

# GRANT PROPOSAL

I. GRANT PROGRAM Cooperative Forest Health Management FY 2006

II. PROJECT TITLE: Guam Forest Health

III. PROJECT COORDINATOR: Joseph Tuquero

IV. STATEMENT OF NEED / BACKGROUND (Overall program)

Guam has seen within the last 10 years many super typhoons, droughts associated with the El Nino phenomenon, the influx of invasive species and forest pests, this has attributed to a steady decline in the health of native forests.

Over the last five years 5 super typhoons have devastated Guam's native forests, ungulates have been destroying the ability for regeneration of native tree seedlings and invasive species flourishing, the state of Guam's native forests are on a rapid decline and their health threatened.

Transshipped consumer goods, farm products and construction materials have been vectors for the introduction of plant pests and diseases. One pest that has made its way to Guam is the Asian Scale which has already infested the native Cycad and has the potential to wipe out the species, which is an important cultural and food tree of Guam.

Entomologists from University of Guam have released two biological control agents to combat the Asian Cycad Scale. Guam Forestry will assist in future releases and monitoring of such activities.

Forestry will continue monitoring insect pest in 5 locations throughout the island including two separate limestone forests, ravine forests, forestry plantations, and the beach strand.

Forestry plans to fence in at least 10 Acres of plantation where native species will be re-introduced and protected from feral ungulates.

The re-forestation project will be implemented this year. Identification and removal of invasive plant species will be conducted before planting activities. Insect pests will also be monitored.

V. GOALS:

1. Monitor the outbreak of forest pest throughout the island.
2. Establish data collection in different strategic locations.
3. Develop efficient pest and diseases control measures.
4. Implement use of GIS forest vegetation layer for use as database on forest health and to map the outbreak and spread of diseases and pests.
5. Work with University of Guam to control projects for major pests.
6. Conduct Guam Forest Inventory 5 year cycle.
7. Restoration of 5 acres into native forests in the Cotal Conservation Reserve by converting acacia stands.
8. Implement Cocos Island project.

## VI. OBJECTIVES:

1. To continue monitoring the five established plots (observation areas) that have insect traps installed.
2. Inspect these established plots (observation areas) on a monthly basis.
3. Coordinate with the College of Natural and Applied Sciences, University of Guam for appropriate action on insect and disease conditions.
4. Implementation and use of forest vegetation layer for Guam to monitor forest health.
5. Complete one pest eradication or control project for the year (10 acres).
6. Map disease and pest outbreaks in Guam's forests. Specifically, for the Asian scale conduct biological assessment in conjunction with mapping .
7. Pending approval of Biological Control of Ivy Gourd, *Coccinia grandis* on Guam project, assist in the mapping of the biological control agent.

## VII. SPECIFIC ACTIVITIES:

1. Survey five specific plots in locations around the island as observation points. Corners of these locations must be marked and the perimeter be measured. (March - April.) Monitoring stations located in three geographic areas:
  1. North
  2. South
  3. Central

This would provide island-wide coverage to monitor for insect outbreaks (20,000 acres)  
This activity is specific to Objective 1 above.
2. Monitoring (May -September.) (This activity is specific to Objectives 4 & 5)
  - A. Implement a pest suppression project (May-June) for the Asian Scale. Mapping and treatment of 15 acres of Asian scale outbreak on king sego and native cycad on 15 acres. (March- April)
  - B. Measure at least 5 Guam FIA plots.
  - C. Pending approval of Biological Control of Ivy Gourd, *Coccinia grandis* on Guam project, assist in the monitoring of the release of biological control in 15 acres.
3. Restoration of native tree species by fencing and under-planting in 5 acres of acacia tree stands at the Cotal Conservation Reserve. (Activity specific to Goal 7)

## VIII. EVALUATION & MONITORING:

Monitoring of these five specific locations will be done by the Management Forester and one Forestry Aide twice a month. Once insect infestation has been detected, biweekly observation must be done. All forestry personnel assigned in the field will report pest and diseases outbreak that has been observed during their field activities.

Eradication efforts will be monitored by University faculty involved with the eradication projects.

KEY PERSONNEL:

Technical Expertise:

Dr. Munniapian, Entomologist, University of Guam, (671)-735-2142

Dr. Russell Campbell, Entomologist, Department of Agriculture, Plant Inspection Services Division (671)-735-3942

Dr. Tom Marler, University of Guam, (671)-735-2000

Dr. Aubrey Moore, University of Guam (671) 735-2080

Divisional Staff for monitoring:

Joseph Tuquero, Forester II

Belmina Soliva, Forester I

Abelardo Losbanes, Forestry Aide II

Patrick Quenga, Forestry Aide I

Annual progress reports and financial status, reports, a final accomplishment report, annual Performance Measurement Accountability System reports to Forest Service.

IX. BUDGET:

Program/project & Cost items	Object class Category	Proposed Federal \$	Applicant matching \$
Personnel & F. Benefits	Salary	\$ 34,368	\$11,491
Producing and printing Invasive species brochure. GIS pest layer maintenance and update, Mapping Asian Scale and other outbreaks Treatment of pests, fencing contract	Contractual	\$9,000	
Back pack sprayers, GPS units, compass, measuring tape, GIS software, laptop	Equipment	\$3,600	
herbicides, pesticides, protective gear, printer ink cartridges, printing paper, fuel, flagging tape, tags fencing materials	Supplies	\$3,032	
<b>Total</b>		<b>\$50,000</b>	<b>\$ 11,491</b>