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OF

BERNICE P. BISHOP MUSEUM

HONOLULU, HAWAII

Volume XXIII

October 15, 1966

Number 10

Studies in the Hawaiian Rutaceae, VII

A Conspectus of Species and Varieties and Some Further
New Taxa in the Genus *Pelea* A. Gray

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The genus *Pelea* is considered to consist of 75 species, of which 72 are confined to the Hawaiian Islands and 2 are found in the Marquesas. The genus is divided into four sections: *Pelea* with 4 species; *Cubicarpa* with 10 species; *Apocarpa* with 18 species; and *Megacarpa* with 43 species, if the Marquesan species are included. A conspectus of all currently recognized species, varieties, and forms is provided, with pertinent synonymy. Two new species, five new varieties, and four new forms are described, and 10 new combinations are made.

As monographic studies in the genus *Pelea* continue and a reasonably complete picture of the taxonomic size of the genus appears, the position of *Pelea* in the Hawaiian flora takes on added significance. Of the 102 proposed binomials, 75 have been retained as species; and although a few remain as doubtful or poorly known, this total probably is very nearly all of the presently existing species. One indeed may be extinct. This leaves *Pelea*, together with the genera *Bidens*, *Cyanea*, and *Cyrtandra*, as one of the most complex of the Hawaiian genera. In the present conspectus all currently accepted species are listed with subtaxa and synonyms. A few of the taxa are here described for the first time, while others represent new combinations in the same or in a different status, based on earlier described taxa. To validate these the latter portion of the paper includes brief descriptions. They will be more fully considered and illustrated in the monographic treatment.

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PELEA A. GRAY

Proc. Amer. Acad. Arts and Sci. 3:4, 1854; Bot. U.S. Explor. Exped. 15(1) :339, 1854; Atlas, Bot. U.S.E.E. pl. 35, 38, 1856.

PART I. CONSPECTUS OF SPECIES, VARIETIES, AND FORMS
Sect. PELEA

“Verticillifoliae” Rock, Indig. Trees Haw. Is. 213. 1913 (as collective species). Microcarpae St. John, nom. nud., Lloydia 7:265, 1944, in part.

Type species: *Pelea clusiaefolia* Gray.

1. *Pelea clusiaefolia* Gray, Proc. Amer. Acad. Arts and Sci. 3:4, 1854; Bot. U.S. Explor. Exped. 15(1) :340, 1854; Atlas, U.S.E.E. pl. 35, 1856.

Clusia sessilis Hooker & Arnott, Bot. Beechey Voy. 80, 1832 (non Forster).

Evodia clusiaefolia (Gray) Drake del Castillo, Illustr. Flor. Ins. Mar. Pac. 6:131, 1890.

a. subsp. *clusiaefolia*.

- (1) var. *clusiaefolia*.

Syn. *P. clusiaefolia* f. *normalis* (nom. nud.) and f. *microcarpa* Wawra, Flora 56:107, 1873.

OAHU, MOLOKAI, MAUI.

- (2) var. *crassiloba* B. C. Stone, var. nov. (See Part II.)

OAHU.

Syn. *P. clusiaefolia* B var. Gray, Bot. U.S.E.E. 355; *P. clusiaefolia* f. *macrocarpa* Wawra, l.c.

(a) var. *crassiloba* f. *Degeneri*, B. C. Stone, n.f. (See Part II.)

MAUI.

- (3) var. *Fauriei* (Lévl.) St. John & Hume, Lloydia 7:265, 1944.

MOLOKAI.

- (4) var. *cuneata* St. John & Hume, Lloydia 7:265, 1944.

(a) var. *cuneata* f. *aurea* B. C. Stone, n.f. (See Part II.)
HAWAII.

- (5) var. *Pickeringii* (St. John) B. C. Stone, comb. nov.

Syn. *P. Pickeringii* St. John, Lloydia 7:266, 1944.

HAWAII.

- (6) var. *ecuneata* St. John, *Lloydia* 7:265, 1944.

KAUAI.

- b. subsp. **Cookeana** (Rock) B. C. Stone, comb. nov.

Syn. *P. Cookeana* Rock, *Indig. Trees Haw. Is.* 216, 1913; *P. clusiaefolia* var. *Cookeana* (Rock) St. John & Hume, *Lloydia* 7:265, 1944; *P. clusiaefolia* var. (sine nom.) A. Gray, *Bot. U.S.E.E.* 15(1):341, 1854 (in part).

MOLOKAI, LANAI, MAUI, HAWAII.

- (1) var. *Cookeana*.

- (2) var. *Cookeana* f. *longipes* B. C. Stone, n.f. (See Part II.)

MOLOKAI, LANAI.

- c. subsp. **sapotaefolia** (Mann) B. C. Stone, comb. nov.

Syn. *P. sapotaefolia* Mann, *Boston Soc. Nat. Hist. Proc.* 10:312, 1866; *P. microcarpa* Heller, *Minnesota Bot. Stud.* 9:839, 1897; *Evodia sapotaefolia* (Mann) Drake del Castillo, *Illustr. Flor. Ins. Mar. Pac.* 6:133, 1890; *P. clusiaefolia* var. *sapotaefolia* (Mann) St. John, *Lloydia* 7:265, 1944.

- (1) var. *sapotaefolia*.

- (2) var. *sapotaefolia* f. *sapotaefolia*.

KAUAI.

- (3) var. *sapotaefolia* f. *puberula* (St. John) B. C. Stone, comb. nov.

Syn. *P. clusiaefolia* var. *puberula* St. John, *Lloydia* 7:265, 1944.

OAHU, MOLOKAI.

- d. subsp. **dumosa** (Rock) B. C. Stone, comb. nov.

Syn. *P. sapotaefolia* var. *dumosa* Rock, *Indig. Trees Haw. Is.* 218, 1913; *P. clusiaefolia* var. *dumosa* (Rock) St. John & Hume, *Lloydia* 7:265, 1944; *P. clusiaefolia* var. *fulvescens* Skottsberg, *Acta Horti Gotob.* 15:383, 1944.

KAUAI, OAHU.

2. *Pelea auriculaefolia* A. Gray, *Proc. Amer. Acad. Arts and Sci.* 3:50, 1853; *Bot. U.S. Explor. Exped.* 15(1):343, 1854; and *Atlas*, pl. 36, 1865-7.

Syn. *Platydesma auriculaefolia* Hillebr., *Fl. Haw. Is.* 72, 1888 (as to basionym only).

HAWAII.

3. *Pelea haleakalae* B. C. Stone, sp. nov. (See Part II.)

MAUI.

4. *Pelea waialealae* Wawra, *Flora* **56**:108, 1873.
Syn. *Evodia waialealae* (Wawra) Drake del Castillo, *Illustr. Flor. Ins. Mar. Pac.* **6**:134, 1890.
a. var. *waialealae*.
b. var. *latior* St. John & Hume, *Lloydia* **7**:267, 1944.
c. var. *pubescens* Skottsberg, *Acta Horti Gotob.* **15**:383, 1944.
All from KAUAI.

Sect. MEGACARPA B. C. Stone
in Degener, *Fl. Haw.* (Rutac.) 1962

5. *Pelea apoda* St. John, *Lloydia* **7**:267, 1944.
HAWAII.
6. *Pelea Ballouii* Rock, *Indig. Trees Haw. Is.* 228, 1913 (as Balloui).
MAUI.
7. *Pelea Christophersenii* St. John, *Lloydia* **7**:268, 1944.
OAHU.
8. *Pelea cruciata* Heller, *Minnesota Bot. Stud.* **9**:839, 1897.
Syn. *P. kauaiensis* sensu Rock, non Mann.
KAUAI.
9. *Pelea descendens* St. John, *Lloydia* **7**:266, 1944.
OAHU.
10. *Pelea Feddei* Lévêillé, *Rep. Sp. Nov. ed. Fedde* **10**:442, 1912.
Syn. *P. punctata* St. John & Hume, *Lloydia* **7**:267, 1944.
Syn. *P. resiniflora* Skottsberg, *Acta Horti Gotob.* **10**:118, 1936.
KAUAI.
11. *Pelea Gayana* Rock, *Bot. Gaz.* **65**:262, f. 1, 1918.
Syn. *P. sapotaefolia* var. *procumbens* Hillebrand, *Fl. Haw. Is.* **63**, 1888.
KAUAI.
12. *Pelea grandifolia* (Hillebrand) St. John & Hume, *Lloydia* **7**:268, 1944.
a. var. *grandifolia*.
HAWAII.
b. var. *ovalifolia* (Hillebr.) St. John, l.c.
Syn. *P. volcanica* var. *ovalifolia* Hillebr. *Fl. Haw. Is.* **67**, 1888.
MAUI, HAWAII.
c. var. *montana* (Rock) B. C. Stone, comb. nov.

Syn. *P. volcanica* var. *montana* Rock, Indig. Trees Haw. Is. 223, 1913.

MAUI.

d. var. *lianoides* (Rock) B. C. Stone, comb. nov.

Syn. *P. volcanica* var. *lianoides* Rock, Indig. Trees Haw. Is. 223, 1913.

LANAI.

e. var. *hualalalaiensis* (St. John) B. C. Stone, comb. nov.

Syn. *P. hualalaiensis* St. John, Lloydia 7:268, 1944.

HAWAII.

13. *Pelea Hiiakeae* B. C. Stone, Pac. Sci. 17:410, 1963.
OAHU.
14. *Pelea honoluluensis* St. John, Lloydia 7:268, 1944.
Syn. *P. sandwicensis* sensu A. Gray; and sensu H. Mann; and sensu Rock; non Hooker & Arnott.
OAHU.
15. *Pelea Hosakae* St. John, Lloydia 7:266, 1944.
OAHU.
16. *Pelea kaalaensis* St. John, Lloydia 7:268, 1944.
OAHU.
17. *Pelea kauaensis* St. John, Lloydia 7:269, 1944.
OAHU.
18. *Pelea kauaiensis* H. Mann Jr., Proc. Boston Soc. Nat. Hist. 10:313, 1866.
KAUAI.
19. *Pelea lanceolata* St. John & Hume, Lloydia 7:269, 1944.
HAWAII.
20. *Pelea Lakae* B. C. Stone, Pac. Sci. 17:413, 1963.
OAHU.
21. *Pelea Lohiauana* B. C. Stone, Pac. Sci. 17:413, 1963.
KAUAI.
22. *Pelea Lydgatei* Hillebrand, Fl. Haw. Is. 65, 1888.
OAHU.
23. *Pelea macropus* Hillebrand, l.c.
Syn. *P. acutivalvata* Léveillé, Rep. Sp. Nov. ed. Fedde, 10:153, 1911.
KAUAI.
24. *Pelea manukaensis* St. John, Lloydia 7:269, 1944.
HAWAII.

25. *Pelea molokaiensis* Hillebrand, Fl. Haw. Is. 65, 1888.
Syn. *P. stellata* St. John, Lloydia 7:271, 1944.
MOLOKAI.
26. *Pelea Munroii* St. John, Lloydia 7:269, 1944 (as Munroi).
LANAI.
27. *Pelea Nealae* B. C. Stone, in Degener, Fl. Haw. (Rutac.), 1960.
KAUAI.
28. *Pelea oblanceolata* St. John, Lloydia 7:267, 1944.
HAWAII.
29. *Pelea oblongifolia* A. Gray, Bot. U.S. Explor. Exped. 15(1) :343,
1854.
HAWAII.
30. *Pelea orbicularis* Hillebrand, Fl. Haw. Is. 67, 1888.
a. var. *orbicularis*.
b. var. *tonsa* St. John & Hume, Lloydia 7:267, 1944.
Both MAUI.
31. *Pelea parvifolia* Hillebrand, Fl. Haw. Is. 65, 1888.
MAUI.
32. *Pelea pluvialis* St. John, Lloydia 7:266, 1944.
KAUAI.
33. *Pelea pseudoanisata* Rock, Indig. Trees Haw. Is. 227, 1913.
HAWAII.
34. *Pelea puauhuensis* St. John, Lloydia 7:270, 1944.
HAWAII.
35. *Pelea puberula* St. John, Lloydia 7:266, 1944.
KAUAI.
36. *Pelea radiata* St. John, Lloydia 7:270, 1944.
HAWAII.
37. *Pelea recurvata* Rock, Bot. Gaz. 65:267, 1918.
KAUAI.
38. *Pelea reflexa* St. John, Lloydia 7:270, 1944.
MOLOKAI.
39. *Pelea rotundifolia* A. Gray, Proc. Amer. Acad. Arts and Sci. 3:4,
1854; Bot. U.S. Explor. Exped. 15(1) :344, 1854.
a. f. *rotundifolia*.
b. f. *ternata* B. C. Stone, n.f. (See Part II.)
Both OAHU.
40. *Pelea semiternata* St. John, Lloydia 7:271, 1944.
OAHU.
41. *Pelea sessilis* Léveillé, Rep. Sp. Nov. ed. Fedde 10:152, 1911.
MOLOKAI.

42. *Pelea Storeyana* St. John & Hume, *Lloydia* 7:271, 1944.
OAHU.
43. *Pelea volcanica* A. Gray, Proc. Amer. Acad. Arts and Sci. 3:4, 1854; Bot. U.S. Explor. Exped. 15(1):346, 1854.
a. var. *volcanica*.
b. var. **kohalae** B. C. Stone, var. nov. (See Part II.)
Both HAWAII.
44. *Pelea wahiawaensis* St. John & Hume, *Lloydia* 7:267, 1944.
OAHU.
45. *Pelea Wawraeana* Rock, Indig. Trees Haw. Is. 231, 1913.
Syn. *P. waipioensis* St. John, *Lloydia* 7:267, 1944; *P. Wawraeana* var. *pubens* St. John, *ibid.* 273.
OAHU.

The plant renamed *P. Wawraeana* var. *ternifolia* (Pac. Sci. 16:372, 1962), based on *P. sandwicensis* γ var. Hillebr., Fl. Haw. Is. 67, 1888, is almost certainly not related to *P. Wawraeana*. I have transferred this to *P. peduncularis* (*q.v.*) as a somewhat doubtful variety, perhaps the same as var. *paloloensis*.

Sect. CUBICARPA B. C. Stone
in Degener, Fl. Haw. (Rutac.) 1962

46. *Pelea anisata* H. Mann Jr., Proc. Boston Soc. Nat. Hist. 10:314, 1866.
Syn. *P. subpeltata* Léveillé, Rep. Sp. Nov. ed. Fedde, 10:442, 1912; *P. Hillebrandii* Léveillé, op. cit. 10:152, 1911.
Evodia anisata (Mann) Drake del Castillo, Illustr. Fl. Ins. Mar. Pac. 6:130, 1890.
a. var. *anisata*.
b. var. **haupuana** B. C. Stone, var. nov. (See Part II.)
Both KAUAI.
47. *Pelea oahuensis* Léveillé, Rep. Sp. Nov. ed. Fedde 10:442, 1912.
a. var. *oahuensis*.
b. var. **lucens** (Hillebrand) B. C. Stone, comb. nov.
Syn. *P. sandwicensis* var. *lucens* Hillebr. Fl. Haw. Is. 67, 1888; *P. lucens* (Hillebr.) St. John, *Lloydia* 7:269, 1944.
Both OAHU.
48. *Pelea olowaluensis* St. John, *Lloydia* 7:266, 1944.
MAUI.
49. *Pelea ovalis* St. John, *Lloydia* 7:273, 1944.
MAUI.

50. *Pelea paniculata* St. John, *Lloydia* 7:273, 1944.
KAUAI.
51. *Pelea peduncularis* Lévillé, *Rep. Sp. Nov. ed. Fedde*, 10:443, 1912.
(For full synonymy see Stone, *Pac. Sci.* 17:415, 1963.)
- a. var. *peduncularis*.
- b. var. *niuensis* (St. John) B. C. Stone, *Pac. Sci.* 17:416, 1963.
Syn. *P. niuensis* St. John, *Lloydia* 7:272, 1944.
- c. var. *pauciflora* (St. John) B. C. Stone, *Pac. Sci.* 17:417, 1963.
Syn. *P. Rockii* var. *pauciflora* St. John, *Lloydia* 7:271, 1944.
- d. var. *paloloensis* (St. John) B. C. Stone, *Pac. Sci.* 17:417, 1963.
Syn. *P. paloloensis* St. John, *Lloydia* 7:271, 1944.
- e. var. *quadrata* B. C. Stone, *Pac. Sci.* 17:417, 1963.
- f. var. *ternifolia* (B. C. Stone) B. C. Stone, *comb. nov.*
Syn. *P. Wawraeana* var. *ternifolia* B. C. Stone, *Pac. Sci.* 16:372, 1962; *P. sandwicensis* γ var. *Hillebr.* *Fl. Haw. Is.* 67, 1888; *P. Wawraeana* var. *tenuifolia* (*Hillebr. ex Rock*) St. John & Hume, *Lloydia* 7:273, 1944, *nom. illegit.*
Perhaps the same as var. *paloloensis*. The type (Berlin) was destroyed.
All OAHU.
52. *Pelea quadrangularis* St. John, *Lloydia* 7:273, 1944.
KAUAI.
53. *Pelea waimeaensis* St. John, *Lloydia* 7:273, 1944.
Syn. *P. sapotaefolia* B var. *Hillebrand*, *Fl. Haw. Is.* 63, 1888.
KAUAI.
54. *Pelea Zahlbruckneri* Rock, *Indig. Trees Haw. Is.* 231, 1913.
HAWAII.

Sect. APOCARPA B. C. Stone
in Degener, *Fl. Haw. (Rutac.)* 1962

55. *Pelea adscendens* St. John & Hume, *Lloydia* 7:274, 1944.
MAUI.
56. *Pelea barbiger* (A. Gray) Hillebrand, *Fl. Haw. Is.* 70, 1888.
Syn. *Melicope barbiger* A. Gray, *Bot. U.S. Explor. Exped.* 15(1):351, 1854; *Melicope cinerea* f. *barbiger* (Gray) Wawra, *Flora* 56:110, 1873.

Evodia barbiger (Gray) Drake del Castillo, Illustr. Fl. Ins. Mar. Pac. **6**:131, 1890.

KAUAI.

57. *Pelea cinerea* (A. Gray) Hillebrand, Fl. Haw. Is. 68, 1888.
Syn. *Melicope cinerea* A. Gray, Bot. U.S. Explor. Exped. **15**(1):350, 1854.

Evodia cinerea (Gray) Drake del Castillo, Illustr. Fl. Ins. Mar. Pac. **6**:131, 1890.

a. var. *cinerea*.

b. var. *mauiana* B. C. Stone, var. nov.

MAUI.

c. var. *Skottsbergii* B. C. Stone, var. nov. (See Part II.)

OAHU.

58. *Pelea cinereops* St. John, Lloydia **7**:274, 1944.

OAHU.

59. *Pelea elliptica* (A. Gray) Hillebrand, Fl. Haw. Is. 69, 1888.
Syn. *Melicope elliptica* A. Gray, Bot. U.S. Explor. Exped. **15**(1):353, 1854; *P. kaalae* Wawra, Flora **56**:110, 1873.

Evodia elliptica (Gray) Drake del Castillo, Illustr. Fl. Ins. Mar. Pac. **6**:131, 1890.

a. var. *elliptica*.

OAHU.

(1) var. *elliptica* f. *coccinea* (St. John & Hume) B. C. Stone, in Degener Fl. Haw. (Rutac.) 1962.

b. var. *mauiensis* St. John, Lloydia **7**:274, 1944.

Syn. *P. Mannii* Hillebrand, Fl. Haw. Is. 66, 1888.

P. foetida Léveillé, Rep. Sp. Nov. ed. Fedde, **10**:152, 1911 (fide Rock).

MAUI.

60. *Pelea hauapuensis* St. John, Lloydia **7**:274, 1944.

KAUAI.

61. *Pelea hawaiiensis* Wawra, Flora **56**:110, 1873.

a. var. *hawaiiensis*.

HAWAII.

Syn. *P. cinerea* var. γ Hillebrand, Fl. Haw. Is. 69, 1888; *P. cinerea* var. *hawaiiensis* (Hillebr.) Rock, Bot. Gaz. **65**:265, 1918.

b. var. *rubra* (Rock) B. C. Stone, Pac. Sci. **17**:408, 1963.

Syn. *P. cinerea* var. *rubra* Rock, Bot. Gaz. **65**:264, 1918.

P. oblongifolia var. β Hillebrand, Fl. Haw. Is. 65, 1888.

P. cinerea var. δ Rock, Indig. Trees Haw. Is. 239, 1913.

P. cinerea var. δ Hillebrand, Fl. Haw. Is. 69, 1888.

MAUI, HAWAII.

c. var. *pilosa* St. John, Lloydia 7:272, 1944.

Syn. *P. cinerea* β var. Hillebrand, Fl. Haw. Is. 69, 1888 (as to Lanai specimens with pilose leaf blades).

LANAI, MAUI.

d. var. *molokaiana* B. C. Stone, Pac. Sci. 17:409, 1963.

MOLOKAI.

e. var. *sulfurea* (Rock) B. C. Stone, l.c.

Syn. *P. cinerea* var. *sulfurea* Rock, Bot. Gaz. 65:265, 1918.

P. sulfurea (Rock) St. John & Hume, Lloydia 7:274, 1944.

LANAI.

f. var. *Brighamii* (St. John) B. C. Stone, l.c.

Syn. *P. Brighamii* St. John, Lloydia 7:271, 1944.

g. var. *Remyana* B. C. Stone, l.c.

HAWAII. A recent specimen from Lanai (*Forbes* 251-L) extends the range to LANAI.

h. var. *racemiflora* (Rock) St. John, Lloydia 7:272, 1944.

Syn. *P. cinerea* var. *racemiflora* Rock, Indig. Trees Haw. Is. 241, 1913.

MAUI.

i. var. *Gaudichaudii* (St. John) B. C. Stone, Pac. Sci. 16:369–371, 1962.

P. Gaudichaudii St. John, Lloydia 7:272, 1944.

brunelia sandwicensis Gaud. nom. nud. in Bot. Freycinet Voy. obs. 1826.

62. *Pelea Knudsenii* Hillebrand, Fl. Haw. Is. 70, 1888.

KAUAI.

63. *Pelea Leveillei* Faurie ex Léveillé, Rep. Sp. Nov. ed. Fedde, 10:442, 1912.

KAUAI.

64. *Pelea makahae* B. C. Stone, Pac. Sci. 17:410, 1963.

OAHU.

65. *Pelea mucronulata* St. John, Lloydia 7:272, 1944.

MAUI.

66. *Pelea multiflora* Rock, Coll. Haw. Publ. Bot. Bull. 1, pl. 3, 1911; Indig. Trees Haw. Is. 233, pls. 88, 89, 1913.

- Syn. P. Knudsenii var. multiflora (Rock) Rock, Bot. Gaz. **65**:265, 1918.
MAUI.
67. *Pelea obovata* St. John, Lloydia **7**:272, 1944.
MAUI (or possibly LANAI).
68. *Pelea ovata* St. John & Hume, Lloydia **7**:272, 1944.
Syn. P. Forbesii St. John & Hume, l.c.
KAUAI.
69. *Pelea pallida* Hillebrand, Fl. Haw. Is. 68, 1888.
OAHU.
70. *Pelea Saint-Johnii* Hume ex St. John, Lloydia **7**:274, 1944.
a. var. *Saint-Johnii*.
b. var. **elongata** (Hillebr.) B. C. Stone, comb. nov.
Syn. P. elliptica var. elongata Hillebr. Fl. Haw. Is. 69, 1888.
OAHU.
71. *Pelea sandwicensis* (Hook. f. & Arnott) A. Gray, Bot. U.S. Explor. Exped. **15**(1):345, 1854. (Excluding cited specimens.)
Syn. Brunellia sandwicensis Hook. f. & Arnott, Bot. Beechey Voy. 80, 1832.
OAHU (extinct?); MOLOKAI (persisting?).
72. *Pelea tomentosa* St. John & Hume, Lloydia **7**:274, 1944.
MAUI.

Marquesan Species
(apparently of Sect. Megacarpa)

73. *Pelea fatuhivensis* F. B. H. Brown, Fl. S. E. Polynesia, Dicotyledons, Bull. Bishop Mus. **130**:129, 1935.
FATUHIVA ISLAND.
74. *Pelea nukuhivensis* F. B. H. Brown, op. cit. 127.
NUKUHIVA ISLAND.

PART II. DESCRIPTIONS OF NEW TAXA IN THE CONSPECTUS
Sect. PELEA

Pelea clusiaefolia A. Gray var. **crassiloba** B. C. Stone, var. nov.

Arbor glabra (sed innovationibus minute pubescentibus) a varietate clusiaefoliae typicae in exocarpiis crassioribus (1.5 mm., non 0.5 mm.) magnioribus (15 mm. diam.) differt; lobis duri-lignosis rugulosus in sicco; seminibus 5 mm. vel 6 mm. longis. Foliis longe

petiolatis, in base obtusis fere valde oblongis utrinque glabris vel squamosis ad costis.

Holotype: Oahu, Waianae Range, ridge trail to Palikea, July 2, 1947, *R. S. Cowan 667* (BISHOP). Isotype in US.

Distribution: Oahu, chiefly in the Waianae Range.

Pelea clusiaefolia var. *crassiloba* f. **Degeneri** B. C. Stone, forma nova.

Folia spathulata, basi subcordata, innovationibus puberulentibus; costa infra puberula.

Holotype: Maui, north and inland of Ulupalakua, in small ash-cinder crater, July 4, 1927, *Degener 8553* (BISHOP).

Distribution: Maui.

Pelea clusiaefolia var. *cuneata* f. **aurea** B. C. Stone, forma nova.

Innovationibus aurei-pubescentibus pilibus dense confertis adpressis, foliis deinde glabrescentibus.

Holotype: Hawaii, rain forest above Hilo along Honolii stream 700 m. alt., Nov. 13, 1926, *MacDaniels 247* (BISHOP).

Distribution: Hawaii.

Pelea clusiaefolia subsp. *Cookeana* var. *Cookeana* f. **longipes** B. C. Stone, forma nova.

Petiolis 2-4 cm. longis, laminis basi subcordatis vel cordatis, foliis in verticillis 4-5, innovationibus puberulentibus vel hirsutulis, floribus a var. *typica* similibus, capsulis ignotis.

Holotype: Molokai, Kalae, June, 1912, *Forbes 79*. Mo. (BISHOP).

Distribution: Lanai and Molokai.

Pelea haleakalae B. C. Stone, sp. nov. (Sect. *Pelea*). [Fig. 1.]

Arbor, innovationibus glabrescentibus; verticillis 4-foliatis, foliis obovatis vel spathulatis vel anguste obcordatis apice rotundato vel emarginato basim cuneata vel decurrente, 6-10 cm. longis, 3-5 cm. latis, glabris, valde coriaceis, petiolatis, petiolo 10-15 mm. longo; floribus femineis 12-14 mm. longis, sepalis carnosis ad basim 2 mm. crassis imbricatis, petalis bis longioribus carnosis; capsula 12-13 mm. diametro $\frac{1}{2}$ -lobata lobis globosis, sepalis (interdum petalis) persistentibus; exocarpiis tenuibus.

Holotype: Maui, Kula trail to Waikamoi, Aug. 6-7, 1919, *Forbes 1277*. M. (BISHOP).

Distribution: Maui, endemic around Haleakala at moderate elevations.

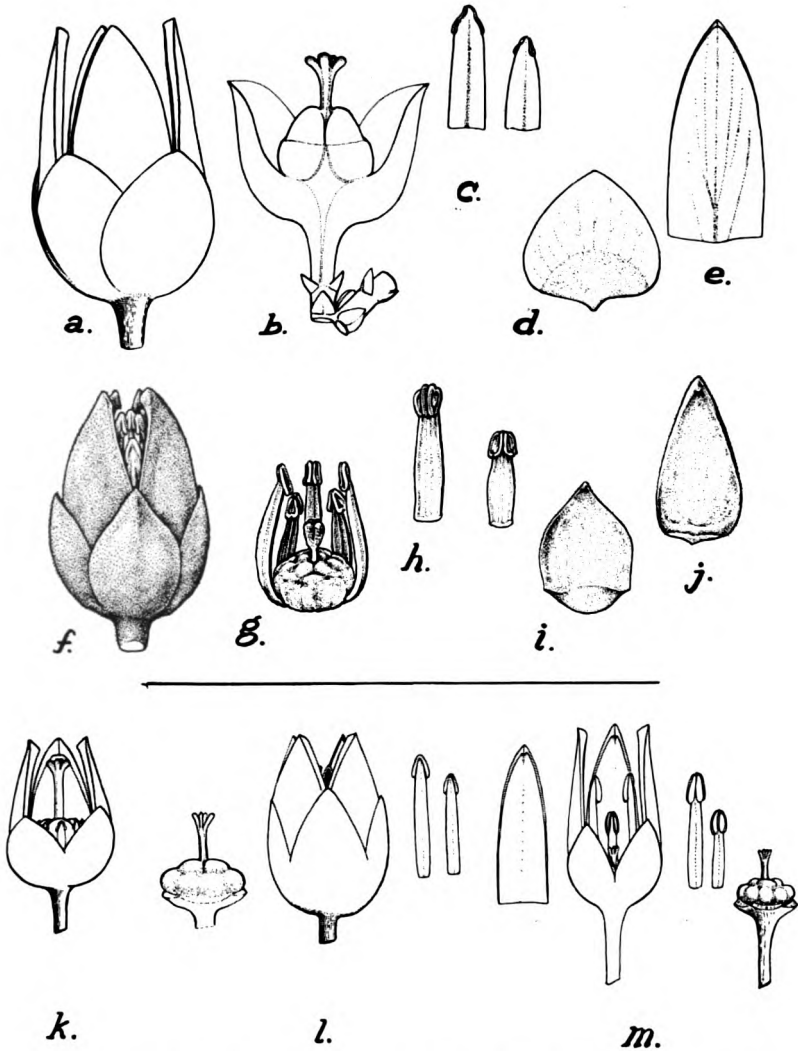


FIGURE 1.—*Pelea halcakalae* B. C. Stone; flowers and floral parts. a. Female flower; b. the same, in section, with petals removed; c. the same, showing one stamen from the two unequal quartets; d. the same, a sepal, inner face, the lower stippled portion adnate; e. the same, a petal, inner face. (a-e, all from Scheuer & Werny, Maui.) f. Male flower; g. the same, showing ovary and five of the 8 stamens; h. the same, showing one stamen from the two unequal quartets; i. the same, a sepal, inner face; j. the same, a petal, inner face. (f-j, all from Lane, Maui.)

Pelea clusiaefolia A. Gray. A series of flowers for comparison with those of the above species. k. Female flower (Horigan, Pupukea, Oahu). l. Male flower, with parts (Stone 2803, Pupukea, Oahu). m. Male flower (Chang in 1932, Kipapa, Oahu).

All figures $\times 2\frac{1}{2}$.

This species is very closely related to *P. clusiaefolia*, from which, however, it differs markedly in the much larger flowers with their strongly thickened sepals that are persistent on the mature capsule; and also in the spatulate and decurrent leaf-blades. The specific epithet is derived from the name of the magnificent inactive volcano, Haleakala.

Sect. MEGACARPA

Pelea rotundifolia A. Gray var. *rotundifolia* f. *ternata* B. C. Stone, forma nova.

Folia tres in verticillis.

Holotype: Oahu, Punaluu, Castle Trail, August, 1959, *B. C. Stone 3905* (BISHOP).

Distribution: Oahu.

Pelea volcanica A. Gray var. *kohalae* B. C. Stone, var. nov.

Innovationibus fulvo-tomentellis, deinde glabrescentibus; foliis oppositis, petiolis 10-14 mm. longis, laminis 3-7 cm. longis, 3-5 cm. latis, late ellipticis vel fere rotundatis coriaceis; inflorescentiis axillaribus 1-5-floriferis axibus tenuibus elongatis, pedunculo 7-12 mm. longo; capsulis magnis 38 mm. diam., 12 mm. altis lobis subrecurvatis 2/3 separatis, exocarpiis c. 2 mm. crassis, glabris (sed ovario tomentello), endocarpiis glabris, seminibus c. 9 × 5 mm.

Holotype: Hawaii, Kohala Mountains, Awini, common near summit, small tree or shrub, June, 1910, *J. F. Rock 8392* (BISHOP). Isotype at A.

Distribution: Hawaii, Kohala Mountains.

A well-marked variety, notable for the slender filiform and few-flowered elongated cymes, and relatively small rotund leaves.

Sect. CUBICARPA

Pelea anisata H. Mann Jr. var. *haupuana* B. C. Stone, var. nov.

Frutex arborescens, innovationibus minute fulvo-puberulentibus, glabris; foliis oppositis, petiolis crassis 1-2.5 cm. longis, in maturitate base lenticellati, laminis late ellipticis vel elliptico- vel rotundo-ovatis, in base subcordatis, in apice rotundatis vel emarginatis, laminis 4-13 cm. longis, 3-8 cm. latis; inflorescentiis axillaribus trifloriferis, axibus glabris 1-3 mm. longis, bracteolis late ovatis; floribus masculis sepalis c. 2.3 × 2.3 mm., petalis c. 7 × 3 mm.; staminibus fertilibus inaequalibus, 4 staminibus ad petala aequantibus, 4 quam petalis brevioribus; ovario glabro; disco glabro; stylo glabro, 1.3 mm. longo,

stigmate 0.7 mm. lato; floribus femineis quam flori masculi brevioribus; capsulis subcuboideis 14 mm. latis, glabris, endocarpio glabro.

Holotype: Kauai, Haupu Mountain near summit, 2,280 ft. alt., Dec. 31, 1956, B. C. Stone 1626 (BISHOP). (Male.)

Distribution: Restricted to the Haupu Range on Kauai.

Sect. APOCARPA

Pelea cinerea (A. Gray) Hillebr. var. **mauiana** B. C. Stone, var. nov.

A var. *cinerea* in disco hypogyno puberulento differt.

Holotype: Maui, without definite locality, Jules Rémy 625, 1851-55 (PARIS).

Distribution: Maui, known only from the type.

Pelea cinerea var. **Skottsbergii** B. C. Stone, var. nov.

A var. *cinerea* in axibus inflorescentiae glabris resinosis differt.

Holotype: Oahu, Koolau Range, Manoa Valley, 300-400 m. alt., August 18, 1922, C. Skottsberg 242 (GOTH). Isotype in BISHOP.

Additional specimen examined: Oahu, Kalihi, Oct. 1909, Faurie 181 (A).

Distribution: Oahu, Koolau Range.

ADDENDUM

After the manuscript of the Conspectus was sent to the printer, the presence of a further species of *Pelea* was discovered. It is described and illustrated below.

Pelea Degeneri B. C. Stone, sp. nov. (Sect. Cubicarpa). [Fig. 2.]

Frutex; folia opposita; novellis fulvo-tomentellibus; foliis ellipticis petiolatis, petiolo 15-25 mm. longo et ad 4 mm. crasso tomentello; laminis 6-9 cm. longis 2-6 cm. latis, superne in sulco costali tomentellis sed glabratis, inferne tomentellis praecipue ad costam; floris ignotis; inflorescentiis cymosis 2 cm. longis, trifloriferis, pedunculo 5 mm. longo, pedicello primo 5 mm. longo, pedicello secundo 3 mm. longo; nodis cymorum bibracteolatis; capsulis glabris cuboidalibus 9 mm. altis 9 mm. latis loculis uniseminatis, endocarpio glabro; semina prope matura 4.5 mm. longa nigra.

Holotype: Kauai, along Kokee stream in rain forest, June 30, 1926, Otto Degener 8531 (BISHOP). Isotypes at CATH and NY.

Distribution: Known only from Kauai.

An early study of this specimen suggested that it might be the still imperfectly understood *Pelea waimeaensis*; but a growing familiarity with some of the limits of variation, especially in capsule structure,



FIGURE 2.—*Pelea Degeneri* n. sp. Photo of holotype (Kauai: Degener 8531) in the Bishop Museum Herbarium.

made it clear that the above specimen represented a distinct new species, related to *Pelea anisata*, but with dense fulvous tomentum. *Pelea waimeaensis* has flattened, quadrate capsules, a feature that suggests a relationship to *Pelea peduncularis*; while the capsules in *Pelea Degeneri* are cuboid.

It is a pleasure to dedicate this overlooked species to the well-known author of the *Flora Hawaiiensis*, Dr. Otto Degener, of Waialua, Oahu.

This species brings to 75 the total number in the genus. It should be inserted after No. 46 (*P. anisata*) in the above list.