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Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands

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The vegetation of Rota, Tinian, and Saipan in the Commonwealth of the Northern Mariana Islands is described and mapped. The survey, intended for land-use planning and forest resource management, is based on vegetation types identified on 1976 aerial photographs. Descriptions emphasize native limestone forest types and are based on field reconnaissance. The maps indicate that native forest and introduced trees cover approximately 29,278 acres (11,848 ha), secondary vegetation covers an estimated 24,986 acres (10,111 ha), and some 16,500 acres (6,678 ha) are unforested.

Retrieval Terms: vegetation survey, vegetation maps, forest resources, Rota, Tinian, Saipan, Commonwealth of the Northern Mariana Islands

The Authors:

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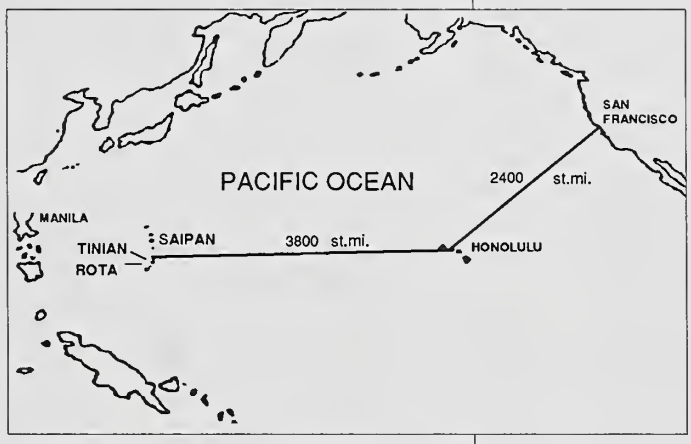
CONTENTS

INTRODUCTION

The islands of Rota, Tinian, and Saipan are the largest and southernmost islands in the Commonwealth of the Northern Mariana Islands (CNMI). Knowledge of the extent and composition of their vegetation, including forest land, is needed for land-use planning. To fill this need, cooperative agreements were drawn up between the CNMI, the U.S. Fish and Wildlife Service, and the Forest Service, U.S. Department of Agriculture, to map the vegetation of the three islands. The vegetation maps were prepared by the Forest Service in cooperation with the Commonwealth Government and are intended to serve as a working tool for land-use planning and forest resource management.

This bulletin presents 13 vegetation maps for Rota, Tinian, and Saipan, and describes the various vegetation types, their ecological function, and uses. A breakdown of nonforest types is also provided.



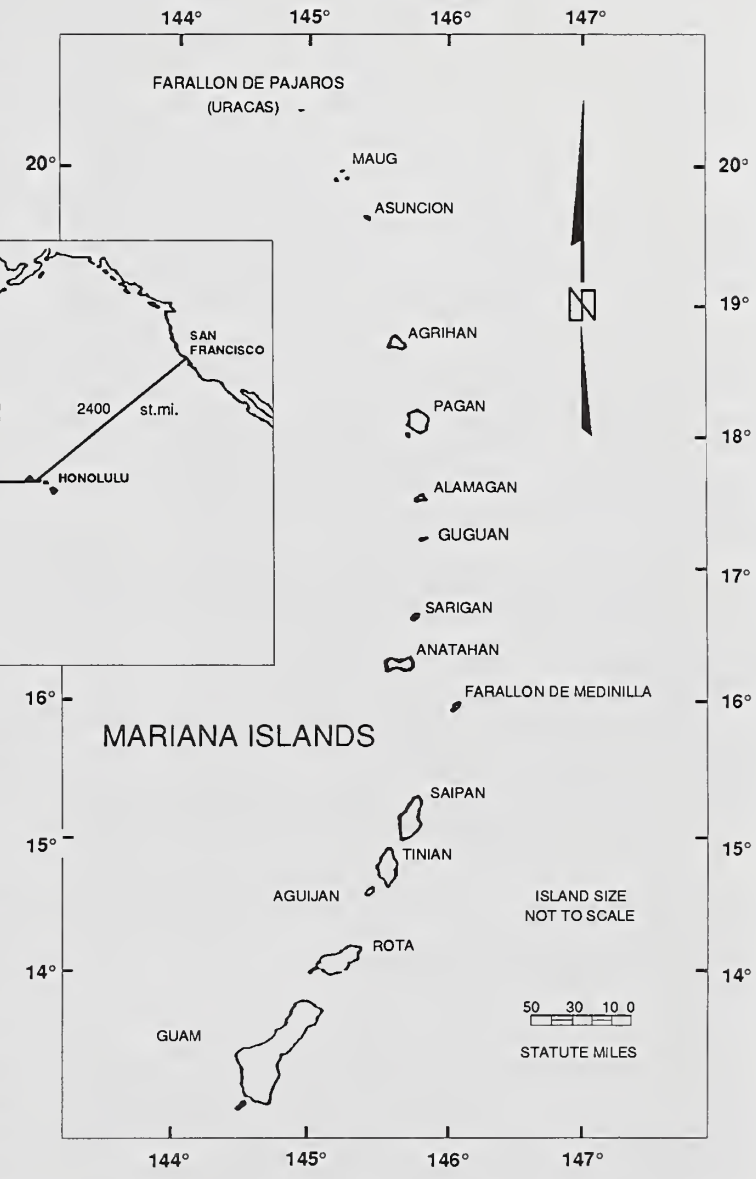


Figure 1—The islands of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands, are located in the southern Mariana chain at the western end of Micronesia.

GEOGRAPHY AND CLIMATE

Rota, Tinian, and Saipan are located in the Mariana Islands (lat. 14°01' to 15°20' N., long. 145°00' to 145°50' E), between Guam and Farallon de Medinilla (*fig. 1*). In general, the islands are raised limestone terraces on extinct volcanic peaks and slopes, with limited areas of volcanic soils protruding through limestone. The smallest of the three islands is Rota, which is approximately 33 mi^2 (86 km^2) and has a maximum elevation of 1612 ft (490 m). Saipan, the largest of the islands, is 47 mi^2 (122 km^2) and has an elevation of 1554 ft (472 m). Tinian, the least mountainous of the islands, has a maximum elevation of 557 ft (169 m) and is 39 mi^2 (102 km^2) in total area (Douglas 1969).

The climate of the CNMI is warm and humid throughout the year. Data collected for the island of Saipan gives a mean temperature of 78 °F (25.6 °C) with a mean annual relative humidity of 82 percent. Mean annual rainfall recorded at Garapan, Saipan, is about 85 inches (2159 mm). The dry season extends from January to April, and the rainy season from mid-July to mid-November (Perry 1984). The Mariana Islands are located in the northeast trade wind belt and are frequently affected by typhoons, the most recent being Typhoon Roy, which caused major damage to Rota on January 12, 1988. This bulletin represents the vegetation of the CNMI before this storm.

SURVEY METHODS

Vegetation types of the Northern Mariana Islands were identified and delineated on black and white aerial photographs taken in 1976 at a nominal scale of 1:8,000.

Vegetation differences can often be recognized by examining photographs stereoscopically for differences in tone, texture, and image patterns. In some cases, individual species may be recognized by their distinctive shape. Thus, after comparing photoimagery with ground conditions in the field, a skilled interpreter can become fairly proficient at recognizing vegetative types on aerial photos. Overall accuracy will depend on the scale, age, and quality of the photographs; the skill of the interpreter; degree to which the vegetative types differ in image characteristics; and the amount of ground checking by the interpreter.

Before vegetation typing could begin, a vegetation mapping scheme was needed. Instead of devising an entirely new classification system for the Marianas, the system developed for use in the Caroline Islands was used to interpret the vegetation for Rota, Saipan, and Tinian (Cole and others 1987, Falanruw and others 1987a, 1987b; MacLean and others 1986; Whitesell and others 1986).

The vegetation of the three major islands was classified into types that could be identified on black and white aerial photographs without intensive ground checking, and which would be useful to foresters and land-use planners. Types were delineated on the photographs after stereoscopic examination and ground checking along roads and trails, in 1984. The photos were then edited and sent to the Engineering Geometrics Section of the Forest Service's Pacific Southwest Regional Office for transfer to base maps and measurements of type areas.

TYPE CLASSIFICATIONS

For mapping purposes, the islands of Rota, Tinian, and Saipan were divided into four broad land classes: forest, secondary vegetation, agroforest, and nonforest *(table 1 and fig. 2)*:

Forest—The forest class includes five primary types of areas vegetated with trees *(fig. 3)*:

Native limestone forest (LI)
Introduced trees (IF)
Mangrove forest (MN)
Casuarina forest (CA)
Atoll forest (AT)

Secondary vegetation (SV)—Secondary vegetation includes fast growing shrubs, small trees and vines on recently disturbed areas.

Agroforest (AG)—The agroforest class consists of areas with trees cultivated for food crops, fruit, wood, and other products. Coconut plantations are coded as CO.

Table 1— *Area of three islands of the Commonwealth of the Northern Mariana Islands, by land class and type, 1984*

Land class and type	Symbol	Saipan	Rota	Tinian	Total	
		acres (hectares)				
Forest						
Limestone forest	LI	1,182	12,147	1,714	15,043	(6,088)
Introduced trees	IF	7,888	292	2,478	10,658	(4,313)
Casuarina thickets	CA	1,137	465	1,865	3,467	(1,403)
Atoll forest	AT	11	82	-	93	(37)
Mangrove forest	MN	17	-	-	17	(7)
Total forest		10,235	12,986	6,057	29,278	(11,848)
Secondary vegetation	SV	8,651	2,719	13,616	24,986	(10,111)
Agroforest						
Agroforest	AG	9	6	2	17	(7)
Agroforest with coconuts	AG.CO	84	31	3	118	(48)
Coconut plantation	CO	2,979	1,075	284	4,338	(1,755)
Total agroforest		3,072	1,112	289	4,473	(1,810)
Nonforest						
Marsh, fresh	M.F	363	-	41	404	(164)
Savanna/grassland	G	3,237	3,125	2,872	9,234	(3,737)
Strand	S	1,112	683	1,212	3,007	(1,217)
Cropland	C	223	130	468	821	(332)
Urban	U	1,841	213	206	2,260	(915)
Barren	B	314	40	370	724	(293)
Water	W	45	-	5	50	(20)
Total nonforest		7,135	4,191	5,174	16,500	(6,678)
Total area		29,093	21,008	25,136	75,237	(30,447)

Nonforest—Nonforest areas include marshes, savanna/grasslands, and areas developed for urban use. The seven primary types in this class are:

Marsh (M)
Savanna/Grassland (G)
Strand (S)
Cropland (C)
Urban (U)
Barren (B)
Water (W)

The forest types are further subdivided into size and density classes identified by these codes:

Code	Size class
0	Short, shrub-like stands less than 5 inches (<12.5 cm) diameter at breast height (d.b.h.).
1	Trees averaging less than 12 inches (<30 cm) in d.b.h. but larger than or equal to 5 inches (>12.5 cm) in d.b.h.
2	Trees averaging 12 or more inches (>30 cm) in d.b.h.

Code	Density class
H	High—crown closure of main canopy over 70 percent.
M	Medium—crown closure of main canopy between 30 and 70 percent.
L	Low—crown closure of main canopy less than 30 percent.

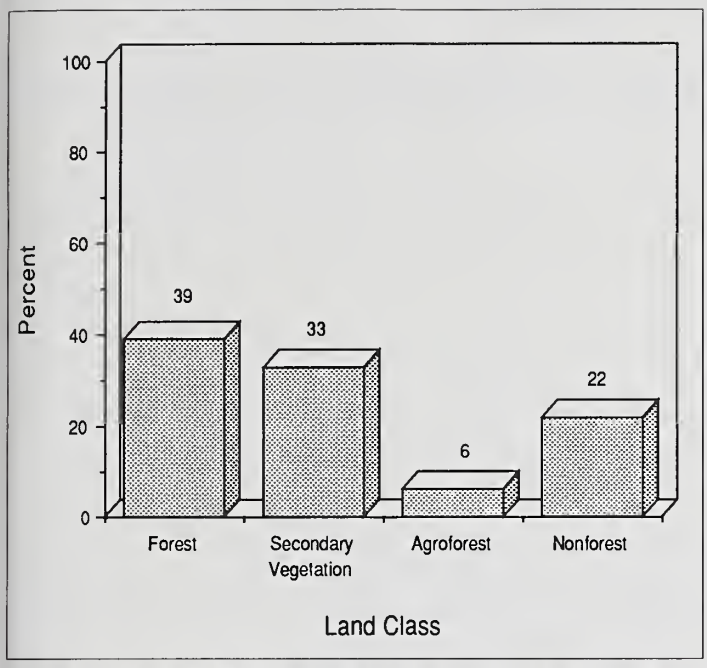


Figure 2—Four major land classes were mapped on Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands. Although forest is the largest land class, much of this area on Tinian and Saipan is composed of introduced trees (IF).

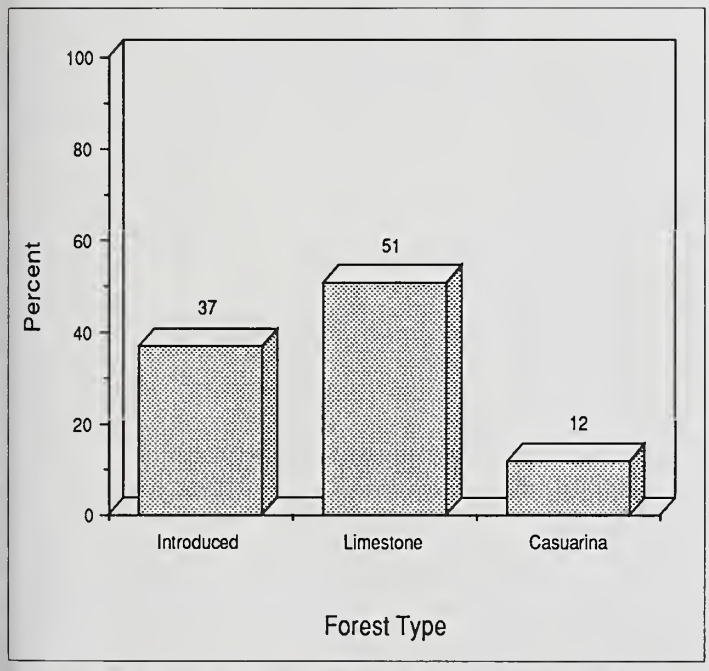


Figure 3—The forest land class was broken down into five types on Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands. Only three types are shown here because the mangrove and atoll types contain less than 1 percent of the total area.

On the folded maps, the vegetative areas are numbered and identified by symbols in the legends. In each symbol, the vegetation type code (*table 2*) is shown first, followed by the size class and crown density class given above. For example, LI1H would indicate a limestone forest with trees ranging between 5 and 12 inches (12.5 and 30 cm) in diameter and a high density crown closure. Where possible, dominant species are identified. In such cases, the density class is followed by a period, then by one or two letters of the genus name, for example: IF1M.D as when *Delonix regia* makes up at least 20 percent of an introduced forest stand. Occasionally, mixed stands are identified by a slash between the primary vegetation type and a second type, with density and size classes given only for the primary type. For example, IF2L/SV.L would indicate scattered introduced trees 12 inches (30 cm) or greater in d.b.h., with inclusions or patches of secondary vegetation having *Leucaena leucocephala* as its major component.

The minimum type area mapped during photo interpretation was 1 acre (0.4 ha).

Table 2—*Vegetation type codes used for mapping the vegetation of the Commonwealth of the Northern Mariana Islands, by land class, 1984*

Vegetation codes	Vegetation types, subtypes, and components
	Land class: Forest
LI	Native limestone forest, various size and density classes apply
LI.CA	Native limestone forest, *Casuarina* component
LI.CO	Native limestone forest, coconut component
LI/S	Native limestone forest, strand understory
LI/SV	Native limestone forest, secondary vegetation
LI/SV.G	Native limestone forest, tall grass
LI/SV.G.S	Native limestone forest, tall grass and shrubs
LI/SV.P	Native limestone forest, *Pandanus* understory
LI/SV.S	Native limestone forest, shrub understory
IF	Thickets of introduced trees, various size and density classes apply
IF.D	Introduced trees with *Delonix* component
IF/SV	Introduced trees with secondary vegetation understory
IF/SV.B	Introduced trees with bamboo
IF/SV.G	Introduced trees with tall grass understory
IF.D/SV.G	Introduced trees, *Delonix*, with tall grass
IF/SV.L	Introduced trees, with *Leucaena*
IF.D/SV.L	Introduced trees, *Delonix*, with *Leucaena*
IF.D/SV.S	Introduced trees, *Delonix*, with shrubs
IF/SV.L.C	Introduced trees with *Leucaena* and *Casuarina* inclusions
IF/SV.L.G	Introduced trees with *Leucaena* and tall grass
IF/SV.S	Introduced trees with shrub understory
CA	*Casuarina* thicket, various size and density classes apply
CA.AT	*Casuarina* thicket, atoll forest component
CA.LI	*Casuarina* thicket, native limestone forest component
CA/G.G	*Casuarina* thicket, short grasses
CA/M.F	*Casuarina* thicket, freshwater marsh
CA/M.F.P	*Casuarina* thicket, freshwater marsh with *Phragmites*
CA/SV	*Casuarina* thicket, secondary vegetation understory
CA/SV.G	*Casuarina* thicket, tall grass
CA/SV.L	*Casuarina* thicket with *Leucaena*
CA/SV.L.G	*Casuarina* thicket with *Leucaena* and tall grass
CA/SV.S	*Casuarina* thicket, shrub understory
CA/U	*Casuarina* thicket in urban areas
AT	Atoll forest, various size and density classes apply
AT.LI	Atoll forest, native limestone forest component
AT/S	Atoll forest, strand understory
MN	Mangrove forest, various size and density classes apply
MN/SV.H	Mangrove with *Hibiscus*

(continued)

Table 2—*Vegetation type codes used for mapping the vegetation of the Commonwealth of the Northern Mariana Islands, by land class, 1984 (continued)*

Vegetation codes	Vegetation types, subtypes, and components
	Land class: Secondary Vegetation
SV	Secondary vegetation, size and density classes do not apply
SV.AS	Secondary vegetation, agri-scrub component
SV.AS.L	Secondary vegetation, agri-scrub and *Leucaena* components
SV.B	Secondary vegetation, bamboo component
SV.B.G	Secondary vegetation, bamboo and tall grass components
SV.B.S	Secondary vegetation with bamboo and shrubs
SV.G	Secondary vegetation, tall grass component
SV.G.C	Secondary vegetation, tall grass and *Casuarina* components
SV.G.C.L	Secondary vegetation, tall grass, *Casuarina*, and *Leucaena* components
SV.G/C	Secondary vegetation, tall grass, pasture land
SV.G.L	Secondary vegetation, tall grass and *Leucaena* components
SV.G.L.S	Secondary vegetation, tall grass, *Leucaena*, and shrub components
SV.G.S	Secondary vegetation, tall grass and shrub components
SV.H.L	Secondary vegetation, *Hibiscus* and *Leucaena* components
SV.L	Secondary vegetation, *Leucaena* component
SV.L.C	Secondary vegetation, *Leucaena* and *Casuarina* components
SV.L/C	Secondary vegetation, *Leucaena* pasture land
SV.L.S	Secondary vegetation, *Leucaena* and shrub components
SV.L.S.C	Secondary vegetation, *Leucaena*, shrub, and *Casuarina* components
SV.L.S.G	Secondary vegetation, *Leucaena*, shrub, and tall grass components
SV.S	Secondary vegetation, shrub component
SV.S.C	Secondary vegetation, shrub and *Casuarina* components
SV.S/C	Secondary vegetation, shrub, pasture land
SV.S/B.D	Secondary vegetation, shrub component, with disturbed understory
	Land class: Agroforest
AG	Agroforest
AG.CI	Agroforest, *Citrus* component
AG.CO	Agroforest, coconut component
AG.CO/SV	Agroforest, coconut component with secondary vegetation
AG.CO/SV.L	Agroforest, coconut component with *Leucaena*
CO	Coconut plantation, various size and density classes apply
CO.AT	Coconut plantation, atoll forest component
CO.LI	Coconut plantation, native forest component
CO.IF	Coconut plantation with introduced trees
CO/C	Coconuts growing in pasture land
CO/G.G	Coconut plantation, short grass understory
CO/S	Coconut plantation, strand understory
CO/SV	Coconut plantation, secondary vegetation understory
CO/SV.G	Coconut plantation, tall grass understory
CO/SV.G.S	Coconut plantation, tall grass and shrub understory
CO/SV.L	Coconut plantation, *Leucaena* understory
CO/SV.L.G	Coconut plantation, *Leucaena* and tall grass components
CO/SV.S	Coconut plantation, shrub understory
CO/U	Coconut trees in urban areas

(continued)

Vegetation codes	Vegetation types, subtypes, and components
	Land class: Nonforest
M.F	Freshwater marsh
M.F.P	*Phragmites* marsh
M.F.P/W.F	*Phragmites* marsh with open water inclusions
G.CA.S	Savanna/grassland, abandoned cropland with shrub component
G.G	Savanna/grassland, short grass component
G.G.B	Savanna/grassland, short grass and bamboo components
G.G.C	Savanna/grassland, short grass and *Casuarina* trees
G.G.C.D	Savanna/grassland, short grass and *Casuarina* components with disturbance
G.G.C.L	Savanna/grassland, short grass, *Casuarina*, and *Leucaena* components
G.G.C.S	Savanna/grassland, short grass, *Casuarina*, and shrub components
G.G/C	Savanna/grassland, short grass pasture land
G.G.D	Savanna/grassland, short grass, disturbed
G.G.S	Savanna/grassland, short grass and shrub components
G.G/S	Savanna/grassland, short grass with strand inclusions
G.G.S/C	Savanna/grassland, short grass and shrub pasture land
G.S	Savanna/grassland, shrub component
G.S/C	Savanna/grassland, shrub pasture land
S	Low strand
S.P	Low strand with *Pandanus* component
S.S	Tall strand
S.S.P	Tall strand with *Pandanus* component
S/B.L	Low strand with limestone outcrops
S/DV	Low strand with dwarf vegetation inclusions
S.S/DV	Tall strand with dwarf vegetation inclusions
C	Cropland
U	Urban land
B	Barren land
B.D	Disturbed land
B.L	Limestone outcrops
B.S	Beach sand
B/S	Strand inclusions
W.F	Water, fresh

NOTES:

Size classes and density codes are used only with the forest class and with the coconut plantation type.

All components, inclusions, or understory species must be present on at least 20 percent of the mapped area.

VEGETATION TYPE DESCRIPTIONS

Land classes and primary types are described by habitat and major overstory and understory species. Full species citations, families, and Chamorro names of plants mentioned in the text are given in *table 3*.

The vegetation descriptions for the island of Rota are summaries based on descriptions and species lists made at approximately 45 stations during two visits to Rota, totaling about 12 days of field and lab work. Field work on Tinian and Saipan was less extensive. Fosberg (1960) described the geology and terrain of Rota, Tinian, and Saipan, and provided a general history and description of vegetation changes. This bulletin updates those descriptions and includes information on a number of uncommon to potentially endangered endemic limestone forest species.

Table 3—*Plant species mentioned in text*[1]

Genus, species, and author	Chamorro name	Family
Abrus precatorius L.	kulales halom tano	Fabaceae
Acacia confusa Merr.	sosigi	Mimosaceae
Aglaia mariannensis Merr.	mapuñao	Meliaceae
Aidia cochinchinensis Lour.	sumac	Rubiaceae
Albizia lebbeck (L.) Benth.	kalaskas	Mimosaceae
Alyxia torresiana Gaud.	nanagu	Apocynaceae
Angiopteris evecta (Forst. f) Hoffm.		Marattiaceae
Annona muricata L.	laguaná	Annonaceae
Annona reticulata L.	anonas	Annonaceae
Annona squamosa L.	ates	Annonaceae
Antigonon leptopus H. & A.	cadena de amor	Polygonaceae
Araucaria sp.		Araucariaceae
Areca catechu L.	puguá	Palmae
Artocarpus altilis (Park.) Fosb.	lemmai	Moraceae
Artocarpus mariannensis Tréc.	dokdok	Moraceae
Asplenium nidus L. sensu lato	galak	Polypodiaceae
Averrhoa bilimbi L.	kamis (pickle tree)	Oxalidaceae
Averrhoa carambola L.	bilembines	Oxalidaceae
Barringtonia asiatica (L.) Kurz	puteng	Lecythidaceae
Bauhinia monandra Kurz	flores mariposa	Caesalpiniaceae
Benincasa hispida (Thunb.) Cogn.	kodót	Cucurbitaceae
Bidens spp.		Compositae
Bikkia tetrandra (L. f.) A. Rich.	gausali	Rubiaceae
Blechnum orientale L.		Polypodiaceae
Bruguiera gymnorhiza (L.) Lam.	mangle machu	Rhizophoraceae
Caesalpinia major (Medic.) Dandy & Exell	pakao	Caesalpiniaceae
Capparis cordifolia Lam.	atkaparas	Capparidaceae
Carica papaya L.	papaya	Caricaceae
Cassytha filiformis L.	agasi	Lauraceae
Casuarina litorea L.	gagu	Casuarinaceae
Catharanthus roseus (L.) G. Don	chuchurika	Apocynaceae
Ceiba pentandra (L.) Gaertn.	atagodon	Bombacaceae
Centrosema pubescens Benth.		Fabaceae
Cerbera dilatata Mgf.	chuti	Apocynaceae
Chrysophyllum cainito L.	star apple	Sapotaceae
Citrus spp.	kahat/limon	Rutaceae
Claoxylon marianum Muell.-Arg.	panao	Euphorbiaceae
Clerodendrum spp.	lódigao	Verbenaceae
Cocos nucifera L.	niyog	Palmae
Codiaeum variegatum (L.) Bl.	leston puyitos	Euphorbiaceae
Coelogyne guamensis Ames		Orchidaceae
Coix lacryma-jobi L.	bilén	Gramineae
Colocasia esculenta (L.) Schott	suni agaga	Araceae
Cordia subcordata Lam.	niyoron	Boraginaceae
Cordyline fruticosa (L.) Chev.	baston San Jose	Liliaceae
Crinum asiaticum var. not determined	pigá palayi	Amaryllidaceae
Crotalaria retusa L.		Fabaceae
Cucurbita spp.	kalamasa	Cucurbitaceae
Cycas circinalis L.	fadang	Cycadaceae
Cynometra ramiflora L.	gulos	Caesalpiniaceae
Cyrtosperma chamissonis (Schott) Merr.	baba	Araceae
Davallia solida (Forst. f.) Sw.	puguá machena	Polypodiaceae
Delonix regia (Boj.) Raf.	atbot	Caesalpiniaceae
Discocalyx sp.	ottot	Myrsinaceae
Dodonaea viscosa (L.) Jacq.	lampuaye	Sapindaceae
Dioscorea alata L.	dagu	Dioscoreaceae
Elaeocarpus joga Merr.	yoggá	Tiliaceae
Erythrina variegata var. *orientalis* (L.) Merr.	gaogao	Fabaceae
Eugenia palumbis Merr.	agatélang	Myrtaceae
Eugenia spp.		Myrtaceae
Eupatorium odoratum L.	masigsig	Compositae
Euphorbia milii var. *splendens* (Bojer) Ursch & Leandri	crown of thoms	Euphorbiaceae
Ficus prolixa Forst. f	nunu	Moraceae
Ficus spp.		Moraceae
Ficus tinctoria var. *neo-ebudarum* (Summerh.) Fosb.	hoda	Moraceae
Flagellaria indica L.	bejuco halom tano	Flagellariaceae
Freycinetia reineckei Warb.	fianiti	Pandanaceae
Gardenia spp.		Rubiaceae
Geniostoma micranthum A. DC.	maholok hayu	Loganiaceae
Gleichenia linearis (Burm. f.) C.B.Cl	mana	Gleicheniaceae
Guamia mariannae (Safford) Merr.	paipai	Annonaceae
Guettarda speciosa L.	panao	Rubiaceae
Hedychium coronarium Koen.		Zingiberaceae
Heritiera littoralis Dry.	ufa	Sterculiaceae
Heritiera longipetiolata Kaneh.	ufa halom tanó	Sterculiaceae
Hernandia labyrinthica Tuyama		Hemandiaceae
Hernandia sonora L.	nonak	Hemandiaceae
Hibiscus rosa-sinensis L.		Malvaceae
Hibiscus tiliaceus L.	pago	Malvaceae
Histiopteris incisa (Thunb.) J. Sm.		Polypodiaceae
Inocarpus fagifer (Park.) Fosb.	budu (buoy)	Fabaceae
Intsia bijuga (Colebr.) O. Ktze.	ifil/ifit	Caesalpiniaceae
Ipomoea batatas (L.) Lam.	kamute	Convolvulaceae
Ipomoea pes-caprae ssp. *brasiliensis* (L.) v. Ooststr.	alalak tasi	Convolvulaceae
Ipomoea spp.		Convolvulaceae
Ixora casei Hance	santana	Rubiaceae
Ixora sp.		Rubiaceae
Jasminum marianum DC.	hasmin	Oleaceae
Jatropha gossypifolia L.		Euphorbiaceae
Jatropha sp.		Euphorbiaceae
Laportea interrupta (L.) Chew	palilolia	Urticaceae
Laurentia longiflora (L.) Endl.	star of Bethlehem	Lobeliaceae
Leucaena insularum var. *guamensis* Fosb. & Stone		Mimosaceae
Leucaena leucocephala (Lam.) de Wit	tangantangan	Mimosaceae
Lycopodium cernuum L.		Lycopodiaceae
Lycopodium phlegmaria var. *longifolium* Spring	kotdon di San Francisco	Lycopodiaceae

(continued)

Table 3—*Plant species mentioned in text*[1] *(continued)*

Genus, species, and author	Chamorro name	Family
Macaranga thompsonii Merr.	pengua	Euphorbiaceae
Maesa sp.		Myrsinaceae
Mammea odorata (Raf.) Kosterm.	chopak	Guttiferae
Mangifera indica L.	mangga	Anacardiaceae
Manihot esculenta Crantz	mendioka	Euphorbiaceae
Maytenus thompsonii (Merr.) Fosb.	luluhot	Celastraceae
Medinilla medinilliana (Gaud.) Fosb. & Sachet (ined.)	gafos	Melastomataceae
Melanolepis multiglandulosa var. *glabrata* (Muell.-Arg.) Fosb.	alom	Euphorbiaceae
Melochia spp.	sayafi	Sterculiaceae
Merrilliodendron megacarpum (Hemsl.) Sleumer	faniok	Icacinaceae
Mikania scandens (L.) Willd.		Compositae
Mimosa invisa Mart.	singbiguin sasa	Mimosaceae
Miscanthus floridulus (Labill.) Warb. ex K. Schum. & Lauterb.	nette	Gramineae
Momordica charantia L.	atmagosu	Cucurbitaceae
Morinda citrifolia L.	lada	Rubiaceae
Moringa oleifera Lam.	malungay (katdes)	Moringaceae
Mucuna spp.		Fabaceae
Musa spp.	choda	Musaceae
Myrtella bennigseniana (Volk.) Diels		Myrtaceae
Neisosperma oppositifolia (Lam.) Fosb. & Sachet	fagot	Apocynaceae
Nephrolepis spp.		Polypodiaceae
Ochrosia mariannensis A. DC.	langiti	Apocynaceae
Ochrosia mariannensis var. *crassicarpa* Fosb. & Falanruw		Apocynaceae
Operculina ventricosa (Bert.) Peter	alalag	Convolvulaceae
Osmoxylon mariannense (Kaneh.) Fosb. & Sachet (ined.)		Araliaceae
Pandanus dubius Spreng.	pahong	Pandanaceae
Pandanus tectorius Park.	kafu	Pandanaceae
Passiflora foetida var. *hispida* (DC.) Killip	dulce	Passifloraceae
Pemphis acidula Forst.	nigas	Lythraceae
Pennisetum spp.	boksu	Gramineae
Persea americana Mill.	alageta	Lauraceae
Phragmites karka (Retz.) Trin. ex Steud.	karisu	Gramineae
Phyllanthus acidus (L.) Skeels	ibbá	Euphorbiaceae
Piper betle L.	pupulu	Piperaceae
Piper guahamense C. DC.	pupulon aniti	Piperaceae
Pipturus argenteus (Forst. f.) Wedd.	amahadyan	Urticaceae
Pisonia grandis R. Br.	amumo	Nyctaginaceae
Pisonia umbellifera (Forst.) Seem.		Nyctaginaceae
Pithecellobium dulce (Roxb.) Benth.	kamachile	Mimosaceae
Plumeria spp.	flores mayo	Apocynaceae
Polypodium scolopendria Burm. f.		Polypodiaceae
Polyscias grandifolia Volk.		Araliaceae
Pouteria obovata (R. Br.) Baehni	lala	Sapotaceae
Premna obtusifolia R. Br.	ahgao	Verbenaceae
Psidium guajava L.	abas	Myrtaceae
Psychotria spp.	aplokating	Rubiaceae
Saccharum officinarum L.	tupu (sugarcane)	Gramineae
Saccharum spontaneum L.		Gramineae
Scaevola taccada (Gaertn.) Roxb.	nanasu	Goodeniaceae
Sechium edule (Jacq.) Sw.	chayote	Cucurbitaceae
Serianthes nelsonii Merr.	tronkon guafi	Mimosaceae
Spathoglottis sp.		Orchidaceae
Stachytarpheta spp.		Verbenaceae
Swietenia sp.		Meliaceae
Tarenna sambucina (Forst.) Dur.	sumak	Rubiaceae
Terminalia catappa L.	talisai	Combretaceae
Thespesia populnea (L.) Sol. ex Correa	banalo	Malvaceae
Thevetia peruviana (Pers.) K. Schum.		Apocynaceae
Tournefortia argentea L. f.	hunig	Boraginaceae
Triphasia trifolia (Burm. f.) P. Wils.	limon china	Rutaceae
Vigna marina (Burm.) Merr.	akankang manulasa	Fabaceae
Wikstroemia elliptica Merr.	gapetatayaki	Thymelaeaceae
Xanthosoma spp.	suni-n-Honolulu	Araceae
Xylocarpus moluccensis (Lam.) Roem.	lalanyok	Meliaceae
Zoysia matrella (L.) Merr.	chaguan hapon	Gramineae

(continued)

[1]Scientific names of Dicotyledonae are from Fosberg and others (1979), of Pteridophyta and Gymnospermae from Fosberg and others (1982), and of Monocotyledonae from Fosberg and others (1987). Common names are from Stone (1970) and Topping and others (1975).

Forest Class

The native forests of the Marianas are a unique natural heritage, being rich in endemic species. Native forest has however been altered by agricultural and wartime activities, bulldozing, animals, and replacement by introduced species such as *Leucaena leucocephala* and*Acacia confusa*. Because of their threatened status, descriptions of native limestone forests are the most detailed.

Native Limestone Forest (Ll)

The species composition of limestone forest varies with habitat conditions and the amount of previous disturbance. The forests of Rota *(figs. 4, 5)* and southwest Tinian *(figs. 6, 7)* are the best examples of native forest, while the forests of Saipan *(figs. 8, 9)* show the greatest effects of wartime and other human activities. A generalized description of the native limestone forests of each island are given below.

Rota—A number of phases of limestone forest occur within this type. Forests located at Sabana are often shrouded in clouds and mist. Occurring in patches in the formerly mined Sabana area is an association of the endemic *Hernandia labyrinthica* and *Elaeocarpus joga* interspersed with *Pandanus* thickets. Mixed in with the *Elaeocarpus/Hernandia* are a few *Ficus* spp., *Artocarpus* spp., *Hibiscus tiliaceus*, and *Osmoxylon mariannense*. Understory species include *Macaranga thompsonii* and *Pipturus argenteus*. Epiphytes are abundant and include *Freycinetia reineckei, Asplenium nidus, Davallia solida* and other ferns; *Coelogyne guamensis* and other orchids; and mosses.

In general the native forests of the interior Sabana terrace are shorter than those nearer the cliffs on the southern border of the area. The cloud forest on the rocky southern edge of the plateau consists of widely spaced trees of medium height, covered with a luxuriant growth of epiphytes. There is little undergrowth other than herbaceous ground cover and mosses growing over the limestone boulders.

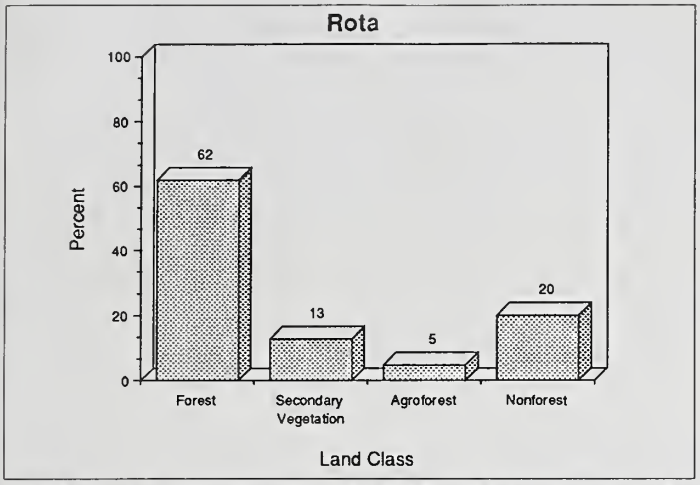


Figure 4—Rota, Commonwealth of the Northern Mariana Islands, is the least disturbed of the mapped islands. The forest class is by far the largest land class.

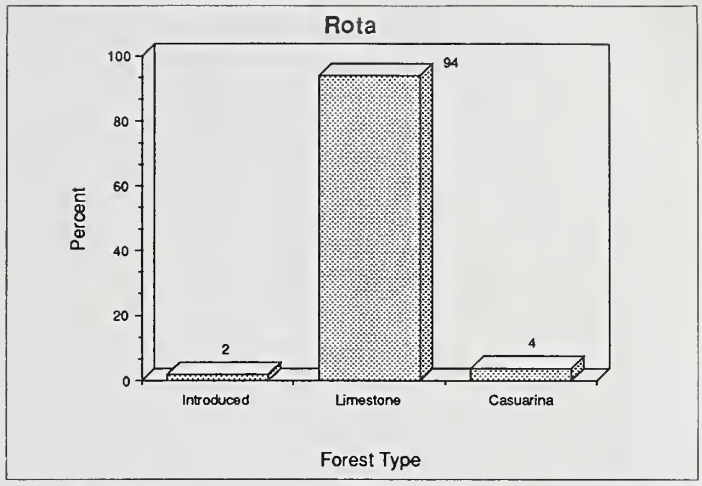


Figure 5—The native limestone forest type on Rota, Commonwealth of the Northern Mariana Islands, is the major forest type. The atoll forest type contains less than 1 percent of the total forest area and is not included here.

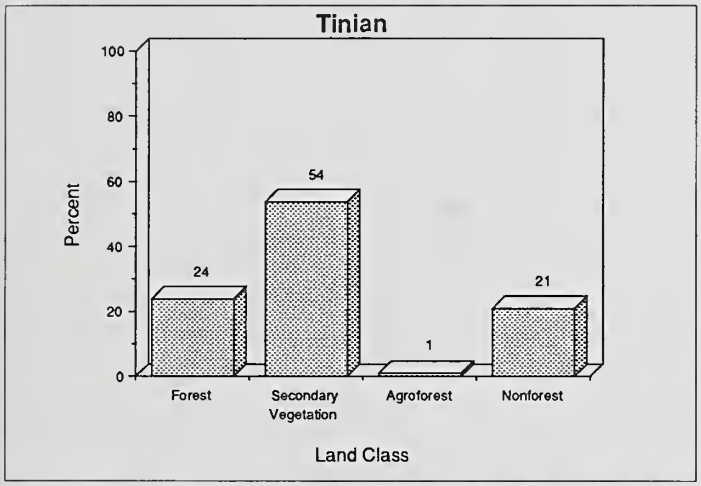


Figure 6—Tinian, Commonwealth of the Northern Mariana Islands, is the most heavily disturbed island mapped, with secondary vegetation being the largest land class.

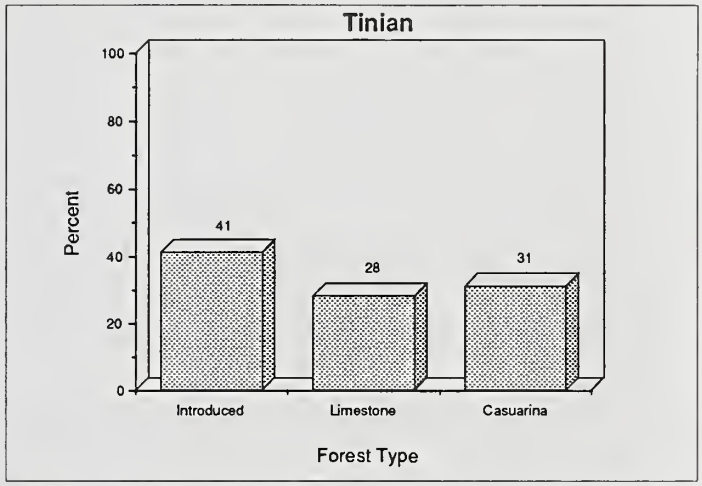


Figure 7—Three forest types were mapped on Tinian, Commonwealth of the Northern Mariana Islands. As on Saipan, the native forests of Tinian are limited.

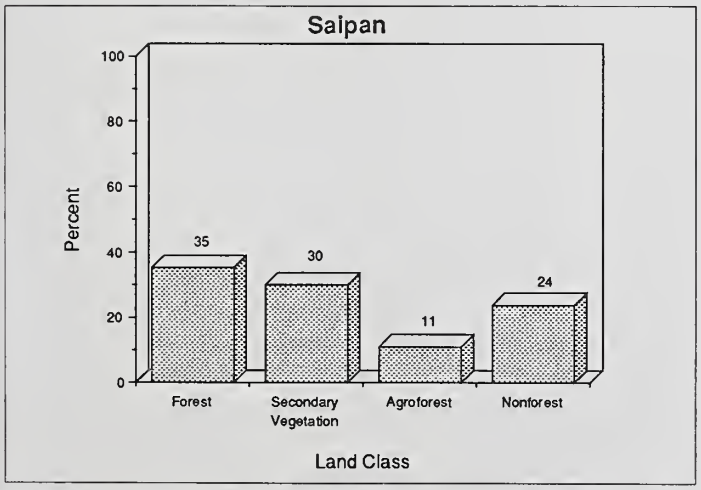


Figure 8—Four land classes were mapped on Saipan, Commonwealth of the Northern Mariana Islands. Although the forest land class is the largest, it consists mostly of thickets of introduced trees.

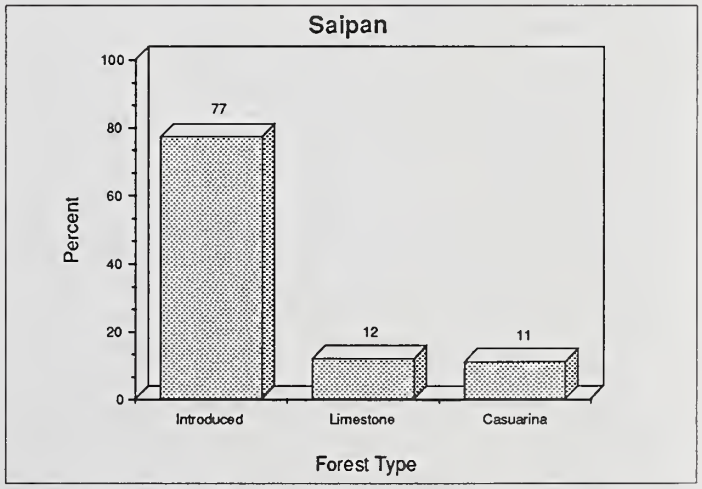


Figure 9—Five forest vegetation types were mapped on Saipan, Commonwealth of the Northern Mariana Islands. Both the mangrove and atoll forest types are excluded due to their small total area. Saipan is in a state of constant change, and there are few remnants of native forest.

Forests on the western and northern slopes of the Sabana terrace are a rich mix of species including in the overstory: *Artocarpus* spp., *Elaeocarpus joga, Hernandia labyrinthica, Pisonia* spp., *Guettarda speciosa, Neisosperma oppositifolia, Claoxylon marianum, Ficus prolixa*, and *Serianthes nelsonii*. Understory species include these: *Barringtonia asiatica, Discocalyx* sp., *Guamia mariannae, Annona reticulata, Aglaia mariannensis, Melanolepis multiglandulosa* var. *glabrata, Morinda citrifolia, Triphasia trifolia, Maytenus thompsonii, Cycas circinalis, Polyscias grandifolia, Psychotria* sp., *Eugenia palumbis, Pandanus* spp., *Ficus tinctoria* var. *neo-ebudarum, Pipturus argenteus, Laportea interrupta, Macaranga thompsonii, Pisonia umbellifera, Maesa* sp., *Premna obtusifolia, Tarenna sambucina*, herbs such as *Piper guahamense*, and many ferns. Climbers and vines include *Freycinetia reineckei, Alyxia torresiana, Mucuna* sp., and *Flagellaria indica*.

Of the two species of *Hernandia* found in the native forests of Rota, *H. labyrinthica* occurs mainly in the Sabana area while *H. sonora* is more common in coastal areas and higher parts of interior cliffs. *Elaeocarpus joga* is especially abundant in upper areas.

Stands of the endangered tree *Serianthes nelsonii*, endemic to the southern Mariana Islands, occur about the Gayaugan cliffs in the Isang area and on steep slopes in the Uyulan hulo area to the northwest and west of the Sabana terrace. At one time, only two specimens of this tree were known to exist, both on Guam. The population on Rota is now known to include at least 84 trees with diameters estimated to range from 6 inches to 47 inches (15 cm to 120 cm). One tree we measured had a diameter of 41 inches (103.5 cm) and a height of 77 feet (23.4 m). There were few seedlings and no saplings of *Serianthes* in the areas we visited. A patch of *Merrilliodendron megacarpum* occurs at the base of Mananana cliffs between the Santa Cruz and Inayan areas.

Native forest with larger trees (coded LI2) are generally located on steep areas or where the terrain is especially rocky and uneven. Overstory species common to these forests include *Artocarpus mariannensis*, especially in the interior, with *A. altilis* more commonly located on the coast.

In the drier forests of northeast Rota, where the terrain is more level and less rocky, small to medium size *Intsia bijuga* are common. Some of these forests are relatively low and scrubby with *Hibiscus tiliaceus* and *Pandanus* spp. being common. Other species include *Guamia mariannae, Guettarda speciosa, Eugenia* spp., *Morinda citrifolia, Maytenus thompsonii, Triphasia trifolia, Polyscias grandifolia, Cycas circinalis, Flagellaria indica*, and *Caesalpinia major*.

Taller forests with canopies from 22- to 45-feet (7- to 14-m) high include *Intsia bijuga, Guamia mariannae*, and larger trees such as *Artocarpus* spp., *Ficus prolixa, Elaeocarpus joga, Hernandia sonora*, and *Pisonia grandis*. In more coastal forests, *Neisosperma oppositifolia, Cynometra ramiflora, Pouteria obovata, Cordia subcordata, Erythrina variegata* var. *orientalis, Hernandia sonora*, and *Casuarina litorea* are more common.

Tinian—The only limestone forest remaining on Tinian occurs on the steep cliffsides. A remnant forest occurs about Mt. Lassu, mixed with secondary vegetation including *Leucaena leucocephala* at its edges. A small forest dominated by *Cynometra ramiflora* trees occurs along cliffs to the southeast of the Lassu shrine. Other species include large *Erythrina variegata* var. *orientalis* trees, *Neisosperma oppositifolia, Cerbera dilatata, Psychotria* sp., *Eugenia* sp., *Guamia mariannae, Pandanus* spp., and *Terminalia catappa*.

Native forest is also found on the lower, drier, and narrower terraces of Laderan Lasu and consists of *Cynometra ramiflora* and *Pisonia grandis*. Smaller trees and shrubs in these dry forests include *Pouteria obovata, Pandanus* spp., *Erythrina variegata* var. *orientalis, Aglaia mariannensis, Melanolepis multiglandulosa* var. *glabrata*, and *Morinda citrifolia*. There is little undergrowth on the dry rocky ground. The forests along the Mahalang and Manapang cliffs are similar with the addition of some *Ficus* trees.

Aerial photographs show an extensive forest with a distinctive texture of light colored crowns amid darker vegetation occurring southeast of the Kastiyu terrace of southern Tinian. Most of this area now consists of weedy grasses and tangantangan *(Leucaena)*. A remnant of the type occurs near the gate of the Bar K Ranch. This forest is dominated by large *Pisonia grandis* trees with huge gnarled compound trunks. This tree is adapted to typhoons in that its weak limbs are easily broken off by high winds. The trees then regrow repeatedly from their massive trunks. The light colored crowns on the aerial photos appear to be the once emergent crowns of *P. grandis*. The forest texture was not seen elsewhere in the CNMI, and the small patch of *Pisonia* forest may be a remnant of a once more extensive native forest type.

This remnant forest consists of large *Pisonia* with an understory of *Guamia mariannae*, some *Intsia bijuga, Neisosperma oppositifolia, Pandanus* spp., *Psychotria* spp., *Premna obtusifolia, Ficus* sp., *Eugenia* sp., *Melanolepis multiglandulosa* var. *glabrata*, the climbing shrub *Jasminum marianum* and climbing vines, *Flagellaria indica* and *Abrus precatorius*.

Limestone forest occurs along cliffs around the Kastiyu and Pina plateaus in southeast Tinian. One area of this forest, along the cliffs east of the Kastiyu pasture area, consists of a low forest, approximately 33 ft (10 m) high, growing on a substrate of clay and bare rock. Common species include *Ochrosia mariannensis, Psychotria* sp., *Neisosperma oppositifolia, Guamia mariannae, Pandanus* spp., *Cynometra ramiflora, Maytenus thompsonii, Pisonia grandis, Aidia cochinchinensis, Aglaia mariannensis, Erythrina variegata* var. *orientalis, Polyscias grandifolia, Capparis cordifolia, Ficus prolixa, Jasminum marianum*, and *Abrus precatorius*. At the edge of the cliff a crevasse shelters a large specimen of *Heritiera longipetiolata* with a d.b.h. of about 28 inches (70 cm), and height of 76 ft (23 m). A native forest also occurs on the narrow terrace below.

Saipan—The native limestone forest type is very limited and disturbed on Saipan. A few areas remain in scattered pockets on the Bañadero cliffs, Kagman plateau and penninsula, near Mt. Tagpochau, on small plateau terraces along the east coast, and mixed with secondary vegetation along the cross island road.

Most of the remaining stands of limestone forest are largely scrubby. Common species include *Pandanus dubius* and *P. tectorius, Ochrosia mariannensis, Guamia mariannae, Psychotria* sp., *Hibiscus tiliaceus, Premna obtusifolia, Morinda citrifolia, Pouteria obovata, Cynometra ramiflora, Ficus* spp., *Claoxylon marianum, Ixora* sp., *Aglaia mariannensis, Polyscias grandifolia*, and *Flagellaria indica*. *Capparis cordifolia* occurs on exposed coastal areas and *Bikkia tetrandra* on exposed cliffs.

Remnant limestone forests along roads and in protected inland areas are dominated by *Artocarpus mariannensis*. The major large species in the Kagman plateau forest is *Pisonia grandis* with diameters from 41 to 47 inches (105 to 120 cm). *Guamia* growing to 30 ft (9 m) tall can also be seen in this forest. Other trees include *Erythrina variegata* var. *orientalis*, *Ficus* spp. *Melanolepis multiglandulosa* var. *glabrata*, *Barringtonia asiatica*, and *Cynometra ramiflora* with admixtures of introduced trees.

Trees growing in forests nearer the coast include: *Neisosperma oppositifolia*, *Barringtonia asiatica*, *Terminalia catappa*, *Heritiera longipetiolata*, *Cynometra ramiflora*, *Cordia subcordata*, and *Casuarina litorea*.

Introduced Trees (IF)

A number of trees have been introduced to the CNMI and have become naturalized including: *Acacia confusa*, flame tree (*Delonix regia*), *Albizia lebbeck*, and *Pithecellobium dulce*. In places, these trees form thickets and are dense enough to be classified as forests. Such stands are given the designation IF for introduced trees to distinguish them from native limestone forest. The type is most common on Saipan and Tinian.

Rota—The highest point in the Sabana area of Rota is "a knoll of volcanic material protruding up through the limestone terrace" (Fosberg 1960, p. 51). In this misty area is a dense low forest of the introduced tree *Acacia confusa*. A number of native and endemic species grow in the understory or as epiphytes in this forest. They include the giant fern *Angiopteris evecta*, the magenta flowered *Medinilla medinilliana*, pendant *Lycopodium phlegmaria* var. *longifolium*, and *Coelogyne guamensis*—an orchid with large white blossoms. The large fern *Histiopteris incisa* also occurs in this area.

Other areas of the introduced forest type on Rota include thickets of *Delonix regia* especially in cleared areas along the road in the Sinapalu area where dense stands of saplings occur.

Tinian—On Tinian, the Introduced Tree type includes low forests of *Acacia confusa* on volcanic soils between the Banaderon Lemmai and Banaderon Nunu areas. These forests consist of a single story of *Acacia* trees with d.b.h. generally not over 18 inches (45 cm), growing over weedy growth including the noxious *Eupatorium odoratum* and *Mimosa invisa*, as well as *Mikania scandens*, *Momordica charantia*, *Passiflora foetida* var. *hispida*, *Centrosema pubescens*, and *Stachytarpheta* spp. Adjacent open areas are filled with tall *Pennisetum* grass.

Other components of the IF type include groves of *Delonix regia*, especially along the road between Taga Beach and Bar K Ranch. Throughout the island, especially the northern two-thirds, groves of *Acacia confusa*, *Albizia lebbeck*, *Casuarina litorea*, *Delonix regia*, *Ceiba pentandra*, and *Bauhinia monandra* occur amid thickets of secondary vegetation, mostly *Leucaena leucocephala*.

Saipan—On Saipan, the IF type is extensive, including groves of *Acacia confusa* and patches of *Albizia lebbeck* mixed in with other vegetation, especially *Leucaena*. *Delonix regia* is common along roads and grows in stands in many areas. *Pithecellobium dulce* is also common.

Mangrove Forest (MN)

Mangroves are marine forests with specialized roots inundated at least periodically by sea water. The mangrove type is represented by very small patches of *Bruguiera gymnorhiza*, *Heritiera littoralis*, and *Xylocarpus moluccensis*. While the only mappable mangrove stands were on Saipan, Fosberg (1979) does list mangroves occuring on Tinian and Rota.

Casuarina Thickets (CA)

Casuarina litorea trees are fairly distinctive on aerial photographs and easily identified. *Casuarina* typically occurs along the coast, in bands too narrow to be separately delineated, in which case they are often typed with strand (S) or atoll forest (AT). They are also common in quarry sites and areas of secondary vegetation where they are classified as CA/SV, or mixed in with limestone forest vegetation (CA.LI), with atoll forest vegetation (CA.AT), or scattered in grassy areas (CA/G.G). Stands of *Casuarina* are common on all three islands.

Atoll Forest (AT)

Along the coast, the strand type merges with the atoll forest type. Rota has the most extensive stands of atoll forest, the type is quite limited on Saipan and Tinian. Dominant canopy species in these coastal forests on Rota are large *Hernandia sonora* and *Artocarpus* sp. Generally, the understory consists of *Guettarda speciosa*, *Neisosperma oppositifolia*, *Pandanus* spp., and occasionally *Mammea odorata*. The "fadang" (*Cycas circinalis*) may occur in the lower understory and the fern *Polypodium scolopendria* is quite common. *Casuarina* trees are often associated with the atoll forest type and where they predominate the type is coded as CA.

Secondary Vegetation Class

The secondary vegetation land class is intermediate between forest and nonforest. Secondary vegetation occurs in areas where the natural vegetation has been disturbed and replaced by fast-growing weedy species. The most common species in this class is the introduced *Leucaena leucocephala*, which forms dense thickets and is typed as SV.L. Extensive stands of *Leucaena* occur on Saipan and Tinian.

Introduced trees common in areas of secondary vegetation include *Albizia lebbeck*, *Acacia confusa*, *Delonix regia*, and *Pithecellobium dulce*. Tall grasses include *Pennisetum* spp. and *Saccharum spontaneum*. The noxious climbing shrubs *Mimosa invisa* and *Eupatorium odoratum* were common. Other woody secondary species include *Dodonaea viscosa*, *Jatropha* sp., and *Melochia* spp. Vines include *Mikania scandens*, *Momordica charantia*, *Mucuna* sp., *Operculina ventricosa*, *Ipomoea* spp., and *Passiflora foetida* var. *hispida*. *Bidens* spp. and other herbaceous weeds also occur.

Agroforest Class

Agroforest (AG)

The agroforest land class category is applied to areas of mixed growth including trees, managed for fruit, food, wood, and other products such as formerly occurred in Chamorro "ranches" and villages. The area along the road to Lake Susupe on Saipan approaches this definition of the agroforest type. The agroforest type, at this writing, is quite limited in the Mariana Islands. Major food tree species in this area include the following: coconut *(Cocos nucifera)*, breadfruit *(Artocarpus altilis)*, tropical almond *(Terminalia catappa)*, mango *(Mangifera indica)*, *Citrus* spp., betel nut *(Areca catechu)*, buoy nuts *(Inocarpus fagifer)*, "apples" *(Eugenia* spp.), papaya *(Carica papaya)*, custard apple *(Annona reticulata)*, sour sop *(Annona muricata)*, sweet sop *(Annona squamosa)*, bananas *(Musa* spp.), star fruit *(Averrhoa carambola)*, pickle fruit *(Averrhoa bilimbi)*, iba fruit *(Phyllanthus acidus)*, guava *(Psidium guajava)*, star apple *(Chrysophyllum cainito)*, horse-radish tree *(Moringa oleifera)*, and avocado *(Persea americana)*.

Other food plants growing in the understory include these: sugar cane *(Saccharum officinarum)*, taro *(Cyrtosperma chamissonis, Colocasia esculenta*, and *Xanthosoma* spp.), cassava *(Manihot esculenta)*, bittermelon *(Momordica charantia)*, pumpkin *(Cucurbita* spp.), wax gourds *(Benincasa hispida)*, "chayote" *(Sechium edule)*, yam *(Dioscorea alata)*, and sweet potato *(Ipomoea batatas)*. Common ornamentals include *Hibiscus rosa-sinensis* and other species and hybrids of hibiscus, *Plumeria* spp., *Clerodendrum* spp., croton *(Codiaeum variegatum)*, chain-of-love vine (*Antigonon leptopus)*, ti plant *(Cordyline fruticosa)*, *Araucaria* sp., white ginger *(Hedychium coronarium)*, Job's tears *(Coix lacryma-jobi)*, bush *Ipomoea*, kapok tree *(Ceiba pentandra)*, crown of thorns *(Euphorbia milii* var. *splendens)*, gardenia *(Gardenia* spp.), mahogany *(Swietenia* sp.), ornamental aroids, *Thevetia peruviana, Catharanthus roseus, Ixora casei*, and a number of semi-wild species useful for medicinals, cordage and other purposes, such as "lada" *Morinda citrifolia*, "pago" *(Hibiscus tiliaceus), Piper betle*, and *Ficus* spp. When there are at least 20 percent coconuts, the area is typed as AG.CO. The designation AG.CI is used when at least 20 percent *Citrus* trees are present.

Coconut Plantations (CO)

Dense groves of coconut trees that were originally planted for commercial reasons are designated as CO. When mixed with secondary vegetation, they are typed as CO/SV, with elements of limestone forest (CO.LI), atoll forest (CO.AT), and introduced forest (CO.IF).

Nonforest Class

Strand (S)

Strand vegetation is common along coasts of all three islands but is generally too narrow to be separately demarcated and is often included with Atoll Forest, Native Limestone Forest, or other types. Species characteristic of beach strand include the small trees *Tournefortia argentea*, *Thespesia populnea* and *Scaevola taccada*. Vines such as *Ipomoea pes-caprae* ssp. *brasiliensis*, *Vigna marina*, and *Cassytha filiformis* may be present. Patches of *Crinum asiaticum* occasionally occur in more open areas. *Pemphis acidula* occurs in rocky areas along with normal and dwarfed *Scaevola taccada*. The native species *Leucaena insularum* var. *guamensis* is occasionally present, and further back from the shore, *Ochrosia mariannensis* var. *crassicarpa, Barringtonia asiatica, Pandanus dubius, Neisosperma oppositifolia, Erythrina variegata* var. *orientalis*, and *Cordia subcordata* may be present.

When *Pandanus* is a dominant feature, strand vegetation is typed as S.P. The type S/DV characterizes the dwarfed windswept vegetation of exposed coastal areas. Denser stands of *Mammea odorata* occur on rocky windswept coasts and stands of dwarfed *Scaevola taccada* also occur in such areas on Rota and Saipan. There are also open patches of *Zoysia matrella* occurring in flat areas.

Savanna/Grasslands (G)

Areas dominated by grassy and low herbaceous vegetation occur on both limestone and volcanic soils. Open areas in the formerly mined Sabana area of Rota are covered with herbaceous growth which is meadowlike and quite different in aspect and species composition from the vegetation of volcanic savanna areas of other parts of Micronesia. *Pennisetum* spp. are common, as well as patches of *Eupatorium odoratum* and areas of mixed ferns with *Gleichenia linearis, Nephrolepis* sp., and *Blechnum orientale* being prominent. Often mixed in with the ferns is the ground orchid *Spathoglottis* sp. and the morning-glory vine, *Ipomoea* spp. *Miscanthus floridulus* occurs on both limestone and volcanic soils on Saipan. On Rota, the savanna/grassland type on volcanic slopes was reported to include species characteristic of the savanna/grasslands of southern Guam such as *Gleichenia linearis, Lycopodium cernuum, Myrtella bennigseniana, Geniostoma micranthum, Wikstroemia elliptica*, and *Scaevola taccada* (Fosberg 1960). In the limited area of volcanic soils on Tinian, these species have been replaced by introduced weeds such as *Pennisetum* spp. and *Mimosa invisa*.

On Tinian, the savanna/grassland type includes some pastures planted to *Panicum* at the Bar K Ranch. Other pastures consist of *Leucaena leucocephala* which had been bulldozed to form a dense low forage. A number of toxic weedy species seen in pastures included *Jatropha gossypifolia, Laurentia longiflora, Crotalaria retusa*, and *Abrus precatorius*.

Subtypes of the savanna/grassland type include:

- G.G — grasses or sedges
- G.S — shrubs
- G.B — areas of exposed (bare) soil
- G.P — *Pandanus*
- G.CA — abandoned agricultural areas
- G.C — *Casuarina* trees
- G/C — pasture land

Marsh (M)

Marshes are areas of grasses, sedges, and herbs growing in standing water most of the year. Marshes occur in the area of Lake Susupe on Saipan and Lake Hagoi on Tinian.

Barren Areas (B)

The designation, barren areas, is applied to areas that lack natural vegetation, because of factors such as rocks, sterile soil, and bulldozing.

Cropland (C)

Croplands are areas of cultivated lands without tree cover. Many areas in the Northern Marianas under cultivation are below the minimal size to be typed and are included with the agroforest or secondary vegetation classes.

Urban (U)

Towns, villages, and other inhabited areas are classified as urban.

Water (W)

Lake Susupe and Lake Hagoi in northeast Tinian are the only mappable bodies of freshwater on the surveyed islands. They are coded W.F.

GLOSSARY

Agroforest: An area of mixed growth including trees, cultivated for fruit, food, wood, and other products.

D.b.h.: Diameter at breast height. Tree diameter outside bark measured at breast height, 4.5 ft (1.3 m) above the ground.

Forest land: Land at least 10 percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Land area: Land area includes dry land and land temporarily or partially covered by water, such as marshes, swamps, and river flood plains; streams or sloughs.

Land class: A classification of land by major use or major vegetative characteristics, i.e., forest, secondary vegetation, agroforest, and nonforest.

Nonforest land: Land that has never supported forests or was formerly forested and is currently developed for nonforest use.

Secondary vegetation: A vegetative type characterized by small, fast-growing trees, shrubs, and vines: usually weedy invaders.

Vegetative type: An area delineated on the maps as having similar plant composition to one of the types described in the section on type classification.

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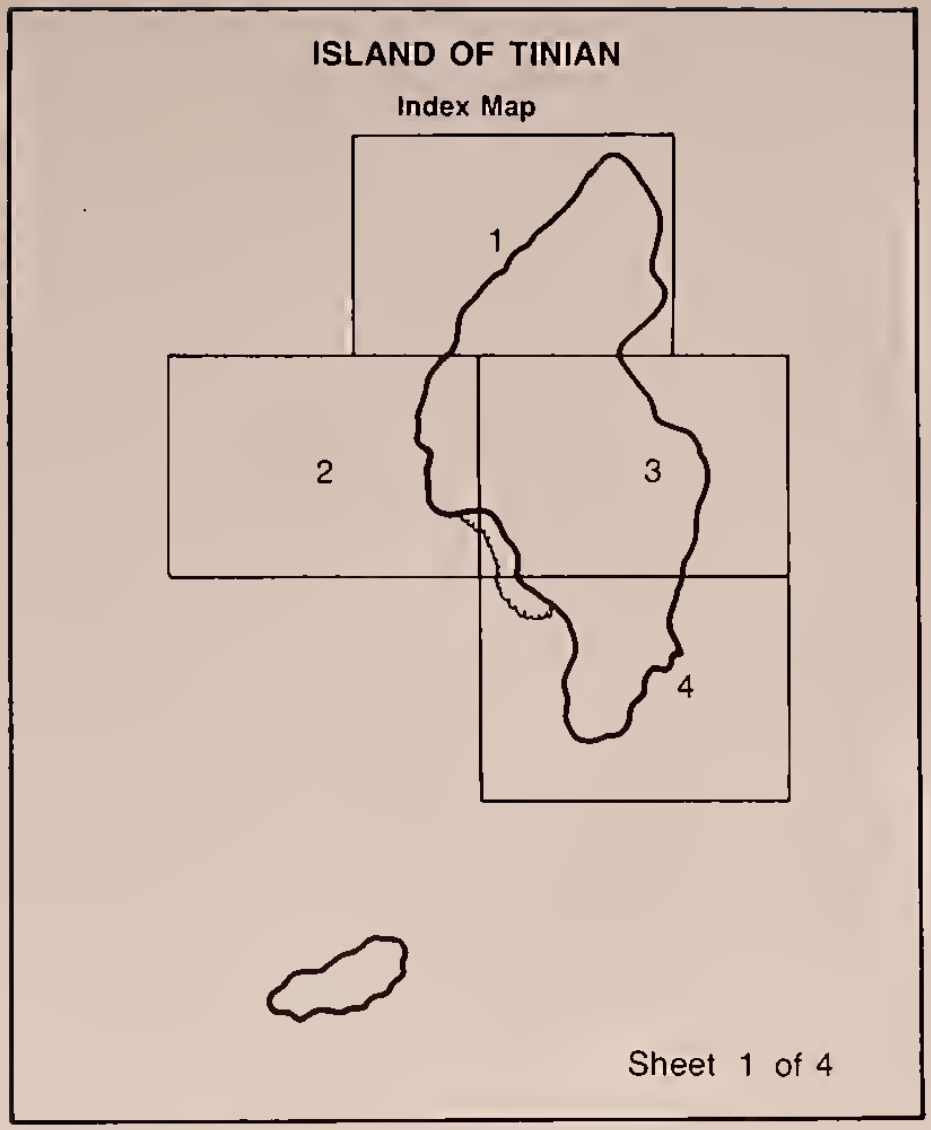

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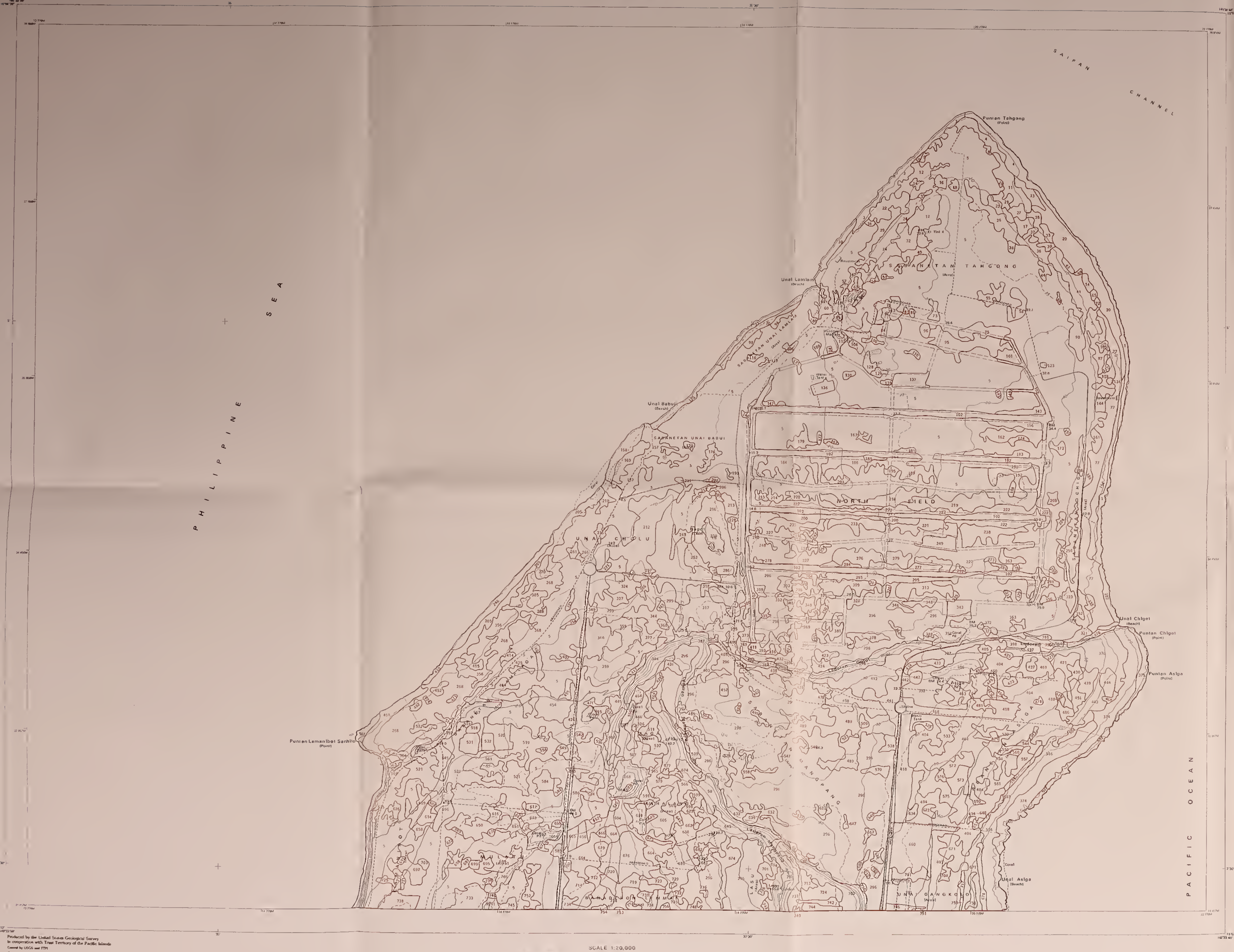
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

TINIAN



SCALE 1:20 000

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

Produced by the United States Geological Survey in cooperation with Trust Territory of the Pacific Islands

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	B.L.	43	17.4
3	S	22	6.0
4	G.S.	9	3.6
5	SV.L	2156	872.5
7	SV.G	2	.8
8	SV.S	1	.4
9	SV.G	1	.4
10	SV.G	1	.4
11	CA1M/SV.L	14	5.7
12	SV.G.S	32	13.0
13	G.S	5	2.0
14	SV.L	2	.8
16	IF1M/SV.L	2	.8
17	G.G	4	1.6
18	IF1M/SV.L	2	.8
19	SV.B	1	.4
20	S.S	41	16.6
21	SV.G.S	4	1.6
22	SV.L	12	4.8
23	CA1M	4	1.6
24	IF1M/SV.L	22	8.9
25	SV.L	1	.4
26	LI1H	15	6.1
27	SV.L	4	1.6
28	SV.S	5	2.0
29	SV.G.S	11	4.5
30	S	6	2.4
31	SV.G	1	.4
32	SV.L	9	3.6
33	SV.L	2	.8
36	IF1H	6	2.4
37	G.G	2	.8
38	SV.S	1	.4
39	G.G	2	.8
40	SV.L.S	6	2.4
41	SV.S	20	8.1
43	IF1M/SV.L	2	.8
44	CA1M/SV.L	2	.8
45	LI1H	1	.4
47	SV.G.S	3	1.2
50	SV.L	1	.4
51	G.G.S	2	.8
52	SV.G	1	.4
54	SV.G	1	.4
55	CA1L/SV.L	5	2.0
57	SV.G.S	1	.4
58	CA1L/SV.L	6	2.4
60	SV.G	5	2.0
61	SV.L	1	.4
62	CA1M/SV.G	5	2.0
63	SV.L	1	.4
64	CA2H	1	.4
65	SV.L	1	.4
67	SV.G	1	.4
69	G.G	1	.4
70	S.S	8	3.2
71	S	8	3.2
72	G.G.S	1	.4
73	IF1M/SV.L	3	1.2
75	CA1L/SV.L	10	4.0
76	CA1L/SV.L	7	2.8
77	S	66	26.7
80	IF1H	1	.4
81	CA1H	1	.4
83	IF1M	1	.4
84	IF1L/SV.L	11	4.5
85	SV.G	1	.4
87	SV.S	8	3.2
90	IF1M/SV.L	9	3.6
91	SV.L	2	.8
94	CA1M/SV.L	2	.8
95	SV.L.S	21	8.5
96	CA1L/SV.L	2	.8
98	CA1M/SV.L	3	1.2
100	SV.S	2	.8
101	SV.L	5	2.0
102	B.D	136	55.0
104	SV.S	2	.8
105	SV.L	2	.8
106	CA1M/SV.L	2	.8
108	CA1M	1	.4
110	CA1L/SV.L	1	.4
112	B.D	4	1.6
114	CA1M/SV.L	1	.4
116	SV.G	1	.4
117	SV.L	1	.4
118	SV.G	5	2.0
119	SV.G	1	.4
121	CA1M/SV.L	1	.4
123	CA1M/SV.L	1	.4
125	CA1H	9	3.6
126	CA1H	2	.8
128	SV.L.S	3	1.2
130	CA1M/SV.L	1	.4
134	SV.L	4	.4
136	SV.S/B.D	4	1.6
137	B.D	8	3.2
139	CA1H	1	.4
140	CA1M	1	.4
141	CA1M	1	.4
143	CA1H	5	2.0
144	SV.G	3	1.2
146	CA1M/SV.L	2	.8
147	CA1M/SV.L	1	.4
154	S/B.L	18	7.3
156	CA1H	7	2.8
157	SV.G.L	28	11.3
158	LI1H	11	4.5
159	CA1M/SV.L	1	.4
161	S.S	[illegible]	1.2
162	IF1M/SV.L	11	4.5
163	SV.S	1	.4
166	CA1M/SV.L	[illegible]	[illegible]
167	IF1M/SV.L	1	.4
169	SV.L	[illegible]	3.6
170	SV.G.S	1	.4
172	CA1L/SV.L	[illegible]	1.2
174	CA1M/SV.L	2	.8
176	SV.G.L	4	1.6
177	CA1M/SV.L	[illegible]	.4
179	IF1M/SV.L	[illegible]	2.0
181	CA1H	1	.4
182	B.D	14	5.7
183	CA1H	5	2.0
184	IF1M/SV.L	13	[illegible]
185	SV.L	[illegible]	.8
186	SV.L.S	[illegible]	1.2
188	S.S	[illegible]	.8
189	IF1M/SV.L	15	6.1
190	CA1H	[illegible]	[illegible]
192	CA1L/SV.L	[illegible]	[illegible]
193	SV.G	1	.4
195	IF1L/SV.L	2	.8
198	CA1H	1	.4
200	CA1H	15	6.1
201	SV.G	1	.4
203	SV.G.L	3	1.2
205	LI1H	29	11.7
206	M.F	[illegible]	.4
208	SV.G	2	.8
209	M.F	1	.4
210	SV.G.S	3	1.2
211	SV.G.S	3	1.2
212	SV.L.S	53	21.4
213	IF1M/SV.S	4	1.6
214	IF1M/SV.L	2	.8
215	SV.S	2	.8
216	M.F.P	32	13.0
217	SV.S	1	.4
218	SV.L.S	17	6.9
219	IF1M/SV.L	20	8.1
220	IF1H	3	1.2
221	IF1H/SV.L	9	3.6
222	CA1H	38	15.4
224	CA1H	2	.8
227	SV.L	108	43.7
229	CA1L/SV.S	1	.4
230	M.F	7	2.8
233	SV.L.S	9	3.6
235	SV.L.S	8	3.2
236	SV.G	2	.8
237	IF1H/SV.B	3	1.2
238	SV.L.S	14	5.7
240	SV.G	1	.4
242	CA1L/SV.L	2	.8
243	CA1L/SV.L	5	2.0
244	IF1M/SV.L	7	2.8
245	CA1H	1	.4
246	S.P	15	6.1
248	SV.G	1	.4
249	B.D	22	[illegible]
252	G.G/C	6	2.4
254	CA1H	1	.4
256	SV.G	19	7.7
257	CA1H	3	1.2
258	CA1H	1	.4
261	G.G/C	2	.8
263	IF1H	3	1.2
266	SV.G	1	.4
268	SV.G.S	96	38.9
270	SV.L	4	1.6
271	CA1M/SV.L	2	.8
272	CA1H	1	.4
273	IF1H	1	.4
276	IF1M/SV.L	12	4.9
277	CA1H	7	2.8
278	CA1H	1	.4
279	IF1H	6	2.4
280	IF1M/SV.L	5	2.0
281	CA1H	1	.4
282	B.L	6	2.4
284	CA1H	3	1.2
286	C	2	.8
288	CA1H	1	.4
289	CA1M/SV.L	2	.8
291	G.G	3	1.2
292	CA1M/SV.L	1	.4
294	SV.G	1	.4
295	CA1H	16	6.5
296	SV.L	742	300.3
297	SV.G	1	.4
299	SV.L.S	29	11.7
300	CA1M/SV.L	4	1.6
301	CA1L/SV.L	5	2.0
303	IF1H	4	1.6
304	CA1H	3	1.2
306	SV.L	9	3.6
308	SV.G	3	1.2
309	SV.L.S	11	4.5
310	SV.S	1	.4
312	SV.L	1	.4
313	SV.L.S	11	4.5
314	IF1M/SV.L	3	1.2
317	SV.G.S	29	11.7
318	SV.L	3	1.2
319	CA1M/SV.L	2	.8
320	IF1M/SV.L	1	.4
323	IF1H	4	1.6
324	IF1L/SV.L	9	3.6
325	CA1H	2	.8
326	CA1M/SV.L	4	1.6
327	IF1M.D/SV.L	4	1.6
328	CA1M/SV.L	4	1.6
329	CA1M/SV.L	1	.4
331	LI1H	9	3.6
332	CA1M/SV.L	1	.4
333	CA1M/SV.L	1	.4
335	CA1M/SV.L	1	.4
336	CA1H	2	.8
338	S.S	2	.8
339	CA1H	3	1.2
340	SV.L.S	3	1.2
341	LI1H	1	.4
343	B.D	6	2.4
344	SV.L	15	6.1
345	SV.G	1	.4
346	SV.S	3	1.2
348	CA1M/SV.L	4	1.6
349	CA1L/SV.L	6	2.4
350	IF1M/SV.L	2	.8
351	SV.L	2	.8
352	SV.G	2	.8
354	SV.G	2	.8
356	SV.L	24	9.7
357	CA1H	12	4.8
358	CA1M/SV.L	2	.8
359	SV.G.S	32	13.0
360	SV.L	18	7.3
361	SV.S	1	.4
363	G.G.S	2	.8
366	SV.G.S	2	.8
368	SV.S	1	.4
369	SV.S	1	.4
370	SV.G	3	1.2
371	IF1H	2	.8
372	G.G	1	.4
373	CA1M/SV.L	3	1.2
374	S	61	24.7
375	B.L	10	4.0
376	LI1H	35	14.2
377	SV.G	6	2.4
378	SV.G.S	5	2.0
379	B.L	3	1.2
381	CA1M/SV.L	6	2.4
383	CA1H	1	.4
384	LI1H	20	8.1
387	IF1M/SV.L	12	4.9
388	SV.G	1	.4
389	SV.G	11	4.5
390	LI2H	7	2.8
391	SV.G	1	.4
392	SV.G.S	22	8.9
393	CA1H	6	2.4
396	IF1M/SV.L	21	8.5
397	G.G/C	13	5.3
398	G.G	3	1.2
401	CA1L/SV.L	3	1.2
403	SV.G	9	3.6
404	SV.L	224	90.7
405	SV.S.C	2	.8
406	IF1M/SV.L	23	9.3
407	SV.G.S	4	1.6
408	IF1M/SV.L	1	.4
409	CA1H	1	.4
410	S	3	1.2
411	SV.L	1	.4
412	SV.G.S	31	12.5
413	CA1H	1	.4
414	SV.S	2	.8
415	SV.L	4	1.6
416	SV.L	1	.4
417	SV.G	2	.8
418	G.G/C	49	19.8
419	LI1H	23	9.3
420	SV.L	2	.8
421	LI2H	9	3.6
422	SV.L	1	.4
423	CA1M/SV.L	4	1.6
424	SV.G.S	4	1.6
425	G.G	2	.8
426	CA1L/SV.L	6	2.4
427	SV.L	2	.8
428	SV.G	3	1.2
429	SV.G	3	1.2
430	CA1H	4	1.6
431	CA1L/SV.L	3	1.2
432	SV.L	1	.4
433	SV.S	3	1.2
434	SV.L	1	.4
435	SV.G	2	.8
437	LI1H	5	2.0
438	SV.G	8	3.2
439	IF1M	7	2.8
440	LI1H	1	.4
441	SV.L	15	6.1
442	SV.L	2	.8
443	SV.S	12	4.9
444	IF1H	6	2.4
445	SV.S	8	3.2
446	SV.L	13	5.3
447	SV.L	2	.8
449	CA1H	3	1.2
450	G.S	1	.4
451	G.G.S	5	2.0
452	SV.L	2	.8
454	SV.G.S	29	11.7
455	CA1L/SV.L	3	1.2
457	CA1M/SV.L	2	.8
458	CA1L/SV.L	18	7.3
459	SV.G.C	7	2.8
460	S	15	6.1
462	SV.G	1	.4
463	SV.L	5	2.0
464	SV.G.S	2	.8
465	G.G	1	.4
466	G.S	1	.4
467	SV.G	1	.4
468	S.P	1	.4
469	G.G.S	12	4.9
470	G.G	1	.4
471	SV.L	1	.4
473	G.G	2	.8
474	SV.L	1	.4
476	SV.G	2	.8
478	G.G	1	.4
479	IF1H	1	.4
480	G.G	1	.4
481	CA1M	3	1.2
482	SV.L	2	.8
485	SV.G	4	1.6
488	IF1H	3	1.2
489	SV.G	1	.4
490	SV.G	47	19.0
492	IF1M/SV.L	6	2.4
495	CA1L/SV.L	3	1.2
497	IF1H/SV.L	9	3.6
499	SV.G	2	.8
501	SV.G	2	.8
502	CA1H	1	.4
504	S.P	5	2.0
506	U	14	5.7
507	B.L	4	1.6
509	SV.L	2	.8
511	SV.G	5	2.0
512	SV.L	3	1.2
514	SV.L	2	.8
515	SV.L	1	.4
516	S.S	58	23.5
517	SV.G	15	6.1
518	SV.AS.L	2	.8
519	SV.G.S	23	9.3
520	SV.AS.L	10	4.0
521	G.G	55	22.3
522	B.L	9	3.6
523	SV.L	2	.8
525	SV.G.S	2	.8
526	SV.G	1	.4
527	SV.L	2	.8
528	SV.G.S	10	4.0
529	SV.S	2	.8
530	G.G.S	8	3.2
531	C	6	2.4
532	C	4	1.6
533	SV.G.S	9	3.6
535	SV.G.S	1	.4
536	SV.G	4	1.6
537	SV.L.C	6	2.4
538	SV.G.S	3	1.2
539	SV.G	4	1.6
540	SV.G.S	2	.8
542	SV.G	2	.8
543	SV.S	1	.4
544	G.G	3	1.2
545	SV.L	9	3.6
546	LI1M/SV.S	21	8.5
547	SV.G	1	.4
549	SV.S	1	.4
550	IF1M	2	.8
551	CA1L/SV.L	3	1.2
552	SV.S	1	.4
553	CA1H	4	1.6
554	SV.L	1	.4
556	G.G	3	1.2
557	G.G	5	2.0
558	SV.G	4	1.6
560	G.G.S	1	.4
561	SV.L	15	6.1
562	SV.G.L	1	.4
563	LI1H	1	.4
565	SV.L	14	5.7
566	SV.G	10	4.0
567	SV.G	13	5.3
568	CA1H	20	8.1
569	SV.G	1	.4
570	CA1M/SV.L	4	1.6
572	G.G.S	7	2.8
573	G.S	8	3.2
574	CA1H	1	.4
575	G.G.S	21	8.5
576	SV.L	2	.8
577	SV.G	1	.4
579	LI1H	1	.4
580	LI1H	24	9.7
581	SV.S	9	3.6
582	C	2	.8
584	SV.G	5	2.0
585	CA1L/SV.L	17	6.9
586	SV.G.S	13	5.3
587	SV.S	1	.4
590	CA1L/SV.L	2	.8
591	IF1M/SV.L	3	1.2
594	SV.L	1	.4
595	CA1L/SV.L	9	3.6
596	SV.G.S	7	2.8
599	SV.L	1	.4
603	CA1H	1	.4
604	SV.G.S	13	5.3
605	SV.G.S	16	6.5
608	SV.G	1	.4
609	IF1M/SV.L	7	2.8
610	CA1M/SV.L	1	.4
611	SV.L	2	.8
614	SV.L	4	1.6
615	SV.G	1	.4
616	IF1M/SV.L	4	1.6
617	IF1H	2	.8
618	SV.G.S	5	2.0
619	CA1H	8	3.2
621	SV.G.S	2	.8
622	SV.G.S	2	.8
623	LI1H	2	.8
628	SV.G.S	2	.8
629	CA1H	1	.4
632	SV.G.S	13	5.3
634	SV.S/C	2	.8
635	SV.G	1	.4
637	SV.G	1	.4
638	CA1M/SV.L	11	4.5
639	SV.L	2	.8
640	SV.G	1	.4
642	G.G.S	2	.8
644	IF1H	2	.8
645	[illegible]	[illegible]	[illegible]
647	SV.G	[illegible]	[illegible]
648	CA1H	[illegible]	[illegible]
649	SV.L	[illegible]	[illegible]
650	CA1M/SV.L	14	5.7
651	SV.G	[illegible]	[illegible]
652	CO1H	1	[illegible]
653	IF1H	1	[illegible]
654	SV	1	.4
655	SV.S	[illegible]	.4
656	SV.G	4	1.6
658	SV.G.S	[illegible]	[illegible]
660	SV.G/C	35	14.2
661	SV.L	1	[illegible]
662	SV.L	1	[illegible]
663	CA1H	[illegible]	[illegible]
664	SV.L	[illegible]	14.2
665	C	4	1.6
666	CA1H	[illegible]	[illegible]
667	SV.G	2	.8
669	[illegible]	1	[illegible]
670	SV.S	1	.4
671	G.G.S	14	[illegible]
672	SV.S	1	.4
674	SV.L.S	11	4.5
675	CA1L/SV.L	[illegible]	[illegible]
676	SV.L.S	[illegible]	14.7
677	SV.G	1	.4
678	CA1H	[illegible]	[illegible]
679	CO1L/SV.L	[illegible]	[illegible]
680	IF1M/SV.L	19	[illegible]
681	SV.L.S	[illegible]	[illegible]
682	AG	2	[illegible]
683	SV.G.S	2	[illegible]
686	SV.G	[illegible]	[illegible]
688	SV.G	[illegible]	[illegible]
689	SV.G.G	[illegible]	[illegible]
691	IF1H	1	[illegible]
692	SV.L.S	11	[illegible]
693	SV.G	2	.8
694	IF1H.D	[illegible]	1.2
695	IF1M/SV.L	[illegible]	1.2
697	SV.L.S	[illegible]	[illegible]
698	SV.G.S	4	1.6
699	SV.G	1	.4
700	SV.G	1	.4
701	IF1H	3	1.2
702	LI1H	34	[illegible]
703	IF1M/SV.L	1	[illegible]
704	CA1M/SV.L	[illegible]	[illegible]
705	G.G.S	[illegible]	[illegible]
706	IF1M/SV.L	7	2.8
707	G.G	8	3.2
708	CA1M/SV	1	.4
711	LI1H	[illegible]	2.4
712	IF1M/SV.L	7	2.8
713	G.G	4	1.6
714	SV.L.S	12	4.9
716	CA1M/SV	1	[illegible]
717	IF1H	2	[illegible]
718	IF1M/SV.L	3	1.2
719	CA1L/SV.L	12	4.9
720	SV.L	3	1.2
721	IF1H.D	1	.4
723	SV.G.S	3	1.2
724	SV.G	10	4.0
725	IF1H.D	2	.8
726	CA1M/SV.L	2	.8
728	SV.S	1	.4
729	SV.G	1	.4
730	SV.B	1	.4
731	G.G	4	1.6
732	SV.G	1	.4
733	SV.L.S	12	4.9
734	SV.L	19	7.7
735	IF1H	6	2.4
736	SV.G	1	.4
738	SV.L.S	9	3.6
739	SV.G	2	.8
740	SV.S	1	.4
741	IF1H	3	1.2
742	IF1H	4	1.6
743	SV.G.S	1	.4
744	SV.G.S	4	[illegible]
745	CA1M/SV.S	3	1.2
746	G.G.S/C	3	1.2
748	SV.G	2	.8
749	LI1H	1	.4
751	SV.L/C	20	8.1
752	SV.G.S	6	2.4
753	SV.L.S	1	.4
754	IF1M/SV.L	1	.4
755	SV.G	2	.8
756	SV.L	[illegible]	.4
758	SV.L	4	1.6
759	CA1H	1	.4

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Allan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section; 1987.

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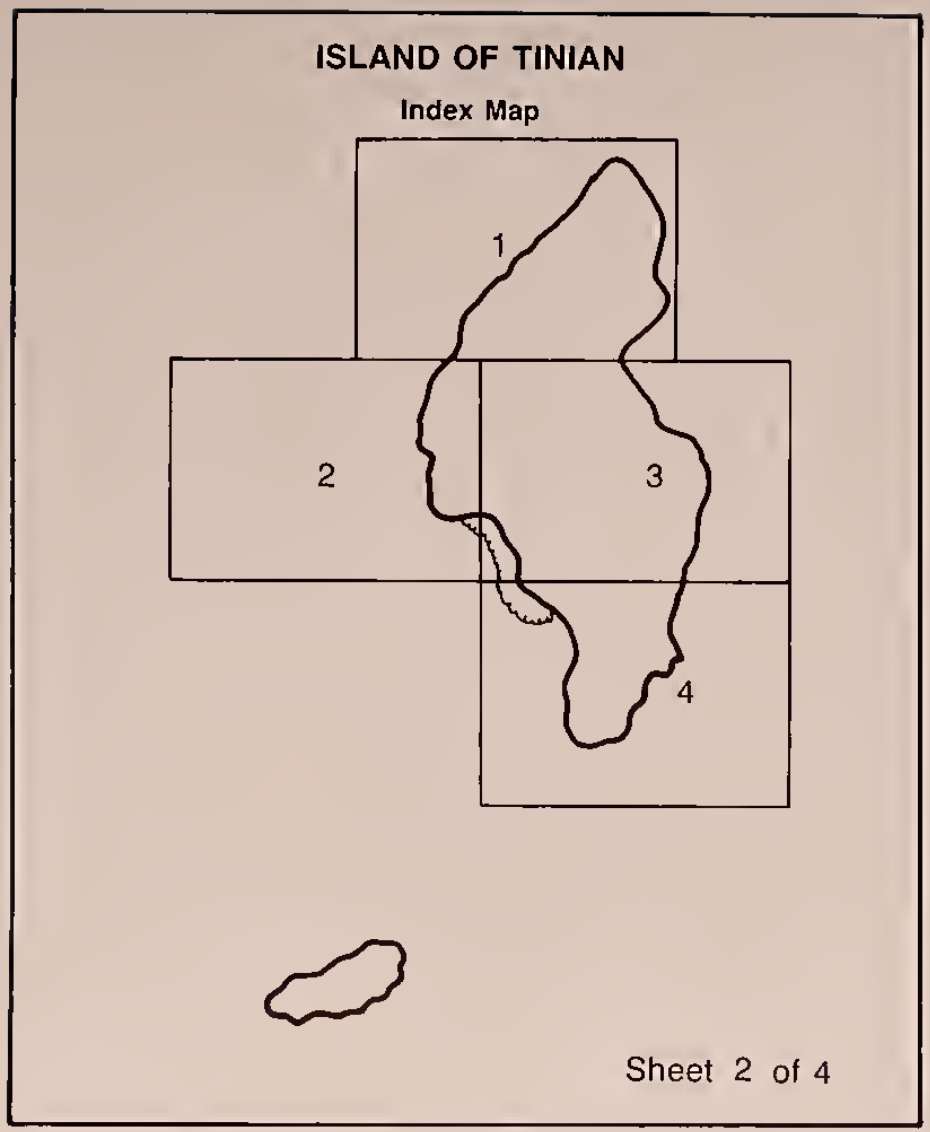

Falanruw, Marjorie C.; Cole, Thomas G.; Ambacher, Alan H. 1989. **Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands.** Resour. Bull. PSW-27. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. 11p. + 13 maps.

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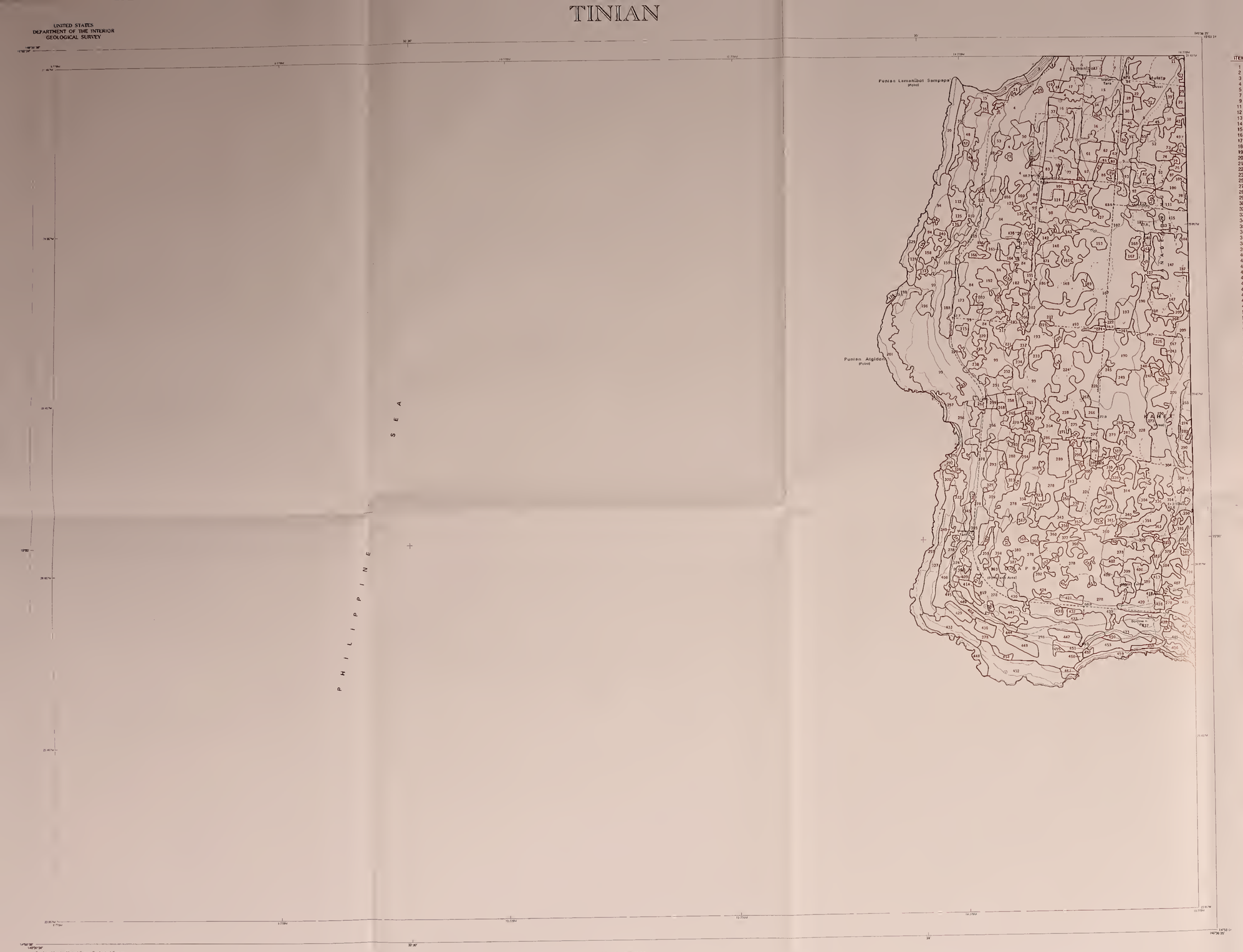


VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	CA1H	1	.4
2	L1H	6	2.4
3	L1IM/SV.S	7	2.8
4	IF1M/SV.L	130	52.6
5	SV.L.S	8	3.2
7	SV.L	10	4.0
9	SV.L.S	58	23.5
11	IF1H	1	.4
12	SV.L	2	.8
13	CA1H	4	1.6
14	IF1M.O/SV.L	9	3.6
15	G.G/C	8	3.2
16	G.G/C	49	19.8
17	SV.L.S	5	2.0
18	G.G/C	2	.8
19	SV.S	1	.4
20	S/B.L	20	8.1
21	SV.S.G	3	1.2
22	SV.L	3	1.2
23	SV.S	1	.4
25	SV.L	1	.4
27	SV.L	3	1.2
28	SV.L.S	2	.8
29	CO1M/SV.L	2	.8
30	G.G/C	5	2.0
32	SV.G	1	.4
33	S.P	8	3.2
34	IF1M/SV.L	2	.8
35	L1H	2	.8
36	IF1M/SV.L	1	.4
37	CO1H	2	.8
38	SV.L	6	2.4
39	SV.G.S	2	.8
40	SV.L	1	.4
41	CO1M	6	2.4
42	G.G/C	1	.4
43	SV.L	6	2.4
44	SV.G.S	17	6.9
45	G.G	2	.8
46	SV.L	2	.8
47	IF1M/SV.L	8	3.2
48	SV.G	9	3.6
49	SV.L	6	2.4
50	IF1M.O/SV.L	11	4.5
51	L1H	3	1.2
52	CO1M/SV.G	25	10.1
53	CA1M/SV	4	1.6
55	G.G	1	.4
56	SV.S	1	.4
57	SV.L	1	.4
59	IF1M/SV.L	11	4.5
61	C	6	2.4
62	CO1H	10	4.0
63	G.G.S	2	.8
66	CA1H	2	.8
67	SV.L.S	2	.8
68	SV.S	1	.4
71	SV.S	1	.4
73	G.G	1	.4
74	SV.S	3	1.2
76	SV.L.S	3	1.2
77	CO1M	6	2.4
78	SV.G	1	.4
79	G.G	1	.4
80	IF1H	1	.4
81	C	1	.4
82	SV.G.S	7	2.8
83	G.G/C	3	1.2
84	IF1M/SV.L	79	32.0
85	SV.L	2	.8
86	SV.G.S	8	3.2
87	SV.G.S	3	1.2
88	G.G	1	.4
89	IF1H	1	.4
90	CO1M/SV.L	3	1.2
92	CO1M/SV.L	5	2.0
93	G.G	3	1.2
94	S.S	24	9.7
95	CA1L/SV.L	17	7.1
96	SV.L.S	1	.4
97	SV.S	1	.4
98	SV.L	25	10.1
99	SV.L	180	72.8
100	SV.S	8	3.2
101	G.G/C	8	3.2
102	SV.S	3	1.2
103	CA1H	6	2.4
104	G.G	2	.8
105	SV.G.S	1	.4
106	SV.S	3	1.2
107	IF1M/SV.L	117	47.3
108	IF1H.O	1	.4
110	IF1M/SV	13	5.3
111	SV.G.S	7	2.8
112	SV.G	5	2.0
113	SV.L	21	8.5
115	SV.L	21	8.5
116	SV.G.S	4	1.6
117	SV.L	2	.8
120	CO1H	1	.4
121	SV.G/C	4	1.6
123	L1H	1	.4
125	SV.L	3	1.2
126	IF1H.O	1	.4
127	SV.S	1	.4
129	S/B.L	8	3.2
131	CO1M/SV.L	11	4.5
133	SV.S	1	.4
134	G.G	1	.4
135	G.G	2	.8
137	SV.L	7	2.8
138	CA1H	5	2.0
139	S.P	7	2.8
140	SV.L	3	1.2
141	SV.G	1	.4
142	SV.S	4	1.6
143	SV.G.S	2	.8
144	CA1M/SV.L	5	2.0
145	SV	2	.8
146	SV.L	2	.8
147	SV.L	72	29.1
148	SV.L	46	18.6
151	CA1M/SV.L	5	2.0
152	SV.G	1	.4
153	SV.S	3	1.2
155	SV.S	1	.4
156	SV.G	1	.4
157	SV.G	3	1.2
158	SV.L	7	2.8
159	SV.G.S	10	4.0
161	SV.S	3	1.2
163	SV.S	1	.4
164	SV.L	5	2.0
165	SV.G	1	.4
166	SV.S	2	.8
167	CA1H	2	.8
168	SV.G	2	.8
170	SV.L	2	.8
171	IF1M/SV	4	1.6
172	SV.G	3	1.2
173	CA1L/SV.L	10	4.0
174	S/B.L	2	.8
182	SV.S	10	4.0
186	SV.S	1	.4
187	IF1M/SV.L	2	.8
188	CA1H	12	4.9
189	SV.G	2	.8
190	SV.L.S	76	30.8
191	SV.S	6	2.4
192	IF1H	8	3.2
193	SV.L	71	28.7
194	SV.S	3	1.2
196	CO1H	5	2.0
197	SV.G	2	.8
200	SV.L	1	.4
201	S/B.L	25	10.1
202	IF1M/SV.L	8	3.2
203	SV	1	.4
204	SV.G.S	4	1.6
205	IF1M/SV.S	3	1.2
206	CA1M/SV.L	2	.8
207	SV.G.S	1	.4
208	IF1H	1	.4
209	CA1M/SV.L	34	13.8
210	SV.L	1	.4
211	IF1H.O	3	1.2
212	CA1H	1	.4
215	C	2	.8
217	SV.S	1	.4
219	IF1M.O/SV.S	2	.8
220	SV.G	3	1.2
221	SV.S	2	.8
222	C	1	.4
224	SV.L.S	29	11.7
225	SV.G	2	.8
226	C	1	.4
228	IF1M/SV.L	100	40.5
229	SV.G.S	1	.4
231	SV.G	1	.4
232	CA1M/SV.L	6	2.4
233	IF1M/SV.L	4	1.6
234	IF1M/SV.L	2	.8
235	IF1H.O	1	.4
238	SV.G.S	4	1.6
243	C	1	.4
244	SV.S	1	.4
245	IF1H.O	1	.4
246	SV.S	1	.4
247	IF1H.O	1	.4
248	SV.G	1	.4
249	SV.L	4	1.6
250	SV.L	2	.8
251	SV.G.S	8	3.2
252	SV.L.S	2	.8
253	SV.S	1	.4
254	CA1L/SV.L	6	2.4
255	SV.G.S	7	2.8
256	SV.G/C	35	14.2
257	S	2	.8
258	C	5	2.0
259	SV.S	3	1.2
260	SV.G	2	.8
261	CA1H	3	1.2
262	SV.G	2	.8
264	SV.L.S	12	4.9
265	SV.L	3	1.2
266	C	3	1.2
267	SV.L	2	.8
268	CO1H	2	.8
269	SV.S	1	.4
270	SV.S.L	3	1.2
271	SV.G	4	1.6
272	SV.G	1	.4
273	CA1L/SV.L	2	.8
274	CA1L/SV.L	5	2.0
275	SV.S	6	2.4
276	CO1L/S	4	1.6
277	SV.L	17	6.9
278	SV.L	329	133.1
279	CA1M/SV.L	3	1.2
280	SV.G	3	1.2
281	SV.S	3	1.2
282	SV.G.S	1	.4
283	SV.S	2	.8
284	SV.L	2	.8
285	SV.G.S	3	1.2
288	SV.G	1	.4
289	SV.L	9	3.6
289	C	13	5.3
290	SV.L	5	2.0
291	SV.G	2	.8
292	SV.S	2	.8
293	SV.G	9	3.6
294	CA1L/SV.S	5	2.0
296	C	2	.8
297	S/B.L	26	10.5
298	IF1M/SV	1	.4
299	CO1L	3	1.2
300	SV.S	4	1.6
301	SV.G	1	.4
304	SV.L	26	10.5
305	C	1	.4
306	SV.G	1	.4
307	SV.S	1	.4
308	SV.S	1	.4
310	SV.S	3	1.2
313	C	6	2.4
314	SV.G.S	43	17.4
315	SV.L	3	1.2
316	SV.S	1	.4
319	CA1L/SV.S	20	8.1
320	S.S	3	1.2
321	SV.G	24	9.7
322	SV.G.S	6	2.4
323	SV.L	2	.8
324	CA1L/SV.L	2	.8
326	SV.G.S	1	.4
327	SV.L	25	10.1
328	SV.L	1	.4
331	SV.L	2	.8
333	SV.S	1	.4
334	SV.G	1	.4
336	SV.L	1	.4
337	SV.G.S	4	1.6
338	SV.L	2	.8
339	SV.G	5	2.0
340	SV.L	16	6.5
341	SV.L	1	.4
343	IF1M/SV	9	3.6
345	L1M/SV.S	3	1.2
346	L1H	1	.4
347	SV.G.S	1	.4
348	IF1M/SV.L	2	.8
349	SV.G	1	.4
350	SV.L	3	1.2
351	SV.L	15	6.1
352	SV.S	2	.8
353	SV.G	1	.4
355	IF1H	1	.4
356	SV.L	1	.4
358	IF1H.D	1	.4
359	SV.G	5	2.0
360	SV.G	24	9.7
361	SV.S	2	.8
362	SV.S	1	.4
363	CA1M/SV.L	3	1.2
365	SV.G	1	.4
366	SV.G.S	1	.4
368	SV.G	1	.4
372	SV.G.S	1	.4
373	IF1H	2	.8
374	L1H	6	2.4
375	CO1H	1	.4
378	SV.G.S	1	.4
377	SV.L	3	1.2
378	SV.G	1	.4
379	IF1M/SV.L	3	1.2
380	SV.G.S	1	.4
381	SV.G.S	1	.4
382	SV.S	2	.8
383	CA1M/SV.L	4	1.6
384	SV.G	9	3.6
385	SV.L	2	.8
387	IF1M	2	.8
389	SV.L	1	.4
390	SV.G.S	4	1.8
391	SV.G.S	14	5.7
392	SV.G	4	1.6
393	CA1L/SV.L	4	1.6
394	SV	1	.4
395	SV.S	1	.4
397	CA1M	1	.4
398	SV.S	2	.8
399	SV.L.S.G	14	5.7
402	SV.L.S	3	1.2
403	SV.S	7	2.8
404	SV.G	3	1.2
406	IF1M/SV.L	4	1.6
407	SV.L	10	4.0
408	SV.G.S	19	7.7
409	SV.L	1	.4
410	SV.L.S	5	2.0
411	SV.G	1	.4
413	IF1H	3	1.2
414	CA1M	4	1.6
415	SV.L	1	.4
416	SV.S	1	.4
417	SV.G	2	.8
418	SV.G.S	1	.4
419	SV.S	1	.4
420	IF1M/SV.L.G	12	4.9
421	SV.S	3	1.2
423	SV.L.S	34	13.8
424	SV.G	1	.4
425	SV.G.S	8	3.2
426	SV.G	1	.4
428	SV.G.S	2	.8
429	G.G/C	5	2.0
430	CA1L/SV	4	1.6
431	SV.G.S	1	.4
432	SV.S	1	.4
433	S	13	5.3
435	CA1M/SV.L	6	2.4
436	G.G/C	5	2.0
437	IF1H	12	4.9
438	SV.G	1	.4
439	SV.G	1	.4
440	IF1M/SV.L	7	2.8
441	SV.S	5	2.0
443	SV.L	1	.4
444	SV.S	2	.8
445	SV.G	8	3.2
446	SV.L	4	1.6
447	G.G/C	1	.4
448	S/B.L	-	.4
449	G.G/C	-	.4
450	CO1M/SV.L	2	.8
451	L1H	2	.8
452	S.S.P	35	14.2
453	SV.L	1	.4
454	CA1M/SV.S	2	.8
455	SV.G	1	.4
456	SV.L	1	.4
457	SV.G	1	.4
458	CA1H	1	.4
459	L1M/S	15	6.1
460	SV.S	1	.4
461	SV.S	2	.8

Produced by the United States Geological Survey
in cooperation with Trust Territory of the Pacific Islands
Control by USGS and TTPI

Compiled by photogrammetric methods from aerial photographs taken 1944-45. Field checked 1975.
Limited field check 1988. Map edited 1992

Projection and metric grid: Polyconic projection
1927 North American Datum
10,000-foot grid based on Guam coordinate system
(Modified Transverse Mercator)

SCALE 1:20,000

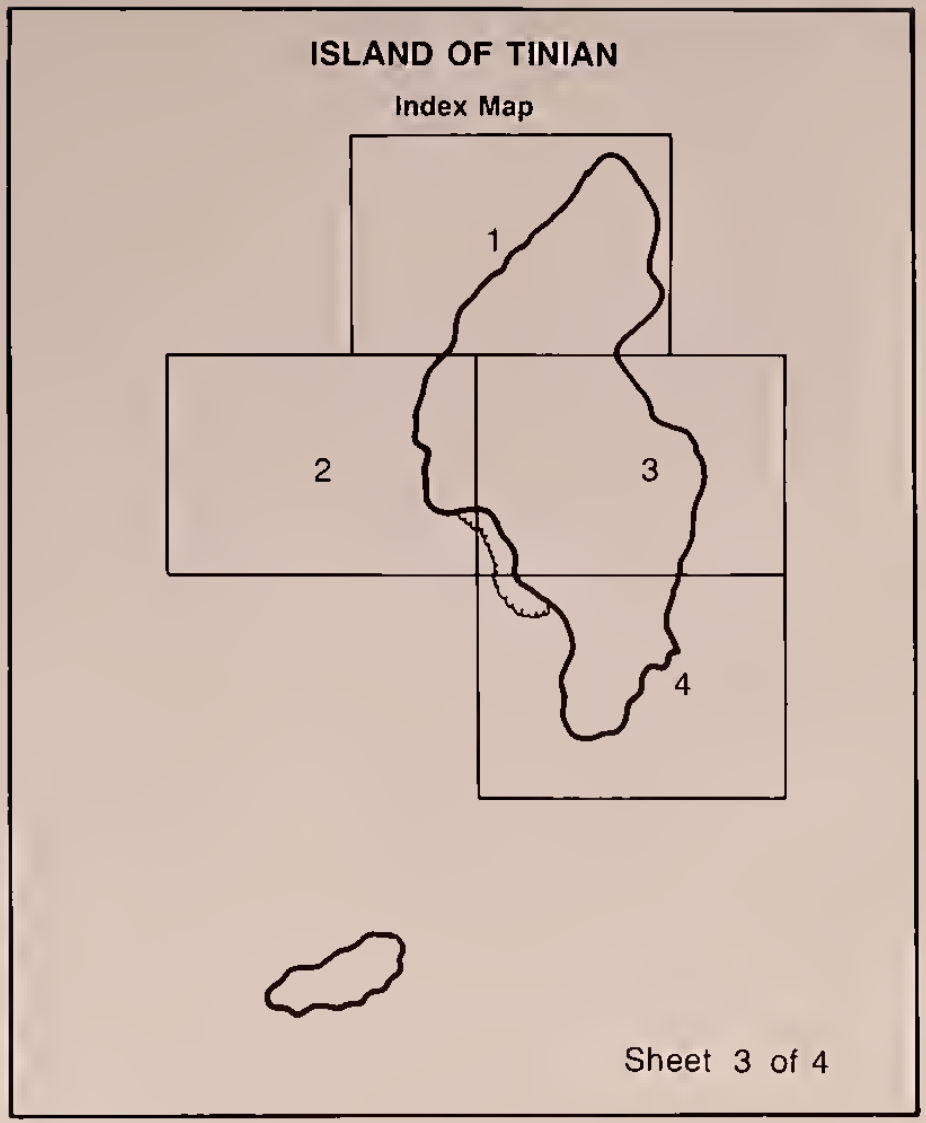
CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

SHORELINE SHOWN REPRESENTS THE APPROXIMATE EDGE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER

1992 MAGNETIC NORTH DECLINATION
11 DEGREES 24' WEST

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section, 1987.

TINIAN
Sheet 2 of 4



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TINIAN

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA		ITEM	LABEL	AREA		ITEM	LABEL	AREA		ITEM	LABEL	AREA	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Produced by the United States Geological Survey
in cooperation with Trust Territory of the Pacific Islands

SCALE 1:20,000

KILOMETERS

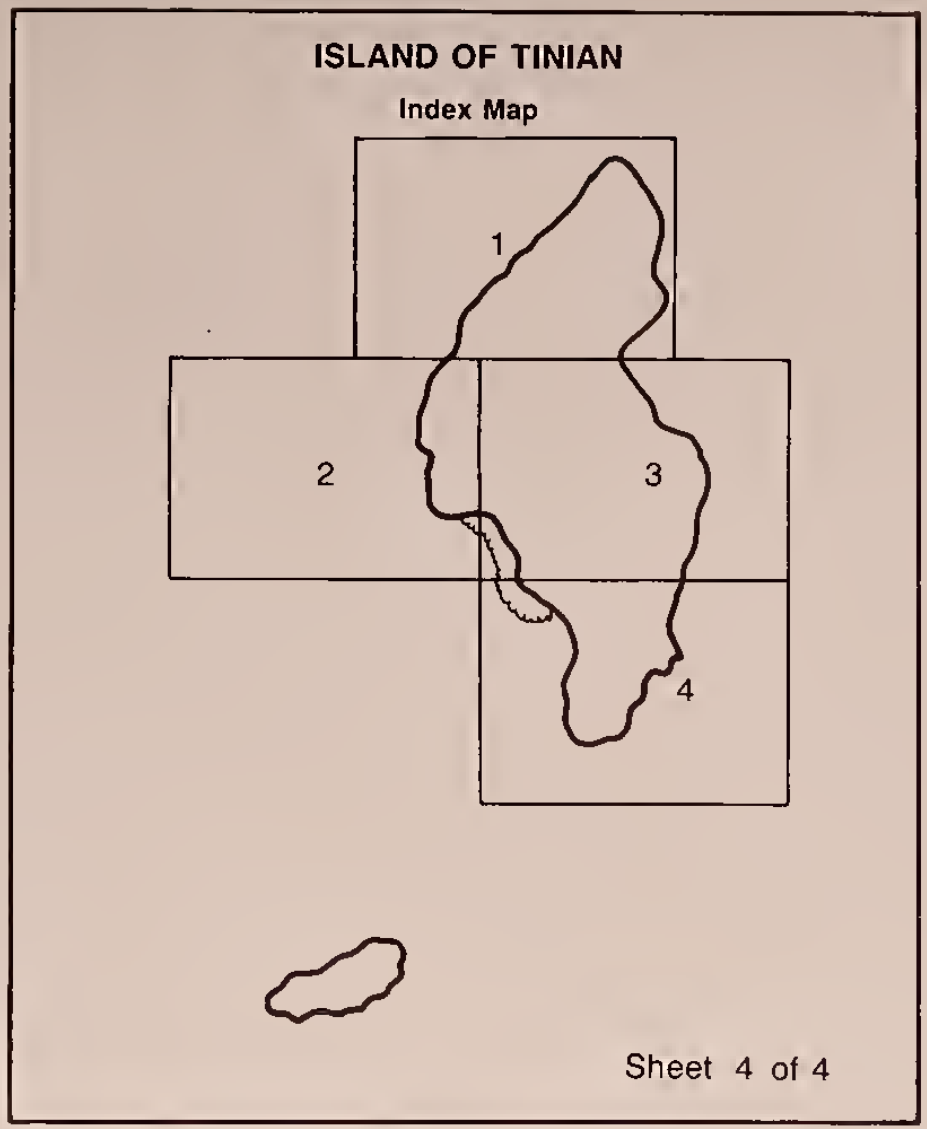
NAUTICAL MILE

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geomatronics Section; 1987.

TINIAN
Sheet 3 of 4



Falanruw, Marjorie C.; Cole, Thomas G.; Ambacher, Alan H. 1989. **Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands.** Resour. Bull. PSW-27. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. 11p. + 13 maps.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

TINIAN

Produced by the United States Geological Survey
in cooperation with Trust Territory of the Pacific Islands

SCALE 1:20,000

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	C	1	.4
4	SV.AS	1	.4
5	G.G	1	.4
6	SV.S	1	.4
8	S/B.L	88	34.8
9	SV.AS	1	.4
10	C	52	21.0
11	SV.L	167	67.6
12	LI1H	328	132.7
13	LI2H	2	.8
14	SV.G	1	.4
15	SV.L	1	.4
16	C	2	.8
17	CO1L/U	83	33.6
18	SV.L	1	.4
19	SV.L	2	.8
20	B.D	2	.8
21	SV.G.L	7	2.8
22	IF1M/SV.L	20	8.1
23	G.G	13	5.3
24	SV.L	12	4.9
25	C	1	.4
26	CA1H	3	1.2
27	SV.L	41	16.6
28	CA1M/SV.L	1	.4
29	IF1M/SV.L	3	1.2
30	IF1H.D	1	.4
31	U	1	.4
32	SV.L	1	4
33	U	14	5.7
34	G.G	4	1.6
36	S.S	1	.4
37	U	1	.4
38	G.G	3	1.2
39	G.G	1	.4
40	C	1	.4
41	S.S	8	3.2
42	SV.S	5	2.0
43	SV.L	1	4
44	SV.L	3	1.2
45	IF1M	2	.8
46	SV.L	401	162.3
47	U	1	.4
48	U	1	4
49	SV.L.S	8	3.2
50	IF1M/SV.L	11	4.5
51	C	8	3.2
53	SV.S	2	.8
54	SV.AS	13	5.3
55	SV.L	8	3.2
56	IF1H.O	2	.8
57	G.G	1	4
58	SV.L	1	.4
59	CA1L/SV.L	8	3.2
60	SV	2	.8
61	G.G	10	4.0
62	IF1H	1	4
63	IF1M/SV.L	23	9.3
65	G.G.S	1	4
66	G.G.S	6	2.4
68	SV	1	.4
69	G.G	9	3.6
70	SV.G	2	.8
71	AG.CO	1	.4
73	S.S	4	1.6
74	B.D	1	4
75	SV.L.S	8	3.2
76	LIOH	6	2.4
77	SV.S	2	.8
79	SV.L	12	4.9
80	G.G	8	3.2
81	B.D	3	1.2
82	SV.L	1	.4
83	CA1M/SV.L	16	6.5
84	SV.L.S	125	50.6
85	SV.L	17	6.9
86	G.G	1	4
88	CA1M/SV.L	3	1.2
89	SV.G	2	.8
91	CA1L/SV.L	8	3.2
92	SV.S	4	1.6
93	SV.L	2	8
94	SV.S	7	2.8
95	CO1H	2	8
96	G.G	1	.4
97	CO1M/SV.S	3	1.2
98	U	16	6.5
99	SV.G	2	.8
101	G.G	2	.8
103	SV.L	7	2.8
104	C	9	3.6
106	CO1M	4	1.6
107	CO1H	3	1.2
108	LI2H	4	1.6
109	S.S	2	8
110	SV	1	4
111	CA1M/SV.L	2	6
112	G.G.S	3	1.2
113	SV.L	5	2.0
115	IF1M/SV	29	11.7
116	CA1M	2	.8
118	CO1M/SV.S	8	3.2
119	LI1M/S	32	13.0
120	SV.L.C	11	4.5
121	IF1M/SV.L	14	5.7
123	CA1H	2	.8
125	IF1H	6	2.4
126	SV.L	3	1.2
128	G.G.S/C	205	83.0
129	SV.L	4	1.6
130	SV.L.S	10	4.0
131	C	11	4.5
132	SV.S	2	.8
134	C	2	.8
135	SV.G	13	5.3
136	SV.L	23	9.3
139	SV.L	1	.4
141	IF1M/SV.L	4	1.6
142	SV.S	2	.8
143	IF1M/SV.L	47	19.0
144	G.G	3	1.2
145	IF1M/SV.L	1	.4
148	SV.G	1	.4
150	SV.L/C	32	13.0
151	SV.S	7	2.8
153	C	5	2.0
154	IF1M/SV.L	2	.8
155	SV.L	1	.4
156	G.G	1	.4
158	C	2	.8
159	G.G.S	1	.4
160	SV.L	1	.4
161	IF1M/SV.L	1	.4
162	C	5	2.0
164	IF1M/SV.L	31	12.5
165	SV.L	1	.4

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
166	SV.L/C	38	15.4
167	G.G.S	1	.4
168	G.G	2	.8
169	C	2	.8
170	C	2	.8
171	SV.L	2	.8
172	CA1H	1	.4
174	G.G.S	4	1.6
175	G.G/S	4	1.6
176	SV.L	1	.4
177	SV.S	1	.4
178	IF1H	4	1.6
179	SV.L	1	4
180	SV.L	1	.4
183	G.G.S	2	.8
184	S	2	.8
185	C	16	6.5
187	SV.G	1	4
188	IF1M/SV.L	14	5.7
189	SV.L	12	4.9
190	C	4	1.6
191	SV.L	7	2.8
192	C	1	.4
193	B.S	1	.4
194	C	6	2.4
195	C	3	1.2
196	SV.L	9	3.6
197	CO1H	2	.8
198	CA1H	1	.4
199	SV.G	8	3.2
200	SV.L/C	118	47.8
201	LI2H	28	11.3
202	SV.L	4	1.6
204	G.G.S	3	1.2
205	LI1H	6	2.4
206	G.G.S/C	13	5.3
207	SV.L.C	1	4
208	G.G	12	4.9
209	G.G/C	58	23.5
210	SV.G	4	1.6
211	SV.L.C	24	9.7
212	SV.L	12	4.9
213	SV.L	2	.8
214	IF1H	1	.4
215	G.G.S	9	3.6
216	SV.L	1	.4
217	G.G/S	6	2.4
218	IF1H	2	.8
220	G.G	5	2.0
221	SV.S	2	.8
224	SV.L.S	1	.4
225	CA1H	1	4
226	LI1L/SV.G	4	1.6
227	SV.L.C	3	1.2
228	S/B.L	7	2.8
229	LI1H	26	10.5
230	G.S	2	.8
231	CA1H	3	1.2
233	LI1H	3	1.2
234	SV.L/C	45	18.2
235	CA1M/SV.L	4	1.6
236	G.S	7	2.8
237	SV.G	19	7.7
238	IF1H	4	1.6
239	LI0H/S	12	4.9
240	SV.G	2	.8
241	SV.G	3	1.2
242	G.G.S/C	84	34.0
243	CA1M/SV.L	10	4.0
244	IF2H.D	23	9.3
245	SV.L.C	3	1.2
247	CO1L/SV.L	4	1.6
248	SV.G	3	1.2
249	LI1H	6	2.4
250	LI2H	2	.8
251	SV.G	3	1.2
252	SV.L	7	2.8
253	S.P	7	2.8
255	SV.G.S	29	11.7
256	LI1H	13	5.3
257	G.S	3	1.2
258	IF1M/SV.L	2	.8
259	W.F	1	.4
261	SV.L	1	
262	S/B.L	6	2.4
263	SV.L.S	7	2.8
264	SV	1	.4
265	S/DV	18	7.3
266	LI1H	[illegible]	[illegible]
267	SV.L		1.6
268	SV.L	1	.4
269	LI2H	19	7.7
270	CA1H	3	1.2
271	SV.L	9	3.[illegible]
272	SV.G	11	4.5
273	SV.L	1	.4
275	SV.L	4	1.6
276	IF1H	19	7.7
277	CA1H	13	5.3
278	IF1M/SV.L	38	15.4
279	SV.L	1	.4
280	SV.G	2	.8
281	SV.L.S	7	2.8
282	SV.G	1	.4
283	SV.L	1	.4
285	SV.G	1	.4
286	G.G	2	.8
287	C	1	.4
288	SV.L	2	.8
289	CA1M/SV	9	3.6
290	LI1H	7	2.8
291	C	1	.4
292	LI1H	11	4.5
293	S/B.L	[illegible]	[illegible]
294	LI1H	3	1.2
295	IF1M/SV	6	[illegible]
296	SV.L	2	.8
297	IF1M/SV.G	43	17.4
298	G.G.S	15	6.1
299	SV.L	1	.4
300	LI2H	87	35.[illegible]
301	G.S/C	78	31.6
302	G.G	87	35.2
303	CA1M	1	.4
304	IF1M	2	.8
306	G.G	1	.4
307	LI1H	57	23.1
308	SV.L/C	10	4.0
309	SV.L	3	1.2
311	G.G.S	3	1.2
312	SV.L	4	1.6
313	SV.L	13	5.3
315	CA1M	1	.4
317	SV.L/C	79	32.0
318	LI1M/SV	11	4.5
319	CA1M/SV.L	6	2.4

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
321	SV.L	59	23.9
322	S	8	3.2
323	G.S	6	2.4
324	SV.L	5	2.0
325	LI1H	16	6.5
326	SV.S	4	1.6
327	IF1M	2	.8
328	G.S	1	.4
329	IF1H	2	.8
330	CA1M	3	1.2
331	SV.L.S	3	1.2
332	SV.L.S	4	1.6
333	IF1M/SV.L	42	17.0
334	SV.L	1	.4
337	SV.L	1	.4
338	SV.G.L	7	2.8
339	S/DV	5	2.0
340	SV.G	2	.8
341	SV.L	3	1.2
342	SV.G	15	6.1
343	LI1H	27	10.9
345	LI2H	20	8.1
347	S.P	6	2.4
348	S	51	20.6
350	G.G.S	5	2.0
351	SV.G	1	.4
352	S/DV	11	4.5
353	SV.S	1	.4
354	SV.L.S	4	1.6
355	SV.S	3	1.2
356	S.P	20	8.1
357	S.S	10	4.0
359	S.P	4	1.6
360	SV.S	2	.8
361	SV.S	3	1.2
362	SV.L	1	.4
363	SV.L	3	1.2

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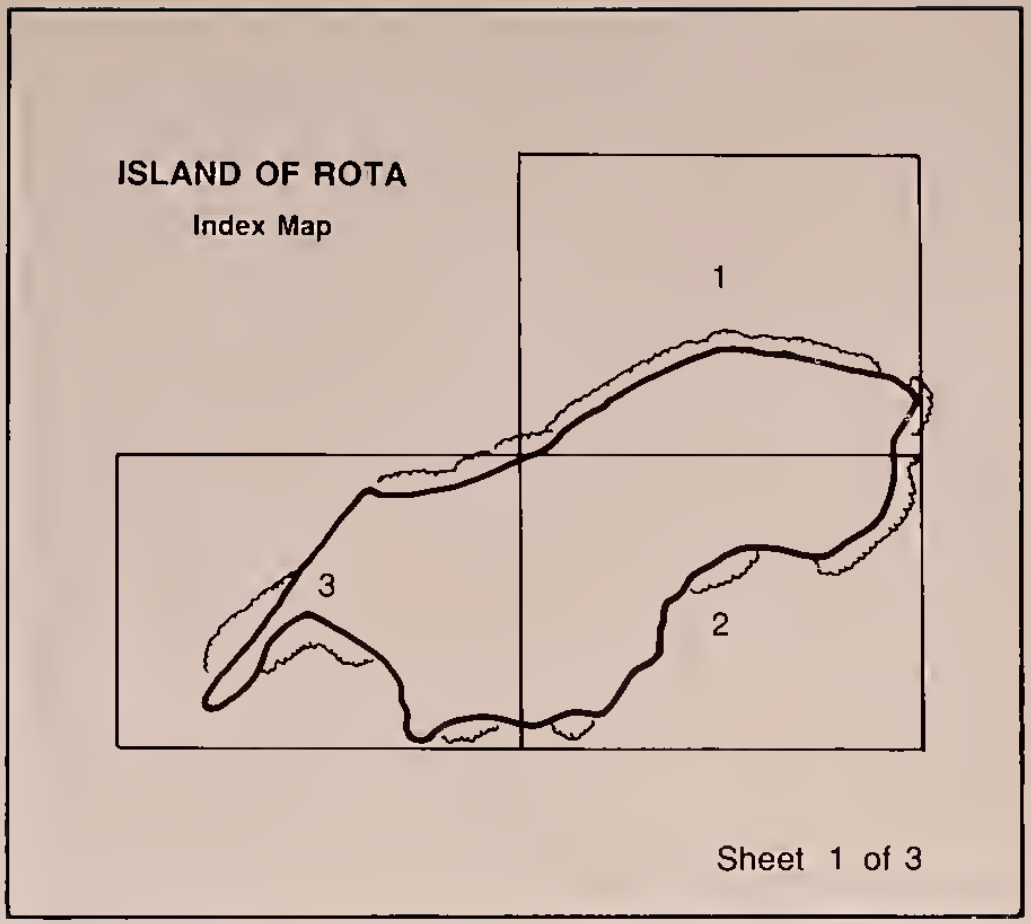

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ROTA

SHEET 1 OF 3

P A C I F I C O C E A N

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	AT2M LI	12	4.9
2	CO1H	2	.8
3	CO1H	2	.8
4	CO1M,AT	5	2.0
5	LI2H	15	8.1
6	LI1H	484	195.9
7	LI1L/SV,G	2	.8
8	LI2H	10	4.0
9	CO1H	1	.4
10	SV,L	2	.8
11	SV,S	5	2.0
12	S	25	10.1
13	CO1M,AT	5	2.0
14	LI1H	272	110.1
15	LI2H	219	85.0
16	SV,G,S	2	.8
17	SV,G,S	2	.8
18	SV,G,S	2	.8
19	LI1L/SV,G	5	2.0
20	LI1M/SV,S	7	2.8
21	LI1H	2	.8
22	LI2H	32	12.9
23	SV,S	7	2.8
24	SV,S	1	.4
25	G,G	7	2.8
26	LI1H	190	76.9
27	G,G,S	10	4.0
28	G,G	7	2.8
29	SV,S	2	.8
30	CO1M,AT	15	6.1
31	AT1H	5	2.0
32	CO1H	5	2.0
33	G,G	2	.8
34	SV,L	1	.4
35	CO1M/SV,L	15	6.1
36	LI1M/SV,G	7	2.8
37	SV,G,S	1	.4
38	LI2H	10	4.0
39	SV,G	2	.8
40	G,G,S	17	6.9
41	LI1H	7	2.8
42	G,G,S	7	2.8
43	G,G	7	2.8
44	SV,G,S	5	2.0
45	LI1H	20	8.1
46	CO1M	2	.8
47	SV,G	25	10.1
48	LI1H	15	6.1
49	CO1H	2	.8
50	SV,S	7	2.8
51	G,G,S	12	4.9
52	CO1H	1	.4
53	SV,S	5	2.0
54	AT1M/S	7	2.8
55	CO1M,AT	2	.8
56	AT1H	7	2.8
57	LI1H	2	.8
58	LI2H	86	34.8
59	G,G	2	.8
60	G,G	1	.4
61	LI2H	7	2.8
62	LI1H	175	70.8
63	SV,G	2	.8
64	C	2	.8
65	SV,S	10	4.0
66	CA1M	7	2.8
67	G,G,S	5	2.0
68	SV,G,S	27	10.9
69	CO1L/SV,G	2	.8
70	C	7	2.8
71	G,G/C	529	214.1
72	LI8H	12	4.9
73	S,S/DV	10	4.0
74	S	5	2.0
75	S/B,L	7	2.8
76	G,G	17	6.9
77	S,S/DV	67	27.1
78	S/B,L	17	6.9
79	LI1H	2	.8
80	LI1H	10	4.0
81	SV,S	7	2.8
82	LI1H	2	.8
83	LI1H	10	4.0
84	SV,G	10	4.0
85	CA1M	2	.8
86	SV,G	1	.4
87	G,G	5	2.0
88	CO1H	7	2.8
89	G,G	1	.4
90	C	1	.4
91	SV,G	5	2.0
92	CO1H	2	.8
93	G,G	2	.8
94	LI1H	67	27.1
95	G,G	7	2.8
96	LI0H	5	2.0
97	LI0H	7	2.8
98	LI1H	40	16.2
99	S	22	8.9
100	S/B,L	7	2.8
101	AT1M/LI	20	8.1
102	CO1H	2	.8
103	AT2M	12	4.9
104	CO1H	2	.8
105	LI	2	.8
106	SV,G	2	.8
107	LI1L/SV,S	22	8.9
108	SV,G,S	1	.4
109	LI0H	2	.8
110	S,H,D	10	4.0
111	CO1H	1	.4
112	C+LI1H	15	6.1
113	SV,G	5	2.0
114	SV,G,S	10	4.0
115	C,LI1H	2	.8
116	LI1H	5	2.0

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
117	LI1H	12	4.9
118	CO1M/SV,G	2	.8
119	C	2	.8
120	SV,G	30	12.1
121	LI1H	2	.8
122	LI2H	388	157.0
123	LI1H	1	.4
124	CA1M,LI	20	8.1
125	SV,G	15	6.1
126	LI2H	7	2.8
127	IF1H,D	1	.4
128	LI2H	5	2.0
129	G,G,S	2	.8
130	SV,G	7	2.8
131	LI1H	2	.8
132	SV,G	5	2.0
133	C	2	.8
134	CO1M	5	2.0
135	SV,G	5	2.0
136	SV,G,S	12	4.9
137	SV,G	1	.4
138	SV,S	7	2.8
139	SV,G	22	8.9
140	LI1L/SV,G	5	2.0
141	LI1L/SV,G	7	2.8
142	SV,G,S	17	6.9
143	LI1H	10	4.0
144	SV,G,S	1	.4
145	SV,G,S	5	2.0
146	LI1H	1	.4
147	SV,G	15	6.1
148	SV,G,S	7	2.8
149	LI1H	5	2.0
150	SV,G	10	4.0
151	SV,L	1	.4
152	LI1M/SV,G	15	6.1
153	SV,G	2	.8
154	LI2H	7	2.8
155	C	2	.8
156	C	1	.4
157	CO1L/SV	10	4.0
158	C	1	.4
159	C	1	.4
160	SV,G	10	4.0
161	IF1L/SV,L	7	2.8
162	C	1	.4
163	SV,G,S	10	4.0
164	LI1H	2	.8
165	SV,L	2	.8
166	LI2H	69	27.9
167	C	1	.4
168	SV,G	5	2.0
169	SV,S	2	.8
170	LI1L/SV,G,S	35	14.2
171	CO1M/SV,G	12	4.9
172	LI1H	2	.8
173	LI1H	2	.8
174	G,G	1	.4
175	LI1L/SV,G,S	10	4.0
176	LI1H	7	2.8
177	LI2H	2	.8
178	SV,G,S	5	2.0
179	CO1L/SV,G	7	2.8
180	CA1H	1	.4
181	LI2H	22	8.9
182	CA1M,LI	22	8.9
183	SV,G	2	.8
184	G,G,S	25	10.1
185	G,G	2	.8
186	CO1M/G,G	2	.8
187	G,G	7	2.8
188	LI1H	7	2.8
189	CA1M,LI	30	12.1
190	LI1H	114	46.1
191	SV,G	5	2.0
192	G,G	2	.8
193	SV,L	1	.4
194	CO1H	1	.4
195	IF1H,D	7	2.8
196	CO1H	2	.8
197	G,G,S	7	2.8
198	CO1L/G,G	15	6.1
199	G,G	5	2.0
200	LI1H	5	2.0
201	SV,G,S	10	4.0
202	LI1H	94	38.0
203	SV,L	1	.4
204	C	2	.8
205	SV,G	5	2.0
206	SV,S	1	.4
207	CO1H	2	.8
208	CA1L/G,G	5	2.0
209	G,G,S	7	2.8
210	LI1M	1	.4
211	CA1M,LI	7	2.8
212	CA1M,LI	22	8.9
213	CA1M,LI	5	2.0
214	SV,G	2	.8
215	C	5	2.0
216	CA1H	1	.4
217	C	1	.4
218	C	1	.4
219	SV,G,S	20	8.1
220	G,G,S	10	4.0
221	LI1L/SV,G,S	12	4.9
222	G,G,S	1	.4
223	LI2H	12	4.9
224	LI1H	7	2.8
225	LI1H	2	.8
226	CA1M,LI	37	15.0
227	SV,L	7	2.8
228	SV,S	1	.4
229	LI1H	15	6.1
230	SV,S	5	2.0
231	LI0H	7	2.8
232	CO1L/SV,G	2	.8
233	G,G	15	6.1

Produced by the United States Geological Survey
In cooperation with Trust Territory of the Pacific Islands
Control by USGS and TTPI
Compiled by photogrammetric methods from aerial photographs
taken 1964 and 79. Field checked 1979.
Limited field check 1985. Map edited 1987
Projection and marks grid ticks: Rota coordinate system
(Modified Azimuthal Equidistant)

SCALE 1:20,000

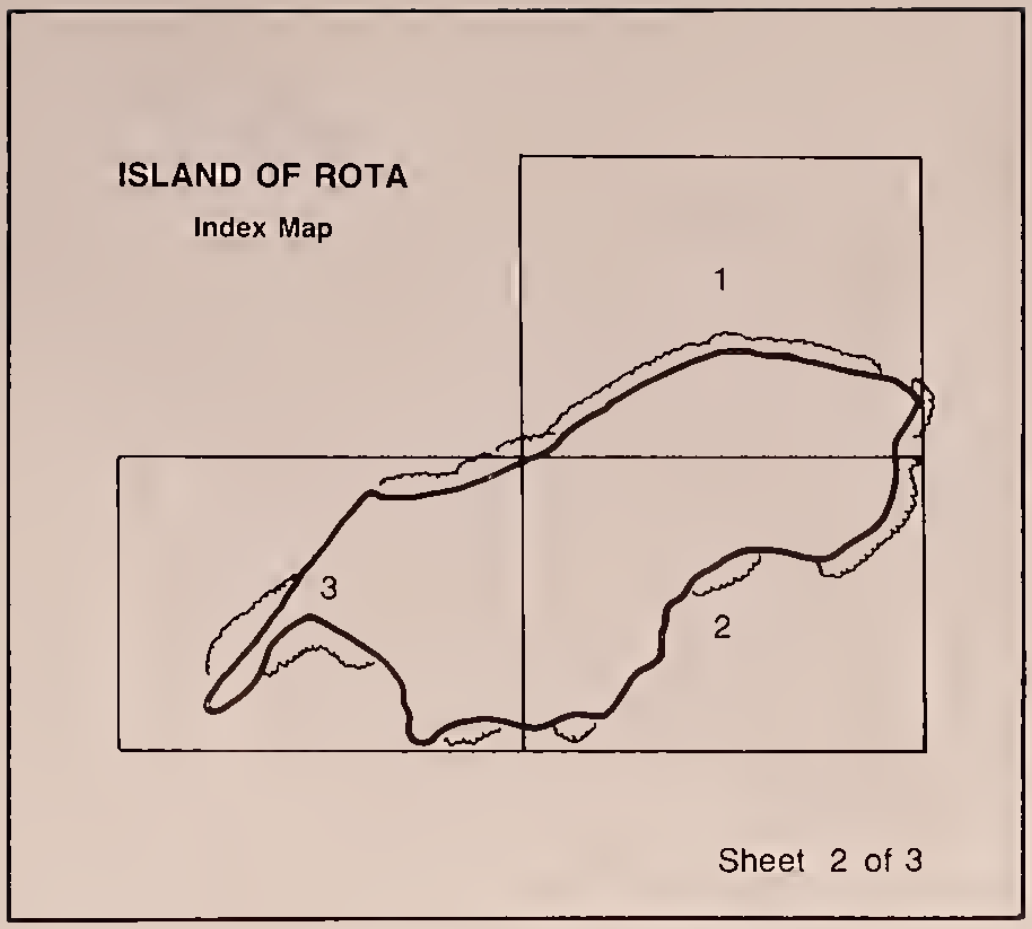
CONTOUR INTERVAL 10 METERS
DATUM IS MEAN SEA LEVEL

SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER

1981 MAGNETIC NORTH DECLINATION
AT CENTER OF SHEET

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section, 1987.

ROTA
Sheet 1 of 3



Falanruw, Marjorie C.; Cole, Thomas G.; Ambacher, Alan H. 1989. **Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands.** Resour. Bull. PSW-27. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. 11p. + 13 maps.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ROTA

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

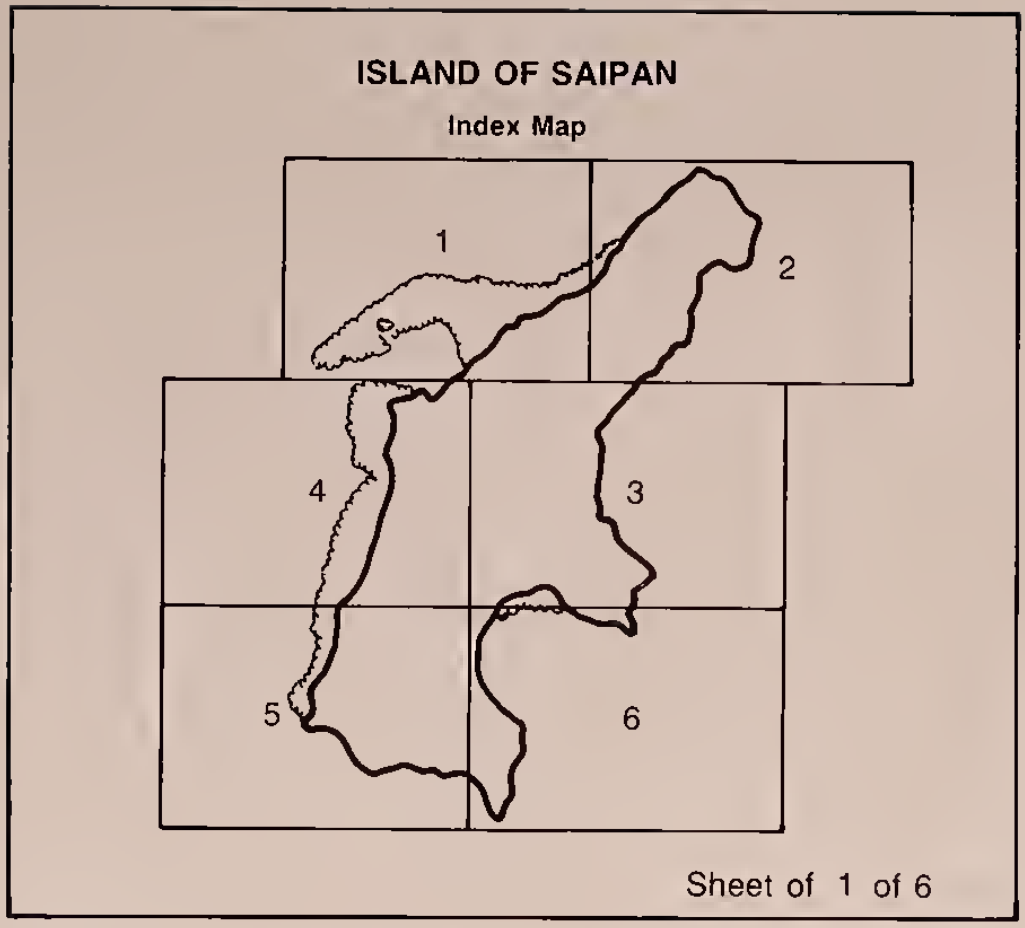
ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	AT2H	1	.4
2	SV.S	5	2.0
3	LI2H	2	.8
4	LI1L/SV.S	5	2.0
5	LI1H	27	10.9
6	SV.G	2	.8
7	LI2H	5	2.0
8	LI1H	5	2.0
9	SV.G.	1	.4
10	CA1H	5	2.0
11	IF1H.O	2	.8
12	LI1H	7	2.8
13	SV.G	7	2.8
14	SV.S	7	2.8
15	CO1H	5	2.0
16	SV.G	20	8.1
17	CO1H	1	.4
18	SV.S	1	.4
19	SV.G	2	.8
20	SV.G	2	.8
21	G.G	5	2.0
22	G.G.S	2	.8
23	CO1H	2	.8
24	CA1H	7	2.8
25	LI2H	67	27.1
26	LI1H	7	2.8
27	G.G	1	.4
28	LI1H	2	.8
29	C	1	.4
30	SV.G	5	2.0
31	CO1H	5	2.0
32	G.G	1	.4
33	LI1H	2	.8
34	SV.G.S	10	4.0
35	IF1H.D	7	2.8
36	LI1H	5	2.0
37	CA1H	2	.8
38	SV.S	2	.8
39	LI1M.CA	64	25.9
40	SV.S	5	2.0
41	SV.G.S	17	6.9
42	G.G	72	29.1
43	SV.G.S	12	4.9
44	LI1L/SV.G	17	6.9
45	SV.S	2	.8
46	LI1H	23	9.3
47	LI2H	1584	641.0
48	SV.S	2	.8
49	G.G.S	5	2.0
50	G.G	17	6.9
51	SV.S	12	4.9
52	SV.G	17	6.9
53	SV.G.S	25	10.1
54	LI1H	25	10.1
55	LI2H	2	.8
56	LI2H	5	2.0
57	LI1H	2	.8
58	CO1H	12	4.9
59	G.G	2	.8
60	SV.G	7	2.8
61	CO1H	5	2.0
62	CA1H	1	.4
63	IF1H.O	5	2.0
64	LI1H	7	2.8
65	LI1H	32	12.9
66	CO1M/SV.G	7	2.8
67	SV.S	2	.8
68	LI1H	5	2.0
69	SV.G	1	.4
70	LI1H	5	2.0
71	LI2H	20	8.1
72	CA1M.LI	27	10.9
73	LI1H	17	6.9
74	SV.G.S	17	6.9
75	LI1H	1	.4
76	IF1H.D	1	.4
77	SV.G.S	10	4.0
78	G.G	22	8.9
79	SV.G.S	5	2.0
80	LI1H	5	2.0
81	LI1L/SV.G.S	54	21.9
82	CO1L	2	.8
83	CA1H	7	2.8
84	B.D	2	.8
85	SV.G	5	2.0
86	IF1M.O/SV.G	5	2.0
87	LI1H	7	2.8
88	LI1H	1	.4
89	G.G.S	17	6.9
90	SV.S	7	2.8
91	C	5	2.0
92	C	1	.4
93	G.G.S	5	2.0
94	CA1M/SV.S	17	6.9
95	LI1H	1	.4
96	LI1H	2	.8
97	SV.G.S	69	27.9
98	LI1H	17	6.9
99	SV.G	42	17.0
100	LI1H	27	10.9
101	SV.G.S	10	4.0
102	SV.G	17	6.9
103	U	49	19.8
104	SV.G.S	30	12.1
105	LI1H	2	.8
106	SV.S	5	2.0
107	G.G	22	8.9
108	LI1H	20	8.1
109	IF1H.O	1	.4
110	LI1L/SV.S	12	4.9
111	IF1H.D	1	.4
112	CA1H	5	2.0
113	LI1M.CA	7	2.8
114	G.G.S	2	.8
115	G.G	35	14.2
116	LI1H	2	.8
117	SV.G.S	26	10.5
118	CO1L/SV.G	12	4.9
119	SV.G	91	36.8
120	LI1L/SV.S	10	4.0
121	LI1H	12	4.9
122	G.G.S	10	4.0
123	G.G	12	4.9
124	G.G.S	2	.8
125	G.G	1	.4
126	SV.S	2	.8
127	LI1H	7	2.8
128	LI1L/SV.G.S	20	8.1
129	SV.G.S	22	8.9
130	G.G	5	2.0
131	LI1H	2	.8
132	LI1L/SV.G.S	10	4.0
133	CO1M/SV.G	1	.4
134	LI1H	20	8.1
135	SV.G	5	2.0
136	G.G	7	2.8
137	SV.L	1	.4
138	LI1L/SV.S	42	17.0
139	SV.L	7	2.8
140	G.G	2	.8
141	SV.L.S	32	12.9
142	SV.G.S	37	15.0
143	LI1H	1	.4
144	LI1H.CA	5	2.0
145	G.G	5	2.0
146	U	1	.4
147	SV.S	2	.8
148	LI1L/SV.G	15	6.1
149	SV.G	7	2.8
150	SV.G	5	2.0
151	G.G	5	2.0
152	LI1H	5	2.0
153	SV.G	12	4.9
154	SV.S	1	.4
155	LI1M	12	4.9
156	G.G	7	2.8
157	LI1H	5	2.0
158	LI1H	7	2.8
159	LI2H	15	6.1
160	SV.G.S	7	2.8
161	B.O	2	.8
162	SV.G	64	25.9
163	SV.G.S	7	2.8
164	SV.G.S	7	2.8
165	C	1	.4
166	CO1L/SV.G.S	12	4.9
167	G.G	5	2.0
168	CO1M/SV.G	5	2.0
170	C	10	4.0
171	SV.S	2	.8
172	G.G	1	.4
173	SV.G	1	.4
174	C	1	.4
175	SV	1	.4
176	SV.G	2	.8
177	SV.S	12	4.9
178	SV.G	20	8.1
179	SV.S	10	4.0
180	CO1M/SV.G	27	10.9
181	G.G	2	.8
182	LI1H	492	199.1
183	CO1M/SV.G	2	.8
184	C	5	2.0
185	SV.S	20	8.1
186	LI1H	20	8.1
187	SV.G.S	42	17.0
188	CO1M/SV	7	2.8
189	SV.L	2	.8
190	U	1	.4
191	IF1H.O	15	6.1
192	SV.G.S	1	.4
193	SV.G	5	2.0
194	SV.G.S	5	2.0
195	SV.L	2	.8
196	CO1L/SV.G	7	2.8
197	CA1M.LI	14	46.1
198	IF1H.D	5	2.0
199	LI1H	10	4.0
200	SV.G.S	10	4.0
201	CA1H	1	.4
202	SV.G	10	4.0
203	LI1H	811	328.2
204	G.G	1	.4
205	IF1H.O	1	.4
205	G.G	1	.4
207	SV.G.S	15	6.1
208	G.G	12	4.9
209	LI1H	12	4.9
210	SV.G.S	15	6.1
211	IF1H.O	5	2.0
212	SV.G	1	.4
213	CO1L/SV.G	15	6.1
214	CO1L/SV.G	5	2.0
215	CO1H	2	.8
216	SV.G	10	4.0
217	CO1L/SV.G	2	.8
218	SV.G.S	5	2.0
219	SV.G.S	2	.8
220	SV.G	54	21.9
221	LI1M/SV.G	2	.8
222	G.G.S	12	4.9
223	IF1H.O	2	.8
224	CA1M/SV.G	10	4.0
225	G.G	2	.8
226	CA1H	7	2.8
227	CA1H	1	.4
228	G.G.S	15	6.1
229	CA1M/SV	2	.8
230	G.G	27	10.9
231	CO1L/SV.S	2	.8
232	C	1	.4
233	LI1H	2	.8
234	SV.G	5	2.0
235	C	1	.4
236	G.G	5	2.0
237	LI1H	15	6.1
238	LI1M/SV.G	22	8.9
239	G.G.S	7	2.8
240	IF1H.D	2	.8
241	SV.G	15	6.1
242	CA1L/SV.G	2	.8
243	G.G	2	.8
244	CO1L/SV.G	2	.8
245	CO1M/SV.G	5	2.0
246	G.G	5	2.0
247	LI1M/SV.G	7	2.8
248	C	5	2.0
249	LI2H	5	2.0
250	LI1H	20	8.1
251	SV.S	5	2.0
252	SV.S	1	.4
253	IF1H.D	2	.8
254	SV.L	1	.4
255	LI1H	35	14.2
256	SV.G.S	12	4.9
257	G.G	178	72.0
258	C	2	.8
259	CO1H	1	.4
260	SV.L	1	.4
261	C	1	.4
262	C	1	.4
263	SV.G.S	7	2.8
264	SV.L	1	.4
265	CO1M/SV.G	7	2.8
266	C	2	.8
267	SV.G.S	10	4.0
268	G.G.S	35	14.2
269	LI1L/SV.G.S	2	.8
270	LI1L/SV.G.S	1	.4
271	LI1H	5	2.0
272	LI2H	7	2.8
273	SV.G	22	8.9
274	G.G/C	59	23.9
275	LI0H	128	51.8
276	LI1H	106	42.9
277	SV.S	5	2.0
278	S	17	6.9
279	SV.G	27	10.9
280	G.G.S	2	.8
281	C	10	4.0
282	SV.G	2	.8
283	LI1M.CA	15	6.1
284	CO1M/SV.G	20	8.1
285	SV.G	2	.8
286	CA1H	2	.8
287	G.G	2	.8
288	CA1M.LI	15	6.1
289	SV.G	12	4.9
290	LI1M.CA	5	2.0
291	SV.S	2	.8
292	LI1L/SV.G	40	16.2
293	S.S	7	2.8
294	LI0H	35	14.2
295	LI1H	5	2.0
296	S.S	2	.8
297	S	27	10.9
298	SV.G	40	16.2
299	LI1L/SV.G	7	2.8
300	S	7	2.8
301	S.S	32	12.9
302	LI1H	7	2.8
303	SV.S	2	.8
304	G.G	32	12.9
305	G.G	5	2.0
306	G.G.S	17	6.9
307	G.G	7	2.8
308	S	27	10.9
309	LI0H	2	.8
310	G.G	1	.4
311	SV.G	10	4.0
312	CO1M/SV	7	2.8
313	G.G	17	6.9
314	C	1	.4
315	LI1H	5	2.0
316	LI2H	1	.4
317	LI1M.CO	5	2.0
318	CO1L/SV.G.S	22	8.9
319	C	1	.4
320	SV.G.S	20	8.1
321	G.G	17	6.9
322	LI1H	20	8.1
323	C	1	.4
324	G.G	7	2.8
325	C	1	.4
326	LI1H	1	.4
327	LI1H	1	.4
328	G.G	17	6.9
329	CO1M.LI	10	4.0
330	LI1H	5	2.0
331	LI1H	5	2.0
332	LI1H	7	2.8
333	SV.S	2	.8
334	G.G	59	23.9
335	CO1L	1	.4
336	CO1L/SV.G	12	4.9
337	LI1H	91	36.8
338	LI1M	2	.8
339	LI1M	10	4.0
340	G.G	12	4.9
341	SV.G.S	7	2.8
342	CO1L/SV.G	7	2.8
343	G.G	2	.8
344	LI1H	2	.8
345	LI1H	5	2.0
346	G.G	22	8.9
347	SV.S	10	4.0
348	SV.G.S	2	.8
349	LI0H	25	10.1
350	S	7	2.8
351	LI2H	7	2.8
352	S	64	25.9
353	SV.G	37	15.0
354	SV.S	2	.8
355	G.G	262	106.0
356	CO1L/G.G	10	4.0
357	G.G.S	2	.8
358	LI1H	17	6.9
359	G.G	20	8.1
360	C	1	.4
361	LI1H	5	2.0
362	IF1M/SV.S	1	.4
363	G.G	1	.4
364	CO1H	1	.4
365	G.G	2	.8
366	CO1M	1	.4
367	G.G	1	.4
368	CO1L/G.G	5	2.0
369	G.G	5	2.0
370	G.G	1	.4
371	CO1M/SV	12	4.9
372	G.G	1	.4
373	SV.G	5	2.0
374	CO1H	1	.4
375	LI2H	5	2.0
376	G.G	1	.4
377	LI1H	230	93.1
378	C	1	.4
379	C	1	.4
380	C	1	.4
381	LI1L/SV.S	5	2.0
382	C	[illegible]	[illegible]
383	G.G	[illegible]	[illegible]
384	G.G	1	.4
385	G.G	2	.8
386	SV.G.S	64	25.9
387	G.G	1	[illegible]
388	LI0H	[illegible]	[illegible]
389	LI1H	[illegible]	[illegible]
390	S.S	10	4.0
391	SV.S	5	2.0
392	SV.S	5	2.0
393	LI1H	22	8.9
394	G.G	2	.8
395	SV.G.S	7	2.8
396	LI1H	5	2.0
397	S	5	2.0
398	LI0H	7	2.8
399	LI2H	5	2.0
400	LI2H	20	8.1
401	G.G	32	12.9
402	SV.B	2	.8
403	SV.S	5	2.0
404	G.G.D	7	2.8
405	SV.B	2	.8
406	LI1H	5	2.0
407	SV.L	7	2.8
408	SV.G	35	14.2
409	LI1H	2	.8
410	SV.L.S	[illegible]	[illegible]
411	CO1H	[illegible]	[illegible]
412	G.G	10	[illegible]
413	AG.CI	[illegible]	[illegible]
414	CA1H	[illegible]	[illegible]
415	G.G.S	[illegible]	[illegible]
416	SV.L	5	[illegible]
417	C	5	[illegible]
418	G.G	[illegible]	[illegible]
419	G.G.S	[illegible]	[illegible]
420	LI1H	[illegible]	[illegible]
421	G.G	[illegible]	[illegible]
422	SV.L	1	.4
423	G.G	[illegible]	[illegible]
424	CO1M	[illegible]	[illegible]
425	SV.L	1	[illegible]
426	S	1	.4
427	IF1L/SV.L	[illegible]	21.9
428	S.P	5	2.0
429	S	7	2.8
430	S	5	2.0
431	SV.L	10	4.0
432	SV.G.S	2	.8
433	G.G	12	4.9
434	SV.S	1	[illegible]
435	SV.G	1	.4
436	S.S	84	34.0
437	B.L	15	6.1
438	B.L	7	2.8
439	LI2H	1	.4
440	SV.S	2	.8
441	U	1	.4
442	G.G	2	.8
443	CO1L/SV.G	4	1.6
444	LI1H	1	.4
445	SV.G.S	8	3.2

Produced by the United States Geological Survey
in cooperation with the Trust Territory of the Pacific Islands

SCALE 1:20,000

CONTOUR INTERVAL 10 METERS
DATUM IS MEAN SEA LEVEL

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section; 1987.



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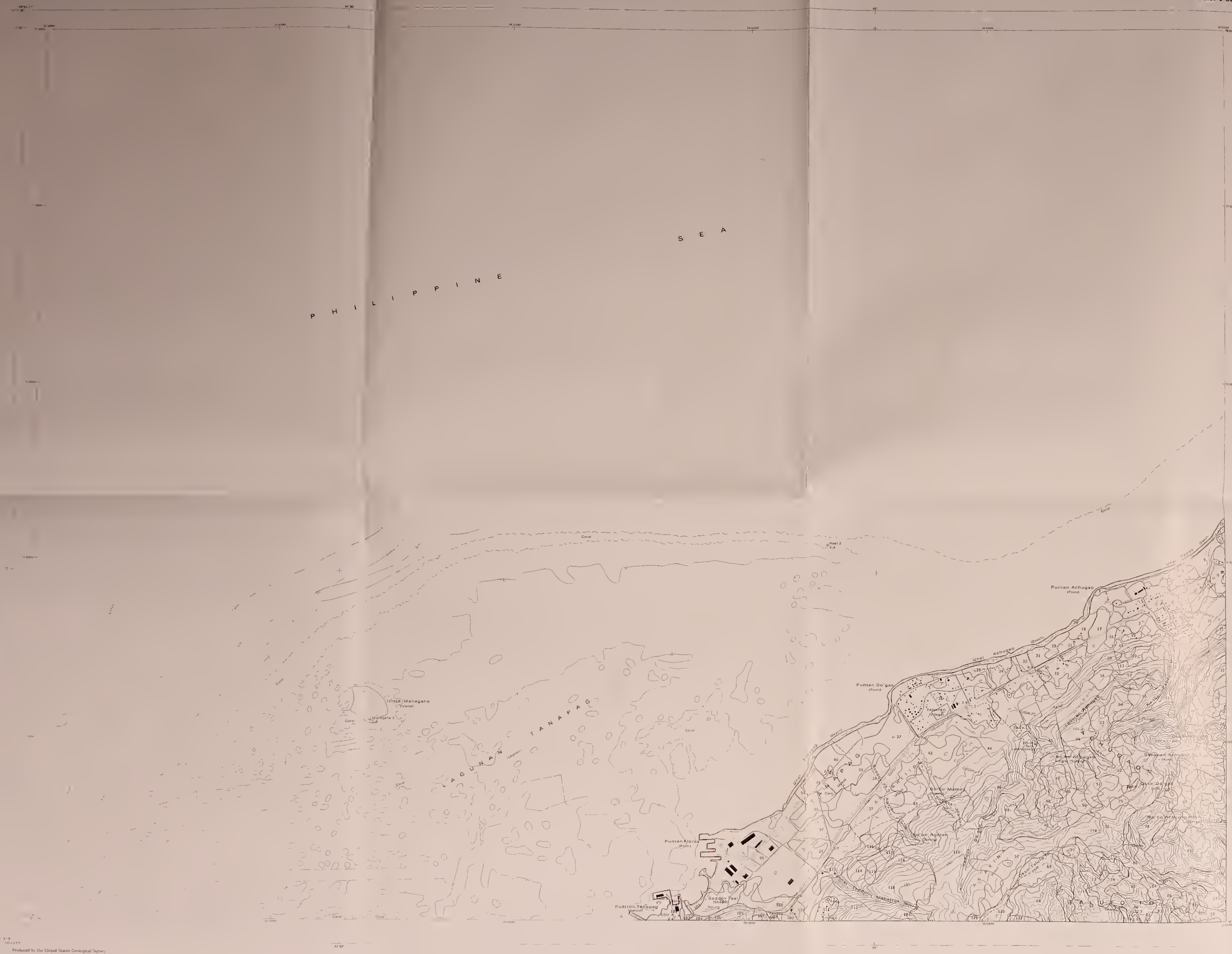
SAIPAN



VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	CA1M/SV.L	2	.9
2	U	41	16.6
3	SV.L	34	13.7
4	C	3	1.3
5	CO1M	4	1.5
6	AG.CO	6	2.3
7	IF1M/SV.L	9	3.7
8	SV.L	13	5.3
9	CA1M/SV.L	13	5.3
10	CO1M	1	.2
11	CO1M/SV.L	48	19.3
12	SV.L	1	.6
13	SV.L	23	9.5
14	IF1M/SV.L	5	1.9
15	G.G	2	.9
16	G.G	3	1.1
17	M.F.P	10	4.1
18	CO1M/SV.L	8	3.1
19	SV.G.L	6	2.3
20	IF1H.D	5	1.9
21	LI1H	31	12.7
22	G.G.S	21	8.3
23	CA1L/SV.G	2	1.0
24	CO1H	2	.7
25	SV.L	20	7.9
26	CO1L/SV.L	1	.1
27	IF1M/SV.L	2	.8
28	CA1M	3	1.3
29	B.S	41	16.6
30	IF1M/SV.L	5	2.1
31	SV.L	12	4.7
32	C	3	1.4
33	CO1M/U	30	12.0
34	SV.L	9	3.5
35	IF1L/SV.L	7	2.8
36	CO1L/U	77	30.9
37	SV.L	125	50.6
38	M.F.P	12	4.8
39	CA1M/SV.L	15	6.1
40	LI1H	15	6.2
41	G.G	1	.3
42	M.F.P	21	8.4
43	IF2L/SV.L	24	9.6
44	CO1M/SV.L	230	93.0
45	LI1H	16	6.4
46	IF1M/SV.L	76	30.7
47	CA1L	9	3.6
48	G.G	9	3.8
49	G.G	17	7.0
50	SV.L	9	3.4
51	CA1L/SV.L	15	6.0
52	G.G	144	58.4
53	G.G.S	8	3.1
54	G.G	11	4.6
55	LI1H	15	6.2
56	CO1L	6	2.5
57	CA1M/SV.L	5	2.1
58	IF1M/SV.L	23	9.1
59	G.G.S	30	12.3
60	CA1M/SV.L	4	1.6
61	SV.L	12	4.6
62	G.G.C.S	8	3.1
63	CA1M	6	2.6
64	G.G.C.S	21	8.7
65	SV.L	4	1.5
66	CO1L/SV.L	14	5.6
67	IF1M/SV.L	18	7.1
68	G.D.G	31	12.6
69	CA1M/SV.L	23	9.5
70	CO1H	5	2.0
71	SV.L	3	1.1
72	CA1L/SV.L.G	11	4.4
73	CO1M/SV.L	4	1.8
74	SV.L	13	5.2
75	SV.L	3	1.3
76	IF1L/SV.L	2	.6
77	G.G.C	28	11.3
78	IF1M/SV.L	28	11.3
79	SV.L	2	.6
80	CAIM/SV.L	11	4.5
81	G.G	1	.3
82	G.G	1	.0
83	SV.L	4	1.7
84	G.G.S	4	1.7
85	IF1M/SV.L	14	5.5
86	IF1M/SV.L	33	13.4
87	G.G.S	52	20.9
88	G.G	1	.1
89	CO1M/SV.L	9	3.7
90	G.G.S	10	3.9
91	IF1M/SV.L	2	.9
92	SV.L	11	4.6
93	IF1M/SV.L	1	.5
94	SV.L	5	2.1
95	U	11	4.2
96	CA1M/SV.L	15	6.0
97	M.F.P	17	6.7
98	U	116	47.0
99	MN1M/SV.H	15	5.9
100	SV.H.L	14	5.8
101	U	10	[illegible]
102	MN1H	2	.8
103	IF1M/SV	2	.9
104	SV.L	1	.4
105	SV.L	9	3.7
106	U	1	.1
107	CO1M/SV.L	3	1.1
108	SV.L	1	.6
109	G.G.S	3	1.2
110	CO1H	4	1.6
111	U	9	3.6
112	IF1M/SV.L	31	12.4
113	CO1H	8	3.4
114	SV.L	16	6.4
115	CO1M/SV	3	1.3
116	IF1L/SV.L	11	4.4
117	CO1M/SV.L	4	1.5
118	LI1H	60	24.1
119	G.G.C.L	137	55.6
120	SV.L	9	3.8
121	IF1M/SV.L	1	.5
122	G.G.C	2	.9
123	CO1M/SV.L	1	.1

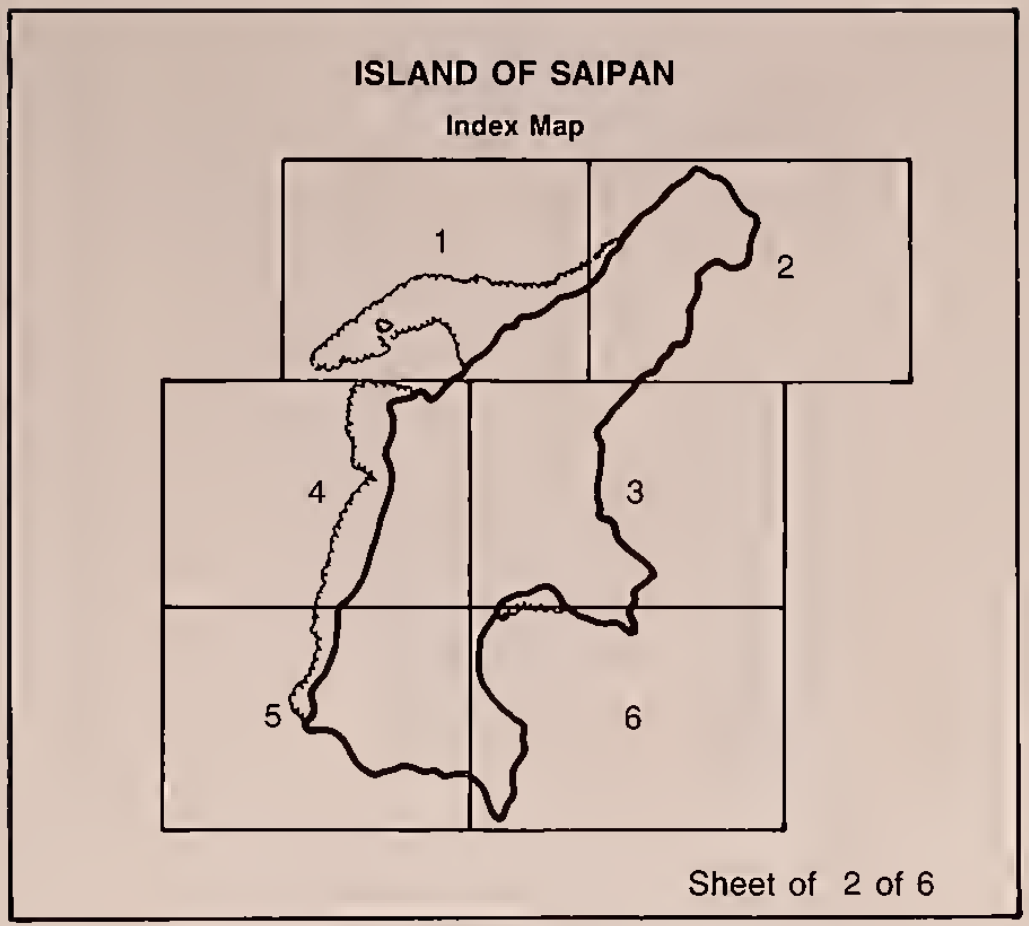
Produced by the United States Geological Survey
in cooperation with Trust Territory of the Pacific Island

SCALE 1:20,000

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FATHOMS

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geomotronics Section; 1987.



Falanruw, Marjorie C.; Cole, Thomas G.; Ambacher, Alan H. 1989. **Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands.** Resour. Bull. PSW-27. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agricullure. 11p. + 13 maps.

SAIPAN

SHEET 2 OF 6

Produced by the United States Geological Survey
in cooperation with Trust Territory of the Pacific Islands
Control by USC&S and TTPI
Compiled by photogrammetric methods from aerial photographs
taken 1968-76. Field checked 1979
Limited field check 1985. Map edited 1982
Projection and marine grid ticks Lambert conformal conic
Modified Azimuthal Equidistant

SCALE 1:20,000

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FATHOMS
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section; 1987.

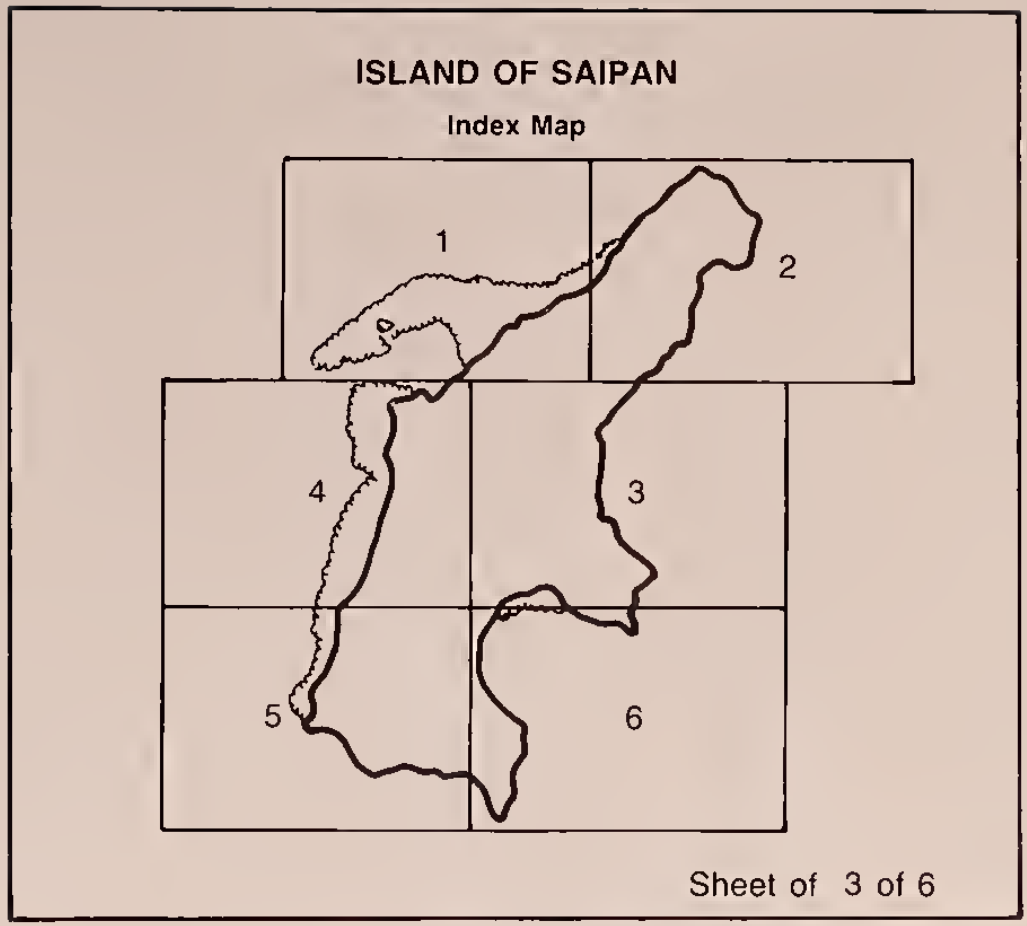
SAIPAN
Sheet 2 of 6

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	B.L	25	10.1
2	S.P	27	11.1
3	G.G.S	2	.9
4	G.G	14	5.6
5	SV.L	1317	533.1
6	CA1L/SV.L	12	4.8
7	S	138	56.0
8	CA1M/SV.L	13	5.3
9	S.S.P	11	4.4
10	IF1M/SV.L	2	.8
11	IF1M/SV.L	6	2.2
12	B.D	6	2.4
13	IF1L/SV.L	91	36.7
14	U	2	.6
15	U	2	.6
16	CA1M/SV.L	4	1.5
17	LI1H	191	77.2
18	LI0M	20	8.0
19	IF1M/SV.L	2	1.0
20	CA1L/SV.L	11	4.5
21	IF1M/SV.L	10	4.2
22	IF1M/SV.L	7	2.9
23	SV.S	32	13.0
24	IF1M/SV.L	14	5.8
25	G.G	2	.6
26	IF1M/SV.L	5	2.1
27	SV.L	2	.7
28	CA1M/SV.L	8	3.4
29	LI1H	43	17.3
30	IF1M/SV.L	12	5.0
31	G.G	14	5.5
32	LI1M/SV.S	34	13.6
33	S.S.P	8	3.2
34	IF1L/SV.L	9	3.7
35	LI1H	5	2.1
36	IF1L/SV.L	9	3.8
37	CA1H	3	1.2
38	G.G.S	5	2.2
39	S.P	17	6.9
40	G.G	1	.6
41	G.G	2	.9
42	G.G	1	.6
43	G.G	8	3.0
44	IF1M/SV.L	9	3.8
45	G.G	1	.5
46	G.G	5	2.1
47	G.G	199	80.7
48	IF1M/SV.L	25	10.2
49	IF1M/SV.L	10	4.0
50	G.G	15	6.0
51	SV.G	13	5.3
52	LI2H	12	4.8
53	SV.L	148	59.8
54	G.G.S	18	7.1
55	LI1H	26	10.6
57	IF1H	5	1.9
58	IF1H	82	33.1
59	IF1M/SV.L	70	28.2
60	SV.S	3	1.2
61	IF1M/SV.L	35	14.0
62	SV.S	8	3.3
63	IF1L/SV.L	8	3.3
64	S	5	2.0
65	B.S	13	5.4
66	S	4	1.6
67	IF1L/SV.L	16	6.6
68	G.G.S	13	5.1
69	IF1L/SV.L	10	3.9
70	G.G	2	.6
71	G.G	1	.4
72	G.G.S	2	.9
73	IF1M/SV.L	3	1.0
74	IF1M/SV.L	162	65.7
75	IF1M/SV.L	284	114.8
76	SV.L	30	12.1
77	G.G.S	18	7.3
78	S	31	12.4
79	SV.L	1	.3

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
80	B.S	2	.9
81	CA1M/SV.L	3	1.2
82	CO1H	1	.5
83	AG	8	3.3
84	IF1M/SV.L	4	1.6
85	C	2	.8
86	IF1M/SV.L	1	.1
87	CO1M/SV.L	21	8.6
88	CA1M	2	.9
89	SV.L	4	1.6
90	CO1M/SV.L	1	.5
91	IF1M/SV.L	1	.5
92	U	11	4.4
93	IF1M/SV.L	7	2.8
94	B.D	2	.7
95	G.G	2	.9
96	IF1L/SV.L	4	1.7
97	IF1M/SV.L	6	2.6
98	IF1M/SV.L	3	1.2
99	G.G	3	1.3
100	G.G	16	6.3
101	LI1M	6	2.2
103	G.G	6	2.4
104	G.G	6	2.4
105	LI1H	52	21.1
106	G.G	4	1.6
107	CA1L/SV.G	3	1.2
108	G.G.S	1	.4
109	G.G.S	5	2.1
110	SV.L	381	154.3
111	CO1L/SV.L	2	.8
112	CA1M	1	.1
113	CO1H	11	4.3
114	IF1M/SV.L	217	87.9
115	G.G.S	2	1.0
116	G.G	4	1.6
118	IF1H	4	1.5
119	G.G	1	.5
120	G.G.S	26	10.4
121	G.G	1	.5
122	SV.S	3	1.2
123	B.D	2	.9
124	LI1H	3	1.4
125	G.S	3	1.1
126	G.G.S	2	.8
127	CA1M/SV.L	4	1.5
128	G.G	15	6.0
129	G.G	1	.5
130	CA1M/SV.L	8	3.1
131	S.P	56	22.6
132	CA1M/SV.L	14	5.5
133	S	46	18.6
134	G.G.C.S	144	58.7
135	CA1M/SV.L	4	1.6
136	G.G	2	1.0
137	CA1M/SV.L	17	6.8
138	SV.S	4	1.5
139	IF1M/SV.L	71	28.6
140	G.G.S	1	.3
141	G.G	4	1.8
142	IF1M/SV.L	22	8.9
143	CO1M/SV.L	16	6.3
144	SV.L	3	1.1
145	SV.L	18	7.2
146	IF1M/SV.L	1	.1
147	IF1M/SV.L	1	.1
148	G.G.S	1	.3
149	G.G	2	.8
150	CA1L/SV.L		
151	SV.L	1	.5
152	IF1M/SV.L	86	34.6
153	S	13	5.2
154	G.G.S	9	3.6
155	SV.L	37	14.9
156	CA1M/SV.L	2	.8
157	SV.L	174	70.5
158	LI1H	24	9.7
159	CA1M/SV.L	14	5.8



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SAIPAN

PACIFIC OCEAN

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	SV.L	1	.2
2	CO1M/SV.L	17	6.7
3	SV.L	3	1.2
4	G.G.S	8	3.2
5	U	3	1.0
6	IF1M/SV.L	308	124.6
7	B.O	7	2.8
8	IF1H.O	5	1.8
9	C	5	2.0
10	CO1H	4	1.5
11	IF1H.O	7	2.8
12	IF1H.O	7	2.6
13	SV.L	1	.1
14	L11H	112	45.5
15	G.G.S	3	1.2
16	CO1H	3	1.4
17	SV.L	52	21.0
18	SV.S	3	1.1
19	L11H	2	.6
20	U	143	57.9
21	SV.L	5	2.0
22	CA1H	3	1.3
23	G.G	16	6.3
24	IF1H	4	1.6
25	CO1H	2	.7
26	U	9	3.7
27	CO1M/SV.L	72	29.0
28	CA1M/SV.L	19	7.5
29	U	1	.4
30	G.G	4	1.6
31	CA1M/SV.L	2	.8
32	SV.L	10	4.0
33	CA1M/SV.L	4	1.8
34	CA1M/SV.L	2	1.0
35	CO1H	4	1.7
36	U	5	2.0
37	CA1M/SV.L	4	1.8
38	CO1H	4	1.4
39	L11H	14	5.8
40	IF1L/SV.L	12	4.9
41	G.G.S	93	37.5
42	SV.G.C.L	6	2.4
43	SV.L	3	1.4
44	CO1M/SV.L	4	1.7
45	SV.L	2	.7
46	G.G.C.L	11	4.6
47	SV.L	11	4.4
48	G.G.C	52	21.1
49	G.G.O.	5	2.0
50	CO1H	1	.1
51	G.G	11	4.6
52	G.G.C.D	18	6.3
54	G.G	37	14.9
55	SV.L	2	.7
56	CA1M/SV.L	1	.1
57	SV.L	2	1.0
58	IF1M/SV.L	218	88.1
59	SV.G.L	5	1.8
60	G.G	3	1.3
61	SV.L	7	2.9
62	G.G	2	1.0
63	SV.L	15	6.1
64	G.G.S	4	1.6
65	CO1M	8	3.0
66	SV.L	15	5.9
67	CA1L/SV.L	10	3.9
68	SV.S	14	5.6
69	G.G	15	5.9
70	SV.L	31	12.6
71	SV.L	1	[illegible]
72	SV.L	1	[illegible]
73	SV.L	2	.7
74	SV.S	9	3.8
75	[illegible]	1	.5
76	IF1M/SV.L	4	1.7
77	S	50	20.1
78	SV.L	39	15.6
79	S.S	6	2.2
80	CA1M/SV.L	6	2.4
81	SV.L	4	1.6
82	IF1L/SV.L	40	18.4
83	IF1M/SV.L	7	3.0
84	CO1M/SV.L	4	1.6
85	SV.B	1	.4
86	SV.B	2	.6
87	SV.L	135	54.4
88	G.G	3	1.1
89	SV.L	1	.5
90	CO1M/SV.L	62	25.1
91	G.G	6	2.5
92	G.G	4	1.7
93	SV.L	7	2.6
94	IF1M/SV.L	20	8.1
95	IF1L/SV.L	20	7.9
96	G.G.C.S	113	45.7
97	CO1M/SV.L	2	1.0
98	G.G.S	76	30.9
99	S	19	7.5
100	S.S	13	5.3
101	CA1M/SV.L	19	7.5
102	G.G	2	.7
103	IF1M/SV.L	20	8.1
104	S	8	3.3
105	S.S	2	.7
106	S	41	16.7
107	IF1M/SV.L	118	47.6
108	CA1H	4	1.6
109	SV.L	3	1.4
110	CO1H	1	.6
111	G.G.S	8	3.3
112	SV.L	3	1.3
113	G.G.S	6	2.4
114	CO1M/SV.L	9	3.6
115	G.G.S	5	1.9
116	IF1M/SV.L	231	93.6
117	IF1L/SV.L	23	9.3
118	CA1L/SV.L	4	1.4
119	G.G.S	2	.8
120	CO1M/SV.L	11	4.5
121	SV.B	1	.6
123	IF1M/SV.L	24	9.6
124	SV.L	34	13.6
125	IF1M/SV.L	14	5.5
126	SV.L	2	.7
127	CO1M/SV.L	19	7.7
128	SV.L	27	11.0
129	CO1H	4	1.7
130	CA1M/SV.L	4	1.5
131	IF1M/SV.L	3	1.1
132	SV.G.S	5	2.0
133	G.G	3	1.2
134	SV.L	1	.5
135	SV.G	2	.8
136	C	1	.6
137	G.G.S	14	5.6
138	SV.L	3	1.2
139	SV.S	4	1.6
140	G.G.S	12	4.9
141	SV.L	63	25.7
142	CO1M.IF	8	3.4
143	CO1M/SV.L	9	3.6
144	CO1M/SV.L	5	2.1
145	G.G	1	.3
146	C	8	3.1
147	G.G.S	18	7.4
148	SV.L	17	6.7
149	IF1L/SV.L	9	3.8
150	SV.S	2	.9
151	G.G.S	5	2.0
152	C	5	1.9
153	SV.S	3	1.4
154	CO1L	3	1.3
155	CO1M/SV.L	16	6.3
156	SV.L.S	9	3.5
157	IF1M/SV.L	31	12.5
158	CO1M	17	7.0
159	CO1L/SV.L	8	3.1
160	CA1M/SV.L	7	2.8

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
161	G.G	2	.6
162	G.G	8	3.2
163	SV.L	4	1.7
164	G.G	3	1.1
165	CO1H	27	11.1
166	CO1M/SV.L	4	1.6
167	G.G	5	1.9
168	IF1M/SV.L	6	2.6
169	G.G	2	.7
170	SV.L	143	57.9
171	G.G.S	5	2.2
172	CA1M/SV.L	2	.9
173	CO1M/SV.L	58	23.3
174	IF1M/SV.L	12	4.8
175	G.G	2	.7
176	CO1H	1	.4
177	CA1M/SV.L	8	3.1
178	IF1H	1	.5
179	CA1M/SV.L	4	1.7
180	L12H	14	5.6
181	IF1L/SV.L	32	12.9
182	SV.L	21	8.5
183	CA1M/SV.L	23	9.1
184	IF1M/SV.L	153	62.0
185	SV.L	2	.9
186	G.G.S	22	9.1
187	G.G	7	2.7
188	CA1M/G.G	2	.9
189	G.G	1	.2
190	IF1M/SV.L	2	.8
191	C	3	1.4
192	G.G	2	.8
193	CO1H	1	.4
194	CO1M/SV.L	3	1.4
195	C	2	.6
196	C	7	3.0
197	G.G	3	1.3
198	IF1L/SV.L	20	7.9
199	G.G.S	5	1.8
200	C	3	1.1
201	G.G.S	44	17.7
202	L11M/SV.P	14	5.8
203	G.G	4	1.6
204	IF1M/SV.L	258	104.4
205	G.G.S	9	3.7
206	IF1L/SV.L	7	2.9
207	CO1M	13	5.1
208	G.G	2	.8
209	SV.L	1	.3
210	CO1M/SV.L	52	21.0
211	G.G.S	5	2.2
212	G.G	2	.9
213	CO1M/SV.L	3	1.3
214	G.G	3	1.3
215	L11H	8	3.1
216	U	1	.5
217	IF1M/SV.L	16	6.4
218	CO1M/SV.L	9	3.6
219	G.G	15	6.0
220	G.G.S	6	2.2
221	SV.S	5	2.2
222	SV.L	4	1.7
223	G.G	9	3.8
224	C	4	1.8
225	SV.L	125	50.4
226	CO1M/SV.L	237	95.8
227	C	1	.3
228	G.G	8	3.1
229	SV.L	50	20.2
230	IF1M/SV.L	18	7.4
231	SV.L	5	2.0
232	C	3	1.1
233	IF1M/SV.G	22	9.0
234	G.G.S	7	2.6
235	SV.L	18	7.4
236	CO1H	3	1.3
237	SV.L	8	3.3
238	SV.L	2	.8
239	CO1M/SV.L	16	6.3
240	IF1M/SV.L	111	45.0
241	SV.L	14	5.7
242	IF1M/SV.L	2	1.0
243	CA1M/SV.L	4	1.8
244	SV.L	1	.5
245	CA1L/SV.L	9	3.5
246	G.G	4	1.6
247	SV.L	1	.5
248	G.G	1	.5
249	SV.L	1	.5
250	IF1M/SV.L	5	1.9
251	CA1M/SV.L	11	4.6
252	SV.L	1	.4
253	S.S	27	11.1
254	SV.L	127	51.2
257	C	10	4.2
258	S.P	11	4.4
259	S	2	.8
260	SV.L	6	2.4
261	CA1M/SV.L	7	2.7
262	IF1M/SV.L	27	10.8
263	C	2	.7
264	SV.S	4	1.7
265	CA1H	1	.4
266	IF1L/SV.L	18	7.2
267	C	2	.7
268	IF1L/SV.L	2	.8
269	C	1	.5
270	C	1	.1
271	CO1M/SV.G	4	1.5
272	CA1M/SV.L	2	.6
273	IF1M/SV.L	4	1.7
274	C	1	.5
275	L11H	104	42.1
276	SV.S	2	.8
277	IF1L/SV.L	9	3.5
278	CO1M/SV.L	1	.4
279	G.G	1	.3
280	G.G	1	.6
281	IF1M/SV.L	3	1.2
282	CA1M/SV.L	4	1.8
283	G.G	6	2.4
284	SV.L	17	6.7
285	CA1L/SV.L	3	1.4
286	SV.L	6	2.3
287	L11M/SV.P	1	.1
288	G.G.S	11	4.3
289	G.G.S	4	[illegible]
290	CO1M/SV.L	14	5.5
291	SV.L	50	20.3
292	SV.G	1	.1
293	G.G	2	.7
294	G.G	1	.4
295	C	5	2.0
296	IF1L/SV.L	10	4.0
297	U	2	.8
298	C	2	.7
299	SV.L	9	3.7
300	G.G	6	2.4
302	SV.L	6	2.4
303	IF1L/SV.L	8	3.3
304	IF1M/SV.L	1	.5
305	IF1M/SV.L	61	24.5
306	CO1H	6	2.3
307	SV.G.S	14	5.8
308	SV.L	4	1.4
309	CO1M/SV.L	32	12.8
310	SV.L	31	12.4
311	U	4	1.4
312	U	3	1.4
313	IF1L/SV.L	30	12.1
314	SV.L	25	10.2
315	L11H	33	13.1
316	CO1M/SV.L	9	3.5
317	CO1H	2	.9
318	SV.S	2	.7
319	IF1L/SV.L	2	.7
320	SV.S	1	.2
321	CA1M/SV.L	2	.7

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
322	IF1M/SV.L	2	.7
323	SV.L	2	.8
324	CA1L/SV.L	15	6.1
325	CO1M/SV.L	14	5.7
326	SV.S	1	.4
327	CO1L/SV.L	2	.8
328	SV.L	46	18.7
329	IF1M/SV.L	4	1.5
330	G.G.S	70	28.3
331	G.G	2	.6
332	IF1M/SV.L	6	2.3
333	CO1H	4	1.5
334	G.G	2	.6
335	S.S	8	3.3
336	G.G.S	1	.4
337	G.G	4	1.6
338	G.G	1	.6
339	SV.L	3	1.4
340	IF1M/SV	4	1.6
341	CO1M/SV.L	11	4.3
342	G.G	3	1.1
343	IF1M/SV.L	30	12.0
344	G.G	1	.5
345	CO1M/SV.L.G	16	6.3
346	G.G	10	4.0
347	SV.S	2	1.0
348	SV.L	1	.5
349	G.G.S	9	3.7
350	SV.L	1	.5
351	CO1M	4	1.5
352	CO1M/SV.L	2	.8
353	IF1M/SV.L	4	1.6
355	G.G	4	1.8
356	G.G	1	.3
357	SV.L	4	1.6
358	G.G	1	.5
359	G.G	1	.4
360	IF1M/SV.L	34	13.9
361	SV.L	6	2.3
362	CO1M/SV.L	2	.8
363	IF1L/SV.L	11	4.5
364	G.G	1	.4
365	CO1M/SV.G	1	.6
366	IF1M/SV.L	26	10.4
367	CO1L/SV.G	2	.8
368	CO1M/SV.L	2	.8
369	G.G.S	5	1.9
370	SV.S	1	.6
371	C	2	.6
372	G.G	6	2.3
373	G.G.S	17	6.9
374	CO1H	4	1.4
375	SV.L	2	.7
376	SV.L	2	.8
377	IF1M/SV.L	2	.7
379	IF1M/SV.L	87	35.0
380	SV.L	43	17.2
381	CA1M/SV.L	2	.9
383	SV.L	285	115.2
384	CO1H	2	.8
385	U	2	.7
386	C	78	31.6
387	SV.L	5	2.1
388	CO1M/SV.L	33	13.3
389	G.G	2	.6
390	G.G.S	2	.9
391	G.G	4	1.7
392	G.G	2	.6
393	CA1H	1	.3
394	IF1M/SV.L	3	1.1
395	G.G	1	.4
396	IF1M/SV.L	3	1.1
397	SV.G	1	.3
398	SV.G	15	6.0
399	IF1M/SV.L	2	1.0
400	G.G	2	.7
401	SV.L	3	1.3
402	SV.G	4	1.5
403	CA1M/SV.L	3	1.2
405	SV.L	144	58.4
406	SV.G	2	.6
407	SV.G	2	1.0
408	G.G.S	4	1.7
409	IF1M/SV	28	11.3
410	B.D	27	11.1
411	IF1M/SV.L	5	[illegible]
412	CA1H	1	.4
413	G.G	1	.5
414	CA1M/SV.L	2	.7
415	SV.G	1	.3
416	IF1M/SV.L	168	67.9
417	SV.G	2	.6
418	SV.G	1	.1
419	SV.L	1	.1
420	SV.L	14	[illegible]
421	SV.S	3	1.1
422	G.G	122	[illegible]
423	U	1	.5
424	SV.G	2	.9
425	SV.G	3	1.4
426	SV.G	1	.5
427	IF1M/SV	3	1.1
428	SV.G	1	.4
429	SV.G	1	.3
430	IF1M/SV.L	9	[illegible]
431	G.G	[illegible]	[illegible]
432	IF1M/SV.L	[illegible]	[illegible]
433	SV.L	1	.5
434	SV.G	[illegible]	[illegible]
435	CA1M/SV.L	[illegible]	[illegible]
436	SV.1	12	[illegible]
439	G.G	[illegible]	[illegible]
440	IF1M/SV.L	[illegible]	[illegible]
441	SV.L	[illegible]	[illegible]
443	U	[illegible]	.5
444	U	[illegible]	[illegible]
445	IF1M/SV.L	[illegible]	3.1
446	IF1L/SV.L	[illegible]	[illegible]
447	SV.S	[illegible]	1.4
448	B.S	[illegible]	.7
449	CA1L/SV.L	[illegible]	1.0
450	S.P	[illegible]	.3
451	CA1M/SV.L	12	4.9
452	S	31	[illegible]
453	S.P	[illegible]	3.4
454	SV.S	[illegible]	[illegible]
455	IF1H	1	[illegible]
456	CO1L/SV.L	[illegible]	.5
457	SV.S	2	[illegible]
458	S	7	[illegible]
459	SV.L	1	[illegible]
460	SV.L	63	[illegible]
461	SV.L.S	[illegible]	[illegible]
462	SV.L	2	.7
463	IF1M/SV.L	[illegible]	[illegible]
465	U	[illegible]	[illegible]
466	IF1M/SV.L	[illegible]	.7
467	SV.L	15	[illegible]
468	SV.G.L	[illegible]	2.6
469	IF1M/SV.L	14	5.8
470	CA1M/SV.L	[illegible]	7.6
471	S.P	[illegible]	[illegible]
472	IF1L/SV.L	6	2.6
473	SV.L	19	7.6
474	SV.S	10	3.8
475	SV.L	42	17.0
476	IF1H	[illegible]	.6
477	S	16	6.4
478	L11H	110	[illegible]
479	[illegible]	[illegible]	[illegible]
480	S/B.L	41	16.6
481	S	1	.3
482	S	1	.2
483	IF1M/SV.L	[illegible]	9.8
484	SV.S	4	1.5
485	SV.G.C	6	2.6
486	SV.L	373	[illegible]

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Control by USGS and TTPI
Compiled by photogrammetric methods from aerial photographs taken 1968-71. Field checked 1978
Limited field check 1980. Map edited 1982
Selected hydrographic data compiled from DMA chart 81571
This information is not intended for navigational purposes
Projection and metric grid: Saipan coordinate system (Modified Azimuthal Equidistant)

SCALE 1:20,000

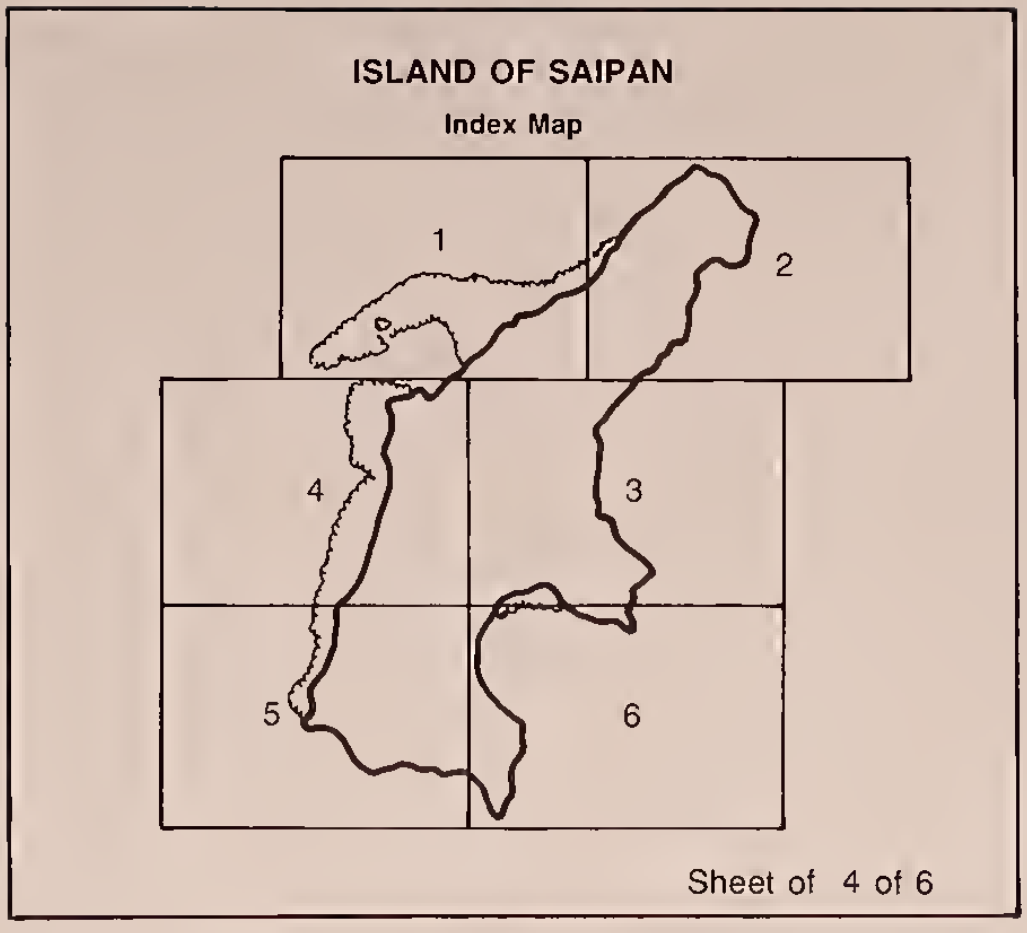
KILOMETERS

NAUTICAL MILE

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FATHOMS
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section; 1987.



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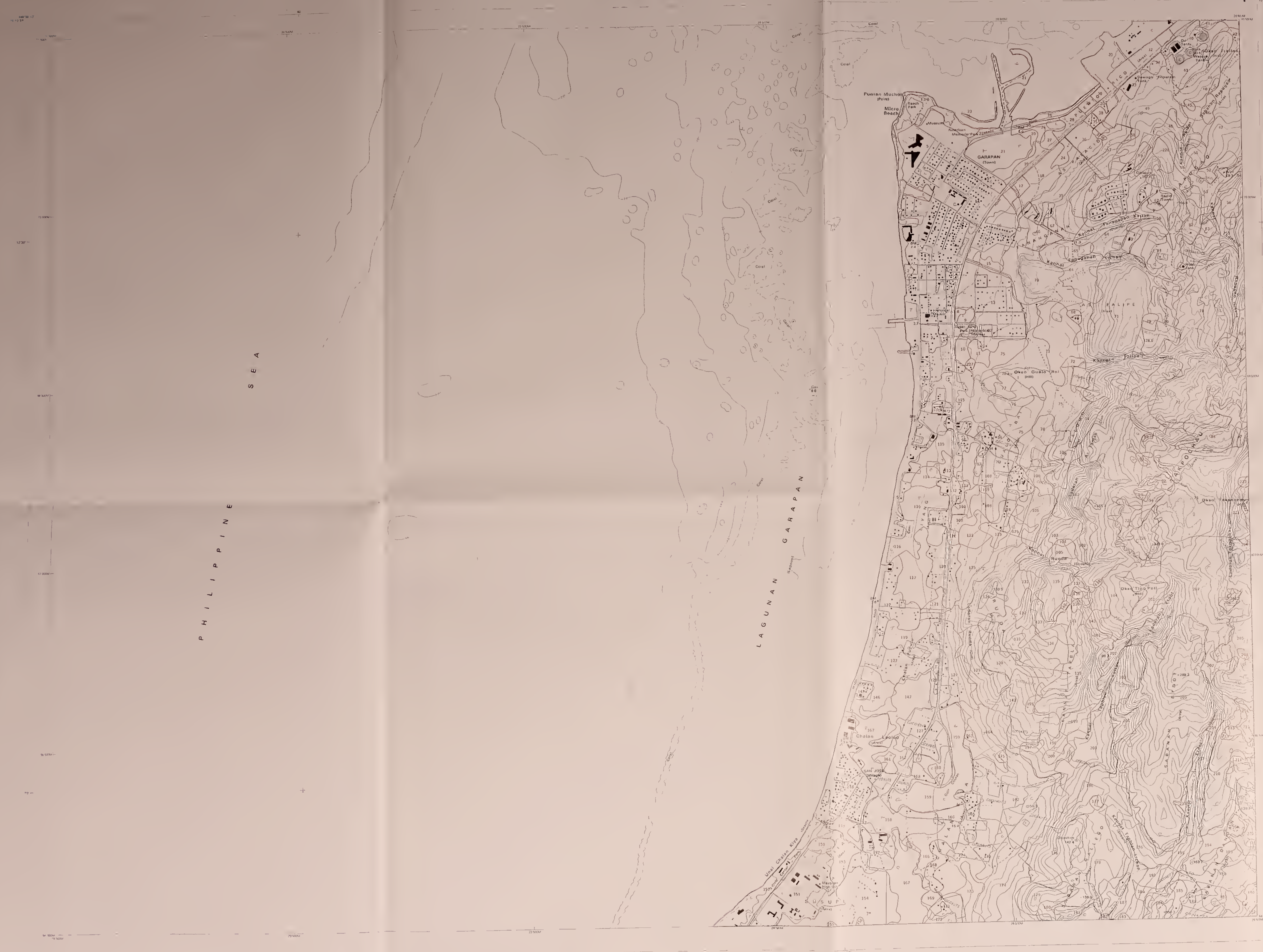
SAIPAN



VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	B.S.	5	1.8
2	CA1M	31	12.6
3	SV.L	1	.4
4	SV.L	11	4.2
5	U	273	110.6
6	SV.L	5	2.0
7	AG.CO	8	3.3
8	SV.L	2	.6
9	IF1M.D/SV.L	6	2.4
10	IF1L/SV.L	6	2.5
11	IF1H	6	2.5
12	LI1H	3	1.3
13	G.G.S	66	26.8
14	G.G.S	18	7.4
15	IF1M/SV.L	5	2.0
16	SV.G.L	36	14.7
17	U	4	1.5
18	SV.L	26	10.7
19	G.G	18	7.4
20	SV.L	7	2.6
21	CA1M/SV.L	51	20.7
22	G.G	5	2.1
23	CA1H	2	.6
24	SV.S	5	1.9
25	IF1N/SV	10	4.1
26	CA1M/SV.L	6	2.5
27	U	4	1.8
28	SV.L	8	3.3
29	B.D	3	1.3
30	SV.L	3	1.1
31	U	47	18.9
32	SV.L	24	9.8
33	U	6	2.3
34	SV.L	5	1.8
35	U	1	.6
36	CO1H	15	5.9
37	SV.L	1	.5
38	CO1H	6	2.4
39	IF1M/SV.L	43	17.5
40	U	26	10.4
41	SV.L	5	1.9
42	CO1M/SV.L	6	2.4
43	SV.L	16	6.4
44	IF1L/SV.L	27	11.0
45	G.G	1	.6
46	CO1M/SV.L	5	2.2
47	IF1M/SV.L	58	23.3
48	G.G.S	8	3.1
49	IF1M/SV.L	62	25.3
50	IF1L/SV.L	54	21.9
51	CA1M/SV	6	2.6
52	CO1M/SV.L	10	3.9
53	SV.L	20	7.9
54	IF1H.D	1	.1
55	LI1H	51	20.7
56	IF1H.D	9	3.5
57	CO1M/SV.L	19	7.6
58	SV.L	2	.8
59	CO1M/SV.L	5	1.8
60	U	38	15.2
61	SV.L	16	6.6
62	G.S	6	2.5
63	AG.CO	5	1.9
64	SV.L	64	25.9
65	CA1H	7	3.0
66	U	15	6.1
67	SV.L	6	2.5
68	CO1H	1	.5
69	U	1	.5
70	IF1L/SV.L	69	27.9
71	IF1L/SV.L	653	264.1
72	SV.L	3	1.2
73	CO1M/SV.L	6	2.6
74	IF1M/SV.L	12	4.7
75	IF1L/SV.L	96	38.7
76	CA1M/SV.L	13	5.3
77	G.G	7	2.8
78	IF1M/SV.L	9	3.6
79	IF1N/SV.B	4	1.6
80	CO1M/SV.L	34	13.9
81	SV.L	34	13.7
82	CO1M/SV.L	14	5.6
83	C	4	1.7
84	CO1M/SV.L	14	5.6
85	LI2H	4	1.8
86	CA1M/G.G	33	13.5
87	G.G	4	1.6
88	CO1M/SV.L	36	14.6
89	G.G	1	.4
90	G.G	3	1.1
92	G.G	9	3.7
93	G.G	2	.6
94	CA1M/SV.L	6	2.6
95	CO1H	4	1.7
96	U	17	6.9
97	G.G	3	1.1
98	CO1H	8	3.3
99	LI1H	7	2.9
100	IF1H	9	3.5
101	CO1M/SV.L	19	7.6
102	LI1H	42	16.8
103	IF1M/SV.L	20	7.9
104	SV.L	2	.6
105	CO1M/SV.L	7	2.9
106	CO1M.LI	25	10.1
107	AG.CO	10	3.9
108	SV.L	51	20.8
109	CA1H	2	.7
110	G.G	7	2.7
111	CO1H	3	1.1
112	U	16	6.3
113	CO1H	6	2.4
114	CA1M/SV.L	8	3.1

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
115	SV.L	60	24.2
116	SV.L	43	17.5
117	CA1M/SV.L	30	12.2
119	IF1L/SV.L	22	8.7
120	CO1M/SV.L	27	11.1
121	SV.L	6	2.4
122	IF1L/SV.L	12	4.8
123	IF1H.D	5	2.1
124	AG.CO	8	3.3
125	SV.L	41	16.5
126	CA1M/SV.L	46	18.7
127	CO1M/SV.L	150	60.6
128	SV.L	5	2.2
129	IF1M/SV.L	37	14.9
130	IF1L/SV.L	15	5.9
131	SV.L	37	14.9
132	CO1H	8	3.4
133	IF1L/SV.L	22	9.0
134	CO1L/SV.L	17	6.9
135	LI1H	29	11.9
136	LI1H	2	.8
137	G.G	6	2.2
138	G.G	1	.3
139	IF1M/SV.L	63	25.6
140	G.G	2	.8
141	SV.L	13	5.1
142	CO1M/SV.L	147	59.4
143	G.G.S	7	2.7
144	IF1L/SV.L	46	18.7
145	U	4	1.8
146	SV.L	26	10.4
147	M.F.P	27	11.1
148	U	62	25.2
149	SV.L	7	3.0
150	G.G	6	2.4
151	U	54	21.9
152	CA1M/U	38	15.5
153	IF1M/SV.L	31	12.4
154	CO1M/SV.L	61	24.8
155	CA1L/SV.L	1	.4
156	CA1L/SV.L	1	.4
157	U	15	5.9
158	CO1M/SV.L	59	24.0
159	G.G	54	21.9
160	SV.L	14	5.8
161	G.G	5	1.9
162	IF1M/SV.L	43	17.2
163	U	2	.8
164	SV.L	34	13.9
165	U	14	5.5
166	SV.L	27	10.7
167	M.F.P	38	15.2
168	CO1M/SV.L	9	3.7
169	SV.L	4	1.6
170	CO1M/SV.L	8	3.1
171	CO1M/SV.L	11	4.4
172	SV.L	4	1.7
173	SV.L	14	5.7
174	IF1M/SV.L	95	38.4
175	CA1H	2	.8
176	G.G.S	35	14.3
177	CO1H	2	1.0
178	IF1L/SV.L	67	27.1
179	IF1H	19	7.7
180	SV.S	5	1.9
181	B.D	11	4.3
182	IF1M/SV.L	1	.4
183	CA1M/SV.L	1	.5
184	IF1M/SV.L	13	5.2
185	SV.L	6	2.6
186	SV.L	5	2.0
187	CO1M.LI	42	17.1
188	CO1L/SV.L	18	7.1
189	IF1L/SV.L	17	6.7
190	CO1H	5	2.0
191	SV.L	38	15.4
192	SV.L	2	.8
193	G.G	7	2.6
194	IF1M/SV.L	22	8.7
195	CA1M/SV.L	8	3.4
196	IF1M/SV.L	102	41.1
197	SV.L	3	1.3
198	SV.L	4	1.7
199	SV.L	11	4.3
200	SV.L	6	2.4
201	SV.L	3	1.0
202	G.G.S	33	13.4
203	CO1MSV.L	66	26.6
204	IF1M/SV.L	[illegible]	5.6
205	G.G.S	277	112.0
206	SV.G.S	5	1.9
207	IF1M/SV.L	154	62.2
208	IF1M/SV.L	2	.8
209	SV.S	3	[illegible]
210	SV.G.L	41	16.5
211	CA1M/SV.L	6	2.2
212	SV.L	1	.5
213	CA1M/SV.L	5	1.9
214	CO1H	2	1.0
215	IF1M/SV.L	7	2.9
216	SV.L	28	11.1
217	CO1M/SV.L	18	7.3
218	SV.S	5	2.1
219	CO1M/SV.L	5	2.1
220	IF1L/SV.L	7	3.0
221	LI1M/SV.P	13	5.2
222	G.G.S	3	1.0
223	G.G.S	2	.6
224	IF1M/SV.L	1	[illegible]
225	G.G.S	11	4.6
226	G.G	16	6.6
227	CO1H	2	.7
228	SV.L	13	5.2

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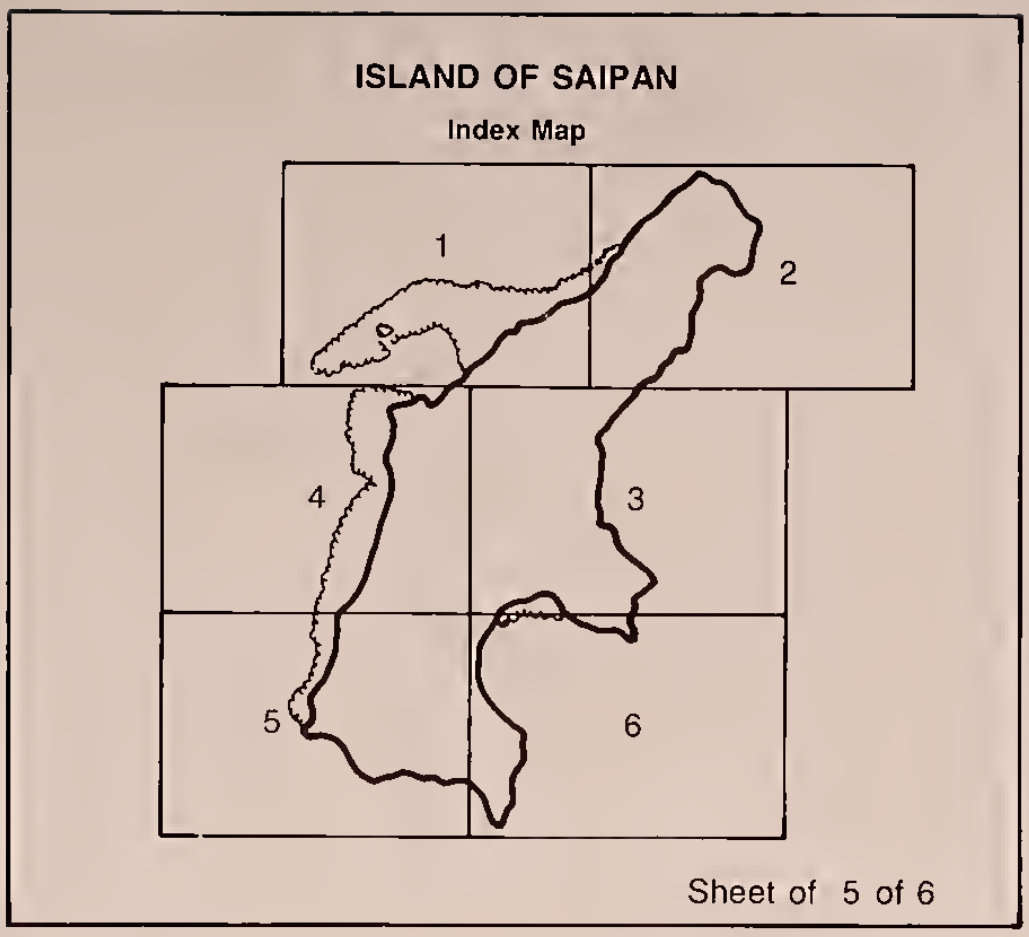
This information is not intended for navigational purposes
Projection and metric grid ticks: Saipan coordinate system (Modified Azimuthal Equidistant)

SCALE 1:20,000

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FATHOMS
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER



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SAIPAN

SHEET 5 OF 6

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	B.L	5	1.9
2	U	1	4
3	S	1	6
4	CA1M/SV.L	5	2.1
5	S	6	2.2
6	IF1L/SV.L	4	1.6
7	SV.L	9	3.5
8	AT1H	10	3.9
9	SV.G.S	16	6.6
10	AT1H	1	5
11	CA1M	8	3.2
12	CO1H	2	8
13	SV.L	77	31.0
14	SV.G	26	10.6
15	CO1H	2	9
16	IF1H	1	.4
17	SV.L	1	4
18	CO1L/SV.L	2	9
19	SV.L	1	.4
20	SV.L	2	.7
21	CO1M/SV.L	13	5.2
22	SV.L	6	2.3
23	B.D	102	41.3
24	U	1	4
25	SV.G	17	6.9
26	CO1M/SV.L	11	4.5
27	SV.L	15	6.0
28	IF1L/SV.L	13	5.3
29	CA1H	25	10.1
30	G.G	4	1.4
31	U	3	1.1
32	G.G	14	5.8
33	U	9	3.6
34	G.G	2	.9
35	CO1L/SV.L	3	1.1
36	U	3	1.2
37	CO1M/U	27	11.1
38	SV.S	2	.6
39	CA1H	4	1.6
40	SV.G	8	3.3
41	SV.S	3	1.0
42	SV.L	22	8.9
43	SV.G	3	1.3
44	C	13	5.1
45	U	1	4
46	U	2	8
47	CO1H	4	1.6
48	SV.L	3	1.2
49	IF1M/SV.L	6	2.5
51	SV.L	58	23.4
52	IF1M/SV.L	2	.7
53	SV.G	3	1.3
54	IF1M/SV.L	74	29.9
55	CO1H	3	1.2
56	SV.G	10	4.2
57	SV.S	2	.6
58	SV.L	34	13.6
59	C	2	.6
61	SV.G	3	1.3
62	CO1M/SV.G	7	2.7
63	SV.G.L.S	10	3.9
64	G.G	3	1.1
65	U	51	20.5
66	IF1M/SV.L	9	3.6
67	SV.G	4	1.8
68	U	15	5.9
70	CO1M/U	9	3.4
71	IF2H	5	1.8
72	CO1M/SV.L	14	5.5
73	G.G	10	3.9
74	CO1L/U	18	7.1
75	SV.G	7	2.7
76	IF1M	2	7
77	CO1M/SV.L	33	13.4
78	U	229	92.5
79	M.F.P/W.F	18	7.1
80	M.F.P	221	89.5
81	CA1H	1	.5
82	CA1M/M.F.P	3	1.1
83	G.G	2	9
84	IF1H	1	[illegible]
85	CO1M	2	9
86	CO1M	2	[illegible]
87	IF1M/SV.L	3	1.1
88	G.G	1	5
89	CO1M/SV.L	13	5.4
90	SV.L	5	2.2
91	IF1L/SV.L	4	1.7
92	CO1M/SV.L	9	3.6
93	SV.G	6	2.6
94	U	3	1.4
95	G.G	3	1.1
96	IF1H	3	1.2
97	SV.G	8	3.4
98	SV.S	5	1.9
99	CO1H	20	8.2
100	CA1M/U	5	2.2
101	CA1M/U	32	12.7
102	L1IH	5	1.5
103	CA1M/SV.L	32	13.1
104	AG.C/SV.L	48	19.4
105	IF1M/SV.L	14	5.5
106	CO1M/SV.L	7	2.8
107	IF1M/SV.L	3	1.1
108	CA1L/SV.L	7	2.6
109	CO1M/SV.L	2	.9
110	CO1M/SV.L	47	19.1
111	W.F	45	18.3
112	CA1M/M.F	22	8.9
113	CO1H	2	8
114	SV.L	11	4.5
115	CO1M/SV.L	3	1.1
116	SV.L	3	1.3
117	IF1M/SV.L	178	72.0
118	CO1H	4	1.5
119	C	1	5
120	CO1H	9	3.7
121	CO1M/SV.L	54	22.0
122	CO1M/SV.L	5	2.1
123	G.G	14	5.6
124	IF1L/SV.L	20	[illegible]
125	C	1	4
126	SV.L	7	3.0
127	CA1M/SV.L	5	2.0
128	SV.L	8	3.1
129	SV.G	3	[illegible]
130	CO1L/SV.L	83	33.6
131	U	5	2.1
132	SV.L	12	4.7
133	IF1M/SV.L	17	7.0
134	IF1M/SV.L	7	2.6
135	CO1M/SV.L	4	1.7
136	SV.L	988	399.9
137	IF1M/SV.L	24	9.9
138	G.G.S	10	3.9
139	IF1M/SV.L	7	2.7
140	CO1L/SV.L	6	2.4
141	G.G	1	.5
142	CO1M	4	1.6
143	G.G.S	16	6.6
144	CO1L/SV.L	3	1.2
145	CO1M/SV.L	3	1.3
146	CO1M/SV.L	3	1.3
147	CO1M	3	1.4
148	CO1M	4	1.4
149	C	2	7
150	U	1	[illegible]
152	G.G	5	2.0
153	SV.L	5	1.9
154	C	2	8
155	G.G	8	3.4
156	IF1M/SV.L	11	4.3
157	CO1M/C	7	2.6
158	CO1M	2	8
159	CO1H	1	5

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
160	G.G.S	51	20.5
161	G.G.S	7	2.6
162	SV.L.S	11	4.4
163	IF1M/SV.L	13	5.4
164	CA1M/SV.L	3	1.1
165	SV.L	16	6.6
166	IF1M/SV.L	5	1.8
167	SV.G.L	192	77.7
168	SV.G	27	10.7
170	CO1M/SV.L	6	2.4
171	SV.G	3	1.0
172	IF1M/SV.L	318	128.6
173	SV.L	17	7.0
174	IF1H	11	4.4
176	IF1M/SV.L	16	6.6
177	SV.L	117	47.4
178	IF1M/SV.L	19	7.5
179	SV.L	2	1.0
180	S	13	5.1
181	CA1M/SV.L	5	2.0
182	G.G	8	3.2
183	IF1H	3	1.1
184	SV.L	6	2.4
185	CO1L/SV.L	9	3.6
186	SV.L	13	5.1
187	CO1L/SV.L	7	2.8
188	U	14	5.6
189	G.G	5	1.8
190	G.G.S	6	2.5
191	SV.L	32	12.8
192	CO1M/SV.L	19	7.8
193	SV.L	6	2.6
194	IF1M/SV.L	51	20.5
195	U	4	1.8
196	SV.S	1	1
197	B.D	7	2.8
198	IF1M/SV.L	4	1.8
199	CO1L/SV.L	49	19.9
200	SV.L	6	2.3
201	CA1H	1	6
202	G.G	5	1.8
203	U	11	4.2
204	CO1L/SV.L	37	14.8
205	L12H.S	15	6.0
206	G.G.S	7	2.8
207	C	2	8
208	C	3	1.0
209	CO1H	3	1.2
210	G.G.S	18	7.3
211	IF1M/SV.L	61	24.5
212	U	3	1.1
213	CA1M/SV.L	61	24.6
214	SV.L	8	3.1
215	IF1M/SV.L	10	4.1
216	CO1M/U	1	6
217	CO1L/SV.L	6	2.3
218	IF1L/SV.L	4	1.8
219	C	8	3.4
220	CO1M/SV.L	18	6.5
221	U	38	15.5
222	SV.S	5	2.0
223	CO1M/U	11	4.3
224	IF1M/SV.L	40	16.1
225	G.G	6	2.2
226	SV.S	5	1.9
227	CO1M	3	1.1
228	CO1M/SV.L	15	6.0
229	C	1	5
230	C	2	7
231	SV.L	8	3.1
232	G.G.D	2	9
233	G.G	25	10.1
234	CO1H	1	.3
235	IF1M/SV.L	4	1.6
236	CO1H	1	4
237	CO1H	2	.9
238	CA1M/SV.L	2	.9
239	CO1M/SV.L	1	.2
240	AG	1	5
241	SV.G	2	[illegible]
242	IF1M/SV[illegible]	[illegible]	[illegible]
243	CO1M/SV.L	2	[illegible]
244	G.G	[illegible]	[illegible]
245	CO1M/SV[illegible]	[illegible]	[illegible]
246	CO1L/C	[illegible]	1.6
247	C	[illegible]	[illegible]
248	C	2	1.0
249	CA1M/SV[illegible]	[illegible]	[illegible]
250	G.G	1	[illegible]
251	SV.L	1	2
252	S.S	4	1.7
253	S	8	3.4
254	G.G	5	[illegible]
255	IF1L/SV.L	3	1.4
256	SV.G.S	2	8
257	CO1H	1	2
259	CO1H	1	5
260	C	2	8
261	C	2	7
262	IF1M/SV.L	2	7
263	C	2	9
264	G.G.S	14	5.6
265	CO1H	1	4
266	IF1M/SV.L	2	8
267	U	2	1.0
268	G.G.S	23	9.1
269	IF1M/SV.L	18	7.4
270	G.G	1	5
271	IF1H.D	2	7
272	G.G.S	7	2.8
273	SV.G	1	3
274	C	[illegible]	6
275	IF1M/SV.L	8	3.3
276	CO1H	1	1.7
277	G.G.S	3	1.1
278	G.G.S	3	1.3
279	IF1M/SV.L	7	3.0
280	IF1M/SV.L	56	22.5
281	IF1M/SV.L	101	[illegible]
282	SV.G	1	[illegible]
283	CO1M/IF	4	1.5
284	CO1H	[illegible]	1.1
285	C	[illegible]	8
286	S.S	[illegible]	[illegible]
287	C	1	4
288	CA1M/SV.L	16	6.6
289	IF1L/SV.L	[illegible]	3.6
290	SV.L	2	9
291	IF1M/SV.L	9	3.6
292	IF1L/SV.L	4	1.5
293	SV.S	7	2.8
294	SV.L	[illegible]	7
295	SV.S	16	6.5
296	G.G	[illegible]	3
297	IF1M/SV.L	8	3.4
298	B.D	1	2
299	IF1M/SV.L	[illegible]	3.4
300	CA1M/SV.L	8	[illegible]
301	IF1L/SV.L	15	[illegible]
302	C	2	7
303	CO1H	1	6
304	C	9	3.5
305	IF1M/SV.L	4	1.4
306	IF1M/SV.L	3	1.2
307	IF1M/SV.L	4	1.4
308	IF1M/SV.L	1	4
309	CO1H	1	5
310	U	1	.4
311	U	451	182.3
312	G.G	7	3.0
313	CO1M/SV.L	3	1.2
314	IF1M/SV.L	39	15.7
315	SV.L	5	1.8
316	SV.L	2	7
317	IF1M/SV.L	2	9

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
318	IF1L/SV.L	19	7.6
319	IF1M/SV.L	21	8.4
320	IF1M/SV.L	36	14.6
321	SV.L	467	188.8
322	B.D	16	6.5
323	IF1L/SV.L	8	3.2
324	IF1M/SV.L	33	13.5
325	IF1M/SV.L	2	8
326	CA1M/SV.L	27	11.0
327	G.D.G	7	2.6
328	IF1L/SV.L	9	3.8
329	SV.L	12	4.9
330	SV.L	6	2.3
331	CA1M/SV.L	3	1.3
332	B.S	2	7
333	CA1M/SV.L	6	2.2
334	IF1M/SV.L	7	2.8
335	IF1M/SV.L	44	17.6
336	SV.L	1	1
337	G.G.S	1	.1
338	SV.G.L	21	8.3
339	SV.L	17	6.7
340	SV.L.S	8	3.3
341	CO1H	1	8
342	SV.S	1	4
343	SV.G	4	1.6

Produced by the United States Geological Survey
in cooperation with Trust Territory of the Pacific Islands

Control by USGS and TTPI

Compiled by photogrammetric methods from aerial photographs taken 1968-70. Field checked 1970
Limited field check 1980. Map edited 1982

Selected hydrographic data compiled from DMA chart 81071
This information is not intended for navigational purposes

Projection and metric grid ticks: Saipan coordinate system (Modified Azimuthal Equidistant)

MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:20,000

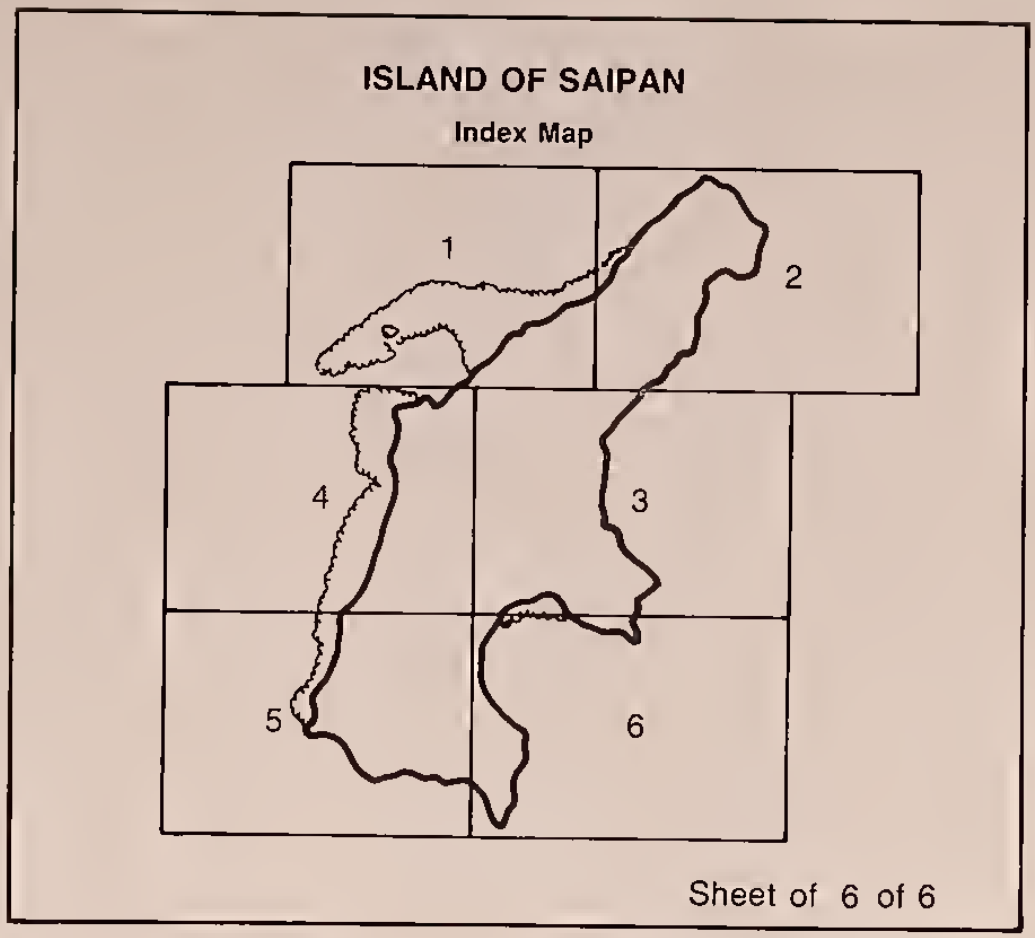
KILOMETERS

NAUTICAL MILE

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FATHOMS
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 METER

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section; 1987.



Falanruw, Marjorie C.; Cole, Thomas G.; Ambacher, Alan H. 1989. **Vegetation Survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands.** Resour. Bull. PSW-27. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. 11p. + 13 maps.

SAIPAN

VEGETATION LEGEND

For explanation of vegetation type codes, see Table 2.

ITEM	LABEL	AREA (ACRES)	AREA (HECTARES)
1	G.G.D.	1	.5
2	SV.L	58	23.4
3	CO1H	2	.9
4	C	1	.4
5	SV.S	1	.1
6	IF1L/SV.L	1	.1
7	SV.L	5	1.9
8	CA1M/SV.L	3	1.2
9	IF1M/SV.L	2	1.0
10	G.S	1	.5
11	IF1M/SV.L	1	.4
12	SV.L	4	1.6
13	U	1	.5
14	CO1H	1	.5
15	IF1M/SV.C.L	17	7.1
16	C	2	.9
17	S	2	.9
18	S.P	4	1.5
19	G.G	3	1.2
20	S	27	11.1
21	CO1M/SV.L	4	1.5
22	G.G	1	.4
23	CO1M/SV.L	1	.5
24	U	1	.4
25	CO1M/SV.L	8	3.2
26	SV.L	4	1.8
27	SV.S	1	.1
28	S	4	1.7
30	S.S	6	2.3
31	S.S	12	5.0
32	SV.S	4	1.6
33	IF1M/SV.L	1	.1
34	B.D	6	2.3
35	U	9	3.4
36	IF1M/SV.L	14	5.7
37	IF1M/SV.L	14	5.8
38	SV.L	1	.4
39	G.G.S	4	1.5
40	S.P	6	2.6
41	IF1L/SV.L	9	3.6
42	SV.L	259	104.8
43	CA1M/SV.L	19	7.9
44	SV.L	3	1.2
45	SV.G.S	4	1.7
46	SV.L	7	2.9
47	S/B.L	10	4.2
48	S	187	75.7
49	IF1M/SV.L	6	2.4
50	IF1M/SV.L	2	.8
51	IF1L/SV.L	37	15.1
52	SV.S	4	1.4
53	CO1M/SV.L	2	.6
54	SV.L	4	1.7
56	G.G.S	19	7.8
57	SV.L	2	.8
58	G.G.S	7	2.8
59	SV.L	5	2.1
60	IF1M/SV.L	140	56.5
61	CA1M/SV.L	10	3.9
62	SV.L	70	28.4
63	SV.G.S	5	2.2
64	SV.L.S	9	3.7
65	S/DV	8	3.3
66	IF1M/SV.L	2	.8
67	SV.L	1	.5
68	SV.S	1	.5
69	SV.L	9	3.5
70	G.G.S	10	4.2
71	SV.L	2	.7
72	G.G.S	8	3.1
73	SV.L	1	.4
74	G.G	6	2.4
75	SV.L	13	5.2
76	S.P	7	2.9
77	B.L	15	6.0
78	LI1H	30	11.9
79	S.S	26	10.5
80	CA1M/SV.L	9	3.7
81	S.S	8	3.4
82	S.S	6	2.3
83	B.L	2	.9
84	S	7	2.8
85	IF1M/SV.L	9	3.5
86	SV.S	4	1.6
87	S/B.L	18	7.1
88	S.S	4	1.5
89	G.G	2	.9
90	S/B.L	4	1.7
93	B.L	2	.7
94	SV.S	2	.9
95	S	3	1.2
96	SV.L	11	4.5
97	B.L	4	1.6
98	CA1M/S / S	13	5.2
99	G.G.S	4	1.5
100	IF1M/SV.L	12	4.8
101	SV.L	[illegible]	3.0
102	SV.L	3	1.2
103	G.G	1	.4
104	B.D	1	.4
105	CA1H	2	.7
106	SV.L	14	5.7
107	SV.L	5	2.0
108	IF1M/SV.L	11	4.3
109	G.G.C.S	33	13.3
110	S.S	11	4.4
111	S	14	5.8
112	LI1H	19	7.5
113	SV.L	33	13.4
114	S	2	.6
115	IF1M/SV.L	2	.7
117	IF1M/SV.L	44	17.6
118	CA1M/SV.L	7	2.4

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SCALE 1:20,000

CONTOUR INTERVAL 10 METERS
SUPPLEMENTARY CONTOUR INTERVAL 5 METERS
DATUM IS MEAN SEA LEVEL

DEPTH CURVES IN FATHOMS

Vegetation map compiled by Pacific Southwest Forest and Range Experiment Station and Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. Cartography by Alan H. Ambacher, USDA - Forest Service, Pacific Southwest Region, Engineering Geometronics Section; 1987.

The Forest Service, U. S. Department of Agriculture, is responsible for Federal leadership in forestry. It carries out this role through four main activities:

- Protection and management of resources on 191 million acres of National Forest System lands
- Cooperation with State and local governments, forest industries, and private landowners to help protect and manage non-Federal forest and associated range and watershed lands
- Participation with other agencies in human resource and community assistance programs to improve living conditions in rural areas
- Research on all aspects of forestry, rangeland management, and forest resources utilization.

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