

Guam's Manell-Geus Watershed

Current Projects, Successes, and Future Goals



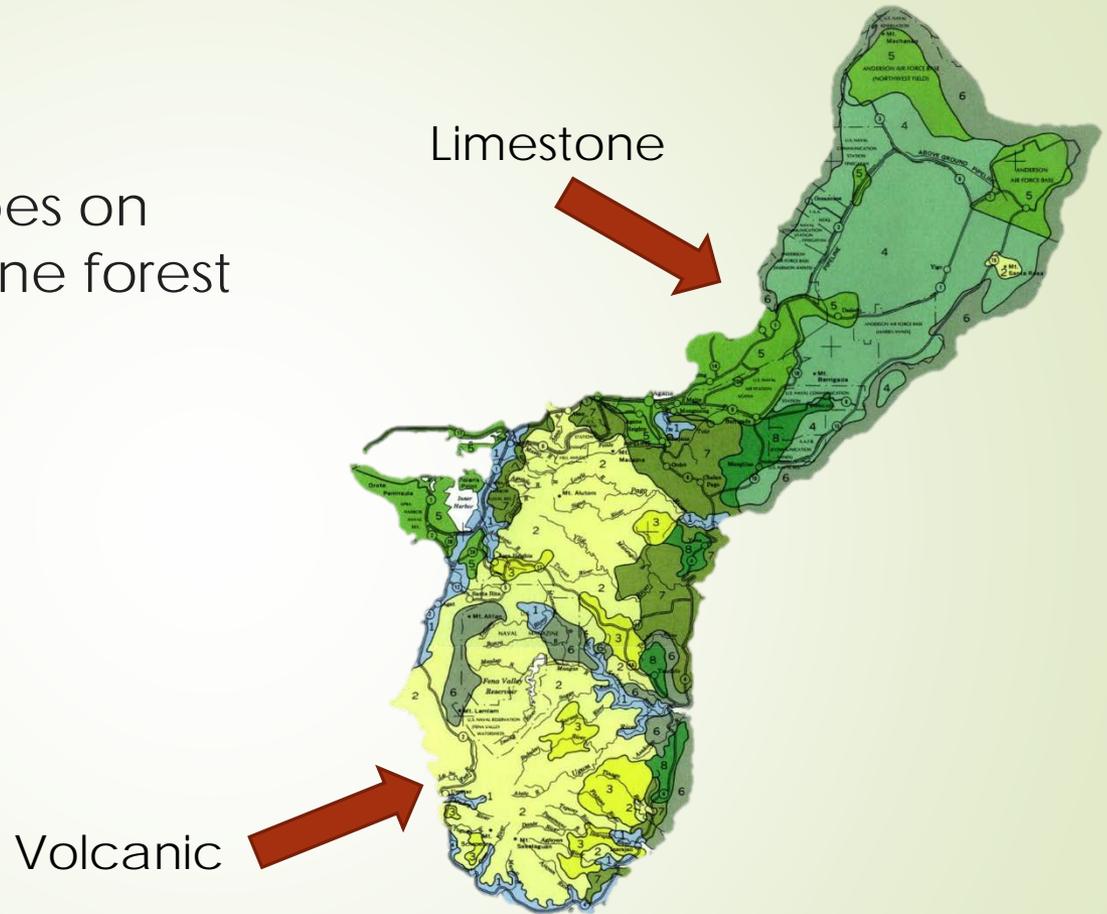
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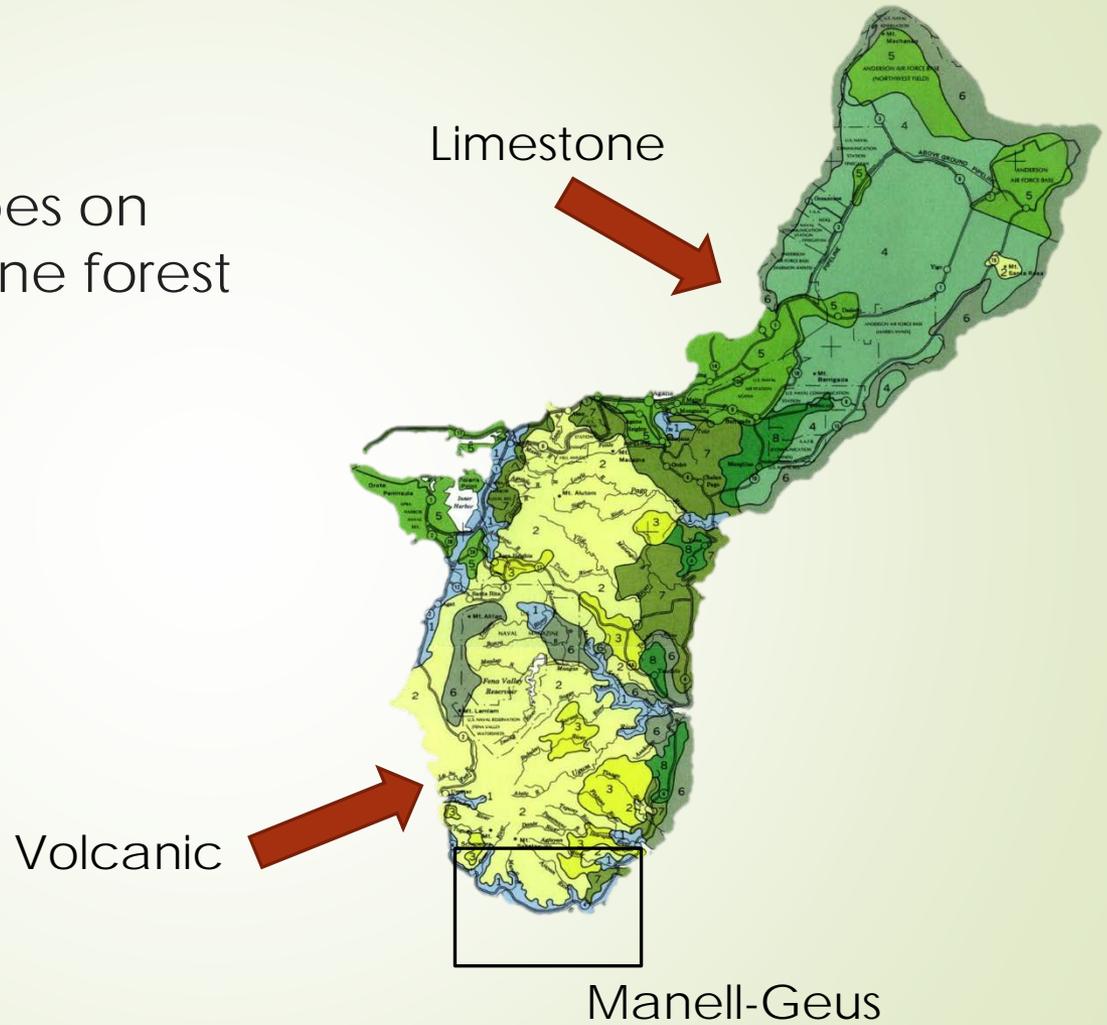
Overview

1. Sources of Sedimentation in Manell-Geus
2. Current Mitigation Projects
 - Quinene Road Planting Site
 - Bamboo Removal Pilot Study
3. Upcoming Initiatives
4. What's next?

Two general soil types on Guam that determine forest ecology:



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► Loose soil ends up on the reef



- Sediment smothers adult corals and inhibits recruitment and survival of juveniles
- Sedimentation may discourage herbivory



Sediment Source #1: Burning and Bare Ground







Sediment Source #2: Streambank Erosion



Bamboo harms our forests and reefs



Photo by Brent Tibbatts

- ▶ Canopy and excessive leaf litter block sunlight
- ▶ Native and soil-stabilizing plants are shaded out
- ▶ No root systems to hold ground in place
- ▶ Fallen stands force river to erode bank





Sediment Solution #1: Plant Trees

- ▶ August 2015: Department of Forestry initially planted over 2000 *Acacia* trees



Fire: a constant battle

- ▶ February 2016, fire burned 90 acres over 5.5 hours



...and unfortunately:

- ▶ February 2016, fire burned 90 acres over 5.5 hours
- ▶ Around 40-50% of seedlings ultimately died



Sediment Solution #1 continued:

- ▶ August and September 2016 – another 2000 trees planted, footprint expanded





- ▶ Re-planting effort required 780 hours of staff time and 500 volunteer hours
- ▶ To date, entire project has required over 2000 hours of staff time
- ▶ Fire break maintenance absolutely necessary to protect investment!

Sediment Solution #2:

Remove/Replace Bamboo



Pilot Removal Site



PROJECT GOALS:

- ▶ Identify method, cost, and labor required to effectively and safely remove stands
- ▶ Determine timeline for bamboo shoot regrowth and stand death with and without herbicide use
- ▶ Reach out to partners – how to get people to use bamboo?





Logistics



- ▶ Small (16") chainsaws work great
- ▶ 3-4 people and two chainsaws can clear out ~120 Stalks in ~10 hours
- ▶ ~2 oz. herbicide (glyphosate) into each stalk and on top of fresh cut (about ¼ cup)

- ▶ Small growth seen as early as 3-4 weeks after cutting
- ▶ After 5 months of repeated herbicide application on new shoots, stands are completely dead
- ▶ Diluted herbicide less effective



Upcoming Initiatives

- ▶ FY 2017 DOI CRI Grant: Engaging community members to help maintain fire breaks and remove problematic bamboo
 - ▶ Fire wise community program
 - ▶ Stipends for restoration work



- ▶ Tree survival study to identify patterns
- ▶ Tree planting in bamboo pilot site, expanding to other areas requires more equipment and training opportunities
 - ▶ Mayors ready to help



- ▶ Stream surveys – establishing baseline data and potential indicator species for stream health
- ▶ Physical characterization
- ▶ Sediment load indicators



Still needs to be done:

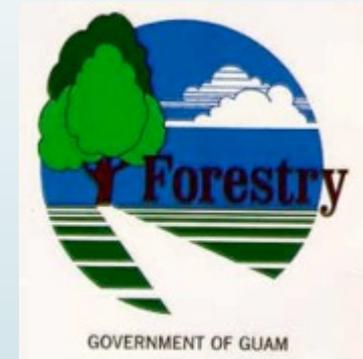
- ▶ “Munga Masongge Guahan: Don’t Burn Guam!” outreach campaign needs funding to be implemented
 - ▶ Previous outreach campaign effective
- ▶ More equipment and training required for large-scale bamboo removal and forest restoration
 - ▶ MBA feasibility assessment nearly complete
 - ▶ Flooding impact study in the works
- ▶ Funds for long-term sediment monitoring
 - ▶ Base data established by WERI and UOG

Thank you!

- ▶ NOAA Coral Reef Conservation Program
- ▶ Department of Forestry – Forest Health
 - ▶ Ruddy Estoy, Christine Fejeran, and the crew!
- ▶ Merizo Mayor's Office
- ▶ USS Chancellorsville Crew
- ▶ All landowners along Geus River



NOAA
CORAL REEF
CONSERVATION PROGRAM



GOVERNMENT OF GUAM

