



Priority Sites for Conservation in Samoa:

Key Biodiversity Areas

Vaega Fa'atauaina mo le Fa'asao i Samoa:

Vaega Oā Fa'apitoa i le
Ola Fa'a-natura

Preface and Acknowledgements

This booklet was written for the general public to raise awareness about the key areas for conservation in Samoa and the species most threatened with extinction. The work was developed as a partnership between the Conservation International Pacific Islands Program (CI Pacific), the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Division of Environment and Conservation (DEC) of the Samoan Ministry of Natural Resources and Environment (MNRE). O le Siosiomaga Society and Birdlife International kindly provided their data on the Important Bird Areas (IBAs) of Samoa. Dr Steve Brown, ACEO of GEF Services, MNRE and Tu'u'u Dr Iteti Taulealo, former CEO of the MNRE, secured funds for this project from the Global Environment Facility through the Protected Areas Programme of Work (POWPA). We are very grateful for the technical support of Maxim Vergeichik, UNDP Program Associate for Environment, who provided invaluable guidance on the overall structure and content of the Samoa POWPA program. We thank the Coral Reef InitiativeS for the Pacific (CRISP) for providing financial support for the marine analysis component.

The report was written and edited by James Atherton of CI Pacific with assistance from Paul Anderson of SPREP and Elizabeth Kerstin of DEC. Many people contributed to the development of this work, including Natasha Doherty and Juney Ward of DEC and Naamal De Silva and Sue Miller Taeli of CI. All maps were expertly prepared by Kellee Koenig of CI. Several individuals and organisations kindly allowed us to use their illustrations; their credits are listed within the document and on the back page. In particular we would like to thank Stuart Chape for allowing us to select from his extensive photographic collection. Suemalo Tumutalie Foliga, Juney Ward and Faleafaga Toni Tipamaa of the DEC and Leilani Duffy of CI Pacific translated sections of the booklet into Samoan and Tu'ifaiva Samuelu Sesega completed and edited the translation. We would also like to thank Charmina Saili, Dr David Butler and Dr Greg Sherley for proof reading the document and providing many constructive comments.

We are very grateful for the support and assistance provided by all. Faafetai tele lava.

Suggested citation:

Conservation International – Pacific Islands Programme, Ministry of Natural Resources and Environment, Secretariat of the Pacific Regional Environment Programme. 2010 *Priority Sites for Conservation in Samoa: Key Biodiversity Areas*. Apia, Samoa. 32pp.

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Front cover photo: O le Pupu Pue NP lava coast, Samoa. © Stuart Chape, SPREP.

Inside back cover photo: Central Savaii Rainforest. © Stuart Chape, SPREP.

Faatomuaga

O lenei lomiga sa tusia mo le fa'atupulaia o le malamalama'aga lautele i vaega fa'apitoa o le siosiomaga o Samoa e tatau ona ave iai le fa'amuamua mo le fa'asaoina i Samoa aemaise o ituaiga o meaola ua lamatia ma tauau ina mou atu. O se galuega fa'apa'aga sa galulue so'oso'o tauau ai le Fa'alapotopotoga o Fa'asao Fa'ava-o-malo (CI Pacific), le Fa'alapotopotoga faava o malo o le Siosiomaga o le Pasefika (SPREP) ma le vaega o Siosiomaga ma Fa'asao o le Matagaluega o Punaoa Fa'anatura ma le Siosiomaga (MNRE). Sa fesoasoani iai le Sosaiete o le Siosiomaga (OLSSI) ma le Fa'alapotopotoga o Manulele Fa'ava-o-atunuu (Birdlife International) e ala i le tuuina mai o fa'amaumauga ma fa'amatalaga o suesuega i laufanua taua mo le fa'asaoina o manulele o Samoa. O Dr. Steve Brown, Pule Sili Lagolago mo Auaunaga i Polokalame Fa'alesiosiomaga o le Lalolagi (GEF) ma Tu'u'u Dr. Itetiaia Taulealo, o le sa Pule Sili i le Matagaluega o Punaoa Fa'anatura ma le Siosiomaga, sa fa'amautuina maia ni fesoasoani tau tupe mo lenei fuafuaga i lalo o le Polokalame o Galuega mo Elelee Fa'asaoina. Na fesoasoani foi Maxim Vergeichik o le Ofisa o le Polokolamme Malo-Aufaatasi (UNDP) e ala i le fa'atulagaina o le Polokalame mo Elelee Fa'asaoina i Samoa ma le Polokalame mo Atinae o Amu ma Aau o le Pasefika e ala ile fa'atupeina o le tu'ufa'atasiga o fa'amaumauga tau le gataifale.

O lenei lipoti ua tu'ufa'atasia ma tapenaina e James Atherton o le Fa'alapotopotoga Fa'asao Fa'ava-o-atunuu, ma sa fesoasoani i ai Paul Anderson o le Fa'alapotopotoga faava o malo o le Siosiomaga o le Pasefika ma Elizabeth Kerstin o le Vaega o Siosiomaga ma Fa'asao. O nisi oi latou na velo aso i lenei galuega e aofia ai, Natasha Doherty ma Juney Ward o le Vaega o Siosiomaga ma Fa'asao, ma Naamal De Silva ma Sue Miller Taeli o le Fa'alapotopotoga o Fa'asao Fa'ava-o-malo. E toatele fo'i fa'alapotopotoga ma tagata taitoatasi na fa'atagaina mai le fa'aaogaina o a latou tusitusiga mo lenei tusi, ma o lo o tusia uma o latou suafa i le vaega i tua o lenei lomiga. O Su'emalo Tumutalie Foliga ma Juney Ward ma Faleafaga Tipama'a na nafa ma le uluai fa'aliliuina o nisi o vaega o lenei tusi i le gagana Samoa, ae teuteu ma fa'amaeaina e Tu'ifaiva Samuelu Sesega.

E fa'afetaia i latou uma ua taua i luga ona o la latou lagolago ma le fesoasoani i lenei galuega. Fa'afetai tele lava.

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1. Introduction

Biological diversity, or biodiversity, is the variability of life on earth from genes to species to the entire biosphere. Biodiversity provides immeasurable benefit to human societies through medicine, food, fiber, ecosystem services, and cultural values. Yet, this diversity of life is under siege: species are being lost at a rate far beyond the natural extinction rate.

To effectively conserve biodiversity as a whole, conservation action must focus on its key components: individual species in need of conservation, and on specific sites and landscapes that are most important for their persistence. Using a transparent, data-driven process to identify these conservation targets allows for the efficient allocation of scarce conservation resources. These targets also provide a baseline against which the success of biodiversity conservation interventions can be measured.

Samoa is part of the Polynesia-Micronesia Biodiversity Hotspot, one of 34 regions of the world where extraordinary levels of biodiversity and endemism are coupled with extremely high levels of threat (Mittermeier *et al.* 2004). Although 11 terrestrial and 65 marine species found in Samoa are listed as globally threatened on the 2009 IUCN Red List of Threatened Species, the true number of threatened species in Samoa is significantly higher than this, perhaps in the hundreds. The primary threats to our biodiversity are habitat alteration caused by agriculture and unplanned or poorly planned development, over harvesting of resources (e.g. logging of timber trees, hunting of pigeons and bats and over-fishing) and the spread of invasive species.

Site based conservation is one of the most important and successful tactics for reducing global biodiversity loss. Governmental commitments to site conservation include

Samoa's Biodiversity Strategy and Action Plan (SBSAP), which commits Samoa to "enhance the management of existing protected areas (PAs) and establish new ones to increase the coverage of PAs to 15% and achieve a full representation of Samoa's ecosystems" (Government of Samoa 2001) and the Convention on Biological Diversity (CBD), which enjoins Parties to establish "a system of protected areas or areas where special measures need to be taken to conserve biological diversity". Safeguarding these key areas requires a variety of governance approaches, including national parks, community conservation areas (CAs), and co-managed sites—the best approach will vary from place to place. A network of such sites, coupled with species-specific actions and anchored within a matrix of compatible land uses, provides the best way to ensure the conservation of globally important biodiversity.

The Key Biodiversity Areas (KBA) approach presents an appropriate framework for pinpointing site-level conservation targets and priorities in Samoa. The KBA approach builds on and complements the conservation priority setting approaches completed for Samoa for terrestrial ecosystems (Pearsall and Whistler 1991), for lowland ecosystems (Park *et al.* 1992) and for upland ecosystems (Schuster *et al.* 1999), while marine priorities in Samoa are presented for the very first time. All terrestrial KBAs identified here were also identified in some or all of these earlier approaches. However, KBAs target the subset of all identified sites that contain species most at risk of extinction, and thus are priority sites for conservation at a global as well as a national level.

KBAs as sites of global significance for biodiversity conservation are identified using transparent, globally standard

criteria (Langhammer *et al.* 2007). The KBA concept extends to all taxonomic groups the data-driven 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, intergovernmental organizations, NGOs, the private sector, and other stakeholders to expand the protected area network in Samoa, 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.

Key Biodiversity Areas: Approach and Criteria

The goal of the KBA approach is to identify, document, and safeguard networks of 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 standard 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.

We used only the vulnerability criterion in the present analysis due to data limitations and potential complications with applying the irreplaceability criteria in a small island context.

Vulnerability Criterion: Globally threatened species.

KBAs identified under this criterion support the regular occurrence of one or more globally threatened species — those assessed as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) according to the IUCN Red List.

Identifying and Delineating KBAs in Samoa

In 2003, the Conservation International–Pacific Islands Program initiated a process to identify data-driven conservation targets for the Polynesia-Micronesia region including Samoa. This analysis was carried out in collaboration with the Secretariat for the Pacific Regional Environment Program (SPREP), the Bishop Museum, The Nature Conservancy, Société d’Ornithologie de la Polynésie, the Wildlife Conservation Society. Numerous other institutions and experts also provided data and reviewed the results of this analysis. A total of 162 KBAs were identified during this analysis, including 6 KBAs in Samoa.

In 2008, CI began a collaboration with the Division of Environment and Conservation (DEC) in the Samoan Ministry of Natural Resources and Environment (MNRE) and SPREP, under Samoa’s Programme of Work for Protected Areas (POWPA) and with funds provided by the Global Environment Facility (GEF) through the United Nations Development Program, to conduct an ecological gap analysis for Samoa. The main purpose of the gap analysis was to analyse how effective our current PA network is at achieving our SBSAP conservation targets, and in particular to identify priority areas for the expansion of the PA network and priority actions for improved management of existing PAs. Another objective was to identify the key gaps in our knowledge of terrestrial and marine biodiversity.

A total of 8 terrestrial and 7 marine KBAs were identified during the gap analysis process and conservation targets were established for all native ecosystems. KBA revision for terrestrial ecosystems were based on new survey data on freshwater fauna, butterflies, flying foxes and rare plants, along with the

Important Bird Areas (IBAs) identified for the country by O le Siosiomaga Society, MNRE, BirdLife International and Conservation International. KBA identification for marine ecosystems was based on analysis of existing survey data and species sightings of fish and marine turtles.

The main challenge in identifying KBAs was to refine the results of previous surveys, specifically, to identify and map threatened species of corals, fish, landsnails, birds, plants and flying foxes so as to document the presence of these species in existing sites and to identify new KBAs where needed. The 2009 IUCN Red List provided the list of 76 threatened terrestrial and marine species for the country, as well as basic data on conservation status, distribution, threats, key contacts, and references. In addition to the 11 terrestrial species in Samoa listed as threatened on the 2009 IUCN Redlist, an additional three species known to be threatened in Samoa were added as “trigger” species (species that trigger a KBA). These are *ifilele* (Mollucan ironwood) and *taio* (Polynesian Storm Petrel) which are both classified as vulnerable, but are not recorded for Samoa on the IUCN Redlist, and *peavao* (Samoa flying fox), recorded as near threatened on the Redlist, but actually highly threatened in Samoa.

Three ecological surveys in Samoa were conducted in association with this gap analysis project, including surveys of: freshwater biodiversity (Jenkins *et al.* 2008) Samoan butterflies (Patrick and Edwards 2009) and flying foxes (Shilton 2009). An assessment of threatened plants in Samoa is underway in 2010.

Point locality data for each species, were obtained from the new surveys and from published and unpublished literature and experts. The data environment for marine resources is particularly limited for point locality data; therefore habitat was used as a proxy for species presence when considering a network of Marine Protected Areas (MPAs) or Marine Managed Areas (MMAs). MPA design was confined to the near shore, defined here as one mile extending seaward from the reef crest.

Did you know?

- On land Independent Samoa has more than 2,500 species of insect, 770 species of native plants, 64 native land snails, 31 breeding birds, 14 reptiles and 3 native mammals. Marine diversity is also high with 890 coral reef fish, over 200 corals and several turtles, whales and dolphins.
- Samoa has more native species of ferns and butterflies than New Zealand, a country 85 times bigger than Samoa!
- New species are being discovered in Samoa all the time. In 2008 three new species of freshwater fish were discovered (some new to science) and in 2009 two new butterflies were discovered.
- Samoa has the smallest spider in the world- *Patu marplei* found in the montane forests of Upolu. Fully grown this spider is only 0.43mm in size
- Samoa’s national bird, the Manumea, or Tooth-billed Pigeon (endangered, *Didinulus strigirostris*) is a scientific curiosity. Unusually for a pigeon, it has a toothed bill, leading scientists at one time to think it was related to the now extinct dodo, also a toothed-billed pigeon. It is now very rare and restricted to mature native forest.
- The 76 species from Samoa that are classified on the 2009 IUCN Redlist as threatened species include 52 corals, 11 marine fish, 7 birds, 2 turtles, 2 plants, a land snail and a mammal. Many more species are believed threatened but have not yet made it onto the IUCN Redlist, or are on the Redlist but not classified as threatened (see page 10).

While this first cut marine KBA analysis focused on the near shore area, the offshore areas in Samoa's EEZ require analysis and conservation management as well. Datasets for the offshore environments, including deep sea and open ocean habitat, are limited. The National Oceanic and Atmospheric Administration (NOAA) is working through the Two Samoas Initiative to conduct a biogeographical assessment of the Exclusive Economic Zone (EEZ) of the Samoan archipelago to fill this gap in knowledge. As this analysis becomes available it is crucial to identify KBAs for these areas.

KBA boundaries were delineated using the following spatial data layers: protected areas and other land management units, IBAs, data on habitat type and extent, topography and bathymetry, watersheds, reef cover and settlement patterns. IBA boundaries were modified as needed to incorporate

The highest priority for terrestrial conservation investment is the Central Savaii Rainforest KBA. Only portions of the lower parts of this KBA benefit from official safeguard status.

habitat important for non-bird trigger species, and to incorporate management data.

Experts and interested members of the public reviewed the preliminary KBAs during several informal meetings, and during formal workshops held with key stakeholders in March and May 2009. Modifications to the boundaries were made based on recommendations at these meetings. Since KBA identification and delineation is an iterative process, the boundaries will be modified and new KBAs added as new data become available.

KBAs have been identified for globally threatened species of plants, reptiles, birds, snails, flying foxes, corals and fish in Samoa. No sites meeting the criterion for congregatory or colonial species were identified, or for restricted range species due to difficulties in applying this criterion in the

Pacific island context. Identifying such KBAs is a priority for further work.

The 8 terrestrial KBAs cover a total of 940 km² or approximately 33% of the total land area of Samoa, more than double Samoa's SBSAP commitment of 15% of land coverage and including representation of 12 of the 13 native terrestrial vegetation communities in the country. The 7 marine KBAs cover approximately 173 km² or 23% of the inshore reef area of Samoa.

Currently, 6 of the 8 terrestrial KBAs and 3 of the 7 marine KBAs have been completely or partially established as conservation areas by the government of Samoa or by local village communities and 2 additional KBAs have small community based fisheries sites within their boundaries. However, the effectiveness of management of these sites is highly variable and many need improved management to adequately safeguard their component biodiversity. The remaining KBAs lack, or no longer have, formal protection. These sites are targets for the expansion of the PA network.

Given that funding for conservation investment is limited and that some KBAs require safeguarding more urgently than others, prioritization amongst the 15 KBAs identified to date is important. KBAs can be prioritized according to their irreplaceability and vulnerability, the same principles involved in their identification. A detailed prioritization requires additional biological and socioeconomic data that were not available for this analysis and is therefore a task for the future.

One KBA does however emerge as the highest single priority for terrestrial conservation investment in Samoa. This is the Central Savaii Rainforest KBA, the largest contiguous area of rainforest in tropical Polynesia and a site identified by the Alliance for Zero Extinction (AZE), a consortium of over 60 conservation organizations worldwide, as one of the last remaining strongholds for one or more Critically Endangered or Endangered species. The loss of the Central Savaii KBA would result in the extinction of many species, making it an extremely urgent priority for conservation.

Currently only portions of the lower parts of this KBA benefit from official safeguard status, and thus the upland area should be considered the highest priority terrestrial area for immediate investment.

Monitoring of KBAs

It is not enough to identify KBAs and to implement conservation activities within them. The success of activities to safeguard KBAs and their trigger species must also be measured and monitored. Conservation International, MNRE and partners are employing a set of practical indicators, or measurement tools, to determine progress toward meeting the conservation objective of safeguarding all KBAs in Samoa. These are recognized as the most robust measures for monitoring the status of Samoa's biodiversity and the conservation measures that safeguard this biodiversity. These measures include:

- ▶ Change in the percentage of KBAs with official protection status.
- ▶ Change in forest cover extent within terrestrial KBAs.
- ▶ Change in percentage of KBAs with governance structures in place.
- ▶ Change in percentage of KBAs with management plans in place.
- ▶ Change in percentage of KBAs with required infrastructure in place as identified in management plan.

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



The islands of Nu'ulua (foreground) and Nu'utele (background) in the Aleipata MPA are located at the far eastern end of Upolu. This KBA consists of four forested volcanic islands and adjacent reef and lagoon. This is a key site for *laumei* (Hawksbill and Green Turtles), *tuaimoe* (Ground Doves), *manumea* (Tooth Billed Pigeon) and rare coastal forest. A recent partnership project has attempted to eradicate rats from Nu'utele and Nu'ulua with huge potential benefits for native biodiversity. Photo by ©James Atherton, CI Pacific.

O motu o Nu'ulua (luma) ma Nu'utele (tua) ei totonu o le Nofoga Faasao o le Gataifale o Aleipata i le itu i Sasae o le motu o Upolu. O nei motu o ni Nofoga taua tele mo le olaga faanatura o le Siosiomaga aua Nofoga e ofaga iai manulele e pei o le *tuaimoe* (Ground Doves), *manumea* (Tooth Billed Pigeon), ma o loo iai foi matafaga mulimuli o loo tautuufua ai le laumei fai uga (Hawksbill turtles) ma vaovao o loo fai ma nofoaga e aai ai laumei meamata (Green turtles). O se tasi o Polokalame Faapaaga a nisi o faalapopotoga tau Siosiomaga sa faatinoina ai le aveesea o isumu mai motu o Nuulua ma Nuutele aua le toe faaleleia atili o le Siosiomaga o ia motu. Ata na pueina e ©James Atherton.

1. Uputomua

O le Tamaoiga Fa'a-le-natura poo le Ola Fa'a-natura, e fa'atatau ile anoanoa'i ma le felanulanua'i o ituaiga eseese o meaola ma nofoaga e maua iai, i le lalolagi ma le afuafu ola o loo siomia ai. E anoanoai tamaoiga aoga mo tagata soifua e maua mai ai e pei o vailaau mo togafitiga, taumafa, oloa gaosi ma isi aoga eseese, o apitaga fa'anatura faapea ma feso'otaiga aoga ma tu ma aganuu fa'a-Samoa. Ae peita'i, o lenei tamaoiga o loo 'oia pea ma lamatia, e fa'ailoa pea lea i le tele o ituaiga eseese o meaola ua fa'asolo ina mou atu ona o se fuataga e televave mamao atu nai lo le tulaga masani o lo latou fa'atupulaia fa'anatura.

Ina ia puipuia lelei le ola fa'a-natura i lona atoatoa, e tatau i galuega fa'atino mo le fa'asoina ona taula'i i vaega tonu e fa'apitoa lo latou taua e iai vaega nei: muamua, o ituaiga meaola taitasi e vave mo'omia le fa'asoina; lona lua, o nofoaga e maua iai e matua tatau ona fa'atumauiina ma puipuia malu. E mafai ona ausia lea tulaga e ala i le fa'aaogaina o auala ma taiala talafeagai ma fa'amaumauga maumaututū e fa'ailoa manino mai ai manulauti mo le fa'asao e fia 'ausia, ina ia taitailimaina ai le fa'asoasoina o tupe fa'aagaga mo ia fa'amoemoega. O ia fo'i manulauti e fa'ataoto mai ai fa'ailoilo mautu e fua iai le sologa alualu i luma o galuega fa'atino fa'a-fa'asao.

O Samoa e aofia i totonu o le atu Polenisia ma Maikolenisia, o se tasi o le 34 o itulagi ole lalolagi e maoa'e ma maua luga le tamaoiga o le ola fa'a-natura eseese o loo maua ai, a ua maitauina foi le tele o a'afiaga o loo lamatia ai nei. (Mittermeier *et al.* 2004).

E tusa ma le 11 ituaiga o meaola o le laueleele ae 65 ituaiga o meaola o le gataifale ua fa'amauiina i le lisi o meaola lamatia o le kelope (2009 IUCN Red List of Threatened Species)

o lo'o maua i Samoa, peita'i, e iai le talitonuga e sili atu ma faitau selau meaola o loo lamatia i Samoa.

O a'afiaga ogaoga o loo lamatia ai le ola fa'a-natura e aofia ai le fa'atamaiaina o nofoaga poo apitaga fa'anatura ona o fa'atoaga ma isi atinae lē fuafuaina lelei, so'ona fa'aaogaina le gafataulimaina ma le faa-le-tatau o punaoa fa'anatura (fa'ataitaiga: soona taina o laau mo laupapa, soona fanaina o lupe ma pe'a ma fagotaga so'ona fai) ma a'afiaga e mafua mai i meaola fa'alafuā.

O le galuega fa'asao mo le puipuiina o se vaega oā fa'apitoa (VOF) o le siosiomaga o se tasi lea o auala ua iloa lona aoga i le tau fa'aititia o le fa'atamaiaina pea o le ola fa'a-natura o le lalolagi. O 'aiaiga o loo ua noatia ai le Malo o Samoa mo le fa'asoina o le ola fa'a-natura e a'afia ai galuega ua fa'ataoto mai ile taiala o Fuafuaga Autu o Galuega ma Auala e Fa'atinoina ai mo le Olafaanatura o Samoa (SBSAP). I totonu o ia taiala, ua tautino ai e le Malo "... e fa'aleleia atili o le pulea lelei o elelee ua fa'asoina, ma fa'aopoopo nisi o elelee fa'asao fou ia ausia ai le manulauti o le 15% o laufanua puipuia o Samoa" (Malo o Samoa, 2001). I lalo foi o le Feagaiga mo le Ola Fa'a-natura o le Lalolagi, o loo ua unaia ai atunu'u ina ia "... fa'atuina ni elelee fa'asao fa'aopoopo ma fa'alauteleina ai le aofai o le ola fa'a-natura o Samoa o le a fa'asoina ma puipuia lelei i ni faiga fa'apitoa". O le puipuia lelei o le vaaiga o nei fanua fa'apitoa e manaomia ai ni faiga fa'a-puleaga talafeagai e pei o fanua fa'asao, fa'asao e pulea e nu'u taitasi fa'apea ma fanua fa'asao e pulea toatele – e fuafua ile talafeagai ma le tulaga o fanua taitasi. O lenei tu'ufa'atasiga o fanua fa'asao ua pulea i faiga ma puleaga eseese talafeagai, o iina o le a afua mai ai se tu'ufa'atasiga o faiga eseese o le a sili ona

lelei mo le fa'asoina ma le puipuia o le ola fa'a-natura taua i le lalolagi atoa.

O le faiga o loo fa'aaogaina mo vaega fa'apitoa o le ola fa'anatura ua avea lea ma se fa'avaa talafeagai mo le fa'a-tulagaina ma le filiina o manulauti ma galuega fa'asao e ave iai le fa'amuumua i totonu o Samoa. Ua afua mai lenei faiga o Vaega Oā Fa'apitoa (VOF) mo le ola fa'a-natura ni taiala ua maea tapenaina mo apitaga fa'a-le-natura i laueleele (Pearsall and Whistler 1991) e aofia ai laufanua maua lalalo (Park *et al.* 1992) ma laufanua maua laluluga (Schuster *et al.* 1999). O le taimi muamua foi lea ua tu'u manino mai ai ma vaega fa'apitoa o gataifale o Samoa. O le tele o nei vaega fa'apitoa mo le ola fa'anatura sa fa'amauiina i nisi poo le tele o taiala muamua. Peitai i lenei lomiga, ua ave le fa'amuumua i se vaega toaititi o fanua, o loo silisili ona ogaoga le lamatiaina, ma avea ai ma vaega e tatau ona fa'amuumua iai galuega fa'asao. E atagia i lea fa'amuumua le taua o nei vaega fa'apitoa e le gata i le fa'asoina o le Ola Fa'a-natura o Samoa, ae fa'apea foi le lalolagi atoa.

O le filifilia o nei Vaega Oā Fa'apitoa (VOF) mo le ola fa'a-natura ua fa'avae i luga o ni taiala manino ma ua aloaia lelei (Langhammer ma isi, 2007). O lenei faiga e aofia uma ai lava ituaiga o vaevaega eseese ua fa'avasega iai le ola fa'a-natura ma sa fa'aaoga iai metotia o lo'o fa'aogaina e le Fa'alapotopotoga o Manulele Fa'ava-o-malo ma le Fa'alapotopotoga o La'au ile Lalolagi (Plantlife International) lea ua tula'i ma fa'ailoa manino mai ai vaega oā faapitoa o le siosiomaga e tulaga maoa'e e avea ma Vaega Oā Fa'apitoa mo le Fa'asoina o Manulele fa'apea fo'i ma Vaega Oā Fa'apitoa mo le Fa'asoina o Laau.

O Vaega Oā Faapitōa (VOF) mo le Ola Faa-Natura e mafai ona fa'aaogaina o ni taiala e aoga mo fa'alapotopotoga fa'ale-malo, fa'alapotopotoga tu-maoti, tagata taitoatasi ma i latou uma o loo galuluega mo le fa'alauteleina atu o le fa'asaina o le siosiomaga ma le ola fa'a-natura o Samoa. O le a fesoasoani foi leni taiala e fuafua tatauina ai atinae ma fa'atumauiina ai le lelei o le oa fa'a-natura ma fa'aitiitia ai lo latou fa'atamaia.

Vaega Oā Fa'apitōa (VOF) o le Ola Fa'a-natura: Faiga Fa'avae ma Ta'iala

O le fa'amoemoe mauuluga o le taiala mo Vaega Oā Fa'apitōa (VOF) mo le Ola Fa'a-natura, o le fa'ailoa atu, tu'ufa'atasia i ni fa'amaumauga ma le puipuia o vaega eseese o le siosiomaga ua ave iai le fa'ataua mo le fa'asaina o le ola fa'a-natura o le lalolagi. O "Vaega Oā Faapitōa" (VOF) o se vaega o le siosiomaga po'o le a lava le tele ua fa'atatauina i lona tulaga agavaa fa'a-natura ma ua puipuia ma pulea mo manulauti fa'a-fa'asao.

O vaega o le siosiomaga ua agava'a ona ave ma Vaega Oā Fa'apitōa (VOF) mo le Ola fa'a-natura ua faamalieina taiala nei: (i) ogaoga le ma'ale'ale ona o lamatiaga; (ii) ua leai se isi lava avanoa mo le fa'asaina. O le taiala o le 'ma'aleale' e fa'ataua lea i le tulaga ogaoga ua o'o iai le lamatia ma le fa'aono mou atu o loo feagai ma le ola fa'anatura. O le 'leai o se isi avanoa mo le fa'asaina', e fa'ailoa ai le matua leai ose isi siosiomaga fa'a-natura o totoe e fai ma sulufaiga o sea meaola pe a fa'aleagaina le apitaga o loo ola ai i le taimi nei.

I leni lomiga, ua fa'aaogaina na ole taiala o le 'ogaoga le ma'aleale' ona o lamatiaga' i le iloiloina o Vaega Oā Fa'apitōa (VOF) ona ole utiuti o fa'amaumauga ma le fa'afaigata ona fa'agalue o le taiala o le 'leai o se isi avanoa mo le fa'asaina' i atu motu laiti.

Taiala o le Ma'ale'ale: Meaola lamatia i le lalolagi

O Vaega Oā Fa'apitōa (VOF) mo le Ola Fa'a-natura uma, ua fa'avasegaina i lalo o leni taiala, o vaega ia o loo fa'alagolago iai le ola pea o se tasi pe sili atu foi o meaola lamatia i le

lalolagi – meaola ua fa'atulagaina i lalo o vaega nei: matua lamatia (ML), feololo le lamatia (FL) ma le lamatia (L) pei ona faailoa i le lisi a le Iuni o le Lalolagi mo le Fa'asao o le Natura (IUCN).

Fa'atulagaina ma le Fa'amatalaina o Vaega O Fa'apitōa mo le Ola Fa'a-natura i Samoa

I le tausaga e 2003, na amataina ai se sailiiliga a le Fa'alapotopotoga o Fa'asao Fa'a-va-o-malo ina ia fa'ailoa ma fa'amauiina ni manulauti tau fa'asao mo le atu Polenisia ma Maikolenisia e aofia ai ma Samoa. O lea sailiiliga na fa'atinoina i se faiga fa'apa'aga ma le Fa'alapotopotoga o Siosiomaga a le Pasefika (SPREP), Bishop Museum, le Natura Sosaiete (TNC), Societé d'Ornithologie de la Polynésie, ma le Sosaiete mo le Fa'asaina o Meaola (Wildlife Conservation Society). E toatele nisi fa'alapotopotoga ma tagata poto fa'apitōa na tu'uina mai fa'amaumauga ma fesoasoani mai i leni sailiiliga. Ina ua maea, e 162 le aofai o VOF na iloa ma fa'amauiina mai ai, e aofia ai le 6 i Samoa.

I le 2008, na amata ai ona galulue fa'atasi le Fa'alapotopotoga o Fa'asao Fa'ava-o-malo, le vaega o Fa'asao ma Siosiomaga o le Matagaluega o Punaoa Fa'anatura ma Siosiomaga (MNRE), ma le Fa'alapotopotoga o Siosiomaga o le Pasefika (SPREP) i lalo o le Polokalame o Galue a Samoa mo Elelee Fa'asaina, e fa'atino se saili'iliga pe o iai ni VOF o Samoa o loo lape ma lē o aga'i iai le silasila mo galuega fa'asao. O le sini autu o leni suesuega o le fia fa'amauiina lea pe o talafeagai elelee fa'asao ua ave iai le fa'amuumua i le SNBAP ma le taotoga o VOF ua faailoa mai i sailiiliga ua faia nei. I le ma lona lua, pe iai nisi VOF fou e ao ona fa'ataua auā le fa'alauteleina pea o fanua fa'asao o Samoa. O se tasi o fa'amoemoega o leni sailiga o le fia iloa tino lea pe o iai ni vaega mao'e o le ola fa'a-natura o Samoa e lei o'o iai lo tatou iloa.

E 8 nisi VOF o le laueleele ma le 7 o le gataifale na fa'ailoa mai e ala i leni sailiiliga ma ua fa'ataoto nei ni

E te silafia?

- ▶ E silia ma le 2,500 ituaiga o iniseti i totonu o le Malo Tutoatasi o Samoa, 770 ituaiga o laau, 64 ituaiga o sisi o le laueleele, 31 ituaiga o manulele, 14 ituaiga o repetile, 3 ituaiga o mamele. E mauuluga foi le faitau aofai o meaola o le sami, 890 ituaiga o 'i'a, silia ma le 200 ituaiga o amu ma le tele o tafola ma manua.
- ▶ O Samoa e sili atu le tele o ituaiga o laugasese (ferns) ma pepe e maua ai nai lo Niu Sila o se atunuu e fa'a 85 e telē atu ai lona laueleele nai lo Samoa!
- ▶ Tele meaola fou e maua i suesuega o lo'o faia pea. I le 2008 e tolu ituaiga o ia o vaimagalalo na maua - o nisi o nei 'ia e fou i fa'amaumauga fa'a Saianisi. I le 2009 e lua ituaiga pepe fou na maua ai.
- ▶ O Samoa e maua ai le apogaleveleve sili ona laitiiti i le lalolagi – *Patu marplei* - ma e maua i nofoaga mauuluga o Upolu. O lona tele e oo atu i le 0.43mm.
- ▶ O le Manumea o le Manulele a Samoa o loo taulai i ai mafaufauga o saienitisi ia latou suesuega. E i le auiga o lupe peitai o lona gutu ma'ai fa'aloulou ua fa'atusa ai e saienitisi i manu o le dodo lea ua leva ona le o toe maua i le lalolagi. O le manumea ua seasea ona vaia ma e nofo i vaomatua lafulemu.
- ▶ E 76 ituaiga o meaola o Samoa ua fa'atulagaina i le lisi a le IUCN ua lamatia e aofia ai ituaiga o amu e 52, 11 ituaiga ia, 7 ituaiga o manulele, 2 ituaiga o laumei, 2 ituaiga o laau, 1 le sisi fanua, ma le mamele e tasi. E tele nisi o meaola e talitonu ua i ai i se tulaga lamatia peitai e lē oi totonu o le lisi a le IUCN (silasila i le laupepa o sosoo ai).

manulauti mo lo latou fa'asaoina i totonu o ni ekosistema fa'anatura o loo maua ai. O le iloiloga o VOF mo le ola fa'a-natura o le laueleele sa mulimulita'i i le taunu'uga o suesuega lata mai sa faia mo vaimagalalo, pepe, pe'a ma laau ua le o toe ta'atele aemaise fa'amatalaga pei ona fa'amauiina mo nofoaga taua mo manufelelei i Samoa e le Sosaiete o le Siosiomaga, Matagaluega o Punaoa Fa'anatura ma Siosiomaga, Fa'alapotopotoga Fa'ava-o-malo o Manufelelei ma le Fa'asao Fa'ava-o-malo. O VOF o le ola fa'a-natura o le gataifale, sa fa'atulagaina mai i fa'a'iuga o suesuega ua ma'ea ona fa'atino mo i'a ma laumei.

O le lu'itau laualuga lava sa feagai ai i le fa'atulagaina o VOF mo le ola fa'a-natura, o le taumafaiga lea e fa'amaoti lelei taunu'uga o suesuega ua uma ona fai aemaise ai taumafaiga e tusia i luga o fa'afanua vaega uma o le ola fa'a-natura o loo ogaoga ona lamatia - e aofia ai amu, 'ia, sisi fanua, manulele, laau ma pe'a - ina ia fa'amauiina pe o feola pea nei meaola i nei vaega pe leai. A leai, pe mo'omia le toe fa'atulagaina o ni VOF fou e fa'amauiina ai lo latou fa'asaoina.

E 76 meaola ole laueleele ma le sami ua fa'atulagaina mai totonu o le Lisi a le IUCN 2009 fa'atasi ai ma fa'amatalaga i lo latou tulaga tau fa'asaoina, o nofoaga e maua ai, o fa'afitauli, o feso'otaiga mo nisi fa'amatalaga ma fa'amauiina. Fa'aopoopo i le 11 o meaola o le laueleele ua lisiina i le IUCN 2009, e 3 nisi meaola lamatia o Samoa ua molimauina le i ai foi i lea vaega ma avea ai ma meaola 'fa'ailo' (poo meaola latou te fa'aosofia le faia o se VOF fa'aopoopo). O le 3 lea o le laau o le **ifilele**, o le manulele o le **taio** (o le lua lea ua fa'atulagaina ua lamatia) ma le **pe'a vao** lea e sili atu lona tulaga lamatia nai lo fa'amauiina a le IUCN.

E tolu ni suesuega na fa'atinoina i feso'otaiga o le ola fa'a-natura ma le siosiomaga i Samoa, e agai tonu i ni vaega e le o atoatoa iai lo tatou silafia i le taimi nei. O ia suesuega e a'afia ai suesuega o le ola fa'a-natura i vai magalo (Jenkins ma isi, 2008), pepe (Patrick ma Edwards, 2009), ma pe'a (Shilton, 2009). O le saililiga fa'ataui i laau lamatia o Samoa o loo fa'agasolo pea lona fa'atinoga i le 2010.

O fa'amauiina i vaega tonu o Samoa e maua i ai nei meaola o le natura sa fa'amauiina mai i suesuega e lei leva atu ona maea, ma fa'amauiina mai lomiga, fa'apea ma manatu mai ia i latou e iai le tomai faapitoa. O fa'amauiina mo le gataifale e tele ni vaega e le o atoatoa ai, ae maise i fa'amatalaga o vaega tonu e maua i ai meaola taitasi. Peitai sa fa'aogaina suesuega o apitaga fa'anatura e fai ma fa'asinomaga o le maua ma le le maua o ia meaola i nei nofoaga, ae maise pe a iloiloina nofoaga fa'asao o le Gataifale, ae maise nofoaga fa'asao o le gataifale i vaega tulalata i le talafatai i le tasi le maila mai le aau agai atu i tua'au.

E ui o lenei vaega muamua o saililiga o VOF o le Gataifale o loo fa'a muamua le fa'asao o le vaega tulalata i le talafatai, e le fa'aitiitia ai le taua o le iloiloina maeaea o pulega fa'a-fa'asao i vaega i tua atu i le sone fagota o Samoa. E utiuti fa'amauiina i le siosiomaga o le natura i tua'au ma le vasa loloa. Peitai o le National Oceanic ma le Atmospheric Administration (NOAA) o loo fa'atalanoaina se taumafaiga e aofia ai Amerika Samoa ma Samoa mo le fa'atinoina o se saililiga o le siosiomaga fa'anatura i sone fagota o atumotu o Samoa e fa'ailoa ai vaega ia o loo lape ai le iloa i le ola fa'a-natura. Pe afai e fa'ataunuuiina lenei fuafuaga o le a mafai loa ona iloa tonu VOF mo le ola fa'a-natura i ia vaega.

O tua'oi o VOF o le Ola Fa'a-natura ua fa'ailoaina i lenei galuega, sa fa'amauiina mai i ata e pueina mai le vateatea, fanua puipuia ma le pulega o ele'ele, fa'amauiina i nofoaga autu mo manulele e pei o ituaiga o apitaga ma nofoaga e maua i ai, foliga va'aia ma le fuataga o le loloto o le sami, nofoaga e pueina ai le suavai, taotoga o 'aau ma amu ma le fa'ataotoga o apitaga o tagata soifua. O tuaoi o nofoaga fa'atauiina mo manulele ua toe fetu'una'i ina ia aofia ai ma apitaga taua mo manulele e le o i le tulaga lamatia ma faiga fa'apulega talafeagai.

Sa iloiloina lenei galuega e i latou o i ai le poto fa'apitoa faapea ma sui o le atunuu e lagolagoina lenei fa'amoemoe ini fonotaga ma fa'atalanoaga sa faia atoa ai ma le mafutaga fa'aleaoaga sa fa'atinoina mo fa'alapotopotoga lautogia ia Mati ma Me 2009. O teuteuga ma suiga i tuaoi, sa faia i

luga o fautuaga na tuuina mai i nei fonotaga. Talu ai o le fa'atulagaina ma le fa'ailoaina o VOF mo le Ola-Fa'a-natura o se taumafaiga, o loo fa'atinoina i se faiga fa'aauu, e tumau ai pea le iai o le avanoa e toe fetu'utu'unai ai tuaoi ma fa'aopopoina nisi VOF mo le Ola-Fa'a-natura pe a tusa ai ma nisi fa'amauiina ma fa'amatalaga fou o le a tula'i mai.

O VOF mo le Ola Fa'a-Natura ua fa'atulagaina mo meaola lamatia uma i le lalolagi o loo i Samoa, e aofia ai laau, repetile, sisi, pe'a, amu ma i'a. E leai ni VOF mo meaola ola-fa'a-kolone ona e le o fa'amalieina taiala fa'ata'atitia. Fa'apea foi meaola e pu mo'omo'o o latou apitaga ona o le lavelave o tulaga o le ola fa'a-natura i atu motu laiti o le Pasifika. O le fa'atulagaina o ia ituaiga nofoaga mo le ola fa'a-natura o se matafaioi e tatau ona ave i ai le fa'amumua i le lumanai.

O le 8 o VOF mo le ola fa'a-natura o le laueleele e aofia ai le aofaiga e 940 km² poo le 33% o le tu'ufa'atasiga o le elele o Samoa, e sili atu ma le fa'aluaina o le manulauti o le 15% o loo fa'atulaga mai e le Taiala o le Ola Fa'a-natura lea e aofia ai le 12 o le 13 o nofoaga fa'a-natura o le laueleele o le atunuu. O le 7 o VOF mo le ola fa'a-natura o le gataifale lea e aofia ai le 173 km² poo 23% o le aloalo o Samoa.

I le taimi nei e 6 mai le 8 ni VOF mo le ola fa'a-natura o le laueleele ma le 3 mai le 7 ni VOF mo le ola fa'a-natura o le gataifale ua tu'u mavaevae mai ma ua avea nei nisi o ni nofoaga fa'asaoina i lalo o le puleaga a le Malo ao isi o loo i lalo o le pulega a afoaga ma alalafaga. E 2 nisi VOF e aofia ai i totonu ni ogasami fa'asao mo fa'agotaga. Peitai o le puleaina lelei o nei nofoaga e tele le eseesega, ma e tele foi se manaomia o ni faiga fa'a-pulega e sili atu aua le fa'aleleia atili. O isi VOF e le o i lalo o ni pulega aloaia. O loo tulimataia nofoaga nei mo le fa'ateleina atu i ai o feso'otaiga fa'a-fa'asao.

Ona o le utiuti o seleni e fa'atupeina ai manaoga fa'a-fa'asao, tainane o nisi o VOF e tatau ona fa'anatinati ona fa'amauiina ona o le ogaoga o le tulaga lamatia o loo i ai, e alaga tatau ai ona fa'atulaga lelei VOF e 15 ua filifilia i le taimi nei ina ia manino vaega e ave iai le fa'amumua. O sea fa'atulagana e tatau ona fa'avae i luga o le taiala o le 'leai o se isi avanoa e fa'asaoina ai' ma 'ogaoga o le tulaga ma'aleale'

ua ausia - o taiala foi ia na fa'avae ai lo tatou filifilia o ni VOF. E m'oomia foi fa'amaumauga auiliili fa'a-natura ma fa'amatalaga o ni a'afiaga o ni tagata soifua o nonofo taulalata iai. Peitai ona o ia fa'amatalaga auiliili e le i tapenaina i le taimi nei o tasi lenei o galuega mo le lumanai.

E tasi se VOF mo le ola fa'a-natura e tulaga mao'e lona taua ma e tataua ona ave i ai le fa'amuamua mo le fa'asaoina pe a fa'atusatusa i VOF uma lava o Samoa. O le VOF lea e aofia ai Vaomatua Tu-Ogototonu o Atumauga o Savaii. O lenei vaomatua e aupito telē ma maopoopo lona malu puipuia i le atu Polenisia atoa. O se tasi foi o nofoaga o loo i ai le talitonuga maumaututū o loo ofaga ma ola ai nisi o meaola ua 'ogaoga le lamatiaina. Afai e fa'atamaia lenei vaomatua i atumauga o Savaii o le a matuā afaina le tele o le ola-fa'anatura o meaola o loo au mau ma ola saogalemu ai. Ona o lea mafuaga, e alagā tataua ai ona fa'amuamua ma fa'atinati le fa'atinoina o polokalame mo lona fa'asaoina. I le taimi nei, e na o le vaega pito i lalo o lenei VOF o loo i ai se fa'amalumaluga aloaia. O le vaega maua luga o lenei VOF o iina tonu e ao ona ave iai le fa'ataua muamua

Mata'ituina o Vaega Oā Fa'apitoa (VOF) mo le Ola Fa'a-natura

E le tau ina fa'ailoa o VOF mo le ola fa'a-natura ma fa'atino galuega fa'a-fa'asao i ia nofoaga ona gata ai lea. O le manuia auiluma o taumafaiga e puipuia VOF mo le ola fa'a-natura ma meaola taua o loo aumau ai, e fa'alagolago lea i le mataituina ma le va'avaaia lelei. Ua fa'aaogaina e le Fa'alapotopotoga o Fa'asao Fa'a-va-o-malo ma le Matagaluega o Punaoa Faanatura ma Siosiomaga ma a latou paaga ni auala e fuatia ma fa'ailo gofie ai la'saga o le gasologa o atinae fa'a-fa'asao o le a fa'atinoina ina ia ausia le manulauti o le puipuiga o VOF uma i Samoa. O ia auala ua fa'amautuina lo latou talafeagai mo le mataituina o la'saga eseese o le ola fa'a-natura o Samoa aemaise le gasologa o atinae fa'a-fa'asao mo lo latou puipuia. O auala nei e aofia ai:

- Suiga i pasene o VOF mo le ola fa'a-natura ma puipuiga aloaia.
- Suiga i le fa'ateleina o vaomatua i totonu o VOF mo le ola fa'a-natura.
- Suiga i pasene o VOF mo le ola fa'a-natura ma le fa'atulagaina o pulega.
- Suiga i pasene o VOF mo le ola faa-natura fa'atasi ma taiala ia fausia
- Suiga i pasene o VOF mo le ola fa'a-natura ma atinae mo'omia e pei ona faailoa i totonu o taiala.

Mai le mataituina o ni suiga fa'aaauu o le a tula'i mai i le ola fa'anatura o VOF eseese, o le a mafai ai ona iloa le agai manuia poo le lē manuia foi o ia taumafaiga fa'a-fa'asao. O le a fa'afaigofie ai foi ona tu'uina atu ni lipoti manino mo le silafia a fa'alapotopotoga fa'a-le-malo, fa'alapotopotoga o loo fa'atupeina galuega fa'asao, kamupani ma le lautele o le atunu'u. O ia lipoti o le a ta'ita'ilimaina ai ni fa'aiuga i le lumana'i e aofia ai ni fuafuaga tu'utu'u mamao mo galuega fa'atino i totonu o VOF, ae maise fuafuaga mo galuega fa'a-fa'asao i lona aotelega.



Aleipata Marine Protected Area includes the waters of the Aleipata district extending to a half a mile off the reef crest. This key site contains four islands, rare soft corals, sea grass beds and turtle nesting beaches. Photo by © Stuart Chape, SPREP.

O le Nofoaga Faasao o le Gataifale o Aleipata e aofia ai ogasami o le itumalo o Aleipata mai le matafaga agai atu pe tusa ma le afa maila i tua atu o le aau. O lenei Nofoaga o loo puipuia ai foi ma motu laiti tu tai o Aleipata faapea 'amu galemulemu, vaovao o le sami ma matafaga o loo tautuufua ai laumei. Ata na pueina e © Stuart Chape, SPREP.

2. Terrestrial Key Biodiversity Areas and Threatened Species

Vaega Oā Fa'apitoa o le Laualeele ma Meaola Lamatia



Table 1: Terrestrial KBA Trigger Species in Samoa (2009 IUCN Redlist)¹
Meaola taua o le eleele e fa'ailo i le tulaga o le Ola Fa'a-natura

Species #	Scientific Name	English Name	Samoan Name	IUCN 2009 Threat Category	Threats	Population Trend
1	<i>Gallinula pacifica</i>	Samoan Moorhen	Punae	Critically Endangered (Possibly extinct in Samoa)	Hunting, invasive species	Not known
2	<i>Drymophleus samoensis</i>	None Known (a palm)	Maniuniu	Critically Endangered	Habitat loss	Not known
3	<i>Emballonura semicaudata</i>	Pacific Sheath Tailed Bat	Tagiti	Endangered (Possibly extinct in Samoa)	Habitat loss, invasive species, poisoning?	Decreasing
4	<i>Clinostigma samoense</i>	Samoan Bush Palm	Niu vao	Endangered	Habitat loss	Not known
5	<i>Didunculus strigirostris</i>	Tooth-Billed Pigeon	Manumea	Endangered	Hunting, habitat loss, invasive species	Decreasing
6	<i>Gymnomyza samoensis</i>	Mao	Maomao	Endangered	Hunting, habitat loss, invasive species	Decreasing
7	<i>Thaumatodon hystricelloides</i>	None Known (a land snail)	Sisi	Endangered	Habitat loss, invasive species	Not known
8	<i>Gallicolumba stairii</i>	Shy Ground Dove	Tuimeo	Vulnerable	Hunting, habitat loss, invasive species	Decreasing
9	<i>Intsia bijuga</i> ²	Mollucan Ironwood	Ifilele	Vulnerable	Logging for handicrafts and timber	Decreasing (in Samoa)
10	<i>Myiagra albiventris</i>	Samoan Broadbill	Tolaifatu	Vulnerable	Habitat loss	Decreasing
11	<i>Nesofregatta fuliginosa</i> ²	Polynesian Storm Petrel	Taio	Vulnerable	Habitat loss, invasive species	Decreasing
12	<i>Numenius tahitiensis</i>	Bristle Thighed Curlew	Tuliolovalu	Vulnerable	Invasive species, hunting	Decreasing
13	<i>Zosterops samoensis</i>	Samoan White Eye	Mata papae	Vulnerable	Habitat loss, invasive species	Not known
14	<i>Pteropus samoensis</i> ³	Samoan Flying Fox	Pea vao	Near Threatened (Endangered in Samoa)	Hunting, habitat loss, invasive species	Decreasing

¹ This list does not include marine turtles, which nest on land, since turtles are included in the marine list (Table 3)

² These two species are not recorded from Samoa on the 2009 IUCN Redlist, but are known to occur in Samoa so are included here

³ This species is highly threatened in Samoa, but not classified as globally threatened on the 2009 IUCN Redlist

Map 1: Protected Areas and Key Biodiversity Areas of Samoa
 Fa'afanua 1: Vaega Puipuia ma Vaega Oā Fa'apitoa o le Ola Fa'a-natura i Samoa

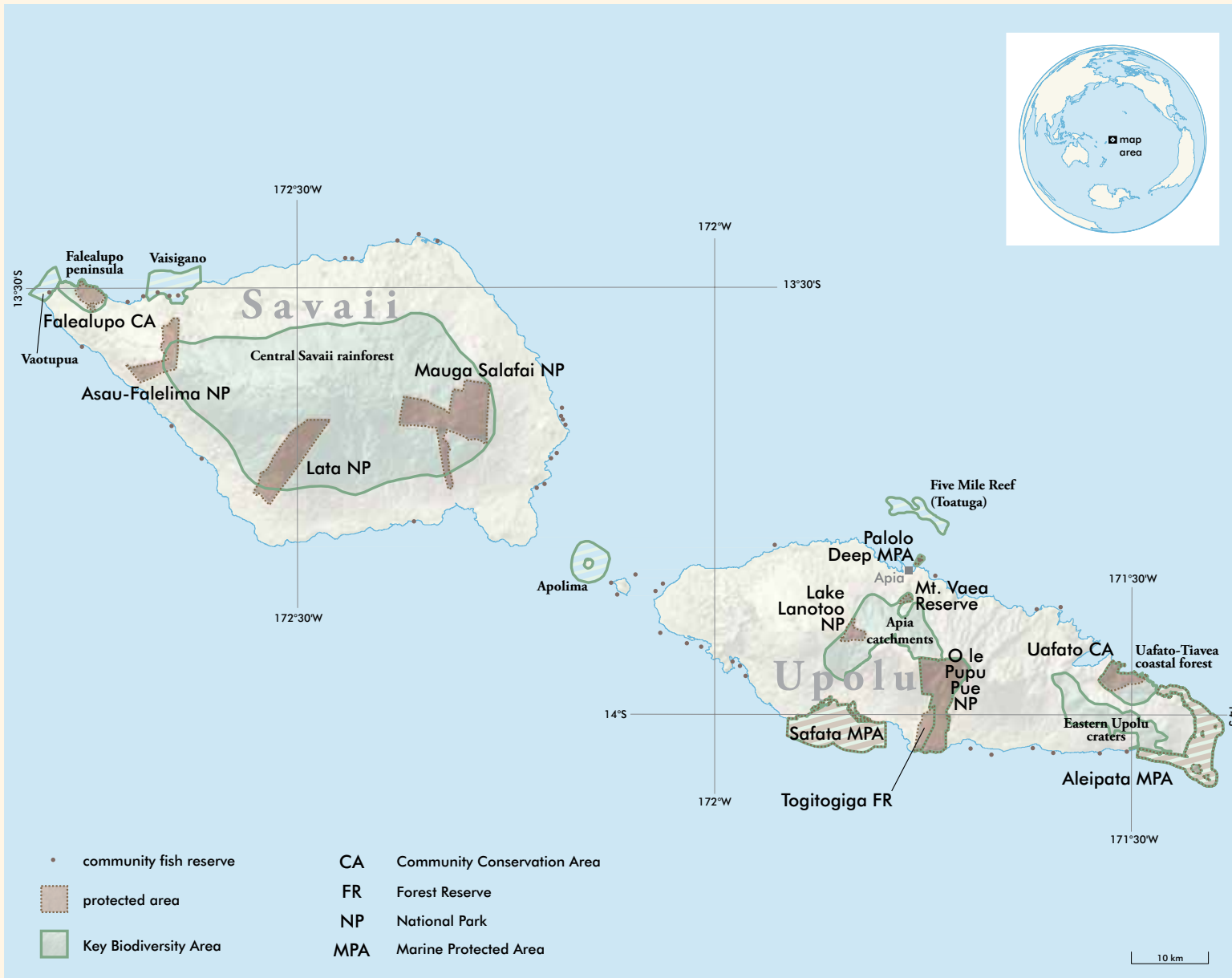


Table 2: Profile of Terrestrial Key Biodiversity Areas
Ata-fa'ataoto o Vaega Oā Faapitoa o le Ola Fa'a-natura

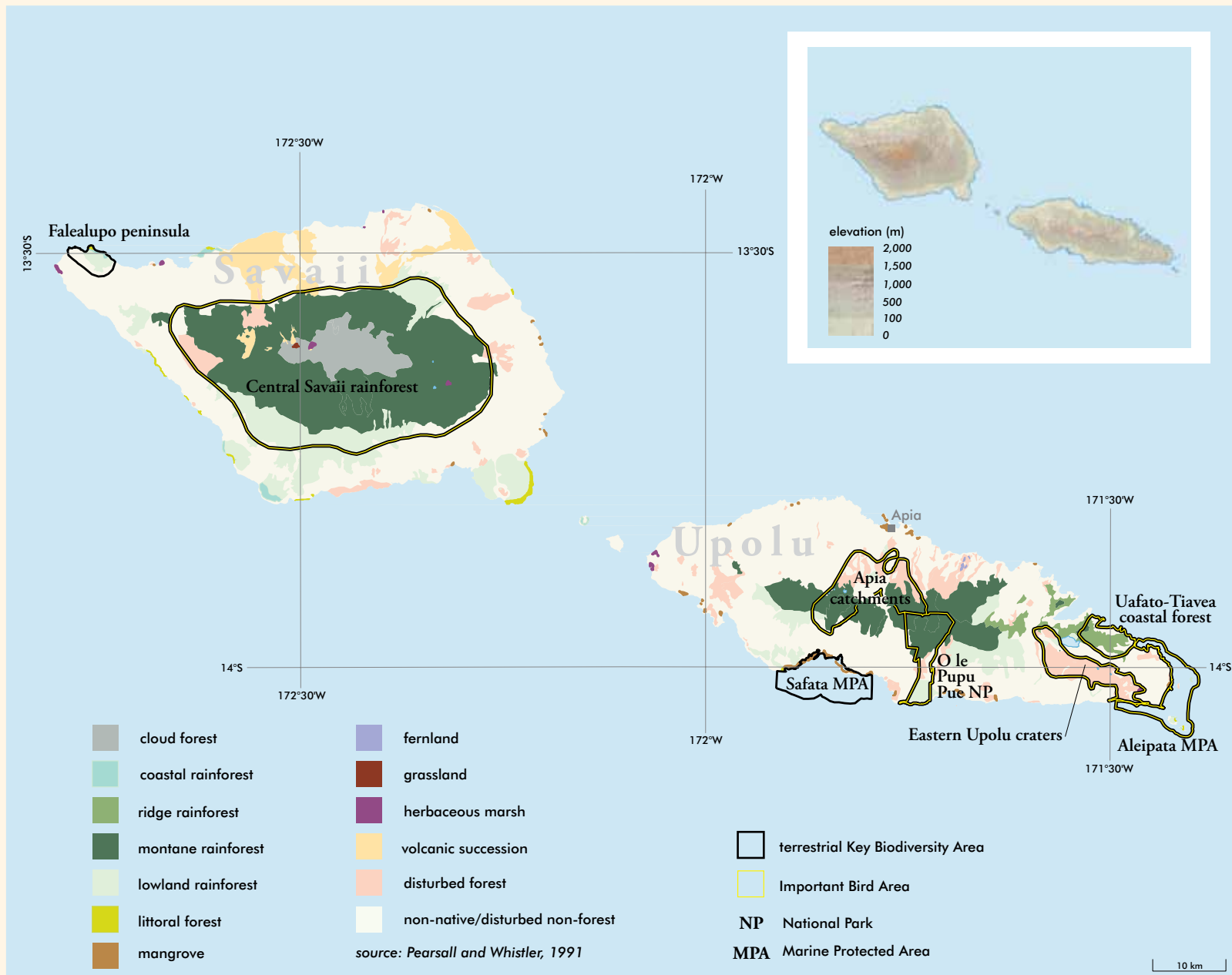
Site #	Site Name	Island	Faipule District	Approximate Area (Ha)	Current Protection Status	IBA (Y/N)	Terrestrial Trigger Species in Site	Threats
1	Aleipata Marine Protected Area	Upolu	Aleipata	4,842 (marine); 156 (land)	Active Marine Protected Area	Y	Hawksbill and Green Turtles (<i>Laumei</i>), Tooth-Billed Pigeon (<i>Manumea</i>), Ground Dove (<i>Tuaimoe</i>), Bristle Thighed curlew (<i>Tuliolovalu</i>)	Invasive species, fishing, development
2	Eastern Upolu Craters	Upolu	Aleipata and Lepa	4,759	None	Y	Tooth-Billed Pigeon (<i>Manumea</i>); Mao (<i>Maomao</i>), Samoan Broadbill (<i>Tolaiatu</i>)	Invasive species, development
3	Uafato-Tiavea Coastal Forest	Upolu	Vaa o Fonoti	2,316	Inactive Community Conservation Area.	Y	Mollucan Ironwood (<i>Ifilele</i>), Tooth-Billed Pigeon (<i>Manumea</i>), Mao (<i>Maomao</i>); Samoan Broadbill (<i>Tolaiatu</i>), Samoan Flying Fox (<i>Pea vao</i>)	Decline of the keystone species <i>ifilele</i> by unsustainable harvesting by wood carvers, management conflicts.
4	O le Pupu Pue National Park	Upolu	Safata and Falealili	4,228	Active National Park	Y	Samoan Bush Palm (<i>Niu vao</i>), Tooth-Billed Pigeon (<i>Manumea</i>), Ground Dove (<i>Tuaimoe</i>), Mao (<i>Maomao</i>), Samoan Broadbill (<i>Tolaiatu</i>), Samoan Flying Fox (<i>Pea vao</i>)	Invasive species, hunting
5	Apia catchments	Upolu	Vaimauga West, Faleata and Siumu	8,336	Partly protected in Lake Lanoto'o National Park and Mt Vaea Scenic Reserve. Some conservation effort by MNRE's watershed management section	Y	Samoan Bush Palm (<i>Niu vao</i>), Tooth-Billed Pigeon (<i>Manumea</i>), Ground Dove (<i>Tuaimoe</i>), Mao (<i>Maomao</i>), Samoan Broadbill (<i>Tolaiatu</i>), Samoan Flying Fox (<i>Pea vao</i>), <i>Thaumatodon hystericelloides</i> (<i>Sisi</i>)	Invasive species, hunting, development
6	Safata Marine Protected Area	Upolu	Safata	5,870 (marine); 101 (land)	Community Conservation Area	N	Hawksbill and Green Turtles (<i>Laumei</i>), Samoan Broadbill (<i>Tolaiatu</i>)	Management conflicts, land clearance for new house sites, dumping of rubbish, pollution
7	Central Savaii Rainforest	Savaii	Inland parts of all districts on Savaii	72,699	Partly protected in Mauga Salafai, Lata and Asau-Falelima National Parks	Y	Samoan Bush Palm (<i>Niu vao</i>), <i>Drymophloeus samoensis</i> , (<i>Maniuniu</i>), Tooth-Billed Pigeon (<i>Manumea</i>), Mao (<i>Maomao</i>), Samoan Broadbill (<i>Tolaiatu</i>), Samoan Flying Fox (<i>Pea vao</i>), Samoan Moorhen (<i>Punae</i>), Savaii White-Eye (<i>Mata papae</i>)	Invasive species, hunting
8	Falealupo peninsula	Savaii	Vaisigano West, Falealupo and Alataua West	1,537	Partly protected in a Community Conservation Area	N	Tooth-Billed Pigeon (<i>Manumea</i>); Samoan Broadbill (<i>Tolaiatu</i>), Samoan Flying Fox (<i>Pea vao</i>). This site also contains the only known populations of the <i>Pau</i> tree (<i>Manilkara samoensis</i>), a highly threatened tree endemic to Falealupo, not currently on the IUCN Redlist	Invasive species, fire, hunting



Mt Fito is a volcanic crater at the northern end of the O le Pupu Pue National Park, in the centre of Upolu (1,100m). This national park was the first in the South Pacific and contains a number of threatened animals and plants. Photo by © Stuart Chape, SPREP.

O le mauga o Fito e tusa lea ma le 1 100 mita lona maualuga e tu lea i le itu I matu o le Nofoga Faasao O le Pupu Pue. O lenei Nofoga Faasao o se Nofoga na muai puipua i totonu o le Pasefika i Saute ma o loo puipua ai le Siosiomaga ma le olaga faanatura o le tele o manu ma laau taua o Samoa. Ata na pueina e © Stuart Chape, SPREP.

Map 2: Terrestrial Key Biodiversity Areas and Native Vegetation
 Fa'afanua 2: Vaega Oā Faapitoa o Eleele Faa-natura ma ituaiga Laa



Did you know?

- Approximately 30% of Samoa's native biodiversity is endemic to Samoa (ie only found in Samoa and no-where else in the world).
- The biggest threats to Samoa's biodiversity are habitat destruction for agriculture, housing and other development, the over-harvest of resources and the impact of invasive species of pests and weeds. In future climate change may become the biggest threat.
- Recent species extinctions in Samoa possibly include the endemic Swallowtail Butterfly (*Pepe ae*, still found in American Samoa) and the Sheath-Tailed Bat (*Tagiti*). The Samoan Woodhen (*Puna'e*) hasn't been seen since 1908 and is also probably extinct. How many more species will go extinct before we act to conserve them?
- The rarest vegetation community in Samoa is the upland swamp forest with only one occurrence remaining- the Vaipu swamp on Upolu, covering approximately 150ha. This swamp is included in the Eastern Upolu Craters KBA.
Photo ©James Atherton, CI Pacific.



The Central Savaii Rainforest is the largest continuous patch of rainforest in tropical Polynesia, approximately 730km², and contains more than 100 volcanic craters, and areas of recent lava flow such as to the left of this image. This huge block of rainforest contains most of Samoa's endemic species, including many that are highly threatened, such as the *Mata Papae* (Savaii White-Eye), the *Manumea* and the *Maomao*. There is hope that the *Punae* (Samoa Moorhen), last seen in 1908, may still be found in unexplored parts of this forest. *Photo by ©James Atherton, CI Pacific.*

○ vaomatua tele o loo i atu mauga o Savaii e tele sona taua I le atu Polenisia ona o se vaomatua e le gata I lona tele e tusa ma le 730 kilomita ae faapea foi le maua ai ni to poo ni lua o mauga mu e silia ma le selau. ○ ia mauga mu sa tafe ai le lava e pei ona faaalua atu i le itu agavale o lenei ata. ○ lenei vaomatua o loo maua ai le tele o meaola e le gata ua nao Samoa e maua ai, ae ua faapea foi meaola ua aafia lo latou faitau aofai i se tulaga ua tauau ina le toe maua. ○ nisi o nei meaola e aofa ai manulele o le *Mata Papae* (Savaii White-Eye), *Manumea* ma le *Maomao*. ○ loo iai pea le faamoemoega o loo maua pea le manulele o le *Punae* (Samoa Moorhen) lea na mulimuli ona vaaia i le tausaga 1908, i vaega o le vaomatua e lei asaina. *Ata na pueina e ©James Atherton.*



Lake Lanoto'o National Park is within the Apia Catchments KBA, near the centre of Upolu. This important site contains the largest natural lake in Samoa and healthy populations of a number of threatened species including the *Niu Vao* (native bush palm) the *Manumea* (Tooth-Billed Pigeon) and *Maomao* (Mao). Photo by ©James Atherton, CI Pacific.

○ le vaituloto o Lanoto'o ei totonu lea o le nofoaga e tapue ai le suavai i Apia lea o loo faailoaina foi o se nofoaga e taua mo le soifuga faanatura o le Siosiomaga. ○ lenei nofoaga o taoto ai lenei vaituloto lea e taua tele mo le faaauvaina pea o le maua o le suavai mo tagata faapea le Siosiomaga. ○ se tasi o laau taua o loo maua i lenei nofoaga e iai le *Niu Vao* (native bush palm). ○ loo maua ai foi manulele taua o le atunuu e pei o le *Manumea* (Tooth-Billed Pigeon) ma le *Maomao* (Mao). Ata na pueina e ©James Atherton.

E te silafia?

- ▶ E tusa ma le 30% o le Ola Fa'a-natura o Samoa e na o Samoa lava e maua ai (e te lē maua lava i se isi mea o le lalolagi).
- ▶ ○ lamatiaga ogaoga i le ola fa'a-natura o Samoa e mafua mai i le fa'atamaia o nofoaga fa'anatura mo fa'atoaga, apitaga ma isi atina'e, so'ona fa'aaoga lē fuafua lelei ma a'afaga i meaola ma iniseti fa'alafuā. ○ suiga o le tau e ono avea ma a'afaga tuga i le lumanai.
- ▶ ○ le Pepe ae (*Swallowtail Butterfly*) ma le Tagiti (*Sheath-Tailed Bat*) o meaola ia e talu ai nei ona fa'a'iloa mai i suesuega le mou ese atu ma Samoa. ○ le Puna'e (*Woodhen*) na gata lona fa'amauina i le 1908 ma e talitonu foi ua lē o toe maua. Pe fia nisi mea ola e mou atu ona fa'atoa tatou gaiioi lea e faia se galuega mo le puipuia o lo tatou ola-fa'anatura?
- ▶ ○ le ituaiga o vaomatua e silisili ona lē aumau i Samoa o vaomatua vailaloo. Toe tasi lava le vaomatua o lea ituaiga o totoe - o le vaomatua vailaloo lea i Vaipu. E tusa lona tele ma le 150 hekitea. ○ lenei vaomatua vailaloo e i totonu o le VOF o le Itu i Sasae o Upolu. Ata Pueina e James Atherton, CI Pacific.



3. Marine Key Biodiversity Areas and Threatened Species

Vaega Oā Fa'apitoa o le Ola Fa'a-natura o Gataifale ma Meaola ua Lamatia

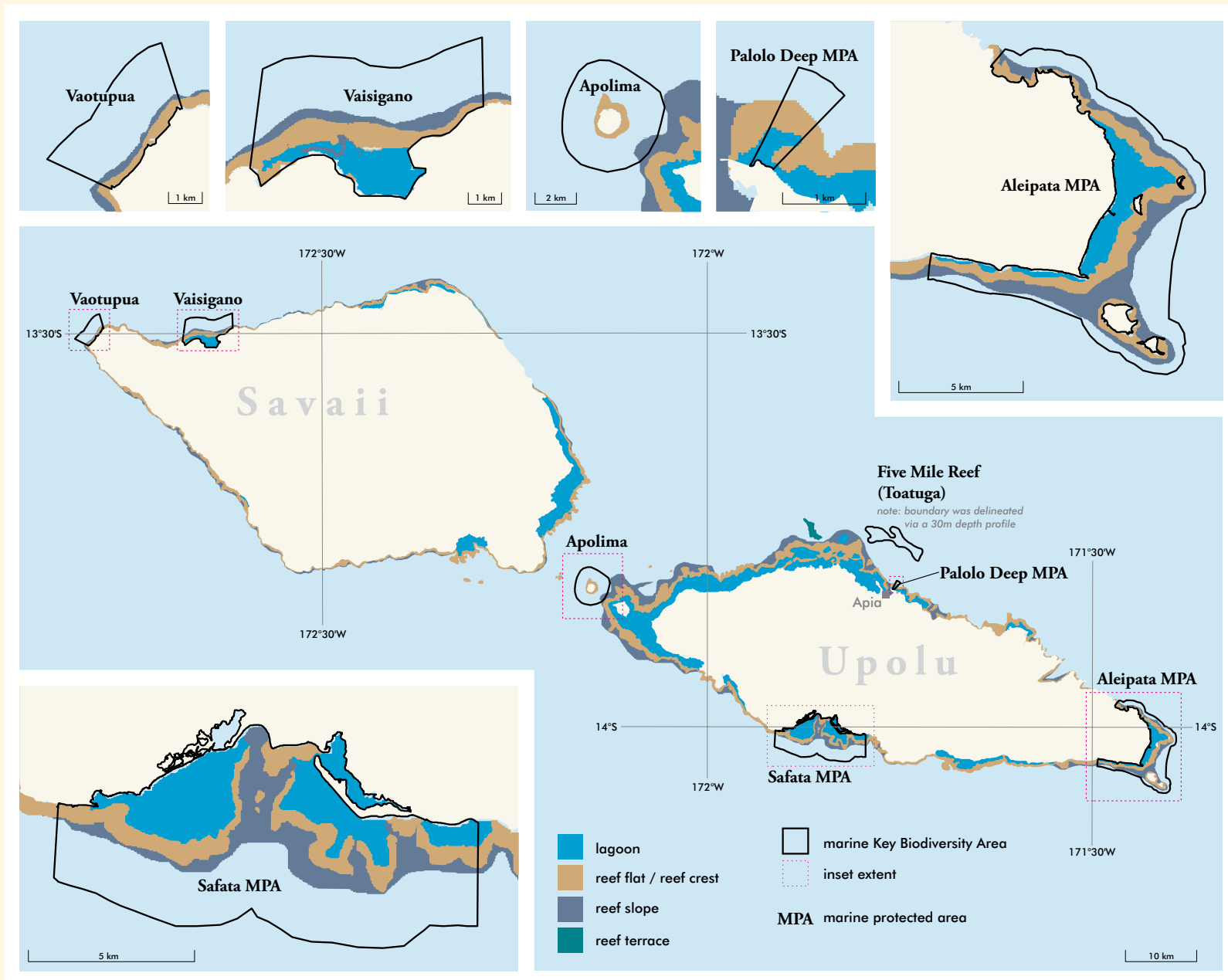
Table 3: Marine KBA Trigger Species in Samoa (2009 IUCN Redlist)
Meaola Fa'aילוilo taua o VOF o le gataifale i Samoa

Species #	Scientific Name	English Name	Samoa Name	Threat Category	Population Trend
1	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Laumei	Critically Endangered	Not Known
2	<i>Chelonia mydas</i>	Green Turtle	Laumei	Endangered	Not Known
3	<i>Cheilinus undulatus</i>	Humphead Wrasse	Malatea	Endangered	Decreasing
4	<i>Epinephelus lanceolatus</i>	Giant Grouper	Ata'ata-uli	Vulnerable	Decreasing
5	<i>Hippocampus kuda</i>	Seahorse	Pua'a sami	Vulnerable	Not Known
6	<i>Nebrius ferrugineus</i>	Nurse Shark	Malie	Vulnerable	Decreasing
7	<i>Negaprion acutidens</i>	Lemon Shark	Naiufi	Vulnerable	Decreasing
8	<i>Rhincodon typus</i>	Whale Shark	Faeme	Vulnerable	Not Known
9	<i>Rhynchobatus djiddensis</i>	Guitarfish	No Samoan Name	Vulnerable	Not Known
10	<i>Sphoeroides pachygaster</i>	Puffer Fish	Sue	Vulnerable	Not Known
11	<i>Thunnus obesus</i>	Big Eye Tuna	Asiasi matalapo'a	Vulnerable	Not Known
12	<i>Stegostoma fasciatum</i>	Zebra Shark	Malie	Vulnerable	Not Known
13	<i>Bolbometopon muricatum</i>	Bumphead Parrot Fish	Galo	Vulnerable	Decreasing
14	<i>Carcharhinus longimanus</i>	White Tip Shark	Malie Aloalo	Vulnerable	Decreasing
15	<i>Carcharhinus limbatus</i>	Black Tip Shark	Malie Aloalo	Vulnerable	Not Known
16	<i>Plectropomus areolatus</i>	Polkadot Cod	Ata'ata-utu	Vulnerable	Decreasing
17	<i>Plectropomus laevis</i>	Blacksaddled Coral Grouper	Ata'ata-utu	Vulnerable	Decreasing

Note: A large number of marine species occurring in Samoa have not been reviewed by the IUCN or are data deficient, e.g. the Palolo Worm, and therefore may be locally or globally threatened but do not appear on this list. Also not featured here are threatened cetaceans, which would not benefit from the near shore conservation which is the focus of the KBAs developed here. In many of the surveys conducted in Samoa, corals are not identified to species. For this analysis, globally threatened corals did not independently trigger a KBA due to data limitations. The full list of IUCN red listed marine species including vulnerable corals, is shown in Appendix 1.



Map 3: Marine Key Biodiversity Areas and Marine Habitat
 Fa'afanua 3: Vaega Oā Fa'apitoa o le Ola Fa'a-natura o Nofoga i le Gataifale



Did you know?

- Did you know that in Samoa over 90% of the protein consumed from local sources comes from the sea?
- Did you know that coral reefs are the largest living structure on the planet?
- Coral reefs form natural barriers that protect nearby shorelines from the eroding forces of the sea, thereby protecting coastal dwellings, agricultural land and beaches. So if you are worried about climate change reefs are your first line of defense.
- Less than 1% of the near-shore area in Samoa is fully protected from extractive uses.
- Resources like coral reefs and mangroves protect the land by breaking up big waves and reducing wave energy such as that from tsunamis and storm surges.
- Although coral reefs cover less than 1% of the Earth's surface, they are home to 25% of all marine fish species. Photo © Paul Anderson, SPREP.



Table 4: Profile of Marine Key Biodiversity Areas
Vaega Oā Fa'apitoa o le Ola Fa'a-natura o le Gataifale

Site #	Site Name	Faipule District	Approximate Area (Ha)	Current Protection Status	Marine Trigger Species in Site	Threats
1	Aleipata	Aleipata	4,842 (marine); 156 (land)	Active Marine Protected Area	Hawksbill (<i>Eretmochelys imbricata</i>) and Green Turtles (<i>Chelonia mydas</i>), Bumphead Parrot Fish (<i>Bolbometapon muricatum</i>), Humphead Wrasse (<i>Cheilinus undulates</i>), Coconut Crab (<i>Bigus latro</i>)	Development, marine vessel pollution, poaching, reclamation, tourism
2	Apolima	Aiga i le tai	2129	None	Bumphead Parrot Fish (<i>Bolbometapon muricatum</i>), Humphead Wrasse (<i>Cheilinus undulates</i>)	Fishing pressure
3	Vaisigano	Vaisigano	2270	None	Hawksbill Turtle (<i>Eretmochelys imbricata</i>), Giant Grouper (<i>Epinephelus lanceolatus</i>), Blacktip Shark (<i>Carcharhinus limbatus</i>)	Turtle egg harvesting, fishing pressure
4	Safata	Safata	5,870 (marine); 101 (land)	Active Marine Protected Area	Bumphead Parrot Fish (<i>Bolbometapon muricatum</i>), Humphead Wrasse (<i>Cheilinus undulates</i>)	Development, mangrove cutting, poaching, reclamation, sand mining
5	Five Mile Reef	None	1,303	None	Bumphead Parrot Fish (<i>Bolbometapon muricatum</i>), Humphead Wrasse (<i>Cheilinus undulates</i>), <i>Acropora dendrum</i> , <i>Acropora globiceps</i> , <i>Acropora microclados</i> , <i>Alveopora verrilliana</i> , <i>Montipora australiensis</i>	Fishing pressure
6	Vaotupua	Falealupo	893	None	Hawksbill Turtle (<i>Eretmochelys imbricata</i>)	Turtle egg harvesting, fishing pressure
7	Palolo Deep	Vaimauga west	33	Active Marine Reserve	Giant Grouper (<i>Epinephelus lanceolatus</i>), <i>Acropora aculeus</i> , <i>Acropora aspera</i> , <i>Acropora paniculata</i> , <i>Pavona dexussata</i> , <i>Porites nigrescens</i>	Mechanical damage (high tourism traffic)



The Safata Marine Protected Area and the Saanapu-Sataoa mangrove system within it are located on the central south coast of Upolu. This KBA consists of 58 square kilometres of marine and mangrove habitat and is an important site for educational tours and ecotourism. This is a key site for endangered giant clams, mangrove crabs and reef fish. *Photo by © Stuart Chape, SPREP.*

O le Nofoga Faasao o le Gataifale o Safata ose Nofoga lea e tele sona Aoga mo le soifuga faanatura o le Siosiomaga o le Gataifale. O lenei Nofoga e tusa lea ma le 58 kilomita lona tele, ma e aofa i lenei Gataifale Faasao le puipuiina lea o ogasami, oloa faanatura o le gataifale faapea togatogo e pei ona puipuia ai i totonu o se vaega o lenei Nofoga Faasao ua taua o le Faasao o Togatogo Saanapu-Sataoa. O lenei Nofoga e taua foi mo pisinisi Turisi i lea vaega o le atunuu ma o loo faatauaina mo le Faasaina o faisua, paalimago faapea isi figota ma l'a. *Ata na pueina e © Stuart Chape, SPREP.*

E te silafia?

- D E te silafia e silia i le 90% o taumafa o loo maua ai le polotini i Samoa e maua mai i le gataifale?
- D E te silafia o aau 'amu o mea fai ola ia e sili ona tetelē ma lapopo'a o loo i ai i le paneta atoa?
- D O aau, amu ma togatogo e puipuia le laveleele mai le malosi ogalululo ma galu fafati i taimi o afa.
- D O aau 'amu o ni pa puipui fa'a-natura ia e puipuia le tafa ese o elelee tu-matafaga mai le malosi o galu, e puipuia 'aai tu-matafaga, elelee mo faatoaga ma matafaga. Afai la o e popole i le oo mai o suiga o le tau, o aau o lou talipupuni muamua lea.
- D E itiiti ifo o le 1% o elelee tu lalata i le sami o Samoa o loo puipuia malu mai le fa'aaoga I gafataulimaina.
- D E ui ina itiiti ifo i le 1% o le lalolagi e ufitia i amu ma aau, a ua avea i latou o ni apitaga mo le 25% o 'ia o le gataifale. *Ata na pueina e © Paul Anderson, SPREP.*





In late 2009 the south coast of Upolu was struck by a major tsunami which caused great loss both to the human communities and the natural environment. Coral communities were most heavily impacted in the Aleipata MPA but damage extends down the south coast, including the only other district-wide MPA of Safata. Savaii and the north coast of Upolu were generally spared the effects of the tsunami. This event illustrates the necessity of replicating habitats in a MPA network. Replicates increase resilience to disturbance by providing both a refuge for species and source of biota for the damaged area. The resilience of the Samoa MPA network will be enhanced by increased protection of reef communities throughout Samoa. Photo by © Stuart Chape, SPREP.

○ le faaiuga o le 2009 na aafia ai le itu i Saute o le motu o Upolu i se Sunami malosi, lea na faaleagaina ai nuu ma afoaga faapea le siosiomaga faanatura. Na tele se vaega o amu ma auu i le itu i saute o le motu na faaleagaina e le gata i totonu o le Faasao o le Gataifale o Aleipata ae faapea foi Safata. ○ le motu o Savaii faapea le itu i matu o Upolu sa laitiiti se aafaga mai lenei faalavelave faanatura. Mai lenei faataitaiga ua iloa ai le aoga o le faateleina o Nofoga Faasao o le gataifale, aua le mava ai oni Nofoga e sulufai ma nonofo ai meaola o le sami i taimi o faalavelave faanatura e pei ona molimauina pe a faaleagaina ofaga sa iai muamua. *Ata na pueina e © Stuart Chape, SPREP.*



Vaotupua occupies the far western tip of Savaii. The remoteness of the location and fine sandy beaches make this site an important Hawksbill Turtle nesting site. *Photo by © Stuart Chape, SPREP.*

O Vaotupua e lotolotoi lea i le tausiusuga I Sisifo o Savaii. O le mamao ma le faigata ona oo o nisi i lenei Nofoga ua faapea ona Faasaoina ai le natura o matafaga oneone lea o loo avea ma ni Nofoga taua e tautuufua ai laumei fai uga (hawksbill turtles). *Ata na pueina e © Stuart Chape, SPREP.*

4. Main Findings and Recommendations

Terrestrial Findings and Recommendations

Eight terrestrial KBAs have been identified in Samoa. Five KBAs are actively managed, or parts of which are managed, as protected areas or community conservation areas. Two sites were formerly managed as community conservation areas, while one (the Eastern Upolu Craters) has never had any protection. Six of the eight sites have recently been identified as Important Bird Areas (IBAs) by O le Siosiomaga Society, MNRE, BirdLife International and Conservation International.

The assessment of gaps in our knowledge of terrestrial biodiversity has identified a number of taxonomic, thematic and geographic knowledge gaps. The taxonomic knowledge gaps include land snails, insects, seabirds, threatened plants and current population estimates of flying foxes as well as freshwater biodiversity in general. The main thematic knowledge gap is our knowledge of the biology and ecology of native species. We have a poor understanding of the current population, distribution, habitat, threats and feeding and breeding biology of most native species. This poor knowledge makes it difficult to adequately define effective conservation areas and other strategies that will allow threatened species to survive into the future. The spatial knowledge gaps include two main areas in particular- the central and eastern parts of both upland Savaii and upland Upolu.

Terrestrial Key Findings

- The total area of terrestrial KBAs in Samoa is about 940 km² (33% of the land area of Samoa).
- The area of terrestrial KBAs with some form of existing protection is approximately 173km², or 18% of the area of all KBAs.
- If all terrestrial KBAs are fully conserved the area of protection in Samoa will increase from 10% to 33% of the land area, more than double our SBSAP commitment of 15% of the land area of the country.
- The proposed KBAs capture key habitat for 8 of the 11 terrestrial species currently classified as threatened on the IUCN Redlist (with the exception of the sheath-tailed bat which is probably extinct and the bristle thighed curlew and storm petrel which are migratory).
- KBAs include within them examples of 12 of 13 native terrestrial vegetation communities in Samoa (the only vegetation community missing is fernland) and capture approximately 65% of the native forests of Samoa and most of the endemic terrestrial species in Samoa.
- The IUCN Redlist is highly under-representative of the true number of threatened species in Samoa.
- The key gaps in our knowledge of terrestrial biodiversity include our ecological knowledge of native species in general but especially of threatened plants, invertebrates and freshwater biota.

Terrestrial Recommendations

- We can take action to protect native terrestrial biodiversity now, as key sites for terrestrial conservation and many species at risk of extinction are known.
- We must raise awareness at all levels of society about Samoa's threatened species, the sites where they are found and what must be done to conserve them.
- Some threatened species need special protection in the entire country, not just in key sites (e.g. native pigeons, doves, flying foxes and *ifilele*).
- Existing laws such as the Protection of Wildlife Regulations need to be promoted and followed.
- Priorities for further species research include plants, invertebrates (especially land snails), seabirds and freshwater fish.
- Research should focus on increasing our understanding of the biology of native species and how to conserve them, including sustainable levels of harvest for harvested species.
- The biggest single priority for expansion of the PA network in Samoa is the Central Savaii Rainforest- which at 730 km² is the largest intact block of rainforest in tropical Polynesia and captures most of the threatened terrestrial species in the country. Large sites such as this are important refugia for whole communities of native species and species with wide ranges.

Marine Findings and Recommendations

Terrestrial Recommendations, continued

- ▶ The priorities for improved site management include the Uafato-Tiavea KBA and the Apia Catchments KBA, both on Upolu.
- ▶ Future refinements of Samoa's KBAs should include the addition of criteria such as congregatory and restricted range species as well as a prioritisation of all KBAs based on biological and sociological criteria.
- ▶ Since most terrestrial KBAs are on customary land, conservation of these sites depends on close and effective collaboration between government, donors, NGOs and community groups.

Seven marine KBAs have been identified in Samoa, three of which are currently managed as MPAs and include over 20 no take zones as well as much larger marine managed areas. Four additional KBAs have been identified, two of which currently host community based fisheries sites that could provide a foundation to work toward a heightened level of conservation. The other two sites have no ongoing active management. Building on the success of MNRE's marine protected areas and the Fisheries Division's community based fisheries sites, we can act rapidly to conserve the additional 4 KBAs.

The assessment of gaps in our knowledge of marine biodiversity has identified a number of taxonomic, thematic and geographic knowledge gaps. The taxonomic knowledge gaps include all corals and the current population of threatened fish and cetaceans. The thematic knowledge gap for marine species is quite similar to the terrestrial gap except that even less is known about the ecology of native marine species. We have a poor understanding of the current population, distribution, habitat, and breeding biology of most native species. In the marine environment the spatial knowledge gap encompasses much of the near shore area, from the west of Upolu to most of Savaii and the entire reef slope.

Each KBA has its own particular challenges and opportunities. In Apolima, there is a single community to engage. The community has been proactive in managing their resources in the past and represents a unique political and geographic situation in Samoa. Five Mile Reef has no

specific village with which to engage and would pose an enforcement challenge. There would be a different mix of stakeholders to address including commercial fishermen for this site and a national approach may work well in this situation. Vaotupua is an important site for Samoa, occupying the most westerly point in the country and housing a potentially important Hawksbill Turtle nesting site in Savaii. Quick action could be taken on education and outreach, data collection as well as engaging in the normal village consultation process while building on the community fisheries site currently there. Vaisigano may be best approached from a district, perspective perhaps using the examples of Aleipata and Safata, while also building off the community fisheries successes in the area. This would be the largest MPA in Savaii and there is potential collaboration with local businesses and tourism operators.



Giant Clam. Photo © Paul Anderson, SPREP.

Marine Key Findings

- ▶ The total area of marine KBAs in Samoa is about 173 km² (23% of the inshore reef area of Samoa).
- ▶ The area of marine KBAs with some form of protection is approximately 108km², or 14% of the inshore reef area of Samoa.
- ▶ If all marine KBAs are managed for conservation the area of protection in Samoan waters will increase from 14% to 23% of the near shore area, more than ten percent greater than our SBSAP commitment of 15% of the near shore area in Samoa.
- ▶ KBAs capture key habitat for 6 of the 17 vertebrates currently classified as threatened on the IUCN Redlist and at least 6 of the 48 coral species listed. The other 53 species may occur in the KBA network but the datasets are insufficient to verify their presence or absence currently.
- ▶ Marine KBAs include within them all 17 near shore habitat types in Samoa.
- ▶ Suitable models of successfully managed marine areas exist in the Aleipata and Safata MPAs and village fish reserves.
- ▶ The IUCN Redlist is highly under-representative of the true number of threatened marine species in Samoa.
- ▶ The key gaps in our knowledge of marine biodiversity include our ecological knowledge of native species in general but especially of threatened corals, and fish.

Marine Recommendations

- ▶ We can act now to protect native marine biodiversity, as key areas for marine conservation are known.
- ▶ Integrated marine surveys are needed, including targeting threatened taxa, to provide an improved basis to monitor the effectiveness of existing managed sites and to improve the knowledge base for targeting new sites.
- ▶ Some species need special protection in the entire country (turtles, long lived fish, clams).
- ▶ Existing fisheries regulations should be strengthened, promoted and enforced.
- ▶ Additional surveys need to be undertaken in the KBAs that have been identified, more rare species are likely to exist in these areas.
- ▶ Priority should be given to locations that have no current protection and represent special habitat like 5 Mile Reef and Apolima.
- ▶ Resource use and conservation are not mutually exclusive and can both be enhanced through good management of resources.
- ▶ The reef crest, slope, and off shore reefs are generally under-protected in Samoa, it is important to consider extending the boundary of MPAs no take zones to the extent of the reef slope.
- ▶ Western Upolu and Savaii are in need of conservation investment as there are no MPAs presently.
- ▶ Collaboration with the community based fisheries site developed in partnership with the Department of Fisheries provides opportunities to build on successful management efforts.
- ▶ Since most marine KBAs are under customary tenure, conservation of these sites depends on close and effective collaboration between government, donors, NGOs and community groups.



Coconut crab. Photo © Rebecca Dominguez.

Laueleele: Taunuuga ma Fautuaga

E 8 ni Vaega Oā Faapitoa (VOF) mo le ola fa'a-natura o le laueleele ua fa'amautuina e ala i suesuega sa faia mo Samoa, ole 5 o ia vaega o loo lelei ona puleaina atoa pe na o ni vaega, i puleaga fa'a-le-malo poo puleaga fa'a-le-nuu ma fa'a-le-itumalo. E 2 vaega sa puleaina o ni fanua fa'asao o nuu ma le 1 (atumauga i sasae o Upolu) e lei i ai lava sona puipuiga. O le 6 mai le 8 o nei nofoaga ua fa'atulagaina o Vaega Taua mo Manulele (VTM). Ua fa'amautuina lea fa'atulagana i ni suesuega ua auautasi iai le Sosaiete o le Siosiomaga, Matagaluega o Punaoa Fa'anatura ma Siosiomaga, Fa'alapotopotoga o Manulele Fa'avaomalo ma le Fa'alapotopotoga o le Fa'asao Fa'a-va-o-malo.

I se suesuega i le lautele ma le atoatoa o lo tatou iloa i le ola fa'a-natura o le laueleele o Samoa na atagia mai ai le lē atoatoa o le silafia i le tasenomi (taxonomy), vaega autu eseese fa'asaienisi ua vaevaeina iai, ma vaega eseese o le siosiomaga e nonofo ma maua ai. O vaega tonu o le ola fa'anatura e lē o lava le silafia ma oge i fa'amaumauga e aofia ai ituaiga o sili (snails), iniseti, manulele o le sami, laau ua lamatia, faitau aofai o pe'a faatasi ai ma le ola fa'a-natura o vaimagalo. O vaega autu eseese fa'a-saienisi (thematic) o le ola fa'a-natura e lē o lava i ai le silafia e fa'asino tonu lea i le silafia auilili o olaga fa'a-natura o meaola ae maise i meaola patino lo latou tupuaga ia Samoa. Tatou te le o iloa atoatoa pe fia lo latou faitau aofai, poo fea e maua ai, o o latou apitaga, o a fili o lamatia ai, o a latou mea ai, ma pe faapefea ona feusua'i ma fanafanau. O le lē lava o le silafia i nei tulaga ua faigata ai ona fa'amautu le fa'amatalaina auilili o ni siosiomaga talafeagai mo lo latou puipuiga atoa ma ni faiga fa'a-taiala e mauiua lelei ai lo latou fa'asaoina malu i le lumanai. O le lē atoatoa foi o fa'amaumauga ua le mafai ai ona fa'amautuina i luga

o fa'afanua nofoaga o maua ai, ae maise lava i VOF nei e lua – Oगतotonu ma Vaega i Sasae o Atumauga o Savaii ma Upolu.

O loo ua lisiina atu i lalo taunu'uga o iloilogia e fa'atatau ola fa'a-natura o le laueleele

- ▶ E 940 km² (33% o le laueleele o Samoa) ua aofia i totonu o Vaega Oā Fa'apitoa (VOF) mo le ola fa'a-natura o le laueleele o Samoa
- ▶ E tusa ma le 173km², poo le 18% o le faitauaofai o Vaega Oā Faapitoa (VOF) mo le ola fa'a-natura o le laueleele o loo ua iai se pulega fa'a fa'asao o loo puipuia ai i le taimi nei.
- ▶ Pe afa'i e puipuia uma VOF mo le ola fa'a-natura o le laueleele, o lona uiga o le a siitia loa le aofai o nofoaga puipuia mai le 10% i le 33% o le laueleele o Samoa. O le a sili atu lea nai le fa'aluaaina o le manulauti e 15% pei ona fa'atulaga ma i le taiala o le ola fa'anatura (NBSAP).
- ▶ O VOF mo le ola fa'a-natura ua tuuina atu i leni repoti o loo a'afia ai le 8 mai le 11 o ituaiga o meaola o le laueleele o Samoa ua fa'amauiua o meaola lamatia i le lisi a le IUCN (e le aofia ai le tagiti lea e masalomia ua le o toe maua i Samoa, ma manulele e 2 o le sami (bristle thighed curlew ma le storm petrel).
- ▶ O VOF mo le ola fa'a-natura ua fautuaina atu i leni lipoti, o loo aofia ai totonu vaega eseese o le 12 mai le 13 o ituaiga eseese o vaomatua i Samoa poo le 65% o le vaomatua o Samoa o loo totoe. I totonu o leni

vaomatua, o loo fai apitaga ai le anoano o meaola na o Samoa e maua ai (pau le ituaiga vaomatua e le o a'afia o laufanua o laugasese (ferns). O le lisi a le IUCN e lē o maua uma ai le faitauga sa'o o meaola lamatia i Samoa.

- ▶ O vaega o le ola fa'a-natura o le laueleele o Samoa e lē o lava ona suesueina e fa'atatau lea i le ola fa'a-natura o meaola eseese ma o latou feso'otaiga fa'a-natura ma le siosiomaga o loo fa'alagolago iai. E fa'apitoa le fa'ataua i le vasega o laau ua lamatia, o meaola e lei ni tuasivi ma meaola e fai apitaga i vaimagalo.

Fautuaga

- ▶ Ia fa'atino nei loa ni gaioiga e puipuia ai le ola fa'a-natura o le laueleele aua ua lava fa'amatalaga ma fa'amaumauga mo le fa'asaoina o ia vaega o le laueleele fa'atasi ai ma meaola uma ua ogaoga le lamatiaina o loo maua ai.
- ▶ Ia fa'alautele le malamalamaga o tagata i vaega eseese uma o le Malo ma le lautele o le atunuu e uiga i meaola taua o le ola fa'a-natura o Samoa ua ogaoga le lamatiaina, o vaega o le siosiomaga e aumau ai, ma gaioiga talafeagai e puipuia ai. O nisi o meaola lamatia e mo'omia ni puipuiga fa'apitoa i soo se mea lava o Samoa o loo maua ai, ae lē tau o ni nai vaega lautogia (faataitaiga: lupe, pea, tuameo, ma ifilele).
- ▶ O tulafono ua iai nei e pei o Tulafono Fa'atonotonu e Puipuia ai Meaola Ta'aloa, e mo'omia ona fa'alauilua ma usitaia.

- Mo nisi galuega suesue, e ao ona fa'amumua suesuega i laau, ma meaola e i ai sisi, manulele ole sami ma ia o vaimagalo.
- E tatau ona taula'i suesuega e fa'alatele lo tatou iloa i le olaga o meaola totino a Samoa, pe fa'apefa ona fa'asoina, ae pe o le a le fua e fa'aaoga gafatia taulimaina ai.
- O le fa'amumua laualuga mo le fa'alateleina o nofoaga puipuia i Samoa e fa'asino tonu lea i le Vaomatua Tu-Ogatotonu o Atumauga o Savaii lea e 730 km² lona fuataga ma o se nofoaga sili ona itiiti lona fa'aleagaina i le atu Polenisia. O lenei foi VOF o loo fai ma ofaga saogalemu mo le tele o ituaiga o meaola totino ma meaola ta'atele.
- O nisi nofoaga e tatau ona ave i ai le fa'amumua mo le toe fa'aleleia o pulega e aofia ai le VOF mo le ola fa'a-natura i Uafato-Tiavea ma nofoaga e pueina ai le suavai i Apia, i le motu o Upolu.
- O nisi fa'aopoopoga mo le fa'aleleia atili o VOF mo le ola-fa'a-natura o Samoa i le lumanai e i ai taiala mo meaola ta'a mamao ma meaola ola pu mo'omo'o. Ia fa'apea foi ona fa'atulaganaina manino VOF uma mo le ola fa'a-natura e fa'avae i luga o taiala aloaia fa'a-saienisi o olaga o meaola ma le tulaga o ni a'afiaga o le soifuaga lautele o tagata soifua e faaono aafia ai.
- Talu ai ona o le tele o VOF mo le ola fa'a-natura i le lauelele e i totonu o elele fa'a-le-aganu'u, o lea e taua tele ai le galulue so'oso'o tau'au o le malo, fa'alapotopotoga fesoasoani, fa'alapotopotoga tumaoti ma nuu i le fa'asoina o ia nofoaga.

Taunu'uga o Sailiga ma Fautuaga mo le Gataifale

E fitu ni VOF mo le ola fa'a-natura o le gataifale ua fa'atulagaina mo Samoa. O le tolu o ia nofoaga o loo pulea o ni nofoaga fa'asao o le gataifale e aofia ai le sili atu i le 20 o sone e tapu ona fagotaina ma se vaega tele o le gataifale o loo avea o ni nofoaga puipuia. Mai lea aofaiga, e 4 nisi o VOF mo le ola-fa'a-natura o le gataifale ua fa'aopopoina, e lua ni nofoaga ua avea o ni vaega e atia'e ai fagotaga gafatia taulima mo nuu. E i ai le talitonuga o se amataga lelei lea e ao ina tapu'e mo le fa'asao, ae o le isi lua o nei nofoaga e le o maoti lelei lo latou puleaina. O taunuuga lelei na ausia e polokalame fa'asao o le gataifale a le Matagaluega o Punaoa Faanatura ma Siosiomaga ma fa'asao o le gataifale i nuu a le Vaega o Faigafaiva, o se fa'avae lelei lea mo ni taiala talafeagai mo le fa'agaioia vave loa o le fa'asoina o VOF e fa (4) ua fautuaina.

I le iloiloga o itu o loo lape ai le iloa i le ola-fa'anatura o le gataifale, ua fa'ailoa mai ai vaega nei o loo oge i sailiga ma fa'amaumauga: tasonomi (taxonomy), o vaega autu eseese o le ola fa'a-natura, ma fa'amatalaga i vaega tonu e maua i ai. O le silafia fa'a-tasonomi o loo moomia mo amu, faitauaofai o i'a ma mamele o le sami ua lamatia. E tali foliga tutusa vaega autu eseese o loo lape ai le iloa tau le olaga o meaola o le sami ma le lauelele, sei vagana ai le oge tele atu o fa'amaumauga i le ola fa'a-natura o le sami. E le o lava fo'i lo latou malamalamaga i le faitau aofai o meaola o i ai nei, ta'apega, apitaga ato ma aga o feusuaiga ma taimi e tau tu'ufua ai. I le siosiomaga o le gataifale, e le o lava le silafia i le tele o le ola-faa-natura i vaega tu lalata i matafaga mai sisifo o Upolu agai i le tele o aloalo i Savaii.

E tofu lava le VOF mo le ola fa'a-natura o le gataifale ma ona luitau fa'atasi ma ona itu taua. I Apolima, na o le tasi le afioaga e manaomia le galulue soosoo tauau. O se afioaga e le nofonofa'i ae galulue punouai mo le fa'asoina o a latou alaoa o le gataifale ma e tulaga ese foi la latou puleaga fa'anuu i Samoa. O le aau lea ua faaigoaina o le Lima Maila, e leai se nuu patino e agai tonu iai ni feso'otaiga ma taumafaiga mo le puipuia. E toatele vaega eseese o loo faaagaina lenei ogasami. O i latou uma ia e ao ona feutagai ina ia faigofie

ona fa'atino gaiioiga mo le fa'asoina. E fa'aono talafeagai i lea tulaga se faiga puleaga fa'alaua'i tele. O Vaotupua o se tasi o nofoaga taua i Samoa o loo i le itu i Sisifo o Savaii, ua fa'atauaina o se faga e ofaga ma tautuufua ai laumei faiuna. E moomia vave ni polokalame fa'a-le-aoaoga ma le aoina mai o fa'amatalaga mai lea afioga aemaise fa'amaumauga mai nofoaga mo fagotaga fa'ale-aganuu o loo i ai nei. O Vaisigano e fa'aono fetau iai se faiga fa'a-itumalo e pei ona iai Safata ma Aleipata, ma fa'aaoga iai ni taunuuga lelei ma se tomai ua maua e nuu taitasi mai a latou fa'asao fa'a-faiga faiva. O se tasi lea o nofoaga fa'asao o le gataifale aupito tele i Savaii pe a taulau. E tele foi avanoa mo ni atina'e fa'apisinisi ma fa'aturisi e fa'aono maua ai.



Apolima island and its surrounding reef sits halfway between Upolu and Savaii. Apolima's small population, remote location and difficult to navigate reef passage have helped it maintain populations of rare species including Bump Head Parrot Fish and Hump Head Wrasse. Photo © Stuart Chape, SPREP.

O le motu o Apolima e tu lea ile va o Upolu ma Savaii. O le laititi o le faitau aofai o tagata e nonofo i lenei motu, faapea lona tulaga, ma le faigata ona o iai o nisi, ua fesoasoani tele lea i le faatumauiina pea o le Siosiomaga faanatura o lenei motu, faapea le faitau aofai o nisi o ia taua e pei o laea ma fuga uluto'i. *Ata na pueina e © Stuart Chape.*

O loo ua lisiina i lalo nisi o taunuuga o suesuega mo le gataifale i lalo o lenei Poloketi:

- ▶ O le tu'u fa'atasiga o Vaega Oā Faapittoa (VOF) mo le gataifale i Samoa e tusa ma le 173 km² (23% o ogasami o Samoa).
- ▶ O le aofaiga o VOF mo le ola fa'a-natura o le gataifale o loo puipuia e 108km², poo le 14% o le aofaiga uma o VOF mo le ola fa'a-natura o le gataifale.
- ▶ Pe afai e puipuia uma Vaega Oā Fa'apittoa (VOF) mo le ola fa'a-natura o le gataifale, o le a siitia ai loa mai le 14% i le 23% ogasami puipuia o Samoa ma e sili atu ma le 10% ua maualuga ai nai lo le manulauti o loo fa'atulaga mai le Taiala o le Olafaanatura e 15%.
- ▶ O le a aofa'i ma puipuia i totonu o VOF o le gataifale le 6 o le 17 o meaola e i ai ivitu ua lamatia i le fa'avasegana a le IUCN, ma le 6 mai le 52 o ituaiga o amu ua lisiina. O le isi 53 o ituaiga o loo aofai i totonu o le tu'u-faatasiga o VOF mo le ola fa'a-natura, peitai, e le o lava fa'amaumauga e fa'amaonia ai lea tulaga.
- ▶ O loo aofia i totonu o VOF mo le ola fa'a-natura o le gataifale le 17 o ituaiga o apitaga tu lata i matafaga i totonu o Samoa.
- ▶ O loo ua iai fa'ataitaiga talafeagai o nofoaga fa'asao o le gataifale e ave ma taiala, e pei le fa'asao o le gataifale i itumalo o Aleipata ma Safata, ma nisi o fa'asao fa'a-faiga faiva a nisi o afoaga.
- ▶ I le lisi o meaola lamatia a le IUCN e le o atoatoa ona aofia ai le fuainumera tonu o meaola o le gataifale o Samoa ua lamatia.
- ▶ O itu taua o loo lape ai lo tatou iloa i le ola fa'a-natura o le gataifale e aofia ai fesootaiga o meola ma le natura i lona aotelega ae faapittoa lava i ituaiga o amu ma i'a ua lamatia.

Fautuaga

- ▶ Ua tatau nei ona o tatou gaioi e puipui ma fa'asao le ola fa'a-natura o le gataifale aua o lea ua manino mai vaega e tatau ona agai i ai le fa'asaoina.
- ▶ E manaomia ni galuega suesue mo le faitauina lelei o ituaiga o meaola eseese ina ia fesoasoani i le mataituina o le alualu i luma o galuega fa'a-fa'asao, ma le fa'alauateleina o fa'amatalaga ma fa'amaumauga.
- ▶ E iai meaola e moomia ni puipuia fa'apittoa i ogasami uma lava o Samoa, e pei o laumei, i'a ola umi, ma faisua.
- ▶ E tatau ona teuteu, fa'alauatele, fa'alauiloa ma fa'amalosia tulafono fa'atonutonu o faigafaiva o i ai nei.
- ▶ Ia fa'atino nisi suesuega i totonu o VOF ua fa'atulagaina, ona e i ai le manatu e tele nisi meaola seasea ona vaaia o loo maua i totonu o nei nofoaga.
- ▶ Ia ave le fa'amuumua i nofoaga e le o i ai se puipuia fa'ale tulafono i le taimi nei faapea ma apitaga fa'apittoa e pei o le Aau o le Lima Maila (Five Mile Reef) ma Apolima.
- ▶ O le fa'aaogaina ma le fa'asaoina o tamaoiga fa'anatura e le mafai ona tu'ueseeseina ae mafai ona ausia i le pulea lelei o alaga'oa ma le tamaoiga.
- ▶ E le o lava le puipuia o aau i le aloalo ma aau mamao o loo siaina Samoa. Ona o lea tulaga, e taua ai ona silasila i le fa'alauateleina i tai o tuaoi o vaega e tapu ai fagotaga i nofoaga fa'asao o le gataifale.
- ▶ O le itu i sisifo o Upolu ma Savaii e mo'omia ona tuuina i totonu o faiga fa'a-fa'asao, talu ai e le o i ai ni nofoaga puipuia o le gataifale ua fa'atuina ai i le taimi nei.
- ▶ I se faiga fa'apaaga o loo galulue faatasi ai le au fai faiva i nuu ma afoaga ma le Vaega o Faigafaiva a le Matagaluega o Fa'atoaga ma Faigafaiva, o se avanoa lelei lea e fa'atulaga ai ni la'asaga tau pulega manuia.

- ▶ Talu ai o VOF mo le ola fa'a-natura o le gataifale o loo i totonu o puipuia fa'ale-aganuu, o le fa'asaoina o nei nofoaga e fa'alagolago malosi i le galulue faatasi ai o le malo, fa'alapotopotoga fesoasoani, fa'alapotopotoga tuma'oti ma nu'u.



Of Samoa's 200 or so species of coral, about 25% are currently threatened by pollution, sedimentation and disease. Heat stress and changes to water chemistry induced by global warming are likely to have a huge impact on all our corals in future. Photo by ©Richard Howes.

E ui ina sili atu i le 200 ituaiga o 'amu i Samoa, pe tusa o le 25% o lea aofaiga ua afaina mai le faaonoina, nuti liliu poo ni faama'i foi. O le vevela ma le mamafa tu o fesuaiga o le tau, o le a ave o se faafitauli tele mo 'amu ma aau i le lumanai. Ata na pueina e ©Richard Howes.

5. Conclusion

Conclusion

Funding for conservation is limited, as are human resources and time. Given that all KBAs in Samoa have special value to the people and biodiversity of Samoa, it is imperative that all efforts are as efficient as possible and have the buy-in from all relevant sectors of society, especially the village communities with traditional tenure over the KBAs. By fully involving all stakeholders and related economic sectors including forestry, fisheries, agriculture and tourism, we can find the most appropriate way to conserve our natural heritage while providing for our current and future needs.

Effectively managing KBAs for their conservation values is important not only for the ecological integrity of Samoa, but also for the cultural, spiritual and economic vitality of the country. In this, the International Year of Biodiversity, we encourage all partners and stakeholders to work together to conserve Samoa's KBAs and natural wealth while we still can.

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Five Key Recommendations

1. We should act now to protect native terrestrial and marine biodiversity, as key sites for conservation and many of the species at risk of extinction are known.
2. Since most KBAs are under customary tenure, conservation of these sites depends on close and effective collaboration between government, donors, NGOs and community groups.
3. Existing laws such as the Protection of Wildlife Regulations and fisheries regulations need to be promoted and followed.
4. Future ecological research should focus on increasing our understanding of the biology of native species and how to conserve them, including establishing sustainable levels of harvest for harvested species.
5. We must raise awareness at all levels of society about Samoa's threatened and ecologically important species, the sites where they are found and what must be done to conserve them.

Manatu Fa'aiu

Eutiuti seleni mo le fa'atupeina o galuega fa'a-faasao. E faapena foi tagata e fa'atinoina galuega ma le taimi. Ona o le taua tele o Vaega Oa Faapitoa (VOF) mo Samoa ma lona ola-fa'a-natura, e matua alaga tatau ai ona fa'atinoina gaioioiga uma i se faiga e silisili ona lelei, e lagolagoina e tagata uma ae maise afioaga e ona eleele o loo taoto ai VOF. O le galulue fa'atasi o fa'alapotopotoga ma tagata uma, e aofia ai vaega o le vaomatua, faigafaiva, fa'atoaga ma turisi, o le a mafai ai ona maua ni auala talafeagai e fa'asao ai lo taou tofi fa'a-natura i ni auala e gafa taulimaina mo tupulaga nei ma a taeao.

E taua le puleaina lelei o Vaega Oa Faapitoa (VOF) o le Ola Fa'a-natura ona o lo latou taua fa'a-sao, faapea ma le fa'atumauina o Samoa i ona foliga fa'a-natura moni, ae maise ai le so'otaga vavalalata ma ana aganuu, tapuaiga ma le atinaeina o lona tamaoiga. I leni tausaga fa'apitoa o le Ola Fa'a-natura i le Lalolagi, e fautuaina pa'aga ma tagata uma ina ia galulue fa'atasi e fa'asao Vaega Oa Fa'apitoa o le Ola Fa'a-natura o Samoa ao maua le avanoa.

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Fautuaga Taua se Lima

1. Ua tatau nei ona fa'atino loa galuega e puipuia ai tamaoiga fa'a-natura o le laueleele ma le sami, aua o lea ua manino mai Vaega O Fa'apitoa (VOF) ma le tele o meaola ua ogaoga le tulaga lamatia o loo iai.
2. Talu ai o le tele o VOF o loo i totonu o fanua umia fa'a-le-aganu'u, oā tava ai ona galulue so'oso'o tau'au le malo, fa'alapotopotoga e ala mai ai fesoasoani, fa'alapotopotoga tumaoti ma nuu i auala e fa'asao ai nei nofoaga.
3. O tulafono e pei o tulafono fa'atonutonu o meaola ta'aloa ma tulafono o faigafaiva e tatau ona fa'alatele ma fa'amalosia.
4. E tatau ona taula'i suesuega i le lumanai ina ia fa'alatele le iloa ma malamalamaaga i le olaga fa'anatura o meaola ma auala e puipuia ai, aemaise le tapenaina o ni taiala e fa'aaoga gafatia taulima ai nei meaola.
5. Ua tatau ona siitia ise tulaga maua le silafia e tagata uma o Samoa e fa'atatau i meaola patino ma vaega taua o apitaga o loo maua ai ua lamatia. la fa'apea foi ma gaioiga e ao ina faiva mo lo latou fa'asaoina.

Appendix 1

Isi Faamatalaga 1

Threatened marine species of Samoa (2009 IUCN Redlist) / Meaola lamatia o le Gataifale o Samoa (2009 IUCN Redlist)

Genus	Species	English Name	Status	Trend
Eretmochelys	imbricata	Hawksbill Turtle	CR	decreasing
Acropora	rudis	Staghorn Coral	EN	decreasing
Cheilinus	undulatus	Humphead Wrasse	EN	decreasing
Chelonia	mydas	Green Turtle	EN	decreasing
Carcharhinus	longimanus	Oceanic Whitetip Shark	VU	decreasing
Physeter	macrocephalus	Sperm Whale	VU	unknown
Heliopora	coerulea	Blue Coral	VU	decreasing
Isurus	oxyrinchus	Shortfin Mako	VU	decreasing
Millepora	foveolata	Fire Coral	VU	decreasing
Nebrius	ferrugineus	Tawny Nurse Shark	VU	decreasing
Rhincodon	typus	Whale Shark	VU	decreasing
Bolbometopon	muricatum	Bumphead Parrotfish	VU	decreasing
Plectropomus	areolatus	Polkadot Cod	VU	decreasing
Plectropomus	laevis	Blacksaddled Coral Grouper	VU	decreasing
Thunnus	obesus	Bigeye Tuna	VU	unknown
Himantura	gerrardi	Whitespotted Whipray	VU	unknown
Acanthastrea	brevis	Starry cup coral	VU	unknown
Acanthastrea	hemprichii	Starry cup coral	VU	unknown
Acanthastrea	ishigakiensis	Starry cup coral	VU	unknown
Acropora	aculeus	Staghorn Coral	VU	decreasing
Acropora	acuminata	Staghorn Coral	VU	decreasing
Acropora	aspera	Staghorn Coral	VU	decreasing
Acropora	dendrum	Staghorn Coral	VU	decreasing
Acropora	donei	Staghorn Coral	VU	decreasing
Acropora	globiceps	Staghorn Coral	VU	decreasing
Acropora	horrida	Staghorn Coral	VU	decreasing
Acropora	jacquelineae	Staghorn Coral	VU	decreasing
Acropora	listeri	Staghorn Coral	VU	decreasing
Acropora	lokani	Staghorn Coral	VU	decreasing
Acropora	microclados	Staghorn Coral	VU	decreasing
Acropora	palmerae	Staghorn Coral	VU	decreasing
Acropora	paniculata	Staghorn Coral	VU	decreasing
Acropora	pharaonis	Staghorn Coral	VU	decreasing

Genus	Species	English Name	Status	Trend
Acropora	polystoma	Staghorn Coral	VU	decreasing
Acropora	retusa	Staghorn Coral	VU	decreasing
Acropora	speciosa	Staghorn Coral	VU	decreasing
Acropora	vaughani	Staghorn Coral	VU	decreasing
Acropora	verweyi	Staghorn Coral	VU	decreasing
Alveopora	allingi	Alveopora coral	VU	unknown
Alveopora	verilliana	Alveopora coral	VU	unknown
Astreopora	cucullata	Astreopora coral	VU	decreasing
Caulastrea	echinulata	Caulastrea coral	VU	decreasing
Euphyllia	cristata	Stony coral	VU	stable
Euphyllia	paradivisa	Stony coral	VU	unknown
Galaxea	astrea	Galaxea coral	VU	unknown
Isopora	crateriformis	Coral	VU	decreasing
Isopora	cuneata	Coral	VU	decreasing
Leptoseris	incrustans	Encrusting coral	VU	unknown
Leptoseris	yabei	Encrusting coral	VU	unknown
Montipora	angulata	Montipora coral	VU	decreasing
Montipora	australiensis	Montipora coral	VU	decreasing
Montipora	calcarea	Montipora coral	VU	decreasing
Montipora	caliculata	Montipora coral	VU	decreasing
Montipora	lobulata	Montipora coral	VU	decreasing
Pachyseris	rugosa	Pachyseris coral	VU	unknown
Pavona	bipartita	Pavona coral	VU	unknown
Pavona	cactus	Pavona coral	VU	unknown
Pavona	decussata	Cactus Coral	VU	unknown
Pocillopora	elegans	Cauliflower coral	VU	unknown
Porites	horizontalata	Stony coral	VU	unknown
Porites	nigrescens	Stony coral	VU	unknown
Turbinaria	mesenterina	Turbinaria coral	VU	unknown
Turbinaria	peltata	Bowl coral	VU	unknown
Turbinaria	reniformis	Yellow scroll coral	VU	unknown
Turbinaria	stellulata	Turbinaria coral	VU	unknown

IUCN Red List Status abbreviations: (CR) Critically Endangered; (EN) Endangered; (VU) Vulnerable



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