Species Richness of Native Plants within the National Park of American Samoa

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Environmental Impact of Non-Native Plants (Invasive Species)

- Alter fundamental ecological functions of Samoan forest
- Adversely impacts island biodiversity
- Increase levels of Nutrient (NO_3) in the soil
- Out-compete Samoan rainforest tree species
- Native habitat degradation
- High cost to manage for invasive species control projects
- Major cause of Native species extinction on islands

Adenanthera pavonina

COMMON NAME: Lopa

TAXONOMIC FAMILY: Fabaceae

THREATS: Grows tall and shades out native plants from sunlight. It also produces high levels of nitrates in the soil, causing unhealthy growth of native plants

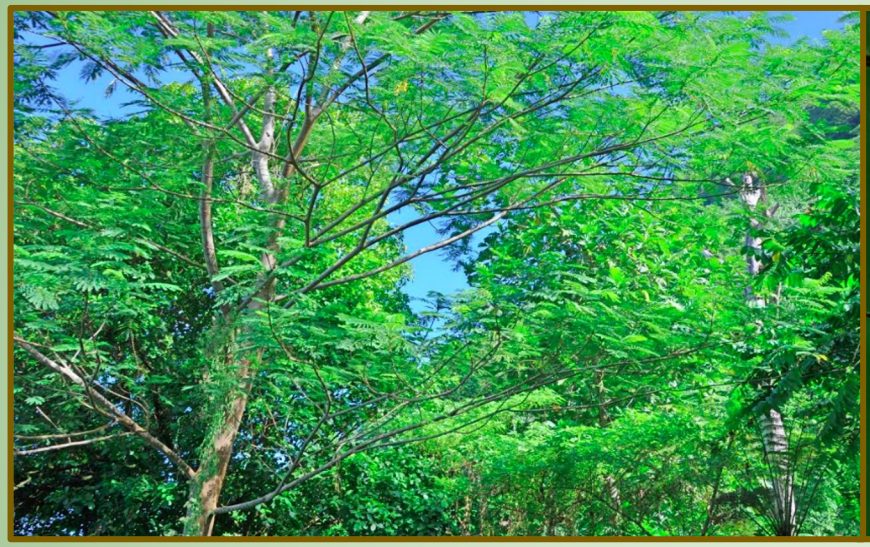
Cinnamomum verum

COMMON NAME: Tinamoni

TAXONOMIC FAMILY: Lauraceae

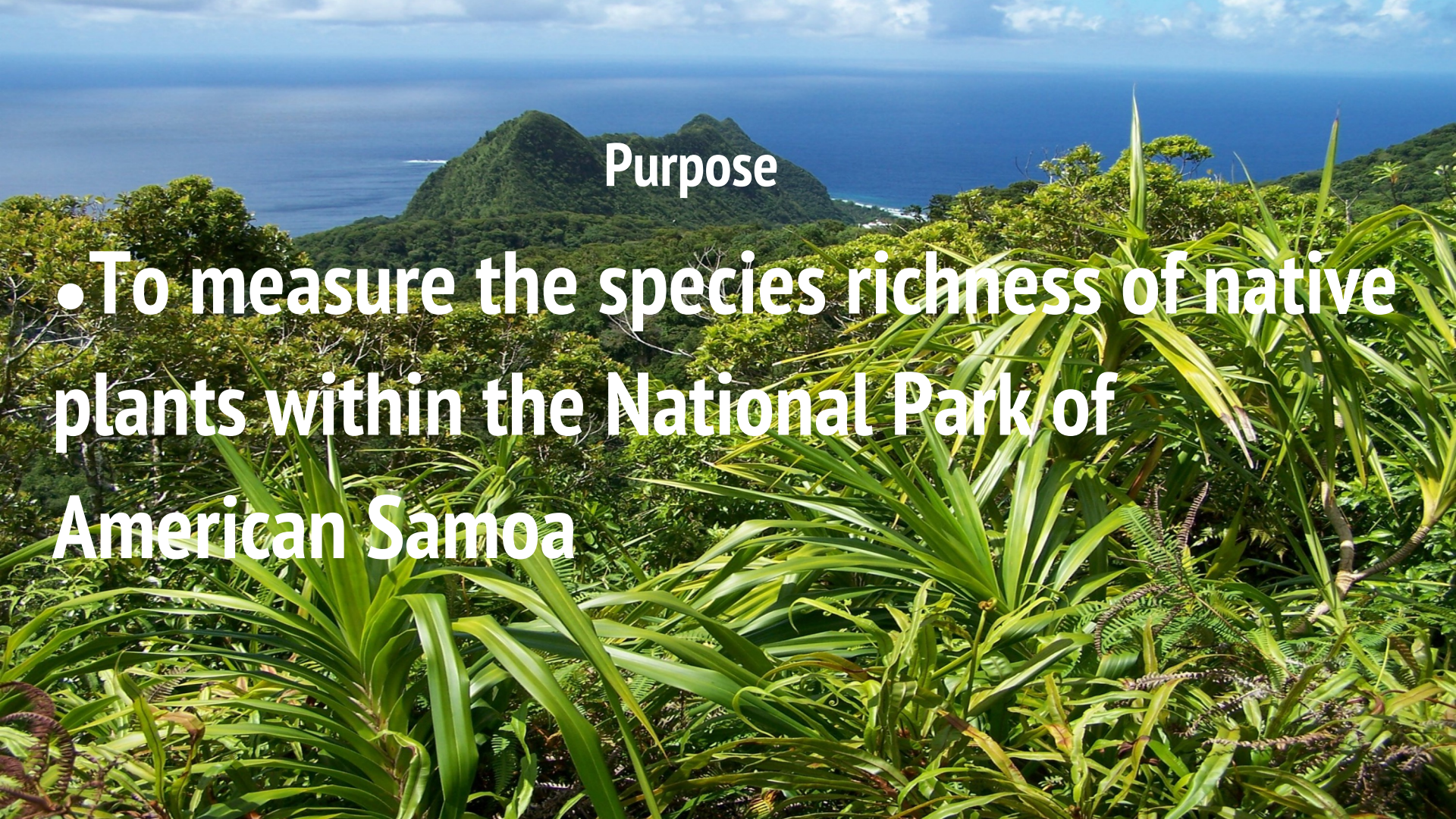
THREAT: Grows a thick carpet of seedlings which cover the space needed by native plants to grow

Falcataria moluccana



COMMON NAME: Tamaligi
TAXONOMIC FAMILY: Fabaceae

THREATS: Tamaligi is a nitrogen fixing tree which increases high levels of nitrogen in the form of nitrates in the soil changing the soil chemistry which is unfavorable for native plants to grow.



Purpose

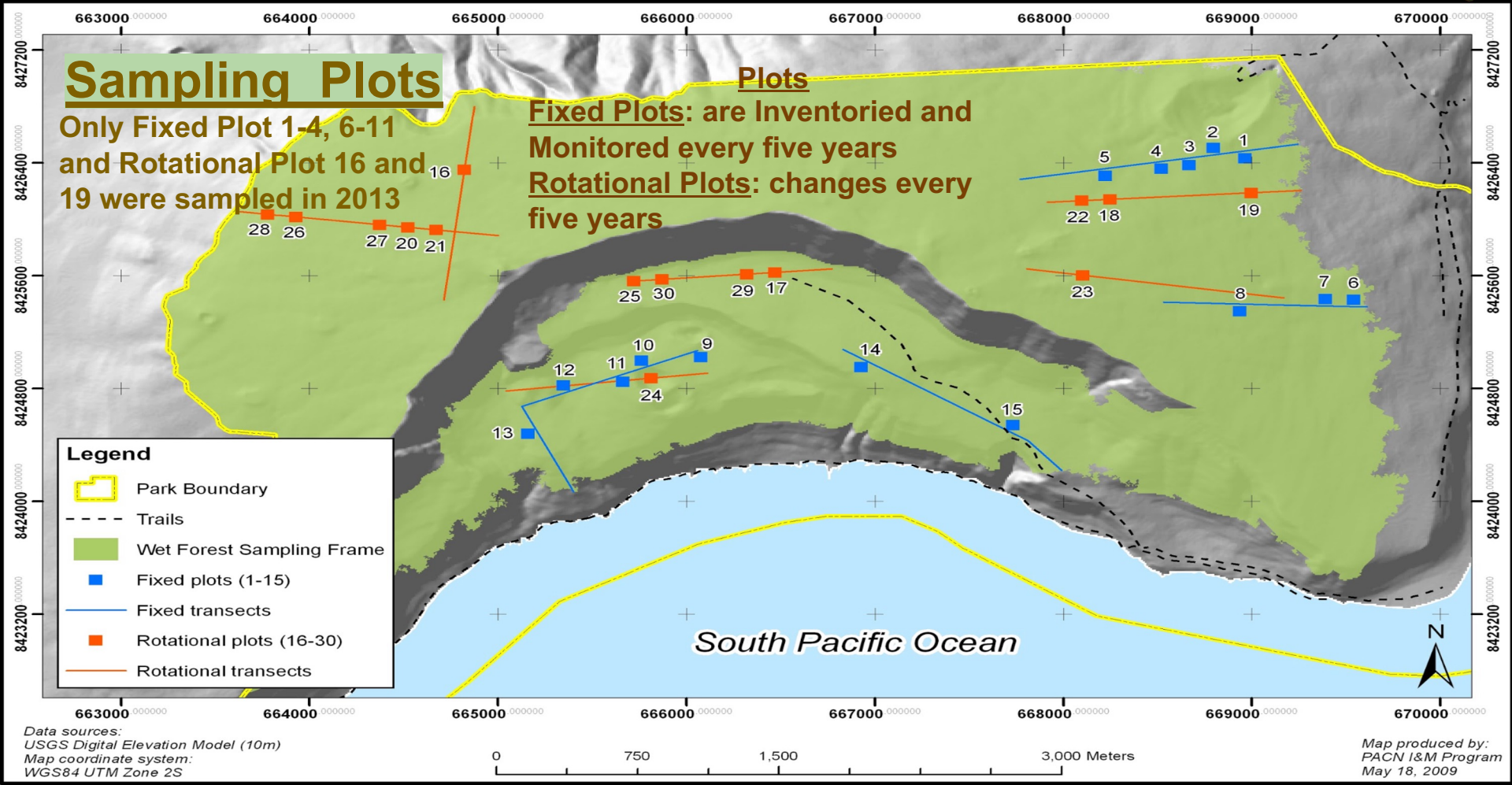
- To measure the species richness of native plants within the National Park of American Samoa

Hypothesis

We hypothesise that because humans (via logging, farming, grazing, etc.) have not heavily altered the wet forest plant community within the National Park of American Samoa (NPSA) we expect native species to exceed non-native species richness on average across the sampling area



Ta’u, Manu’a



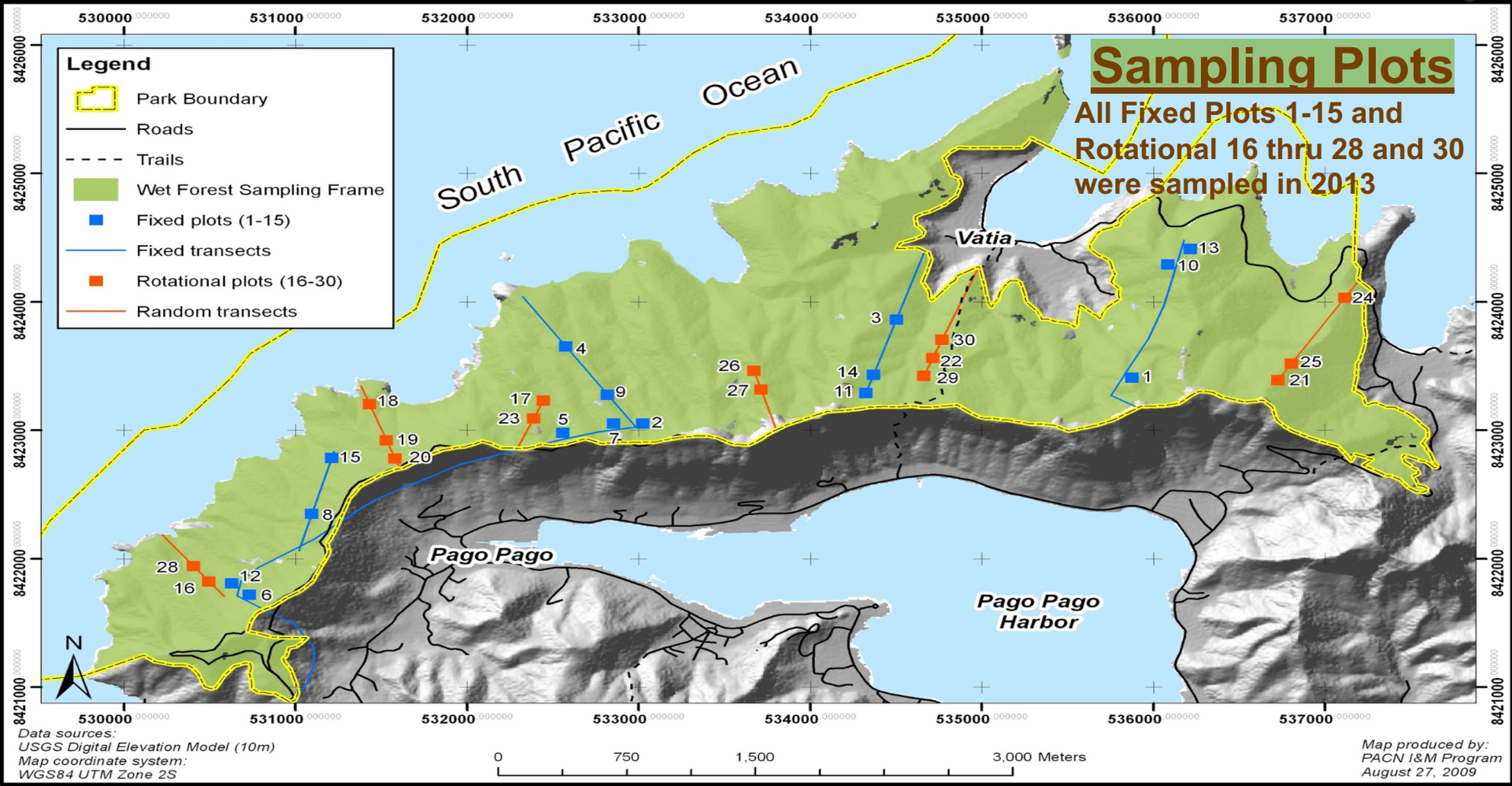
Data sources:
USGS Digital Elevation Model (10m)
Map coordinate system:
WGS84 UTM Zone 2S

Map produced by:
PACN I&M Program
May 18, 2009

Vatia, Tutuila

National Park of American Samoa
Island of Tutuila, American Samoa

National Park Service
U.S. Department of the Interior



Data sources:
USGS Digital Elevation Model (10m)
Map coordinate system:
WGS84 UTM Zone 2S

Map produced by:
PACN I&M Program
August 27, 2009

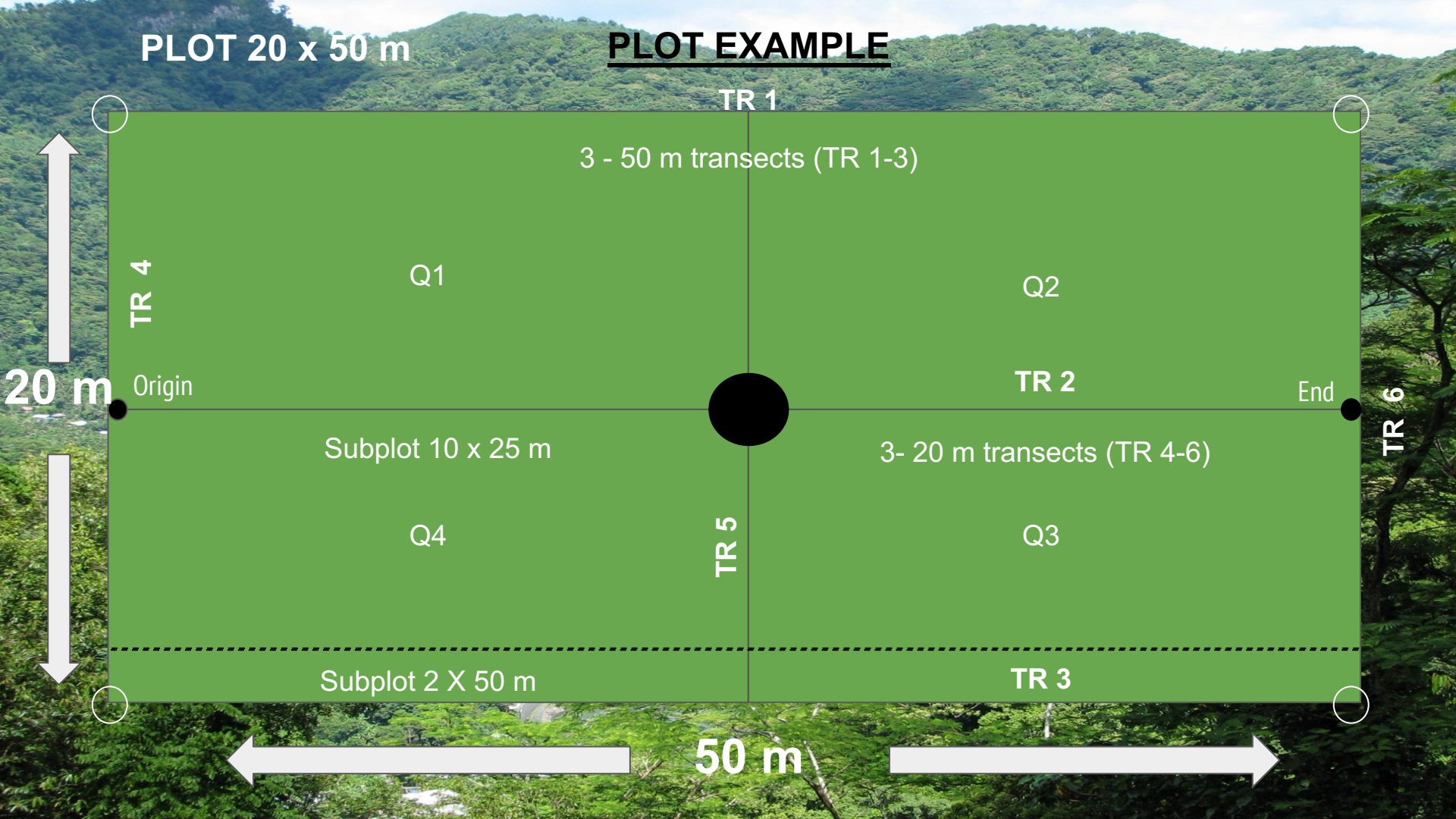
METHOD: Plot Design

1.) Locate center of plot by using GPS to find it

2.) Use compass to find direction of azimuth (which is Horizontal Axis) and set up 50m tape which 25m is the center, one would go from 25 to zero and the other end from 25 to 50m

3.) A 20 meter tape will also be set vertically from the same center at a 90 degree from the 50m tape

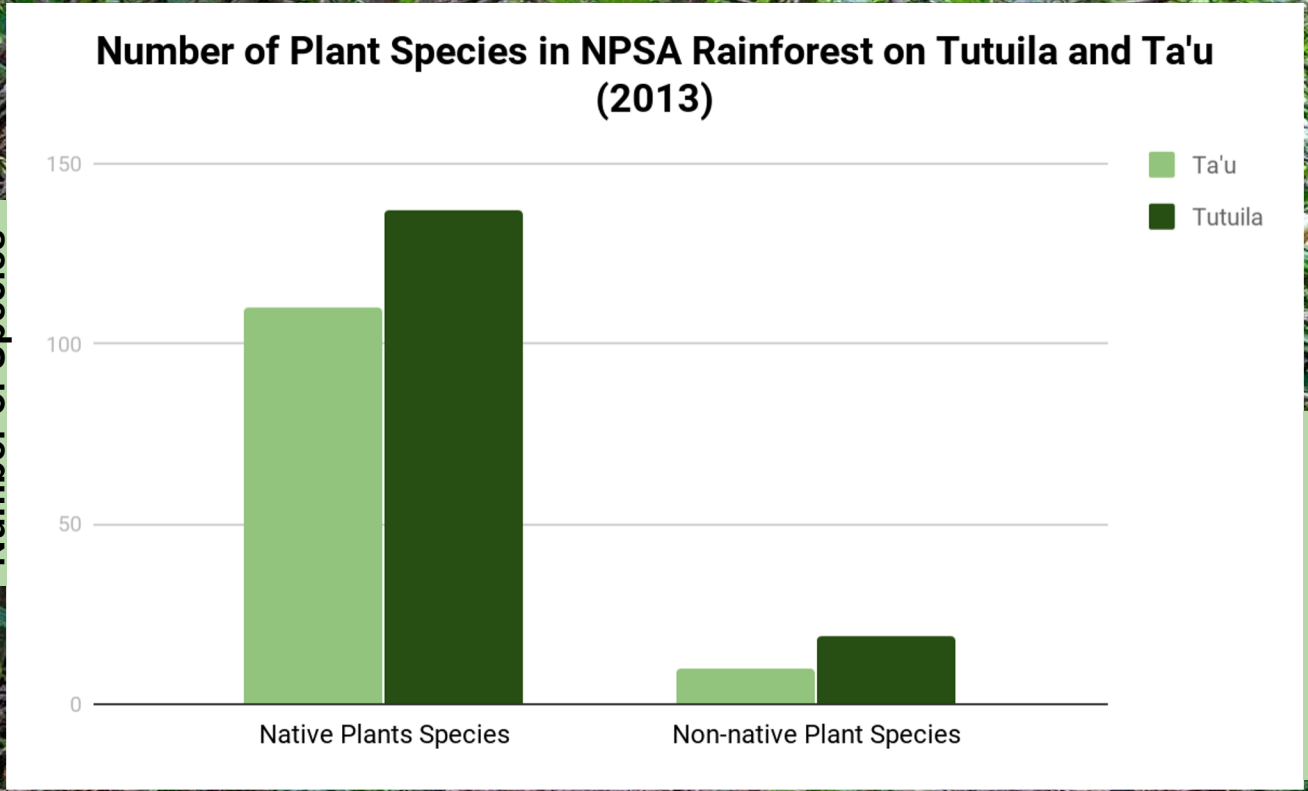
4.) Pull three 20m vertical lines using 30 meter transect tapes; plot set out as a quadrant


PLOT 20 x 50 m
PLOT EXAMPLE
TR 1
3 - 50 m transects (TR 1-3)
TR 4
Q1
Q2
20 m
Origin
TR 2
End
TR 6
Subplot 10 x 25 m
3- 20 m transects (TR 4-6)
Q4
TR 5
Q3
Subplot 2 X 50 m
TR 3
50 m

METHOD: Data Survey

- Understory plant cover data are surveyed in TR 1, 2, and 3
- Large trees are measured for its DBH (Diameter at Breast Height [frequently used to calculate biomass]) in all 4 quads.
- Four canopy tree height will be measured and recorded (one tree from each quadrant [choosing the highest tree in the quad and selecting different trees from each quadrant])
- Large tree ferns (caudex diameter > or = to 10 cm) and Small trees (DBH greater than 1 and ,< 10) are surveyed and recorded in Q4
- Small tree ferns are surveyed in the 2 x 50 m subplot
- Coarse woody debris are recorded along TR 2, 4, and 6
- The plot slope is measures using a clinometer along TR 2, TR 4,and TR 6) from the start (0 meter mark) to the end of each transect

RESULTS



Pacific Island Network Inventory and Monitoring Focal Terrestrial Community Data

RESULTS: TA'U

Species Type	Total	Presence
Native	110	91.67%
Non-Native	10	8.34%

RESULTS: TUTUILA

Species Type	Total	Presence
Native	137	87.82%
Non-Native	19	12.18%

CONCLUSION

- The data supports the hypothesis
- Ta’u may have minimal number of the different types species of non-native plants because of less interaction with air cargo and shipping vessels
- Invasive Species were found in the National Parks

Importance of Species Richness in Native Plants

Sustainability of the richness of native plants provides:

- Habitat for native birds and fruit bats
- Protect Wetlands and Coastal Marine Ecosystem
- Proper functions of ecosystem
- Economic Services for our communities

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ACKNOWLEDGEMENT

Our Heavenly Father

Family and Friends

Visa Vaivai-Tapusoa, NPSA

Inventory and Monitoring Crew, NPSA

Tavita Terrestrial Crew, NPSA

National Park of American Samoa

Mark Schmaedick, ASCC Land Grant

Claudia Thompson, UH PIPES Intern

Pacific STEP-UP