

ATOLL RESEARCH BULLETIN
NO. 132

PLANTS OF SATAWAL ISLAND, CAROLINE ISLANDS

by F. R. Fosberg

Issued by

THE SMITHSONIAN INSTITUTION

Washington, D. C., U. S. A.

August 15, 1969

PLANTS OF SATAWAL ISLAND, CAROLINE ISLANDS

by F. R. Fosberg

Satawal is a small flat coral island in the west central Caroline Islands about 1050 km east-south-east of Yap Island, at latitude 7°21' N, longitude 147°02' E. Although its surface is locally somewhat irregular, its greatest height is not more than about 4 meters above mean low water. Its long axis is about east-west and its area is 1.3 square km. It is surrounded by a fringing reef upward of 100 meters wide. It has no lagoon, so would be classified according to Tayama's scheme as a table reef. From the viewpoint of land ecology it is an atoll. The substratum varies from sandy to boulders, with some peat very locally. The beaches are sandy around the western half, of pebbles and cobbles around the eastern half.

The island is almost entirely wooded--only a small grassy clearing that serves as a school playground, an area of scrub on the extreme east end and a tiny scrub-covered mangrove depression near the east end are not forested. Most of the forest is coconut plantation, with an open understory of small trees and shrubs. Above this, in much of the central part, rise enormous emergent breadfruit trees. Many of these have great buttressed trunks 1 meter or more in diameter. Emergent trees are lacking or nearly so in a peripheral zone 100 meters or more wide, especially on the south side. The village is located on the north side. In it the coconuts are less dense and there are many ornamental trees and shrubs. The undergrowth in the forest varies in aspect and composition locally, but everywhere ferns are very abundant, mostly terrestrial but also epiphytic. Mosses are abundant on both rocks and tree-trunks. The most common understory small trees and shrubs are Morinda citrifolia, Premna obtusifolia, Crateva speciosa, Pipturus argenteus, and young coconuts. Locally the gigantic leaves of Alocasia macrorrhiza and of Musa sapientum are conspicuous. There are no extensive taro swamps, although in a few deep small pits Cyrtosperma is growing well enough. Vines are so abundant as to give a luxuriance to the landscape over and above that due to the prevalence of ferns. Among them are Vigna marina, Wedelia biflora, Piper ponapense, Piper fragile, and, less common, Canavalia cathartica and Ipomoea indica.

Along the north beach in front of the village, Pandanus tectorius is common, with a few Casuarina equisetifolia.

Along the south coast the coconut trees come to the beach, but sparser and smaller here. There is a strip of scrub forest of somewhat drier aspect than that farther inland, with Morinda citrifolia, Scaevola taccada, Tournefortia argentea, Pipturus argenteus, Terminalia samoensis,

a few Cordia subcordata, as well as low coconut trees. Triumfetta procumbens, Vigna marina, Thuarea involuta and Polypodium scolopendria cover the ground.

Toward the east end of the island this forest is more prevalent, and has Guettarda speciosa, occasional Pisonia, Ficus tinctoria, and rarely, Hernandia sonora. Away from the beach this becomes more mesophytic and has some breadfruit. Ferns are abundant. Here coconut plantings are less continuous. Small groves of Pisonia grandis and of Eugenia javanica are found. Near the east end is a tiny mangrove depression, with deep peat, a few Bruguiera gymnorhiza trees, and a dense tangle of Acrostichum aureum and Clerodendrum inerme 2-3 meters tall. Near the south shore, toward the east end, are occasional Pandanus dubius trees, but usually small, sterile, and not more than 4 meters tall. Hernandia is occasional here, too.

The extreme east end is covered by a dense scrub of Scaevola taccada and Clerodendrum inerme 2-3 meters tall, with scattered larger, very much battered trees of Tournefortia argentea and a few tall coconuts. A dense fringe of Scaevola and Tournefortia, with a few scattered Pemphis acidula and Pandanus tectorius, edged with Vigna marina and Triumfetta procumbens lines the top of the beach around the whole except in front of the village.

The village and the people are among the most attractive in Micronesia. The houses are Micronesian in style and materials, galvanized iron being seen only in the church. The people are friendly and appear very healthy. They live on breadfruit, coconuts, taros of several sorts, chicken, pork and fish. They export copra when there is an opportunity. Their contact with the outside is somewhat less than that of most Micronesians because of the relatively difficult landing over the reef. They do not appear less happy or less well-off because of this.

A small list of plants, apparently unsupported by specimens, was published by Damm, H., in Thilenius, Erg. Südsee Expedition II, B, 6, 2: 15-16, 1935. These are cited as appropriate in the text.

The collections listed below were made during parts of two days spent on the island in August 1965. They probably represent the flora rather completely though some species may have been missed. The local names are from many informants, though the majority were supplied by Ignacio. The people generally seem very familiar with the plants of the island. Species presumed to be introduced by human agency are indicated by an asterisk *. Specimens cited have not been distributed, as they must still be studied for the flora of Micronesia. Some of them are not in good condition and may have to be discarded.

POLYPODIACEAE

ACROSTICHUM AUREUM L.

Abundant in mangrove depression near east end, Fosberg 46940;
"epéu."

ASPLENIUM NIDUS L.

Occasional to common, terrestrial or rarely epiphytic in forest sites, Fosberg 46895; "cherluk" or "reluk."

ATHYRIUM BLUMEI (Bergstr.) Copel.

Common in dense forest in central part, uncommon elsewhere in forests, terrestrial, Fosberg 46906, 46944; "sivilkuel."

NEPHROLEPIS BISERRATA (Sw.) Schott

Common to abundant generally in forests, terrestrial or less commonly epiphytic on tree trunks, Fosberg 46909, 46934; "amărei."
Damm, p. 16, as N. acuta.

POLYPODIUM SCOLOPENDRIA Burm. f.

Abundant generally, terrestrial or epiphytic on bases of trees, Fosberg 46911; "rir'ri."

PTERIS TRIPARTITA Sw.

Occasional generally in forests in more moist sites, Fosberg 46904;
"sivilkuel."

PANDANACEAE

PANDANUS DUBIUS Spreng.

Occasional shrubs or small trees in forest, especially near north side, all seen sterile, Fosberg 46903; "pogu."

PANDANUS TECTORIUS Park.

Occasional, especially along north beach, Fosberg 46936; "fach";
fruit said not to be eaten. Damm, p. 15, as Pandanus.

GRAMINEAE

*CENCHRUS BROWNII R. & S.

Locally common in open places and just back of beaches, Fosberg 46874; "ălū."

DIGITARIA PRURIENS (Trin.) Buse var.

Local along paths, Fosberg 46892.

*ELEUSINE INDICA (L.) Gaertn.

Abundant in village and along paths, Fosberg 46868; "puker."

*ERAGROSTIS TENELLA (L.) Beauv.

Very local in open spots in village and in school playground, Fosberg 46872; "buruak."

LEPTURUS REPENS R. Br. var. REPENS

Local, usually just back of beach, Fosberg 46848; "fetil."
This has rather thicker rachis than usual and approaches
var. occidentalis, but the glumes are only 6-10 mm long.

*PASPALUM CONJUGATUM Berg.

Local along paths in village and forest, Fosberg 46893.

*SACCHARUM OFFICINARUM L.

Not seen by us, but reported by Damm, p. 15, as Zuckerrohr."

THUAREA INVOLUTA (Forst. f.) R. & S.

Common generally, especially along paths and back of beaches,
Fosberg 46850, Fosberg 46892a; "fetilupuai"; in dense breadfruit
forest, sterile.

*ZOYSIA TENUIFOLIA Trin.

Locally common in village, forming dense mats, Fosberg 46864; "fetil."

CYPERACEAE

*CYPERUS BREVIFOLIUS (Rottb.) Hassk.

Very local in inner part of village, Fosberg 46875; "fithin nar."

FIMBRISTYLIS CYMOSA R. Br.

Locally common, usually just back of beach, Fosberg 46849;
"pukarangas."

ARACEAE

*ALOCASIA MACRORRHIZA (L.) Schott

Very common around village and in parts of the forest near
village, Fosberg 46869; "filě." Damm, p. 15, as "Taro-Art mit
groszen Knollen."

*COLOCASIA ESCULENTA (L.) Schott

Commonly planted on dry land, especially around village, Fosberg
46863; "wot omalu"; corms used as food. Damm, p. 15, as "kleine
Taro-Art."

*CYRTOSPERMA CHAMISSONIS (Schott) Merr.

Planted in deep pits in forest, not abundant, Fosberg & Evans
46894; "pulá." Damm, p. 15, as Cyrtosperma.

*XANTHOSOMA SAGITTIFOLIUM (L.) Schott

Planted in village, Fosberg 46870; "yigalulu."

*XANTHOSOMA VIOLACEUM Schott

Planted in village, occasionally spontaneous in nearby forest;
Fosberg 46912; "Honolulu cha."

PALMAE

*COCOS NUCIFERA L.

Dominant tree in almost all parts of island, planted and
 spontaneous, Fosberg 46952; "nu" "ūū" (flowers). Trunks and leaves
 furnish most of the building materials; fiber of husks used for
 cordage; water of green husks as well as fermented sap for drinking,
 nut meat for food; husks for fuel; meat of nuts dried and exported
 as copra. Damm, p. 15, as "Kokospalme."

AMARYLLIDACEAE

*HYMENOCALLIS LITTORALIS (Jacq.) Salisb.

Common around village and near paths in forest, Fosberg 46886;
 "lirio."

*ZEPHYRANTHES ROSEA (Spreng.) Lindl.

Planted in gardens, Fosberg 46862.

DIOSCOREACEAE

DIOSCOREA BULBIFERA L.

Occasional in forest, Fosberg 46898; "pelai."

TACCACEAE

*TACCA LEONTOPETALOIDES (L.) O. Ktze.

Occasional, spontaneous in forests generally, Fosberg 46913;
 "mokumok" or "mogumog."

MUSACEAE

*MUSA SAPIENTUM L.

Planted in forest around village, not collected. Damm, p. 15, as
 "Banane."

ZINGIBERACEAE

*HEDYCHIUM CORONARIUM Koen.

Seen only as "marumar" or garland, obviously growing in or near
 village, Fosberg 46935.

CASUARINACEAE

*CASUARINA EQUISETIFOLIA L.

One tree, back of beach in front of village, probably planted,
Fosberg 46851; "ueuhir."

PIPERACEAE

PIPER FRAGILE Benth.

Common in the wet forests dominated by breadfruit trees, creeping
on ground and climbing trees, Fosberg 46907; "atobuei."

PIPER PONAPENSE C. DC.

Common in the wet forests dominated by breadfruit trees, mostly
climbing, Fosberg 46897; "elek."

MORACEAE

ARTOCARPUS ALTILIS (Park.) Fosb.

One of dominant trees in central forests, reaching a great size,
Fosberg 46908; "mai." Trunks used for canoe-building and house
posts; fruit a principal food. Damm, p. 15, as "Brotfrucht,
kernlose Art."

ARTOCARPUS MARIANNENSIS Tréc.

One of the dominant trees in the central forest, reaching great
size, Fosberg 46946; "mai." Damm, p. 15, as "Brotfrucht,
kernreiche Art."

FICUS TINCTORIA Forst. f.

Common as a shrub in the central forests, a small tree in the less
disturbed forests toward the southeast part of island, Fosberg
46899; "awan," "awal."

URTICACEAE

LAPORTEA RUDEALIS (Forst. f.) Chew (Fleurya ruderalis (Forst. f.)
Gaud. ex Wedd.)

Common on coral gravel in opener places in forest, and in village,
Fosberg 46918; "afelefelegech."

*PILEA MICROPHYLLA L.

Very local on bare coral gravel in village, Fosberg 46900; "seling."

PIPTURUS ARGENTEUS (Forst. f.) Wedd.

Occasional to common in understory in forest, Fosberg 46905; "aróma."
Damm, p. 15, as P. incanus.

NYCTAGINACEAE

*MIRABILIS JALAPA L.

Planted around dwellings, Fosberg 46856; "flores."

PISONIA GRANDIS R. Br.

Occasional in forest in east end of island, Fosberg 46943; "moek."

AMARANTHACEAE

*ACHYRANTHES ASPERA L.

In relatively open places near village, Fosberg 46914; "ěg'gohur."

*AMARANTHUS VIRIDIS L.

Local weed in village, Fosberg 46888a.

PORTULACACEAE

*PORTULACA OLERACEA L.

Common weed on bare ground in village, Fosberg 46887; "erkul."

PORTULACA SAMOENSIS von Poelln.

Common weed on bare ground in village, Fosberg 46860; "ōp."

LAURACEAE

CASSYTHA FILIFORMIS L.

Common generally, especially near beaches; parasitic on many hosts, Fosberg 46842; "tig."

HERNANDIACEAE

HERNANDIA SONORA L.

Rare tree in forests near beaches, one seen in village, Fosberg 46948, 46883; "orang."

CAPPARIDACEAE

CRATEVA SPECIOSA Volk.

Very common understory tree in forests, Fosberg 46890; "afur."

LEGUMINOSAE

*CAESALPINIA PULCHERRIMA (L.) Sw.

Planted in village, Fosberg 46853; "waripik."

CANAVALIA CATHARTICA Thou. (*C. microcarpa* DC.)

Locally common in forests, climbing in trees, Fosberg 46938, 46844;
"walima."

*LEUCAENA LEUCOCEPHALA (Lam.) de Wit

One seedling found in rather open place in forest, Fosberg 46922;
"tangan-tangan."

MUCUNA GIGANTEA (Willd.) DC.?

One seedling found along south beach, Fosberg 46933.

SOPHORA TOMENTOSA L.

Rare, back of beach at west end, Fosberg 46932; "kolu" or konu."

VIGNA MARINA (Burm.) Merr.

Common to abundant, generally except in densest forests, Fosberg
& Evans 46840; "õlũ."

RUTACEAE

*CITRUS AURANTIFOLIA (Christm.) Swingle

Planted in village, Fosberg 46857; "lemon." Damm, p. 16, as
Limone.

EUPHORBIACEAE

EUPHORBIA CHAMISSONIS (Kl. & Gke.) Boiss.

Common locally in forest back of south beach, Fosberg 46846;
"echich."

*PHYLLANTHUS AMARUS Schum. & Thon.

Common in village and along paths, Fosberg 46871; "walpachi."

TILIACEAE

TRIUMFETTA PROCUMBENS Forst. f.

Common at top of and back of south beach, Fosberg 46845, Fosberg
& Evans 46951; "ara."

MALVACEAE

*HIBISCUS ROSA-SINENSIS X SCHIZOPETALUS ?

Rare, planted in forest near center of island, Fosberg 46896; "pue
tal."

HIBISCUS TILIACEUS L. Occasional in village and nearby parts of forest,
Fosberg 46884; "kilifu." Damm, p. 16, as Hibiscus.

CARICACEAE

*CARICA PAPAYA L.

Occasional, especially in village and along paths in forest, not collected.

CUCURBITACEAE

*CUCURBITA MAXIMA L.

Planted in village and nearby semi-open places, Fosberg 46876;
"calamasa."

LYTHRACEAE

PEMPHIS ACIDULA Forst. f.

Several bushes along east end of south beach, Fosberg 46950;
"engi." Damm, p. 16, as "Strauch," "ani."

RHIZOPHORACEAE

Bruguiera gymnorhiza (L.) Lam.

Several trees in mangrove depression at east end, Fosberg 46941;
"yong." The form with pink calyces. ? Damm, p. 15, as "Mangrove."

LECYTHIDACEAE

BARRINGTONIA ASIATICA (L.) Kurz

Rare tree in forest just back of beach in east part of island,
Fosberg 46947; "kul."

COMBRETACEAE

TERMINALIA SAMOENSIS Rech.

Common in scrub and forest back of south beach, Fosberg 46843;
"kil."

MYRTACEAE

EUGENIA JAVANICA Lam.

Very local in forest, Fosberg 46937; "fariap."

ARALIACEAE

*POLYSCIAS FRUTICOSA (L.) Harms

Planted in village, Fosberg 46859; "yobung."

GENTIANACEAE

FAGRAEA BERTERIANA A. Gray ex Benth.

Not seen by us, but Damm, p. 16, reports a "Fragraea."

APOCYNACEAE

OCHROSIA ELLIPTICA Labill.?

Sparingly planted in village, Fosberg 46882; "langet." This ornamental is scarcely known from Micronesia. The fruit was immature when collected and the determination is not positive.

CATHARANTHUS ROSEUS (L.) G. Don

Common in village, Fosberg 46867; "pueopuech."

CERBERA sp.

Not seen by us, but reported by Damm, p. 16, on Krämer's authority, with the vernacular name, "uma."

*PLUMERIA RUBRA L.

Occasional in village, Fosberg 46885; "seu."

*TABERNAEMONTANA DIVARICATA (L.) R. Br.

Sparingly planted in village, Fosberg 46858; said to have been recently introduced from Ulithi.

ASCLEPIADACEAE

*ASCLEPIAS CURASSAVICA L.

Planted or subspontaneous in village, Fosberg 46877; "margarita" or "pugarigarita."

CONVOLVULACEAE

*IPOMOEA BATATAS (L.) Lam.

Planted in village, Fosberg 46866; "komote."

IPOMOEA INDICA (Burm.) Merr.

Local in semi-openings in forest, Fosberg & Evans 46917; "walikurd."

IPOMOEA LITTORALIS Bl.

Occasional near paths in forest, Fosberg 46919; "raiwal."

IPOMOEA PES-CAPRAE (L.) R. Br.

One tiny seedling found on south beach, Fosberg 46949.

BORAGINACEAE

CORDIA SUBCORDATA Lam.

Occasional in forest back of the south beach, Fosberg 46847; "alu."
Damm, p. 16, as Cordia (Karolinenpappel), mok, quotes Krämer as
reporting "eine andere Art 'galie'."

TOURNEFORTIA ARGENTEA L. f.

Common in forest and scrub along beaches, Fosberg 46839; "chel."
This population has rather wider leaves than usual, rounded at
apex.

VERBENACEAE

CALLICARPA CANDICANS (Burm. f.) Hochr.

Locally common in undergrowth in forest at extreme east end of
island, Fosberg 46942; "ligitar." Pacific plants are often referred
to as C. erioclona Schauer.

CLERODENDRUM INERME (L.) Gaertn.

Abundant in scrub and in mangrove depression at east end, occasional
elsewhere near beaches, Fosberg 46852; "aupui."

CLERODENDRUM SPECIOSSIMUM van Geert

Occasional in interior forests, Fosberg & Evans 46889; "aubui
vilifū" or "abui."

*LANTANA sp.

Not seen by us, but reported by Damm, p. 16, on Krämer's authority,
with vernacular name, "tios."

PREMNA OBTUSIFOLIA R. Br.

Common generally, two forms observed: one the ordinary form,
Fosberg 46891; the other with maroon stems, petioles and principal
veins, Fosberg 46915, this form only seen sterile; both called "iár"
or "eár." Damm, p. 16, as P. integrifolia.

LABIATAE

*COLEUS SCUTELLARIOIDES L.

Sparingly planted in village, Fosberg 46879; "waruguchá."

*OCIMUM SANCTUM L.

Planted in village, Fosberg 46881; "taipwo"; the form with
purple inflorescence that is most common in this region.

SOLANACEAE

*CAPSICUM FRUTESCENS L.

Common in forest back of village, Fosberg 46916; "amuek."

*NICOTIANA TABACUM L.

Planted around dwellings in village, Fosberg 46888.

*SOLANUM MELONGENA L.

Sparingly planted in village, Fosberg 46865; the form with thick pyriform fruit, recently introduced.

ACANTHACEAE

BLECHUM BROWNEI f. PUBERULA Leonard

Common generally in forest and village, Fosberg 46921; "rud aner re tiwai."

*PSEUDERANTHEMUM CARRUTHERSII var. ATROPURPUREUM (Bull) Fosb.

Sparingly planted in village, Fosberg 46854; "kakive."

RUBIACEAE

GUETTARDA SPECIOSA L.

Occasional in forests back of beaches, especially toward the east end, Fosberg 46945; "muesor."

HEDYOTIS BIFLORA (L.) Lam.

Common in paths and in village, Fosberg 46873; "opusar."

MORINDA CITRIFOLIA L.

Very common generally, one of the principal shrubs and understory trees; Fosberg 46855; "leen" (lān).

GOODENIACEAE

SCAEVOLA TACCADA (Gaertn.) Roxb.

Abundant along beaches and in forest immediately back of beaches, Fosberg 46841; "lat."

COMPOSITAE

ADENOSTEMMA LAVENIA (L.) O. Ktze.

Occasional in forest, Fosberg 46910; "yoelusoek."

*ARTEMISIA VULGARIS L.

One small sterile patch seen planted in village, Fosberg 46861; "iarbwas."

*BIDENS SULPHUREUS L.

Planted and subsponaneous in sunny places in village, Fosberg 46878; "purang palap."

*VERNONIA CINEREA var. PARVIFLORA DC.

Common weed in village and nearby parts of forest, Fosberg 46880;
"opusar."

WEDELIA BIFLORA (L.) DC.

Abundant almost everywhere on island except in the village and
some of the densest forest, Fosberg 46920; "atiat."

Damm, p. 16, reports another identified shrub as "luk."