

Biological Field Survey Report
for
Threatened and Endangered Species Surveys
Conducted in Support of Guam Power Authority (GPA)
New Power Generation Project in Dededo, Guam

Project No. 1553003

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January 2019

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Acronyms and Abbreviations

DGPS	differential global positioning system
DOI	Department of Interior
DPW	Guam Department of Public Works
EA	EA Engineering, Science, and Technology, Inc., PBC
EPCM	Engineering, Procurement and Construction Management
ESA	Endangered Species Act
FHWA	Federal Highway Administration
ft.	feet
FWS	Fish and Wildlife Service
GIS	Geographic Information System
GPA	Guam Power Authority
in.	inch
NCN	no common name
RTE	rare, threatened, or endangered
USFWS	United States Fish and Wildlife Service

1. Introduction

1.1. Background

Guam Power Authority (GPA) proposes to construct a new power generation facility on approximately 60-acre property (formally Lot 5010-1NEW, ±32.63 acres and Lot 5042-1 and Lot 5042-R1, ±27.92 acres into Lot 5010-1NEW-NEW) located in the municipality of Dededo, Guam. The property is located north of an existing GPA substation with many underground transmission lines located south of the projected project site and west of the Guam Regional Medical Center. Power reliability in hospital facilities is critical for patient care and is therefore needed for the area. In accordance with federal regulations, a biological survey of the area is to be accomplished to assist with developing an evaluation of the potential effects to federally-listed species and critical habitat within the project corridor. A biological survey was conducted within the project footprint. This Biological Survey Report presents the results of the biological survey.

EA Engineering, Science, and Technology, Inc., PBC (EA) was contracted by Stanley Consultants Inc. to conduct field surveys and document species that may be located within the project site. During field surveys, EA identified and listed the observed species. Additionally, EA identified any Guam or federally listed rare, threatened, or endangered (RTE) species, documented conditions, photographed relevant natural resources features, and mapped the location of observed RTE species. EA compiled a species list of all plants and wildlife observed during the surveys. Large areas of invasive species were also mapped.

1.2. Site Location

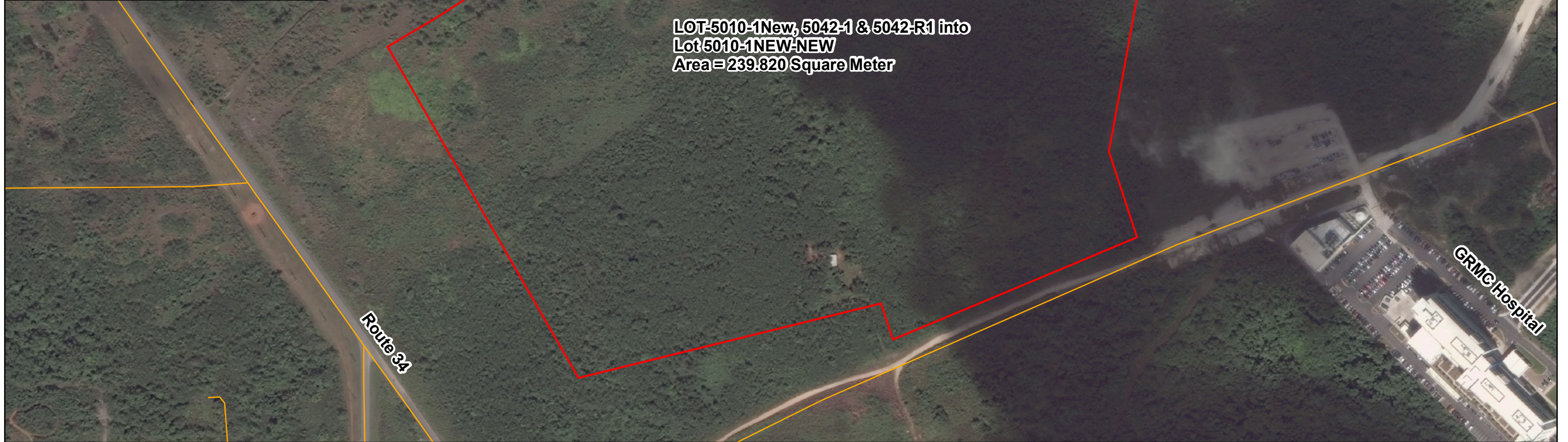
The proposed new plant property is located in the municipality of Dededo. The property is approximately 60 acres (formally Lot 5010-1NEW, ±32.63 acres and Lot 5042-1 and Lot 5042-R1, ±27.92 acres into Lot 5010-1NEW-NEW) (Figure 1).

1.3. Purpose and Objective

The purpose of the biological field survey was to determine flora and fauna species that commonly occur within each habitat (plant community) and compile a list of potential species for each site. Desktop material included, but was not limited to, aerial photography, previous environmental reports (provided by GPA), Guam lists for RTE species and invasive species, Geographic Information System (GIS) land cover and vegetation mapping, and other online resources that aided development of the potential species lists. The final flora/fauna lists for each site were used in the field to determine if the listed species were present or have potential to exist within the site. Prior to visiting each site, EA used readily available GIS data and aerial photographs to map various habitat zones at each site.



Project Site Location



Dededo Village

LOT-5010-1New, 5042-1 & 5042-R1 into
Lot 5010-1NEW-NEW
Area = 239.820 Square Meter

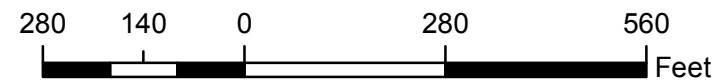
Route 34


GRMC Hospital

COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N: IMAGERY 2016

Legend

- Project Site Boundary
- Street



 EA Engineering, Science, and Technology, Inc., PBC 1001 Army Drive, Suite 103, Barrigada, 96913-1402 Telephone: (671) 646-5231 Facsimile: (671) 646-5230	Project No.: GPA New Power Generation Project in Dededo, Guam Biological Field Survey		
	Figure 1 GPA New Power Generation Project Site		
Drawing No. Fig_1_ GPA New Power Generation Project Site	Date: 01/09/19	Drawn By: JSoriano	EA Project No.1553003

2. Approach and Description of Activities

2.1. Methods

2.1.1. Survey Preparation

Section 7 of the Endangered Species Act (ESA) (16 United States Code 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any federally listed endangered or threatened species or result in the destruction or adverse modification of critical habitat. The current list of federally listed species for Guam is presented by the United States Fish and Wildlife Service (USFWS) in 50 Code of Federal Regulations Part 17. The federally listed species for Guam were reviewed and species habitat requirements were compared to conditions occurring on the project survey sites. Table 1 provides the list of species for Guam along with their potential to occur on the site, based on habitat requirements. Based on the review of habitat requirements and habitat conditions in the project area, it was determined that 11 federally listed flora species and four fauna species have the potential to occur on, or in proximity to the GPA project site.

Table 1. Guam Federally Listed Flora and Fauna and Their Potential to Occur on GPA Project Site

Scientific Name	Common Name	Chamorro Name	Status	Potential to occur onsite	Reason
Flora					
<i>Bulbophyllum guamense</i>	wild onion	cebello halumtano	threatened	possible	epiphyte occurring most commonly in humid, moist areas on tree trunks and branches in forested habitats
<i>Cycas micronesica</i>	Micronesian cycad	fadang	threatened	possible	occurs in closed forest on coral limestone or coral sand
<i>Dendrobium guamense</i>	N.C.N.	-	endangered	possible	epiphyte occurring in forested habitats in moist areas with filtered or direct sunlight
<i>Eugenia bryanii</i>	N.C.N.	-	endangered	possible	most often occurs on cliffsides, also on coastal limestone and occasionally back strand
<i>Hedyotis megalantha</i>	N.C.N.	pau dedu	endangered	possible	occurs in open savanna, in clearings, and under forest canopy
<i>Heritiera longipetiolata</i>	N.C.N.	ufa halomtanu	endangered	no	lack of suitable habitat - restricted to limestone cliffs and plateaus

Scientific Name	Common Name	Chamorro Name	Status	Potential to occur onsite	Reason
Flora					
<i>Maesa walkeri</i>	N.C.N.	-	threatened	no	lack of suitable habitat - limestone ridges with no overstory and exposure to wind
<i>Nervilia jacksoniae</i>	N.C.N.	-	threatened	possible	typically occurs in shady places in rocky areas with leaf litter
<i>Phyllanthus saffordii</i>	N.C.N.	-	endangered	no	lack of suitable habitat - occurs in savannah badlands in areas with red clay soil
<i>Psychotria malaspinae</i>	N.C.N.	aplokating palaoan	endangered	possible	occurs on limestone forest
<i>Serianthes nelsonii</i>	fire tree	hayun lagu	endangered	no	the only natural occurrence of the species on Guam is on Andersen Air Force Base
<i>Solanum guamense</i>	N.C.N.	Biringenas halumtanu	endangered	possible	occurs on limestone cliffs, terraces near the sea, and edge plants along roads
<i>Tabernaemontana rotensis</i>	N.C.N.	-	threatened	possible	occurs on limestone plateaus, usually areas with soil
<i>Tinospora homosepala</i>	N.C.N.	-	endangered	possible	occurs on limestone; back strand - hangs from tall canopies
<i>Tuberolabium guamense</i>	N.C.N.	-	threatened	possible	occurs in moist shady (~60% light) areas, common in higher elevations in southern Guam and older limestone forests in northern Guam
Fauna					
<i>Aerodramus vanikorensis bartschi</i>	Mariana gray swiftlet	yayaguak	endangered	no	closest active roosting/nesting caves over 15 miles away
<i>Chelonia mydas</i>	green sea turtle	hagan betde	endangered	no	lack of suitable habitat
<i>Corvus kubaryi</i>	Mariana crow	aga	endangered	no	two Mariana crows were translocated to Andersen Air Force Base from Rota, but they have not been documented for several years

Scientific Name	Common Name	Chamorro Name	Status	Potential to occur onsite	Reason
Fauna					
<i>Emballonura semicaudata rotensis</i>	Pacific sheath tailed bat	payeyi	endangered	no	species only has possible historical occurrence on Guam
<i>Emoia slevini</i>	Slevin's skink	gualiik halumyanu	endangered	no	this species is found on the forest floor, in old fields and low on tree trunks, but it has not been documented on Guam for over 20 years (DOI FWS 2015)
<i>Eretmochelys imbricata</i>	hawksbill sea turtle	hagan karai	endangered	no	lack of suitable habitat
<i>Gallinula chloropus guami</i>	Mariana common moorhen	pulattat	endangered	no	lack of suitable habitat
<i>Hypolimnys octocula marianensis</i>	Mariana eight-spot butterfly	ababbang	endangered	no	lack of suitable habitat - host plant is known to occur on limestone karst
<i>Partula gibba</i>	humped tree snail	akaleha'	endangered	possible	occurs in cool shaded forest
<i>Partula radiolata</i>	Guam tree snail	akaleha'	endangered	possible	occurs in cool shaded forest
<i>Pteropus mariannus</i>	Mariana fruit bat	fanihi	threatened	possible	sightings have been recorded in northern Guam during annual surveys for Mariana fruit bat
<i>Rallus owstonii</i>	Guam rail	ko'ko'	endangered	no	extirpated on Guam
<i>Samoana fragilis</i>	fragile tree snail	akaleha' dogas	endangered	possible	occurs in cool, shaded forest
<i>Todiramphus cinnamominus</i>	Guam kingfisher	sihek	endangered	no	extirpated on Guam
<i>Vagrans egistina</i>	Mariana wandering butterfly	ababbang	endangered	no	the butterfly has not been documented on Guam since 1979 (USFWS 2014)

N.C.N. - no common name

2.1.2. Field Surveys

Biological Surveys

EA conducted preconstruction reconnaissance walking surveys of native and non-native flora and fauna species located within and along the perimeter of the proposed construction project footprint. Reconnaissance surveys consisted of global positioning system (GPS) logged walking transects spaced appropriately for the surveyors to view all plants within the survey boundary. All species observed were recorded on data sheets, and included, at a minimum, the scientific name and family taxon. All GIS data was recorded using sub-meter accuracy GPS.

Reconnaissance surveys consisted of walking meandering transects throughout the entire interior of the project footprint; thorough surveying ensures the entire area was surveyed for native and non-native species (Figure 2). All meandering transects identified native and non-native plants. If a species was not identifiable, EA documented the unknown species with photographs depicting identifying characteristics such as leaves, flowers and growth habit. EA made reasonable efforts to identify all plants to the species level.

Biological field surveys were conducted on 6, 7, and 29 November 2018 and 10 December 2018 along and within the interior of the project footprint. Biologists that conducted the field surveys have previous species-specific flora and fauna experience, habitat-specific knowledge, and experience with the survey methods also used on other biological field surveys. Biologists closely surveyed the project areas for listed flora and fauna species with the potential to occur within habitats in the project area as shown in Table 1.

Intensive visual surveys were conducted of trees with the potential to support *Bulbophyllum guamense*, *Dendrobium guamense* and *Tuberolabium guamense*. In addition, special attention was paid to areas with the potential for the occurrence of smaller understory species such as *Nervilia jacksoniae*. All suitable habitats within project footprint were surveyed for the occurrence of listed species with the potential to occur in the project areas.

Intensive visual surveys for humped tree snail (*Partula gibba*), Guam tree snail (*Partula radiolata*), and fragile tree snail (*Samoana fragilis*) were conducted following methods used by Hopper and Smith (1992) with slight modification by Smith et. al. (2008). During surveys, biologists slowly walked throughout the area searching for the listed snails. Surveys were conducted by stopping for a few minutes, to carefully perform visual examination of trunks, foliage of vegetation, and the ground layer (for empty shells). All types of vegetation were examined along each survey route, with special attention paid to plant species that have been noted as hosts for the snails.

During surveys, biologists searched for migratory birds and nests in the vegetation or birds flying overhead.

Marianas Fruit Bat (*Pteropus mariannus mariannus*)

EA conducted visual and auditory surveys for the Mariana fruit bat on the proposed GPA project site on 12 December 2018. Survey for the Mariana fruit bat began half an hour before sunrise (0600 A.M.) and ended half an hour after sunrise (0700 A.M.). The biologist that conducted the Mariana fruit bat survey has extensive experience with surveying the bats.

Yellow Bittern (*Ixobrychus sinensis*)

EA conducted visual surveys in the project area on 12 Decemeber 2018, focusing on grasslands and areas suitable for yellow bittern nests. Field biologists assessed the entire project area. The biologist that conducted the yellow bittern survey has extensive experience surveying for migratory birds.

3. Survey Results

3.1. Survey Results

Biological field surveys were conducted on 6, 7, 29 November 2018, and 10 December 2018. The surveys consisted of meandering surveys throughout the entire project footprint. All species observed were recorded on data sheets. A total of 79 species were recorded among the area inside of the project footprint. Non-native species dominated the site during the survey. Native species comprised 19% of species documented within the project footprint, while 81% of the species documented were non-native. Table 1 provides a comprehensive list of all plant species in the surveyed area. Plant communities (habitat types) were identified for the entire project site as well (Figure 3).

EA conducted intensive surveys for listed flora species, snails, Mariana fruit bat, and migratory birds. Listed fauna species other than the bats and snails are very unlikely to occur on the site, but were searched for because habitat conditions might, but are very unlikely to, support their occurrence. Biological field surveys identified no federally listed plants, animals or culturally significant trees.

EA conducted visual and auditory surveys for the Mariana fruit bat on the proposed GPA project site on 12 December 2018. No fruit bats were identified.

EA conducted visual surveys for the yellow bittern on the proposed GPA project site on 12 December 2018. Field surveys recorded 20 sightings in the proposed plant property, 18 of which were fly overs, while 2 birds were observed taking flight from a patch of grass immediately outside of the project boundary. Field biologists assessed the entire project area and no yellow bittern nests were observed.

Table 2. Species Observed at Proposed GPA Power Generation Site

Species	Common Name	Chamorro Name	Origin
AMARANTHACEAE			
<i>Achyranthes aspera</i>	devil's horsewhip	chichiton	E
ANNONACEAE			
<i>Annona reticulata</i>	custard apple	annonas	E
ARECACEAE			
<i>Cocos nucifera</i>	coconut palm	niyok	E
ASTERACEAE			
<i>Bidens alba</i>	romerillo	-	E
<i>Chromolaena odorata</i>	Jack in the bush	masigsig	E
<i>Conyza canadensis</i>	Canadian horseweed	-	E
<i>Mikania micrantha</i>	mile-a-minute	-	E
<i>Sphagneticola trilobata</i>	creeping daisy	-	E
<i>Tridax procumbens</i>	coatbuttons	-	E
BIGNONIACEAE			
<i>Spathodea campanulata</i>	African tulip tree	-	E
<i>Tabebuia heterophylla</i>	white cedar	-	E
CARICACEAE			
<i>Carica papaya</i>	papaya	papaya	E
CASUARINACEAE			
<i>Casuarina equisetifolia</i>	beach sheoak; ironwood	gago	N
CONVOLVULACEAE			
<i>Ipomoea triloba</i>	littlebell	fofgu	E
<i>Stictocardia tiliifolia</i>	morning glory	abubo	E
CUCURBITACEAE			
<i>Momordica charantia</i>	balsampear	almagosa	E
CUSCUTACEAE			
<i>Cuscuta campestris</i>	fiveangled dodder	-	E
CYPERACEAE			
<i>Kyllinga brevifolia</i>	shortleaf spikesedge	-	E
<i>Kyllinga nemoralis</i>	whitehead spikesedge	-	N
<i>Cyperus ligularis</i>	Alabama swamp flatsedge	-	E
<i>Cyperus rotundus</i>	nutgrass	chaguan humatag	E
DRYPTOPTERIDACEAE			
<i>Nephrolepis hirsutula</i>	scaly swordfern	-	N
EUPHORBIAACEAE			
<i>Ixora triantha</i>	-	-	E
<i>Chamaesyce hirta</i>	pillpod sandmat	golodrina	E
<i>Chamaesyce hypericifolia</i>	graceful sandmat	-	E
<i>Euphorbia cyathophora</i>	fire on the mountain	-	E
<i>Euphorbia heterophylla</i>	Mexican fireplant	-	E
<i>Phyllanthus marianus</i>	-	abas duendes	N
<i>Phyllanthus amarus</i>	carry me seed	maigo-lalo	E
<i>Acalypha indica</i>	Indian acalypha	hierba del cancer	E
FABACEAE			
<i>Alysicarpus vaginalis</i>	white moneywort	-	E
<i>Senna occidentalis</i>	septicweed	mumutun sable	E
<i>Desmodium triflorum</i>	threeflower ticktrefoil	agsom; apson	E

Table 2. Species Observed at GPA Power Generation Site (cont.)

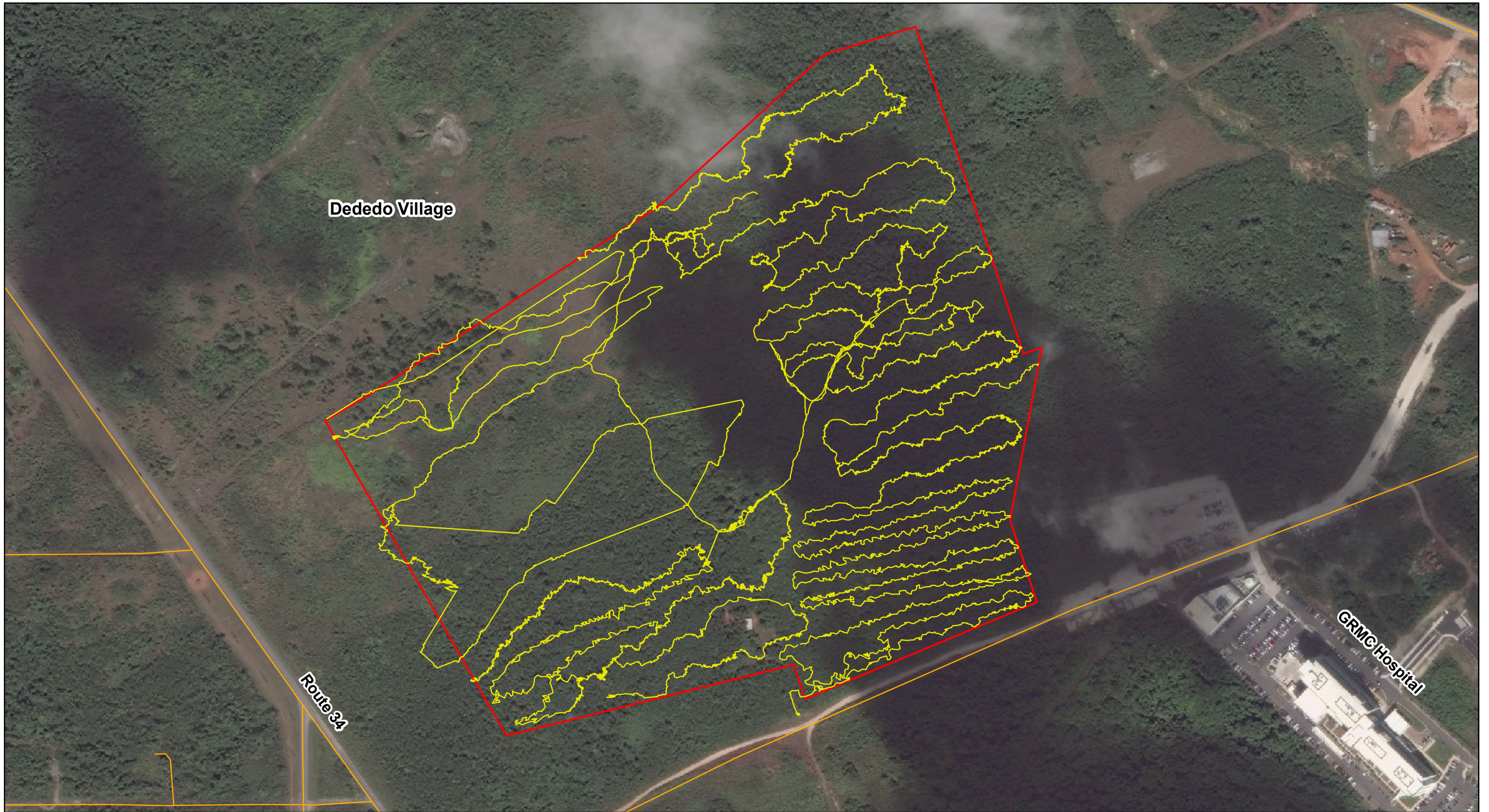
Species	Common Name	Chamorro Name	Origin
FABACEAE			
<i>Leucaena leucocephala</i>	whitie leadtree	tangantangan	E
<i>Mimosa pudica</i>	shameplant	betguen sosa	E
<i>Senna alata</i>	emperor's candlestick	take-biha	E
<i>Senna occidentalis</i>	septicweed		E
<i>Stylosanthes guianensis</i>	-	-	E
<i>Macropitilium atropurpureum</i>	purple bushbeen	-	E
FLAGELLARIAACEAE			
<i>Flagellaria indica</i>	-	beyuko halomtano'	E
GOODENIACEAE			
<i>Scaevola sericea</i> var. <i>taccada</i>	beach naupaka	nanâsu	N
LILIACEAE			
<i>Crinum asiaticum</i>	poisonbulb	piga-palayi	E
MALVACEAE			
<i>Sida rhombifolia</i>	Cuban jute	escobilla	E
<i>Talipariti tiliaceum</i>	sea hibiscus	pago	N
MYRTACEAE			
<i>Eugenia reinwardtiana</i>	mountain stopper	a'abang	N
<i>Psidium guajava</i>	common guava	abas	E
ORCHIDACEAE			
<i>Taeniophyllum marianense</i>	worm orchid	-	N
OXALIDACEAE			
<i>Averrhoa bilimbi</i>	bilimbi	bilimbi	E
<i>Oxalis corniculata</i>	creeping woodsorrel	agsom	E
PASSIFLORACEAE			
<i>Passiflora foetida</i>	fetid passionflower	dulce	E
<i>Passiflora suberosa</i>	corkystem passionflower	-	E
PIPERACEAE			
<i>Piper guahamense</i>	-	pupulun aniti	N
POACEAE			
<i>Cenchrus echinatus</i>	southern sandbur	-	E
<i>Chloris barbata</i>	swollen fingergrass	-	E
<i>Chrysopogon aciculatus</i>	golden false beardgrass	inifuk	N
<i>Cynodon dactylon</i>	Bermuda grass	gramaderu	E
<i>Digitaria ciliaris</i>	southern crabgrass	-	E
<i>Eleusine indica</i>	Indian goosegrass	tutupu	E
<i>Paspalum paniculatum</i>	arrocillo	-	E
<i>Pennisetum polystachion</i>	mission grass	-	E
<i>Saccharum spontaneum</i>	wild sugarcane	-	N
<i>Zoysia matrella</i>	Manilla grass	-	E
POLYGONACEAE			
<i>Antigonon leptopus</i>	coral vine	cadena de amor	E
POLYPODIACEAE			
<i>Phymatosorus scolopendria</i>	monarch fern	kahlao	E
<i>Cochlidium punctatum</i>	birds nest fern	galak dikike'	E
<i>Pyrrosia lanceolata</i>	lanceleaf tongue fern	-	N

Table 2. Species Observed at Proposed GPA Power Generation Site (cont.)

PTERIDACEAE			
<i>Pteris tripartita</i>	giant brake	-	N
<i>Pteris vittata</i>	ladder brake	-	E
RUBIACEAE			
<i>Morinda citrifolia</i>	Indian mulberry	lada	E
<i>Spermacoce assurgens</i>	woodland false buttonweed	-	E
SOLANACEAE			
<i>Cestrum diurnum</i>	day jessamine	tintanchina	E
TETRACHONDRAEAE			
<i>Polypremum procumbens</i>	-	-	E
THELYPTERIDACEAE			
<i>Thelypteris interrupta</i>	willdenow's maiden fern	-	N
TILIACEAE			
<i>Corchorus aestuans</i>	jute	-	E
URTICACEAE			
<i>Pilea microphylla</i>	rockweed		E
VERBENACEAE			
<i>Phyla nodiflora</i>	turkey tangle fogfruit	-	E
<i>Premna serratifolia</i>	malbau	ahgao	N
<i>Stachytarpheta jamaicensis</i>	false verbena	-	E
<i>Vitex parviflora</i>	smallflower chastetree	lagundi	E

E = non-native

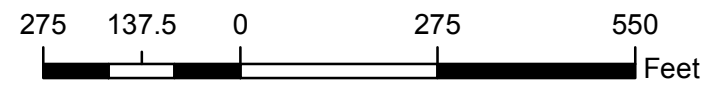
N = native




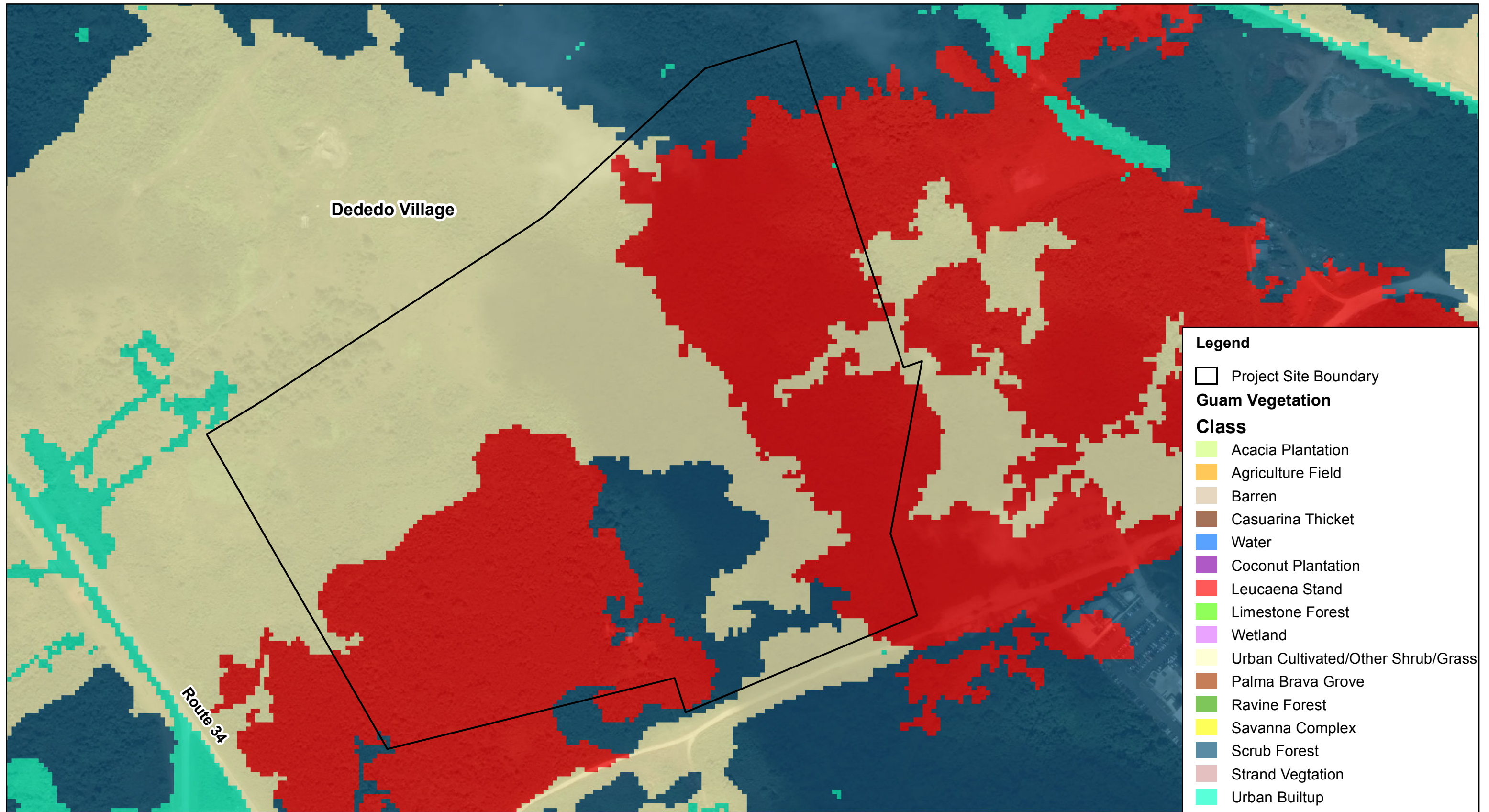
COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N: IMAGERY 2016

Legend

- Survey Foottracks
- Project Site Boundary
- Street



<p>EA Engineering, Science, and Technology, Inc., PBC 1001 Army Drive, Suite 103, Barrigada, 96913-1402 Telephone: (671) 646-5231 Facsimile: (671) 646-5230</p> 	<p>Project No.: GPA New Power Generation Project in Dededo, Guam Biological Field Survey</p>		
	<p>Figure 2 Biological Survey Foottracks</p>		
<p>Drawing No. Fig_2_ Biological Survey Foottracks</p>	<p>Date: 01/09/19</p>	<p>Drawn By: JSoriano</p>	<p>EA Project No.1553003</p>



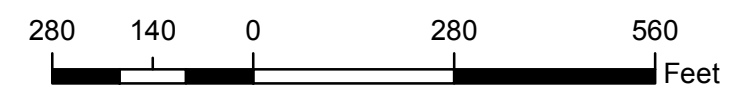
Legend

□ Project Site Boundary

Guam Vegetation Class

- Acacia Plantation
- Agriculture Field
- Barren
- Casuarina Thicket
- Water
- Coconut Plantation
- Leucaena Stand
- Limestone Forest
- Wetland
- Urban Cultivated/Other Shrub/Grass
- Palma Brava Grove
- Ravine Forest
- Savanna Complex
- Scrub Forest
- Strand Vegetation
- Urban Builtup

COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N: IMAGERY 2016



EA Engineering, Science, and Technology, Inc., PBC 1001 Army Drive, Suite 103, Barrigada, 96913-1402 Telephone: (671) 646-5231 Facsimile: (671) 646-5230 	Project No.: GPA New Power Generation Project in Dededo, Guam Biological Field Survey		
	Figure 3 Plant Community Types		
Drawing No. Fig_3_ Plant Community Types	Date: 01/09/19	Drawn By: JSoriano	EA Project No.1553003

4. Discussion and Conclusion

The purpose of the biological field survey was to determine flora and fauna species that commonly occur within the project site as well as identify plant community types within the project site. A secondary aim of the project was to ensure that actions associated with the proposed GPA power plant construction are consistent with the requirements of Section 7 of the ESA and to identify and avoid potential for impacts if listed species are identified within, or immediately adjacent to, the project area. Based on the surveys conducted, no federally listed species were identified and recorded on the project site.

Field surveys for all flora and fauna species were conducted at the GPA project site on on 6, 7, 29 November 2018, and 10 December 2018. The biological field surveys were conducted to document the presence of native and non-native species present prior to construction activities. The survey site was dominated by non-native species.

5. Recommendations

Although no federally-protected species were observed during the surveys, USFWS consultation under the ESA may be required if other federal agency consultation is required for the proposed GPA power plant.

Prior to any construction activity, the presence of active yellow bittern nests must be confirmed. If a nest is found, the area immediately around the nest should be flagged, construction activities in the immediate area should be stopped and the Department of Agriculture should be contacted for further instruction of how to proceed. Construction activity in the immediate vicinity may need to be delayed for the protection of the species (Appendix B).

6. References

- Department of the Interior, Fish and Wildlife Service (DOI FWS), 2015. *Endangered and Threatened Wildlife and Plants; Endangered Status for 16 Species and Threatened Status for 7 Species in Micronesia*. Federal Register Volume 80, Number 190. Rules and Regulations. Thursday, October 1, 2015.
- Hopper, D.R., and B.D. Smith. 1992. The status of tree snails (Gastropoda: Partulidae) on Guam, with a resurvey of sites studied by H.E. Crampton in 1920. *Pacific Science* 46:77–85.
- University of Guam, 2014. *Federal candidate species surveys on Guam*. Final project report. Prepared for Naval Facilities Engineering Command under Cooperative Agreement N40192-12-2-8001.
- USFWS (U.S. Fish and Wildlife Service), 2014. *Mariana Islands Plant and Animal Species Being Considered for Listing as Threatened or Endangered under the Endangered Species Act*. May 2014.

APPENDIX A
SITE PHOTOGRAPHS

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Photo 1. Overview of northern portion of site



Photo 2. Overview of southern portion of site



Photo 3. Soil on site



Photo 4. Site overview; facing northeast



Photo 5. Site overview; facing northwest



Photo 6. Understory present on site

APPENDIX B
BIRD AND BAT SURVEY CORRESPONDENCE

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From: Jeff Quitugua <jeff.quitugua@yahoo.com>

Sent: Thursday, December 13, 2018 5:08 PM

To: Soriano, Jaquay <jsoriano@eaest.com>

Cc: Tareyama, Sheeka <stareyama@eaest.com>

Subject: Re: Biological Survey for Mariana Fruit Bat and Yellow Bittern for GPA EPCM Project

Hafa Adai Jaquay!

Thank you for your email regarding the work being done by EA at the proposed project site in Harmon (Dededo).

Prior any construction activity, it is important to confirm Yellow bittern active nest/s in the area. If a nest(s) is found, construction activity will need to be delayed for prevention to the species. We can discuss this more thoroughly if need be on my return date to the office (First Monday of January 2019).

As a side note, I recently observed two Micronesian starlings in that area early December (I do not have my field notes on hand at the moment to provide you a specific date and time). The starling is not federally protected, tho they are locally protected under Guam law.

I hope my response is helpful to you.

Happy Holidays!

Jeff Quitugua
Technical Guidance
DAWR, DoAg

Sent from my iPhone

On Dec 12, 2018, at 7:31 PM, Soriano, Jaquay <jsoriano@eaest.com> wrote:

Hafa Adai Mr. Quitugua,

EA Engineering, Science, and Technology, Inc. PBC (EA) has been contracted to perform biological surveys for the Guam Power Authority Engineering, Procurement, and Construction Management (EPCM) New Power Generation Project (Lot 5010, 32.63 acres and Lot 5042, 27.92 acres) located across the Micronesia Mall in Dededo and east of Route 34 (Two Lovers Point Road). EA has completed the Mariana Fruit Bat and yellow bittern survey for the property today, 12/12/2018. Please see the attached technical memorandums for both the Mariana Fruit Bat and Yellow Bittern Surveys. This email is to inform DAWR that the surveys were conducted and no Marianas Fruit Bat was observed however, yellow bitterns were observed during the survey activities. If you have any recommendations and/or requirements that will need to be implemented for the project to meet compliance of the Migratory Bird Treaty Act of 1918, please let me know at your earliest convenience. I kindly ask that you respond to this email for confirmation that you received this email.

Please contact me via email or by phone at 483-2930 if you have any questions or concerns.

Very Respectfully,

Jay

Ms. Jaquay Soriano

Project Manager/Environmental Scientist

<image001.gif> **Engineering, Science, and Technology, Inc., PBC**

1001 Army Drive, Suite 103,

Barrigada, Guam 96913-1402

Telephone: (671) 646-5231

Cell: (671) 483-2930

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Email: jsoriano@eaest.com

Web: www.eaest.com

<image002.png>

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Technical Memorandum

December 12, 2018

To: Chuck Spooner, Stanley Consultants, Inc.

From: Jaquay Soriano, Project Manager, EA Engineering, Science, and Technology, Inc., PBC

Re: Natural Resource Services for the Guam Power Authority EPCM New Power Generation Project

EA Engineering, Science, and Technology, Inc., PBC conducted a visual and auditory survey of the Mariana Fruit Bat for the Guam Power Authority (GPA) Engineering, Procurement, and Construction Management (EPCM) New Power Generation Project in Dededo, Guam as shown in Figure 1. The Mariana Fruit Bat survey was conducted at the proposed plant property (Lot 5010, 32.63 acres and Lot 5042, 27.92 acres). The purpose of surveying for the Mariana Fruit Bat, a federally listed Threatened and Endangered species, is intended to prevent, avoid and minimize potential effects to the fruit bats.



Figure 1. GPA EPCM New Power Generation Project Site



Survey Results:

No Mariana Fruit Bats (*Pteropus mariannus mariannus*) were observed during the survey in the proposed plant property (Table 1). Department of Agriculture, Division of Aquatics and Wildlife Resources was informed on December 12, 2018 via email of the survey results, that no fruit bats were observed during survey activities.

Table 1. Mariana Fruit Bat Survey Results

Survey Date: December 12, 2018

Stations	Number of Bats Observed
1	0
2	0

Notes: Station 1 is located south of the project footprint. Station 2 is located at the center of the project.



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Technical Memorandum

December 12, 2018

To: Chuck Spooner, Stanley Consultants, Inc.

From: Jaquay Soriano, Project Manager, EA Engineering, Science, and Technology, Inc., PBC

Re: Natural Resource Services for the Guam Power Authority EPCM New Power Generation Project

EA Engineering, Science, and Technology, Inc., PBC conducted a visual survey of the Yellow Bittern (*Ixobrychus sinensis*) for the Guam Power Authority (GPA) Engineering, Procurement, and Construction Management (EPCM) New Power Generation Project in Dededo, Guam as shown in Figure 1. The Yellow bittern survey was conducted at the proposed plant property (Lot 5010, 32.63 acres and Lot 5042, 27.92 acres). The purpose of surveying for the Yellow Bittern, a migratory bird, is to avoid impacts to potential nesting and to comply with the Migratory Bird Treaty Act of 1918 (16 USC 703-711) (MBTA).



Figure 1. GPA EPCM New Power Generation Project Site



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Survey Results:

On December 12, 2018, EA Engineering, Science and Technology, Inc. PBC field biologists conducted a visual survey in the project area, focusing on grasslands and areas suitable for Yellow Bittern nests. Field surveys recorded 20 sightings in the proposed plant property, 18 of which were fly overs, while 2 birds were observed taking flight from a patch of grass immediately outside of the project boundary. Field biologists assessed the entire project area and no Yellow Bittern nests were observed. The Department of Agriculture, Division of Aquatics and Wildlife Resources was informed on December 12, 2018 via email of the survey results, that although Yellow Bitterns were recorded, no nests were observed.