Flora of Micronesia, 3: Convolvulaceae

F. Raymond Fosberg
and Marie-Hélène Sachet
Fosberg, F. Raymond, and Marie-Hélène Sachet. Flora of Micronesia, 3: Convolvulaceae. *Smithsonian Contributions to Botany*, number 36, 34 pages, 1 figure, 1977.—The third installment of the Flora of Micronesia includes a brief introduction with acknowledgments and references to the previously published parts of the flora. A floristic taxonomic account of the Convolvulaceae of Micronesia is given, with descriptions, keys, synonymy, ethnobotany (including vernacular names and uses), and citations of geographic records and herbarium specimens.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>CONVOLVULACEAE</td>
<td>4</td>
</tr>
<tr>
<td><em>Aniseia</em> Choisy</td>
<td>5</td>
</tr>
<tr>
<td><em>Argyreia</em> Loureiro</td>
<td>5</td>
</tr>
<tr>
<td><em>Cuscuta</em> L.</td>
<td>5</td>
</tr>
<tr>
<td><em>Evolvulus</em> L.</td>
<td>6</td>
</tr>
<tr>
<td><em>Ipomoea</em> L.</td>
<td>6</td>
</tr>
<tr>
<td><em>Merremia</em> Dennstedt ex Hallier f.</td>
<td>25</td>
</tr>
<tr>
<td><em>Operculina</em> Manso</td>
<td>29</td>
</tr>
<tr>
<td><em>Stictocardia</em> Hallier f.</td>
<td>30</td>
</tr>
<tr>
<td>Synonyms and Excluded or Misapplied Names</td>
<td>31</td>
</tr>
<tr>
<td>Literature Cited</td>
<td>34</td>
</tr>
</tbody>
</table>
Flora of Micronesia,
3: Convolvulaceae

F. Raymond Fosberg
and Marie-Hélène Sachet

Introduction

The third installment of the Flora of Micronesia treats the family Convolvulaceae, with five native and two introduced (plus one doubtful) genera, including twelve probably native species and fifteen clearly introduced ones or widespread tropical weeds. It follows essentially the format of the first and second installments (Smithsonian Contributions to Botany 20 and 24).

Further and more complete bibliographic detail may be found in Sachet and Fosberg, Island Bibliographies (1955), and its Supplement (1971), with a complete list of serial abbreviations.

For details of the history and circumstances of the present flora, as well as an explanation of its scope and arrangement, reference may be made to the introductory pages of the first installment.

In citations of specimens, the collector's name and number are italicized and the herbaria where they are deposited are indicated only if the specimen has been examined by the authors. Herbarium symbols are according to the 6th edition of Index Herbariorum, Part I, compiled by Holmgren and Keuken, 1974. In this edition the symbols "HAW" for the University of Hawaii and "GUAM" for the University of Guam are introduced, differing from those used for these two herbaria in installments 1 and 2. The symbol "Fo" is used for specimens still in the possession of the authors. We wish to thank, again, the authorities of the various herbaria where we have studied or borrowed material, for the privilege of using their collections and for their hospitality.

As mentioned in the first installment, we cannot list the many persons who helped us in the field, in the herbarium, and in the office. For the preparation of this chapter, however, we owe special gratitude to Miss Frances J. Corridon, who transcribed and arranged much of the geographical information and citations, and typed an earlier version of the manuscript; Mrs. Denise Ford typed the manuscript on the edityper, eliminating errors and incorporating changes and new material; Mr. Royce Oliver handled specimens, transcribed data from them, kept readily available the materials on which the treatment is based, and on occasion saved us from making or perpetuating errors; Miss Dulcie Powell, a specialist in the New World Convolvulaceae, critically checked various sections of the manuscript.

In preparing this account we have drawn freely on the valuable works of S. J. van Ooststroom on the Malaysian Convolvulaceae (1938, 1939, 1940, 1943, 1945, and van Ooststroom and Hoogland, 1953), without accepting fully all of the conclusions found there. We gratefully acknowledge our indebtedness and appreciation of the critical and meticulous work of these authors. Dr. Daniel F. Austin, contemporary authority on the family has generously made available his critical knowledge and has saved us from making a few mistakes.
Figure 1.—Micronesia
We are also indebted to Mrs. M. J. van Steenis-Kruseman and Dr. W. T. Stearn for their critical work in establishing exact dates for a great many of the works cited. The dates cited with the references are ordinarily those on the title pages, with corrected dates added in square brackets. Most of the latter are taken from Flora Malesiana I by the above authors (1954), and from additional articles supplementary to this, by Mrs. van Steenis, published in Flora Malesiana Bulletin. “Taxonomic Literature” (Staffleu, 1967) was also consulted for problematic dates.

In the text we have used unpublished information in the form of personal communications from Prof. Harold St. John of the B. P. Bishop Museum, Prof. Walter Lewis of Washington University, Prof. Daniel Austin of Florida Atlantic University, Mr. Carl Stensland, retired from the U.S. Geological Survey, Prof. Joe Marshall of the University of Arizona, Mrs. M. V. C. Falanruw of the Yap Institute of Natural Science, and Mr. Donald Anderson of the H. L. Lyon Arboretum, Honolulu. We wish to express our thanks to these people for providing this information and permitting us to use it.

In the paragraph headed “Uses” under the various species, we have, where the material was not too verbose, copied more or less verbatim from field labels, field notes, published articles and books, but have used quotation marks only where they seem useful to clarify the source of the information. The sources are always provided, except in cases where the information is from our own personal knowledge.

**CONVOLVULACEAE**

Herbaceous or woody twiners or creepers, rarely erect herbs or shrubs (very rarely trees but not in Micronesia), frequently lactiferous but not copiously so; leaves alternate, frequently cordate, hastate, or sagittate, simple but occasionally deeply divided or palmatifid so as to appear compound, rarely pinnately divided; stipules none; calyx of 5 free sepals; corolla sympetalous, not ordinarily deeply lobed or divided; stamens 5, attached to corolla near base, or part way up tube; ovary superior, 2-, 3-, or 4-celled with 2 basal ovules in each cell, style usually single, filiform, rarely 2 and branched;

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### Key to Micronesian Genera of Convulvulaceae

1. Leafless, threadlike, orange or at least non-green plants .......................... *Cuscuta*
2. Leafy plants with green color ........................................................................... 2
3. Leaves ovate, oblong, or elliptic to linear, not cordate or otherwise lobed at base ... 3
   4. Leaves ovate, 1-1.4 cm long, sericeous; corollas rotate or saucer-shaped; styles 2, these branched .................................................. *Evolvulus*
   5. Leaves oblong to linear, 2.5 cm or more long, not sericeous; corollas funneliform to campanulate; style 1, filiform .................................................. *Aniselia*
   6. Outer sepals decurrent on pedicel ..................................................................... *Ipomoea aquatica*
4. Outer sepals not decurrent ......................................................................................
5. Leaves variably shaped, usually cordate, in any event lobed or subcordate at base, rarely truncate or obtuse, then lobed at apex .................................................. 5
6. Leaves peltate ....................................................................................................... *Merremia peltata*
7. Leaves basally attached ....................................................................................... 6
8. Pollen grains smooth, anthers coiled or curved; corolla broadly funneliform or campanulate, fairly broad almost to base .................................................. 7
7. Outer layer of capsule circumscissile; leaves 10 cm or more across .................. *Operculina*
8. Capsule ultimately splitting into ovate or lanceolate valves; leaves usually 5 cm or less across; if larger, generally digitate .................................................. *Merremia*
9. Pollen grains spinulose, anthers straight; corolla strongly narrowed to base .... 8
10. Fruiting calyx greatly accrescent, thick and spongy, closed at tip and completely hiding capsule; capsule dehiscent by 4 slits or holes between the septa; calyx in flower appearing rather truncate; leaves minutely gland-dotted beneath ............... *Stictocardia*
11. Fruiting calyx not or only moderately accrescent, not spongy, not completely hiding capsule; capsule dehiscent in valves or irregularly; calyx, at least in flower, not appearing truncate; leaves (in Micronesian species) not gland-dotted beneath ........................................................................................................ *Ipomoea*
stigmas 1–3, usually thickened; fruit a 2-, 3-, or 4-celled dehiscent or indehiscent capsule, rarely fleshy or corky, cells 1- or 2-seeded.

An important tropical family with a few Temperate Zone members; includes many widespread pioneers and weedy species, as well as tropical forest lianas.

Because of the variability, the superficial similarity between genera, and the lack of reliable vegetative characters, keys in the Convolvulaceae are not as satisfactory as might be desired. We have attempted to use vegetative characters wherever possible, but found no apparent way to avoid, in places, using obscure characters or those requiring a particular stage in the life history of the plant.

**Aniseia Choisy**


Herbaceous vines with adventitious roots; leaves narrowed to base, usually not cordate; flowers on axillary peduncles; sepals very unequal in width, outer ones decurrent on pedicel; corolla very broadly funnelform, sericeous without; stamens much shorter than corolla, anthers straight; style single, stigmas globose to oblong; fruit a capsule dehiscent into 4 strong valves, white within.

**Aniseia martinicensis (Jacquin) Choisy**


*Convolvulus martinicensis* Jacquin, Select. Am., t. 26, 1763.

Plant sparsely to densely appressed-pilose; leaves narrowly oblong to oblong-lanceolate, apex rounded, mucronate; peduncle with two bracts, the upper one occasionally bearing an abortive flower-bud, flowers single, rarely several in an umbel or short raceme; outer sepals broadly ovate, acuminate, base rounded, strongly decurrent on pedicel; corolla white, 1.5–2 cm long; valves of fruit ovate; seeds dull, sooty-brown, surface pilosulous, angles pilose.

Pan tropic, widespread in tropical America, occasional in Africa, Asia, and eastward in the Pacific as far as Tonga, Fiji, and Palau.

Vernacular Name.—*tehelel-aul* (Palau: Hosokawa, n.d.)


Yap: 1 mi [1.6 km] E of Tegeren Canal, Tomil-Gagil, 40 m, Fosberg & Cushing 46330 (US, BISH, Fo, K).

**Argyreia Loureiro**


**Argyreia sp.**

A sterile plant seen growing in a pot in Kwajalein in 1958 probably belonged to this genus. *Argyreia nervosa* (Burman f.) Bojer is widely cultivated but not, so far, known from Micronesia unless the plant seen in Kwajalein is that species.

**Cuscuta L.**

*Cuscuta* L., Sp. Pl., 124, 1753; Gen. Pl., ed. 5., 60, 1754 [=1753].

Threadlike or stringlike, parasitic, yellow or orange, rarely greenish, vines, twining, without roots except when very young, attached to host (or to themselves) by minute haustoria; leaves reduced to minute inconspicuous scales; flowers in small, sometimes swollen, cymose clusters, small, white; calyx of 5 lobes, united at least to above base, equal, thin; corolla 5-lobed, urceolate or campanulate, frequently with scalelike appendages within at bases of stamens; ovary 2-celled, ovules 2 in a cell, styles 1 or usually 2, stigmas capititate to linear; fruit a thin-walled capsule, indehiscent, breaking irregularly, or circumscissile; seeds usually 4.

A widespread genus of many species, one of which has recently been introduced into Yap.

**Cuscuta campestris Yuncker**


Stems threadlike, with occasional concave scales at ramifications, haustoria irregularly distributed; inflorescences somewhat thickened, forked, cymes regularly helicoid or subscorpioid, with obovate hyaline bracts up to $2 \times 1$ mm, obtuse, flattish; flowers pedicellate, about 3 mm wide, closely subtended by a tiny obtuse scale; calyx broadly cup
shaped, lobed to \(\frac{1}{2} - \frac{1}{2}\) its length, lobes semi-circular, slightly overlapping at sinuses; corolla tube broad, included, lobes about equalling tube, exserted, ovate, obtusish but mucronulate, tending to be reflexed, about 1 mm long; scales with several blunt linear processes on each side of filament; stamens exserted, filaments inserted in sinuses, anthers broadly elliptic, curved, about 0.6 mm long, filaments about as long; ovary with apex depressed, styles filiform, about 1 mm long, stigmas capitate; fruit depressed globose, about 2.5 mm across, with a large hole in top between persistent styles; seeds about 1 mm across, subglobose with concavities from crowding, dark dull brown with black spot (hilum?), surface dull, cellular-reticulate.

Recently adventive, native of North America, widespread but not too common in the south Pacific from Indonesia to Fiji, Tahiti, Tuamotus, and Christmas Island. Said to have been brought to Yap from Hawaii, but this seems unlikely, as another distinct species, *C. sandwichiana* is the one found there. Parasitic on *Vigna marina* and grasses along lagoon beach.

**Use.**—Worn as garlands by young people, according to M. V. C. Falanruw.

**Caroline Islands.**—Yap: Colonia, along lagoon (Chamorro, or Benjo, Bay), 1972, *Falanruw 2732* (US).

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**Evolvulus L.**

*Evolvulus L.*, *Gen. Pl.*, ed. 6, 152, 1764 [=1762].

Prostrate to ascending herbs; flowers 1–few on axillary peduncles, the peduncle, if 1-flowered, with a pair of bracts part way up; corolla saucer shaped to very broadly campanulate, entire or almost so; stamens included, or at least shorter than corolla; anthers straight; styles 2, forked, stigmas elongate; fruit a dehiscent capsule, 2-celled, 4-seeded; seeds smooth, black.

A pantropical genus, principally American, but with two wide-ranging species, one of which is known in Micronesia from the Marianas.

**Evolvulus alsinoides (L.) L.**


A wiry pubescent herb, many stems ascending to spreading from a root crown, sparsely branched; leaves ovate, small, densely sericeous, acute, mucronate, sessile; flowers pale bluish, very delicate, less than 1 cm across; capsule globose, 3–4 mm across.

A pantropical species known in Micronesia from Saipan and Tinian, where it grows on open pitted coral limestone on coastal terraces, uncomman.

**Marianas Islands.**—Saipan: “Saipan borealis,” *Okabe* in 1941 (TI); Raurau, 50 m, *Hatusima 10679* (FU), 10692 (FU).

Tinian: Near Tyuro village, *Hosokawa 7721* (A, BISH); “Palm Beach,” about 1 mi [1.6 km] S of Faibus (San Hilo) Point, W coast of N half of island, *Fosberg 24865* (US, BISH, Fo).

**Ipomoea L.**


*Quamoclit Moench*, *Meth.*, 453, 1794.


Twining herbaceous to woody vines, creepers, or rarely erect herbs or shrubs; leaves simple, usually cordate, entire to deeply divided or dissected, petiolate; peduncles axillary, flowers solitary or cymose; corolla narrowly funnelform or campanulate, regular to somewhat zygomorphic, entire to somewhat 5-lobed, plicate in bud, median lines heavy, intervening areas membranous; anthers included or exserted, straight; pollen grains spinulose; style 1, filiform, elongate, stigmas globose, 1 or usually 2 or 3; fruit a capsule, dehiscing into 4 valves or irregularly.

A large pantropical and warm-temperate genus, found on almost all Pacific islands, including those in Micronesia; many of the species widespread and weedy, found on beaches and in disturbed places, a few found in lowland forests. “Morning glory” is the name in general English usage for several species.
Key to Micronesian Species of *Ipomoea* L.

1. Leaves pinnately divided into narrowly linear or filiform lobes ............................................. *I. quamoclit*

2. Leaves bilobed at apex .................................................................................................................. *I. pes-caprae*

3. Leaves not bilobed ......................................................................................................................... *I. batatas*

4. Leaves not pinnately divided ......................................................................................................... 2

5. Herbaceous creeper; calyx 8 mm or less long; corolla thin, 3–4 cm long ...................................... *I. batatas*

6. Robust twining climber; calyx 1 cm long; corolla firm, 6 cm long .............................................. *I. mauritiana*

7. Leaves not digitately divided ........................................................................................................ 6

8. Leaves not digitately cut or divided ............................................................................................ 4

9. Sepals with longitudinal keels or ribs, these deeply dentate toward base; leaves hastate or sagittate ................................................................. *I. setifera* var. *fimbriosepala*

10. Sepals oblong, elliptic, ovate, or orbicular, not long-acuminate .................................................. *I. aquatica*

11. Sepals oblong to ovate or orbicular, not conspicuously broadened apically ................................ *I. fistulosa*

12. Sepals lanceolate, over 1 cm long, conspicuously acuminate .................................................... *I. indica*

13. Sepals glabrous, neither fimbriate nor ciliate; corolla 20–25 mm long .......................................... *I. obscura*

14. Sepals strongly acuminate; stem usually with fleshy spinelike processes; seeds glabrous .......... *I. alba*

15. Sepals rounded at apex, at most very slightly mucronate; stem smooth; seeds pubescent .......... *I. macrantha*
**Ipomoea alba** L.


*Convolvulus aculeatus* L., Sp. Pl., 155, 1753 [non *Ipomoea aculeata* Blume, Bijd., 715, 1826].


*Culoniction bonanoy* (L.) Bojer, Hort. Maur., 227, 1837.


*Ipomoea aquatica* Forskål


Creeping or floating, glabrous, stem rather fleshy, with adventitious roots; leaves with base truncate, cordate, sagittate, or hastate, lobes from broad to narrow, petioles fleshy; peduncles 1–few-flowered, outer sepals glabrous, ovate-oblong, obtuse; corolla funnelform, 3–5 cm long, white or lilac, purple in center; stamens and styles included, stigmas 2; capsule ovoid, 8–10 mm long; seeds pubescent.

Throughout the Old World tropics, spontaneous and planted as a potherb, especially in China and Thailand. In Micronesia, planted or spontaneous in marshy places or in open water; found in the Marianas—Pagan, Saipan, Tinian, Rota, Guam; in the Carolines—Palau, Yap, Ulithi, Truk, Satawan; and in the Gilberts—Tarawa.

**Uses.**—Leaves cooked as greens especially to serve with fish (Guam: *Whiting C29*). Eaten as potherb (Koror: *Fosberg & Evans 47432*). Eaten fried with meat (Ulithi: *Fosberg 46965*). Young tips eaten (Truk: *Fosberg 24417*). Introduced by Japanese. Makes an excellent vegetable very much like our spinach (Truk: *Pelzer, 1946*).

**Vernacular Names.**—moon-flower (English)


**Ipomoea aquatica** Forskål


Creeping or floating, glabrous, stem rather fleshy, with adventitious roots; leaves with base truncate, cordate, sagittate, or hastate, lobes from broad to narrow, petioles fleshy; peduncles 1–few-flowered, outer sepals glabrous, ovate-oblong, obtuse; corolla funnelform, 3–5 cm long, white or lilac, purple in center; stamens and styles included, stigmas 2; capsule ovoid, 8–10 mm long; seeds pubescent.

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**Vernacular Names.**—moon-flower (English)

Ipoomea batatas (L.) Lamarck


Glabrous creeper with enlarged fusiform edible roots, thick stems, not twining; leaves with long petioles, blades more or less triangular, acuminate, more or less cordate to sub-truncate at base, sides entire or variously cut or lobed; seldom seen flowering; peduncles umbellately or irregularly branched at summit into 1-4 short pedicels, bracts very small; sepals glabrous, oblong to oblanceolate-oblonguate, up to 8 mm long, obtuse to acute, mucronate; corolla light purple, campanulate, 3.5-4 cm long; stamens and style less than half length of corolla.


The species is cultivated on all inhabited high islands, and with some difficulty on many of the low coral islands. In areas where soil is thin, it is planted in hills that have been raked together (Rota); in taro pits, it is planted on hills of soil extending above water table (Ifaluk); in abandoned gardens and fields, it occasionally persists for a time after cultivation. There are a great many horticultural varieties with different leaf outlines and tuberous roots of different colors, shapes, and edible qualities. It is commonly known in English as “sweet potato.” Most of the compound names listed below are varietal names introduced to Micronesia by the Spanish, who brought with them the name camote, a derivative of the Aztec camotl, which has given rise to most of the Micronesian names. Yen (1974) has made an extensive study of the occurrence and differentiation of the sweet potato in Oceania.

Uses.—Toward the end of World War II when the Japanese, isolated on Truk, were short of food, coconut and breadfruit plantings were cleared and sweet potatoes were planted in great quantities, as the authorities felt this to be the way to produce the largest amount of food in the shortest time. After the war the Trukese, not caring much for sweet potatoes, traded them to the people of the surrounding atolls for coconuts which were in short supply on Truk.

Tuber used as a starch staple, tender leaves (“punkan kamote”) cooked as greens (Guam: Whiting C30). Roots used as a food. “Natives seldom grew them for their own use but ... exchanged the sweet potatoes for ... other things brought by ships” (Guam: Safford, 1905). “Formerly
an important crop" (Pagan: Fosberg 31357). Cultivated but of little importance (Lamotrek: Alkire, 1965).

Vernacular Names.—
sweet potato [English]
kamote (Saipan: Safford, 1905; von Prowazek, 1918)
batatas (Guam: Whiting C30)
camote agrigan (Guam: Gaudichaud, 1826; variety said by Don Luis de Torres to have been found on Agrigan I. at the spot where a ship had foundered)
camote amarillo (Guam: Costenoble 1159, 1191)
camote chaicijl (Ulithi: Kimoto KIimer, 1937)
camote hispani (Guam: Gaudichaud, 1826)
camote manila (Guam: Gaudichaud, 1826)
camote patas-figafiga (Guam: Costenoble 1160)
camote patas nganga (Guam: Nelson 411)
camoten dago (Guam: Costenoble 1162)
camote-n-yap (Guam: Costenoble 1163)
comote (Guam: written in USDA copy of Merrill, 1914:131 against G.E.S. 222)
kamote (Guam: Safford, 1905; Whiting C30)
kamute (Saipan: Safford, 1905; Whiting C30)
theb-el-harath (Palau: Yen, 1974)
tulngut-al-barath (Palau: Christian, 1899)
camotes (Yap: Chamisso, 1821)
kamot ga'gil (Yap: Wong 478)
kamot gala fiefic (Yap: Wong 480)
kamot ni benikawa (Yap: Wong 389)
kamot ni buykugho (Yap: Wong 398)
kamot pao (Yap: Wong 479)
kamot yaur (Yap: Wong 430)
kamott (Yap: Volkens, 1901)
camote (Uliithi: Fosberg & Wong 25522)
camote (Uliithi: Fosberg & Evans 46365)
kamot ni benikawa (Uliithi: Lessa 71)
kamot bwech mekahkhoeh (Uliithi: Lessa 75)
kamot bwech ramasou (Uliithi: Lessa 76)
kamot chawil (Uliithi: Lessa 74)
kamot matarang (Uliithi: Lessa 77)
kamot ramasou (Uliithi: Lessa 79)
kamot tangrang (Uliithi: Lessa 78)
kamotiel okinowa (Uliithi: Lessa 72)
kotiel meriken (Uliithi: Lessa 73)
gamuti (Fais: Krämér, 1937)
homote (Eauripik: Fosberg & Evans 47126)
camote (Woleai: Evans 494, 488)
yamotaa (Woleai: Wong 19)
gamot (Ifaluk: Abbott and Bates 100)
hamote (Ifaluk: Fosberg 47225)

Geographic Records and Specimens Examined

Micronesia.—Massal and Barrau, 1956:24.

Marianas Islands.—Agrigan: Gaudichaud, 1826: 76, quoting Don Luis de Torres.
Pagan: Near Salt Water Lake, W side of island, Fosberg 31357 (US); 30 m from shore, Anderson 595, 596 (US, BISH, Fo).


Tinian: Gaudichaud, 1826:84; W coast, 100 ft [30 m], Hosaka 2869 (US, BISH, Fo); Mt. Lasso, E ridge, 300 ft [90 m], Hosaka 2890 (US, BISH, Fo).

Rota: Track from near Poniya Pt. to water caves 350–500 m, Evans 2186 (US, Fo, HAW, MO).

Guam: G.E.S. 222 (US, BISH, NSW); Nelson 429 (BISH), 477 (BISH); Costenoble 1159, 1160, 1161, 1162, 1163, 1191 (all US); Merrill, 1914:131; Burkill, 1951:446 (said to have been in Guam in 1564); Manilao, Whiting C30 (US); Inarajan, 100 m, Evans 1493 (US).

Caroline Islands.—Palau: Babeldaoob: Garamican Colony, Garamican River, 0–20 m, Fosberg 25762 (US, BISH, Fo). Garikiaia: Takamatsu 1735 (BISH). Angaur: depression in hill on NW corner of island, 25 m, Fosberg 25907 (US, BISH).

Yap: Wong 430 (US, BISH, Fo, NY), 398 (US, BISH, Fo, NY), 389 (US, BISH, Fo), 478 (US, BISH, Fo), 480 (US, BISH, Fo), 479 (US, BISH, Fo), Koidzumi in 1915 (TI): Chamisso, 1821:184 (brought from Philippines according to Cantova); trail to Inuf, SE Yap, Cushing 426 (US).

Uliithi: Mogmog I., Lessa 71, 72, 73, 74, 75, 76, 77, 78, 79 (all BISH); Fosberg and Wong 25522.
(US, BISH); Fosberg & Evans 46365 (Fo); Fassarai I., Hosaka 3206 (US, BISH, Fo, NY).

Fais: Inland from S end of island, 15 m, Fosberg 46662 (US).

Eauripik: Eauripik I., Fosberg & Evans 47126 (Fo).

Woleai: Utagal I., 1–2 m, Wong 19 (US, BISH, Fo, NY, L); Falalap I., Evans 494 (US, BISH, Fo), 488 (Fo).

Faraulap: Faraulap I., Fosberg & Evans 47371 (US).

Ifaluk: Ifaluk I., Fosberg 47225 (US, BISH, Fo, NY, L); Falalap I., Abbott & Bates 100 (US), Fosberg 47249 (US, Fo).

Ifaluk: Ifaluk I., Abbott & Bates 100 (US), Fosberg 47249 (US, Fo).

Namotrek: Lamotrek I., Fosberg & Evans 46734 (Fo).

Namotrek: Lamotrek I., Fosberg & Evans 46734 (Fo).

Satawal: N side, Fosberg 46866 (US).

Truk: Wong 209 (US, BISH, Fo); Koidzumi in 1915 (TI, mounted with I. mauritiana). Moen: Hosaka 2698 (US, BISH, Fo). Fefan: 50 ft [15 m], Hosaka 2744 (US, BISH, Fo, NY), 2743 (US, BISH, Fo, NY, L); E side, Mesa village, 75 m, Fosberg 24516 (US, BISH).


Satawan: Ta I., Anderson 1042 (US, BISH, Fo, NY, L).

Ponape: Nanipiru, 150 ft [45 m], Hosaka 3530 (US, BISH, Fo).

Kusaie: Valley S of Lela (Lele) Harbor, 1–5 m, Fosberg 26646 (US, BISH).

Wake Island.—Fosberg 34449 (US, BISH); Gaston in 1953 (BISH).

Marshall Islands.—Radak [Chain]: s.l. Eschscholtz, s.n. (LE); s. coll. [Eschscholtz], Herb. Fischer (LE).

Kwajalein: Kwajalein I., seaward side of airfield, 0–4 m, Fosberg 48055 (US, BISH).

Likiep: Likiep I., Fosberg 27038 (US, BISH).

Ailinglapalap: Bikajle (Bigatylelang) I., Fosberg 26871 (US, BISH).

Majuro: Majuro I., St. John 21,414 (BISH); Laura (W end of island), Fosberg 26940 (US, BISH).

Arno: Ine I., Anderson 3684 (US, BISH, Fo).


Gilbert Islands.—Luomala 1953:89.

Tarawa: Catala 155 (P); Betio PWD, Adair 136 (US).

Ipomoea fistulosa Martius ex Choisy


Erect, thick-stemmed suffrutescent herb or shrub, to 2 m or more tall, subglabrous or minutely puberulent; leaves ovate-cordate, much longer than wide, acuminate, petioles tending to be shorter than leaves; peduncles heavy, shorter than, to as long as, leaves, dichotomously cymosely branched above, many-flowered; bracts scale-like to obsolete, caducous; sepals orbicular, inner ones very minutely sericeous, about 5 mm long; corolla narrowly campanulate, limb strongly flaring, very minutely sericeous without, lilac; stamens unequal, less than half as long as corolla; capsule ovoid, about 8 mm long, seeds copiously pubescent (we have not seen seeds in Micronesian specimens as yet).

This species is considered a subspecies of Ipomoea carnea Jacquin by Dr. D. F. Austin (ms., pers. comm.), as intermediate individuals are occasionally found. Ipomoea carnea is an Andean species (Colombia to Peru) with suborbicular-cordate-acuminate soft pubescent leaves, woody but twining in habit, with corollas 7.5–10 cm long. Ipomoea fistulosa is shrubby, ascending to erect, with thick stems that do not twine, leaves with basal part very broadly oblong cordate, distal part elongate triangular long acuminate, subglabrous to minutely puberulent, corollas usually somewhat less than 7.5 cm long. It is a very uniform species, at least as far as can be seen from herbarium material and as a widely introduced tropical ornamental and escape. For the present we prefer to maintain it as a distinct species.

Tropical American in origin, widely cultivated and naturalized in the Old World Tropics; in Micronesia: Marianas—Tinian, Guam; Carolines—Palau, known from Koror at least since 1932. Cultivated and sparingly naturalized near dwellings, not spreading rapidly, probably because it rarely sets seeds.
**Geographic Records and Specimens Examined**

**Marianas Islands.**—Tinian: Okatani 2 (FU); Marpo valley E of Tinian (former town), SE part of island, 60 m, Fosberg 24816 (US, BISH, Fo, NY, L).

Guam: “Base 18” (Apra Heights), 90 m, Fosberg 35225 (US, BISH, Fo, NY, L); Manguao, 65 m, Fosberg 35605 (US, BISH, Fo, NY, L); Barrigada village, Stone 4987 (BISH); Mangilao–Barrigada road, cultivated, Stone 4002 (BISH); road Barrigada to Mangilao, 60 m, Evans 1453 (US, Fo, HAW, K, MO, NY).

**Caroline Islands.**—Palau: Koror: Tyuama in 1939 (T1); Kanehira 2070 (FU, NY); Koror village, 5 m, Fosberg 32458 (US, BISH, Fo); road from hospital to Ngerebe’ed, Blackburn 159 (US); 1/8 mi [0.2 km] from Sansaro intersection, Salsedo 59 (US).

**Ipomoea hederifolia L.**

*Ipomoea coccinea* sensu auct. plur. [non L., Sp. Pl., 154, 1753].

**Ipomoea hederifolia** L.

Herbaceous glabrous twiner; leaves ovate-cordate, entire or more or less lobed or angled; peduncles much exceeding leaves, forked in upper part, forming a dichasium; bracts minute, scalelike; flowers several to many; sepals unequal, outer shorter oblong, inner obovate, apex broadly rounded or truncate, all with very prominent mucros, up to as long as body of sepal; corolla bright purple, firm, waxy, narrowly campanulate, 5–4 cm long; stamens slightly exerted, style more so; stigma 1 (?), depressed-globose.

Native to the West Indies, at least Puerto Rico and Jamaica; planted elsewhere in the tropics as an ornamental; in Micronesia seen on Guam only; rare, planted, probably not fruiting.

**Marianas Islands.**—Guam: Umatac, Fosberg 35656 (US).

**Ipomoea hederacea** (L.) Merrill


Glabrous, rather coarse, extensively climbing twiner, somewhat woody; leaves pedately 5–7-parted to base; peduncles openly and irregularly cymosely branched, many-flowered; sepals ovate, obtuse; corolla bright purple, firm, waxy, narrowly campanulate, 5–4 cm long; stamens slightly exerted, style more so; stigma 1 (?), depressed-globose.

Native to the West Indies, at least Puerto Rico and Jamaica; planted elsewhere in the tropics as an ornamental; in Micronesia sparingly naturalized in Saipan and Tinian. Found around dwellings, disturbed places, and old fields.

**Marianas Islands.**—Saipan: Marpi, Courage 66 (US).

Tinian: Mt. Lasso, Hosaka 2828 (US, BISH, Fo).

**Ipomoea horsfalliae** Hooker


Glabrous, rather coarse, extensively climbing twiner, somewhat woody; leaves pedately 5–7-parted to base; peduncles openly and irregularly cymosely branched, many-flowered; sepals ovate, obtuse; corolla bright purple, firm, waxy, narrowly campanulate, 5–4 cm long; stamens slightly exerted, style more so; stigma 1 (?), depressed-globose.

Native to the West Indies, at least Puerto Rico and Jamaica; planted elsewhere in the tropics as an ornamental; in Micronesia seen on Guam only; rare, planted, probably not fruiting.

**Ipomoea indicia** (Burman) Merrill


**Convolvulus indicus** Burman, Ind. Univ. Herb. Amb., 7:6, 1755.


**Convolvulus congestus** (R. Brown) Sprengel, Syst. Veg., 1:601, 1825.


Twiner with appressed-pilose stems and leaves, leaf blades strongly cordate, acuminate, entire to somewhat trilobate; peduncles exceeding leaves, retrorse pilose, with a small dichasial cluster of

_Phorbitis nil_ lanceolate or ovate-lanceolate, caudate acuminate, to 2.5 cm long, glabrous or appressed pubescent; corolla narrowly campanulate, flaring, blue, fading pink, about 8 cm long; stamens unequal, less than half length of corolla; stigmas 2, globular; capsule somewhat trilobate; peduncles exceeding leaves, leaf blades strongly cordate, acuminate, entire to subsessile to pedicellate flowers at summit, rarely many flowered; bracts linear to lanceolate; sepals depressed globose, about

**,Ipomoea indica** (Burman) Merrill var. indica

The widespread form, as described above, distinguished by being notably appressed pilose on most parts.

Pantropical, widespread in the Pacific Islands, in Micronesia known from the Marianas—Agrigan, Alamagan, Guguan, Sarigan, Saipan, Tinian, Agiguan, Rota, Guam; Carolines-Palau, Satawal, Micronesia—Alamagan: Asongsong village, 3–15 m, Fosberg 31731 (US, BISH, Fo).

Alamagan: Hosokawa, n.d.

Agrigan: Hosokawa, n.d.

Agrigan: Barson Point, 2 m, Fosberg 24943 (US, BISH, Fo).

Agrigan: 175 ft [55 m], Falanruw 1884? (US).

Agrigan: Hosokawa, n.d.

Saipan: Kanehira 953 (NY, FU), 1000 (FU);

Momose in 1930 (TI); Stephens 5 (Fo); Army Hill, Courage 9 (US); Charan-Tarhoho, 200 ft [60 m], Hosaka 3003 (US, BISH, Fo).

Tinian: Masalog Ridge, 350 ft [105 m], Hosaka 2830 (US, BISH, Fo).

Agiguan: Kondo in 1952 (BISH).

Rota: Middle level plateau above Tahaacho Pt., 150–250 m, Evans 2057 (US, HAW, Mo, MO); Saba, 900 ft [275 m], Hosaka 3032 (US, BISH, Fo); airstrip, N of Shimaru, 180 m, Fosberg 24943 (US, BISH, Fo, NY, L); Sonson, 1–10 m, Fosberg 25078 (US, BISH); road to Haoftna, S side of island, 200–250 m, Sacht 1748 (US, BISH, Fo, NY, L).

Guam: McGregor 501 (US, BISH, BM); Marche 51 (P, Fo), 232 (P, Fo); G.E.S. 717 (BISH); Merrill, 1914:131–152; Manilao, Whiting C28 (Fo); Yigo, Limiting s.n. (US), Nelson 33 (NY, BISH); Yigo, 120 m, Fosberg 35531 (US, BISH, Fo, NY, L); Talofofo, Mt. Almagosa, 600 ft [180 m], Hosaka 3180 (US, BISH, Fo); Talofofo village, 105 m, Necker 211 (US); 1 mi [1.6 km] S of Barrigada, Glassman 304 (Fo); 1 km S of Barrigada, 65 m, Fosberg 35280 (US, BISH, Fo, NY, L); Barrigada Hill, 150 m, Stone 4495 (GUAM); Asan Point, 2 m, Anderson 34

This species.

**Vernacular Names.—**

fofgo (Saipan: Hosaka 3003)

fofgo (Rota: Fosberg 24943)

ababu (Guam: Nelson 167)

fofa (Guam: Fosberg 35531)

fofo (Guam: Fosberg 25347; Whiting C28; Nelson 33)

fofgo (Guam: Safford, 1905)

oleamad (Palau: Okabe, 1941)

ori-yemad (Palau: Okabe, 1943)

fofgu (Guam: Safford, 1905)

fofga (Guam: Fosberg 25347; Whiting C28; Nelson 33)

ferukeruk (Truk, Moen I.: Anderson 758)

veridar (Truk, Moen I.: Anderson 758)

**Geographic Records and Specimens Examined**

**Marianas Islands.—**Choisy, 1833:438; Gaudichaud 32 or 20 (G).

Agrigan: Hosokawa, n.d.

Agrigan: Hosokawa, n.d.

Agrigan: Barson Point, 2 m, Fosberg 24943 (US, BISH, Fo).

Agrigan: Falanruw 1884? (US).

Agrigan: Hosokawa, n.d.

Saipan: Kanehira 953 (NY, FU), 1000 (FU);

Momose in 1930 (TI); Stephens 5 (Fo); Army Hill, Courage 9 (US); Charan-Tarhoho, 200 ft [60 m], Hosaka 3003 (US, BISH, Fo).

Tinian: Masalog Ridge, 350 ft [105 m], Hosaka 2830 (US, BISH, Fo).

Agiguan: Kondo in 1952 (BISH).

Rota: Middle level plateau above Tahaacho Pt., 150–250 m, Evans 2057 (US, HAW, Mo, MO); Saba, 900 ft [275 m], Hosaka 3032 (US, BISH, Fo); airstrip, N of Shimaru, 180 m, Fosberg 24943 (US, BISH, Fo, NY, L); Sonson, 1–10 m, Fosberg 25078 (US, BISH); road to Haoftna, S side of island, 200–250 m, Sacht 1748 (US, BISH, Fo, NY, L).

Guam: McGregor 501 (US, BISH, BM); Marche 51 (P, Fo), 232 (P, Fo); G.E.S. 717 (BISH); Merrill, 1914:131–152; Manilao, Whiting C28 (Fo); Yigo, Limiting s.n. (US), Nelson 33 (NY, BISH); Yigo, 120 m, Fosberg 35531 (US, BISH, Fo, NY, L); Talofofo, Mt. Almagosa, 600 ft [180 m], Hosaka 3180 (US, BISH, Fo); Talofofo village, 105 m, Necker 211 (US); 1 mi [1.6 km] S of Barrigada, Glassman 304 (Fo); 1 km S of Barrigada, 65 m, Fosberg 35280 (US, BISH, Fo, NY, L); Barrigada Hill, 150 m, Stone 4495 (GUAM); Asan Point, 2 m, Anderson 34
Ipomoea indica f. albiﬂora Stone

A white-ﬂowered form, sepals somewhat ciliate.

Marianas Islands.—Guam: Harmon Village
Stone 4729 (GUAM, type). Also known from the Ryukyu Islands.

Ipomoea indica var. hosakae Fosberg

A population with glabrous strongly hastate-trilobate leaves.

Caroline Islands.—Truk: Moen: Mt. Takeum, 700 ft [215 m], Hosaka 2713 (US, type; BISH, Fo, NY). Fefan: Mt. Tuktyap, Hosokawa 8387 (A).

Ipomoea littoralis Blume

Common in lowlands, especially in disturbed or open places and along seacoasts, less common at middle elevations. In Caroline atolls found on edges of taro pits, around villages, and generally in interior in openings and thin places in woods and coconut groves. Probably impossible to determine where this plant was native and where accidentally introduced by man.

Uses.—The leaves are used in relieving pains after childbirth and as an ingredient in soups, and the ﬂowers are employed as a hemostatic in menstrual (Ponape: Glassman, 1952.) This vine is used for both people and animals (pigs) as a remedy.
for loss of appetite. It is boiled to make a medicinal tea for human consumption. The leaves of this vine are also pounded, mixed with coconut oil, and applied to boils to relieve pain (Sonsorol: Berry 3). Leaves are eaten after being cooked in water but only when typhoons have made other food scarce (Ifaluk: Abbott & Bates 61, 80). Leaves are eaten mixed with sweet toddy as a starvation food; also they are pounded and placed in coconut water, and the mixture drunk for fright illness (Woleai: Alkire 23).

Vernacular Names.—
lagoun (Guam: Gaudichaud, 1826)
lagun (Guam: G.E.S. 96, 254; Nelson 31)
lagun tase (Guam: McGregor 449)
toruhu (Palau: Okabe, 1943)
torch (Palau: Otober, 1967, 1971)
toro (Palau: Fosberg 25775)
toroog (Palau: Hosokawa, n.d.)
sauworu (Sonsorol: Berry 3, 7)
dili (Yap: Fosberg 46539)
geli (Yap: Wong 330)
gelie (Yap: Volkins, 1901)
gilij (Yap: Fosberg 25349)
chawel (Ulithi: Lessa 55; Hosaka 3218)
cho'wel (Ulithi: Fosberg 46615)
djaul (Fais: Krämer, 1987)
chawel (Woleai: Evans 482; Alkire, 1974)
riro (Woleai: Alkire, 1974)
schalw (Woleai: Alkire 23)
chawiol (Ifaluk: Fosberg 47236)
schauwell (Ifaluk: Abbott & Bates 80)
shauiwel (Ifaluk: Abbott & Bates 61, 80)
shauiwel (Ifaluk: Abbott & Bates 61)
raiwal (Satawal: Fosberg & Evans 46919)
fee'keruk (Truk: Anderson 739)
frugrug (Truk: Hosokawa, 1937)
maranof (Truk: Hosaka 2745)
rnge (Truk: Fosberg 2636)
ru (Truk: Fosberg 26041)
rkaruk (Truk: Fosberg 26041)
ruke (Truk: Fosberg 26436)
rueke (Truk: Wong 163)
rorururuk (Satawan: Anderson 970)
wansut (Satawan: Anderson 1209)
chehuwe (Kapingamarangi: Hosaka 3433)
huwe (Kapingamarangi: Niering 562, 633, 669, 687)
emp (Ponape: Fosberg 26247)
omp (Ponape: Fosberg 26247, 26239; Reisenberg 53)
oomp (Ponape: Glassman 2748)
sul oomp (Ponape: Glassman, 1952)
unpu (Ponape: Hosokawa, n.d.)
ooh (Kusaie: Glassman 2673)
bele (Ujelang: Fosberg 34102)
bele (Lae: Fosberg 34053)
lawjianing kujjerit (Ailinglapalap: Fosberg 26887)
marlabjojo (Majuro: St. John 21411)
waliik (Majuro: Fosberg 26981)
marginejojo (Majuro: Glassman 2673)

GEOGRAPHIC RECORDS AND SPECIMENTS EXAMINED

MARIANAS ISLANDS.—Gaudichaud 169 (or 18bis) (G). The specimen is scarcely determinable with certainty but seems to belong here rather than in "I. triloba? var.,” where Gaudichaud put it.

Atanaha: Near W coast, below 200 m, Falanruw 1708 (US).

Saipan: Marche 18 (P, Fo); Momose in 1930 (TI); Tuyama in 1937 (TI); Kanekira 1937 (FU); Lake Susupe, 1 km SE of Susupe Point, just E of Charankanoa, 0 m, Fosberg 25269 (US, BISH).

Guam: Gaudichaud, 1826:70; Merrill 1914:131; Safford, 1905:298; Marche 181 (P, Fo); Nelson 31 (BISH), 32 (BISH), 399 (BISH); McGregor 449 (BISH); G.E.S. 96 (US, BISH, BM, NSW), 254 (US); Anderson 342 (US); W of Mt. Santa Rosa, Anderson 161 (US, BISH, Fo); W foot of Mt. Santa Rosa, Moore 380 (US); Mt. Tenjo, 800 ft [245 m], Moore 83 (US); Cotal Conservation Area, Cross Island Road, 150 m, Fosberg 39245 (US, BISH, Fo, NY, L); S to SE of Umatac, 80–200 m, Fosberg 35440 (US); plateau NW of Talofofo, 400 ft [120 m], Hosaka 3130 (US); ½ mi [0.8 km] NE of Mt. Tenjo, 1000 ft [305 m], Moore 294 (BISH); Machanao Distr., 150 m, Bryan 1180a (BISH); Manengon dry savannas, Stone 4387 (GUAM); Manengon, volcanic hills near “Tarzan River” falls, Stone 4532 (GUAM); Piti, Swezy in 1936 (BISH).

CAROLINE ISLANDS.—Palau: Kayangl: Tuyama in 1939 (TI). Babeldaob: Kamusetu, Almonogui, Hatusima 4375 (FU); Marikyoko, Kanehira & Hatusima 4375 (FU); Melekiok, Tuyama in 1939 (TI); Arekalong, Takamatsu 1655 (BISH); Ngarsul, Tuyama in 1937 (TI); Aimiriik, Kanehira & Okuya in 1934 (FU). Ngeanges: in Yoo (Sar) Passage, Fosberg 25775 (US, BISH, Fo, NY, L).

Sonsorol: Hardy 131 (US); Berry 7 (US), 3 (US).

Yap: Kanehira & Hatusima 4328 (FU); Kamiya 199 (TI); 25 ft [8 m], Wong 330 (US, BISH, Fo); near Ngalog village, E central Yap, Cushing 495 (US); low E ridge of Mt. Matade, 20–40 m, Fosberg 25574 (US); Mt. Matade, 160 m, Fosberg 25549 (US), 150 m, Cushing 454 (US); Dogol, Tuyama in 1939 (TI); Tarang L, Tomil Bay, Tuyama in 1989.
(TI); Numagil, S Yap, 5 m, *Cushing 666A* (US); N
Gagil, near Tagaren Channel, 3 m, *Cushing 602*
(US); Tomil I., 50 ft [15 m], *Hosaka 3267* (US);
Dalipubinaw Distr., near Yap High School, 30 m,
*Fosberg 46559* (US, HAW, Fo); Colonla, Beacon
Hill, 170 m, *Evans 298* (US, BISH).

Ulithi: Fassarai I., *Hosaka 3218* (US); Mogmog I.,
Lea 55 (BISH); Falalap I., 1–3 m, *Fosberg 46615*
(Fo).

Fais: On plateau, 15 m, *Fosberg 46692* (US).

Woleai: Utagal I., 1–2 m, Wong 27 (US, BISH, Fo,
NY, L); Falalis I., interior of islet, *Alkire 23*
(US); Sholiap (Saliap) I., 1–2 m, *Fosberg 47035*
(US); Falalap I., *Evans 482* (US, Fo).

Ifaluk: Falarik I.; *Abbott & Bates 61* (US, BISH);
Falalap I.: 1–2 m, *Fosberg 47244* (US, HAW). Ifaluk
I.: 1–2 m, *Fosberg 47236* (US).

Lamotrek: Lamotrek I., 1 m, *Fosberg & Evans*
46773 (US).

Satawal: Interior breadfruit and coconut forest,
2 m, *Fosberg & Evans 46919* (US).

Namotou: Magir I., *Stone 2120* (BISH); Piseras
I., 3–5 m, *Evans 887* (US); Ono I., 0–3 m, *Evans*
1035 (US).

Murilo: Ruio I., 0–3 m, *Evans 1163* (US); Murilo
I., 3–5 m, *Evans 1246* (US).

Nomwin: Nomwins I., 0–3 m, *Evans 1046* (US);
Fanau I., 0–5 m, *Evans 1100* (US).

Truk: Kodzumi in 1915 (TI); Wong 163 (US,
BISH, Fo); Ouola, Moore 136 (US), Moen I.; S of
Moen village, *Anderson 739* (US); flats near “Baker
Dock,” 3 m, *Fosberg 24692* (US, BISH, Fo, NY, L);
N Side of Nomenuk Bay, *Fosberg 26041* (US,
BISH); Nob Hill, 100–150 m, *Evans 1375* (US,
HAW). Dublon and most islets: Hosokawa, 1937:
[8 m], *Hosaka 2745* (US, BISH, Fo, NY, L). Pis:
*Fosberg 24636* (US, BISH).

Namoluk: Namoluk I., 0.9 m, *Marshall 81* (US).

Lukonor: Lukonor I., *Anderson 2157* (US, BISH,
Fo, NY, L); Oneap I., *Anderson 1083* (US, BISH,
Fo, NY, L).

Satawan: Moch I., *Anderson 970* (US, BISH, Fo,
NY, L); Ta I., *Anderson 1037* (US, BISH, Fo, NY,
L); Kutu I., *Anderson 1209* (US, BISH, Fo, NY, L).

Kapingamarangi: Hare I.; *Hosaka 3433* (US,
BISH, Fo); *Niering 562* (US); 1 m, *Fosberg 26089*
(US, BISH); Werua I.; *Niering 669* (US, Fo); *687*
(US), 633 (US).

Ponape: *Riesenberg 53* (BISH); *Kusano in 1915*
(TI); Colonla, Not District, *Fosberg 26247* (US,
BISH, Fo, NY, L), *Fosberg 26239* (US, BISH, Fo);
vicinity of Colonla, *Glassman 2447* (US, BISH);
U District, *Glassman 2573* (US, BISH); Mt. Seletereh,
2000 ft [610 m], *Glassman 2748* (US); Ronkiti,
*Glassman 2797* (US, BISH); Mt. Tolotom, *Taka-
matsu 1052* (BISH, BM).

Kusaie: Mt. Tefeyah, 100 ft [30 m], *Glassman*
2672 (US); Lele, *Hosakawa 6457* (A); Mt. Buache,
*Hosakawa 6256* (A), 6292 (A); summit of Mt.
Matanta (Buache), 550–600 m, *Fosberg 26634* (US);
S of Lela (Lele) Harbor 50–150 m, *Fosberg 26655*
(US, BISH, Fo).

Marshall Islands.—Ujelang: *Ujelang I., Fos-
berg 34202* (US).

Lae: *Loj I., Fosberg 34053* (US).


Majoro: *Majo I., St. John 21411* (BISH); Laura
(W end of island), *Fosberg 26981* (US).

Arno: *Ine I., Hatheway 879* (US, BISH), *Anders-
on 3625* (US, BISH).

Jaluit: Schumann and Lauterbach, 1901:516 (cit-
ing Schwabe): Engler, 1897:225; *Schnee in 1902*
(NSW): *Schnee 8* (NSW); Imruj (Imrodj) I., 1–3 m,
said to be introduced from Ponape, *Fosberg 26765*
(US, BISH, Fo, NY, L).

Gilbert Islands.—Butaritari: Butaritari I., Bu-

*Ipomoea macrantha* Roemer & Schultes

*Ipomoea macrantha* Roemer & Schultes, Syst. Veg., 4:251,
1819.

*Ipomoea longiflora* R. Brown, Prodr., 485, 1810 [non Hum-
boldt & Bonpland ex Willdenow, Enum. Hort. Berol.,
207, 1809].

*Convolvulus tuba* Schlechtendal, Linnaea, 6:735, 1831.

*Ipomoea glaberrima* Bojer ex Bouton, Hook. Jour. Bot., 1:357,

*Calonyction comospermum* Bojer, Hort. Maur., 228, 1837
[nom. illegit., equivalent to *Ipomoea glaberrima* Bojer ex
Bouton, 1834].

*Convolvulus tuba* (Schlechtendal) G. Don, Gen. Syst., 4:271,
1969.—Stone, Micronesica, 6:494, 1971.—Alkire, Micro-
Calonyction tuba (Schlechtendal) Colla, Mem. c. una nuova specie di Calonyction . . . 15, 1841 [1840].

Extensive coarse glabrous twining liana, lower parts thickened but not very woody, in very dry situations forming a short very thick trunk which annually produces herbaceous elongate stems which die back during the dry seasons; leaves somewhat fleshy or not, cordate orbicular, somewhat acuminate, to 15 cm across; peduncles 1-few-flowered, cymose, pedicels thickened, or even somewhat turbinate; sepals orbicular, apex rounded, 15–25 mm long, accrescent and very thick in fruit; calyx white, to 10 cm long, with very long tube and flaring limb, opening at night; stamens and style in-
cluded, stigmas binate; sepals orbicular, apex rounded, to 2.5 cm long, enclosed by accrescent sepals which later become reflexed; seeds with black tomentum, long hairs on edges.

Pantropical, on almost all Pacific Islands, known in Micronesia from the Marianas—Saipan, Tinian, Rota, Guam; Carolines—Palau, Sonsorol, Yap, Ulithi, Eauripik, Woleai, Faraulap, Ifaluk, Gaferut, Namonuito, Murilo, Truk, Lukunor, Satawan, Nukuoro, Kapingamarangi, Mokil, Pingelap; Wake I.; Marshalls—most of the islands; Gilberts—Tarawa, Nonouti, Tabiteuea, Onotoa. A strand species, found both in open and in forests, occasionally, as in Guam, reaching middle elevations, especially at tops of cliffs facing sea.

Uses.—The marble-sized tubers were used long ago for food (Kili, Bikini people: St. John and Mason, 1958.) Stems and leaves are crushed in water and used as a shampoo. To kill lice, the shampoo is used in concentrated form (Gilberts, Tarawa: Catala 57). The vine is regarded as harmful since it kills any tree on which it grows (Kili: St. John and Mason, 1958). Young leaves and roots are used in medicine; withes are used for skipping rope (Rota: Evans 2030). A preparation of young leaves, pounded and mixed with coconut oil, is applied to boils, toothaches, and bruises; rubbed into painful areas, it relieves throbbing and swelling (Sonsorol: Berry 61).

Vernacular Names—
alaikitasi (Guam: G.E.S. 166)
sauwonilaewau (Sonsorol: Berry 61)
walifich (Ulithi: Lessa 59)
gufamach (Woleai: Alkire, 1974)
hufamash (Woleai: Alkire 86)
ava’mas (Faraulap: Fosberg & Evans 47397)
garenap (Ifaluk: Abbott and Bates 85)
waliina (Ifaluk: Fosberg 47204)
avamach (Truk: Fosberg 24634)
oôrôpôn (Truk: Wong 179)
arupuel (Lukunor: Anderson 2110)
afamas (Satawan: Anderson 1073)
hue (Nukuoro: Fosberg 26235, Carroll 43)
huwhe mai (Kapingamarangi: Niering 554)
tehuwe (Kapingamarangi: Hosaka 3438)
tihu (Kapingamarangi: Fosberg 26079)
tileiu (Kapingamarangi: Niering 704)
ahafahmus (Ant: Glassman, 1958)
oholap (Mokil: Glassman 2606)
wahe (Pingelap: Glassman 2648)
bele (Eniwetok: Fosberg 24349)
maralap (Utirik: Fosberg 33700)
bele (Ujelang: Fosberg 34178)
marale (Ujelang: Fosberg 34178)
marale (Lae: Fosberg 34083)
marale (Aur: St. John 21385)
marale (Majuro: St. John, 1951, observed)
marale (Arno: Anderson 3622, 3758)
marbole (Kili, Bikini people: St. John and Mason, 1958, citing Mason 14)
te ruku (Tarawa: Catala 57)
te ruku (Nonouti: Koch 32)
te ruku (Tabiteuea: Luomala 38)

Geographic Records and Specimens Examined

Marianas Islands.—Saipan: Lange 12 (BISH):
Momose in 1930 (TI); Tsukimi Bay, 75 m, Fosberg 25206 (US, BISH, Fo, NY).
Tinian: “Yellow Beach” E of Mt. Lasso, 1–10 m, Fosberg 24905 (US, BISH).
Rota: Necker R 64 (US); between Rota village and Tataacho Pt., Fosberg 25008 (US); Songsong village, 5–10 m, Evans 2030 (US).
Guam: Merrill 1914:131; Fadian Pt., 115 m, Fosberg 31219 (US, BISH, Fo, NY); above Tarague Beach, 140 m, Fosberg 35672 (US, BISH); Oca Pt., Anderson 181 (US, BISH); S of Asan Pt. and Piti, 15 m, Anderson 95 (US); E coast, between Togcha and Talofoto Bay, Moore 369 (US); E of Apra Heights, Manengon, Stone 4662 (BISH, GUAM); Atantan Road, Nelson 405 (NY), 566 (NY); Iates Pt. Conservation Area 60-90 m, Evans 1832 (US); Cabras I., G.E.S. 166 (US, BISH, BM), NY.

CAROLINE ISLANDS.—Palau: Koror: Momose in 1930 (TI). Nganges: in You (Sar) Passage, just W of southern point of Urukthapel I., Fosberg 25811 (US, BISH, Fo, NY, L). Pelilii: N end of “Purple Beach,” E side of island, Fosberg 26008 (US, BISH, Fo); strand, Hatsusima 4723 (FU), 4807 (FU).

Sonsorol: Berry 61 (US, HAW); Salsedo 397 (HAW).

 Yap: Volkens 1901:473 (citing Volkens 189); Garim I. (off SE Yap), Cushing 542 (US).

 Ulithi: Mogmog, Lessa 59 (BISH); Asor I., 1-2 m, Fosberg 46155 (Fo); Soren 1., 0-5 m, Evans 426 (Fo); Falalap I., 1-3 m, Fosberg 46632 (US, Fo, BISH).

Eauripik: Eauripik I., in village, 1-2 m, Fosberg & Evans 47150 (US, Fo).

Woleai: Falalis I., interior of islet, Alkire 86 (US); Sholilap 1., 1 m, Fosberg 47044 (US), 2 m, Fosberg 47048 (US).

Faraulap: Faraulap I., 3 m, Fosberg & Evans 47397 (US).

Ifaluk: Falarik I., Abbott & Bates 85 (US, BISH), Evans 538 (Fo); Ifaluk 1., 2 m, Fosberg 47204 (US, BISH, K, MO).

Gaferut: Niering 773 (US).

Namonuito: Stone 2118 (BISH); Piseras 1., 0-8 m, Evans 898 (US, HAW, NY, A).

Murilo: Ruq 1., 3-5 m, Evans 1208 (US).


Lukunor: Onap 1., Anderson 2110 (US, BISH, Fo, NY, L).

Satawan: Ta I., Anderson 1073 (US, BISH, Fo, NY).

Nukuoro: Nukuoro (Matakena) 1., Fosberg 26235 (US, BISH); Modubodai, Carroll 43 (US).

Kapingamarangi: Tangawaka 1., Niering 704 (US); Hare I., Hosaka 3438 (US, BISH, Fo), Fosberg 26079 (US, BISH); Nunakita I., Niering 554 (US); Werau l., Niering 585 (US).


Mokil: Kalap I., Glassman 2606 (US).

Pingelap: Pingelap I., Glassman 2648 (US).

WAKE ISLAND.—Fosberg 33614 (US); Johnson (Degener's) 20694 (NY); Branchamp in 1936 (BISH); Pollock 37 (BISH); Pollock & Bryan 21 (BISH); McFarlane 10 (US); Johnson in 1935 (BISH); Gaston in 1953 (BISH); Lyons 25 (BISH); Peale I., Krauss in 1957 (BISH).


Pikok: Sibylla I., Fosberg 34526 (US).


Bikini: Bikini 1., Taylor 46-1094 (BM, G), 46-1147 (US), 46-1054 (US); Enriikku 1., Taylor 1950:194 (citing Taylor 46-1027); Chierete 1., Taylor 46-1164 (US); Enyu 1., Taylor 46-1176 (US), 46-1006 (US).

Ailinginae: Sifo 1., Fosberg 36693 (US, BISH, Fo).

Rongerik: Eniaetok 1., Taylor 46-1366 (US, BISH).

Rongerik: Latohack 1., Taylor 46-1423 (US).

Utirik: Utirik 1., Fosberg 33661 (US, NY), 33677 (US); Stone 1057 (BISH). Eluk 1.: Fosberg 33700 (US, NY).

Ujelang: Ujelang 1., Fosberg 34178 (US, NY); Daisu I., Doty & Gilmarty 12764 (BISH).

Ujae: Bock 1., Fosberg 34362 (US, NY).

Wotho: Wotho 1., Fosberg 34239 (US, NY).

Lae: Loj 1., Fosberg 34056 (US); Enenbao 1., Fosberg 34083 (US).

Kwajalein: Lojjaarong 1., Fosberg 34119 (US); Bigej (Bennett) 1., Fosberg 26519 (US, BISH, Fo, NY, L); Kwajalein 1., Fosberg 26472 (US, BISH, Fo, NY, L).

Ailuk: Ailuk 1., Fosberg 33942 (US, NY).

Jemo: Fosberg 33890 (US).

Likiep: Aikini (Agony) 1., Fosberg 27053 (US, BISH).

Meji: Stone 1081 (BISH).
Aur: Tabal I., St. John 21385 (BISH).
Ailinglapalap: Bikajie (Bigatyleang) I., Fosberg 26795 (US).
Majuro: Laura (W end of Majuro I.), Fosberg 26967 (US, BISH); Uliga I., Stone 961 (BISH).
Arno: INe I., Anderson 3622 (US, BISH, NY);
Eniairik I., Anderson 3758 (US, BISH, Fo, NY);
Bikarej I., Hatheway 821 (US, BISH).
Kili: St. John and Mason, 1953:166, Mason 14 (BISH).
Jaluit: Koidzumi in 1915 (TI); Engler 1897:225;
Schumann and Lauterbach, 1901:515 (citing Schwabe); Jaluit I., Sydney Pier, just S of Jabor, Fosberg 26685 (US, BISH, Fo, NY, L).

GILBERT ISLANDS.—Tarawa: Tearinibiai, Catala 57 (P); Bikenibeu I., Herbst & Allerton 2690 (US).
Nonouti: S of Tanunawa, 2 m, Koch 32 (US, Fo).
Tabiteuea: Luomala, 1953:47, 110; Luomala 38 (BISH).
Onotoa: Moul 8338 (US), 8197 (US, BISH, NY).

Ipomoea mauritiana Jacquin

Ipomoea mauritiana Jacquin, Coll., 4:216, 1790.
Ipomoea paniculata (L.) R. Brown, Prodr., 486, 1810.—
[Non L., Syst. Nat., ed. 10, 924, 1759.]

Subglabrous liana; leaves large, cordate, usually deeply cut into 7 ovate- or oblong-lanceolate acuminate lobes; peduncles about as long as leaves, umbelloidly branched near summit into 1-4 pedicels, or corymbiform cymose-paniculate; sepals glabrous, orbicular, about 1 cm long, strongly concave; corolla campanulate, pink-purple, red or red-purple within in throat, about 6 cm long; stamens and style included, stigmas 2, globose; capsule globose, about 1 cm long; seeds black, covered with long coarse white hairs.

Said to be pantropic; in Micronesia: Caroline Is.—Palau: Babeldaob; Melekiok, Tuyama in 1939 (TI). Peliliu: Kanehira & Hatunsimia 4792 (FU).
Yap: Volkens 1901:473 (citing Volkens 209, 463); Dogol, Tuyama in 1939 (TI); Mt. Matade, 160 m, Fosberg 25533 (US), 150 m, Cushing 456 (US); Colonias vicinity, 150 m, Evans 296 (US, HAW).
Truk: Koidzumi in 1915 (TI); Koidzumi in 1925 (TI); 25 ft [8 m], Wong 124 (US, BISH, Fo); Kanehira 606 (NY, FU); Moen: Pelzer 65 (US); old site of Mechetiu (Metitiu) village, W side of Bou Bay, 0–1 m, Fosberg 24418 (US, BISH); 1000 ft [305 m], Hosaka 2781 (US, BISH); summit of Mt. Tonachau, Fosberg 26054 (US, BISH, Fo, NY); slope E of Moen (village), 30 m, Anderson 759 (US, BISH, Fo, NY, Y); track from Nob Hill to high school, 100–120 m, Evans 1417 (US). Dublon: Hosokawa, 1937:199. Tol: Pelzer 44 (US), Takamatsu 29 (BISH). Fefan, Uman, Tarik: Hosokawa, 1937:199.

Ponape: Riesenberge 67 (BISH); Glassman 2564 (US, BISH); Jokaj, 300 ft [90 m], Hosaka 3496 (US, BISH, Fo, NY, Y); Colonias, Stone 1974 (GUAM), Kanehira 688 (FU, NY); U District, N coast, between Ipuac and U, 1–5 m, Fosberg 26352 (US, BISH, Fo, NY); Nanpil, Takamatsu 840 (BISH); Salapwuk (Salbuk), Takamatsu 612 (BISH); Night village, Salomon & George 50 (US).
Kusaie: S side of Mt. Matanta (Buache), 50 m, Fosberg 26571 (US, BISH, Fo, NY, Y); Moto, Kanehira 1426 (FU, NY).

Ipomoea obscura (L.) Ker-Gawler


Slender twiner, almost glabrous to notably pilose; leaves broadly cordate, acuminate, up to 5 cm in diameter, with broad rounded basal sinus, margins...
subentire to finely crenulate, more or less ciliate, petioles slender, 2–6.5 cm long; flowers 1–several in pedunculate cymes, in each cyme 1 flower open at a time, peduncles 2–5 (or even 10) cm long, pedicels 1–1.5 cm, somewhat dilated upward; sepals 4–6 mm long, elliptic or elliptic ovate to ovate or, in fruit, orbicular, the inner broader, mucronate; corolla campanulate-funnelform, flaring, 1.5–2 cm long, 1.5–2.5 cm broad, white or cream to sulfur-yellow, with dark purple center; stamens and pistil included; capsule subglobose, to 1 cm long, beaked, exserted from calyx, firm; seed 2.5 × 3.5 mm, plump, dark brown, sericeous tomentose.

A pantropical species probably of Old World origin and more common there, recently adventive in Guam.

Marianas Islands.—Guam: Apra Harbor, area N of base of Orote Peninsula, entrance to Naval Station, May 27, 1973, 10 m, Sachet 1714 (US, HAW).

Ipomoea pes-caprae (L.) R. Brown


The nominate subspecies of this pantropical strand species occurs mostly in the Indian Ocean area, but not in Micronesia.

Ipomoea pes-caprae ssp. brasiliensis (L.)

van Ooststroom


Ipomoea purpurea sensu Okabe, Nettai Sangyó Kenkyú-sho ihô, 5:12, 1940 [non Hayne, Arzneigew., 12:tt. 33, 34, 1853].

A prostrate, coarse, glabrous creeper, capable of forming dense mats; leaves coriaceous, oblong or oval to ovate, rounded or somewhat cordate at base, normally bilobed or at least prominently emarginate at apex; peduncles stout, with 1–several pedicellate flowers in a cyme; sepals elliptic to orbicular, the outer ones narrower, obtuse, mucronulate, glabrous, up to about 1 cm long; corolla funnelform to campanulate, rose purple, darker in center, 3–5 cm long; stamens and style included; stigmas 2, glabrous; capsule globose, 12–15 mm high; seeds densely brown-tomentose, dull yellowish when the tomentum is worn off.

All Micronesian records and specimens of Ipomoea pes-caprae belong to this subspecies. St. John (1970) regards it as a distinct species, but the characters seem rather slight, principally differences in leaf shape and flower-size. Plants from the Ryukyus, Malaya, and Thailand seem rather intermediate. The taxon is here regarded as a subspecies, rather than a variety, of I. pes-caprae because it is extraordinarily variable, especially in habit, leaf shape, and degree of branching of the cyme. Possibly varieties may be distinguished within this vast population.

Subspecies brasiliensis is pantropical (except in the Indian Ocean area, where it is replaced by subspecies pes-caprae); in Micronesia it is known from the Marianas: Uracas, Asuncion, Agrigan, Pagan, Alamagan, Guguan, Sarigan, Anatahan, Saipan, Tinian, Rota, Guam; from the Carolines: Palau, Sonsorol, Tobi, Helen Reef, Yap, Ulithi, Eauripik, Woleai, Ifaluk, Lamotrek, Satawal, Namonuito, Truk, Ponape, Kusaie; from Wake; from the Marshalls: Eniwetok, Lae, Kwajalein, Majuro, Jaluit; from Nauru; from Ocean (Banaba);
from the Gilberts: Butaritari, Tarawa. We have the impression that this plant may be introduced in the Marshalls and Gilberts, since it is known mostly from atolls where there has been much recent foreign human activity and disturbance. A seedling, probably of this species, was once found by us in beach drift on Likiep, where the plant is otherwise unknown, and on Arno, a seed of this species was found in the crop of a tern (Gygis alba) by J. T. Marshall. Ipomoea pes-caprae is not known on Arno, which has been thoroughly searched for plants, but is known from Majuro, a few miles away. If the plant were of other than recent introduction in the Marshalls it might be expected to have reached all or most of these atolls and to be much more common than it is, since ideal habitats for it are abundant. It is typically a beach plant, but in the Marianas it is also found in open places at all altitudes.

Uses.—Various parts are used as medicine (Ulithi, Mogmog I.: Lessa in 1949) or as an ingredient in some medicines (Woleai, Falalis I.: Alkire 70). The root contains starch and is used medicinally (Guam: Safford, 1905). The turniplike roots given off by the rhizome are prized as a purgative; leaves are boiled and used for external application for stomach ache and colic; the boiled juice is said to be good for rheumatism (Palau, Okabe, 1940). Leaves are crushed, wrapped in "ul" (Musa paradisiaca), squeezed in well water, and the resulting liquid is given to a newborn baby to drink (Ifaluk: Abbott & Bates 73). The leaves are applied to bruises and to the head for headache, they are boiled and applied as a poultice to boils and cuts; an infusion made from the leaves is used as a tea for abscesses and boils and as a douche during pregnancy. Some say this plant should be used only externally; it has a large rose-purple flower; it is often mistaken for hailailai (plant unidentified) or abodu (Stictocardia campanulata) (Guam: Whiting ms., 1965). On Sonsorol it is believed that if the flower is picked, it will rain within 24 hours (Berry 11). It is an important sand-binding plant (Guam: Safford, 1905).

Vernacular Names.—
ofegau halae (Marianas: Gaudichaud s.n.)
alalag-tasi (Marianas: von Prowazek, 1918)
alaiyai (Saipan: Hosokawa, n.d.)
alaihaim-tasi (Guam: Safford, 1905)
alalag (Guam: Whiting C16)
alalag-tasi (Guam: Safford, 1905; Whiting, ms., 1965)
alalag-tasi (Guam: Gaudichaud, 1826)
alalai sabana (Guam: Nelson 249)
alalai-tasi (Guam: Safford, 1905; Whiting, ms., 1965)
alalak (Guam: Whiting, ms., 1965)
halihai (Guam: Nelson 180; Seale in 1900)
kebeasaong (Palau: Fosberg 32391)
kebeaschol (Palau: Otobed, 1967, 1971; Salsedo 138)
kebeas choll (Palau: Hardy 40)
kebeas el choll (Palau: Owen 11)
kebeas-ol (Palau: Hosokawa, n.d.)
kebias ol (Palau: Okabe, 1943)
kobal es ol (Palau: Okabe, 1941)
halabarue (Sonsorol: Berry 11)
gunbarihiungao (Yap: St. John, 1970)
rakodorip (Yap: Hosokawa, n.d.)
worthol (Yap: Wong 309)
parabwal (Ulithi: Lessa in 1949)
arapwal (Eauripik: Fosberg & Evans 47129)
garabwal (Woleai: Alkire 70)
harawal (Woleai: Evans 440)
kawadui (Woleai: Wong 14)
garebalv (Ifaluk: Abbott & Bates 148, 73)
hualimá (Lamotrek: Fosberg & Evans 46767)
oropvón (Truk: Wong 247)
arapuval (Satawan: Anderson 1102)
arapvul (Satawan: Anderson 1123)
huuruhe (Kapingamarangi: Fosberg 26096)
shonshol (Ponape: Glassman 2778)
sonjol (Ponape: Bascom T83)
sonso (Ponape: Glassman 2778; Fosberg 26335 (Bascom T83))
untal (Ponape: Christian, 1899)
antal (Ponape: Christian, 1899)
ooba (Kusaie: Hosokawa, n.d.)
marjinejojo (Majuro: St. John, 1951)
iireegogo (Nauru: Burges, ms., ca. 1935; von Prowazek, 1918)
raku (Tarawa: Luomala, 1953)
te ruku (Tarawa: Cataula, 1957, citing Cataula 152)

Geographic Records and Specimens Examined

Marianas Islands.—Schumann and Lauterbach, 1901:517 (citing Lesson); Gaudichaud s.n. (G).

Uracas: W side of S coast, below 400 ft [120 m], Falanruw 2209 (US).

Asuncion: SW coast, 100 ft [30 m], Falanruw 2280 (US).

Agrigan: Marche 298 (P, Fo); SW coast below 300 ft [90 m], Falanruw 2184 (US, BISH); mid-west coast, 15 ft [5 m], Falanruw 2348 (US); village, Fosberg 31429 (US).

Pagan: Marche 149 (P, Fo); Bonham 21 (US, Fo); Isthmus, Anderson 565 (US, BISH, Fo, NY, L); Fresh Water Lake, Fosberg 31396 (US); Laguna, Villagomez JV-D5 (US); airstrip, Moore 308 (US); Mt. Pagan, 300 ft [90 m], Moore 368 (US).
Alamagan: Partido village, Fosberg 31645 (US, BISH); SSW coast, Falanruw 1956 (US).

Guguan: W coast below 50 ft [15 m], Falanruw 1800 (US).

Sarigan: 0–20 m, Evans 2429 (US, BISH, Fo, NY); 0–75 ft [0–20 m], Falanruw 1775 (US).

Anatahan: Sea level, Falanruw 1665 (US); S of NW tip of island, 0–10 m, Evans 2460 (US, BISH, Fo, NY).


Saipan: Stephens 60 (Fo); seashore, Kanehira 1021 (FU); Charan-Kanoa, 10 ft [3 m], Hosaka 3023 (US, BISH); just N of Agining Pt., 0–75 ft [0–20 m], Falanruw 1775 (US).

Kapingamarangi: Hare I.: Fosberg 26096 (US, BISH, Fo, NY); Niering 727 (US, Fo, BISH); Niering 586 (US).

Sokal}: Okatan 65 (FU); Kondo in 1952 (BISH), 28 (BISH); beach, E side of Mt. Lasso, E side of island, Fosberg 24909 (US, BISH, Fo); Lake Hagoya, N end of island, Fosberg 24789 (US, BISH, Fo, NY).

Rota: Hosoya, n.d.

Guam: Endlicher, 1835:178 (citing Lesson): Hombron in 1841 (P); McGregor 545 (US, BISH); G.E.S. 71 (US, BISH, NSW); Merrill, 1914:132; near mouth of Ylig River, Rodin 775 (US); beach ½ mi [0.8 km] W of Agaña, Moore 133 (US); Agaña, Seale in 1900 (BISH), Whiting 116 (Fo); beach E of Barrigada, Steere 135 (US); near Talisay, 150 m, Fosberg 35262 (US, BISH, Fo); Oca Pt., Glassman 134 (Fo); Mt. Tenjo, 920 m, Bryan 1111 (BISH); Marine Beach, Pedrus 7 (GUAM); Pago, along river bank, Nelson 249 (BISH); Pity, Nelson 180 (US, BISH); Tagachan Bay, Stone 4019 (BISH, GUAM); Togocha Bay, Jones Beach, Stone 4463 [4462?] (GUAM).

Caroline Islands.—Palau: Koror: Owen 11 (US, BISH); Ngetmeduch rock, Hardy 73 (US). Belak doab: E coast, Ngatik, Airai, 0–5 m, Fosberg 32391 (US, BISH, Fo, NY, L); Marikyoku, Kanehira 381 (FU). Malakal: Dechel, Hardy 40 (US, BISH). Peli liu: Salsedo 138 (US); N end of island, Fosberg 26011 (US, BISH).

Sonsonor: Sonsonor I., Berry 11 (US); beach from village to S tip of island, Hardy 149 (US, BISH).

Tobi: causeway through center of island, Hardy 142 (US, BISH).

Helen Reef: Salsedo 387 (US).

Yap: Kamiya 131 (TI); Wong 309 (US, Fo); Gillman Colony road, 15 m, Cushing 386 (US).

Uliiti: Asor I., Fosberg 46438 (US, BISH, Fo, NY, L, P, TI, A); Mogmog I., Fosberg & Wong 25493 (US, BISH), Lessa in 1949 (BISH); Falalap I., 3 m, Fosberg 46974 (US, Fo, HAW, MO); Sorlen L., 5 m, Evans 408 (US, Fo, BISH, L, A, NY).

Eauripik: Eauripik I., 1–2 m, Fosberg & Evans 47129 (US).

Woleai: Utagal I., Wong 14 (US, BISH, Fo, NY); Falalis I., Alkire 70 (US); Falalap I., Evans 440 (Fo, BISH, US).


Lamotrek: Lamotrek I., 3 m, Fosberg & Evans 47676 (US).

Satawan: Satawan I., S side, Fosberg 46949 (seeding) (US).

Namouuito: Ulul I., observed, common on most islets, Stone, 1959:103.


Etal: Seen by Anderson, but not collected.

Lukunor: Seen by Anderson, but not collected.

Satawan: Moch I., Anderson 1123 (US, BISH, Fo, NY, L); Satawan I., Anderson 1102 (US, BISH, Fo, NY, L).

Kapingamarangi: Hare I.: Fosberg 26906 (US, BISH, Fo, NY); Niering 727 (US, Fo, BISH); Niering 586 (US). Wewa I.: Niering 586 (US).

Ponape: Kamiya 218 (TI), 277 (TI); Bascom T83 (US); U District, N coast between Ipuak and U, 1–5 m, Fosberg 26335 (US, BISH); Saputik I., Glassman 2778 (US, BISH); Tamon, Takamatsu 881 (BISH).

Kusaie: Kanehira 1367 (NY, FU); valley S of Lele Harbor, Fosberg 26642 (US, BISH); Mot, Takamatsu 443 (BISH).

Wake Island.—Fosberg 34473 (US). Peale I.: Pollock & Bryan 22a (BISH); Lyons 24 (BISH).

Area D: Gaston in 1958 (BISH).

Marshall Islands.—Eniwe tok: Eniwe tok I., Fosberg 24287 (US, BISH); Iguidr I., St. John 23733 (BISH); Engeb I., Fosberg 24404 (US, BISH, Fo, NY, L), St. John 23778 (US, BISH); Aomon I., St. John 23831 (BISH).

Lae: Lae I., Fosberg 33999 (US); Loj I., Fosberg 34044 (US).

Kwajalein: Kwajalein I., Fosberg 26480 (US, BISH, Fo, NY, L); Bennett (Bikej) I., Fosberg 26506 (US, BISH, Fo, NY, L).

Majuro: Dalap (Salome) I., Fosberg 26910 (US, BISH, Fo, NY, L); Majuro I., St. John 1951:285.

Jaluit: Koidzumi in 1915 (TI); Schumann and
Lauterbach 1901:517 (citing Schwabe); Engler 1897: 225; Jaluit I., Sydney Pier area, Fosberg 26709 (US, BISH, Fo, NY, L).

Nauru Island.—Burges 130 (NSW), 140 (NSW).

Banaba (Ocean I.).—Rhone 45 (NSW).

Gilbert Islands.—Butaritari: Butaritari I., Herbst & Allerton 2699 (US).

Tarawa: Uncommon, seen only in some abundance in Betio and near the landing place at Bairiki, Catala 1957:97 (citing Catala 152): seen in 1967 by Sachet; Betio, lagoon side, Adair 98 (US), Luomala 1953:25.

Ipomoea quamoclit L.


Slender glabrous twiner; leaves pinnately divided into linear or filiform lobes; inflorescences axillary with peduncles much longer than leaves, 1–several-flowered; bracts nearly obsolete; pedicels 1–3 cm long, tending to be thickened toward apex; sepals oblong, obtuse to rounded, mucronate; corolla bright red (rarely white), about 3 cm long, very narrowly funnelform, limb short but deeply lobed; capsule ovoid at apex, glabrous, tending to split rather irregularly, valves thin, seeds glabrous, mottled brownish or black.

Pantropical, a cultivated ornamental, said to be of tropical American origin, freely naturalized in warm countries; in Micronesia known thus far from Tinian, Guam, Palau, Yap, and Ponape; recent collections from cultivated plants; in Yap said to be a Japanese introduction.

Uses.—Planted by the natives as a garden plant (Guam: Safford, 1905).

Vernacular Names.—
asangao (Palau: Otobed, 1967, 1971)
cabello del angel (Guam: G.E.S. 172; Safford, 1905)

Geographic Records and Specimens Examined

Marianas Islands.—Tinian: Lake Hagoya, N end of island, 1–10 m, Fosberg 24791 (US, BISH, Fo, NY, L).

Guam: Marche 207 (US); Nelson 407 (Bish); G.E.S. 172 (NSW, BISH); Merrill, 1914:138 (citing G.E.S. 172); Manguao, 65 m, Fosberg 35618 (US).

Caroline Islands.—Palau: Koror I.: Otobed 44 (US); Tgeronger, Blackburn 193 (US); Cheatham 56 (US).


Ipomoea sepiaria Koenig ex Roxburgh


Herbaceous twiner or creeper, glabrous to hirsute; leaves glabrous extremely variable, broadly ovate to orbicular or reniform, acuminate, cordate at base, entire, minutely ciliate; peduncle thick, bearing an umbellate cyme of 5 to 10 flowers; sepals glabrous, elliptic-oblong, 4–6 mm long, obtuse, mucronulate; corolla tubular funnelform, 2–2.5 cm long, white to pale lilac, purple in center; stamens unequal, included; style included, stigmas 2, glabrous; capsule glabrous, depressed-globose, 6–7 mm high; seeds densely tomentose with longer hairs on margin. (We have not seen this species; description is condensed from van Ooststroom, 1940, 526).

India and Ceylon to Malay Archipelago, Hainan and Formosa; in Micronesia found once in 1957 in Yap.

Caroline Islands.—Yap: “on a waste place,” Hosokawa, 1938:156 (citing Hosokawa 8926).

Ipomoea setifera Poiret


A fairly common tropical American species, a small-flowered variety of which has a pantropical scattered distribution including a number of locali-
ties in the Pacific islands. The large-flowered plant has not been found in the Indo-Pacific area.

The small flowered plant has hitherto been regarded as a separate species, *Ipomoea fimbriosepala*, but since the only difference that we have found is in the size of the corolla, we prefer to combine it with *Ipomoea setifera*. We are not aware of any available name in varietal rank, so we are proposing the following combination.

*Ipomoea setifera var. fimbriosepala* (Choisy) Fosberg, new combination


Twiner, glabrous to somewhat pubescent; leaves quite variable, generally longer than wide, acuminate to acutish, extreme apex obtuse or emarginate, base hastate or sagittate, basal lobes pointed or rounded, petiolule shorter than blade; pedicules solitary in axils, to 3–4 cm, bearing single pedicellate flowers, or simple or once compound dichasia, these becoming very loose, nodes bearing foliaceous broadly ovate mucronate bracts 5-15 mm long, pedicels unequal, broadly ovate, outer ones largest, to 2 cm long or even 2.5 cm in fruit, with three strong keels or wings longitudinally on the back, the latter usually dentate toward base; corolla funnelform, flaring distally, 2.5-4 cm long, purple, darker in center; fruit ovoid to globose, 1-1.5 cm in fruit—entire inflorescence reaching 10 or more cm in fruit; sepals unequal, broadly ovate, outer ones largest, to 2 cm long or even 2.5 cm in fruit, with three strong keels or wings longitudinally on the back, the latter usually dentate toward base; corolla funnelform, flaring distally, 2.5-4 cm long, purple, darker in center; fruit ovoid to globose, 1-1.5 cm long, splitting into 4 hard woody ovate valves, spreading at tips: seeds black, puberulent.

With a Guam specimen of *Ipomoea triloba* L. collected by the *Astrolabe* expedition in 1828 there is a specimen with strongly and narrowly sagittate leaves and heavy woody fruits resembling those of *Aniseia*, within which it would clearly go to *A. hastata* Meissner. The latter was first described as *Ipomoea fimbriosepala* Choisy and has been retained in *Ipomoea* by most modern authors. We are informed by Prof. Walter Lewis that the pollen of this species (preparation from Macedo 1675 (US)) is notably spinulose, while that of the several other species of *Aniseia*, including *A. martinicensis* (Jacquin) Choisy, is smooth. Hence we regard this species as an *Ipomoea* in spite of the *Aniseia*-like fruit. There is an excellent illustration of this plant as *Ipomoea fimbriosepala* Choisy in van Ooststroom (1958, fig. 5).

Pantropical, commonest from Brazil to Argentina, but scattered in Africa, Madagascar, Mauritius (syntype localities), and several Pacific islands. In Micronesia it has not been found since the original collection on Guam, but should be looked for. It is impossible for us to determine if it is native or introduced in the Pacific islands.


*Ipomoea triloba* L.


*Convolutus mariannensis* Gaudichaud ex Safford, Contr. U.S. Nat. Herb., 9:247, 1905 [in synonymy; apparently ascribed to Gaudichaud by error, as the latter did not publish this name].

Subglabrous twiner with cordate leaves varying from entire to remotely repand-dentate to trilobate, usually less than 6 cm across; pedicules thick, bearing irregularly umbelloboid fastigiate cymes of 1 to 7 flowers at summits; calyx 6–8 mm long, sepals narrowly oblong to oblong-lanceolate, mucronate, long-villosus especially on margins; corolla funnelform, dull pinkish or pinkish purple, up to 2 cm long; stamens and style included; capsule globose, 5–7 mm high, sparsely long pilose, strongly beaked by dried style base; seeds smooth, dark brown.

Pantropical, said to be of tropical American origin; in Micronesia known from Marianas—Saipan, Tinian, Guam; Carolines—Palau, Yap, Truk, Ponape; Marshalls—Kwajalein. Found mainly in disturbed or more or less open places, along roadsides, and in brush or thickets.

VERNACULAR NAMES.—

nedgut (Saipan: Hosaka 3004)
GEOGRAPHIC RECORDS AND SPECIMENS EXAMINED

MARIANAS ISLANDS.—Saipan: Kanehira & Hatusima 4314 (FU); Tanapag, Fosberg 25261 (US, BISH, FO, NY, L); Charan-Tarhoho, 100 ft [80 m], Hosaka 3004 (US, BISH, Fo).

Tinian: Lake Hagoya, 1-10 m, Fosberg 24797 (US, BISH, Fo).

Guam: Nelson 107 (BISH); McGregor 450 (US, BISH); Fosberg 43414 (US, BISH, FO, NY, L); Astrolabe [Lesson?] 58 in part (P); Merrill 1914:132 (citing McGregor 450); Agaña, 2 m, Fosberg 31936 (US, BISH, Fo); Inarajan, Marche 237 (P, Fo); road between Merizo and Inarajan, 5 m, Fosberg 35447 (US, BISH, FO, NY, L); 2-8 km W of Yona, 100–130 m, Fosberg 35295 (US, BISH, FO); Asan Pt., Anderson 6 (US, BISH, Fo); Comarrias (Fonte) hills above Asan, 175 m, Fosberg 25427 (US, BISH, Fo, NY, L); 2 mi [3.2 km] W of Agat, Moore 275 (US); Talofoto village, Necker 214 (US); Pati Pt., Necker 334 (US); Andersen Air Force Base, Moran 4432 (BISH, Fo); Menenkon savannas, Pedrus 69 (BISH, Guam); Stone 4838 (GUAM); Piti, Swezey in 1936 (BISH); Ritidian Pt., Stone 4712 (GUAM); OSIR Rd, Apra Harbor, Stone 4721 (GUAM).


 Yap: s.l., Kanehira & Hatusima 4339 (FU), 70 ft [20 m], Wong 468 (US, BISH, Fo); Fujikawa in 1959 (TJ); across from Catholic mission, Blackburn 247 (US); Tomil 1., 50 ft [15 m], Hosaka 3268 (US, BISH, Fo); Dogol, Tuyama in 1939 (TJ); Takiol, Takamatsu 1853 (BISH).


Ponape: Colonia, Glassman 2773 (US, BISH); 1 m, Hatusima in 1939 (FU).

MARSHALL ISLANDS.—Kwajalein: Kwajalei 1, Fosberg 39487 (US, BISH, Fo).

A number of the above cited specimens that are slightly coarser, slightly larger flowered than the others have been indicated by Dr. Daniel Austin (pers. comm.) as probably representing a putative hybrid between Ipomoea lacunosa and Ipomoea trichocarpa, which has become widespread and which extraordinarily resembles Ipomoea triloba.

While we admit the possibility of such a hybrid (although neither parent is found anywhere near Micronesia) we cannot confidently distinguish these plants from Ipomoea triloba. Hence we prefer to continue to consider them within our circumscription of I. triloba until more convincing characters are pointed out to separate them.

The sheets in question are: from Saipan—Hosaka 3004, Fosberg 25261; from Guam—Fosberg 35447, 31936, Necker 214, 334, McGregor 450; from Yap—Hosaka 3268, Blackburn 274. The following two from Palau have not been examined by Austin, but may also belong with the above list, judging by flower size: Blackburn 202, Evans 549.

Merremia Dennst ed ex Hallier f.


Twiners; peduncles axillary, bearing flowers in cymes; corolla broadly funnelform or campanulate; stamens and style included; anthers (at least in Micronesian species) curved or spirally coiled; pollen grains smooth; stigmas 2, globose; capsule splitting into 4–many ovate to lanceolate valves.

This genus is difficult to distinguish convincingly from Ipomoea. Its chief, if not only, characters are smooth pollen grains and coiled anthers. The corolla is generally broader and has a rather different appearance; however the only good key characters are difficult to use without good specimens. It may be that the pollen grain surface has been given too much importance in this family, since there are so few correlated characters.

Merremia aegyptia (L.) Urban


Conspicuously pilose herbaceous twiner; leaves divided to base (or compound) into 5 narrowly obovate, acuminate leaflets; peduncles bearing loose dichasia with up to 9 flowers, small bracts; sepals ovate, conspicuously long-hirsute, except at tips; corolla white, about 2 cm long; capsule depressed-globose, about 12 mm high; seeds glabrous.
Key to Micronesian Species of *Merremia*

1. Leaves lanceolate, hastate at base
   - *M. tridentata ssp. hastata*
2. Leaves cordate, entire to deeply lobed or cut
   - *M. peltata*
2. Leaves not peltate
3. Leaves digitately divided into elliptic acuminate lobes
   - *M. aegyptia*  
4. Plant very hairy
   - *M. hederacea*  
4. Plant essentially glabrous
   - *M. tuberosa*
3. Leaves entire to trilobed or lyrate lobed
5. Leaves generally over 5 cm across; flowers 2.5 cm long
   - *M. umbellata*
5. Leaves generally less than 5 cm; flowers at most 2 cm long
6. Leaves with tuberculate petioles; corolla at most 1 cm long; outer sepals with mucro turned outward
   - *M. gemella*  
6. Petioles with few or no tubercles; corolla 1.5–2 cm long; outer sepals with mucro erect
   - *M. gemellus*

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*Merremia hederacea* (Burman f.) Hallier f.


*Xanthus hederaceus* Burman f., Fl. Ind., 77, t. 30, f.2, 1768.


Slender subglabrous or very sparsely pilose herbaceous twiner; leaves cordate, usually somewhat trilobate, acuminate, petiole longer than blade, generally without tubercles; peduncles usually longer than leaves to at least 12 cm, bearing an open dichasium of 3–9 (–11) flowers; sepals slightly pubescent, concave, ciliate, broad at apex, emarginate, shortly mucronate, mucro erect; corolla yellow, 1–2 cm long, anthers curved, capsule depressed-globose, wrinkled when dry; seeds puberulent.

Southeast Asia to Australia, in Micronesia found in Guam and Yap. Growing in open grassy places, weedy roadsides and other disturbed places.

Vernacular Name.—**îyetcor** (Guam: G.E.S. 18, Merrill, 1914)

Marianas Islands.—Guam: Marche 159 (P, Fo); Merrill, 1914:132 (citing Thompson 20); 2–3 km W of Yona, 100–130 m, Fosberg 35294 (US, BISH); few

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Pantropical, known in Micronesia only from Guam where it was first found after World War II. Grows generally in disturbed open places.

Marianas Islands.—Guam: Ritidian Pt., 10 m back of beach, *Anderson 227* (US, BISH, Fo, NY).

*Merremia gemella* (Burman f.) Hallier f.


*Convolvulus gemellus* Burman f., Fl. Ind., 46, t. 21, f.1, 1768.

Slender sparsely pilose herbaceous twiner; leaves cordate, usually somewhat trilobate, acuminate, petiole longer than blade, generally without tubercles; peduncles usually longer than leaves to at least 12 cm, bearing an open dichasium of 3–9 (–11) flowers; sepals slightly pubescent, concave, ciliate, broad at apex, emarginate, shortly mucronate, mucro erect; corolla yellow, less than 1 cm long; anthers curved, style subequal with corolla or slightly exserted; capsule conic to depressed-globose, wrinkled when dry; seeds puberulent.

Southeast Asia to Australia, in Micronesia known only from Guam where it is probably introduced; growing in disturbed places.

Vernacular Name.—**galili ne sîpan magacol** (Yap: Wong 470)

Geographic Records and Specimens Examined

Marianas Islands.—Guam: Marche 159 (P, Fo); Merrill, 1914:132 (citing Thompson 20); 2–3 km W of Yona, 100–130 m, Fosberg 35294 (US, BISH); few
miles N of Sumai, Conover 312 (BISH); lower Fonte River, W of Agaña, 4 m, Fosberg 31240 (US, BISH, Fo, NY, L); 4 mi [6.4 km] NE of Agaña, Rodin 549 (US); 2 mi [3.2 km] W of Agaña, Moore 162 (US); 1 mi [1.6 km] S of Piti, Moore 231 (US); Pity, Nelson 105 (NY); OSIR Rd., Apra Harbor, Stone 4722 (GUAM).

CAROLINE ISLANDS.—Yap: Wong 470 (US, Fo); Koidzumi in 1915 (TI); Volkens 1901:478 (citing Volkens 229).

**Merremia peltata** (L.) Merrill


Coarse glabrous twiner; leaves broadly cordate to orbicular, peltately attached, obtuse in general outline but very shortly and abruptly acuminate, strongly nerved; peduncles with a paniculate cyme of as many as 13 or more flowers; sepals glabrous, strongly concave or somewhat ventricose, to 2 cm long, obtuse, only slightly accrescent but becoming very firm and hard in fruit; corolla white or yellow, 5–6 cm long, obtuse, only slightly accrescent but becoming very firm and hard in fruit; corolla white or yellow, long, obtuse, only slightly accrescent but becoming very firm and hard in fruit; corolla white or yellow, long, obtuse, only slightly accrescent but becoming very firm and hard in fruit; corolla white or yellow, long, obtuse, only slightly accrescent but becoming very firm and hard in fruit; corolla white or yellow, long, obtuse, only slightly accrescent but becoming very firm and hard in fruit.

The distribution of the species is Indo-Pacific, from Africa to Tahiti; in Micronesia it is known from the Marianas—at least from Guam; Carolines—Palau, Yap, Truk, Ponape and Kusaie. It grows in forests and thickets. Both yellow- and white-flowered forms are known, the yellow-flowered form supposedly from the western part of the range. However, both colors are found in Micronesia, even on Ponape. The presence of this species in the Marianas is, to the best of our knowledge, not supported by any collection, even from Guam. A record from “Saipan, Tinian and Rota” by von Prowazek is considered wholly doubtful.

USES.—Christian says that the leaves and seeds are used as an abortifacient (Ponape: Glassman, 1952:100).

VERNACULAR NAMES.—


GEOGRAPHIC RECORDS AND SPECIMENS EXAMINED


CAROLINE ISLANDS.—Palau: Babeldaob: Garamisan colony, Garamisan (Almiokan) River, 0–20 m, Fosberg 25765 (US, BISH, Fo); Aimeleek Exp. Station, Kanehira 297 (NY); Nekken, Emmons 112 (US BISH); Airrai, Salsedo 416 (US); Madmosuk I. (W of Koror): 50 ft [15 m], Stone 1303 (BISH). Koror: Otobed 45 (US, BISH, Fo); T-dock road, 2 m, Fosberg 32610 (US, BISH, Fo); Sansaro, Salsedo 151 (US).

Yap: Tomil I., 75 ft [23 m], Hosaka 3301 (US, BISH, Fo, NY).

Truk: 600 ft [185 m], Wong 288 (US). Moen: edge of forest, 600 ft [185 m], Hosaka 3428 (US); Nob Hill, 100–150 m, Evans 1379 (US, HAW). Dublon and most other islets: Hosokawa, 1937:199. Ponape: Bascom 69 (US); Glassman, 1952:100 (citing Takamatsu 828 from Toleafuluka, Takamatsu 921 from Oa, and Takamatsu 1102 from Mt. Nanta); Toleafuluka, Mt. Seletereh, 650 ft [200 m], Glassman 2726 (US); Net District, 200 ft [60 m], Glassman 2769 (US); Mt. Peipalap, 500 ft [150 m], Glassman 2775 (US); Ipuak, 50 ft [15 m], open places in abandoned fields and coconut groves, Hosaka 3521 (US, BISH, Fo).

Kusaie: Lowest slopes and foot of Mt. Matante (Buache), S side, N of head of Lele harbor, Fosberg 26572 (US, BISH, Fo, NY, L); Mt. Matante, Hosokawa 9481 (A).
**Merremia tridentata** (L.) Hallier f.


The nominate subspecies is not found in Micronesia.

**Merremia tridentata** ssp. *hastata* van Ooststroom


*Convolvulus hastatus* Desrousseaux in Lamarck, *Encycl.*, 3:542, 1789 [non Forskål, Fl. Aeg.-Arab., 203, 1775].


Subglabrous herbaceous twiner with angled stems; leaves lanceolate with a cordate or hastate base, the basal lobes tending to be dentate, subsessile, a slightly tomentose area at base of blade attachment; peduncles with a 3-flowered cyme; sepals glabrous, ovate-lanceolate, acuminate; corolla about 1.5 cm long, yellow or white, funnelform; capsule subglobose, about 5 mm high, dehiscing irregularly from base or apex; seeds dark brown, glabrous.

Old World Tropics; in Micronesia collected thrice in Palau. Found in open places.


**Merremia tuberosa** (L.) Rendle


Coarse glabrous twiner; leaves digitately divided to about 1–1.5 cm from base, lobes elliptic strongly acuminate; peduncles about as long as leaves, bearing dichasium of about 7 flowers; sepals about 3 cm long, ovate to broadly elliptic, obtuse to rounded, glabrous, accrescent in fruit to as much as 7 cm long and becoming very hard and woody; corolla bright yellow, funnelform-campanulate, 5 cm long, stamens and styles included; anthers spirally twisted; capsule depressed globose, about 2 cm high; seeds dull black, hairy on angles.

Pantropical, mostly in cultivation, probably of tropical American origin; in Micronesia known only from Saipan, Tinian, Rota, and Guam, in all of which it is either in cultivation or around old house sites, and from Kwajalein, where it was seen growing in a pot.

Uses.—It is prized for its fruits surrounded by accrescent woody sepals, vaguely suggesting a rose and used in dried flower arrangements.

**Vernacular Names,**—wood rose, wooden rose (English) alarrak (Saipan: Hosokawa, n.d.)

**MARIANAS ISLANDS.**—Saipan: Hosokawa, n.d. (citing Tuyama 248, Momose s.n.)

Tinian: Carolinas Heights, seen by Stensland in 1951, not collected.


**MARSHALL ISLANDS.**—Kwajalein: seen growing in pot, 1956, by Fosberg.

**Merremia umbellata** (L.) Hallier f.


Pantropical, *M. umbellata* var. *umbellata* mostly American, and not found in Micronesia; variety *orientalis* from East Africa to Thailand, Malaysia, Queensland, and Tahiti and probably from Ponape in Micronesia.

**Merremia umbellata** var. *orientalis* Hallier f.


Plants collected in Ponape and determined by T. Tuyama as *M. elmeri* Merrill, a Bornean species, seem, from notes we made in 1953 on the specimens in the Tokyo University Herbarium, more likely to belong to *M. umbellata* var. *orientalis*, though the notes are not detailed enough to be certain. The brief description written in Tokyo from the Ponape specimens follows. “Large plant, leaves cordate, not peltate; inflorescence umbellate, longer than leaves; flowers about 2.5 cm long; fruit splitting into many valves of unequal width; seeds densely long-pilose.”
CAROLINE ISLANDS.—Ponape: Koidzumi in 1915 (TI); Matalanum, foot of Mt. Pagelkap, Okabe in 1941 (TI).

Operculina Manso


Coarse twining vines with large cordate leaves; cymes axillary, pedunculate, bracteate; sepals usually accrescent; corolla broadly funnelform to campanulate; stamens included, adnate to corolla tube, anthers becoming spirally twisted; style 1, included, stigmas 2, globose; ovary 2-celled, 2 ovules in a cell; fruit a capsule, the epicarp circumscissile, separating from the transparent endocarp, this eventually breaking irregularly.

A pantropical genus with two species in Micronesia, one probably native, the other introduced from America.

Key to Micronesian Species of Operculina

<table>
<thead>
<tr>
<th>Key</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stems strongly angled or alate; bracts 1.5–2 cm long</td>
<td>O. turpethum</td>
</tr>
<tr>
<td>Stems terete; bracts well over 2 cm long</td>
<td>O. ventricosa</td>
</tr>
</tbody>
</table>

Operculina turpethum (L.) Manso


Coarse subglabrous twiner with strongly angular or winged stems; leaves orbicular, cordate with a broad sinus, obtuse to rounded at apex, puberulent; peduncles with 1–3 flowers, pedicels becoming very thick, 3–4 cm long, bracts early caducous, less than 2 cm long; sepals orbicular, 2–3 cm long, sericeous, apex rounded, sharply mucronate, somewhat accrescent; corolla broadly campanulate, 5–6 cm long; capsule globose, about 1.5 cm long or somewhat larger; seeds black, glabrous.

Old World Tropics, widespread in the Pacific islands; in Micronesia known from the Carolines—Palau, Fais, Woleai(?), Ifaluk, Truk, Namoluk, Ponape, and Kusaie, with an old record purporting to be this species from Tinian, no doubt based on the Gaudichaud specimen cited below (Choisy, 1833:450). It is a vigorous liana growing in edges of forests, thickets and especially disturbed places. After World War II skeletons of dead trees in areas of heavy fighting on Pelilui, for example, were so covered by this vine as to appear to be living trees.

VERNACULAR NAMES.—besbus (Palau: Fosberg 47471)
chonguched arkung (Palau: Hardy 42)
ligatchog (Woleai: Alkire, 1974)

Operculina ventricosa (Bertero) Peter

**Consolea ventricosa** Bertero in Colla, Hort. Ripul., 57. 1824 [non Silva Manso, Enum. Subst. Braz., 20, 1856].

Very coarse, extensive, appressed pubescent twiner, stems terete; leaves very large, to 30 cm or more across, orbicular cordate, very shortly acuminate, petioles 15–20 cm long; peduncles stout, to 30 cm long, with compact cymes of up to 7 flowers; bracts conspicuous, orbicular to oval, membranous, concave, pubescent, somewhat persistent, 2.5–4 cm long; sepals orbicular, obtuse, mucronulate, accrescent; corolla white, campanulate or broadly funnelform, about 5 cm long; stamens strongly included, pollen spinulose; stigmas 2, globose; capsule completely enclosed by accrescent calyx, globose, 4-celled, the septa with transverse wings, wall thin, irregularly dehiscent leaving the septa and their wings enclosing seeds; seeds pubescent.

A native of tropical America but has been present in Micronesia, in the Marianas, for a long time—it was collected by Marche in 1887 or 1888 on Pagan; known from Asuncion, Agrigan, Pagan, Alamagan, Anatahan, Saipan, Tinian, and Guam. Common in disturbed places, climbing in thickets and covering the ground in great mats; it has only recently become common in Guam, where it has been collected repeatedly near Northwest Field, beginning in World War II. It may have been introduced there from Saipan or Tinian on aircraft at that time. In recent years it has been collected here and there farther south on the island. M. V. C. Falanruw informs us that it had become quite common by 1967 and 1968.

**Geographic Records and Specimens Examined**

**Marianas Islands.**—Asuncion: lower SW slope, 150 ft [45 m], *Falanruw 2251* (US, BISH).

Agrigan: Trail around S side of island, *Falanruw 31617* (US); mid-west coast, 200 ft [60 m], *Falanruw 2329* (US).


Alamagan: Vicinity of Asongsong village, *Fosberg 31722* (US, BISH); SSW coast, below 500 ft [150 m], *Falanruw 19939* (US).

Saipan: *Evans 34* (US); *Lange 10* (BISH); Army Hill, *Courage 54* (US); *Enarpi Point, Lange 35* (BISH); just S of Garapan, *Fosberg 25215* (US, BISH, Fo); Kannat Laulau, above Magicienne Bay, 75 m, *Fosberg 31273* (US, BISH, Fo, NY, L).

Tinian: N end of island, 100 ft [30 m], *Hosaka 2857* (US, BISH, Fo); S end of S plateau, *Kondo 9* (BISH); Marpo Valley, E of Tinian (former town), 60 m, *Fosberg 24812* (US, BISH, Fo, NY, L).

Rota: Slopes above As Malote, S side of island, 250 m, *Fosberg 31876* (US); Sasan Haya Bay, 10–30 m, *Sachet 1766* (US, BISH, Fo, NY, L); track from Poniya Pt, 350–500 m, *Evans 2191* (US, HAW, Fo, K).

Guam: 1 mi [1.6 km], S of Ritidian Point, *Moran 4523* (UC, BISH, Fo); N of Northwest Field, 500 ft [150 m], *Steere 168* (US); Northwest Field, 185 m, *Fosberg 35384* (US, BISH, Fo, NY, L); ½ mile [0.8 km] E of Barrigada and Pagat Point Area, 400–600 ft [120–180 m], *Moore 56* (US); Melojloj, 50 m, *Evans 1474* (US, HAW, Fo, MO, NY); Merizo and Aglayan Bay, *Stone 4911* (GUAM).

**Stictocardia Hallier f.**


Large twiners; leaves glandular beneath; peduncles axillary, bearing cymes; sepals elliptic to orbicular, greatly accrescent and thickened in fruit; corolla funnelform-campanulate; stamens and style included, pollen spinulose; stigmas 2, globose; capsule completely enclosed by accrescent calyx, globose, 4-celled, the septa with transverse wings, wall thin, irregularly dehiscent leaving the septa and their wings enclosing seeds; seeds pubescent.

The genus differs from *Ipomoea* only in the glandular leaves, the thickened closed fruiting calyx, and the structure of the capsule. A few species of *Ipomoea* also have glandular leaves, but none of these species are Micronesian.

Pantropical, with one species in Micronesia.

**Stictocardia campanulata** (L.) Merrill

Ipomoea tiliaefolia (Desrousseaux) Roemer & Schultes, Syst. Veg., 4:229, 1819.
Ricea campanulata (L.) House, Muhlenbergia, 5:72, 1909.

Extensive but rather slender, short-pubescent twiner; leaves broadly ovate cordate with open sinus, apex slightly blunt-acuminate; peduncles 1-, rarely 3-flowered, mostly shorter than leaves; sepals about 15 mm long, the inner exceeding outer, almost truncate, remotely ciliate, enormously accrescent antl becoming thick and spongy and completely enclosing the fruit; corolla delicate, lavender, narrowly campanulate but strongly flaring, 8–10 cm long, stamens and style included; fruiting sepals 4 cm long, closely investing capsule, capsule about 2.5–3 cm long, globose: seeds brown, shortly and sparsely sericeous.

Pantropical, widespread in the Pacific Islands; in Micronesia known from the Marianas—Alamagan, Sarigan, Anatahan, Saipan, and Guam; and the Carolines—Palau. Growing in thickets and edges of forest, its large lilac flowers are very conspicuous.

Uses.—The children string the flowers on strings and sticks and are very fond of them as ornaments; the name “abubo” applies only to the flowers (Guam: Safford, 1905).

Vernacular Names.—
abubo (Guam: Safford, 1905; Merrill, 1914)
abubu (Guam: Whiting Cl6a)
abubu a las doce (Guam: Whiting, ms., 1965)
abuto apaca (Guam: Nelson 368)
alalag (Guam: Safford, 1905; Merrill, 1914)
alalag abubu (Guam: Nelson 259)
alalak (Guam: Nelson 48)

Synonyms and Excluded or Misapplied Names
Anisemia hastata Meissner. See Ipomoea setifera var. shimmer-sepala (Choisy) Fosberg
Argyreia tiliaefolia (Desrousseaux) Wight. See Stictocardia campanulata (L.) Merrill
Batatas Choisy. See Ipomoea L.
Batatas crassicaulis Bentham. See Ipomoea fistulosus Martius ex Choisy
Calonyction Choisy. See Ipomoea L.
Calonyction aculeata (L.) House. See Ipomoea alba L.
Calonyction album (L.) House. See Ipomoea alba L.
Calonyction album sensu Merrill, Hosokawa. See Ipomoea macrantha Roemer & Schultes
Calonyction bona-nox (L.) Bojer. See Ipomoea alba L.
Calonyction bona-nox sensu Schumann & Lauterbach. See Ipomoea macrantha Roemer & Schultes
Calonyction comospermum Bojer. See Ipomoea macrantha Roemer & Schultes
Calonyction speciosum sensu Engler. See Ipomoea macrantha Roemer & Schultes
Calonyction tuba (Schlechtendal) Colla. See Ipomoea macrantha Roemer & Schultes
Convulvulus aculeatus L. See Ipomoea alba L.
Convulvulus alsinoides L. See Evolvulus alsinoides (L.) L.
Convulvulus batatas L. See Ipomoea batatas (L.) Lamarr
Convulvulus brasiliensis L. See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Convulvulus coerulescens sensu Safford. See Ipomoea indica (Burman) Merrill
Convulvulus congestus (R. Brown) Sprengel. See Ipomoea indica (Burman) Merrill
Convulvulus denticulatus Desrousseaux. See Ipomoea litoralis Blume
Convulvulus gemellus Burman f. See Merremia gemella (Burman f.) Hallier f.
Convulvulus hastatus Desrousseaux. See Merremia tridentata ssp. hastata van Ooststroom

Geographic Records and Specimens Examined
MARIANAS ISLANDS.—Alamagan: around Partido village, Fosberg 31696 (US).
Sarigan (Saligan): Kanehira 2170 (NY); ridge near anchorage, 300 ft [90 m], Falanruw 1761 (US).
Anatahan: W coast, below 200 m, Falanruw 1706 (US).
Saipan: Kanehira 946 (NY, FU); 3823 (FU).
Guam: Merril, 1914:135–136; Marche 158 (P, Fo); G.E.S. 93 (US, BISH, NSW); Nelson 405 (BISH), 239 (BISH), 368 (BISH, NY); Whiting C16a (US); Gognga Beach, Tumon Bay, 2 m, Fosberg 43496 (US, BISH, Fo); Inarajan, March 238 (P); E coast, 2 mi [3.2 km] E of Yigo, Moore 272 (US); 1 km S of Barrigada, Fosberg 35287 (US, BISH, Fo, NY, L); Yigo, Nelson 48 (US); near Pago Bay, Stone 4313 (US, GUAM); La Cienaga, Stone 4926 (GUAM); Mocho, Stone 4955 (GUAM).
Convolvulus hederaceus sensu Merrill. See Merremia hederacea (Burman f.) Hallier f.
Convolvulus hederaceus sensu Safford. See Ipomoea indica (Burman) Merrill
Convolvulus indicus Burman. See Ipomoea indica (Burman) Merrill
Convolvulus mariannensis Gaudichaud ex Safford. See Ipomoea triloba L.
Convolvulus maritimus Desrousseaux. See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Convolvulus martiniennis Jacquin. See Anisaea martiniennis (Jacquin) Choisy
Convolvulus maximus sensu auct. See Ipomoea sepiaria Koenig ex Roxburgh
Convolvulus nil sensu Safford. See Ipomoea indica (Burman) Merrill
Convolvulus obscurus L. See Ipomoea obscura (L.) Ker-Gawler
Convolvulus paniculatus L. See Ipomoea mauritiana Jacquin
Convolvulus peltatus L. See Merremia peltata (L.) Merrill
Convolvulus penatus Desrousseaux. See Ipomoea quamoclit L.
Convolvulus pes-caprae L. See Ipomoea pes-caprae (L.) R. Brown
Convolvulus tiliaefolius Desrousseaux. See Stictocardia campyanulata (L.) Merrill
Convolvulus tridentatus L. See Merremia tridentata (L.) Hallier f.
Convolvulus trilobatus Gaudichaud. See Ipomoea triloba L.
Convolvulus tuba Schlechtendal. See Ipomoea macrantha Roemer & Schultes
Convolvulus turpethum L. See Operculina turpethum (L.) Manso
Convolvulus umbellatus L. See Merremia umbellata (L.) Hallier f.
Convolvulus ventricosus Bertero. See Operculina ventricosa (Bertero) Peter
Ericybe sp. The Kusaie record in Kanehira’s Enumeration, 1935:398, is based on a specimen of Embelia sp.
Evolutus hederaceus Burman f. See Merremia hederacea (Burman f.) Hallier f.
Ipomoea aegyptia L. See Merremia aegyptia (L.) Urban
Ipomoea alba sensu Taylor. See Ipomoea macrantha Roemer & Schultes
Ipomoea angulata Lamarck. See Ipomoea hederifolia L.
Ipomoea biloba sensu Safford. Okabe. See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Ipomoea bono-nox L. See Ipomoea alba L.
Ipomoea bono-nox sensu Guillaumin. See Ipomoea macrantha Roemer & Schultes
Ipomoea brasiliensis (L.) Sweet. See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Ipomoea campanulata L. See Stictocardia campanulata (L.) Merrill
Ipomoea choisiana Wright ex Safford (I. choisiana Merrill, spha.,). See Ipomoea littoralis Blume
Ipomoea coccinea sensu auct. plurr. See Ipomoea hederifolia L.
Ipomoea congesta R. Brown. See Ipomoea indica (Burman) Merrill
Ipomoea crassicaulis (Bentham) Robinson. See Ipomoea fistilosa Martius ex Choisy
Ipomoea denticulata (Desrousseaux) Choisy. See Ipomoea littoralis Blume
Ipomoea digitata sensu Hosokawa, Glassman. See Ipomoea mauritiana Jacquin
Ipomoea fimbriosepala Choisy. See Ipomoea setifera var. fimbriosepala (Choisy) Fosberg
Ipomoea glaberrima Bojer ex Bouton. See Ipomoea macrantha Roemer & Schultes
Ipomoea gracilis sensu auct. plurr. See Ipomoea littoralis Blume
Ipomoea gracilis sensu Glassman. See Ipomoea macrantha Roemer & Schultes
Ipomoea grandiflora sensu auct. See Ipomoea macrantha Roemer & Schultes
Ipomoea hederacea sensu auct. See Ipomoea indica (Burman) Merrill
Ipomoea insularis (Choisy) Steudel. See Ipomoea indica (Burman) Merrill
Ipomoea longiflora R. Brown. See Ipomoea macrantha Roemer & Schultes
Ipomoea mariannensis Choisy. See Ipomoea triloba L
Ipomoea maritima (Desrousseaux) R. Brown. See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Ipomoea maxima sensu auct. plurr. See Ipomoea sepiaria Koenig ex Roxburgh
Ipomoea paniculata (L.) R. Brown. See Ipomoea macrantha Roemer & Schultes
Ipomoea peltata (L.) Choisy. See Merremia peltata (L.) Merrill
Ipomoea pes-caprae sensu auct. plurr. [most Pacific authors].
  See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Ipomoea purga sensu Okabe. See Ipomoea pes-caprae ssp. brasiliensis (L.) van Ooststroom
Ipomoea reptans sensu auct. See Ipomoea aquatica Forskål
Ipomoea tiliaefolia (Desrousseaux) Roemer & Schultes. See Stictocardia campanulata (L.) Merrill
Ipomoea triloba var. [Gaudichaud 169 (G)]. See Ipomoea littoralis Blume
Ipomoea tuba (Schlechtendal) G. Don. See Ipomoea macrantha Roemer & Schultes
Ipomoea tuberosa L. See Merremia tuberosa (L.) Rendle
Ipomoea turpethum (L.) R. Brown. See Operculina turpethum (L.) Manso
Letissima Roxburgh. See Argyreia Loureiro
Merremia convolvulaeae Dennstelt. See Merremia hederacea (Burman f.) Hallier f.
Merremia elmeri Merrill. See Merremia umbellata (L.) Hallier f.
Merremia hastata Hallier f. See Merremia tridentata ssp. hastata van Ooststroom
Merremia umbellata sensu Kanehira. See Operculina turpethum (L.) Manso
Operculina peltata (L.) Hallier f. See Merremia peltata (L.) Merrill
Operculina tuberosa (L.) Meissner. See Merremia tuberosa (L.) Rendle
Pharbitis Choisy. See Ipomoea L.
Pharbitis congesta (R. Brown) Hara. See Ipomoea indica (Burman) Merrill
Pharbitis hederacea sensu Safford. See Ipomoea indica (Burman) Merrill
Pharbitis insularis Choisy. See Ipomoea indica (Burman) Merrill
Pharbitis nil sensu Safford. See Ipomoea indica (Burman) Merrill
Quamoclit Moench. See Ipomoea L.

Quamoclit coccinea sensu auct. plur. See Ipomoea hederifolia L.
Quamoclit pennata (Desrousseaux) Bojer (Q. pinnata Bojer, sphalm.) See Ipomoea quamoclit L.
Quamoclit quamoclit (L.) Britton. See Ipomoea quamoclit L.
Rivea sensu Merrill. See Stictocardia Hallier f.
Rivea campanulata (L.) House. See Stictocardia campanulata (L.) Merrill
Rivea tiliaefolia (Desrousseaux) Choisy. See Stictocardia campanulata (L.) Merrill
Stictocardia tiliaefolia (Desrousseaux) Hallier f. See Stictocardia campanulata (L.) Merrill
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