



Pacific
Community
Communauté
du Pacifique

RESCCUE

Establishment and maintenance of protected areas in Kadavu Province – Diagnosis and action plan



The operator that is in charge of the implementation of the RESCCUE project in Fiji under the supervision of both SPC and the Fijian Government is:

The Institute of Applied Sciences, University of the South Pacific (Leader)

Contact: **Johann Poinapen**

E-mail: johann.poinapen@usp.ac.fj

Phone: +679 323 2992

Landcare Research

Contact: **Suzie Greenhalgh**

E-mail: greenhalghs@landcareresearch.co.nz

Phone: +64 1 9 529 7444

Wildlife Conservation Society

Contact: **Sangeeta Manguhai**

E-mail: smangubhai@wcs.org

Phone: +679 331 5174

Conservation International

Contact: **Susana Waqanaibete-Tuisese**

E-mail: swaqainabete-tuisese@conservation.org

Phone: +679 331 4593

Fiji Environment Law Association.

Contact: **Aliti Kiji Vukikomoala**

E-mail: kiji.vukikomoala@fela.org.fj

Phone: +679 7080997

Main author(s)/contributor	Date of publication
Isoa Korovulavula	July 2016

Front cover photo:

Sunset on Matana Dive Kadavu Resort, Kadavu, Fiji (R.Billé, 2016)

TABLE OF CONTENT

Executive Summary.....	4
1. Introduction.....	7
1.1 Background information	7
1.2 Objective	8
2. Protected Areas.....	8
2.1 Locally Management Marine Areas	8
Ulunikoro Marine Conservation Area, Ono Island, Kadavu, Fiji.....	9
2.2 Protected land area, forest ecology and endemic plant species in Kadavu	11
2.3 Endemic Bird Species on Kadavu	14
3. Existing policies	17
4. Opportunities for RESCCUE implementation	18
5. Existing threats to be considered in RESCCUE implementation.....	18
6. Action plan and budget	19
6.1 Marine managed areas (including no-take zones) emphasis and approach	19
6.1.1 Objectives:	19
Activities for objective (i).....	19
Activities for objective (ii).....	20
6.2 Forest and terrestrial biodiversity conservation and protecting initiative.....	20
6.2.1 Objectives:	20
Activities for objective (i).....	20
Annex 1 : 34 Villages.....	27
References	29
Figure 1 Kadavu Island	7
Figure 2 Tabu (No-take zone) areas in the Kadavu <i>iqoliqoli</i>	11
Figure 3 Kadavu Forest Types	12
Figure 4 Location where <i>Medinilla</i> plant found	12
Figure 5 Kadavu Important Bird Area (IBA)	15
Table 1 Bird species endemic to Kadavu	14

Executive Summary

The two key objectives of the establishment and maintenance of protected areas in Kadavu province - diagnosis and action plan report are:

- To examine and review past and current initiatives on the protected areas; and
- To identify areas that RESCCUE can address, support and facilitate in strengthening protected areas management.

Kadavu has three major types of Protected Areas:

- the Locally Managed Marine Areas (LMMA);
- the Important Bird Area (IBA); and
- Primary Forest areas.

Marine management has been the most prominent in terms of protection areas in Kadavu over the past 20 years or so. Uluikoro Marine Protected Area has been the first Marine Protected Area in Kadavu to be officially gazetted. Other major marine management initiatives have been implemented through Fiji Locally Managed Marine Areas (LMMA) network which resulted in the establishment of over 60 marine managed areas. The establishment of Kadavu *Yaubula* Management Support provided the institutional support in governing the management of these LMMA's and "no-take zones" at the villages and district levels.

There has been work conducted by Birdlife International in Fiji including Kadavu to identify endemic and endangered bird species. The areas with endemic and endangered bird species are categorized as 'Important Bird Areas' (IBA). Kadavu Island has four species of birds Kadavu Shining (Musk) Parrot (*prosopeia splendens*), Kadavu Honeyeater (*xanthotis provocator*), Kadavu Fantail (*Rhipidura personata*) and Whistling Dove (*chrysoenas layardi*) that are found nowhere else in the world. All Fiji's native birds are protected by law both with respect to capture and confinement and to hunting.

There have been only two forest areas identified as high terrestrial biodiversity hotspot in Kadavu and these are:

- Delaivuiivi or Mt Washington in the district of *Nabukelevu* which has a pristine montane forest with known endemics, under threat; and
- Koronibanuve in the district of *Nakasaleka* and has the largest block of intact forest & watersheds on Kadavu with good populations of island endemics, important watersheds for reefs.

In terms of coastal management with specific focus on marine managed areas the problem of poaching accompanied with the use of indiscriminate fishing methods such as the use of Derris root (duva) and SCUBA (self-contained underwater breathing apparatus) fishing has resulted in the overfishing of the iqoliqoli.

Other major concerns, issues and threats are as follows:

- Forestland is scarce due to indiscriminate burning and expansion of agricultural activities in the forested areas;
- Waterways are dried up due to deforestation for agriculture;
- Due to vast exposure of surface land areas there are incidences of significant soil erosion;
- Increase in incidence of cyclone, drought and heavy rainfall; and
- Agricultural cultivation are quite near to catchment water source areas.

The main threats to forest vegetation including habitats for native birds in Kadavu are:

- Indiscriminate burning; and
- Expansion of kava and root plantation to forested and marginal land areas.

The following are key RESCCUE opportunities to facilitate the effective protection of key species, habitats and ecosystems in Kadavu:

- community members to play a more active role in policing (appropriate financial and economic mechanism to be identified to facilitate this work) the no-take zone both within their *iqoliqoli* and the forestland areas that have been identified to have endemic and endangered species;
- to have the appropriate village committee established to coordinate all activities in relation to the conservation of native birds;
- to have a village council meeting and work towards a collective effort in developing rules and strategies to completely stop indiscriminate burning and to develop and have proper procedure of controlled burning method; and
- to facilitate and enhance community capacity to comply appropriately to all the relevant provisions and regulations in the Fisheries, Land Improvement, Environmental Management and Forestry Acts in order to have sound catchment and coastal management strategies.

RESCCUE Key actions

- Provide refresher biological and socioeconomic training and also train new community members who are not familiar with monitoring methods.
- Paraphrase technical language in the key findings based on deliverables L4.3 and L4.4 and translate them in iTaukei language for awareness workshops.
- Develop communication tools addressing the economic benefits of marine managed and protected areas (e.g. pamphlets and posters).
- Arrange and organize 9 districts workshops in the nine districts through Kadavu Provincial Office and the Kadavu Yaubula Management Support Team (KYMST) to inform and discuss with them the economic benefits of marine managed and protected areas.
- Conduct community consultation in the districts of Nakasaleka and Nabukelevu in identifying options and strategies (using the Sovi basin experience and lessons

learned) in most effective and practical means of securing protected forestland areas. Participatory learning actions tools will be used for the consultation process.

- Conduct community consultation and identify appropriate legal, financial and economic mechanisms to ensure that proposed protected forestland areas will be managed sustainably. Participatory learning actions tools will be used for the consultation process.
- Formulate the management plan and present it to all the appropriate entities so that the process of gazetting the protected areas can begin.

1. Introduction

1.1 Background information

Kadavu island, with an area of 408 km², is the fourth largest in the Fiji Group, exceeded in size by the two main islands, Viti Levu and Vanua Levu, and Taveuni. The island is located 96km south of Suva lying approximately at latitude 19° South.

Kadavu is of volcanic origin being the product of deposition from at least twelve volcanic centers. The most prominent of these is Nabukelevu (Mt Washington) rising 838 meters at the islands westernmost extremity. In the eastern sector of the island is a rugged main divide culminates in the peak of *Biloniyaqaona* (kava cup) at 634m. The landscape is generally steep and in many places rises dramatically from the shore with the main watershed of the island typically reaching 250-400m.

Kadavu is 58km long and 14km wide at its broadest. The island has a complex, often deeply indented coastline and is almost severed in two places, at *Namalata* and *Vunisei* indicated in the marked areas in Figure 1.

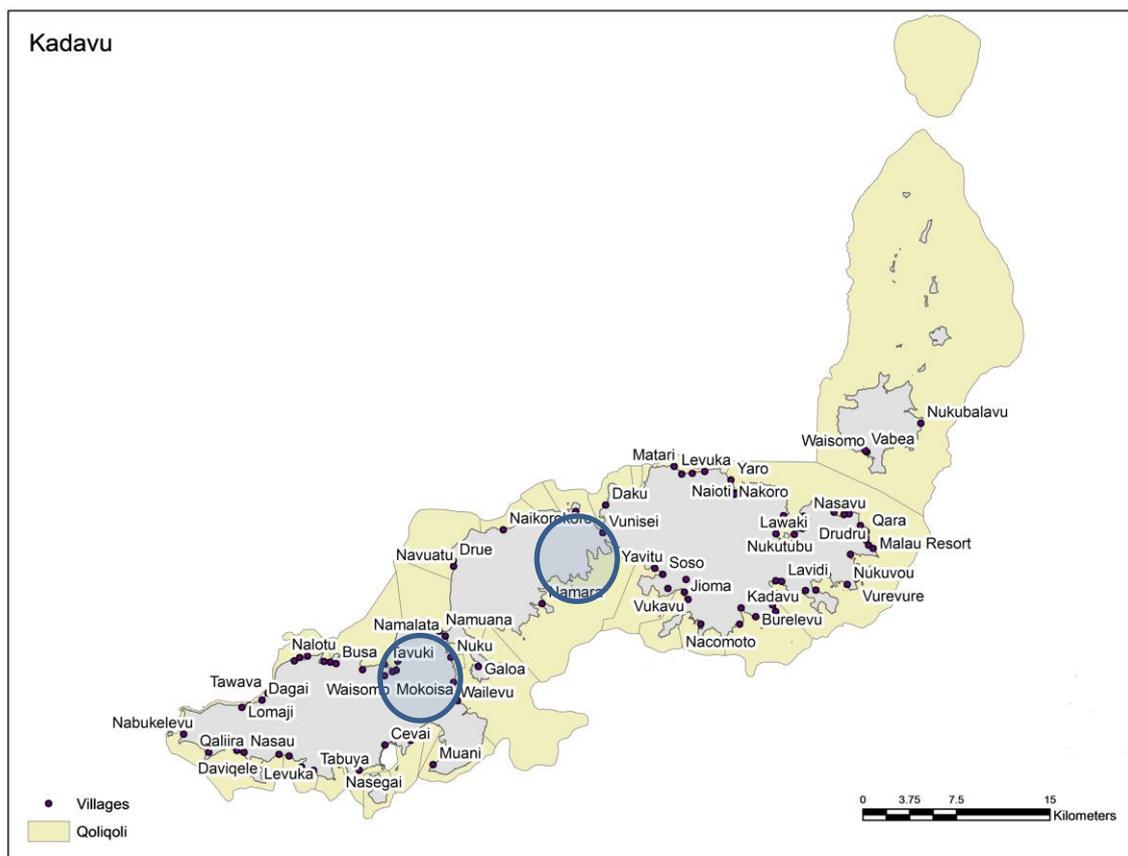


Figure 1 Kadavu Island

Source: Wright and Cabaniuk (1996)

The northern and southern coastlines of Namalata are separated by only approximately 1 km of low lying land and this is where the airstrip is located. Kadavu lies across the direction of the south-east trade wind with southern shore to the windward so that south-side of the island is more exposed with higher rainfall than in the north .

1.2 Objective

The two key objectives of the establishment and maintenance of protected areas in Kadavu province - diagnosis and action plan report are:

- To examine and review past and current initiatives on the protected areas; and
- To identify areas that RESCCUE can address, support and facilitate in strengthening protected areas management.

2. Protected Areas

There have been few initiatives in Kadavu over the last 20 years to identify critical terrestrial and marine areas that need to be protected for biodiversity conservation as well as cultural purposes (Wright & Cabaniuk 1996; World Wide Fund For Nature South Pacific Programme 2002; Olson et al. 2009; Kuilamu 2012; Wendt et al. 2016). The following will provide a synthesis of the studies that have been conducted and design some of the interventions that RESCCUE can facilitate to enhance and maintain current protected areas.

The IUCN has established six categories of protected areas covering a wide range of management measures with an overall purpose of biodiversity protection (Olson et al. 2009). The six categories are as follows:

- 1a. Protected area managed mainly for science (Strict Nature Reserve);
- 1b. Protected area managed mainly for wilderness protection (Wilderness Area);
2. Protected area managed mainly for ecosystem protection and recreation (National Park);
3. Protected area managed mainly for conservation of specific natural features (National Monument);
4. Protected area managed mainly for conservation through management intervention (Habitat/Species Management Area);
5. Protected area managed mainly for seascape conservation and recreation (Protected Landscape/Seascape); and
6. Protected area managed for sustainable use of natural resources (Protected area with sustainable use of natural resources).

Kadavu has three major types of Protected Areas:

- i. the Locally Managed Marine Areas (LMMA);
- ii. the Important Bird Area (IBA); and
- iii. Primary Forest areas.

2.1 Locally Managed Marine Areas

The locally managed marine area falls under the IUCN category 6. The term Locally Managed Marine Areas has been adopted as a sustainable marine management initiative that reflect and embrace the integration of customary and modern (science based)

marine management and conservation measures within a customary fishing ground (*iqoliqoli*).

The Province of Kadavu has been leading Fiji's efforts to protect natural and cultural resources by establishing over 60 locally managed marine areas (LMMAs) in 29 *iqoliqolis* (Wendt et al. 2016). These LMMAs were selected through a community-based adaptive management process aimed at meeting local-scale conservation and fisheries needs. While many of the management interventions of individual LMMAs demonstrate well-defined success by ensuring food security at the individual community level, they potentially lack the coordinated island-wide outcomes desired for the wider area (or province) and the biodiversity conservation benefits associated with an integrated network of LMMAs.

A spatial study conducted in 2012 examined the trade-offs of different approaches and local ecological, governance and socioeconomic knowledge collected using participatory approaches was spatially-integrated with marine habitat type data to evaluate the present design and assess whether or not the pre-redesign MPAs in Kadavu can achieve MPA network objectives (Tawake et al. 2006; Wendt et al. 2016). The findings of this study showed that 12% of key shallow reef habitats have been protected through community-based efforts.

Moreover, the communities through a participatory systematic process redesigned a network with 77 MPAs that now protected 19% of key shallow reef habitats (Tawake et al. 2006; Wendt 2012; Wendt et al. 2016). The post-redesign network had an increased number, area and representation of habitats and key ecological features yet had a higher average 'cost' per unit area protected based on lost fisheries potential and enforceability of the network (Wendt et al. 2016). Analytical assessments showed that an area of 60 km² needed to be protected in order to achieve all conservation targets compared to the 38 km² achieved in the post-redesign network (Wendt 2012; Wendt et al. 2016). However, in terms of overall cost this was 36% higher than the pre-redesign network. The design significantly re-distributed protection within and between fishing grounds and largely forced protection offshore.

Only one of the current LMMAs has been gazetted. This is the Ulunikoro Marine Conservation Area, in Ono Island, Kadavu. It was gazetted without regulation back in 2000.

2.1.1 Ulunikoro Marine Conservation Area, Ono Island, Kadavu, Fiji

The Ulunikoro Marine Conservation Area is located on the small Fijian island of Ono and is part of the third largest reef system in the world - The Great Astrolabe Reef. The conservation area is Fiji's first no-take MPA and was designated in 2000 after protective efforts by a local indigenous community and support from the World Wildlife Fund (WWF) (McGinnis et al. 2004). The no-take zone is 0.2km² in size and located in a unique area, where two deep lagoons split a fringing coral reef in the traditional fishing region of Ono's Waisomo Village.

The dwindling abundance and size of fish catches in Ono's waters led Waisomo village's headman to seek new techniques for protecting the islands marine life. The idea of no-take fishing zone made was consistent with the centuries old Fijian marine tenure custom of "taboo" or *Tabu* in the *iTaukei* Fijian language (Ravuvu 1983; Siwatibau 1984; Sloan & Kevin 2015). Taboo involved declaring a village's key fishing area off limits for 100 nights after the death of a king to ensure a bountiful harvest of fish necessary for the celebrations marking the crowning of a new king. The village headman reasoned

that if short-term taboo closures led to rich celebratory harvests, then permanent closures of key fisheries areas could restore the productivity of traditional fishing grounds, ensuring sustainable harvest for present and future generations (Ravuvu 1983, 1987).

Implementing permanent no-take areas within the Ulunikoro Marine Conservation Area posed considerable challenges due to the fact that the designated conservation area has been the community main source of livelihood (World Wide Fund For Nature South Pacific Programme 2002). This led to the Waisomo village headman to seek assistance from the World Wide Fund for Nature (WWF) Fiji program so that they can facilitate the design and implementation of a culturally appropriate community-based marine conservation process. The following are the fundamental processes in the gazetting of the Uluinakoro *iqoliqoli*:

- i. the headman arranging a series of village meetings to persuade the elders and people of his village that to fish less could result in improved catches;
- ii. under the Fiji Native Lands and Fisheries Commission (now known as the iTaukei Land and Fisheries Commission), the written consent of all seven village chiefs within the district was required to legally support a MPA;
- iii. Community consultation in the form of workshops were held that included cultural ceremonies to provide a forum for villagers to discuss issues critical to understanding and establishing an MPA (Nair et al. 2003);
- iv. The Fijian government adopted a policy of empowering selected villagers on Ono as Honorary Fish Wardens, who then become legally authorized to enforce provisions of the Fisheries Act; and
- v. Worldwide Fund for Nature (WWF) facilitated the signed statements of support from all other villages in the district and their respective village head for the legal endorsement for the MPA.

The Waisomo village also adopted their new marine management guidelines. Less than three years after the MPA and village fishery management guidelines were implemented, Waisomo fishers note that fish are already coming back in both size and abundance (Nair et al. 2003). The co-operative implementation of the MPA has empowered local people to better protect marine life.

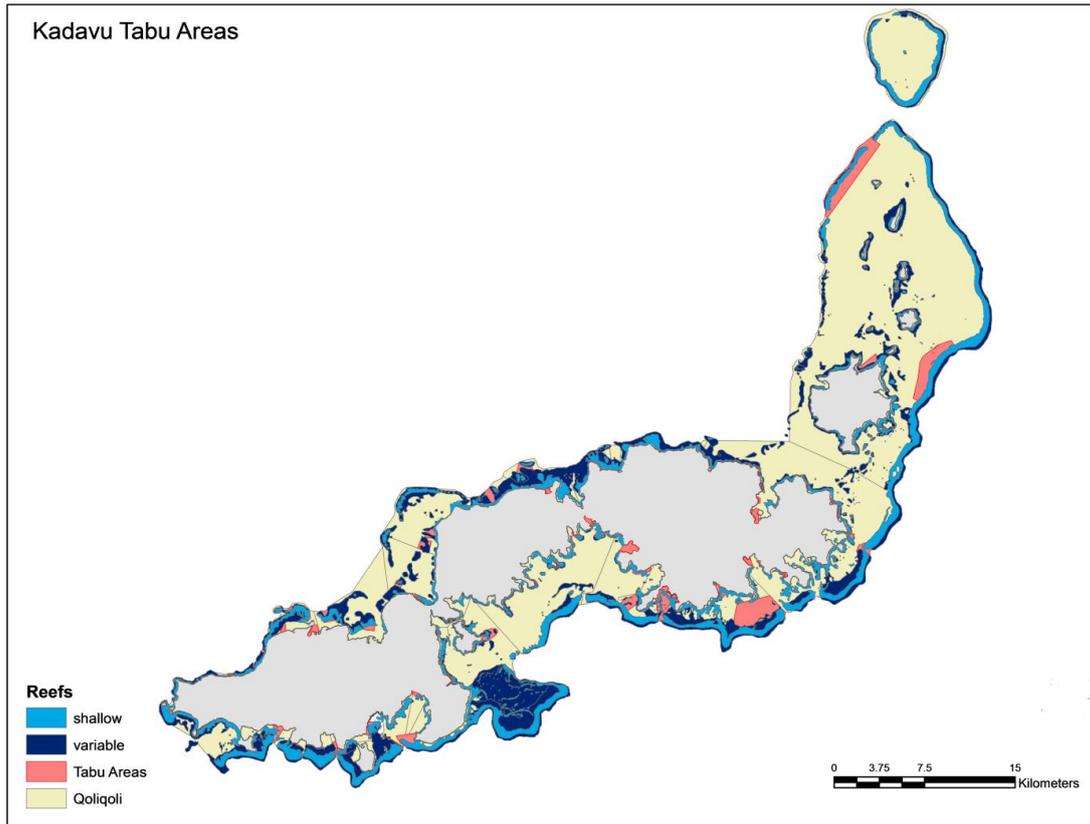


Figure 2 Tabu (No-take zone) areas in the Kadavu *iqoliqoli*

Source: Wendt et al. (2016)

2.2 Protected land area, forest ecology and endemic plant species in Kadavu

In Kadavu Forest is found on the high ground and also on the windward side of the island except for strip of cultivation around the coast encroaching into the hinterland. There have been only two forest areas identified as high terrestrial biodiversity hotspot in Kadavu and these are:

- *Delaiuviivi* or Mt Washington in the district of *Nabukelevu* which has a pristine montane forest with known endemics, under threat; and
- *Koronibanuve* in the district of *Nakasaleka* and has the largest block of intact forest & watersheds on Kadavu with good populations of island endemics, important watersheds for reefs

Both these forest land areas have been identified with high terrestrial biodiversity value but have yet to be officially declared as protected areas.

There are two main categories of forest functions that are found in Kadavu and these are multiple use forest (MUF) and protection forests (PF). Multiple use forests are those forest areas that are maintained for timber production, non-timber forest products as well as sources of ecosystem services. There are two types of MUF and these are closed and open. Closed MUF are primary forest areas which still have a compact forest canopy and cover. Open MUF are less dense forest areas and principally secondary forest.

Protection forest applies to forest with high biodiversity value as well as with ecological integrity such as water supply.

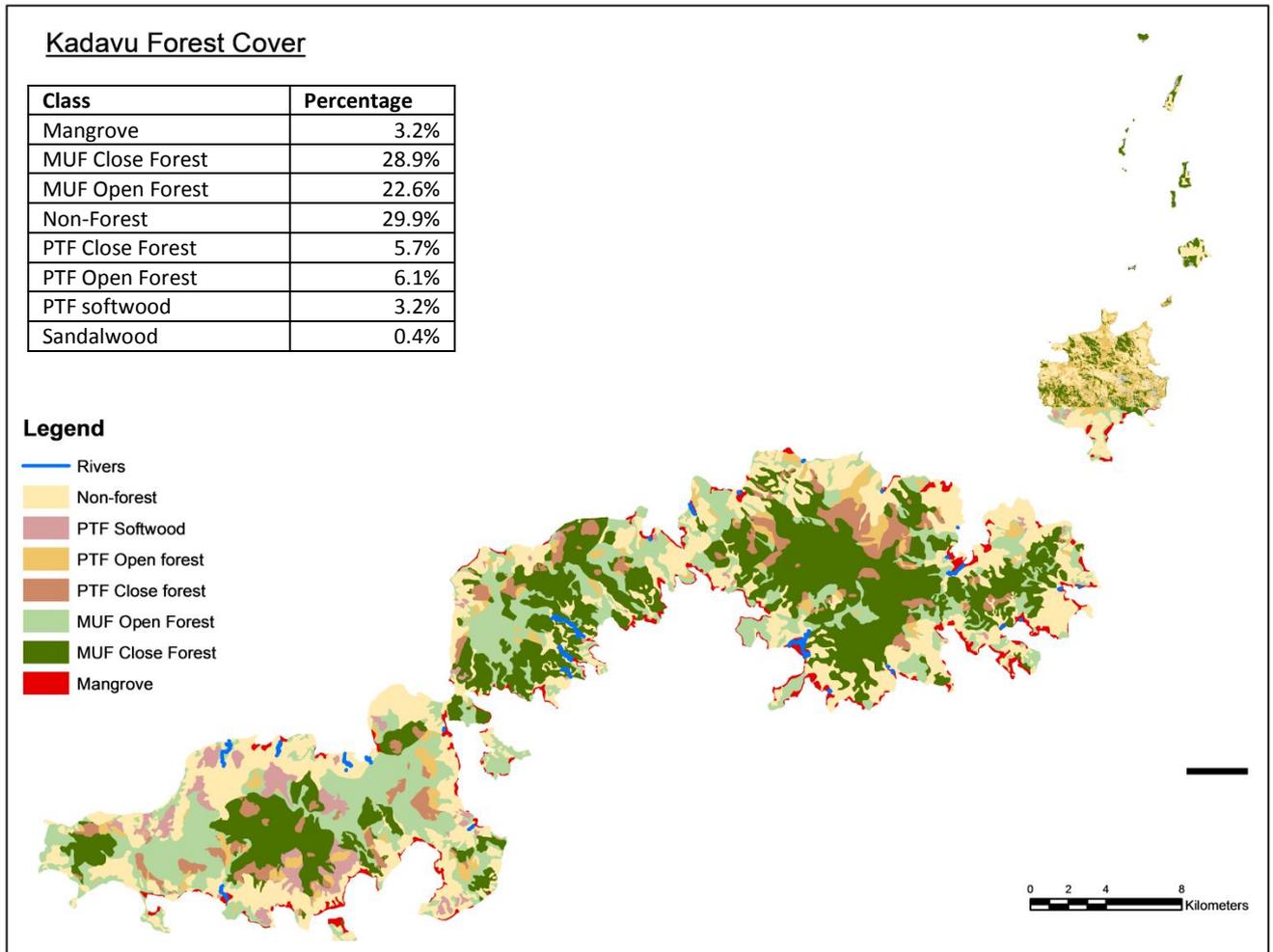


Figure 3 Kadavu Forest Types

Source: Olson et al. (2009)

A new flowering plant belonging to the *Medinilla* plant group has been discovered in the highlands of Matasawalevu village, district of Naksaleka , on the island of Kadavu in Fiji.



Figure 4 Location where *Medinilla* plant was found

There are around 193 known species of *Medinilla*, occurring in Madagascar, Africa, South Asia and the Pacific Islands. Of the 193 species, 11 can only be found in Fiji. One of them is the *Tagimoucia* flower, *Medinilla waterhousei*, the floral emblem of Fiji. The species was found on the border of grassland and primary forest. This location makes it highly vulnerable to bush fires that are common in the area. The plant's common name has not been confirmed yet but the name ***Medinilla matasawalevu*** has been suggested to illustrate its location. Work is currently underway to confirm the exact classification of the new species, for which DNA research may be carried out (Institute of Applied Sciences 2012).

The main threats to forest vegetation in Kadavu are:

- Indiscriminate burning; and
- Expansion of kava and root plantation to forested and marginal land areas (Berry & Howard 1973).

2.3 Endemic Bird Species on Kadavu

There has been work conducted by Birdlife International in Fiji including Kadavu to identify endemic and endangered bird species. The areas with endemic and endangered bird species are categorized as 'Important Bird Area' (IBA). Refer to Figure 5 for Kadavu IBA.

Kadavu Island has four species of birds (illustrated in Table 1) that are found nowhere else in the world (Masibalavu & Dutson 2006; Olson et al. 2009). All Fiji's native birds are protected by law both with respect to capture and confinement and to hunting.

Table 1 Bird species endemic to Kadavu

Kadavu Shining (Musk) Parrot (<i>prosopeia splendens</i>)	
Kadavu Honeyeater (<i>xanthotis provocator</i>)	
Kadavu Fantail (<i>Rhipidura personata</i>)	
Whistling Dove (<i>chrysoenas layardi</i>)	

Source: Masibalavu and Dutson (2006)

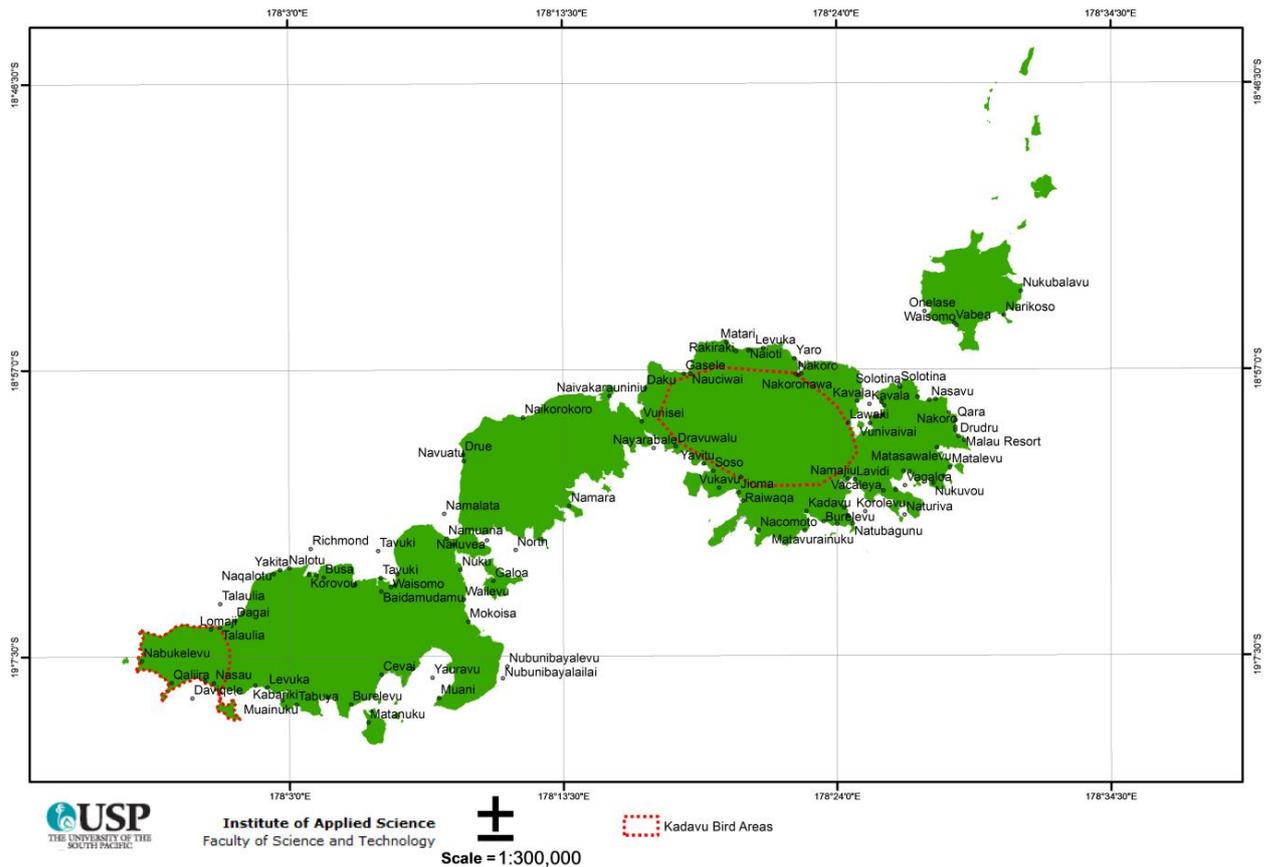


Figure 5 Kadavu Important Bird Area (IBA)

Source: Masibalavu and Dutson (2006)

According to Masibalavu and Dutson (2006) other land bird species found on Kadavu Island are:

- Fiji Goshawk;
- Pacific harrier;
- Banded rail;
- Barn Owl;
- Friendly ground dove;
- Barking pigeon;
- Many colored fruit dove;
- Collared lory;
- Fiji Bush-warbler;
- Slaty Monarch;
- Vanikoro Broadbill;
- Blue crested broadbill;
- Fiji white-eye;
- Silver-eye;
- Orange-brested myzomela;
- Wattled Honeyeater;
- Fiji parrotfinch;
- Polynesian starling;

- Polynesian Triller;
- Fiji Woodswallow;
- Fan-tailed cuckoo;
- White-rumped Swiftlet;
- Lesser Shrikebill;
- Black-faced Shrikebill; and
- Golden Whistler.

In addition some of the sea and shoreline birds often seen are (Masibalavu & Dutson 2006):

- White-collared Kingfisher;
- Mangrove heron;
- Eastern reef heron;
- Wandering Tattler;
- Pacific black duck;
- Brown booby;
- Masked booby;
- Red-footed booby;
- Tropicbird;
- Frigatebird;
- Wedge-tailed Shearwater;
- Short-tailed Shearwater;
- Sooty Shearwater;
- Fiji petrel;
- Storm Petrel;
- Black-naped tern;
- Crested tern;
- Grey-backed Tern; and
- Brown Noddy.

3. Existing policies

Fiji's National Biodiversity Strategy and Action Plan aims at refining conservation priorities based on analyses of new information. The goal of Fiji's NBSAP is to conserve and sustainably use Fiji's terrestrial, freshwater and marine biodiversity, and to maintain the ecological processes and systems which are the foundation of national and local development.

The commitment to the implementation of an inshore fisheries management plan was set out in the Ministry of Fisheries and Forests Policies and Strategies for 2002 – 2006. In 2002, a Community-Based Fisheries Management Program for Fiji was developed at the request of the Department of Fisheries. The Program was developed in 2002 but has not yet been implemented, and its present status is uncertain. The Program was prepared by the Secretariat of the Pacific Community (SPC) Coastal Fisheries Program, in consultation with a number of parties including the FLMMA Network and the University of the South Pacific. The Program entailed the establishment of a series of Qoliqoli Management Plans under the national government, to supplement the coastal marine conservation efforts of the FLMMA and other NGOs in Fiji. The Program was developed by the Fisheries Department and was as such limited by the mandate of the Department. For example, the Qoliqoli Management Plans focused only on living resource stocks, and did not take a holistic view of conservation to incorporate entire ecosystems including non-living resources.

There are forty Priority Forests that cover 23% of Fiji's total land area (Olson et al. 2009). About 58% of Fiji's remaining native (indigenous) forest have yet to be prioritized (Olson et al. 2009). Majority of conservation priority areas previously identified recommends protecting 40% of the remaining natural forests to achieve the goals of the National Biodiversity Strategy and Action Plan and sustain ecosystem services for Fijian communities and economies.

The Rural Land Use Policy for Fiji (Leslie and Ratukalou (2002) argues that there is a need to establish long term land use plans to guide farmers on the most appropriate crops suitable to different ecological geographies in Fiji. The vision of the rural Land Use Policy is to protect ecological systems and biodiversity; reduce damage to fragile ecosystem; improve rural environmental conditions; promote sustainable farming and encourage establishment of Land Husbandry Groups.

The National Climate Change Policy (2012) and the National Climate Change Adaptation Strategy (Government of Fiji 2011) have synergies with the Green Growth Framework (2015) but focuses on forestry, agriculture, water, livestock, biodiversity and natural ecosystems through the lenses of Climate Change Adaptation. It aspires to identify and implement efficient and effective activities to manage the existing and anticipated consequences of climate change. With increasing opportunities created through the introduction of the United Nations Reducing Emissions from Deforestation and Forest Degradation (REDD) program, the Department of Forestry has developed a National REDD+ Policy for Fiji (2011).

Despite strong policy frameworks, implementation of policy programs remains a challenge. In addition, supporting legislations to enforce policies are either non-existent or not implemented by line agencies. Current legislations pertaining to fire can be found in various legislations such as the 1985 Land Conservation and Improvement Act which basically covers construction and maintenance of fires breaks and the role and

responsibilities of fire rangers. The 2009 Crimes Decree (arson clause) has stricter punishments for burning forestry plots. However, enforcement has been difficult for various reasons such as lack of initiative by community leaders in reporting offenders or offenders seeking traditional reconciliation ceremony and lack of manpower or initiative by local police to investigate and prosecute.

The proposed RESCCUE activities will endeavor to implement core principles of the all the policies outlined above in a simple and practical way in order to demonstrate that communities can be guides to make informed decision for better management of available resources through sound infrastructure development, social solutions, and/or ecosystem-based adaptation that mitigate ecological loss in a cost effective manner. As such, RESCCUE activities represent potential opportunities to increase the effectiveness of these existing policies.

4. Opportunities for RESCCUE implementation

The following are key RESCCUE opportunities to facilitate the effective protection of key species, habitats and ecosystems in Kadavu:

- community members to play a more active role in policing the no-take zone both within their *iqoliqoli* and the forestland areas that have identified to have endemic and endangered species;
- to have the appropriate village committee established to coordinate all activities in relation to the conservation of native birds;
- to have a village council meeting and work towards a collective effort in developing rules and strategies to completely stop indiscriminate burning and to develop and have proper procedure of controlled burning method; and
- to facilitate and enhance community capacity to comply appropriately to all the relevant provisions and regulations in the Fisheries, Land Improvement, Environmental Management and Forestry Acts in order to have sound catchment and coastal management strategies.

5. Existing threats to be considered in RESCCUE implementation

In terms of coastal management with specific focus on marine managed areas the problem of poaching along with the use of indiscriminate fishing methods such as the use of Derris root (*duva*) and SCUBA (self-contained underwater breathing apparatus) fishing has resulted to the overfishing of the *iqoliqoli*.

Other major concerns, issues and threats are as follows:

- Forestland is scarce due to indiscriminate burning and expansion of agricultural activities in the forested areas;
- Waterways are dried up due to deforestation for agriculture;
- Due to vast exposure of surface land areas there are incidence of significant soil erosion;
- Increase in incidence of cyclone, drought and heavy rainfall; and
- Agricultural cultivation are quite near to catchment water source areas.

6. Action plan and budget

In Kadavu there are already established marine non-take zones as well as locally managed marine areas in all the districts. However, the terrestrial biodiversity hot spot areas in the two districts, *Nakasaleka* and *Nabukalevu* have yet to be officially declared as a protected area. The communities and landowners have been made aware of the importance of their forests areas. In addition there are three other districts that RESCCUE can provide more assistance to in raising awareness on the importance of their forest areas and its relationship to their coastal and marine resources. These districts are *Yale*, *Naceva* and *Sanima*.

The marine managed areas have been supported by the communities because their positive impact on the communities' livelihood is instant thus community backing towards continuous sustainable management of marine resources is always there. The terrestrial forest areas have a subtle positive impact on the livelihood of the communities hence; it is not so obvious to the communities and makes it challenging to get their full support and agreement to have specified or designated areas protected. Therefore the strategy to ensure that both marine and terrestrial protected areas can be maintained or either officially acknowledged (specifically in relation to the terrestrial forest areas) both for communities and government will have different emphasis and approaches. These different emphasis and approaches will dedicate the objectives and related activities implemented on-ground.

6.1 Marine managed areas (including no-take zones) emphasis and approach

6.1.1 Objectives

- i. The existing marine managed areas and "no take zones" are consistently monitored using LMMA biological and socioeconomic monitoring protocols
- ii. The economic benefits from existing marine managed areas are communicated to all stakeholders and incorporated in overall marine and fisheries management policy for the province

6.1.2 Activities for objective (i)

There will be 34 communities (refer to Annex 1) from the nine districts in Kadavu to be involved in the marine biological and socioeconomic monitoring.

The community members who have been involved in the past Fiji Locally Managed Marine Areas biological and socioeconomic monitoring training will conduct this work on periodical basis. Biological monitoring will be conducted every quarter and the socioeconomic monitoring will be conducted bi-annually at the most. A community based biological monitoring protocol was developed by the Fiji Locally Managed Marine Area network (FLMMA) whereby community members were trained in rapid marine monitoring assessment. The assessment involved transects and the data collected were analyzed in participatory process. In most cases the community members who did the monitoring communicate the results and its implications to their fellow villages during the monthly village meetings. At least one marine biologist from the Institute of Applied Sciences, the University of the South Pacific or the Fisheries Officer from the Kadavu *Yaubula* Management Support Team (KTMST) is present in some of these village meetings to ensure quality assurance and control of the data collected,

Activity details objective (i)

- i. Deliver refresher biological and socioeconomic training and also train new community members who are not familiar with monitoring methods. The institute of Applied Sciences with its work with LMMA (Local Managed Marine Area network) in the past has developed community manuals for both biological and socioeconomic monitoring. Refresher trainings will be done at district levels. Selected community representatives (criteria will be those who have done the monitoring previously and young school leavers) from the villages in the each district will be attending this training.

6.1.3 Activities for objective (ii)

The key findings of the economic and financial study from deliverables L4.3 (Feasibility study on economic and financial mechanisms – Kadavu province) and L4.4 (Report on economic analysis conducted in Kadavu Province) will be used in community workshop to address the benefits of marine managed and protected areas.

Activity details objective (ii)

- i. Paraphrase technical language in the key findings from deliverables L4.3 and L4.4 to layman language and translated in iTaukei language for awareness workshops and communication tools (e.g. pamphlets and posters).
- ii. Arrange and organize 9 Districts workshops in the nine districts through Kadavu Provincial Office and the Kadavu *Yaubula* Management Support Team (KYMST) to carry out the economic benefits of marine managed and protected areas.

6.2 Forest and terrestrial biodiversity conservation and protecting initiative

There will be at least five districts (*Nakasaleka, Yale, Nabukelevu, Naceva and Sanima*) involved in forest and terrestrial biodiversity management planning workshops. The expected outcome would be the establishment of a community action plan on the conservation of key forest areas and sustaining the protection of International Bird Areas in *Nakasaleka* and *Nabukelevu*. A key component of this action plan is to tease out what are they main factors that would enable communities to approve long-term protection of forest areas with high terrestrial biodiversity value.

6.2.1 Objectives:

- i. Establishment of an official government and community based terrestrial forest biodiversity protected areas in *Nabukelevu* and *Nakasaleka*.
- ii. Establishment of community based management plans for the protection of forest areas which provide important ecosystem services (e. important watershed area) in the districts of *Yale, Naceva* and *Sanima*.

6.2.2 Activities for objective (i)

Lessons learned from the work in the establishment of *Sovi* basin conservation area in Viti Levu and other forest reserves in Fiji will be used to guide the work in Kadavu. Deliverable L4.3 (Feasibility study on economic and financial mechanisms – Kadavu province) and legal advice from the Fiji Environment Law Association (FELA) will be an important reference in identifying potential economic and financial mechanism to sustain the management of these terrestrial based protected areas.

The South Pacific Herbarium based at the Institute of Applied Sciences have been instrumental in provided the technical information that assisted the development of

awareness and educational materials developed by department of forest and NGOs such as Birdlife International. Hence existing awareness material will be used as well as innovative approaches in communicating the important relationships between forest and coastal ecosystems will be developed by RESCCUE for Kadavu.

Activity details (objective i)

- i. Conducting community consultation in identifying options and strategies (using the *Sovi* basin experience and lessons learned) about the best and practical means of securing forest land areas to be protected. This consultation will be conducted using participatory learning actions tools.
- ii. Relevant process of securing land for conservation or protection will be sought. This involves discussion with iTaukei Land Trust Board, the Protection Area Committee (PAC – Department of Environment is the secretariat of this committee), Forestry Department and all the affected landowning units. A management plan needs to be develop based on all the consultation and studies that have been conducted in the proposed protected areas. Once this is done and finalized then the official endorsement by the entities mentioned above will be the way forward to request the demarcated protected area gazetted. The final endorsement to gazette the proposed protected area will be from Cabinet.
- iii. Conducting consultation and identifying appropriate financial and economic mechanisms to ensure that the management of proposed protected forest areas can be sustained. This consultation will be conducted using participatory learning actions tools.

Activity details (objective ii)

- i. Arrange and organize workshops in the four districts (*Yale, Naceva* and *Sanima*) through Kadavu Provincial Office and the Kadavu *Yaubula* Management Support Team to review and revise **past** terrestrial resource management plans (e.g. IUCN Water and Nature Initiative (WANI) watershed management plans for districts of *Yale* and *Sanima* as well as land use plan developed for *Naceva* district by the Department of Land Resource Management under the Ministry of Agriculture).
- ii. Conducting community consultation in identifying forest land areas for to be protected. This consultation will be conducted using participatory learning actions tools.

Objective	Activity	Cost €	2016				2017t	
			Aug	Sep	Oct	Nov	Jan	Feb
Marine managed areas (including no-take zones) emphasis and approach (cover the nine districts)								
(i) The existing marine managed areas and “no take zones” are consistently monitored using LMMA biological and socioeconomic monitoring protocols	Provide refresher biological and socioeconomic training and also train new community members who are not familiar with monitoring methods.	1,000						
(ii) The economic benefits from existing marine managed areas are communicated to all stakeholders and	Paraphrase technical language in the key findings based deliverables L4.3 and L4.4 and translated in iTaukei language for awareness workshops	1,000						

Objective	Activity	Cost €	2016				2017t	
			Aug	Sep	Oct	Nov	Jan	Feb
incorporated in overall marine and fisheries management policy for the province								
	Develop communication tools addressing the economic benefits of marine managed and protected areas (e.g. pamphlets and posters).	500						
	Arrange and organize 9 districts workshops in the nine districts through Kadavu Provincial Office and the Kadavu <i>Yaubula</i> Management Support Team (KYMST) to inform and discuss with them the economic benefits of marine managed and protected areas.	1,000						

Objective	Activity	Cost €	2016				2017t	
			Aug	Sep	Oct	Nov	Jan	Feb
Forest and terrestrial biodiversity conservation and protecting initiative (<i>Nabukelevu, Nakasaleka, Yale, Naceva</i> and <i>Sanima</i> districts)								
Establishment of an official government and community based terrestrial forest biodiversity protected areas in <i>Nabukelevu</i> and <i>Nakasaleka</i> .	Conduct community consultation in the districts of <i>Nakasaleka</i> and <i>Nabukelevu</i> in identifying options and strategies (using the Sovi basin experience and lessons learned) in most effective and practical means of securing protected forestland areas. Participatory learning actions tools will be used for the consultation process.	1,000						
	Conduct community consultation and identifying appropriate legal, financial and economic mechanisms to ensure that the management of proposed protected forestland areas will be managed sustainably. Participatory learning actions tools will be used for	1,000						

Objective	Activity	Cost €	2016				2017t	
			Aug	Sep	Oct	Nov	Jan	Feb
	<p>the consultation process.</p> <p>The management plan formulated and presented to all the appropriate entities so that the process of gazetting the protected areas can begin. Gazetting will be deliberated in Cabinet and endorsed if there are no objections on political, social or economic grounds.</p>							
<p>Establishment of community based management plans for the protection of forest areas which provide important ecosystem services (e. important watershed area) in the districts of Yale, Naceva and Sanima.</p>	<p>Review and revise past terrestrial resource management plans (e.g. IUCN Water and Nature Initiative (WANI) watershed management plans for districts of Yale and Sanima as well as land use plan developed for Naceva district by the Department of Land Resource Management under the Ministry of Agriculture).</p>	500						

Objective	Activity	Cost €	2016				2017t	
			Aug	Sep	Oct	Nov	Jan	Feb
	Arrange and organize workshops in the four districts (<i>Yale, Naceva</i> and <i>Sanima</i>) through Kadavu Provincial Office and the Kadavu Yaubula Management Support Team.	500						
	Conduct community consultation in identifying forestland areas to be protected. This consultation will be conducted using participatory learning actions tools	1,000						
Total		7,500						

Annex 1 : 34 Villages

Villages to be involved	
1.	Drue
2.	Naivakarauniniu
3.	Daku
4.	Gasele
5.	Rakiraki
6.	Nakaunakoro
7.	Nakaugasele
8.	Lawaki
9.	Vabea
10.	Naqara
11.	Dravuni
12.	Dravuni
13.	Nukuvou
14.	Nacomoto
15.	Kadavu
16.	Dravuwalu
17.	Mataso
18.	Muani
19.	Ravitaki
20.	Cevai
21.	Matanuku
22.	Nasegai
23.	Tabuya
24.	Levuka
25.	Kabariki
26.	Daviqele
27.	Nabukelevu-i-ra

28.	Lomati
29.	Naqalotu
30.	Nalotu
31.	Natokalau
32.	Tavuki
33.	Solodamu
34.	Galoa

References

Berry, MJ & Howard, WJ 1973, *Fiji Forestry Inventory: catchment groups of Viti Levu and Kadavu*, vol. 2, Land Resources Study Land Resources Division, UK.

Institute of Applied Sciences 2012, *New plant discovered in Fiji*, The University of the South Pacific,
<https://www.usp.ac.fj/index.php?id=6380&tx_ttnews%5Btt_news%5D=1136&cHash=d1307860dc02cf8293536e0cf372c30d>.

Kuilamu, M 2012, 'Operationalising tourism carrying capacity assessment in Fiji: a case study of two resorts and three villages in Kadavu', Master of Arts thesis, The University of the South Pacific.

Leslie, D & Ratukalou, I 2002, *Review of Rural Land Use in Fiji*, Secretariat of the Pacific Community, Noumea.

Masibalavu, V & Dutson, G 2006, *Important bird areas in Fiji: conserving Fiji's natural heritage*, BirdLife International, Suva.

McGinnis, MV, Cordero, RR & Stadler, M 2004, *Tribal marine protected areas: protecting maritime ways and cultural practices* Bioregional Planning Associates, Santa Barbara, CA.

Nair, V, Rupeni, E, Wilson, L, O'Gorman, D, Holloway, C, Sriskanthan, G, Tabunakawai, K, Afzal, D, Areki, F & Fiu, M 2003, *Setting priorities for marine conservation in the Fiji Islands marine ecoregion*, WWFSouth Pacific Program, Suva.

Olson, D, Farley, L, Patrick, A, Watling, D, Tuiwawa, M, Masibalavu, V, Lenoa, L, Bogiva, A, Qauqau, I, Atherton, J, Caginitoba, A, Tokota'a, M, Prasad, S, Naisilisili, W, Raikabula, A, Mailautoka, K, Morley, C & Allnutt, T 2009, 'Priority forests for conservation in Fiji: landscapes, hotspots and ecological processes', *Oryx—The International Journal of Conservation*, vol. 44, no. 1, pp. 57-70.

Ravuvu, A 1983, *Vaka i Taukei The Fijian Way of Life*, Institute of Pacific Studies of the University of the South Pacific, Suva.

Ravuvu, A 1987, *The Fijian ethos*, Institute of Pacific Studies, University of the South Pacific, Suva.

Siwatibau, S 1984, 'Traditional environmental practices in the South Pacific: a case study of Fiji', *Ambio*, vol. 13, no. 5/6, pp. 365-8.

Sloan, J & Kevin, C 2015, *A review of near shore fisheries law & governance in Fiji*, Siwatibau & Sloan, Suva.

Tawake, A, Nailetici, L, Ravula, J, Crabb, M, Dugormore, H, Hill, G, Pickering, K & Tamanivalu, R 2006, *Kadavu Yaubula Support Team: a report on the effectiveness and suitability of five tabu areas (MPAs) Kadavu IAS Technical Report No. 2005/09*, Institute of Applied Sciences, The University of the South Pacific, Suva.

Wendt, HK 2012, 'Applying geographical information systems and marine reserve design tools to strengthen the design of a community-based network of no-take zones: a case study of the island province of Kadavu, Fiji ', Master of Science thesis, The University of the South Pacific.

Wendt, HK, Weeks, R, Comley, J & Aalbergsberg, W 2016, 'Systematic conservation planning within a Fijian customary governance context', *Pacific Conservation Biology*, vol. 22, no. 2.

World Wide Fund For Nature South Pacific Programme 2002, *Fiji's first marine conservation area officially gazetted*, World Wide Fund For Nature, <http://wwf.panda.org/wwf_news/?4183%2FFijis-first-marine-conservation-area-officially-gazetted>.

Wright, S & Cabaniuk, S 1996, *Towards an integrated environmental conservation and tourism development plan for Kadavu province; a preliminary report prepared for the consideration of the province of Kadavu, and the native lands conservation and preservation projects steering committee*, Native Lands Trust Board of Fiji, Suva.