ecosystems: Ocean health and Utilised species Coastal ecosystems: Coral reefs, Mangrove ecosystems and Seagrass beds

continued

Table 6.2 Mapping of Aichi Biodiversity Targets with indicators used in this assessment (continued)

Aichi Biodiversity Target	Target	Indicator
By 2015, each Party has developed, adopted as a policy instrument and commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	17	Environmental governance: National Biodiversity Strategy and Action Plans
By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	18	Environmental governance: Traditional governance

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Appendix A:

Status of country ratification of International conventions and MEAs

Whilst every endeavour was made to obtain the current laws, national policies, legislations, strategies and action plans, the information for this table was collected through desktop research and was not verified through consultation with relevant government departments. As such, the author cannot be certain that all recent developments have been considered.

Notes related to all appendices

Adoption is the formal act by which the form and content of a proposed treaty text are established. The adoption of the text of a treaty takes place through the expression of the consent of the states participating in the treaty-making process.

Indicated in green in the appendices

Acceptance and Approval of a treaty have the same legal effect as ratification and consequently express the consent of a state to be bound by a treaty. This status consequently expresses the consent of the state to be bound by the treaty. In the practice of certain states, acceptance and approval have been used instead of ratification.

Indicated in green in the appendices

Accession is the act whereby a state accepts the offer or the opportunity to become a party to a treaty already negotiated and signed by other states. It has the same legal effect as ratification, thus legally binding the state to the terms of the treaty. It has the same legal effects as ratification not preceded by an act of signature.

Indicated in light green in the appendices

Adherence is the process of becoming a state party to a treaty, for example through signature and ratification or through accession.

Indicated in green in the appendices

Denouncement is formal notice of the termination of a treaty

Ratification is the act whereby a state indicates its consent to be bound to a treaty if the parties intended to show their consent by such an act. The instrument of ratification is a formal sealed document referring to the decision and signed by the State's responsible authority. In most countries, it is necessary to pass domestic legislation to give effect to the obligations of a treaty.

Indicated in green in the appendices

Signature of a treaty is an act by which a state provides a preliminary endorsement of the instrument. Signing does not create a binding legal obligation but does demonstrate the state's intent to examine the treaty domestically and consider ratifying it. Signing also does not commit a state to ratification, but it does oblige a state to refrain from acts that would defeat or undermine a treaty's objectives and purpose.

Indicated in green in the appendices

Country	Convention of Biological Diversity	Cartagena Protocol	Nagoya Protocol	National Biodiversity Strategies and Action Plans	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change	Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention	Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Species Agreement
American Samoa[1]													
Cook Islands	Signed 12/06/1992 Ratified 20/04/1993	Signed 21/05/2001		2001	Acceded to 21/08/1998	Signed 12/06/1992 Ratified 20/04/1993	Signed 16/09/1998 Ratified 27/08/2001		Ratified 16/01/2009		Into Force 01/08/2006 MOU Signatory Pacific Island Cetaceans	Signed 10/12/1982 Ratified 15/02/1995	01/04/1999
Federated States of Micronesia	Signed 12/06/1992 Ratified 20/06/1994		Signed 11/01/2012 Ratified 30/01/2013	2002	Signed 12/112/1994 Ratified 25/03/1993	Signed 12/06/1992 Ratified 18/11/1993	Signed 17/03/1998; Ratified 21.06.1999		Acceptance 22.07.2002		Not a Party to CMS but MOU Signatory on Pacific Island Cetaceans	Acceded 29.04.1991	23/05/1997
Fiji	Signed 09/10/1992 Ratified 25/02/1993	Signed 02/05/2001 Ratified 05/06/2001	Acceded to 24/10/2012	2003	Acceded 26/08/1998	Signed 09/10/1992 Ratified 25/02/1993	Signed 17/09/1998 Ratified 17/09/1998	Into Force 11/08/2006	Ratified 21/11/1990	Acceded 30/09/1997 Into Force 29/12/1997	Into Force 01/04/2013 MOU Signatory Pacific Island Cetaceans	Signed 10/12/1982 Ratified 10/12/1982	12/12/96
French Polynesia[2]	Signed 13/06/1992 Ratified 01/07/1994	Signed 24/05/2000 Ratified 07/04/2003	Signed 20/09/2011	2004, 2009, 2011; Strategy adopted in 2004; Sectoral Action Plans adopted between 2006–2008 and revised in 2009						Approved 11/05/1978 Into Force 09/08/1978	Signed 23/06/1979 Ratified 23/04/1990 Into Force 01/07/1990		
Guam[3]													

1 American Samoa is an unincorporated territory of the United States of America. Section 1 of Delimitation of Government Authority restricts powers of the territorial government to exercise unrestricted jurisdiction. It is instead "exercised under the jurisdiction of the Secretary of the Interior pursuant to Executive Order No 10264 (1951)." Section 3 vests Executive authority in the Governor to be "exercised under the supervision and direction of the Secretary of the Interior". As such, American Samoa is not a Party to any MEAs. As an American territory, it is only party to those MEAs ratified by the USA and extended to American Samoa. No MEAs have been extended to the territory. On select occasions, the government of American Samoa has been authorised to conclude and ratify treaties, as it did with the Agreement Establishing the South Pacific Applied Geoscience Commission (SOPAC).

2 French Polynesia is a French Territory. French Polynesia is an autonomous country within the French Republic. This status sets a complex share of competences French Polynesia, the French Republic and French Polynesia townships. French Polynesia is granted the management, conservation and protection of the environment, including natural resources. France has control over implementation of sanctions, control and surveillance of maritime zone, and signing of international conventions, among other competences. French Polynesia is entitled to sign regional agreements. French Polynesia is included in the following MEAs: CBD, CITES and CMS. Accordingly, information as to whether and when France signed the respective conventions is included.

3 Guam is an unincorporated territory of the United States of America. Section 1 of Delimitation of Government Authority restricts powers of the territorial government to exercise unrestricted jurisdiction. MEAs ratified by the USA are extended to Guam. According to Wikipedia, 22 Treaties have been extended to Guam, and none of these are the main biodiversity conservation MEAs. However, certain related Treaties, such as International Plan Protection Convention and International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, have been extended to Guam. Accordingly, information as to whether and when the United States of America signed a relevant convention is included.

continued

Country	Convention of Biological Diversity	Cartagena Protocol	Nagoya Protocol	National Biodiversity Strategies and Action Plans	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change	Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention	Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Species Agreement
Kiribati	Acceded to 16/08/1994	Signed 07/09/2000 Ratified 20/04/2004		2006	Acceded to 08/09/1998	Signed 13/06/1992 Ratified 07/02/1995	Acceded to 07/09/2000	Into Force 03/08/2013	Accepted 12/05/2000			Acceded 24/02/2003	15/09/2005
Marshall Islands	Signed 12/06/1992 Ratified 08/10/1992	Acceded to 27/01/2003		2000	Acceded to 02/06/1998	Signed 12/06/1992; Ratified 08/10/1992	Signed 17/03/1998 Ratified 11/08/2003	Acceded 13.07.2004 Into Force 13/11/2004	Accepted 24/04/2002			Acceded 09/08/1991	19/03/2003
Nauru	Signed 05/06/1992 Ratified 11/11/1993	Acceded to 12/11/2001		Awaiting Cabinet Endorsement	Acceded to 22/09/1998	Signed 08/06/1992 Ratified 11/11/1993	Acceded to 16/08/2001				Not a Party to CMS but MOU Signatory on Sharks.	Signed 10/12/1982 Ratified 23/01/1996	10/01/1997
New Caledonia[4]	Signed 13/06/1992 Ratified 01/07/1994	Signed 24/05/2000 Ratified 07/04/2003	Signed 20/09/2011	2004, 2009, 2011; Strategy adopted in 2004; Sectoral Action Plans adopted between 2006-2008 and revised in 2009						Approved 11/05/1978 Into Force 09/08/1978	Signed 23/06/1979 Ratified 23/04/1990 Into Force 01/07/1990		
Niue	Acceded to 28/02/1996	Acceded to 08/07/2002		2001- Strategy being updated; Action Plan still in development	Acceded to 14/08/1998	Acceded to 28/02/1996	Signed 08/12/1998 Ratified 06/05/1999		Accepted 23/01/2001		Not a Party to CMS but MOU Signatory on Pacific Island Cetaceans	Signed 05/12/1984	11/10/2006
Northern Marianas[5]													

4 New Caledonia is a French Territory. It is a sui generis autonomous government within the French Republic according to organic law no. 99-209 of 19 March 1999 that determines the division of competences for the different authorities, and title XIII of the French Constitution. The French Republic has competence in monitoring and surveillance over the entire maritime area of New Caledonia. New Caledonia has competence over the management of natural resources in the EEZ. The three provinces are competent in managing the environmental and natural resources on land and up in the interior waters since 1989. International regulations that have been ratified by France apply in the provinces through repartition of competences as provided by the 1999 organic law. Under the organic law, France signs international conventions and New Caledonia and the provinces, depending on the domain of competency, can make adequate regulations to apply them. New Caledonia is included in the following MEAs: CBD, CMS and CITES. Accordingly, information as to whether and when France signed the respective conventions is included.

5 Northern Marianas is an unincorporated territory of the United States of America. Section 1 of Delimitation of Government Authority restricts powers of the territorial government to exercise unrestricted jurisdiction. In 1975, the USA and the people of the Northern Mariana Islands entered into a Covenant of political union, which established a self-governing Commonwealth of the Northern Mariana Islands under the Sovereignty of the USA. Although the Northern Mariana Islands are listed as self-governing, their international affairs remain the responsibility of the USA. According to Wikipedia, no biodiversity conservation MEA has been extended to Northern Mariana Islands.

continued

Country	Convention of Biological Diversity	Cartagena Protocol	Nagoya Protocol	National Biodiversity Strategies and Action Plans	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change	Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention	Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Species Agreement
Palau	Acceded 06/01/1999	Signed 29/05/2001 Ratified 13/06/2003	Signed 20/09/2011	2005	Acceded to 15/06/1999	Acceded to 10/12/1999	Acceded to 10/12/1999	Acceded to 18/10/2002 Into Force 18/02/2003	Accepted 11/06/2002	Acceded to 16/04/2004 Into Force 15/07/2004	Into Force 01/02/2008 MOU Signatory Dugongs and Sharks	Acceded to 30/09/1996	26/03/2008
Papua New Guinea	Signed 13/06/1992 Ratified 16/03/1993	Acceded to 14/10/2005		2007	Acceded to 06/12/2000	Signed 13/06/1992 Ratified 16/03/1993	Signed 02/03/1999 Ratified 28/03/2002	Acceded to 16/03/1993 Into Force 16/07/1993	Accepted 28/07/1997	Acceded to 12/12/1975 Into Force 11/03/1976	Not a Part to CMS but MOU Signatory on Marine Turtles IOSEA, Pacific Island Cetaceans and Dugongs	Signed 10/12/1982 Ratified 14/01/1997	04/06/1999
Pitcairn Islands[6]				1994, 2006, 2011				Ratified 18/12/1986 Into Force 18/04/1987	Ratified 29/05/1984	Ratified 02/08/1976 Into Force 31/10/1976	Signed 23/06/1979 Ratified 23/07/1985 Into Force 01/10/1985		
Samoa	Signed 12/06/1992 Ratified 09/02/1994	Signed 24/05/2000 Ratified 30/05/2002		2001	Acceded to 21/08/1998	Signed 12/06/1992 Ratified 29/11/1994	Signed 16/03/1998 Ratified 27/11/2000	Acceded to 06/10/2004 Into Force 06/02/2005	Accepted 28/08/2001	Acceded to 09/11/2004 Into Force 07/02/2005	Acceded; Entry into force 01/11/2005; MOU Signatory Pacific Island Cetaceans	Signed 28/09/1984 Ratified 14/08/1995	25/10/1996
Solomon Islands	Signed 13/06/1992 Ratified 03/10/1995	Acceded to 28/07/2004		2009	Acceded to 16/04/1999	Signed 13/06/1992 Ratified 28/12/1994	Signed 29/09/1998 Ratified 13/03/2003		Acceded to 10/06/1992	Acceded to 26/03/2007 Into Force 24/06/2007	Not a Party to CMS but MOU Signatory on Pacific Island Cetaceans and Dugongs	Signed 10/12/1982 Ratified 23/03/1997	13/02/1997
Tokelau[7]				2000				Acceded to 13/12/1976					

6 The Pitcairn Islands is a United Kingdom Territory. MEAs are extended to Pitcairn Islands by the UK through inclusion in those MEAs that the UK has signed. It has been included in 12 MEAs with four being biodiversity conservation MEAs that include CITES, CMS, Ramsar and WHC. CBD has not been included in the Pitcairn Islands. Accordingly, information as to whether and when the United Kingdom signed the respective convention is included.

7 Tokelau is a self-governing New Zealand Territory. Tokelau is a Non-Self Governing territory of New Zealand. Tokelau does not have an international legal personality separate from that of New Zealand. New Zealand may extend treaty obligations which it enters into to Tokelau, if Tokelau expressly requests to be included. New Zealand supports Tokelau's aspirations to enter into arrangements with other countries or join regional or international organisations in its own right, where such participation is consistent with Tokelau's status as a non-self-governing territory. According to Wikipedia, Ramsar is the only biodiversity conservation MEA that has been extended to Tokelau. Accordingly, information as to when New Zealand signed the Ramsar Convention is included.

continued

Country	Convention of Biological Diversity	Cartagena Protocol	Nagoya Protocol	National Biodiversity Strategies and Action Plans	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change	Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention	Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Species Agreement
Tonga	Acceded to 19/05/1998	Acceded to 18/09/2003		2006	Acceded to 25/09/1998	Acceded to 20/07/1998	Acceded to 14/01/2008		Accepted 03/06/2004		Not a Party to CMS but MOU Signatory on Pacific Island Cetaceans	Acceded 02/08/1995	31/07/1996
Tuvalu	Signed 08/06/1992 Ratified 20/12/2000			Awaiting Cabinet Endorsement	Ratified 14/09/1998	Signed 08/06/1992 Ratified 26/10/1993	Signed 16/11/1998 Ratified 16/11/1998				Not a Party to CMS.but MOU Signatory on Pacific Island Cetaceans and Sharks	Signed 09/12/2002 Ratified 09.12.2002	02/02/2009
Vanuatu	Signed 09/06/1992 Ratified 25/03/1993		Signed 18/11/2011	1999	Signed 28/09/1995 Ratified 10/08/1999	Signed 09/06/1992 Ratified 25/03/1993	Acceded to 17/07/2001 Into Force 16/02/2005		Ratified to 13/06/2002	Acceded to 17/07/1989 Info Force 15/10/1989	Not a Party to CMS but MOU Signatory on Pacific Island Cetaceans, Dugongs and Sharks	Signed 10/12/1982 Ratified 10/08/1999	
Wallis and Futuna[8]	Signed 13/06/1992 Ratified 01/07/1994	Signed 24/05/2000 Ratified 07/04/2003	Signed 20/09/2011	2004, 2009, 2011; Strategy adopted in 2004; Sectoral Action Plans adopted between 2006–2008 and revised in 2009						Approved 11/05/1978 Into Force 09/08/1978	Signed 23/06/1979 Ratified 23/04/1990 Into Force 01/07/1990		

8 Wallis and Futuna is a territory of the French Republic. International MEAS are signed and ratified by France and apply in Wallis and Futuna. MEAs applicable in Wallis and Futuna include CBD, CMS and CITES. Accordingly, information as to whether and when France signed the respective conventions is included.

Appendix B:

Status of domestic law in compliance with conventions, MEAs, regional and national frameworks, policies and legislation

(Next page)

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
American Samoa					Territorial Climate Change Adaptation Framework					
Cook Islands	*Environment Act 2003*; *Biosecurity Act 2008*	Cook Islands National Biodiversity Strategy and Action Plan 2001; National Environment Strategic Action Framework; National Sustainable Development Plan			*Environment Act 2003*		*Environment Act 2003; Cook Islands Natural Heritage Trust Act 1999*		*Environment Act 2003*	*Marine Resources Act 2005*; *Prevention of Marine Pollution Act 1998*
Federated States of Micronesia	*Environment Protection Act*; *Environmental Quality Protection Act (Yap)*; *Marine Resources Act*; *Endangered Species Act*; *State Fishery Zone Act*; *Federated States of Micronesia Code*	National Biodiversity Strategy and Action Plan 2002, Strategic Development Plan 2004–2023; Federated States of Micronesia National Solid Waste Management Strategy 2012–2016 (Not endorsed); Yap State Solid Waste Management Strategy and Action Plan; Clean Pohnpei 2012–2016, A Solid Waste Management Strategic Plan for Pohnpei State; Kosrae State Solid Waste Management Plan 2011–2015; Chuuk State Action Plan and Strategy of National Solid Waste Management Plan	Nationwide Climate Change Policy 2009, Federated States of Micronesia Energy Policy, National Water and Sanitation Policy	*Environment Protection Act*; *Environmental Quality Protection Act (Yap)*; *Endangered Species Act*	*Environment Protection Act*; *Environmental Quality Protection Act (Yap)*		*Environment Protection Act*; *Environmental Quality Protection Act (Yap)*; *Endangered Species Act*; *Federated States of Micronesia Code*		*Federated States of Micronesia Code*	*Environment Protection Act*; *Environmental Quality Protection Act (Yap)*; *Endangered Species Act*; *Federated States of Micronesia Code*; *Marine Resources Act 2002*
Fiji (continues next page)	*Environmental Management Act*; *Forest Decree*; *National Trust Act*; *Land Conservation and Improvement Act*; *Endangered and Protected Species Act 2002*; *Fisheries Act*; *Offshore Fisheries Management Decree 2012*	National Biodiversity Strategy and Action Plan 2003	Fiji National Climate Change Policy, 10 Year Moratorium, Reduced Emissions from Deforestation and Forest Degradation; Rural Land Use Policy, Mangrove Eco-Systems for Climate Change Adaptation and Livelihood Project,	*Management Act*; *Forest Decree*; *Agricultural Landlord and Tenant Act*; *Land Conservation and Improvement Act*; *Crown Lands Act*; *Itaukei Lands Trust Act*	*Environmental Management Act*; *Forest Decree*; *Ozone Depleting Substances Act*; *Land Conservation and Improvement Act*; *Crown Lands Act*; *Itaukei Lands Act*	*Environmental Management Act*	*Fiji World Heritage Decree 2013*	*Environmental Management Act*; *Endangered and Protected Species Act 2002*	*Environmental Management Act*; *Endangered and Protected Species Act 2002*; *Fisheries Act*; *Offshore Fisheries Management Decree 2012*; *Itaukei Affairs Act*; *Marine Spaces Act*	

continued

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Fiji (continued)			National Energy Policy, Programme of Work on Protected Areas Action Plan; Integrated Coastal Management Pacific Invasive Initiative; Fiji Harvesting Code Of Practice; Fiji Tourist Development Plan 2007–2016							
French Polynesia	*Environmental Code*; *Urban Planning Code*; *Country Law 2012-5*	Biodiversity Strategy 2008; Plan of Action for the Conservation of Marine Species						*Environmental Code*	*Environmental Code*	
Guam	*Guam Environmental Protection Agency Act [Cap 45]*; *National Wildlife Refuge System Improvement Act 1997* (USA); *Guam Territorial Seashore Protection Act 1974*; *Endangered Species Act 1966* (USA); *Coastal Zone Management Act 1990* (USA)	National Ocean Policy Implementation Plan 2012 [USA]; Guam Water Quality Monitoring Strategy; Guam Comprehensive Wildlife Conservation Strategy 2005; Guam National Wildlife Refuge Comprehensive Conservation Plan 2009; Guam Coastal Management Programme; Guam Coastal Programme Evaluation 2007; Guam Coastal Zone Enhancement Programme Assessment and Strategy 2011–2016; Guam's Coral Reef Local Action Strategies; Coastal Nonpoint Source Pollution Control Programme; 2010 Guam Statewide Forest Resources Assessment and Resource Strategy; Fisheries Management Local Action Strategy	*Guam Environmental Protection Agency Act [Chapter 45]*; National Ocean Policy 2010							

continued

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Kiribati	*Environment Act 1999*	Kiribati National Environment Management Strategies; Kiribati Development Plan; National Waste Management Strategy; National Biosafety Framework, Coastal Zone Management Plan; National Biodiversity Strategy and Action Plan 2006; Programme of Action Protected Areas; Capacity Development Assessment Action Plan; National Water Resource Implementation and Action Plans; Climate Change Strategy; Phoenix Island Protected Area Management Plan; National Tuna Management Development Plan	National Water Resources Policy; Climate Change National Policy 2005	*Environment Act 1999*	*Environment Act 1999*	*Environment Act 1999*	*Environment Act 1999*			*Marine Act 1993*; *Fisheries (Pacific Island State Treat with the USA) Act 1988*
Marshall Islands	*Animal and Plant Inspection Act*; *Coast Conservation Act* 1988; *Domestic Water Crafts Act 1992*; *Endangered Species Act 1975*; *Fisheries Act*; *Fisheries Enforcement Act*; *Littering Act 1982*; *Management and Development of Local Fisheries Act*; *Marine Mammal Protection Act 1990*; *Marine Resources Act 1997*; *Marine Resources (Trochus) Act 1983*; *National Environment Protection Act 1989*; *Office of Environmental Planning and Policy Coordination Act 2003*; *Planning and Zoning Act 1987*	National Biodiversity Strategy and Action Plan 2000; National Strategic Plan; Reimaanlok Strategy; State-Wide Assessment and Resource Strategy 2010–2015; National Tuna Management Plan; National Action Plan; National Action Plan for Disaster Risk Management 2008–2018; Joint National Action Plan for Disaster Risk Management and Climate Change; Energy Action Plan 2009; Action for the Development of Marshall Islands Renewable Energies	Strategic Development Plan Framework 2003–2018; National Coastal Management Framework 2008; National Climate Change Policy Framework; National Energy Policy	*Public Lands and Resources Act 1966*			*Endangered Species Act 1975*; *Historic Preservation Act 1991*			*Fishing Access and Licensing Act*; *Maritime Administration Act*; *Marine Zones (Declaration) Act 1984*; *Ports Authority Act 2003*; *Regulation and Control of Shipping Act*; *Tuna Game-Fish Conservation Zone Act 1996*

continued

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Nauru	*Lands Act 1976*; *Animals Act 1982*; *Agricultural Quarantine Act 1999*; *Wildbirds Protection Act 1937*; *Republic of Nauru Phosphate Act 2005*; *Fisheries Act 1997*; *Marine Resources Act 1978*	National Environmental Management Strategy 1996; National Environment Action Plan 1996; National Sustainable Development Strategy 2005–2025; Sustainable Land Management Milestones 2010	National Energy Policy Framework	*Lands Act 1976*	*Disaster Risk Management Act 2008*					*Sea Boundaries Act 1997*; *Fisheries Act 1997*; *Marine Resources Act 1978*
New Caledonia	*Organic Law*	Plan of Action on Dugong 2010–2015						*Organic Law*	*Organic Law*; *New Caledonia EEZ whale sanctuary*; *New Caledonia shark sanctuary*	
Niue	*Environment Act 2003*; *Marine Pollution Act 1974*; *Territorial Sea and Exclusive Economic Zone Act*; Biosecurity Bill	Niue Environment Management Strategy; National Biodiversity Strategy and Action Plan 2001; National Integrated Strategic Plan; National Bio-safety Framework 2006; National Action Plan for Combating Land Degradation and Drought National Climate Change Adaptation Programme; International Waters Resource Management; Coastal Fisheries Management Plan; Tuna and Billfish Management Plan; National Tuna Fishery Management and Development Plan; Agricultural, Fisheries, and Forestry Coastal Management Plan	Sustainable Coastal Development Policy; Coastal Management Policy; Forest Policy; National Water Vision	*Mining Act 1977*; Forest Bill			*Niue Cultural Council Act 1986*			*Continental Shelf Act 1964*; *Domestic Fishing Act 1995*; *General Laws Act 1968*; *Marine Pollution Act 1974*; *Marine Zones Act 2013*; *Territorial Sea and Exclusive Economic Zone Act 1996*; *Water Resources Act 1996*; *Water Act 2012*; *Wildlife Act 1972*

continued

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Northern Marianas	*National Environmental Policy Act 1969*; *Coastal Zone Management Act*; *Magnuson-Stevens Fishery Conservation and Management Act*; *National Invasive Species Act*; *Resource Conservation and Recovery Act*; *Protection of Coral Reefs EO*; *Shark Fin Prohibition Act*		Three Year Coral Reef Protection Strategy; Coastal and Estuarine Land Conservation Plan; Non- Point Source Pollution and Control Programme 15 year Plan	*Clean Water Act*; *Ground Water Protection and Management Act 1988*		*Clean Water Act*; *Rivers and Harbours Act*; *Coastal Zone Management Act*; *Fish, Game and Endangered Species Act*	*National Historic Preservation Act*	*Marine Mammal Protection Act*; *Endangered Species Act*; *Invasive Species EO 13112*; *Resource Conservation and Recovery Act*; *Migratory Bird Treaty Act*; *Clean Water Act*		
Palau	*Biosafety Act 2008*, *Conservation Areas Acts*, *Endemic Species Act* 1975, *Environment Quality Protection Act 1981*; *Fisheries Management Act 1999*, *Marine Protection Act 1994*, *Palau Natural Resource Council Act 2001*, *Protected Areas Network Act 2003*, *Shark Haven Act 2009*	National Biodiversity Strategy and Action Plan 2005, Environment Natural Resource Development Plan, 8 Conservation Action Plans, National Action and Strategy Plan 2004, Palau National Invasive Species Strategy, National Action Plan to Combat Land Degradation, National Drought Mitigation Action Plan 2001, Presidential Management Action Plan, Sustainable Management Plan, Republic of Palau Strategic Action Plan Energy Sector, Climate Change Risk Management and Adaptation Road Map, Mangrove Management Plan for the Ngaredemuu, Koror State Rock Island Conservation Area, Marine Resource Economic Development Plan, National Tuna Fisheries Management Plan 2001	Airai Master Land Use Plan and Ngchester State Sediment Control Plan, Palau National Master Development Plan, National Biosafety Framework, the National Environment Management Strategy 1994		*Environment Quality Protection Act 1981*		*Natural Heritage Reserve System Act 1991*			*Fisheries Management Act 1999*, *Fishery Zone Act*, *Foreign Fishing Act*, *Marine Resource Protection Act 1994*, *Palau Fishing Authority Act 1980*

continued

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Papua New Guinea	*Biosecurity Act 1993, Conservation Areas Act 1978, Environment Act 2000, Fauna (Protection and Control) Act, Fisheries Management Act 1998, Forestry Act 1991, International Trade (Fauna and Flora) Act 2003, Mining Act, National Parks Act 1992, Physical Planning Act 1989, Whaling Act*	National Biodiversity Strategy and Action Plan 2007	PNG 2050 Vision Strategic Plan, Long Term Development Goal, PNG Forest Policy 1991, Development Strategic Plan 2010 – 2030, Biosecurity Policy Framework, Medium Term Development Plan 2011–2015	*Environment Act 2000, Forestry Act 1991, Land Act 1996*	*Environment Act 2000*	*Conservation Areas Act 1978, Crocodile Protection Act, Environment Act 2000*	*Conservation Areas Act 1978, National Parks Act 1992*	*International Trade (Fauna and Flora) Act 2003, Crocodile Trade (Protection) Act Chapter 213*	*Whaling Act*	*Environment Act 2000, Fisheries Act 1974, Fisheries Management Act 1998, Whaling Act*
Pitcairn Islands		Pitcairn Islands Strategic Development Plan 2012–2016, Pitcairn Islands Environment Management Plan 2008, Henderson Island Management Plan 2004–2009	Environment Charter – Signed with the UK Government in 2001, Environment Impact Assessment Policy.			Endangered Species Protection Ordinance 2004, Apiaries Part I, II, III, IV, Fisheries Zone, Land Tenure Reform, Landing and Residence, New Immigration Control Ordinance 2006, Local Government Regulations	Endangered Species Protection Ordinance 2004, Apiaries Part I, II, III, IV, Fisheries Zone, Land Tenure Reform, Landing and Residence, New Immigration Control Ordinance 2006, Local Government Regulations	Endangered Species Protection Ordinance 2004, Apiaries Part I, II, III, IV, Fisheries Zone, Land Tenure Reform, Landing and Residence, New Immigration Control Ordinance 2006, Local Government Regulations	Endangered Species Protection Ordinance 2004, Apiaries Part I, II, III, IV, Fisheries Zone, Land Tenure Reform, Landing and Residence, New Immigration Control Ordinance 2006, Local Government Regulations	

continued

Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Samoa	*Environmental Impact Assessment Act, Fisheries Act, Forestry Act, Land Survey and Environment Act 1989, National Parks Act, Noxious Weeds Ordinance 1926,Plants Act 1984, Quarantine Biosafety Act 2005, Water Resource Management Act 2008*	National Biodiversity Strategy and Action Plan 2001	Bio-prospective Policy, National Biodiversity Policy 2007, National Climate Change Policy, National Environment Management Strategy, National Coastal Infrastructure Management, National Strategy for Greenhouse Gas Abatement, National Energy Policy, National Land Use Policy, National Waste Management Policy 2001, Sustainable Development of Forests Policy 2007, Water Policy 2007, Strategy for the Development of Samoa 2009-2010, National Adaptation Plan of Action,	*Land Survey and Environment Act 1989, Planning and Urban Management Act 2004*	*Land Survey and Environment Act 1989*	*Land Survey and Environment Act 1989, National Parks 1974*	*National Parks 1974*	*Quarantine (Biosafety) Act 2005*		*Maritime Zones Act 1999, Marine Pollution Prevention Act, Fisheries Protection Act 1972, Fisheries (Ban of Driftnet Fishing) Act 1999, Fisheries Amendment Act 2002*
Solomon Islands (continues next page)	*Environment Act 1998, Fisheries Act 1998, Protection Areas Act 2010, Wild Birds Protection Act [CAP. 45], Wildlife Protection and Management Act 1998*	National Environmental Management Strategy 1993, National Biodiversity Strategy and Action Plan 2009, Action Plan for Programme of Work on Protected Areas, State of the Environment Report 2008, Solomon Islands National Plan of Action – Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security 2010, Solomon Islands National Development Strategy 2011–2020, National Action Plan on Land Degradation and Drought, National Capacity Self-Assessment Project Report 2008,	Fisheries Policy, National Coalition for Reform and Advancement Policy 2010, Solomon Islands National Climate Change Policy 2012–2017	*Environment Act 1998, Forestry Act 1998, Wildlife Protection and Management Act 1998, Wild Birds Protection Act [CAP. 45]*	*Environment Act 1998, Fisheries Act 1998, Forest Resources and Timber Utilisation Act [Cap 40], National Disaster Council Act 1990, Wildlife Protection and Management Act 1998, Wild Birds Protection Act [Cap. 45]*		*Protected Areas Act 2010*, 2009 Rennell-Bellona Province Lake Tegano Heritage Park Ordinance	*Protected Areas Act 2010, Wildlife Protection and Management Act 1998, Wild Birds Protection Act [CAP. 45]*		*Environment Act 1998, Fisheries Act 1998, Fisheries Legislation Amendment Bill, Protected Areas Act, Wildlife Protection and Management Act 1998*

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Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Solomon Islands (continued)		Reports on Climate Change 2005, Biodiversity 2006 and Land Degradation 2006, Solomon Islands National Adaptation Programmes of Action 2008, Natural Disaster Risk Management Programme 2009,								
Tokelau		2010–2015 Tokelau National Strategic Plan, Tokelau Environment Management Strategy 1995				*Marine Pollution Act 1990, Rhinoceros Beetle Regulations 1964*				
Tonga (continues next page)	*Aquaculture Management Act, Birds and Fish Preservation Act, Environmental Impact Assessment Act, Environment Management Act, Fisheries Management Act, Forests Act, Marine Pollution Prevention Act, Park and Reserves Act, Waste Management Act*	National Biodiversity Strategy and Action Plan 2006	Aquaculture Commodity Development Plan 2010–2014, Climate Change Policy 2006, Disaster Risk Management and Climate Change Adaptation National Action Plan, Strategic Development Plan 2009–2013, Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2010–2015, Marine Aquarium Fishery Management Plan, Mangrove Ecosystems for Climate Change Adaptation and Livelihood, National Infrastructure Investment Plan, National Strategic Planning Framework 2011–2014, National Forest Policy 2009, National Disaster Management Plan 2007 PROCFish,	Biosafety Act, *Environment Management Act, Environmental Impact Assessment Act Environmental Impact Assessment Regulations Land Act Emergency Management Act 2007*	*Environment Management Act 2010, Environmental Impact Assessment Act 2003, Forests Act, Forest Produce Regulations, Hazardous Wastes and Chemicals Act, Waste Management Act, Ozone Layer Protection Act*		Polynesian *Heritage Trust Act, Preservation of Objects of Archaeological Interest Act, Environment Management Act 2010*			*Continental Shelf Act Cap 63, Bird and Fish Preservation Act 1915; Fisheries Management Act 2002; Aquaculture Management Act 2003; Marine Pollution Prevention Act 2002*

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Country	Convention of Biological Diversity	National Biodiversity Strategies and Action Plans	National Policy	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto Protocol	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Tonga (continued)			Tonga Environmental Planning and Management Strengthening Project, Tonga National Tuna Fisheries Management Plan (2012–2015), Tonga Sustainable Land Management Project							
Tuvalu	*Environment Protection Act, Foreshore and Land Reclamation Act, Marine Pollution Act, Marine Resources Act, National Fishing Corporation Of Tuvalu Act, Ozone Layer Protection Act, Prohibited Areas Act, Wildlife Conservation Act*	National Biodiversity Strategy Plan of Action, National Strategies for Sustainable Development 2005–2015	Tuvalu National Climate Change Policy	*Environment Protection Act, Foreshore and Land Reclamation Act, Wildlife Conservation Act*	*Environment Protection Act, Ozone Layer Protection Act*	*Environment Protection Act, Foreshore and Land Reclamation Act, Marine Pollution Act, Marine Resources Act, Wildlife Conservation Act*	*Environment Protection Act, Foreshore and Land Reclamation Act, Marine Pollution Act, Prohibited Areas Act*	*Wildlife Conservation Act*	*Environment Protection Act, Marine Resources Act, Prohibited Areas Act, National Fishing Corporation Of Tuvalu Act*	*Environment Protection Act, Marine Pollution Act, Marine Resources Act, Prohibited Areas Act, Wildlife Conservation Act; National Fishing Corporation Of Tuvalu Act*
Vanuatu	*Convention on Biological Diversity Ratification Act 1992, Environment Protection and Conservation Act Cap 283, Fisheries Act Cap 315, Forestry Act Cap 276*	National Biodiversity Strategy Plan of Action 2009, National Capacity Building and Action Plan for Environmental Management	National Adaptation Programme for Action, Vanuatu Biosafety Framework, Pacific Sub Regional Action Plan for conservation, management and sustainable use of tree genetic resources	*Environment Protection and Conservation Act Cap 283, Forestry Act Cap 276, Forestry Rights Registration and Timber Harvest Guarantee Act Cap 265*	*Framework Convention on Climate Change Ratification Act, Montreal Protocol on Substances that Deplete the Ozone Layer Ratification Act Cap 232, Ozone Layer Protection Act 2010*		*Environment Protection and Conservation Act Cap 283, National Parks Act, Preservation of Sites and Artifacts Act*	*Environment Protection and Conservation Act Cap 283; International Trade in Flora and Fauna Act Cap 210*		*Fisheries Act Cap, 315, Maritime Zones Act 2010*
Wallis and Futuna	*Environmental Code*							*Environmental Code*	*Environmental Code*	

continued

Appendix C:

Internal domestic arrangements for Terrestrial and Marine systems in compliance with International law

	Terrestrial		Marine	
Country	**Institutional Arrangement**	**Institutional Arrangement Framework**	**Institutional Arrangement**	**Institutional Arrangement Framework**
American Samoa	Renewable Energy Committee	*Executive Order 004-2010*	Sanctuary Advisory Council	Section 922.106, 15 CFR Part 922 – National Marine Sanctuary of American Samoa
	Territorial Climate Change Advisory Group	Section 3 of the *Executive Order 002-2011*	Coral Reef Advisory Group	Informally established via a mandate from the Governor's Office
	National Park Advisory Board	*National Park System General Authorities Act 1970 (U.S); National Park System Organic Act 1916 (U.S);* Section 3(g)(1) of the *Public Law 100-571 1988*	Harbours Advisory Group	Territorial Executive Order on Ocean Policy
	Environmental Quality Commission	Section 24.0105 of the *American Samoa Administrative Code* Title 24 Chapter 1 – Environmental Quality Commission	American Samoa Coastal Management Programme	Section 24.0502 of the *Coastal Management Act* 1990 (American Samoa)
	Watershed Advisory Group	Territorial Executive Order on Ocean Policy		
	Disaster Emergency Council	Section 26.0105(c) of the *American Samoa Administrative Code*		
	Project Notification and Review System Board	Section 26.0206 C(1) of the *American Samoa Administrative Code*		
Cook Islands	National Environmental Service (*Tu'anga Taporoporo*)	*Environment Act 2003*: Part 1		
	Island Environment Authorities	*Environment Act 2003*: Part 2		
	National Environmental Council	*Environment Act 2003*: Part 3		
	Public Participation under the EIA Procedures	*Environment Act 2003*: Part 5		
	Cook Islands Environment Forum	*Environment Act 2003*: Part 11		
	Cook Islands Biodiversity and Natural Heritage	*Natural Heritage Trust Act 1999*		
	Koutu Nui	*House of Ariki Act*		
	Outer Islands Environment Forum	*Outer Island Local Government Act 1987*; *Island Council By-laws*		

continued

Country	Terrestrial		Marine	
	Institutional Arrangement	Institutional Arrangement Framework	Institutional Arrangement	Institutional Arrangement Framework
Federated States of Micronesia	Environment Protection Agencies	*Environment Protection Act 1984*	Fisheries Section	Responsibility of the Fisheries Section
	Environmental Protection Board	EPA Title 25	National Aquaculture Centre	Responsibility of the Fisheries Section
	Sustainable Development Council	Established by the President	National Oceanic Resource Management Authority	*Marine Resource Act 2002*
	National Biodiversity Strategy and Action Plan Panel	Established by Sustainable Development Council		
	Environment Protection Board	*Environment Protection Act 1984*: Title 25 Chapter 6		
	Chuuk State Environmental Protection Agency	Chuuk State *Environmental Protection Act*: Chapter 1		
	District Advisory Boards	*Environment Protection Act 1984*: Title 25 Chapter 4		
Fiji	National Environmental Council	Section 7(1) of the *Environment Management Act 2005*	Coastal Zone Management Committee	Section 8(3) of the *Environment Management Act 2005*
	Environmental Tribunal	Section 56(1) of the *Environment Management Act 2005*	Mangrove Management Committee	Section 8(2) of the *Environment Management Act 2005*
	Public Participation under the Environment Impact Assessment Procedures	Subsections 19(4), 23(4) and 34(1) of the *Environment Management Act 2005*and s 30 of the EIA Regulations	Fiji International Seabed Authority	Section 6 of the *International Seabed Mineral Management Decree 2013*
	Conservation Committees	Section 6 (1) of the *Land Conservation and Improvement Act.*		
	National Trust	Section 4 of the *National Trust Act*		
	National Trust Council	Section 4 of the *National Trust Act*		
	CITES Scientific Council	Section 7(1) of the *Endangered and Protected Species Act 2002*		
	REDD+ Steering Committee	Section 8(2) of the *Environment Management Act 2005*		
	Environmental Impact Assessment Unit	Section 12(1) of the *Environment Management Act 2005*		
	Fiji Islands CITES Management Authority	Section 4 of the *Endangered and Protected Species Act 2002*		
French Polynesia	Commission of Classified Sites and Monuments	*Environnemental Code* (D.311-1 et A.311-1 à A.311-10)	Sea and Coastal Council	Convention between French Polynesia Government and French High Commission in French Polynesia
	Public surveys	*Environmental Code*; *Land-use Planning Code*		
	Management committees	Established by Ministerial Council Order (*Environmental Code* and *Urban Planning Code*)		
	Enforcement: observe and sanction	*Environment Code* (LP 2013-19); French law		
Guam	Guam Civilian/Military Task Force Environment Sub-Committee	*Executive Order* 2006-10	Guam Coral Reef Initiative Coordinating Committee	
	Guam Building Code Council	*Public Law* 31-17		
	Guam Environmental Education Committee	No formal institution basis – established within the Guam Environment Protection Agency		

continued

Country	Terrestrial		Marine	
	Institutional Arrangement	Institutional Arrangement Framework	Institutional Arrangement	Institutional Arrangement Framework
Kiribati	Phoenix Island Protected Are Management Committee	Phoenix Island Protected Area Regulations 2008; Section 46 of the *Environment Act 1999*	Foreshore Management Committee FMC	Sections 3 and 81 of the *Environment Act 1999*
	National Solid Waste Management Committee	Section 3 and 81 of the *Environment Act 1999*. No specific legal framework		
	National Water and Sanitation Committee	No specific Legal framework although some devolution under Sections 3 and 46 of the *Environment Act 1999*		
	Public Participation under the *Environment Act*	Sections 4b, 6, 7, 19 and 21 of the *Environment Act 1999*		
Marshall Islands (continues next page)	Environment Protection Agency	*National Environment Protection Act 1989*	Coastal Management Advisory Council	Informally established through the Marshall Islands Marine Resources Authority, Environment Protection Agency, College of the Marshall Islands and Marshall Islands Conservation Society
	National Climate Change Committee	Informally established through Local Government and the United Nations	Coastal and Marine Resources Management under the Coral Triangle Initiative of the Pacific Project	Established via the Asian Development Bank and Global Environment Facility
	Office of Environmental Planning and Policy Coordination	*Office of Environmental Planning and Policy Coordination Act 2003*		
	Micronesia Conservation Trust	Established by The Nature Conservancy		
	Pacific Islands Climate Education Partnership	Established via the US National Science Foundation and WestEd		
	Pacific - Australia Climate Change Science and Adaptation Planning Programme	Established via the Australian Department of Foreign Affairs and Trade (ex AusAID); Australian Department of Climate Change and Energy Efficiency; Australian Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organisation, and Marshall Islands National Weather Service Office		
	Integrated Water Resource Management	Established via the Global Environment Facility and Secretariat of the Pacific Community's Applied Geosciences and Technology Division		
	Global Climate Change Alliance: Pacific Small Island States 2011–2014	Established via the European Union, Secretariat of the Pacific Community and Secretariat of the Pacific Regional Environment Programme		
	University of the South Pacific and European Union Global Climate Change Alliance Project 2011–2014	Established via the European Union and University of the South Pacific		
	North Pacific ACP Renewable Energy and Energy Efficiency Project 2010–2014	Established via the European Union and Secretariat of the Pacific Community		

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Country	Terrestrial		Marine	
	Institutional Arrangement	Institutional Arrangement Framework	Institutional Arrangement	Institutional Arrangement Framework
Marshall Islands (continued)	Coping with Climate Change in the Pacific Island Region 2009–2015	Established via the German Ministry for Economic Cooperation and Development, German International Cooperation (GIZ), Secretariat of the Pacific Community and the Office of Environmental Planning and Policy Coordination		
	Schools of the Pacific Rainfall Climate Experiment 1995 – on-going	Research undertaken by the University of Oklahoma		
	European Union B – Envelope water supply	Established via the European Union		
Nauru	National Environment Coordinating Committee	Established in 2002 through the then Ministry of Economic Development and Environment and Republic of Nauru Phosphate Corporation	National Fisheries and Marine Resources Authority	Established under the National Fisheries Development Strategy 1996–2001
	Commerce, Industry and Environment Projects Steering Committee	Established through the Ministry of Commerce, Industry and Environment		
	National Development Committee	Established by Government through no formal arrangements		
	Pacific Islands Climate Change Assistance Program Committee	Established in 1999 by Government through no formal arrangements		
	Republic of Nauru Phosphate Corporation	Established via the *Republic of Nauru Phosphate Act 2005*		
	Nauru Rehabilitation Corporation Land Use Planning Committee	Established via the *Nauru Rehabilitation Corporation Act 1997*		
	National Committee on Climate Change	Established in 1998 under Pacific Islands Climate Change Assistance Program and coordinated by Secretariat of the Pacific Regional Environment Programme		
New Caledonia	North Province Land Use and Urban Planning Committee	Established via the Land Use Planning Commission		
	Committee for the Protection of the Environment (South Province)	Ruling 38-90 APS of 28 March 1990		
	Environmental Consultative Committee	Ruling 155 of 9 January 2006		
	Mines Consultative Committee	Informally established by Government		
	Custom Management	Organic Law and Custom		
	Infraction within protected areas; Penal Sanction	Organic Law		
	Public Surveys	*Environmental Code* and *Land-use Planning Code*		
Niue	Environment Council	Section 15 of the *Environment Act 2003*		
	Environment Unit	Informally established by the Department of Community Affairs		
	Fono and *Tapu*	Informally established out of the Niue Environment Management Strategy by the Department of Community Affairs		

continued

Country	Terrestrial		Marine	
	Institutional Arrangement	Institutional Arrangement Framework	Institutional Arrangement	Institutional Arrangement Framework
Northern Marianas	Division of Environment Quality	*Public Law* 3-23	Division of Fish and Wildlife	*Fish, Game and Endangered Species Act*
	Saipan Zoning Board	*Public Law* No. 6-32, 2 CMC §7221	Coastal Advisory Council	Section 402 of the *Coastal Resource Management Act 2003*
	Watershed Working Group	Informally established by Government and the Working Group for the Coral Reef Initiative	Coral Reef Advisory Group	
	Commonwealth of the Northern Mariana Islands Wetlands Task Force	Informally established by Government	Marine Monitoring Team	Informally established by Government under the Commonwealth of the Northern Mariana Islands State of the Coral Reef Project
	Marianas Public Lands Authority	*Public Lands Exchange Act*	Palau Fisheries Advisory Committee	Established under Presidential Executive Order No. 204
Palau	Environment Quality Protection Board	Established under the *Environment Quality Protection Act 1981* and *Environment Quality Protection Board Regulation*		
	Palau Conservation Society	Informally established by Government		
	National Environment Protection Council	Established under Presidential Executive Order 205		
	Invasive Species Committee of Palau	Part of the National Environment Protection Council established under Presidential Executive Order 205		
	Protected Areas Network	Established under the *Protected Areas Network Act*		
	Palau Natural Resource Council	Established under the *Protected Areas Network Act*		
	Sustainable Tourism Task Force	Established under Presidential Executive Order		
	Public Participation	Informally via Article V (Traditional Rights) of the Constitution		
Papua New Guinea	National Environmental Council	Section 17(1) of the *Environment Act 2000*	National Fisheries Authority	Section 4 of the *Fisheries Management Act*
	Environment Protection Orders	Section 101 of the *Environment Act 2000*	National Fisheries Board	Section 4 of the *Fisheries Management Act*
	Management Authority	Section 3A(1) of the *International Trade (Fauna and Flora) Act 1979*	Coral Triangle Initiative of the Pacific Project	Established via the Asian Development Bank and Global Environment Facility
	Environment Consultative Group	Section 26(1) of the *Environment Act 2000*		
	National Conservation Council	Section 4 of the *Conservation Areas Act*		
	Wildlife Management Committees.	Section 16(a) of the *Fauna Protection and Control Act*		
	National Forest Authority	Section 5 of the *Forestry Act*		
	Public Participation under the Environment Impact Assessment Procedures	Sections 51, 54 and 55 of the *Environment Act 2000*		
Pitcairn Islands				

continued

Country	Terrestrial		Marine	
	Institutional Arrangement	Institutional Arrangement Framework	Institutional Arrangement	Institutional Arrangement Framework
Samoa	National Disaster Management Council	Section 5 of the *Disaster/ Emergency Management Act 2007*	Village Fono (Fisheries By Laws)	Section 3(4) of the *Fisheries Act 1988*
	National Climate Change Country Team and National Adaptation Plan of Action Steering Committee	Informally established under the National Climate Change Policy	South Pacific Regional Fisheries Management Organisation	Established under the provisions following the signing of the Convention on Conservation and Management of High Seas Fishery Resources in South Pacific Ocean
	Biodiversity Steering Committee	National Policy on Convention for Biological Diversity Policy 2007	Western and Central Pacific Fisheries	Established under the provisions following the signing of the Convention on Conservation and Management of High Migratory Fish Stocks in the Western and Central Pacific Ocean
	Planning Board	Section 5 of the *Planning and Urban Management Act 2004*	Community-Based Fisheries Programme	Informally established by the Village Fisheries Management Committee and Ministry of Agriculture and Fisheries
	Planning Tribunal	Section 67 of the *Planning and Urban Management Act 2004*	Mangrove EcoSystems for Climate Change Adaptation and Livelihood Project	Informally established by the Demonstration Site Implementing Committee
	National Heritage Coordinating Committee	Informally established under the National Heritage Conservation Policy	Village-level Coral Reef Monitoring Reef Project	Informally established by the Fono Village Council and Ministry of Agriculture and Fisheries
	National Environmental Management and Development Committee	Informally established under the National Environmental Management Strategy		
	Environment Board	Section 97of the *Lands Survey and Environment Act 1989*		
Solomon Islands	Lake Tegano World Heritage Site Association and Management Committee	Established via the Australian Department of Foreign Affairs and Trade (ex AusAID) and Australian Department of Environment through the Strengthening Management Capacity in East Rennell World Heritage Area programme.	Coral Triangle Initiative of the Pacific Project	Established via the Asian Development Bank and Global Environment Facility
	Protected Areas Advisory Committee	Appointed by the Minister under Part 2 of the *Protected Areas Act 2010*		
Tokelau				
Tonga	Environment and Climate Change Committee	Section 13 of the *Environment Management Act*.	Special Management Area	Section 13(1) of the *Fisheries Management Act 2002*
	Environmental Assessment Committee	Section 13 of the *Environmental Impact Assessment Act 2003*	Aquaculture Advisory Committee	Section 11 of the *Aquaculture Management Act 2003*
	National Biosafety Advisory Committee	Section 5(1) of the *Biosafety Act 2009*	Fisheries Management Advisory Committee	Section 8 of the *Fisheries Management Act 2002*
	Trust Board	Section 4 of the Polynesian Heritage Trust Act	National Marine Pollution Committee	Section 16 of the *Marine Pollution Prevention Act 2002*
	Waste Management Authority	Section 5 of the *Waste Management Act*		
	National Ozone Advisory Committee	Section 4(1) of the *Ozone Layer Protection Act 2010*		

continued

Country	Terrestrial		Marine	
	Institutional Arrangement	Institutional Arrangement Framework	Institutional Arrangement	Institutional Arrangement Framework
Tuvalu	National Environment Forum and Council	Section 14 of the *Environment Protection Act*	Board of Directors of the Corporation	Section 6 of the *National Fishing Corporation Of Tuvalu Act*
	Island Environment Committee	Section 16 of the *Environment Protection Act*	Fishery Management Plan	Section 8 of the *Marine Resources Act*
	Development Coordinating Committee	Informally established by Government		
Vanuatu	Biodiversity Advisory Council	Established under the *Convention on Biological Diversity Ratification Act 1992* and *Environment Protection and Conservation Act Cap 283*	Tuna Management Advisory Committee	Section 3.1 of the Tuna Management Plan 2009
	Scientific Advisory Council	Section 24of the *Vanuatu Agricultural Research and Technical Centre Act* [Cap 286]		
	National Advisory Board – Climate Change and Disaster Risk Reduction and National Advisory Committee on Climate Change and National Task Force in Disaster Reduction	Informally established by Government		
	National Water Resource Management Advisory Committee	Section 15 of the *Water Resources Management Act Cap 281*		
	National Ozone Advisory Committee	*Ozone Layer Protection Act 2010*		
	Scientific and Management Authority	*International Trade Fauna and Flora Act, Cap 210*		
	EIA Review Committee	Section 5(1)(b) of the *Environment Protection and Conservation Act Cap 283* and s 13 of the *EIA Regulation*		
	Provincial Governments	Section 82 of the Vanuatu Constitution and s 83 of the *Decentralisation Act Cap 230*		
	Alternative Dispute Resolution for Environmental Related disputes	Section 45(1)(c) of the *Environment Protection and Conservation Act Cap 283*		
	Traditional Governance	Section 29 of the Vanuatu Constitution, s 74 of the *National Council of Chiefs Act*; *Customary Land Tribunal Act*; *Environment Protection and Conservation Act Cap 283* and ss 34(6), 34B and s39 of the *Environmental Management and Conservation (Amendment) Act 2010*		
	Mechanisms for stakeholder consultation	Sections 9(5), 18(4), 33(2)(fb), 33(2A), and 34 of the *Environment Protection and Conservation Act Cap 283* and ss 5(2), 10 and 14of the EIA Regulations Order 175 of 2011		
Wallis and Futuna	Public survey	Environmental Code		
	Territorial Assembly Commission on Environmental Matters	WF environmental code		
	Territorial Council	1961 Status		
	Custom Management	Organic Law and Custom		
	Infraction in protected areas and Penal Sanction	Organic Law		

Appendix D:

International and domestic conservation initiatives

(next page)

Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
American Samoa								
Cook Islands	Year of Love Your Coast; National Research Foundation; Koutu Nui; Capacity Building for Sustainable Land Management; Reserve and Protected Areas		Pacific Adaptation to Climate Change		SIDS Capacity-Building Programme; Cook Islands Biodiversity and Natural Heritage			Pacific Oceanscape Framework
Federated States of Micronesia	Micronesian Ethno botany Project; Youth Conservation Corps; People's and Community Garden initiative; Pacific Adaptation to Climate Change; Invasive Alien Species Project; Micronesia Challenge; Youth Environmental Ambassadors Club; Conservation Programme; Blueprint for Conserving the Biodiversity of the Federated States of Micronesia; Coral Reef Conservation International Programme; Federated States of Micronesia Protected Areas Network; Pacific Island Framework for Action on Climate Change 2006–2015; Red List; Pacific Sea level and Climate Monitoring Project; Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island; Pacific Regional Solid Waste Management Strategy; Pacific Agricultural Plant Genetic Resources Network	Micronesian Ethno botany Project; Youth Conservation Corps; People's and Community Garden initiative; Pacific Adaptation to Climate Change; Invasive Alien Species Project; Micronesia Challenge; Youth Environmental Ambassadors Club; Conservation Programme; Blueprint for Conserving the Biodiversity of the Federated States of Micronesia; Coral Reef Conservation International Programme; Federated States of Micronesia Protected Areas Network; Pacific Island Framework for Action on Climate Change 2006–2015; Red List; Pacific Sea level and Climate Monitoring Project; Sustainable Land Management Programme	Micronesian Ethno botany Project; Youth Conservation Corps; People's and Community Garden initiative; Pacific Adaptation to Climate Change; Invasive Alien Species Project; Micronesia Challenge; Youth Environmental Ambassadors Club; Conservation Programme; Blueprint for Conserving the Biodiversity of the Federated States of Micronesia; Coral Reef Conservation International Programme; Federated States of Micronesia Protected Areas Network; Pacific Island Framework for Action on Climate Change 2006–2015; Red List; Pacific Sea level and Climate Monitoring Project; Pacific Islands Climate Change Assistance Program					Micronesian Ethno botany Project; Youth Conservation Corps; People's and Community Garden initiative; Pacific Oceanscape Framework Pacific Adaptation to Climate Change; Invasive Alien Species Project; Micronesia Challenge; Youth Environmental Ambassadors Club; Conservation Programme; Blueprint for Conserving the Biodiversity of the Federated States of Micronesia; Coral Reef Conservation International Programme; Federated States of Micronesia Protected Areas Network; Pacific Island Framework for Action on Climate Change 2006–2015; Red List; Pacific Sea level and Climate Monitoring Project; Coping with climate change in the Pacific Island Region programme; Smart Fishing Initiative

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Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Fiji	Coral Triangle Initiative Pacific; Mangrove EcoSystems for Climate Change Adaptation and Livelihood Project; Fiji Locally Managed Marine Area; Community Based Resource Management; American Iguana Bounty Initiative; Endangered species Programme; Battling Invasive Species; Marine and Coastal Biodiversity Management in the Pacific Islands; Pacific Mangroves Initiative; Biodiversity and Protected Areas Management Programme; Sigatoka Sand dunes; YaduaTaba Crested Iguana Sanctuary; Pacific Adaptation to Climate Change; Pacific Islands Framework for Action on Climate Change		Pacific Mangroves Initiative; Pacific Adaptation to Climate Change; Pacific Islands Framework for Action on Climate Change	Coral Triangle Initiative Pacific; Mangrove EcoSystems for Climate Change Adaptation and Livelihood Project; Pacific Mangroves Initiative; Biodiversity and Protected Areas Management Programme	Marine and Coastal Biodiversity Management in the Pacific Islands; Biodiversity and Protected Areas Management Programme; Sigatoka Sand dunes; YaduaTaba Crested Iguana Sanctuary	Coral Triangle Initiative Pacific; Mangrove EcoSystems for Climate Change Adaptation and Livelihood Project; Fiji Locally Managed Marine Area; Community Based Resource Management; American Iguana Bounty Initiative; Endangered species Programme; Biodiversity and Protected Areas Management Programme		
French Polynesia	Bird Conservation with Manu				Fakarava Biosphere Reserve			
Guam	Marine Biodiversity of Guam; The Micronesia Challenge; Guam Community Coral Reef Monitoring Programme; Piti Pride Tepungan Wide					The Micronesia Challenge; Piti Pride Tepungan Wide	The Micronesia Challenge; Piti Pride Tepungan Wide	The Micronesia Challenge; The Micronesia Challenge; Guam Community Coral Reef Monitoring Programme; Piti Pride Tepungan Wide
Kiribati	Phoenix Island Protected Areas Trust; Pacific Oceanscape Framework		Phoenix Island Protected Areas Trust; Pacific Oceanscape Framework	Phoenix Island Protected Areas Trust; Pacific Oceanscape Framework	Phoenix Island Protected Areas Trust; Pacific Oceanscape Framework			
Marshall Islands	Micronesia Challenge	Sustainable Land Management Project	Solar Energy (Photovoltaic) Initiative; Pacific Adaptation to Climate Change	Mangrove Rehabilitation Project				Pacific Oceanscape Framework
Nauru	Nauru Development Forum or Presidents Forum on Development, Society and Environment		Pacific Adaptation to Climate Change			Nauru Development Forum or Presidents Forum on Development, Society and Environment	Nauru Development Forum or Presidents Forum on Development, Society and Environment	Pacific Oceanscape Framework

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Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
New Caledonia	Coral Sea Marine Protected Area; Programme Foret Seche; IBA-ZICO		One day one tree a life		Lagoons of New Caledonia: Reef Diversity and Associated Ecosystems		Operation Cetaces	
Niue	Biodiversity Roundtable; Huvalu Forest Conservation Area; Hakupu Heritage and Cultural Park; Anomo Marine Reserves; Fono and Tapu	Sustainable Land Management	Pacific Adaptation to Climate Change					Pacific Oceanscape Framework
Northern Marianas	Micronesian Challenge; Marianas Islands Nature Alliance; Beautify Commonwealth of the Northern Mariana Islands; Micronesian Conservation Trust/ RARE Planet; The Micronesia in Island Conservation; Commonwealth of the Northern Mariana Islands Coral Reef Initiative							
Palau	Micronesian Challenge; The Micronesia in Island Conservation; Micronesian Conservation Trust/RARE Planet; Palau Inter Coral Reef Initiatives; The Nature Conservancy Marine Resource Pacific Consortium – Palau; Transforming Coral Reef Conservation in the 21st Century		Transforming Coral Reef Conservation in the 21st Century; Pacific Adaptation to Climate Change					Pacific Oceanscape Framework
Papua New Guinea (continues next page)	Kokoda Initiative; Mangrove Rehabilitation for Sustainably-Managed Healthy Forests Project; Coral Triangle Initiative Pacific; Sea Turtle Restoration Project; Locally managed marine areas; International Climate Change Adaptation Initiative; Rural Coastal Fisheries Development Programme; Pacific Invasive Partnership; Biodiversity and Protected Area Management; Red List; Pacific Adaptation to Climate Change;		Pacific Adaptation to Climate Change	Sea Turtle Restoration Project; Locally managed marine areas; Rural Coastal Fisheries Development Programme; Biodiversity and Protected Area Management		Sea Turtle Restoration Project; Rural Coastal Fisheries Development Programme; Red List; Smart Fishing Initiative; PNG Development Strategic Plan; Fourth Mid-term Development Strategy Principal		Pacific Oceanscape Framework; Coral Triangle Initiative Pacific

continued

Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Papua New Guinea (continued)	REDD+ Initiative; Environmentally Sustainable Economic Growth initiative; OXFAM working Lives Programme; PNG Australia Forest Carbon Partnership; Forest Preservation Programme; Forest Management and Product Certification Service - Payment for Environmental Services trial project; Climate Protection through Forest Conservation in Pacific Island Countries; Smart Fishing Initiative; ITTO Pre-project; PNG Development Strategic Plan; Papua New Guinea Vision 2050; Fourth Mid-term Development Strategy Principal							
Pitcairn Islands	Pitcairn Islands Marine Reserve					Pitcairn Islands Marine Reserve	Pitcairn Islands Marine Reserve	Pitcairn Islands Marine Reserve
Samoa	Pacific Oceanscape Framework		Pacific Adaptation to Climate Change; Mangrove EcoSystems for Climate Change Adaptation and Livelihood project			Pacific Oceanscape Framework	Pacific Oceanscape Framework	Pacific Oceanscape Framework
Solomon Islands	Strengthening Coastal and Marine Resources Management in the Coral Triangle Initiative of the Pacific (Phase II); Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security; Mangrove Ecosystem for Climate Change and Livelihoods; Solomon Islands Locally Managed Marine Area Network; National Capacity Self-Assessment		Mangrove Ecosystem for Climate Change and Livelihoods; Pacific Adaptation to Climate Change; National Capacity Self-Assessment					Pacific Oceanscape Framework
Tokelau	South Pacific Biodiversity Conservation Programme		Pacific Adaptation to Climate Change	The Pacific Islands Ramsar Wetlands Initiative				Pacific Oceanscape Framework

continued

Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Tonga	Agence Française de Development/Secretariat of the Pacific Regional Environment Programme Regional Solid Waste Management Initiative; Pacific Islands Framework for Action on Climate Change; Community-Based Resource Management of Coastal Special Management Areas; Pacific Mangroves Initiative; Mangrove Ecosystem for Climate Change and Livelihoods; Model Species Recovery Plan; International Climate Change Adaptation Initiative; University of the South Pacific-EU Global Climate Change Alliance project; Coping with Climate Change in the Pacific Island Region Programme; Pacific Adaptation on Climate Change 2008–2013; South Pacific Sea Level and Climate Monitoring Project; Disaster Preparedness - Coping Communities Initiative; Red List of Threatened Species; Marine and Coastal Biodiversity Management in Pacific Islands; Biodiversity and Protected Area Management; E-Waste Project - Waste Electrical and Electronic Equipment; Vava'u Turtle Monitoring Programme; Pacific Adaptation to Climate Change		Pacific Mangroves Initiative; Mangrove EcoSystems for Climate Change Adaptation and Livelihood project; Pacific Adaptation to Climate Change	Pacific Mangroves Initiative; Mangrove Ecosystem for Climate Change and Livelihoods; Marine and Coastal Biodiversity Management in Pacific Islands; Biodiversity and Protected Area Management		Biodiversity and Protected Area Management		Pacific Oceanscape Framework
Tuvalu (continues next page)	Red List; Tuvalu International Watters Project; Integrated Sustainable Wastewater Management; Funafuti Marine Conservation Area; Pacific Islands Greenhouse Gas Abatement through Renewable Energy project; Island Care Project;		Pacific Adaptation to Climate Change					Pacific Oceanscape Framework

continued

Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Tuvalu (continued)	Tree and mangrove Planting Initiative/Establishing and managing Conservation Areas; Small is Beautiful and other Awareness Programmes; Aqua culture Project; Pacific Adaptation to Climate Change; Agence Française de Development/Secretariat of the Pacific Regional Environment Programme Regional Solid Waste Management Initiative; Global Environment Facility - Pacific Alliance for Sustainability Persistent Organic Pollutants Release Reduction Through Improved Management of Solid and Hazardous Wastes; Global Climate Change Alliance; Coping with Climate Change in the Pacific Island Region; Increasing Resilience of Coastal Areas and Community Settlements to Climate Change in Tuvalu; South Pacific Sea-Level and Climate Monitoring Project; Tuvalu National Strategic Action Plan For Climate Change And Disaster Risk Management							
Vanuatu (continues next page)	Pacific Islands regional Ocean Policy 2002; Action Strategy for Nature Conservation in the Pacific Islands region (including 30 year goals for the Environment and Pacific Protected Area Database); Region-wide initiative pledge for MPAs in line with National Biodiversity Strategic Action Plan implementation; Our Sea of Islands Forum; Pacific Oceanscape Framework; Coral Triangle Initiative;		Mangrove EcoSystems for Climate Change Adaptation and Livelihood project; Pacific Adaptation to Climate Change; Pacific Islands regional Ocean Policy 2002; Action Strategy for Nature Conservation in the Pacific Islands region (including 30 year goals for the Environment and Pacific Protected Area Database);		Vanua Tai Marine Community Conservation Area Network; Chief Roimata's Domain		Vanuatu Whale Sanctuary	Pacific Islands regional Ocean Policy 2002; Action Strategy for Nature Conservation in the Pacific Islands region (including 30 year goals for the Environment and Pacific Protected Area Database); Region-wide initiative pledge for MPAs in line with National Biodiversity Strategic Action Plan implementation; Our Sea of Islands Forum;

continued

Country	Convention of Biological Diversity	United Nations Convention to Combat Desertification	United Nations Convention on Climate Change and Kyoto	Convention on Wetlands of International Importance (Ramsar)	Convention Concerning the Protection of the World's Cultural and Natural Heritage	Convention on International Trade in Endangered Species	Convention on Migratory Species of Wild Animals	United Nations Law of the Sea Convention and Straddling Fish Stocks Agreement
Vanuatu (continued)	Forestry and Protected Area Management in Fiji, Niue, Samoa and Vanuatu - Specific Initiatives through "Our Forest - Our Future"; Initiative for the Protection and Management of Coral Reefs in the Pacific; Pacific Mangrove Initiative; Mangrove Rehabilitation for Sustainably Managed Forests; Mangrove Ecosystems for Climate Change and Livelihoods; Equator Initiative; World Bank/EU/Global Environment Facility/ Global Facility for Disaster Reduction and Recovery, in collaboration with the NAB Climate Change and Disaster Risk Management Project; Nguna-Pele Marine Protected Area Network; Vanuatu Protected Area Initiative; Vanua Tai Marine Community Conservation Area Network; Sarakata Basin Integrated Flood Management Plan		Region-wide initiative pledge for MPAs in line with National Biodiversity Strategic Action Plan implementation; Our Sea of Islands Forum; Pacific Oceanscape Framework; Forestry and Protected Area Management in Fiji, Niue, Samoa and Vanuatu - Specific Initiatives through "Our Forest - Our Future"; Pacific Mangrove Initiative; Mangrove Rehabilitation for Sustainably Managed Forests; Equator Initiative; International Climate Initiative; Climate protection through forest conservation in the South Pacific; Managing Marine and Coastal Biodiversity in Pacific Island States and Atolls; World Bank/EU/Global Environment Facility/ Global Facility for Disaster Reduction and Recovery, in collaboration with the NAB Climate Change and Disaster Risk Management Project; Sarakata Basin Integrated Flood Management Plan					Pacific Oceanscape Framework; Vanuatu Whale Sanctuary; Regional Initiatives for the sustainable use and conservation fish stocks; Nguna-Pele Marine Protected Area Network; Vanuatu Protected Area Initiative; Vanua Tai Marine Community Conservation Area Network
Wallis and Futuna	INTEGRE (Pacific Territories Initiative for Regional Management of the Environment); IFRECOR (French Coral Reef Initiative)							

Appendix E:
Domestic Measures for the Conservation of Habitats

(next page)

	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
Country	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**
American Samoa	*American Samoa Admin Code Title 26*		Watershed Plans for Villages	*American Samoa Admin Code Title 26; Comprehensive Environmental Response, Compensation and Liability Act (U.S)*			*American Samoa Admin Code Title 24; American Samoa Admin Code Title 25*						Executive Order No. 010A – 2007; General Memorandum No. 041-2008; *American Samoa Admin Code Title 24; Samoa Admin Code Title 26*	Territorial Climate Change Adaptation Framework	
Cook Islands	*Environment Act 2003*		Draft Suwarrow National Park and Biodiversity Conservation Plan	*Environment Act 2003*			*Public Health (Sewage) Regulations 2008; Biosecurity Act; Prevention of Marine Pollution Act 1998*		Takitumu Lagoon Management Plan; Takuvaine Water Catchment Area Mgmt Plan	*Conservation Act 1988; Environment Act 2008; Native Timber Preservation Ordinance 1957*	Forest Policy Statement; National Forest Programme		*Environment Act (Ozone Layer Protection) Regulations 2008*		National Action Plan for Disaster Risk Management
Federated States of Micronesia				*Environment Protection Act; Environment Impact Regulations*										Nationwide Climate Change Policy 2009	
Fiji (continues next page)	*Town and Planning Act; Land Use Decree*		Town Planning Act General Order	*Environment Management Act; Environment Management (EIA Process) Regulations*	Environmental Impact Assessment Guidelines		*Environment Management Act; Environment Management (Waste Disposal and Recycling) Regulations 2007; Litter Decree*		National Solid Waste Management Strategy; National Liquid Waste Management Strategy and Action Plan	*Deforestation and Mining Act; Forest Decree; iTaukei Land (Forest) Regulations [Cap 134]; Mining Act; International Seabed Mineral Management Decree 2013*		Fiji Sustainable Economic and Empowerment Development Strategy; Mangrove EcoSystems for Climate Change Adaptation and Livelihood Project; Fiji's REDD+ Policy	*Natural Disaster Management Act*	National Climate Change Policy; REDD+ Policy, Coping with Climate Change in the Pacific Island Region; Roadmap for Democratic, Sustainable, Socio Economic Development 2009–2014;	Disaster Risk Management Strategy; Disaster Risk Reduction and Disaster Management: A Framework for Action 2005–2015; Regional Islands Framework for Disaster Risk Reduction and Disaster Management 2005–2015;

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Country	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
Fiji (continued)														Clean Development Mechanism Policy; Green Growth Initiative, Pacific Mangroves Initiative	Pacific Island Framework for Action on Climate Change 2006–2015
French Polynesia	*Urban Planning Code*			*Environmental Code*						*Mining Code*					Climate Strategic Plan
Guam	*Land Use Plan*				Guidelines for the Preparation of Environmental Impact Assessments and Statements		*Resource Conservation and Recovery Act*		Integrated Solid Waste Management Plan			Statewide Forest Resources Assessment and Resource Strategy; Natural Resources Conservation Education Programme			Disaster Assistance Program
Kiribati	*Closed District Acts 1990; Land Planning Ordinance 1972; Land Planning Ordinance 1973, Environment Act 1999; Local Government Act 1984; Recreation Reserves Act 1996; Town Council By-Laws (Betio Council By-Laws)*			*Environment Act 1999*	National Environment Management Strategies		*Carriage of Goods Act by Sea 1926; Customs Act 1993; Nuclear Installation Ordinance 1972; Marine Pollution Prevention Bill 2000; Public Health Ordinance 1926; Public Health Regulations 1926*	Integrated Solid Waste Management Plan	National Waste Management Strategy 2000	Mineral Developments Licensing Ordinance;			*National Disaster Act 1993; Public Utilities Ordinance 1977; Public Health Ordinance 1926*	Climate Change Policy	Climate Change Strategy; Climate Change Action Strategy; National Action Plan; Kiribati Action Plan

continued

	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
Country	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
Marshall Islands			National Coastal Management Framework	*Environmental Impact Assessment Regulations 1992*				National Environmental Management Strategy							
Nauru	*Agricultural Quarantine Act*; *Nauru Rehabilitation Corporation Act 1997*		National Environmental Action Plan; National Environmental Management Strategy				*Litter Prohibition Act 1983*;	Regional Solid Waste Management Initiative; National Water, Sanitation and Hygiene Policy; Integrated Waste Management Plan		*Republic of Nauru Phosphate Act*	Sustainable Land Management Milestones	National Sustainable Development Strategy (2005-2025); Nauru Rehabilitation Corporation's Five Year Strategy (2007–2012)			National Environmental Action Plan; Climate Change Response; National Environmental Management Strategy
New Caledonia	*Organic Law 1999*		New Caledonia 2025 Land Use Planning and Sustainable Development Strategy							*Mining Code*					
Niue	*Environment Act*		National Environmental Management Strategy	*Environment Act*; Draft Environmental Impact Assessment-Regulations			*Environment Act*; *Environment Management (Waste Disposal and Recycling) Regulations*			*Forest Bill*; *Mining Act*		Niue Forest Policy; National Action Plan for Combating Land Degradation and Drought and Sustainable Land Management	*Ozone Layer Protection Regulations*		National Climate Change Adaptation Programme
Northern Marianas (continues next page)	*Coastal Zone Management Act*; *Public Land Exchange Act*; *Wetlands: Clean Water Act*;	Coastal Resource Management Programme; Coastal Management Programme	Laolao Bay Conservation Action Plan 2009; Comprehensive Wildlife Conservation Strategy 2005;	*National Environment Protection Act*		Coastal Resource Management Programme	*Clean Air Act*; *Federal Water Pollution Control Act*; *Clean Water Act*; *Harmful Substance Cleanup Regulations*;			*Earthmoving and Erosion Control Regulations*					

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Country	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
Northern Marianas (continued)	*Rivers and Harbours Act*, *Coastal Zone Management Act*		Management Plan for the Managaha Marine Conservation Area 2005; Management Plan for the Bird Island Wildlife Conservation Area and Bird Island Marine Sanctuary 2007; Kagman Wildlife Conservation Area and Forbidden Island Marine Sanctuary Management Plan 2007				*Hazardous Waste Regulations*; *Pesticide Management Regulations*; *Used Oil Management Regulations*; *Wastewater Treatment and Disposal Rules and Regulations*; *Wastewater Treatment Regulation*, *Solid Waste Management Regulations*; *Litter Control Act*								
Palau	*Public Land PNC Title 35*; *Land Planning Act*; *Environment Quality Protection Act*; *Koror Municipal Zoning Act*; *Natural Heritage Reserves System Act 1999*; *Ngerukewid Islands Wildlife Reserve Land Planning Act*			*Environment Quality Protection Act*; *Environmental Impact Assessment Regulations*		Environment and Natural Resource Development Action Plan	*Environment Quality Protection Act*, *Solid Waste Regulations* (under the *Recycling Programme Act*); *Sanitation Public Health Safety and Welfare Act*; *Air Pollution Regulations*; *Fresh and Marine Water Quality Regulations*; *Clean Water Act*		Solid Waste Management Plan 2008; National Pollutant Discharge Elimination System	*Environment Quality Protection Act*; *Palau Forestry Practice Bill*; *Palau Wildland Fire and Forest Management Bill*; *Mines and Minerals Bill 1987*; *Petroleum Bill 1987*; *Petroleum Regulations 1987*; *Earthmoving Regulations*		Forest Management Plan	*Environment Quality Protection Act*		Climate Change Risk Management and Adaptation Road Map; Climate Change Policy Framework

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	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
Country	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**
Papua New Guinea	*Physical Planning Act 1989*; *Environment Act 2000*			*Environment Act 2000*			*Environment Act 2000*; *Dumping of Wastes at Sea Act 1979*; *Dumping of Wastes at Sea Regulation 1980*; *Environment (Registration of Contaminants and Hazardous Contaminants) Regulation*; *National Water Supply and Sewerage Act 1986*			*Forestry Act*; *Mining Act*	Forest Policy		*Disaster Management Act 1984*; *Disaster Management (Amendment) Act 1997*		
Pitcairn Islands	*Land Tenure Reform Ordinance*				Procedural Manual For Environmental Impact Assessments										
Samoa	*Lands Survey and Environment Act 1989*; *National Parks and Reserves Act 1974*; *Taking of Lands Act 1964*	National Land Use Policy		*Planning and Urban Management Act 2004*; *Environmental Impact Assessment Regulation*	*National Land Use Policy*		*Marine Pollution Prevention Act 2008*; *Waste Management Act 2010*	Waste Management Policy 2002		*Forestry Management Act 2011*	Forest Conservation Policy; Forestry for Sustainable Development Policy		*Disaster and Emergency Management Act 2007*		National Action Plan for Disaster Risk Management

continued

	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
Country	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**
Solomon Islands	*Town and Country Planning Act [Ch 154]*	Local Planning Schemes	Solomon Islands National Development Strategy 2011 – 2020; National Adaptation Programme of Action; Pacific Mangroves Initiative	*Environment Act 1998*; *Environment Regulations 2008*	Environmental Impact Assessment Guidelines	Solomon Islands National Development Strategy 2011–2020	*Environment Act 1998*; *Environment Regulations 2008*		National Solid Waste Management Strategy; Japanese Technical Cooperation Project Promotion for Regional Initiative on Solid Waste Management Plan	*Mines and Minerals Act 1996*; *Mines and Minerals Regulations 1996*; *Forest Resources and Timber Utilisation Act*; *Forest Resources and Timber Utilisation Protected Species Act*	Solomon Islands Code of Logging Practice		*National Disaster Act*	Regional Islands Framework for Disaster Risk Reduction and Disaster Management 2005–2015	National Climate Change Policy 2012–2017; National Disaster Plan; Pacific Island Framework for Action on Climate Change 2006–2015; National Adaptation Programme of Action; Clean Development Mechanism
Tokelau									National Waste Management Strategic Plan 2007			Tokelau National Strategic Plan			
Tonga	*Land Act*; *Environment Management Act 2010*; *Environmental Impact Assessment Act 2003*; *Environmental Impact Assessment Regulations 2010*; *Waste Management Act 2005*; *Parks and Reserves Act*; *Forest Act*	Strategic Development Plan 8; National Forest Policy; Tonga Sustainable Land Management Project; Building Code	Urban Planning Management System; Integrated Urban Infrastructure Development Sector Plan	*Environment Management Act 2010*; *Environmental Impact Assessment Act 2003*; *Environmental Impact Assessment Regulations 2010*	*Waste Management Act 2005*; *Hazardous Wastes and Chemicals Act 2010*; *Health Services Act*; *Marine Pollution Prevention Act*; *Ozone Layer Protection Act 2010*; *Public Health Act*		*Waste Management Act*		Japan Technical cooperation Project for promotion of regional waste Initiative on Solid Waste Management in Pacific Island Countries	*Minerals Act*; *Forests Act*; *Forest Produce Regulations*; *Land Act Petroleum Mining Act [Cap 134]*; *Petroleum Mining Regulations*; *Land Timber Regulations [Cap 132B]*	National Forest Policy 2009; Tonga Sustainable Land Management Project	Tonga Strategic Planning Framework 2011–2014	*Ozone Layer Protection Act 2010*; *Emergency Management Act 2007*	Pacific Islands Framework of Action on Climate Change 2006–2015; Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005–2015 and 2009–2014	Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2010-2015; Disaster Risk Management and Climate Change Adaptation Action Plan

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	Land Use Planning			Environmental Impact Assessment			Pollution and Waste Management			Deforestation and Mining			Climate Change and Disaster Impacts		
Country	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**	**Law**	**National Policy**	**Strategy/ Action Plan**
Tuvalu			Sustainable Development Plan 2005-2015	*Environment Protection Act*			*Environment Protection Act*			*Mineral Development Act*				Tuvalu National Climate Change Policy	
Vanuatu	*Environment Protection and Conservation Act Cap 283; Environmental Management and Conservation (Amendment) Act 2010*		National Biodiversity Strategy and Action Plan;	*Environment Protection and Conservation Act Cap 283; Environmental Management and Conservation (Amendment) Act 2010*			*Pollution Control Act 2013*		National Coastal Management Framework	*Forestry Act; Mines and Minerals Act*	Code of Logging Practice (2000); Reduced Impact Logging Guidelines		*Framework Convention on Climate Change Ratification Act*		National Adaptation Plan of Action
Wallis and Futuna			Maritime Area Management Plan	*Environmental Code*			*Environmental Code*						*Environmental Code*		

Appendix F:
Domestic Measures for the Conservation of Species

(next page)

	Endangered Species			Invasive Species			Genetic Resources			Biosafety		
Country	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
American Samoa	*American Samoa Admin Code Title 24*: Chapter 7 - Endangered Species and Chapter 10 – Community-Based Fisheries Management Programme	Coral Reef Marine Protected Area Strategy; *Endangered Species Act (U.S) 1973*	Coral Reef Marine Protected Area Strategy; Village Fisheries Management Plans	*American Samoa Admin Code Title 24;* Chapter 3 – Office of Marine and Wildlife Resources	National Invasive Species Act of 1996 (U.S)	American Samoa Invasive Species Team						
Cook Islands	Biosecurity Act 2008			Biosecurity Act 2008	Guidelines developed by the Ministry of Agriculture to manage agricultural invasive species	All vessels require a Biosecurity Clearance; Rat control in Takitumu Conservation Area; Myna bird control programme; Invasive weed removal on Mangaia, Mauke and Mitiaro			Biodiversity Conservation Unit to coordinate and manage Access and Benefit Sharing	Biosecurity Act 2008		
Federated States of Micronesia												
Fiji	Endangered and Protected Species Act	Fiji Islands CITES Management Authority	Marine Turtle Action Plan, Endangered Species Programme, Fiji Petrel Project, Turtle Conservation Project, 10 Yr Moratorium, Integrated Catchment Management, Fiji Locally Managed Marine Area	Biosecurity Promulgation 2008		American Iguana Bounty Initiative; Species Programme; Pacific Invasive Species Initiative			International Network of Edible Aroids Project; Pacific Agricultural Pacific Genetic Resources Action Plan; Dasheen Project; Global Crop Diversity Trust Project; Pacific Islands Network for Taxonomy		National Biosafety Framework 2007; Biosafety Clearing House 2012	Food Animal Biosecurity Network; Pacific Invasive Initiative; American Iguana Bounty Initiative; National Biosafety Framework 2007

continued

Country	Endangered Species			Invasive Species			Genetic Resources			Biosafety		
	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
French Polynesia	*Environmental Code* protected species list			Environmental Code; Agricultural Regulations						Agricultural Regulations		
Guam	Endangered Species Regulation 2009											
Kiribati	*Environment Act 1999, 2007; Prohibited Fishing Areas (Designation) Regulation 1978, Fisheries Conservation and Protection Regulation 1979*			Quarantine Act 1929 (cap 85); Plants Ordinance 1976; Biosecurity Bill 2004; Importation of Animal Ordinance 1919; Regulation 1998, Tamana Council (Control of Pigs) By-Laws 1990							National Biosafety Framework	
Marshall Islands	*Endangered Species Act 1975; Fisheries Act; Fisheries Enforcement Act; Fisheries Regulations 1998; Marine Mammal Protection Act 1990; Marine Resources Act 1997; Fisheries Access and Licencing Act, Marine Resources (Trochus) Act 1983; Tuna Game-Fish Conservation Zone Act 1996*					National Invasive Species Action Plan						

continued

	Endangered Species			Invasive Species			Genetic Resources			Biosafety		
Country	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
Nauru	*Wild Birds Preservation Act 1937*; *Fisheries Act 1997*					Pacific Invasive Partnership; InvasiveSpecies Working Group of the Roundtable for Nature Conservation in the Pacific Islands						
New Caledonia	Endangered Species Regulation			Ruling 23-2001						Biosecurity Regulation		
Niue	*Whale Sanctuary Regulations*; *Wildlife Protected Species Notice*			*Environment Act*; *Biosecurity Bill*						Biosafety (Genetically Modified Organisms) Regulations 2006	National Bio-Safety Framework	
Northern Marianas	*Clean Water Act (Migratory Bird Rule)*; *Fish, Game and Endangered Species Act*											
Palau	*Protect Sea Life Act*; *Fruit Bat Conservation Bill 1991*; *Endangered Species Act 1975*			*Plants and Animals Quarantine Bill*; *Endangered Species Act 1975*; *Protected Sea Life (PNC Title 24)*; *Brown tree snake Boiga Irregularis Bill*	National Invasive Species Policy	National Invasive Species Strategy			Conservation Strategy for the Republic of Palau	*Biosafety Act*; *Biosafety Regulation*		Biosafety Framework

continued

	Endangered Species			Invasive Species			Genetic Resources			Biosafety		
Country	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
Papua New Guinea	*International Trade (Fauna and Flora) (Amendment) Act 2003*; *Fauna (Protection and Control) Act*; *Environment Act 2000*			*Plant Disease and Control Act*; *National Agriculture and Quarantine Inspection Act*; *Dumping of Wastes at Sea Act*; *Fauna (Protection and Control) Act*; *Customs Act*; *Quarantine Act*; *Environment Act 2000*						*National Agriculture and Quarantine Inspection Act*; *Fauna (Protection and Control) Act*; *Plant Disease and Control Act*; *Customs Act*; *Quarantine Act*		
Pitcairn Islands	Endangered Species Protection Ordinance 2004					Importation and Permit of Domestic Animals Policy 2013						
Samoa					National Invasive Species Action Plan					Quarantine (Biosecurity) Act 2005	National Bio-safety Framework	
Solomon Islands	*Wildlife Protection and Management Act 1998*; *Environment Act 1998*; *Environment Regulations 2008*; *Wildlife Protection and Management Regulations 2008*; *Fisheries Act*; *Wild Birds Protection Act [Ch 45]*	Solomon Islands National Development Strategy 2011–2020; Fisheries and Marine Resources Sector Policy	National Adaptation Programme of Action; Marine Species Action Plan; Pacific Islands Cetaceans MOU,	*Wildlife Protection and Management Act 1998*; *Environment Act 1998*; *Environment Regulations 2008*; *Wildlife Protection and Management Regulations 2008; Fisheries Act*; *Wild Birds Protection Act [Ch 45]*; *Agricultural Quarantine Act 1982*		Guidelines for Invasive Species Management in the Pacific; National Adaptation Programme of Action; Pacific Invasive Partnership, Pacific Invasive Learning Network		National Adaptation Programme of Action; Pacific Genetic Resources Action Plan; Pacific Invasive Partnership, Pacific Invasive Learning Network; Pacific Islands Network for Taxonomy Initiatives		*Environment Act 1998*; *Protected Areas Act*; Wildlife *Protection and Management Act 1998*; *Fisheries Act*; *Environmental Health Act 1980*; *Agricultural Quarantine Act 1982*; *Poisons Act 1941*		National Biosafety Framework, Medium Term Development Strategy 2008–2012; Agriculture and Livestock Sector Policy 2009–2014; Agriculture Policy 2010–2015; Fisheries and Marine Resources Sector Policy

continued

	Endangered Species			Invasive Species			Genetic Resources			Biosafety		
Country	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan	Law	National Policy	Strategy/ Action Plan
Tokelau			National Strategic Plan	Tokelau Rhinoceros Beetle Regulations 1964		National Strategic Plan		National Strategic Plan		Biosecurity Rules 2003		
Tonga	*Birds and Fish Preservation Act*; *Environment Management Act 2010*; *Environmental Impact Assessment Act* and *Regulations*; *Fisheries Management (Conservation) Regulations*; *Fisheries Regulations*		Tonga Environment Planning and Management Strengthening Project; Mangrove Ecosystems for Climate Change Adaptation and Livelihood; Programme of Work on Protected Areas	*Biosafety Act*; *Birds and Fish Preservation Act*; *Environment Management Act 2010*; *Environmental Impact Assessment Act* and *Regulations*; *Noxious Weeds Act*; *Rhinoceros Beetle Act*; *Fisheries Regulations*; *Forests Act*; *Plant Quarantine Act*	Pacific Invasive Initiative; Tonga Strategic Development Framework 2011 – 2014	Tonga Environment Planning and Management Strengthening Project	*Aquaculture Management Act 2003*; *Birds and Fish Preservation Act*; *Parks and Reserves Act*; Forests Act; *Fisheries Management Act*; *Diseases of Plants Regulations*		International Network of Edible Aroids; Pacific Agricultural Plant Genetic Resources Network	Biosafety Act 2009		Tonga Fruit Tree Project; Tonga - Secretariat of the Pacific Community Joint Country Strategy 2009–2013
Tuvalu				Environment Protection Act						Environment Protection (Biosafety and Genetically Modified Organisms) Regulations 2008		National Biosafety Framework in 2008
Vanuatu	*Environment Protection and Conservation Act Cap 283*; *International Trade in Flora and Fauna Act Cap 210*			*Environment Protection and Conservation Act Cap 283*; *Plant Protection Act*; *Forestry Act 2001*						Plant Protection Act	National Biosafety Framework	
Wallis and Futuna	Environmental Code										Biosafety Rules	

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