



# **Nett District Conservation Action Plan**

Nett District, Pohnpei Federated States of Micronesia



November 2010

# Prepared by The Nature Conservancy Palau Field Office

This work was supported by The Nature Conservancy under cooperative agreement award #NA09NOS4190173 from the National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Conservation Program, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of NOAA, the NOAA Coral Reef Conservation Program, or the U.S. Department of Commerce.

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# Vision

Wein Net oh Nett District Government ketin kupwur ehu penehr oh ketin sapwelimankidahr mwangipene unsek ieu ohng wahu, pwukoah, mehlel pene, pwehn kak ketin roson ohng apwahpwalih oh sinsile tohn wein Nett oh tetehn ieiasamwahu en kak poatoapoat ohng tohn wein Net nin duwen koasoandi en tiahk oh , koasoned pwehn patkiong Pohnpei, FSM, Micronesia, Pacific Region, pwehn sewesehda kamwahu pen sampah unsek (me rasehng global community).

Jhe Kingdom of Net and the Nett District Government work to create a strong partnership to strengthen the knowledge, respect, and to instill greater responsibility of its people to sustainably manage its resources and biodiversity through integrated management approach in collaboration with Ponhpei State, FSM National Government, Micronesia jurisdictions, and the regional Pacific community



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#### 1. Introduction

#### **1.1. A Context for Conservation**

Pohnpei State is part of the Federated Sate of Micronesia located in the north pacific. Pohnpei is roughly circular in shape with a land area of 345 km2. The island has a population of approximately 40,000, many of which are engaged in fishing, small scale agriculture, and local trade.

The island of Pohnpei is mountainous with up to 10 meters of rainfall annually. With volcanic soils and high rainfall, Pohnpei is mostly covered with tropical forest other than areas cleared for settlement, infrastructure, and agriculture. The coastline is fringed by mangrove forests, most of which remain relatively undisturbed from clearing or other developments. Because of the rapid runoff, sediments mobilized through poorly managed land clearing have had significant local impacts on coastal areas and the fringing reefs. The sediments affect water quality and substratum in the surrounding lagoon, in turn affecting the marine communities.



Pohnpei main island has five municipal

communities. Nett is the third largest of the municipal communities in terms of area with a population of over 5,000. Kolonia, the main commerce town in Pohnpei is located in the Nett Municipality.

Nett has 3 main large watershed which includes Meitik, Eirke and the Nanpil forest matrix which support and supply significant fresh water supply to at least 70% residents/homes island wide. Water from Nanpil dam is piped as far away as Madolnehimw and Sokehs Municipalities, Nett forest is relatively intact and key habitat to a few remaining patches of the Terminalia like found in Kosrae. Its forest is home to all 32 species or more of the birds species including the endemic Pohnpei Lorikeet and the Pohnpei owl. Over half of the 61 endemic plant species can be found in the Nett forest.

Nett also has one of the biggest, yet complexed estuary system with a visible gradient from rich (Kahmar/Dousokole) to poor (Kolonia/Nett bay). Nett also holds one of the largest marine areas. Due to its remoteness to the urban areas of Pohnpei, Nett marine areas have been targeted as fishing areas since the beginning of this great state. As also covered in the CAP, the reef of Nett (Kepin Parem) is one of the fishing destinations with numerous fish known to aggregate and once believed as a grouper spawning area (fisherman interviews).

Nett was the favored municipality for Japan during WWII as they utilized so many parts of the municipality as their base stations. For instance, Lenger Island was the Navy Headquarters Easter Pacific and still that island holds so much history to date. Sapwitik Island, adjacent to Lenger, is known as a migratory route for many reef fish. In 2001, Sapwitik Island was declared as a Marine Sanctuary for its significance of housing nursing and spawning habitats for rabbit fish.



#### 1.2. Overview of this Report

This report was created to document the results and products of the conservation planning workshops. It is intended to be used by the State as reference for the development of the management plan for the sanctuary. The report is organized around the steps of the Conservation Action Planning (CAP) Adaptive Management Cycle (Figure 1), which was also used to organize the workshops. Each step will be described briefly and the main products of that step will be discussed. Please refer to the excel workbook for details of the workshops input.



Figure 1. Conservation Action Planning (CAP) Adaptive Management Cycle, the project planning method used to organize the planning workshops and this report.



#### 2. Conservation Planning and Adaptive Management

The CAP Adaptive Management Cycle is an iterative process which helps conservation projects develop and implement strategies, and then evaluate and learn from their experiences. The general steps of the process are to 1) define the project team and scope, 2) identify the conservation targets and assess their viability, 3) identify and assess the critical threats, 4) conduct a situation analysis, 5) develop conservation strategies, 6) establish measures, 7) implement the strategies and measures, and 8) analyze, reflect and learn from the results. The use of adaptive management means that the planning is never fully completed, but is continually refined, improved, and adapted over time. Future work will include a re-evaluation and refinement of the products to better reflect our growing knowledge and experience.

#### 2.1. Define the Project Team and Scope

The first iteration of the Conservation Action Planning was conducted with traditional leaders,

NettMunicipalGovernmentRepresentatives, representatives of keyPohnpeiStateGovernmentAgencies,and members of community.

The participants of the CAP all agreed that the scope of the discussion of conservation in Nett Municipality will include all of land and coastal marine areas of Nett. The participants believed that in order to ensure effective conservation of marine resources, land issues particularly the threat from sedimentation needs to be addressed. The participants decided to focus their discussion on ensuring that critical ecosystems and habitats that support the species for which the communities depend on are maintained ecologically to support long term viability of these resources.



#### 2.2 Identify Conservation Targets and Assess Viability

Conservation targets are species, communities, or ecological systems that represent the biological diversity of the project area and or what communities care about to conserve and protect. A good set of conservation targets should be designed to include those elements of the system that, if properly conserved, will result in the conservation of the full diversity of the landscape. Coarse-filter targets are intended to capture a large amount of smaller-scale biodiversity, both common and rare, within them, while fine-filter targets should include those small-scale elements that "fall through" the coarse filter and require individual attention.

For project management purposes, the CAP process has tended to restrict the number of targets for a project to eight or less in order to facilitate tracking of each target. This restriction has been successful for the vast majority of CAP projects worldwide. For Nett Municipality, the team selected eight targets through a group process of nomination and consolidation. The targets for Nett Municipality are described below.

1. Wahl (Forest Ecosystem). Pohnpei forest ecosystems are considered some of the most diverse in Micronesia. There are 767 plant species recorded from Pohnpei of which 264 are found mainly in the upland forest. There are 111 endemic plants of which 101 are found mainly in upland forests. Forest ecosystem plays an important role for maintaining healthy water sources by reducing soil erosion and water evaporation.



- 2. **Phil (Freshwater Ecosystem).** River and streams in the Municipality of Nett are not only important ecosystems for biodiversity in Pohnpei but are also very important to the well being of the people and the economy of Pohnpei. The Nanpil River, which provides water for most of Pohnpei is located in Nett. At one time the river also provided power through hydroelectric plant. The Nanpil River receives its water from the Nanpil Watershed that is approximately 10 square miles in area.
- 3. **Lehpwel (Wetland Ecosystem).** Pohnpei has a wetland area of over 500 hectares. These areas include swamp forest, freshwater marsh, ivory nut forest and saline marsh.

- 4. Naniak (Mangrove Ecosystem). Pohnpei has a mangrove area of over 5,500 hectares, with 635 acres located along the coastline of Nett Municipality. The mangrove fringes the coastline of the Pohnpei Island. The mangroves are not only important for ecological communities but are also important for human communities. The mangroves protect the coastline and could potentially play and important means for adjusting surface elevation with rising sea level.
- Mad (Coral Reef Ecosystem). A recent Rapid Ecological Assessment (REA) has identified 330 coral species in Pohnpei with an average live coral cover of 33%. The Sapwitik MPA (1.6 km<sup>2</sup>) located in the municipal water of Nett has a coral diversity of 101, which is ranked number 7 of all 28 sites surveyed around Pohnpei Island.
- 6. **Mwahmw (Food fish).** Pohnpei State has a total fish species diversity of 642. Generally outer reefs and reef passages have the highest diversity of fish (over 140 species) while lagoon habitats had lower diversity (below 120 species). The highly threatened and valuable Napoleon wrasse is still relatively abundant, however, most of the population appears to be immature indicating that the adults are overexploited.
- 7. Menihke (Marine Invertebrates). Pohnpei has 55 different species of marine invertebrates around the island including the outer islands of Pohnpei. In old ages the species like sea cucumber, sea clams and octobus can be found near the mangrove sites and all the way to the reef. Efforts in culturing of pearl, giant clams, and sponges have been established in some communities to provide alternative source of income as well as to reduce harvest pressure on dwindling wild populations.
- 8. **Mahn-pihr (Birds).** Pohnpei has 20 resident native land and wetland birds, and 12 breeding seabird species. There are five endemic species in Pohnpei island which include the Pohnpei Mountain Starling (Aplonis pelzelni), verges on extinction, with only one confirmed sighting in nearly 50 years; the Long-billed White –eye (Rukia longirostra) is vulnerable to encroaching agriculture in its preferred and limited montane habitat, where nearly 90% of the sightings were on approximately 10% of the land area, the Pohnpei Lory (Trichoglossus rubiginosus), Pohnpei Flycatcher (Myiagra Pluto) and Pohnpei Fantail (Rhipidura kubaryi) are widespread and common, but were less frequently encountered in 1994 than in 1983.
- 9. Tiahk (Tradition/culture). Traditional culture of Pohnpeian is usually governed or guided by paramount chief or king, the Nahnmwarki and the oratory chief, the Nahnken. The Nahnmwarki title is passed along among clan members while the Nahnken title is passed along to direct descendants of the Nahnmwarki or members of the appropriate clan. This is an aged old ruled system that exist long time ago and still exist today that guide each person daily life, culture and tradition, including their land, crops, resource

management practices, the tribute they pay to their leaders, the feast they host, how conflicts are resolved and so forth. Within each community there is a system of leadership that extends into the family as well. The Sakau-making ceremony is an elaborate one that dates back to Pohnpei's pre-history and is a regular feature of any cultural performance.



#### 10. Wasa Poad (Historical Sites).

Important places that have or objects that have local histories associated with them that bear important cultural exchange in Pohnpei, provide testimony to unique Pohnpeian traditions, bear witness to early human colonization of the island, and bear witness to some local belief system or cosmology. In Nett there are 60 known sites, with Lenger Island of historical importance during the Japanese era.

- 11. Wasa Sarawi (Sacred Sites). Pohnpei has different sites that consider as sacred sites. Pohnpeians do belief that there are some sites on the island called "Pei" (where the rocks are pilled) that is considered to be isolated. They are part to the land, holding special meaning, legends and reminder to Pohnpeians as a people rich with cultural heritage and pride. In some cases they are considered taboo areas; forbidden and only specific clans are allowed. It connects Pohnpeians to the land and sea "ones with the land".
- 12. Kahp (Sustainably used area). Clan resource areas in the forest for gathering and cultivation. This is like a place in the past where the Pohnpeians considered as their conservation area or preserve area. Similarly known parts of Pohnpei reefs are also set aside as fish banks and are to be respected and harvested with great care.

In order to assess the targets' viability, or ability to persist over the long term, the CAP process has developed a system to help teams define what they consider a "healthy" state for each target. The benefit of this exercise is in understanding the current status of the targets, as well as having a clearly defined desired status as a measurable objective toward which to work. The process for doing this involves identifying key ecological attributes (KEAs), indicators, ranges of variation, and rating schemes for each target. KEAs are characteristics of the target that are critical to its biology and that if altered would lead to the loss of the target. KEAs tend to fall into the broad categories of size, condition, and landscape context. Since KEAs are often not directly measurable, associated indicators (key characteristic of a target that can be measured) are selected in order to develop a rating scheme by which to evaluate the target status (Table 1).

Conservation Target	Size	Condition	Viability Rank
Overall Ranking for Nett's resources			Fair
Kahp (Sustainably used area)	Poor		Poor
Lehpwel (Wetland)		Fair	Fair
Mad (Coral Reef Ecosystem)	Poor		Poor
Mahn-pihr (Birds)	Poor		Poor
Marine Invertebrates (Menihke)	Poor		Poor
Mwahmw (Food fish)	Fair		Fair
Naniak (Mangrove Ecosystem)	Fair		Fair
Pihl (Freshwater ecosystem)		Fair	Fair
Tiahk (Tradition/Culture)		Fair	Fair
Wahl (Forest ecosystem)	Fair		Fair
Wasa Poad (Historical & cultural sites)		Poor	Poor
Wasa Sarawi (Sacred Sites)		Fair	Fair

Table 1. Summary of viability ranks for Nett Municipality Conservation targets.

Based on information provided by the Nett CAP participants, the overall ranking of the conservations targets is at Fair.

## 2.3 Identify and Assess Critical Threats

Fifteen threats were identified as reducing the viability of at least one target (Table 2). The threats were ranked according to two factors, contribution and irreversibility in order to gauge the degree of the threat. Contribution is the level at which the threat acting contribute to the source of stress on a given target. Irreversibility is the likelihood for the target to recover given certain threat to that target (Refer to Table 2 for more clarification).

The overall ranking of the threat is affected by the severity and scope of a given stress on the target. Stress is the impairment of key ecological attribute for a given target. Scope is the extent of an area within the conservation target that could potentially be impacted within 10 given current situations. Severity is the level of damage to the conservation target that can be reasonably expected within 10 years under current circumstances.

Description	Ranking					
	Low	Medium	High	Very High		
Contribution expected contribution of the source, acting alone, to the full expression of a stress (as determined in the stress assessment) under current circumstances (i.e., given the continuation of the existing management/ conservation situation).	The source is a low contributor of the particular stress.	The source is a moderate contributor of the particular stress.	The source is a large contributor of the particular stress.	The source is a very large contributor of the particular stress.		
Irreversibility reversibility of the stress caused by the Source of Stress (or reversibility of the threat itself if using the alternative threat ranking methodology).	Easily reversible at relatively low cost (e.g., off- road vehicles trespassing in wetland).	Reversible with a reasonable commitment of resources (e.g., ditching and draining of wetland).	Reversible, but not practically affordable (e.g., wetland converted to agriculture).	Not reversible (e.g., wetlands converted to a shopping center).		

Table 2. Description of criteria used to rank contribution of threat to stress on the target.

Criterion	Ranking							
(Description)	Low	Medium	High	Very High				
Scope - Most commonly defined spatially as the proportion of the overall area of a project site or target occurrence likely to be affected by a threat under current circumstances.	Very localized in scope, affect the conservation target at a limited portion of the target's locations.	Localized in scope, affect the conservation target at some of the target's locations.	Widespread in scope, affect the conservation target at many of its locations.	Very widespread or pervasive in scope, affect the conservation target throughout the target's occurrences.				
Severity - The level of damage to the conservation target that can reasonably be expected under current circumstances.	Slightly impair the conservation target over some portion of the target's occurrences.	Moderately degrade the conservation target over some portion of the target's occurrences.	Seriously degrade the conservation target over some portion of the target's occurrences.	Destroy or eliminate the conservation target over some portion of the target's occurrences.				

Table 3. Descriptions of the criteria used to rank stress of key ecological attribute on the target.

After the threats were ranked for each target, the CAP excel workbook consolidated threats that occurred for multiple targets and use an algorithm to roll the individual rankings up to an overall rank for that threat. Table 4 summarizes the target ranks and overall rank for each of the 16 threats identified. The "critical" threats, those with overall ranks of medium or higher, and which ranked high for at least one target, are described in more detail in the following pages. In addition, the targets that had at least a threat ranking of medium are also discussed.

Threats \ Targets	Kahp (Sustainably used area)	MAD (Coral Reef Ecosystem)	Mahn-pihr (Birds)	Marine Invertebrates (Menihke)	Mwahmw (Food fish)	Naniak (Mangrove Ecosystem)	PIHL (Freshwater ecosystem)	Tiahk (Tradition/Culture)	WAHL (Forest ecosystem)	Wasa Poad (Historical & cultural sites)	Wasa Sarawi (Sacred Sites)	Lehpwel (Wetland)	Summary Threat Rating
Developments		Medium								Medium	Medium	Medium	Medium
Nutrients		Medium		1			Medium			M		2	Medium
Sedimentation		Medium		Medium	Medium	Low	Medium				1.1.1	Sec.	Medium
Dredging/filling	1	Medium		Medium	Medium	Medium							Medium
Poaching	1		Low	Medium	Medium	ß				ł		1	Medium
Overharvesting	Medium			Low	High	No.	1				3	N	Medium
Westernization			1.1		A. C.	12-12-	40000	Medium		-	10.0	and the second s	Low
Poaching		2	Low		Sec. Mar		and and a	X L	Email				Low
Deforestation	24.00	and a state	Low	10 . BB	and a	Low	Contra mine		Low	Since.		1000	Low
Solid waste pollution	A.	Low					Low					West,	Low
Bleaching	ALT.	Low									於	and the second	Low
Oil spill		Medium	N.	Low	Low	Low						N.	Low
сотѕ		Medium										1	Low
Summary Target Ratings:													Medium

Table 4. Summary of rankings for threats that affects Nett conservation targets.

#### **Critical Threats:**

- Deforestation. Forest clearing for farming sakau and other agricultural crops has led to degradation of forest habitats as well as increased incident of siltation. Canopy cover and roots help hold the soil. Trees provide habitats for birds and other terrestrial animals.
- Solid Waste Pollution. Lack of landfill and inadequate disposal of solid waste combined with adoption of western packaged food and beverages has led to increased concentration of solid waste.



- 3. **Sedimentation.** The threat from sedimentation results from poor land uses and uncompatible agriculture and commercial developments. Sedimentation studies in Pohnpei have shown that poor land use practices from adjacent watershed leads to increased siltation on rivers, estuaries, and coral reefs.
- 4. **Nutrient.** Construction of pigpens, outhouses and placement of sewage outfalls near coastal areas and rivers leads to increased nutrients that may facilitate algal overgrowth on reefs as well as spread of water borne diseases that affects both human health and coral reef health.
- Oil Spill. Nett is the center of commerce and trade in Pohnpei. Both the airport and sea port are located within Nett. Many boating activities occur around Nett Municipal waters. The potential for oil spill in Nett municipal water exist because of increased shipping and boating activities.
- 6. Overharvesting. Overharvesting was identified by the Blue print for conserving biodiversity in the Federated States of Micronesia as the most critical and urgent threat across all marine and areas of biological significance (ABS). The threat results from population growth and shifting from subsistence to cash economy. The breakdown of traditional management system has also contributed to decline of resources through unregulated use.
- 7. **Poaching.** Lack of awareness and enforcement of natural resource regulations and the commercialization of natural resources such as sakau and fish has led people to poach in areas that are closed or break regulations regarding harvest of certain species.

- 8. **Dredging/Filling.** Dredging of sand and coral materials for filling and use in construction projects destroys coral reef habitats. Besides destroying the corals and the reef habitat at the dredging site, dredging also increased turbidity and induce siltation.
- 9. **Developments.** Improvements of infrastructures such as schools, hospitals, airports, and road that have been made possible through development assistance by donor countries have had impacts on biodiversity through loss of habitat and increased in sedimentation due to poor development practices. Increased population has meant urbanization that comes with associated developments such as construction of new houses and business to support commerce and growth of economy. Dredging of sand and coral materials to support construction of these infrastructures has led to degradation of coastal marine habitats.
- 10. Westernization. It is strongly believed that introduction of western culture and system of governance has had major negative impacts on local culture and has weakened traditional governance authority. The western belief of equal rights for all and open access for resources has led to erosion of respect of traditional rights based system that has led to exploitation of resources that were traditionally reserved for specific resource users or for use in specific purposes.

#### 2.4 Situational Analysis

In order to document our understanding of the social and ecological context surrounding threats and targets, the team developed a conceptual model for the targets showing the connections between the threats and the factors assumed to be driving them (Figure 3). The model is by necessity incomplete, and represents the working assumptions of the project team, as opposed to actual ecological relationships. It is intended to be a flexible tool that can be altered over time as our conception of the system develops.





Figure 3. Situation diagram targets (green), direct threats (pink), and contributing factor (dark yellow).

#### 2.5 Conservation Strategies

Strategies consist of one or more measurable objectives, the associated strategic actions, and their action steps. Measurable objectives are detailed statements that describe the desired outcome of the strategy. Strategic actions are the general activities undertaken by the project team to achieve these objectives. Action steps are the specific tasks required to carry out each strategic action. See Table 5 for list of strategies developed by the project team during the workshops.

By end of 2012, 80% of the Nett community (Kousapw), resource management agencies and state and local leadership understand and are actively engaged in effective conservation of the municipality's natural resources.

Strategic Actions:

- 1. Conduct meetings with all village Chiefs of Nett Municipality (January to June 2011) Action Items:
  - 1.1 Schedule meetings with village Chiefs Chairman NRMDC and CSP Community Conservation Coordinator
  - 1.2 Coordinate with technical resources agencies and organizations to attend the village Chiefs meetings Chariman NRMDC and CSP Community Conservation Coordinator
- Consult with relevant state resource management agencies including Pohnpei Resources Management Committee (PRMC) – (June to December 2011) Action Items:
  - 2.1 Coordinate meetings between Nett District Government and PRMC to discuss issues (dredging, sand mining, unpaved roads, development projects, historical and sacred places and others) District Administrator or relevant staff and CSP Executive Director
  - 2.2 Establish MOU with the relevant PRMC agencies District Administrator and TNC Deputy Director of External Affairs
- Conduct trainings for Nett community on farming best management practices (BMPs). (January 2012 to December 2012)

Action Items:

- 3.1 Establish MOU with NRCS and COM-Land Grant to conduct training for farmers and community member Distad and CSP Director
- 3.2 Schedule and conduct trainings for the farmers Chairman NRMDC and CSP Executive Director

# By end of 2012, all relevant ordinances and regulations pertaining to natural resources management in Nett Municipal Government will have been passed.

Strategic Actions:

- Pass comprehensive ordinance framework to regulate fishing and harvesting of Nett's natural resources (seasonal harvest, size restrictions and fishing gears and methods) – (January 2011 to December 2012) Action Items:
  - 1.1 Consult with Office Fisheries and Aquaculture, CSP and other relevant agencies for technical assistance regarding fishing regulations Distad and Speaker NDL
  - 1.2 Draft and introduce the ordinance framework through Nett District Legislature Speaker NDL
- 2. Pass ordinance on the establishment of riparian areas buffer zone regulations (January 2012-December 2012)

Action Items:

- 2.1 Obtain technical assistance from NRCS, CSP and other relevant agencies on standards of riparian areas buffer zone regulations Distad
- 2.2 Draft and introduce ordinance through Nett District Legislature Speaker NDL
- 3. Pass regulations on ordinance pertaining to establishment of sanitation program. *Action Items:* 
  - 3.1 Develop MOU between Nett Municipal Government and Pohnpei State EPA for enforcement training and related purposes – Distad and TNC Deputy Director External Affairs

3.2 Recruit or assign existing staff for the enforcement training and subsequent implementation of the regulations or ordinances - Distad

By end of 2013, an effective enforcement program for environment and natural resources management will have been formalized.

Strategic Actions:

- 1. Secure necessary funding for the program including budget allocations and grants. *Action Items:* 
  - 1.1 Identify funding sources for the program Distad and CSP Executive Director
  - 1.2 Establish a yearly allocation to the program through local district budget Distad
- 2. Recruit and train additional staff

Action Items:

- 2.1 Recruit officers for the enforcement program Distad
- 2.2 Train officers for the enforcement program Distad and CSP Executive Director

# By 2012, establish sustainable funding mechanisms for environment and natural resources management in Nett Municipality

Strategic Actions:

1. Identify and secure funding to support environment and natural resource management programs including internal and external sources.

Action Items:

- 1.1 Explore funding opportunities both internal and external– CSP Director and TNC Deputy Director of External Affairs
- 1.2 Secure funding through competitive grant proposal schemes CSP Director and TNC Deputy Director of External Affairs.
- 2. Explore long-term funding mechanisms such as payment for ecosystem services (water use fees). *Action Items:*

2.1 Explore long-term funding mechanisms – TNC Deputy Director of External Affairs

Develop sustainable funding scheme - TNC Deputy Director of External Affairs

Table 5. List of objectives and strategic actions for implementation.

#### 2.6 Measures and Monitoring

The fundamental question facing conservation project team is: "Are the conservation strategies we are using having their intended impact?" To answer this question, the team will be collecting data on a number of indicators that gauge how well it is keeping the critical threats in check and, in turn, whether the viability of their conservation targets is improving. In addition to biological monitoring the team will need to conduct strategy effectiveness measures (SEM) to determine if strategy being implemented is achieving intended results to support improvement of conservation targets.

Target	Methods	Details
Indicator		
Endemic plants		Rapid Benthic Assessment (RBA) USFS
Number of endemic plants	Species inventory	
Kahp (Sustainably used area)	Areal photography/GPS and	
Coverage of kahp	GIS	
Lehpwel (Wetland)	Soil testing	NRCS
Soil quality		
MAD (Coral Reef Ecosystem)	Photo Quadrat/Manta Tow	PNI State/CSP Monitoring Program
Coral cover		
Mahn-pihr (Birds)	Bird survey/Inventory	
Number of resident birds		
Marine Invertebrates (Menihke)	Belt Transect	PNI State/CSP Monitoring Program
Number of invertebrates		
Mwahmw (Food fish)	Belt Transect	PNI State/CSP Monitoring Program
Number of fish		
Naniak (Mangrove Ecosystem)	Areal photography/GPS and	
Mangrove forest cover	GIS	
PIHL (Freshwater ecosystem)	Water quality testing	EPA protocol
Water quality & quantity		
Tiahk (Traditional Culture)	Socio-Economic Survey	SEM Pasifika
People character		
WAHL (Forest ecosystem)	Forest monitoring/GPS and	Existing forest monitoring program
Forest cover	GIS	with PNI State Forestry, CSP and Forest
		Rangers
Wasa Poad (Historical & cultural sites)	Socio-Economic Survey	SEM Pasifika
Site integrity		
Wasa Sarawi (Sacred Sites)	Socio-Economic Survey	SEM Pasifika
Site integrity		

Table 6a. List of indicators for measuring each target with suggested methods for monitoring.

## 3 Strength, Challenges, Opportunities, and Threats (SCOT) analysis

An analysis of the local capacity of Nett District and its communities was conducted during the workshop and facilitated by the facilitators. The following definitions and tables describe the results of this analysis.

Strength	Challenges
Municipal leadership support	Enforcement capacity
<ul> <li>Traditional leaders support</li> </ul>	<ul> <li>Lack of sanitation program</li> </ul>
Community support	<ul> <li>Funding allocation priority</li> </ul>
<ul> <li>Funding availability</li> </ul>	Change of municipal
Nett Resource Management	administration/legislature
Commission	
<ul> <li>Source of public potable water comes</li> </ul>	
from Nett	
Potential for revenue derived from Ecosystem	
services through water use by public	
Opportunities	Threats
<ul> <li>Integrated Water Resource Management Project</li> <li>Conservation Society of Pohnpei</li> <li>USDA – Natural Resource Conservation Service</li> <li>Micronesian Conservation Trust</li> <li>PNI State resource agencies</li> <li>Potential for future developments</li> <li>Regional conservation/environmental initiatives such as LMMA networks, PIMPAC</li> <li>Micronesia Challenge</li> <li>Regional technical agencies, SOPAC, SPC, SPREP</li> <li>United Nations agencies based in Micronesia</li> </ul>	<ul> <li>Unclear jurisdiction (between Nett Govt &amp; PNI State)</li> <li>Lack of consultation for development</li> <li>Invasive species introduction</li> <li>Change of PNI State leadership</li> </ul>

Table 7: SCOT table for Nett District.

## 4 Conclusion

This report documents the results and products of the conservation planning workshops. It is intended to be used by Nett Municipality and Nett Resource Management Commission (RMC) as reference for the development of the management plan for the Nett District natural & cultural resources. It is important to keep in mind as Nett District moves forward that the development of the management plan is an important initial step in an on-going cycle of design, implementation and review of management planning, and should view the plan itself as a "working plan," rather than a final, static document.

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