

**SOME COMPOSITAE OF SOUTHEASTERN  
POLYNESIA**

**(Bidens, Coreopsis, Cosmos, and Oparanthus)**

**By**

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# SOME COMPOSITAE OF SOUTHEASTERN POLYNESIA

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## INTRODUCTION

No attempt will be made here to describe in detail the Bishop Museum's recent expedition to the Mangareva Islands and neighboring islands of Polynesia. I must, however, express my gratitude to the authorities of Bishop Museum, particularly Dr. Herbert E. Gregory, formerly Director, and Mr. Edwin H. Bryan, Jr., Curator of Collections, for having placed at my disposal the valuable materials assembled on this expedition; also Dr. Peter H. Buck, present Director, for courtesies extended in the publication of this paper.

To facilitate reference, the specimens are cited according to the islands where they were collected. A complete set of these specimens will be found in the herbarium of Bishop Museum, and many duplicates have been given to other institutions, especially the Field Museum of Natural History, Chicago.

## FANNING ISLAND

### ***Bidens pilosa* L.**

English Harbor, weed around settlement, altitude 1 meter, April 21, 1934, Harold St John and F. R. Fosberg 11001.

## FLINT ISLAND

### ***Bidens pilosa* variety *minor* (Bl.) Sherff**

Copra plantation, October 16, 1934, Harold St. John and F. R. Fosberg 17453.

## SOCIETY ISLANDS

### TAHAA

### ***Bidens australis* Spreng.**

Mount Purauti, east ridge, in thicket on steep ridge, shrub 3 meters tall with many divergent branches, altitude 500 meters, October

<sup>1</sup> Mangarevan Expedition Publication 12.

11, 1934, Harold St. John 17398 (sterile but with dried remains of previous season's inflorescence).

### TAHITI

#### ***Bidens orofensis*** M. L. Grant, new species (pl. 1).

Frutex  $\pm$  m altus, caule basi  $\pm$  6 mm crasso; ramulis crassis sub inflorescentia circ. 3 mm diametro, tomentuloso-canaliculatis, brunneis. Folia opposita, petiolata petiolis alatis glabris 1-2 cm longis, petiolo adjecto 10-13.5 cm longa et 2-3 cm lata, membranacea, lanceolata vel elliptico-lanceolata, apice acriter acuminata, basi cuneato-acuminata, perspicue serrata (dentibus patentibus, 10-26 pro utroque latere), glabra. Inflorescentia terminalis corymbiformis non vel pro parte parva exserta, pedunculis glabris 5-9 cm longis. Capitula radiata, pansa ad anthesin 17-23 mm lata et 7-10 mm alta. Involucri bracteae exteriores circ. 7 vel 8, adpressae, oblonge lineares vel lineari-oblancoolatae, apice subacutae, tergo 3-nerviae, glabrae, 8-12 mm longae et 2-2.5 mm latae, quam interiores lanceolatae extus sparsim puberulentae intus apice tomentulosae manifeste longiores. Flores ligulati (fide lectorum) pauci, parvi, flavi. Paleae lineari-oblongae,  $\pm$  5.3 mm longae et  $\pm$  1 mm latae. Disci flores flavi, 7 mm longi. Achaenia submatura oblonge linearia, basim versus angustata, plana vel costis medianis perspicuis subtetragona, dorsaliter (ut ventraliter) subobscurae 4-sulcatae, porriginosa, maxima ex parte atra, corpore circ. 4 mm longa et 1-1.2 mm lata, perspicue biaristata; aristis vix sub apice ortis, divergentibus, apicem versus retrorsum infra antrorsum vel subantrorsum brevissimi-barbatis, circ. 2 mm longis.

Shrub  $\pm$  1 meter tall, stem  $\pm$  6 mm thick at base; branchlets thick, about 3 mm in diameter under the inflorescence, tomentulose-channeled, brown. Leaves opposite, petiolate (petioles winged, glabrous, 1-2 cm long), including petiole 10-13.5 cm long and 2-3 cm wide, membranaceous, lanceolate or elliptic-lanceolate, at apex sharply acuminate, at base cuneate-acuminate, conspicuously serrate with 10-26 spreading teeth on each side, glabrous. Inflorescence terminal, corymbiform, not or only in small part exserted, the glabrous peduncles 5-9 cm long. Capitula radiate, at anthesis 17-23 mm wide and 7-10 mm tall. Involucre's exterior bracts about 7 or 8, appressed, oblong-linear or linear-oblancoolate, apically subacute, dorsally 3-nerved, glabrous, 8-12 mm long and 2-2.5 mm wide; interior bracts lanceolate, outwardly somewhat puberulent, inwardly at apex tomentulose, manifestly shorter. Ligulate florets (according to the collectors) few, small, yellow. Paleae linear-oblong,  $\pm$  5.3 mm long and  $\pm$  1 mm wide. Disc florets yellow, 7 mm long. Achenes (submature) oblong-linear, toward base narrowed, flat or with median ribs conspicuous and thus somewhat tetragonal, dorsally (as also on ventral surface) subobscurae 4-sulcate, scurfy, for the most part grayish-black, as to body proper about 4 mm long and 1-1.2 mm wide, noticeably biaristate; aristae arising slightly below the extreme apex, divergent, about 2 mm long, toward apex retrorsely but beneath antrorsely or subantrorsely barbed with very short barbs.

South ridge of Mount Orofena, on summit and shaded sides of steep ridge, altitude 2,020 meters, September 24, 1934, H. St. John and F. R. Fosberg 17068 (type in Bishop Museum).

*Bidens orofenensis* belongs to section *Campylotheca* (Cass.) Nutt., near to *B. australis* Spreng., *B. glabrata* (A. Gray) Sherff, *B. hawaiiensis*, A. Gray, and *B. Mathewsii* Sherff.

## TUAMOTU ISLANDS

## ANAA

**Bidens pilosa** L.

Tukuhora, altitude 2 meters, in open woods on coral sand, May 13, 1934, Harold St. John 14265 (local name, *mirc*).

## MANGAREVA ISLANDS

## MANGAREVA

**Bidens pilosa** L.

South of Rikitea, by roadside, erect weed 1 meter tall, altitude 50 meters, May 25, 1934, Harold St. John 14529.

Rikitea, by village street, erect weed, altitude 3 meters, May 25, 1934, Harold St. John 14532.

**Coreopsis lanceolata** L.

Chapel (king's tomb), cemetery, cultivated, altitude 100 meters, May 28, 1934, F. R. Fosberg 11045.

**Coreopsis tinctoria** Nutt.

Rikitea, cultivated, altitude 1 meter, May 30, 1934, F. R. Fosberg 11055 (local name, *vic*).

## AKAMARU

**Bidens pilosa** L.

By path on north side of island, erect weed 1 meter tall, altitude 3 meters, May 29, 1934, Harold St. John 14692 (local name, *taru*).

## AGAKAUTAI

**Bidens pilosa** L.

East side of island, crevice of basalt ledge, altitude 3 meters, June 8, 1934, Harold St. John 14908.

## AUKENA

***Bidens pilosa* L.**

Point Mata Kuiti, basalt ledges, erect plant 1 meter tall, altitude 3 meters, May 28, 1934, Harold St. John 14626 (local name, *taru*).

## TARAVAI

***Bidens pilosa* L.**

Northeast end of island, common by paths in village, erect introduced weed 1 meter tall, altitude 5 meters, June 1, 1934, Harold St. John 14809.

## HENDERSON ISLAND

***Bidens henderonensis*, new species (pl. 2).**

Frutex arborescens  $\pm 4$  m altus, glaber; caule inferne circ. 2.5 cm crasso, cortice pallido-brunnea, ligno exteriore albo, medulla alba. Folia opposita tenuiter petiolata petiolis 1-2.5 cm longis, petiolo adjecto plerumque 5-8 cm longa et 2-3 cm lata, membranacea, oblongo-ovata, apice obtusa et breviter mucronata, basi late cuneata vel raro subrotundata, leviter serrata dentibus breviter cuspidatis. Capitula multa, laxe corymbosa pedicellis tenuibus glabris saepius 1-4 cm longis, radiata, pansa ad anthesin tantum circ. 1 cm lata et circ. 7 mm alta. Involucri minute subsparsumque pubescentis bractae exteriores 4-6, plus minusve oblongae, crassiusculae, apice subcutae, circ. 2-2.5 mm longae; interiores oblongae, circ. 4-5 mm longae. Flores ligulati circ. 5, flavi, ligula obovati, sub 5 mm longi. Paleae lineares, apice acutae, demum usque ad 1.2 cm longae. Achaenia anguste oblongo-lineararia, obcompressa, nigra, utraque facie 4-sulcata et plerumque glabra, marginibus exalatis erecte setosa, corpore 7-10 mm longa et circ. 1 mm lata, apice biaristata aristis retrorsum hamosis et  $\pm 1$  mm longis.

Arborescent shrub  $\pm 4$  meters high, glabrous; stem about 2.5 cm thick near bottom, its bark pale brown, sapwood and pith white. Leaves opposite and slenderly petiolate with petioles 1-2.5 cm long, including petioles commonly 5-8 cm long and 2-3 cm wide, membranaceous, oblong-ovate, obtuse and shortly mucronate at apex, at base widely cuneate or rarely subrotundate, lightly serrate with teeth shortly cuspidate. Capitula many, loosely corymbose (the slender and glabrous pedicels more often 1-4 cm long), radiate, at anthesis only about 1 cm wide including rays and about 7 mm tall. Involucre minutely mucronate and subsparsum pubescent; its exterior bracts 4-6, more or less oblong, thickish, apically subacute, about 2-2.5 mm long; interior bracts oblong, about 4-5 mm long. Ligulate florets about 5, yellow, under 5 mm long, ligule obovate. Paleae linear, apically acute, finally up to 1.2 cm long. Achenes narrowly oblong-linear, obcompressed, black, on each face 4-sulcate and commonly glabrous, at margins exalate and erectly setose, the body 7-10 mm long and about 1 mm wide, apically biaristate with aristae retrorsely barbed and  $\pm 1$  mm long.

North end of island, in jungle on elevated, dissected coral, altitude 33 meters, June 17, 1934, Harold St. John and F. R. Fosberg 15107 (two type sheets in Bishop Museum).

***Bidens hendersonensis* variety *subspathulata*, new variety (pl. 3).**

Frutex 1.5-7 m altus, interdum arborescens. Folia petiolo tenui 1-2.5 cm longo adjecto plerumque 4-10 cm longa, lamina diverse subspathulata (nunc plus minusve rhomboideo-oblonga, nunc rhomboidee oblanceolata, nunc lanceolato-spathulata), apice subobtusata vel subacuta, basi late vel anguste cuneata, margine leviter pauciterque crenato-serrulata. Capitula laxius disposita. Achaenia confertius setosa.

Shrub 1.5-7 meters tall, at times arborescent. Leaves 4-10 cm long including the slender petiole (this 1-2.5 cm long); blade variously subspatulate (now more or less rhomboid-oblong, now rhomboidally oblanceolate, now lanceolate-spatulate), at apex subobtusate or subacute, at base widely or narrowly cuneate, at margin shallowly and crenately few-toothed. Capitula more loosely disposed. Achenes more densely setose.

North center of island, open place in jungle on elevated, dissected coral, altitude 30 meters, bush 1.5 meters tall, June 20, 1934, Harold St. John and F. R. Fosberg 15173 (type in Bishop Museum).

Two additional collections by the same collectors (nos. 15155 and 15171) have larger and less or much less spatulatoid leaves than has the type but are identical with it in floral and achenial characters.

OENO ISLAND

***Bidens hendersonensis* variety *oenensis*, new variety (pl. 4).**

Fruticosa, decumbens vel erecta, 1-3 m alta, caule basi circ. 2.5 cm crasso. Folia tenuiter petiolata petiolis 1-3 cm longis, petiolo adjecto plerumque 7-13 cm longa et 3-5.3 cm lata, membranaceissima, subpallida, oblongo-ovata, apice obtusa vel subacuta, basi late cuneata vel raro subrotundata, leviter dentata vel obsolete crenato-denticulata dentibus minute cuspidatis. Capitula pauca (saepius 3-5-adgregata), tenuiter pedunculata pedunculo glabro  $\pm$  4 cm longo, pansa ad anthesin circ. 1.5 cm lata et circ. 8 mm alta. Involucri bractee exteriores 8-10, oblongo-obovatae, apice acutae vel subacutae, glabratae vel minutissime glanduloso-pubescentes, 2-3 mm longae; interiores oblonge ovatae, apice puberulentae, 4-6 mm longae. Flores ligulati ligula obovati, apice obscure denticulati,  $\pm$  6 mm longi. Achaenia marginibus et saepe costa mediana erecto-setosa setis subflavidis, biaristata (vel obsolete triaristata) aristis erectis retrorsum hamosis  $\pm$  1.5 mm longis.

Fruticose, decumbent or erect, 1-3 meters tall, stem about 2.5 cm thick near base. Leaves slenderly petiolate with petioles 1-3 cm long, including petioles commonly 7-13 cm long and 3-5.3 cm wide, very thin, somewhat pallid, oblong-ovate, apically obtuse or subacute, basally broad-cuneate or rarely subrotundate, shallowly dentate or obsoletely crenate-denticulate with minutely

cuspidate teeth. Capitula few (more often 3-5-aggregated), slenderly pedunculate (peduncle glabrous,  $\pm 4$  cm long), at anthesis about 1.5 cm wide and about 8 mm tall. Exterior involucre bracts 8-10, oblong-obovate, apically acute or subacute, glabrate or very minutely glandular-pubescent, 2-3 mm long; interior bracts oblong-ovate, apically puberulent, 4-6 mm long. Ligulate florets obscurely denticulate at apex,  $\pm 6$  mm long, the ligule obovate. Achenes marginally and often also upon the median rib erect-setose with yellowish setae, biaristate (or very obsoletely triaristate), aristae erect, retrorsely barbed,  $\pm 1.5$  mm long.

Under *Tournefortia* trees, altitude 2 meters, June 23, 1934, Harold St. John and F. R. Fosberg 15183 (type in Bishop Museum).

*Bidens hendersonensis* and its varieties belong to section *Campylothecha* (Cass.) Nutt., near to *B. hivoana* Deg. and Sherff, *B. australis* Spreng., and *B. Lantanoides* A. Gray.

#### PITCAIRN

##### **Bidens Mathewsii** Sherff.

St. Paul's Point, spreading in rock crevices at top of cliffs, June 14, 1934, F. R. Fosberg and Roy Clark 11276 (local name, *alchau*; leaves with parsnip odor).

Summit of precipice above The Rope, on steep turf slopes, trailing shrub, altitude 200 meters, June 14, 1934, Harold St. John 15003 (local name, *ahlechau*; foliage with sweet odor of *Alyxia olivaciformis*).

##### **Bidens pilosa** L.

Adamstown, weed by roadside, altitude 80 meters, June 13, 1934, F. R. Fosberg and B. Christian 11175.

Middle Hill, weed in cultivated field, June 14, 1934, F. R. Fosberg and Roy Clark 11326.

#### AUSTRAL ISLANDS

##### RAIVAVAE

##### **Bidens pilosa** L.

Raiurua, introduced weed by roadside, altitude 5 meters, August 3, 1934, Harold St. John and F. R. Fosberg 15875.

Hotuatua Islet, dry hillside, common, altitude 10 meters, August 11, 1934, Harold St. John and S. G. Wight 16120.



## RIMATARA

**Bidens pilosa** L.

Anapoto, at side of path in sandy woods, introduced, altitude 3 meters, September 4, 1934, Harold St. John and F. R. Fosberg 16854 (an atypic, shade form, approaching *B. bipinnata* L. in characters of the fruiting heads).

## TUBUAI

**Bidens pilosa** L.

Mataura, roadside, introduced weed, altitude 3 meters, August 15, 1934, Harold St. John and F. R. Fosberg 16277.

**Bidens pilosa** variety **minor** (Bl.) Sherff

Mataura, roadside, common, introduced weed, 1 meter tall, altitude 3 meters, August 15, 1934, Harold St. John and F. R. Fosberg 16275.

**Coreopsis tinctoria** Nutt.

Mataura, cultivated, altitude 1 meter, August 16, 1934, F. R. Fosberg 11809.

## RURUTU

**Cosmos sulphureus** Cav.

Moerai, cultivated, altitude 2 meters, August 29, 1934, F. R. Fosberg 11969.

## RAPA

**Bidens pilosa** L.

Valley 0.4 mile east of Ahurei, in coffee plantation, introduced weed, 1 meter tall, altitude 25 meters, July 1, 1934, Harold St. John 15269.

Genus **OPARANTHUS**, new genus

*Chrysogonum* section *Quadrimera* F. Brown: B. P. Bishop Mus.,

Bull. 130, p. 341, 1935.

Arbores parvae frutescens; foliis oppositis, simplicibus, integris vel obscure dentatis, petiolatis. Capitula heterogama; involucri paucibracteato bracteis plus minusve biseriatis; receptaculo plano vel vix convexo, demum (post casum palearum) valde cartilagineo-reticulato et plus minusve subspinulososetoso; floribus ligulatis minutis, fertilibus, styli ramis 2, achaeniis valde obcompressis marginibus acutis alatisve ventre plerumque carinato apice fere truncato vel (nunc alis carinaeque in 2 vel 3 aristas productis) bi- vel triaristatis; disci floribus tubulosis, corolla plerumque 4-lobatis, antheris basi integris vel minute

2-lobatis, styli ramis non vel paulum exsertis non distantibus, achaeniis sterilibus.

Shrubs or small trees; leaves opposite, simple, entire or obscurely dentate, petiolate. Capitula heterogamous; the few involucreal bracts more or less biseriata; receptacle flat or slightly convex, finally (after fall or removal of paleae) very cartilaginous-reticulate and more or less subspinulose-setose; ligulate florets minute, fertile, their style branches 2, achenes dorso-ventrally much compressed and acute or alate at edges (ventral surface commonly carinate; apex almost truncate or bi- or triaristate, the aristae arising as extensions of the keel or wings or both); disc florets tubular, corolla commonly 4-lobed, anthers at base entire or minutely 2-lobed, style branches not or slightly exserted and not separating, achenes sterile.

**Oparanthus intermedius**, new species (pl. 5).

Frutex erectus, omnino glaber,  $\pm 4$  m altus, habitu *Oparantho rapensis* similis. Folia opposita petiolata petiolo tenui plerumque 2-4.5 cm longo; lamina ovata vel subrotundo-ovata, apice obtusa, basi late cuneata vel rotundata vel raro fere subcordata, margine indurato-subrevoluto obscure sinuato-dentata, 6-10.5 cm longa et aequaliter vel subaequaliter lata, coriacea, venis lateralibus primariis 7-10 pro utroque latere secundariis saepe numerosioribus. Capitula pauciora saepius 6-10 pro utraque inflorescentia, fibrato-pedunculata (pedicellis crassiusculis fibratis plerumque sub 2 cm longis basi breviter lateraliterque subindurato-bracteatis), radiata,  $\pm 8$  mm alta et demum 0.8-1.3 cm lata. Involucri bractee subaequales 6-9; exteriores late vel subrotunde ovatae,  $\pm 5$  mm longae et  $\pm 4$  mm latae, non vel parce crassiusculae, margine saepe subdiaphanae, aliter in herbario atrae; interiores angustiores. Flores viridi-flavi, ligulati circ. 8-10, corolla 3-3.5 mm longa, 2-vel 3-dentata; ovario late obovato, plano, alato-marginato, erecte ciliato, corpore 1-2 mm longo, biaristato aristis 1.5-2.5 mm longis et externe erecto-hispidis; styli ramis squarrosis. Paleae lineari-oblongae, longitudinaliter striatae, marginibus diaphanae, apice subacuto subrotundatove saepe eroso-denticulatae, 2.5-3.5 mm longae. Flores tubulosi corolla plerumque 4- rarissime 5-lobati, stigmatibus cohaerentibus. Achaenia exteriora (florum ligulorum) plana, oblonga vel suborbiculata, alato-marginata, facibus longitudinaliter striatis et glabris, marginibus saepe irregulariter subelongato-setosa, corpore 3.5-4 mm longa et 2-3 mm lata, apice biaristata aristis lanceolato-linearibus acutis externe erecto-hispidis 1.5-3 mm longis. Achaenia interiora (florum disci) abortiva, linearia,  $\pm 4$  mm longa, nunc biaristata aristis glabratissimis tenuibus nunc calvis.

Erect shrub, entirely glabrous,  $\pm 4$  meters tall, in habit similar to *Oparanthus rapensis*. Leaves opposite, petiolate, the slender petiole commonly 2-4.5 cm long; blade ovate or subrotund-ovate, at apex obtuse, at base broadly cuneate to rounded or rarely almost subcordate, at margin indurate-subrevolute and obscurely sinuate-dentate, 6-10.5 cm long and about as wide, coriaceous, the primary lateral veins 7-10 on each side, the secondaries often more numerous. Capitula fewer than in *O. rapensis* (more often 6-10 to a single inflorescence), fibrous-pedunculate (pedicels thickish, fibrous, commonly under 2 cm

long, at base subtended with short, broad, indurated bracts), radiate,  $\pm$  8 mm tall and finally 0.8-1.3 cm wide, florets greenish-yellow. Involutar bracts subequal, 6-9; exterior ones broadly or suborbiculate ovate,  $\pm$  5 mm long, and  $\pm$  4 mm wide, not or hardly thickish, marginally often hyaline elsewhere blackish at least when dry; interior ones narrower. Ligulate florets about 8-10, the corolla 3-3.5 mm long and 2- or 3-dentate; ovary widely obovate, flat, wing-margined, erectly ciliate, having a body 1-2 mm long, biaristate with aristae 1.5-2.5 mm long and externally erect-hispid; style branches diverging. Paleae linear-oblong, lengthwise striate, at margins diaphanous, at the subacute or subrotundate apex often erose-denticulate, 2.5-3.5 mm long. Corolla of disc florets commonly 4- very rarely 5-lobed, the stigmas coherent. Exterior achenes produced by ligulate florets, fertile, flat, oblong or suborbiculate, wing-margined, the faces glabrous but lengthwise striate, the margins often irregularly subelongate-setose, the body 3.5-4 mm long and 2-3 mm wide, the apex biaristate; aristae lanceolate-linear, acute, erect-hispid on outer edge, 1.5-3 mm long. Interior achenes produced by disc florets, abortive, linear,  $\pm$  4 mm long, now biaristate with slender, glabrate aristae, now bald.

Taratika, east side of Mount Perahu, in thicket on steep ridge, erect shrub, 4 meters tall, altitude 500 meters, July 21, 1934, Harold St. John, Jean Maireau, and F. R. Fosberg 15640 (florets greenish-yellow according to collectors; type in Bishop Museum); Mitiperu, in dense, damp woods, tree 3 meters tall, altitude 350 meters, July 18, 1934, F. R. Fosberg 11574.

Intermediate in foliar and floral characters between *O. rapensis* and *O. coriaceus*.

**Oparanthus coriaceus** (F. Brown), new combination.

*Chrysogonum coriaceum* F. Brown: B. P. Bishop Mus., Bull. 130, p. 341, fig. 62, 1935.

Kaimaru, south ridge of Mount Perahu, in thicket on steep, mossy ridge, shrub 1-2 meters tall, altitude 500 meters, July 13, 1934, Harold St. John and Jean Maireau 15517 (disc florets greenish-yellow; ray florets none).

Brown (loc. cit.) reported having seen only a single disc floret of this species. It was 5-lobed. The present material abounds in disc florets, and they are uniformly 4-lobed.

**Oparanthus rapensis** (F. Brown), new combination.

*Chrysogonum rapense* F. Brown: B. P. Bishop Mus., Bull. 130, p. 343, fig. 61, *g-m*, 1935.

Southeast slope of Mount Ororangi, on very steep slope in thick forest of *Freyincinctia*, small tree, 3 meters tall, flower yellow, altitude 260 meters, July 6, 1934, F. R. Fosberg 11413; Mount Tepiahu, on

steep slope in moist forest, tree 6 meters tall, trunk diameter 15 cm, altitude 120 meters, July 12, 1934, Fosberg 11501; 0.4 mile east of Ahurei, crevice of shaded basalt cliff, shrub 2 meters tall, altitude 50 meters, July 1, 1934, Harold St. John and F. R. Fosberg 15264; Maungaeae, east of Mangaoa Peak, moist woods, tree 8 meters tall with brown bark, altitude 300 meters, July 4, 1934, St. John and Jean Maireau 15372; Peatuakaviri, west of Mount Tautautu, moist woods, tree 7 meters tall, trunk diameter 15 cm, flower greenish-yellow, bark brown, sapwood white, altitude 200 meters, July 6, 1934, St. John and Maireau 15401; above Maitua, dry cliffs, shrub 2 meters tall, altitude 800 feet, July 10, 1934, E. C. Zimmerman.

The first and last four collections came to hand barely in time for inclusion before going to press. They had been determined by Dr. Elmer D. Merrill as *Chrysogonum rapense* F.Br. but with the exclamation in each case that they were "neither *Chrysogonum* nor *Moonia*."

Besides the three species listed here, a fourth, *Oparanthus albus* (F. Brown), new combination (*Chrysogonum album* F. Brown: B. P. Bishop Mus., Bull. 130, p. 342, 1935) is known from the Marquesas Islands.

#### MAROTIRI

#### ***Bidens Saint-Johniana***, new species (pl. 6).

Fruticosa, implicata decumbensve, glabra, ramosa. Folia opposita, petiolata petiolis alato-marginatis basi subconnatis  $\pm 1$  cm longis, petiolo adjecto plerumque tantum 3-4 cm longa et 1.7-3 cm lata, ad ramorum apices plus minusve adgregata, rhomboideo-orbiculata, apice saepius rotundata, supra medium acerrime serrata dentibus mucronatis inflexisque (saepius 3-12 pro utraque margine), inde usque ad basim (petiolo incluso) angustata lateribus concavis, membranacea. Capitula solitaria vel subsolitaria pedunculis tenuibus glabris  $\pm 1$  dm longis, radiata, pansa ad anthesin  $\pm 3$  cm lata et  $\pm 8$  mm alta. Involucri bractee exteriores 5-8, saepe crassiusculae, anguste vel moderate oblongae vel oblongo-subobovatae, apice obtusae, tergo plurinervatae et glabrae sed saepe longitudinaliter rugosae, circ. 7-8 mm longae; interiores ovatae, apice puberulentae, paulo breviores. Flores ligulati circ. 8, flavi, ligula oblongo-obovati, apice saepe obsolete denticulati, circ. 1.3 cm longi. Paleae lineares, superne attenuatae colorataeque, circ. 6-8 mm longae. Achaenia griseo-atra vel atro-brunnea, oblongo-lineariter, obcompressa-tetragona, utraque facie 2-sulcata, costis marginibusque perspicue brevi-setosa setis acerrimis plerumque antrorsis rarius retrorsis, exalata, recta vel subarcuata, corpore 6-9.3 cm longa et 1-1.7 mm lata, sub apice raro in rostrum crassum et  $\pm 1$  mm longum angustata, apice biaristata; aristis erectis, tenuibus, 1-3.5 mm longis, acerrime supra plerumque retrorsum infra saepe antrorsum hamosis.

Fruticose, matted or trailing, glabrous, branched. Leaves opposite, petiolate (the petioles alate-margined, basally subconnate,  $\pm 1$  cm long), including petiole commonly only 3-4 cm long and 1.7-3 cm wide, more or less aggregated at tips of branches, rhomboid-orbulate, apically more often rotundate, very sharply serrate above middle with mucronate and incurved teeth (these more often 3-12 to each side), from there narrowed all the way to the base (including the petiole) with concave edges, membranaceous. Capitula solitary or subsolitary, radiate, at anthesis  $\pm 3$  cm wide and  $\pm 8$  mm tall; peduncles slender, glabrous,  $\pm 1$  dm long. Exterior involucrel bracts 5-8, often somewhat thickish, narrowly or moderately oblong or oblong-subobovate, apically obtuse, dorsally several-nerved and glabrous, but often longitudinally rugose, about 7-8 mm long; interior bracts ovate, apically puberulent, slightly shorter. Ligulate florets about 8, yellow, at apex often obsoletely denticulate, about 1.3 cm long, the ligule oblong-obovate. Paleae linear, toward apex attenuate and colored, about 6-8 mm long. Achenes grayish-black or blackish-brown, oblong-linear, obcompressed-tetragonal, on each face 2-sulcate, on ribs and margins conspicuously short-setose with very sharp and commonly antrorse more rarely retrorse setae, exalate, straight or subarcuate, the body 6-9.3 cm long and 1-1.7 mm wide, below the apex rarely narrowed into a beak (this thick and  $\pm 1$  mm long), apically biaristate; aristae erect, slender, 1-3.5 mm long, very sharply (above commonly retrorse- below often antrorse-) barbed.

Southeast Islet, shallow soil on basalt, trailing, the reduced state of drier, more exposed places, altitude 80 meters, July 22, 1934, Harold St. John 15683; same locality and date, matted or trailing over basalt ledges or soil and guano, altitude 30 meters, St. John 15688 (type in Bishop Museum).

*Bidens Saint-Johniana* belongs to section *Campylotheca* (Cass.) Nutt. and is somewhat anomalous but perhaps nearer to *B. mauiensis* (A. Gray) Sherff, *B. molokaiensis* (Hillebr.) Sherff, and *B. cuneata* Sherff.

PLATE 1.—*Bidens orofensis* (type).



PLATE 2.—*Bidens hendersonensis* (2d type sheet).





PLATE 3.—*Bidens hendersonensis* variety *subspathulata* (type).



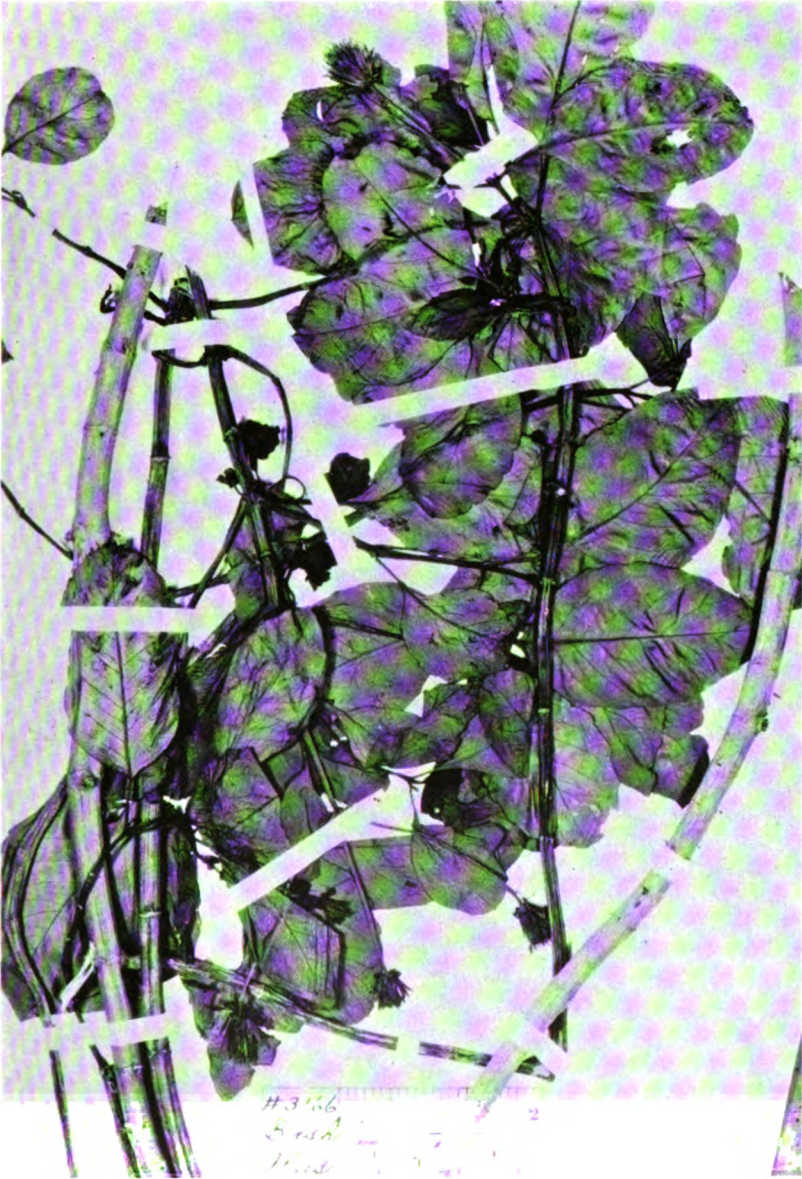


PLATE 4.—*Bidens hendersonensis* variety *oenoensis* (2d type sheet).

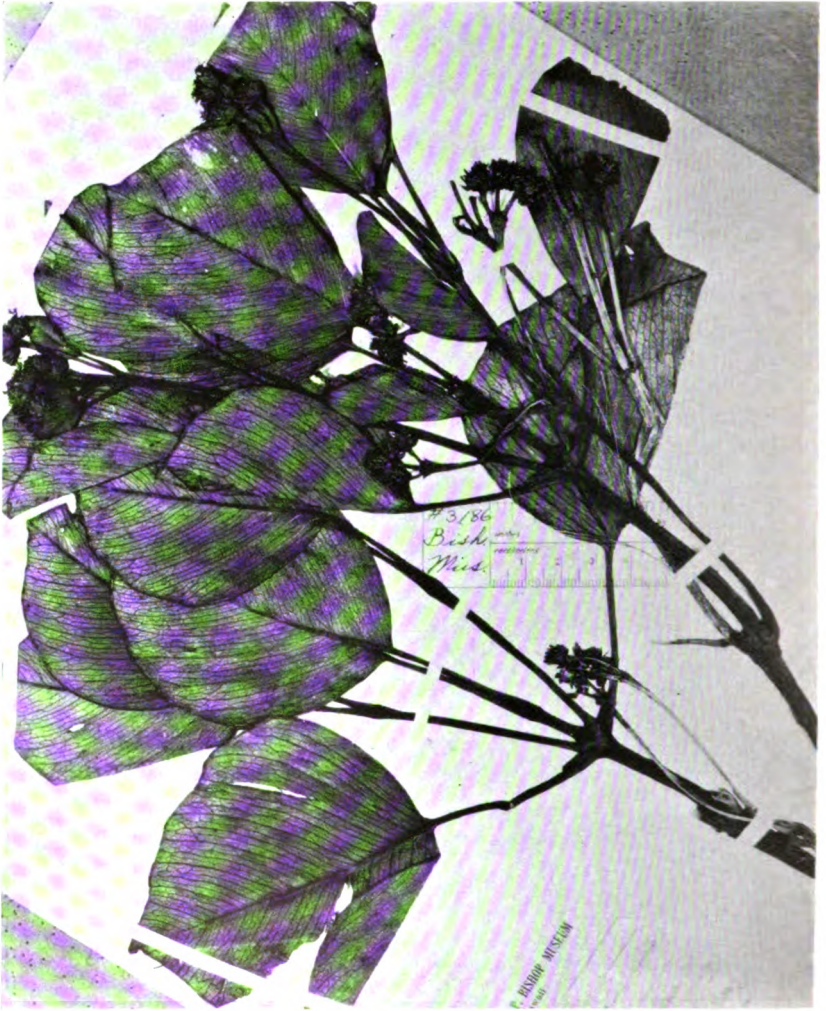


PLATE 5.—*Oparanthus intermedius* (type).





PLATE 6.—*Bidens Saint-Johniana* (type).