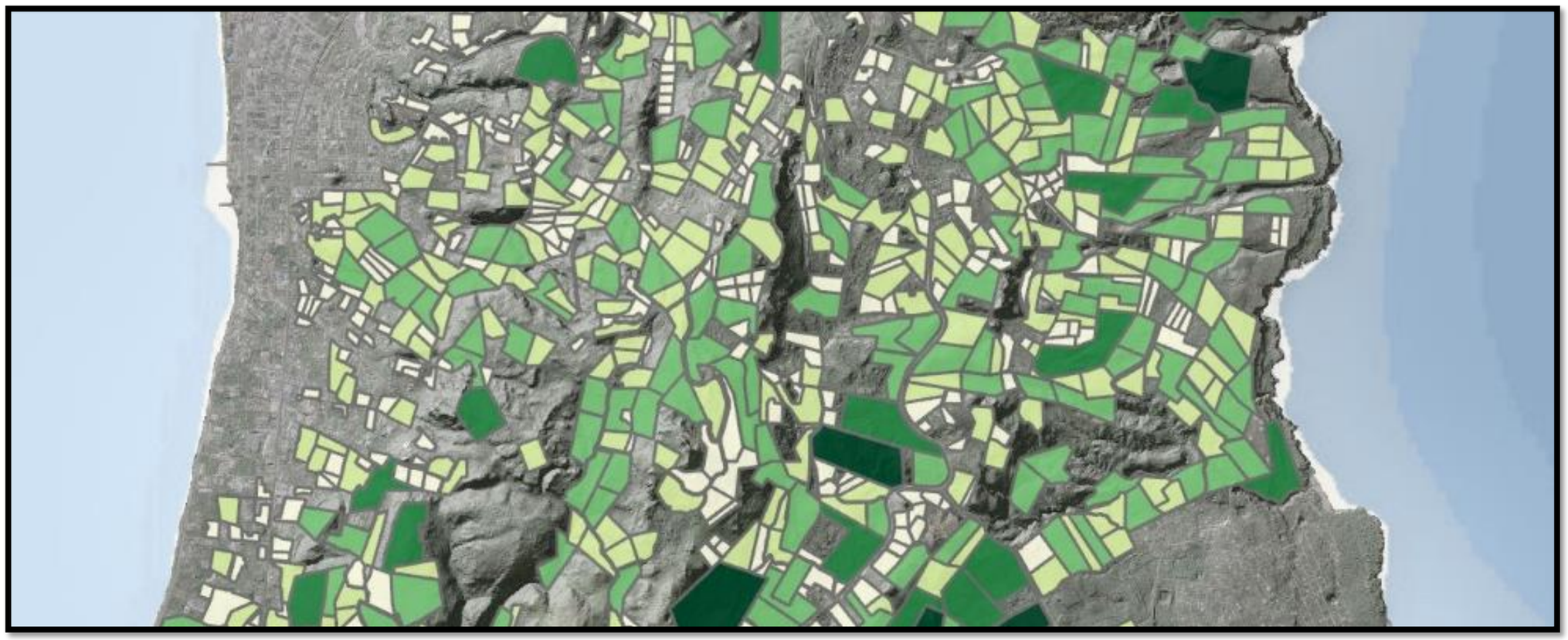
Prioritizing Forest Stewardship Lands:

A footprint for private habitat restoration and preservation

(plus, a bonus offer for free* water quality monitoring from your friends at PacIOOS)



CNMI Watershed Working Group - July 2022

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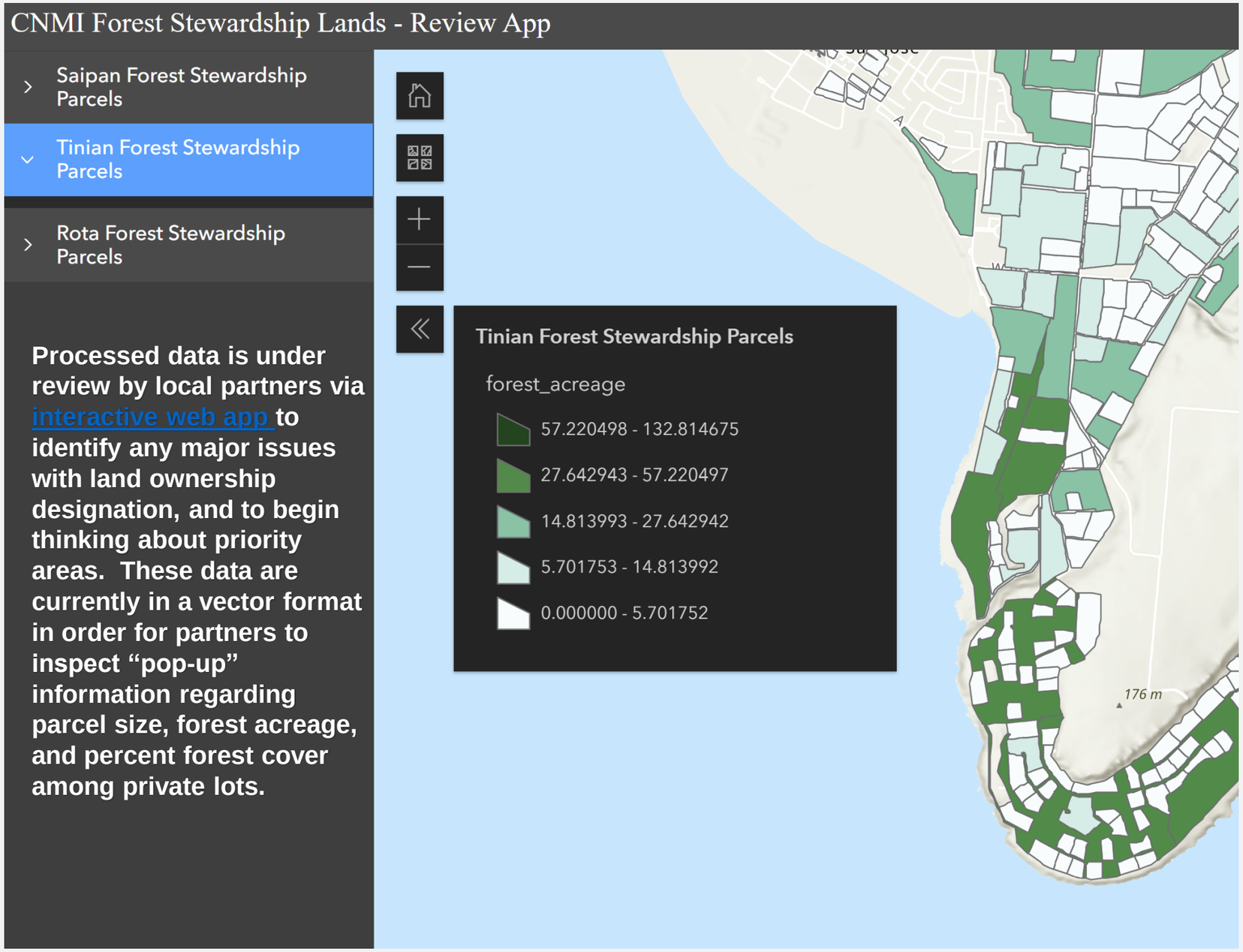
www.PacificCRP.org

*Sort of

Forest Stewardship Priorities - CNMI

Summary:

- **Technical GIS Assistance project with U.S. Forest Service, Micronesia Conservation Trust**
- In support of the CNMI's Forest Stewardship Program (FSP) and DLNR-Forestry,
- Spatial analysis and geoprocessing have been conducted to identify all lands in the CNMI that are eligible for FSP activities, calculate forest coverage on those lands, and develop maps and spatial data to support prioritization of eligible lands for the FSP.



Forest Stewardship Priorities - CNMI

Geoprocessing Summary:

To develop initial data for (1) eligible FSP lands, (2) associated forest cover, and (3) maps to support prioritization exercises, the most recent and/or verified spatial data for CNMI were used, primarily in the form of parcel/survey information and landcover/land use data.

Forest Cover and Land Uses

- USFWS 2017 CNMI Vegetation and Landcover (*Amidon, F. et al. 2017)*
  - Relationship from USFWS vegetation classes to USFS and NOAA landcover classifications shown in subsequent pages.
- CNMI Department of Public Lands 2008 Village and Developed Area Boundaries

Lot Boundaries, Public/Private ownership:

- CNMI Department of Public Lands 2020 Parcels and Lot Boundaries for Saipan
- CNMI DLNR 2010 Parcel data for the Island of Rota
- CNMI DLNR – Survey Division 2009 parcel and survey data for the Island of Tinian (CAD-derived)

Manual/Visual Inspection:

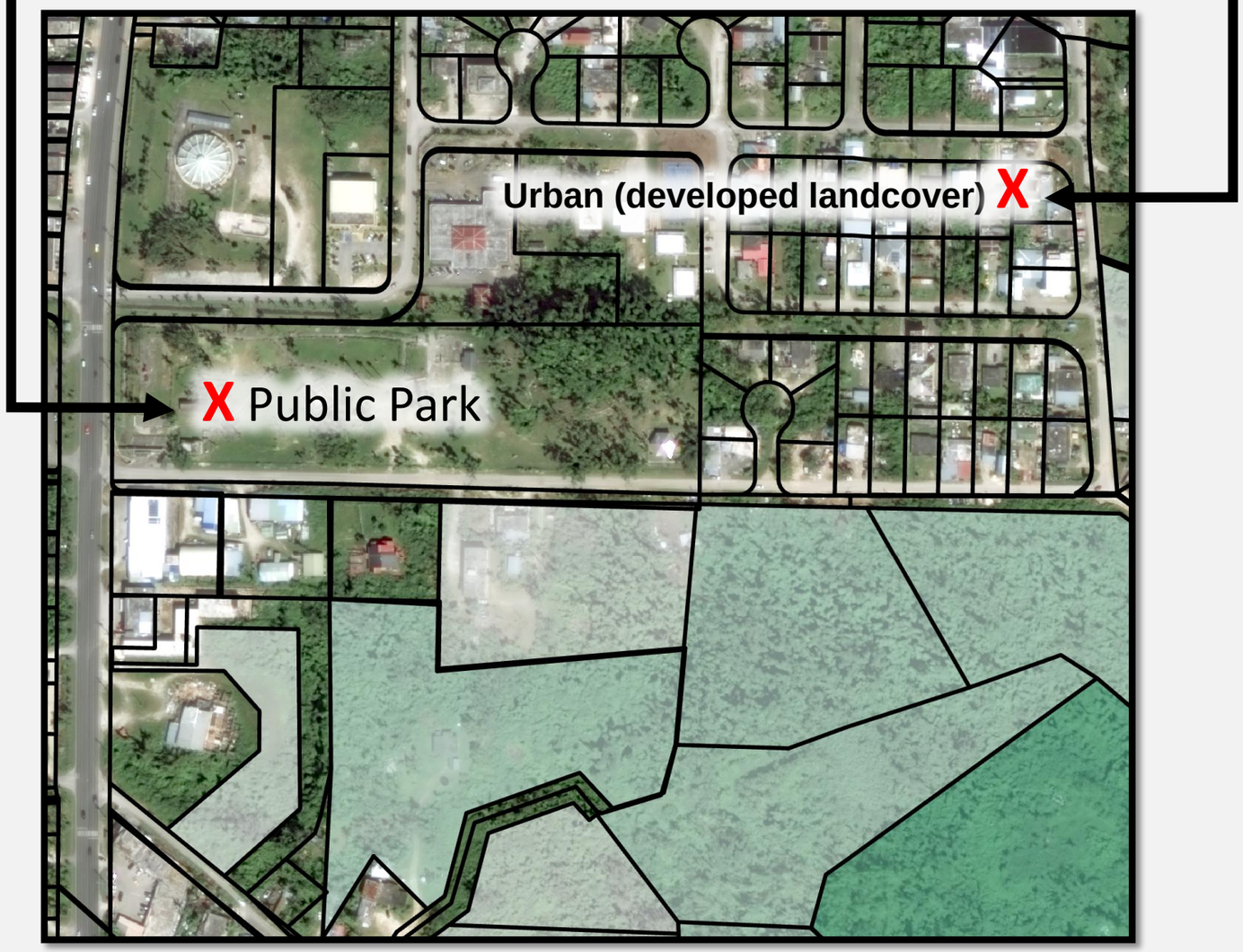
- Public land & Conservation Areas (CNMI Forest Action Plan, 2020-2030)
- Worldview2 Imagery (USDA 2016); ESRI Hybrid Imagery - Maxar/Digital Globe

Forest Stewardship Priorities - CNMI

Private Land: All parcels with land use designation of 'PVLand' (and exclusion of multiple public land use codes and features within Tinian data)

Urban Areas: 'Developed' and 'Developed-vegetated' classification (USFWS); 'Impervious Surface' classification (NOAA); 'Village' boundaries (CNMI DPL)

Federal Land: Removal of American Memorial Park and Tinian Military Lease



Forest Stewardship Priorities - CNMI

Forest Coverage:

- Forest cover was defined using 2017 vegetation classifications from USFWS. All relevant classes (see table below) were extracted for each island, and then dissolved to a single “forest cover” feature.
- Forest cover was then clipped to the subset of eligible parcels, leaving a vector layer of parcel-specific forest polygons.
- Overlay analysis using the Identity tool was conducted to assign a parcel-specific ID to each forest cover feature. Due to an incomplete set of lot numbers within the parcel data, the parcel *acreage*, calculated to high precision to ensure unique values, was used as the Identity value for forest cover.
- Forest polygons were then dissolved based on unique IDs (high-precision acreage values).
- Area (acre) geometry was calculated for all of the dissolved, parcel-specific forest polygons.

A one-to-one spatial join using a “largest overlap” relationship was made, thus connecting attribution from the forest polygons to the potential stewardship parcels.

The newly joined data allows for analysis of eligible FSP lands and forest cover among those lands.

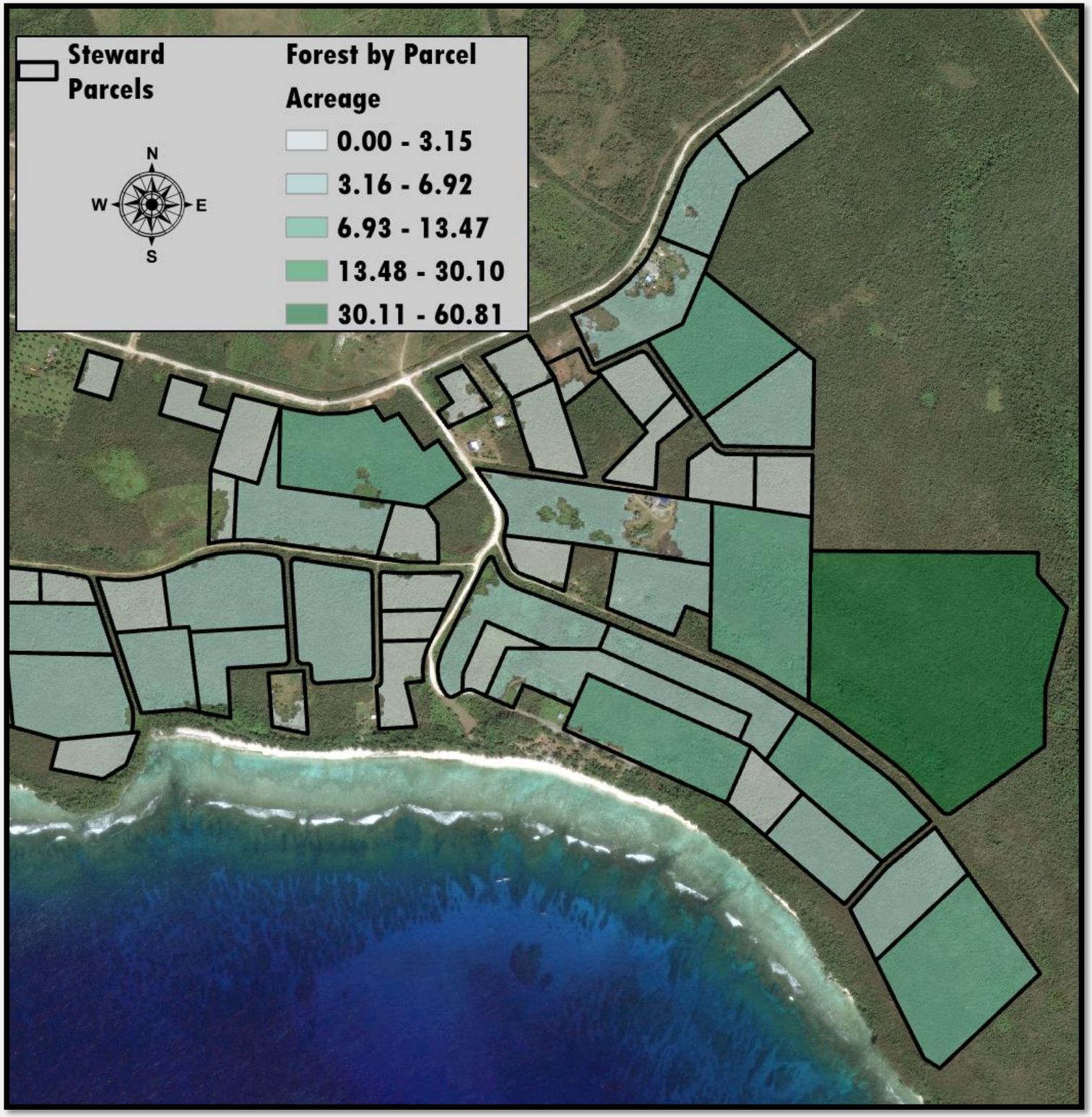
Landcover Type	Category	NOAA CCAP	Forest Service - 2006
Forest	Bamboo Thicket	Evergreen Forest, Palustrine Forested, Scrub/Shrub Wetland	Mixed Introduced Forest
	Hibiscus Thicket		(Native) Limestone Forest, Ravine Forest
	Leucaena Thicket	Evergreen Forest	*Leucaena Leucocephala*/Leucaena Stand
	Acacia Forest		Mixed Introduced Forest/Acacia Plantation
	Casuarina Forest		Casuarina Thicket
	Coconut Forest		Agroforest - Coconut/Coconut Plantation
	Vitex Forest		Mixed Introduced Forest
	Mixed Introduced Forest		Mixed Introduced Forest/Scrub Forest
	Native Limestone Forest		(Native) Limestone Forest
	Native Volcanic Forest	Evergreen Forest, Palustrine Forested, Scrub/Shrub Wetland	Ravine Forest

Forest Stewardship Priorities - CNMI

Forest Cover:

Additional Landcover Types included due to relevance to forest stewardship program goals and objectives and current stewardship activities:

"*FSP also can fund (on private or Commonwealth land): afforestation, reforestation, improvement of bad and grass land, reducing the risks and helping restore, recover, and mitigate the damage to forests caused by fire, insects, invasive species, disease, and damaging weather." (CNMI Forest Action Plan: 2020-2030)*



Forest Stewardship Priorities - CNMI

Saipan:

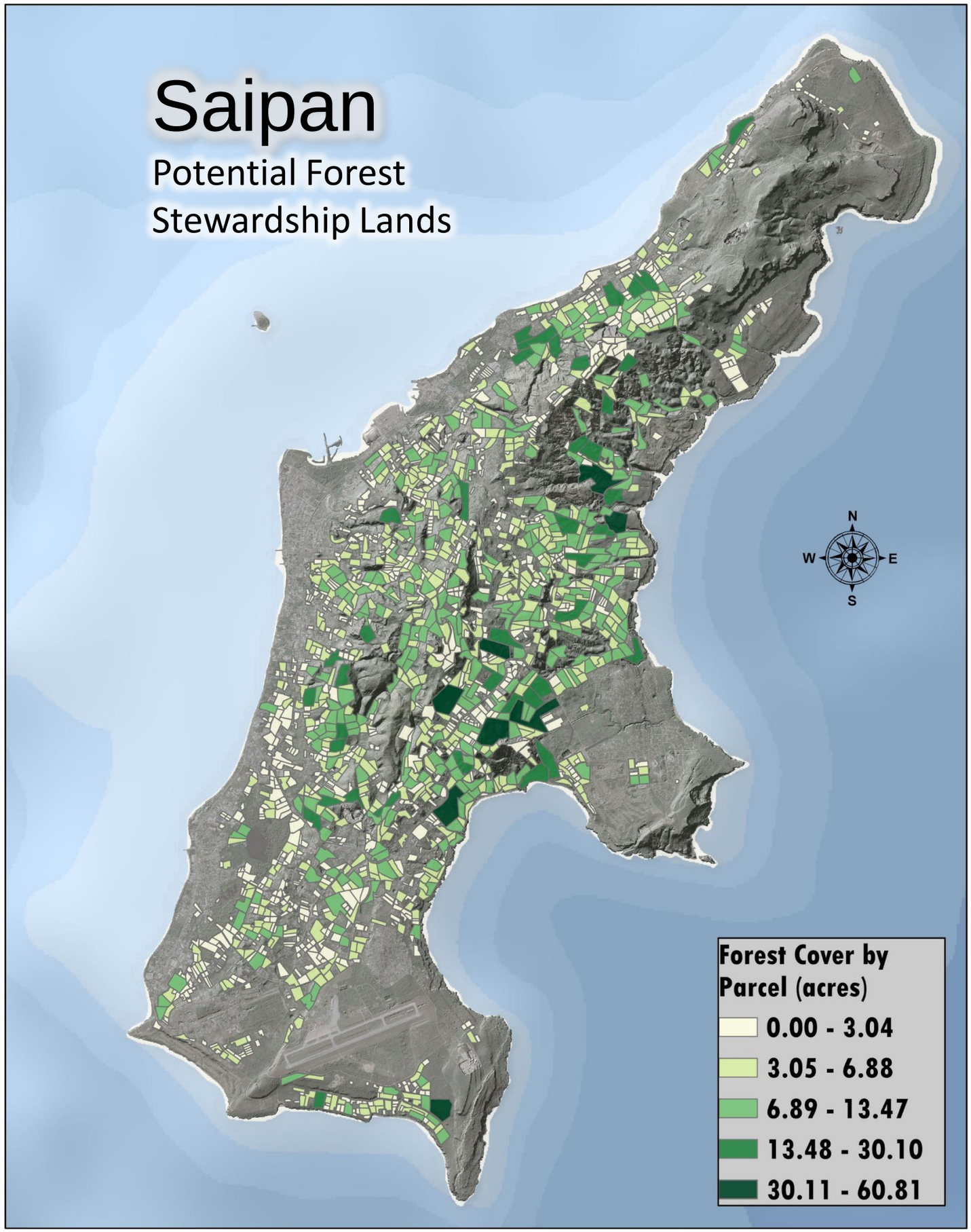
Nearly 10,000 acres of private land, spread across 1800 parcels meets the baseline criteria for FSP eligibility. Roughly 75% of the land is covered by either forest, or scrub/shrub/herbaceous landcover adjacent to forest (i.e. restoration potential).

The majority of the land is concentrated in the central upland and east sides of the island, with significant patches of potential FSP area around Laolao Bay, Achugao, and Talofofo watersheds.

Total Eligible Land (acres)	Total number of eligible parcels	Total Forest Cover (acres)
9615.14	1800	7171.32

Number of Parcels (with 1-10 acres of forest)	Total Forest Cover (among parcels with 1-10 acres of forest)
1361	5125.02

Number of Parcels (with 10+ acres of forest)	Total Forest Cover (among parcels with 10+ acres of forest)
119	1898.77


Saipan
Potential Forest
Stewardship Lands
N
W
E
S
Forest Cover by
Parcel (acres)
0.00 - 3.04
3.05 - 6.88
6.89 - 13.47
13.48 - 30.10
30.11 - 60.81

Forest Stewardship Priorities - CNMI

Tinian:

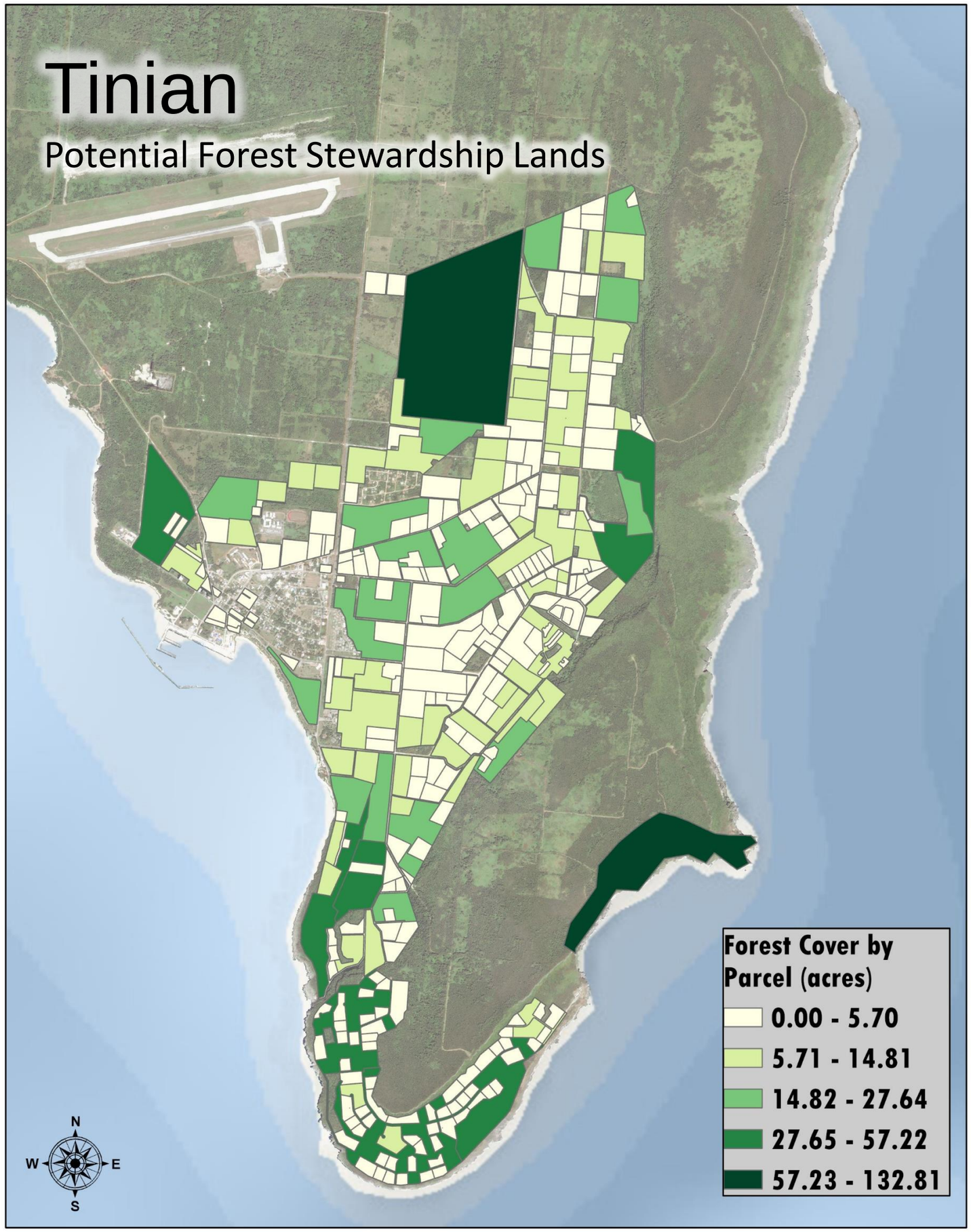
Over 3,500 acres of private land, spread across 334 parcels meet the baseline criteria for FSP eligibility. Of this area, over 60% is dominated by forest or mixed scrub/shrub/grassland and forest.

Substantial portions of the potential stewardship land line the southern coast/clifflines, and extend north through the Marpo and Carolina Heights areas. The potential FSP land is still subject to verification due to uncertainty in parcel data, and the prioritization process will likely involve field-based assessments of specific areas, per Tinian DLNR feedback.

Total Eligible Land (acres)	Total number of eligible parcels	Total Forest Cover (acres)
3526.20	334	2139.87

Number of Parcels (with 1-10 acres of forest)	Total Forest Cover (among parcels with 1-10 acres of forest)
237	874.38

Number of Parcels (with 10+ acres of forest)	Total Forest Cover (among parcels with 10+ acres of forest)
49	1238.75


Tinian
Potential Forest Stewardship Lands
Forest Cover by Parcel (acres)
0.00 - 5.70
5.71 - 14.81
14.82 - 27.64
27.65 - 57.22
57.23 - 132.81
N
W
E
S

Forest Stewardship Priorities - CNMI

Rota:

Over 5,500 acres of private land, spread across 801 parcels meet the baseline criteria for FSP eligibility. Of this area, over 62% is dominated by forest or mixed scrub/shrub/grassland and forest.

Potential FSP parcels are concentrated along the coastal road from the outskirts of Songsong village through the lower reaches of the Talakhaya Watershed, as well as along the northern coastal road connecting Songsong to Sinapalo. Rural and residential parcels along the southern and western periphery of Sinapalo also offer stewardship potential.

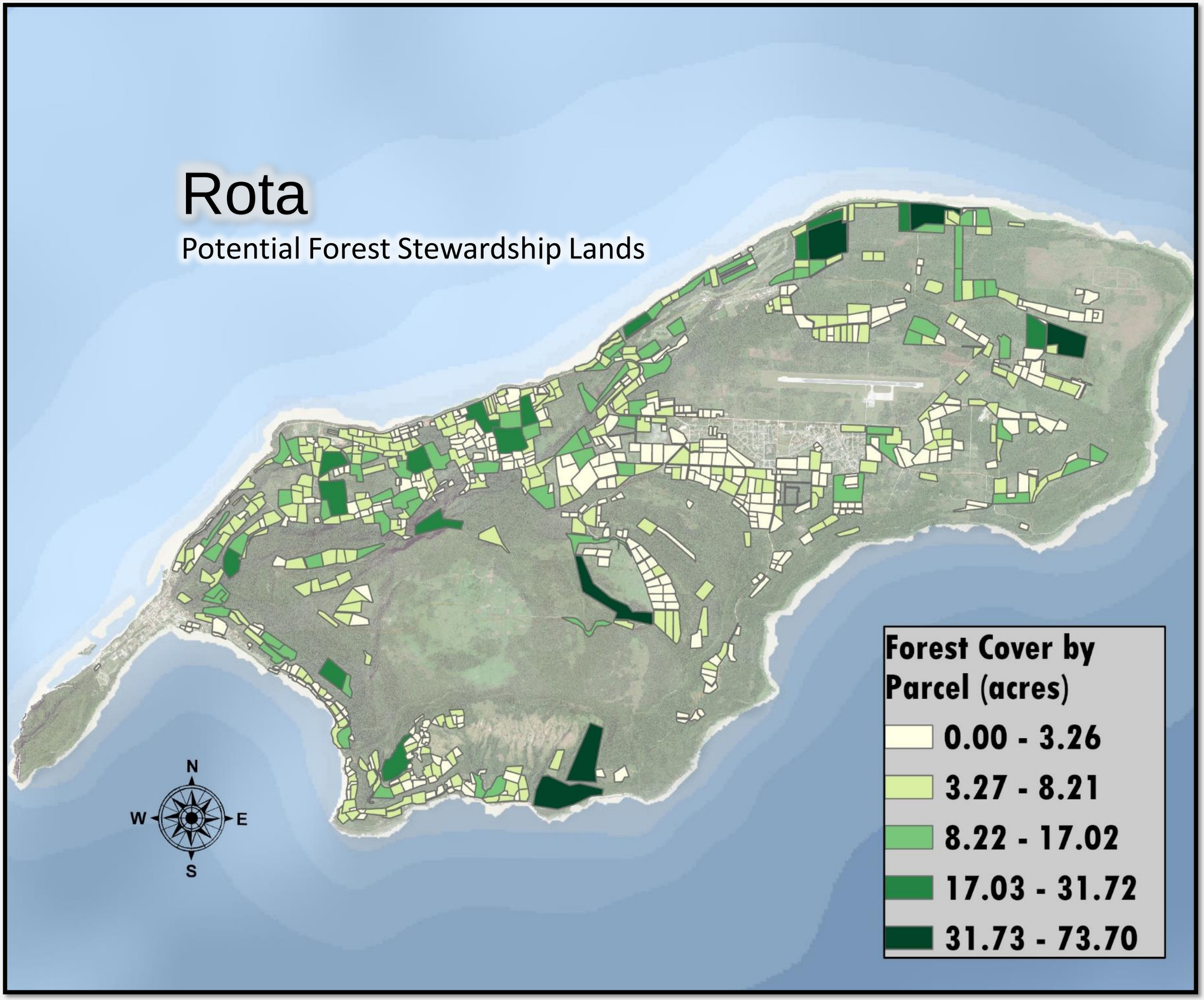
Total Eligible Land (acres)	Total number of eligible parcels	Total Forest Cover (acres)
5539.93	801	3437.79

Number of Parcels (with 1-10 acres of forest)	Total Forest Cover (among parcels with 1-10 acres of forest)
579	2079.55

Number of Parcels (with 10+ acres of forest)	Total Forest Cover (among parcels with 10+ acres of forest)
69	1293.05

Rota

Potential Forest Stewardship Lands



Next Steps: Prioritization with Partners!

(August) Meetings, Field Visits, Mapping Workshop

PCRP

CNMI FORESTRY

Mapping Workshop

Mapping Workshop

MICRONESIA CONSERVATION TRUST

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

August - September

PCRP

Spatial Data development, metadata, and maps

Need or Want Water Quality Data for a Project?

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(670) 989-1619

PacIOOS
PACIFIC ISLANDS OCEAN OBSERVING SYSTEM

WATER QUALITY

PacIOOS Water Quality Sensor Partnership Program (WQSPP)

WQSSP Overview

PacIOOS is seeking collaborations with researchers or natural resource managers who are working in the U.S. Insular Pacific Region, who need water quality data to inform their work. Successful applicants will have the opportunity to work with PacIOOS Seabird SEACAT water quality sensors, which can remotely and accurately measure temperature, salinity/conductivity, depth, turbidity and chlorophyll at a variety of sample intervals for a range of deployment durations.

Who Can Apply?

State and government resource agencies, colleges, NGO's, and independent researchers affiliated with colleges or institutions within the PacIOOS region. Applicants and projects located within the insular Pacific will have priority, although U.S. based researchers conducting research in the PacIOOS region can also apply.

What Will PacIOOS Supply?

PacIOOS will supply the sensor(s), technical support/training, and data management.

Required Matching

Applicants are expected to pay for all costs associated with transporting and maintaining the sensor on site. This would include shipping the sensor to and from Hawai'i, cleaning and maintenance of the sensor.

Timeframe of Projects

6 months up to 3 years.

Your CNMI PacIOOS Liaison can help with this too!

How to Apply?

Please contact Simon Ellis, PacIOOS Regional Coordinator, with initial inquiries. Following contact, submit a simple concept paper with the following information:

- *Location.*
- *Eligibility of the organization.*
- *Purpose of monitoring and impact.*
- *Duration of project.*
- *Who will manage the project?*
- *Permitting requirements (if any).*
- *Security issues relating to the location of the sensor.*
- *Map and deployment schematic.*
- *Visibility/outreach and synergy with PacIOOS goals.*

Successful applicants will then work with PacIOOS staff to complete a more comprehensive application and if selected, a project agreement.