

***Pellionia* and *Elatostema* in Thailand**  
(Taxonomic Studies of Urticaceae II)

Tetsukazu YAHARA

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Thai species of *Pellionia* and *Elatostema* were taxonomically examined. As a result, three species of *Pellionia* and fourteen of *Elatostema* (including two new species) were recognized. Keys were prepared for each species and brief descriptions and notes were given for some if those were desirable.

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### Introduction

Our current knowledge on the taxonomy of many of urticaceous genera in Thailand still remains in the level of incomplete floristic works in the earlier part of this century such as Craib (1911) and Gagnepain (1929). Intending to enrich our knowledge on Thai Urticaceae, Thai species of two closely-related genera, *Elatostema* and *Pellionia* are preliminarily examined in the present paper.

*Elatostema* includes about 400 species and *Pellionia* about 70. Both genera are mainly distributed in Asia, especially tropical and subtropical regions including Thailand. It is expected that examination on Thai materials will contribute to better understanding of the taxonomy of these two genera.

The present study is based upon dried specimens and some living materials gathered during my trip to Thailand in 1980 as a member of Thai-Japanese botanical expedition; and also upon herbarium specimens kept in BKF, BK, KYO, TI and SING. I wish to thank the directors and curators of these herbaria.

### Enumeration

#### Key to genera

1. Achenes papillate; female tepals 5, as long as or longer than achenes.....*Pellionia*

\* Continued from Acta Phytotax. Geobot. 22: 1-21, 1981.

1. Achenes not papillate, usually longitudinally ribbed; female tepals usually 3, much shorter than achenes ..... *Elatostema*

*Pellionia* Gaudich., Freyc. Voy. Bot. 494, t. 119, 1826, nom. conserv.

#### Key to sections and species

1. Leaves entire and 3-nerved with a lateral vein on upper side extending upwards near to apex (Sect. *Pileoides*) ..... 1. *P. latifolia*  
 1. Leaves toothed (Sect. *Pellionia*).  
 2. Stems prostrate. Leaves coarsely crenate and 3-nerved (Ser. Repentes) ..... 2. *P. repens*  
 2. Stems erect or ascending. Leaves with acute teeth and pinnately nerved (Ser. *Incisoserrata*) ..... 3. *P. bulbifera*

Sect. *Pileoides* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 6: 50, 1980

1. *Pellionia latifolia* (Bl.) Boerl., Handl. Fl. Ned. Ind. 3: 375, 1900; Back. & v.d. Brink, Fl. Java 2: 41, 1965.

*Procris latifolia* Bl., Bijdr. 509, 1825.

- Elatostema latifolium* Bl. (mss. in Herb. L.) ex H. Schröt., Rep. Sp. Nov. Beih. 88(2): 17, 1936.

*E. latifolium* Bl. var. *eulatifolium* H. Schröt., l.c., 1936.

*Pilea javanica* Wedd., Ann. Sci. Nat. ser 4, 1: 187, 1854.

- Pellionia javanica* (Wedd.) Wedd., Monogr. Urtic. 187, 1856 & in DC., Prodr. 16(1): 170, 1869; Miq., Fl. Ind. Bat. 1(2): 239, 1859; Hook. f., Fl. Brit. Ind. 5: 561, 1888; Ridley, Fl. Malay Pen. 3: 362, 1924.

*E. javanicum* (Wedd.) Hall. f., Ann. Jard. Bot. Buit. 13: 316, 1896.

- Pellionia javanica* (Wedd.) Wedd. var. *minor* Ridley, J. Fed. Mal. Staat. Mus. 10: 116, 1920.

- Pellionia helferiana* Wedd. in DC., Prodr. 16(1): 170, 1869; Hook. f., l.c., 1888.

*Pellionia acaulis* Hook. f., Fl. Brit. Ind. 5: 562, 1888.

- E. latifolium* (Bl.) Boerl. var. *acaule* (Hook. f.) H. Schröt., Rep. Sp. Nov. Beih. 88(2): 20, 1936.

- Pellionia javanica* (Wedd.) Wedd. var. *acaulis* Ridley, J. Str. Br. Roy. As. Soc. 59: 187, 1911.

- Pellionia balansae* Gagnep., Bull. Soc. Bot. Fr. 75: 919, 1928 & in Lecomte, Fl. Gén. Indo-Chin. 5: 909, 1929.

- Pellionia pierreii* Gagnep., Bull. Soc. Bot. Fr. 75: 923, 1928 & in Lecomte, Fl. Gén. Indo-Chin. 5: 910, 1929.

Distribution. Southern China, Indo-China, Malay Peninsula, Sumatra and Java.

Habitat. In evergreen forests; frequently occurred on calcareous soils and on limestone rocks.

Specimens examined. N. Chiangmai: near Bo Luang 1050 m, *Geesink et al.* 5891 (BKf). Mae Hongson: Doi Loi Bian, near Ban Pasui, *Tuyama s.n.* (T). E. Nakhon Ratchasima: Siku, *Asa s.n.* (BKf). SE. Chonburi: Khao Kieo, Siricha Distr. 400 m, *Maxwell 75-530* (BK); Sriracha, Khao

Kieo Hill 265 m, *Beusekom & Santisuk 3260* (BKФ). Prachinburi: E of Khao Yai National Park 400 m, *Larsen et al. 3242* (BKФ). Chantaburi: Khao Soi Dao North, 250 m, *Maxwell 75-471* (BK). SW. Kanchanaburi: near Neeckey, near Namgka, Kwae Noi River Basin, *Heed 465* (BK). P. Prachuap Khiri Khan: Talung, 150 m, *Kerr 17441* (BK). Suratthani: Khao Na Daeng, *Smitinand & Sleumer 1253* (BKФ); Khao Sok, 100-200 m, *Shimizu et al. 27068* (KYO, TI). Phang Nga: Khlong Nang Yon 100 m, *Geesink & Santisuk 5069* (BKФ). Nakhon Srithamarat: Khao Luang 600 m, *Ploenchit 177* (BKФ), 1200 m, *Kerr 15423* (BK); Khao Khiri Wong, *Smitinand 763* (BKФ); Lan Sa Ka, *Ploenchit 506 & 543* (BKФ). Krabi: Panan Bencha 800 m, *Kerr 18492* (BK). Trang: Khao Chong, *Sangkachand 1907* (BK), *Suvarnakoses 2178* (BKФ), *Shimizu et al. 27440* (KTO, TI); Palien 50 m, *Kerr 19101* (BK). Satun: Kuan Kalong 100 m, *S. N. 359* (BKФ).

This species is closely related to *P. heyneana* Wedd. distributed in India and *P. tsoongii* in southeastern China and eastern Indo-China in that leaves are entire and 3-nerved with an upper-side lateral vein extending upwards near to apex. *P. latifolia* is distinguished from the latter in that leaves are not auriculate but cuneate or semi-cordate at base.

Var. *acaulis* is doubtfully distinct because of occurrence of intermediates. It may be an ill-grown form induced environmentally.

#### Sect. *Pellionia*

Ser. *Repentes* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 6: 51, 1980.

2. *Pellionia repens* (Lour.) Merr., Lingn. Sci. Journ. 6: 326, 1928; W. T. Wang, op. cit. 52, 1980.

*Polychroa repens* Lour., Fl. Cochinch. 559, 1793.

*Elatostema repens* (Lour.) Hall. f., Ann. Jard. Bot. Buit. 13: 316, 1896; Back. & v.d. Brink., Fl. Java 2: 42, 1929; H. Schröt., Rep. Sp. Nov. Beih. 88(2): 25, 1936.

*Pellionia daveauana* N.E. Br., Gard. Chron. n. ser. 14(2): 262, 1880; Hook. f., Fl. Brit. Ind. 5: 560, 1888; Gagnep. in Lecomte, Fl. Gén. Indo-Chin. 5: 902, 1929; Ridley, Fl. Malay Pen. 3: 362, 1924.

*E. daveauana* (N.E. Br.) Hall. f., Ann. Jard. Bot. Buit. 13: 316, 1896.

*Procris gibbosa* Wall. Cat. no. 7273, 1831, nom. nud.

*E. gibbosa* Kurz, Journ. Asiat. Soc. Beng. 42(2): 104, 1873.

*Pellionia pulchra* N.E. Br., Gard. Chron. n. ser. 18(2): 712, 1882.

*E. pulchrum* Hall. f., Ann. Jard. Bot. Buit. 13: 316, 1896.

*E. repens* (Lour.) Hall. f. var. *pulchrum* H. Schröt., Rep. Sp. Nov. Beih. 88(2): 26, 1936.

*Pellionia annamica* Gagnep., Bull. Soc. Bot. Fr. 75: 918, 1928 & in Lecomte, Fl. Gén. Indo-Chin. 5: 902, 1929.

*Pellionia daveauana* N.E. Br. var. *viridis* N.E. Br., Gard. Chron. n. ser. 18(2): 712, 1882.

*E. repens* (Lour.) Hall. f. var. *viridis* H. Schröt., Rep. Sp. Nov. Beih. 88(2): 26, 1936.

Distribution. Southern China, Indo-China, Malay Peninsula, Sumatra and Java.

Habitat. In evergreen or mixed evergreen forests.

Specimens examined. N. Chiangmai: S of Doi Chiangdao 400 m, *Larsen et al. 2560* (BKФ);

base hill of Doi Chiangdao 600–700 m, *Geesink et al.* 5271 (BK). Pitsanulok: Tung Salaeng Luang 350 m, *Shimizu et al.* 18343, 18348 (KYO, TI), 600 m, *Larsen et al.* 473 (BK). NE. Loei: Phu Kradung, *Chantanamuck* 849 (BK), *Phusamsaeng & Bunchuai* 15 (BK), 800 m, *Smitinand* 430 (BK), 1200 m, *Shimizu et al.* 22635 (KYO, TI), 1220–1280 m, *Shimizu et al.* 22969 (KYO, TI), 1300 m, *Floto* 7336 (BK); Khao Yai 630 m, *Shimizu et al.* 18152 (KYO, TI). C. Saraburi: Sahn Lahn forest of Muang distr., *Maxwell* 74–717 (BK). Nakhon Nayok: Khao Yai National Park, *Shimizu et al.* 19830 (KYO, TI). SW. Kanchanaburi: near Nuang Cha, Sahug Kra distr., *Maxwell* 73–176 (BK); near Neeckey, near Wangka, Kwae Noi River Basin, *Heed* 430 (BK); Hin Dat, *Put* 125 (BK); Erawang National Park, 100–300 m, *Shimizu et al.* 21583 (KYO, TI), 550 m, *Shimizu et al.* 21615 (KYO, TI). Erawang Waterfall 350 m, *Phengklai et al.* 4285 (BK); Tham Tarn Lod National Park 380–500 m, *Shimizu et al.* 21960 (KYO, TI). Uthaithani: Huay Kha Kaeng 280–330 m, *Shimizu et al.* 22314 (KYO, TI). E. Nakhon Ratchasima: Khao Yai National Park 600–800 m, *Murata et al.* 16308 (BK, TI). SE. Chantaburi: Khao Soi Dao North. *Maxwell* 73–410 (BK). P. Suratthani: Ban Krat, 50 m, *Kerr* 18144 (BK). Prachuap Khiri Khan: Hui Yang 50 m, *Kerr* 10763 (BK); Hui Yang, *Put* 3213 (BK).

This species is very variable in leaf color and variegation pattern and has been subdivided to several varieties. However, characters of red leaf, greyish leaf, white variegation etc. are segregating within a population and it is impossible to recognize any distinct race based on leaf features.

Ser. *Incisoserratae* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 6: 63, 1980.

3. *Pellionia bulbifera* (Kurz) Hook f., Fl. Brit. Ind. 5: 560, 1888; Gagnep. in Lecomte, Fl. Gén. Indo-Chine 5: 904, 1929. [Fig. 1]

*Elatostema bulbiferum* Kurz, Journ. Asiat. Soc. Beng. 2: 104, 1873; H. Schröt. & Winkl., Rep. Sp. Nov. Beih. 83: 17, 1935.

var. *bulbifera*

Perennial with short and thickened rhizomes. Stems 15–40 cm long, erect or ascending, with several branches, glabrous; nodes become swollen after flowering and form bulb-like propagules. Leaves opposite but one of pair minute; larger ones obliquely oblong, 2.5–12 × 1–4 cm, pinnately nerved, glabrous on both surfaces. Male heads on a peduncle 1–3.5 cm long, with less than ten flowers; male flowers 5-merous. Female heads sessile or rarely shortly pedunculate, with somewhat flattened receptacle; female tepals 0.8–1 mm long, not horned, with sparse hairs on dorsal surface; achenes ca. 0.8 mm long, flattened and 2-ridged, tuberculate.

Distribution. Burma and Thailand.

Habitat. On limestone rocks.

Specimens examined. N. Mae Hongson: 30 km N of Mae Sariang, 400 m, *Larsen et al.* 2349 (BK). Pitsanulok: Tung Salaeng Luang 500 m, *Murata et al.* 17131 (BK). Lampang: Thoen distr. 200 m, *Shimizu et al.* 18536 (KYO, TI). NE. Loei: Phu Luang, *Bunchuai* 1710 (BK). Nakhon Ratchasima: Pak Thong Chai, Wang Nam Kieo 300 m, *Phengnaren* 409 (BK), 320 m, *Phengnaren* 440 (BK). E. Prachinburi: Khao Yai National Park, 700 m, *Larsen et al.* 384 (BK); E of Khao Yai N. P. 300 m, *Larsen et al.* 3253 (BK). Nakhon Nayok: Nakhon Nayok ca 40 m, *Phengklai et al.* 3729 (BK); Nang Rong Waterfall 100 m, *Smitinand & Floto* 6102 (BK); ditto, 300 m, *Larsen et al.* 3370 (BK). Chonburi: Khao Kieo, Siricha distr. *Maxwell* 75–563 (BK). Rayong: Rayong 5 m, *Phengklai et al.* 3833 (BK). C. Saraburi: Muak Lak, *Kerr* 9074 (BK); Muak Lek 300 m, *Smitinand & Sleumer* 1315 (BK); Sahn Lahn forest, Muang distr. 200 m, *Maxwell* 74–518 (BK); Hin Lap 200 m, *Smitinand & Sleumer* 1101 (BK). SW. Kanchanaburi: Sai Yok, *Put* 1774 (BK), *Larsen* 10462 (BK); Tha Kong Lai Water Fall, Sisawat distr., *Prayad* 1542 (BK); Huay Ban Kao to Kritee,

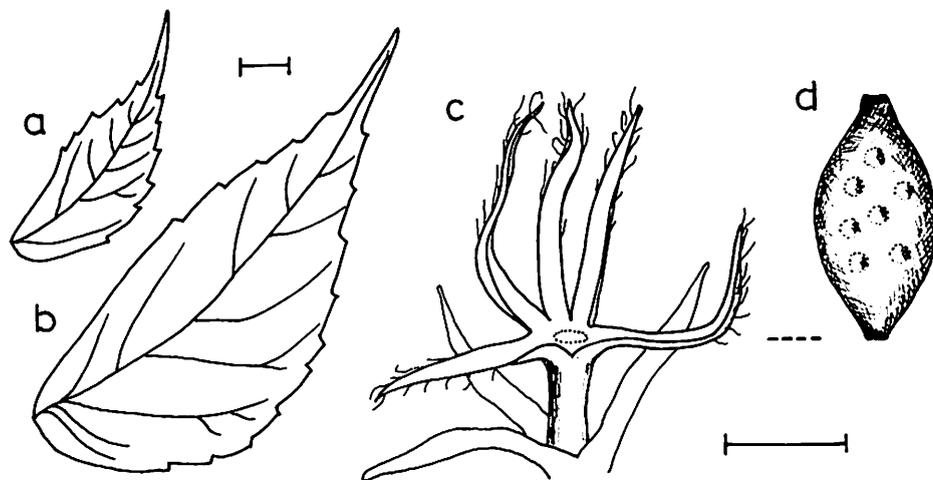


Fig. 1. *Pellionia bulbifera*. a-b: leaf. a, var. *bulbifera*; b, var. *burmanica*; scale, 1 cm. c-d, female flower with 5 calyx lobes, surrounded by bracteoles; achene is removed and drawn separately (d) and a frontal pair of calyx lobes is drawn designedly in spread condition; scale, 0.5 mm.

650 m, *Geesink & Phengkklai 6129* (BKФ); Erawan National Park 100-300 m, *Shimizu et al. 21597* (KYO, TI), 900 m, *Beusekom et al. 3844* (BKФ); Erawan Waterfall 350 m, *Ploenchit 1897* (BKФ), *Phengkklai 4282* (BKФ); Khao Slop, *B. N. & S. P. 304* (BKФ); Dong Yai 700 m, *CP. et al. 2931* (BKФ).

var. **burmanicum** (Hook. f.) Yahara, stat. et comb. nov.

*Pellionia burmanica* Hook. f., Fl. Brit. Ind. 5: 561, 1888.

*Elatostema burmanicum* (Hook. f.) Hall. f., Ann. Jard. Bot. Buit. 13: 316, 1896.

Leaves larger and broader than var. *bulbifera*, 5-12 × 3-5 cm; male heads on a longer peduncle (4-7 cm long), with more than 10 flowers.

Distributoon. Burma and northern Thailand.

Habitats. On limestone rocks.

Specimens examined. N. Chiangmai: Me Wang 400 m, *Kerr 6358* (BKФ). Mae Hongson: 15 km NW of Mae Hongson, 350 m, *Geesink et al. 5940 & 5948* (BKФ).

This species is regarded as a member of *Elatostema* subgenus *Euelatostema* by Schröter and Winkler (1935), who treated *Pellionia* as a subgenus of *Elatostema*. Their conclusion is mainly based upon the fact that flattened receptacle is developed in female heads of this species, to which they attached much importance as a diagnostic feature of subgenus *Euelatostema*. However, this species has tuberculate achenes and 5 (not 3 nor 4) female tepals about as long as achenes which are characteristic of *Pellionia*. Conclusion of Schröter and Winkler seems to be a result of overvaluing the inflorescence feature.

*Pellionia incisoserata* W. T. Wang recently described from China is considered a close relative of this species in having pinnately nerved leaves, not horned female tepals and short and thickened rhizomes. It is distinguished from *P. bulbifera* by

the absence of nanophyls.

*Elatostema* J. R. & G. Forst., Char. Gen. 105, t. 53, 1776.

Key to sections, series, and species

1. Stems prostrate and rooting adventitiously. Leaves at most 1.5×0.8 cm, with a few obtuse teeth. Achenes smooth (Sect. *Laevisperma*).....1. *E. obtusum*
1. Aerial stems erect or pendulous. Achenes longitudinally ribbed.
  2. Stems bearing small nanophyls opposite to leaves with blades. Male heads without discoid receptacle (Sect. *Weddelia*).
    3. Leaves oblong-elliptic, 1–3×0.5–1 cm, crenate, obtuse at the top and base; nanophyls lanceolate, 5–6 mm long, appressed along upper part of stem (Ser. *Salvinioida*) .....2. *E. salvinioides*
    3. Leaves on upper part of stem lanceolate, 3–5×0.8–1.8 cm, grossly serrate, acute at apex and at base; nanophyls 2–5 mm long, spreading against stem (Ser. *Parva*).....3. *E. monandrum*
  2. Nanophyls absent.
    3. Male heads without discoid receptacle. Stipules at most 4.5 mm long, caducous. Much-branched robust plants usually 50–150 cm high (Sect. *Weddelia*, Ser. *Acuminata*).
      4. Leaves almost entire, 10–18×2–5 cm. Stipules 0.6–2 cm long. Heads branched to small cells.....4. *E. integrifolium*
      4. Leaves distinctly toothed at least along upper margins. Stipules less than 0.5 cm long. Heads simple.
        5. Young stems densely pubescent. Leaves densely pubescent along veins beneath; herbaceous. Stipules 2.5–4.5 mm long. Achenes not papillate along rib. Male flowers 4-merous.....5. *E. linearatum* var. *majus*
        5. Whole plants glabrous. Leaves membranous. Stipules ca. 1 mm long. Achenes papillate along rib. Male flowers 5-merous...6. *E. acuminatum*
    3. Male heads with discoid receptacle. Stipules more than 5 mm long (Sect. *Elatostema*).
      4. Male heads sessile or on a peduncle less than 1 cm long. Stems and leaves more or less hairy (Ser. *Cuspidata*).
        5. Stems at most 30 cm high. Leaves narrow lanceolate.
          6. Leaves 2–5×0.5–1.5 cm, cuneate at base.....7. *E. ranongense*
          6. 5–15×1–3.5 cm, semicordate or semiauriculate at base....8. *E. molle*
        5. Stems more than 30 cm high. Leaves not lanceolate.
          6. Robust plants more than 50 cm high. Leaves 12–22×3.5–9 cm. Stipules 1.5–2 cm long.
            7. Leaves serrulate. Heads simple.....9. *E. platyphyllum*
            7. Leaves crenulate. Heads lobed and fascicled...10. *E. macintyreii*
          6. Slender plants 30–50 cm high. Leaves 8–16×3–5.5 cm. Stipules 0.5–1.2 cm long.
            7. Stems softly or sparsely covered with patent or upward hairs. Leaves serrate.....11. *E. cyrtandraefolium*
            7. Stems covered with appressed retrorse hairs. Leaves crenate....12. *E. garrettii*
  4. Male heads on a long peduncle. Stems and leaves almost glabrous (Ser. *Dissecta*)
    5. Leaves oblique-oblong, greenish upon drying.....13. *E. longipes*
    5. Leaves oblique-ovate, dark-colored upon drying.....14. *E. nigrescence*

Sect. *Laevisperma* (Hatusima) Yamazaki, J. Jap. Bot. 47: 180, 1972; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 64, 1980.

*Pellionia* sect. *Laevisperma* Hatusima, Sci. Rep. Yokosuka City Mus. 13: 37, 1967.

1. *Elatostema obtusum* Wedd., Ann. Sci. Nat. Ser. 4, 1: 190, 1854, nom. nud., Monogr. Urtic. 324, 1856 & in DC., Prodr. 16(1): 187, 1869; Hook. f., Fl. Brit. Ind. 5: 573, 1888; Hand.-Mazz., Simb. Sin. 7: 147, 1929; anonym., Fl. Tsinling. 1(2): 111, fig. 94, 1974; Tuyama in Hara, Fl. E. Himal. 1: 58, 1966; Hara in Ohashi, Fl. E. Himal. 3: 21, 1975; anonym., Fl. Hupeh. 1: 174, fig. 227, 1976; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 64, fig. 2-13, 14, 1980; Hara in Enum. Fl. Pl. Nep. 3: 203, 1982.

*Procris obtusa* Wall., Cat. no. 4636, 1831, nom. nud.

Distribution. Central and southern China, Taiwan, Himalayas and northern Thailand.

Habitat. On mesic places in hill evergreen forests.

Specimens examined. N. Chiengmai: Doi Inthanon, top area, Shimizu *et al.* 18848 (κνϷ), Nooteboom 839 (BKF).

This species is related to *E. suzukii* Yamazaki of Okinawa Is. and *E. oshimensis* (Hatusima) Yamazaki of Amami-oshima Is., southern Japan in having smooth achenes, few-flowered male heads, unflowered female heads, leaves with a few teeth and prostrate stems. It is distinguished from the latter by its hairy stems.

Sect. *Weddelia* W. T. Wang, Acta Phytotax. Sin. 17(1): 107, 1979 & Bull. Bot. Lab. NE Forest. Inst. 7: 29, 1980.

*Elatostema* subgen. *Weddelia* H. Schröt., Rep. Sp. Nov. Beih. 83 (1): 2, 17, 1935 & 83(2): 2, 1936, nom. nud.

Ser. *Salvinioida* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 44, 1980.

2. *Elatostema salvinioides* W. T. Wang, l.c., 1980.

Epiphyte, growing on rockwall. Stems pendulous, 15-25 cm long, covered with weak patent hairs, bearing brownish cataphyls along the lower part, with *Sedum*-like dormant buds at base. Leaves with blade oblong-elliptic, obtuse or shortly acute at apex, auriculate and unequal-sided at base, sessile, densely covered with cystoliths and hairy along midvein above, glabrous, punctate, with linearly arranged cytholiths along veins and sparsely with small red scales beneath, sparsely crenate along upper half of margins with weak marginal hairs; nanophyls opposite to leaves with blades, lanceolate, 0.5-0.8 cm long, greenish, appressed along stems. Heads sessile; male involucral bracts paired, orbicular, greenish, with weak marginal hairs; male bracteoles oblong-lanceolate, 3-4 mm long, obtuse or concave at apex, often corniculate below apex, rather glabrous except tips; male flowers 4-merous, corniculate below tepal apex; female involucral bracts ovate, shortly corniculate, with longer marginal hairs, female bracteoles filamentous, densely covered with long hairs, not corniculate. Achenes longitudinally ribbed, ca. 0.8 mm long.

Distribution. Southern China (Yunnan) and northern Thailand.

Habitat. On limestone rocks.

Specimens examined. N. Chiangmai: Doi Chiangdao 500 m, *Phengkai et al.* 4215 (БКФ), 600–700 m, *Geesink et al.* 5657 (ΚΥΟ, ВКФ), 1300–1600 m, *Shimizu et al.* 20889 (ΚΥΟ).

This is a peculiar epiphytic species without any close relative.

Ser. *Parva* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 34, 1980.

3. *Elatostema monandrum* (Hamilt. ex D. Don) Hara in Ohashi, Fl. E. Himal. 3: 21, 1975; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 37, 1980; Hara in Enum. Fl. Pl. Nepal 3: 203, 1982.

*Procris monandra* Hamilt. ex D. Don, Prodr. Fl. Nepal. 61, 1825.

*P. diversifolia* Wall., Cat. no. 4631, 1831, nom. nud.

*E. diversifolium* Wedd. in DC., Prodr. 16(1): 189, 1869.

*P. elegans* Wall., Cat. no. 4632, 1831, nom. nud.

*Elatostema surculosum* Wight, Ic. Pl. 6: t. 2091, f. 4, 1853; Wedd., Monogr. Urtic. 329, 1856; Hook. f., Fl. Brit. Ind. 5: 572, 1888; Gagnep. in Lecomte, Fl. Gén. Indo-Chine 5: 914, 1929; Hand.-Mazz., Simb. Sin. 7: 149, 1929; Satake in Faun. & Fl. Nep. Him. 111, 1955; Tuyama in Hara, Fl. E. Himal. 1: 59, 1969, p.p.

*Elatostema surculosum* Wight var. *elegans* Hook. f., Fl. Brit. Ind. 5: 573, 1888.

*E. surculosum* Wight var. *ciliatum* Hook. f., l.c., 1888.

*E. surculosum* Wight f. *ciliatum* (Hook. f.) Hara in Ohashi, Fl. E. Himal. 3: 21, 1975; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 38, 1980.

*E. surculosum* Wight var. *pedunculosum* Hook. f., l.c., 1888.

*E. surculosum* Wight f. *pedunculosum* (Hook. f.) Hara, l.c., 1975.

*E. surculosum* Wight var. *pinnatifidum* Hook. f., l.c., 1888.

*E. surculosum* Wight f. *pinnatifidum* (Hook. f.) Hara, l.c., 1975; W. T. Wang, l.c., 1980.

*E. surculosum* Wight var. *subincisum* Hook. f., l.c., 1888.

*E. surculosum* Wight f. *subincisum* (Hook. f.) Hara, l.c., 1975.

*E. surculolum* Wight var. *minimum* Satake in Faun. & Fl. Nep. Him. 111, 1955.

Distribution. Southern China, Himalayas, northern Burma and northern Thailand.

Habitat. In hill evergreen forests; on mossy tree trunks or mossy rock faces.

Specimens examined. N. Chiangmai: Doi Chiangdao, 1400 m, *Smitinand* 4711 (БКФ), *Beusekom & Phengkai* 1324 (БКФ), 1500–1800 m, *Kerr* 5547 (BK); Doi Inthanon, 1800–2500 m, *Murata et al.* 16008 (БКФ, ΚΥΟ), 2350–2550 m, *Shimizu et al.* 19829 (ΚΥΟ, TI); Doi Angka, *Garrett* 892 (БКФ).

Ser. *Acuminata* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 29, 1980.

4. *Elatostema integrifolium* (D. Don) Wedd. in DC., Prodr. 16(1): 179, 1869; Hara in Ohasi, Fl. E. Himal. 3: 20, 1975; Back. & v.d. Brink, Fl. Java 2: 43, 1965; Hara in Enum. Fl. Pl. Nepal 3: 202, 1982.

*Procris integrifolium* D. Don., Prodr. Fl. Nepal. 61, 1825.

*E. sesquifolium* (Bl.) Hassk. var. *integrifolium* (D. Don) Wedd., Mongr. Urtic. 308, 1856.

*Procris sesquifolia* Reinw. ex Bl., Bijdr. 511, 1826.

*E. sesquifolium* (Bl.) Hassk., Cat. Hort. Bogor. 79, 1844; Wedd., Monogr. Urtic. 308, 1856; Miq., Fl. Ind. Bat. 1(2): 243, 1859; Hook. f., Fl. Brit. Ind. 5: 564, 1888; Hand.-Mazz., Simb. Sin. 7: 147, 1929; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 34, 1980.

*E. sesquifolium* (Bl.) Hassk. var. *tomentosum* Hook. f., Fl. Brit. Ind. 5: 565, 1888; W. T. Wang, l.c., 1980.

*Procris punctata* Hamilt. ex Wall., Cat. no. 4627, 1831, nom. nud.

*E. miquelianum* Wedd., Ann. Sci. Nat. ser. 4, 1: 188, 1854, nom. nud.

*E. zollingerianum* Wedd., l.c., 1854, nom. nud.

*Procris piperifolia* Wall., Cat. 4628, 1831, nom. nud.

Distribution. Southern China, Himalayas, Burma, Thailand, Borneo, Philippines and Java.

Habitats. In evergreen forests.

Specimens examined. N. Chiangmai: Doi Chiangdao, KB 27 (BKФ), 600–700 m, Geesink et al. 5652 (BKФ), 1300–1600 m, Shimizu et al. 20883, 20914 (KYO), 1500 m, Sørensen et al. 1293 (BKФ), 1500–1800 m, Shimizu et al. 20952, 20962, 20965, 20967, 20968 (KYO), 1510–2190 m, Koyama et al. 33229 (KYO); Doi Inthanon, Mae Pan Waterfall 1100 m, Shimizu et al. 22614 (KYO, TI), 22913 ('var. *tomentosa*'; KYO); Doi Sutep 1000 m, Sørensen et al. 3516 (BKФ). SW. Kanchanaburi: Tham Tarn Lod National Park 380–500 m, Shimizu et al. 21971 (KYO). SE. Chan Thaburi: Khao Soi Dao North 300–800 m, Shimizu et al. 23930 (KYO). E. Nakhon Ratchasima: near Krop Hinlap fall, Khao Yai National Park, 600–650 m, Koyama et al. 30143 (KYO).

A form with leaves softly hairy beneath is named as var. *tomentosa* Hook. f., but it is doubtfully distinct as a race because individuals with and without soft hairs on the lower surface of leaves were mixedly found in a population of Doi Inthanon, Mae Pan Waterfall and these showed no other differences except of that in hair-covering.

5. *Elatostema lineolatum* Wight, Ic. Pl. 6: t. 1984, 1853.

var. *majus* Wedd., Monogr. Urtic. 312, 1856; Hara in Ohashi, Fl. East. Himal. 3: 20, 1975.

*E. lineolatum* Wight var. *majus* (pro *major*) Thwait., Enum. Pl. Zeyl. 260, 1864; Wedd. in DC., Prodr. 16(1): 182, 1869; Hook. f., Fl. Brit. Ind. 5: 565, 1888; Wright, J. Linn. Soc. Bot. 26: 482, 1899; Hand.-Mazz., Simb. Sin. 7: 147, 1929; anonym., Ic. Corm. Sin. 1: 515, fig. 1030, 1972; Liu & Huang, Fl. Taiwan 2: 181, pl. 258, 1976; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 13, 1980.

Distribution. Southern China, Taiwan, Himalayas, India, Burma and Thailand.

Habitats. In hill evergreen forests.

Specimens examined. N. Chiangmai: Doi Chang 1550–1600 m, Shimizu et al. 20269 (KYO), 1650 m, Shimizu et al. 20413, 20404 (KYO), 1700–1900 m, Shimizu et al. 20455 (KYO); Doi Inthanon 1200–1500 m, Chaloenphol 15 (BKФ), 1300 m, Kerr 5284 (BK), 1600 m, Shimizu et al. 18796 (KYO); Doi Ka 1440 m, Winit 1369 (BKФ, BK); Mae Lan Noi, Hansen et al. 10941 (BKФ); Mi Ta, 2000 ft., Winit 712 (BKФ). SW. Kanchanaburi: Khao Yai, E. of Sangkhla, 1200 m, Bensekom & Phengkklai 218 (KYO). P. Ranong: Khao Pawta Luangkaeo 940–1200 m, Shimizu et al. 26728 (KYO).

In Thai plants, there are some features different from Himalayan plants. Leaves are patently hairy beneath in Himalayan plants, while appressedly hairy in

Thai plants and hairs on young stems are much denser in the former than in the latter. Further investigations on geographical variation covering whole range of this species are desired to elucidate its infraspecific taxonomy.

6. *Elatostema acuminatum* (Poir.) Brong. in Duperr., Bot. Voy. Coq. 211, 1829; Wedd., Ann. Sci. Nat. ser. 4, 1: 189, 1854, Monogr. Urtic. 311, t. 9D, f. 1. 1856 & in DC., Prodr. 16(1): 181, 1869; Miq., Fl. Ind. Bar. 1(2): 244, 1859; Hook. f., Fl. Brit. Ind. 5: 566, 1888; Back. & v.d. Brink, Fl. Java 2: 43, 1965; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 31, 1980.

*Procris acuminata* Poir. in Lam., Encycl. 5: 629, 1804.

*Boehmeria acuminata* (Poir.) Pers., Syst. Pl. 2: 556, 1806–07.

*Langevelolia acuminata* (Poir.) Gaud. in Freyc., Voy. Bot. 494, 1826.

*Procris membranacea* Rienw. ex Bl. Bijdr. 512, 1825.

*Elatostema membranaceum* (Reinw. ex Bl.) Hassk., Cat. Hort. Bog. 79, 1844.

*E. membranifolium* Kurz, J. As. Soc. Beng. 42(2): 104, 1873.

Distribution. Southern China (Kanton, Yunnan), eastern Himalayas, Burma, Thailand, Malay Peninsula and Java.

Habitats. On mesic places in evergreen forests.

Specimens examined. N. Chiangmai: Doi Chang 1650 m, *Simizu et al.* 20399, 20403 (κΥΟ), 1550–1600 m, *Shimizu et al.* 20277 (κΥΟ, ΤΙ); Doi Inthanon 1800 m, *Smitinand* 6633 (ΒΚΦ). SW. Kanchanaburi: Khao Yai, E of Sangkhla, *Beusekome & Phengklai* 192 (κΥΟ, ΒΚΦ). SE. Chantaburi: Khao Soi Do North, 900–1550 m, *Shimizu et al.* 23779 (κΥΟ). P. Ranong: Khao Pawta Luangkaeo, 800–1000 m, *Geesink & Santisuk* 5156 (κΥΟ), 940–1200 m, *Shimizu et al.* 26808 & 26729 (κΥΟ), 300–600 m, *Shimizu et al.* 26955 (κΥΟ, ΤΙ). Krabi: Panorn Bencha 900 m, *Kerr* 18682 (ΒΚ). Satun: Kao Kio Range, *Kerr* 14534 (ΒΚ). Nakon Srithammarat: Lan Sa Ka, *Ploenchit* 554 (ΒΚΦ).

This species is similar to *E. lineoratum* var. *majus* in appearance, but distinct from it in 5-merous male flowers and achenes papillate along rib.

Sect. *Elatostema*; Wedd. in DC., Prodr. 16(1): 172, 1869, p.p.; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 66, 1980.

Sect. *Euelatostema* Baill., Hist. Pl. 3: 524, 1872.

Subgen. *Euelatostema* H. Schröt., Rep. Sp. Nov. Beih. 83(1): 2, 17, 1935, pro major. part.

Ser. *Cuspidata* W. T. Wang, l.c., 1980.

7. *Elatostema ranongense* Yahara, sp. nov. [Fig. 2]

*E. rupestri* et *E. molli* similis sed ab ambobus foliis minoribus 2–5 cm longis 0.5–1.5 cm latis basi cuneatis subtus pilis densi adpressi in nervis distinctis.

Stems simple or sparsely branched, ascendent, at most 20 cm long, caespitose, densely covered with assurgent hairs, creeping under ground. Leaves 2–5 × 0.5–1.5 cm, narrow lanceolate, acute at apex, cuneate at base, crenately serrate and undulate along upper-half margins, entire along lower-half margins, sparsely with bristle hairs above, densely with appressed hairs along veins beneath, with abundant cystoliths above, subsessile or shortly petiolate. Stipules membranous, ca. 0.5 cm long, subsistent. Heads subsessile; involucral bracts broadly ovate, glabrous, with marginal hairs; bracteoles filiform, densely covered with long patent hairs.

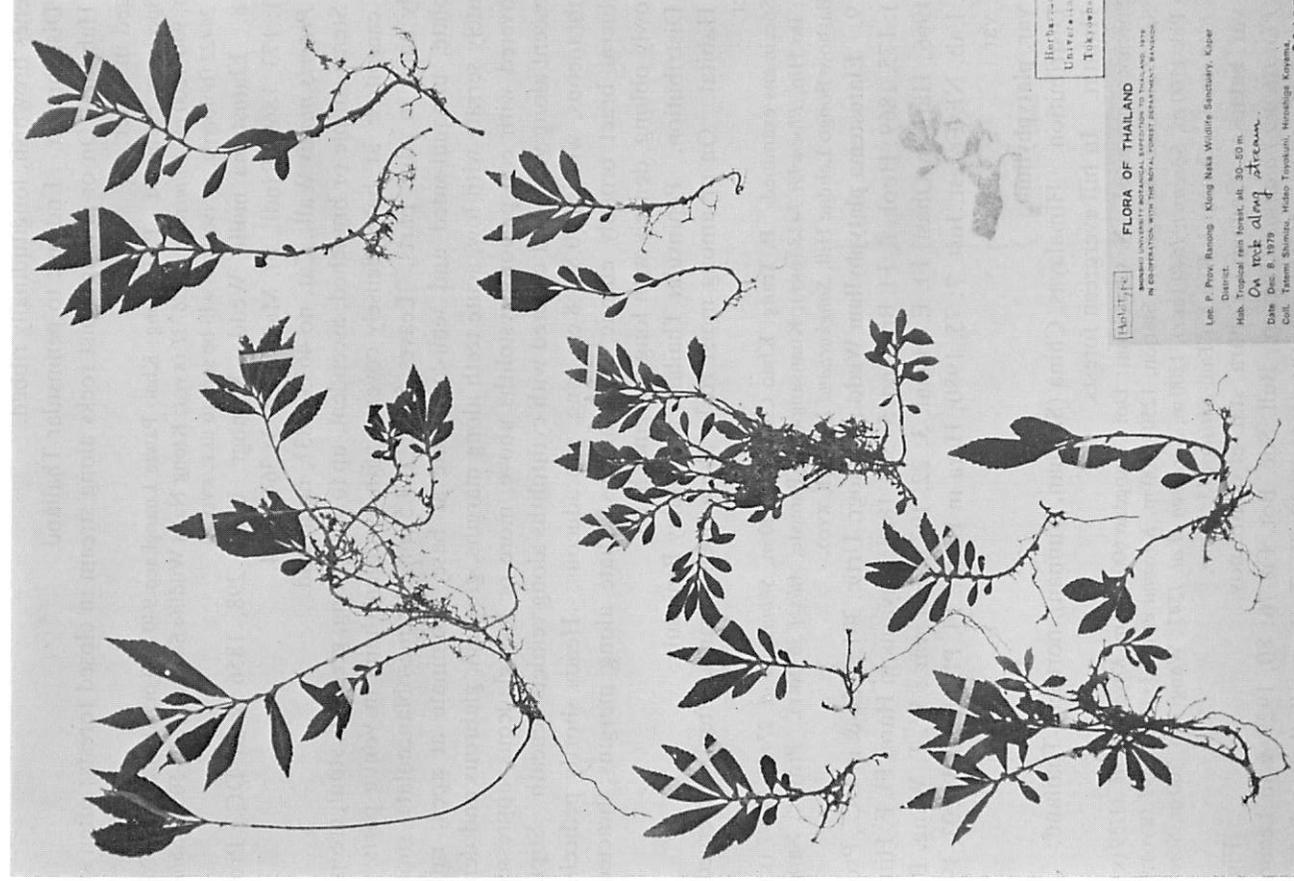


Fig. 2. Holotype specimen of *Elatostema ranongense*.

Achenes brownish, longitudinally ribbed.

Distribution. Endemic to peninsular Thailand.

Habitat. On or among moist rocks along stream in closed forests; often submerged in water.

Specimens examined. P. Ranong: Khao Pawta Luangkaeo 940–980 m, *Shimizu et al.* 26588 (κΥΟ); 940–1200 m, *Shimizu et al.* 26731 (κΥΟ); Klong Naka Wildlife Sanctuary 30–50 m, *Shimizu et al.* 26422 (holotype, Π; isotypes will be sent to ВКФ, КΥΟ, L).

8. *Elatostema molle* Wedd., Monogr. Urtic. 298, 1856 & in DC., Prodr. 16(1): 173, 1869; Rindl., Fl. Malay Pen. 3: 364, 1924.

*Procris mollis* Wall., Cat. no 4633, 1831, nom. nud.

Stems simple or branched, ascendent, up to 50 cm long, greenish, stout, creeping and caespitose at base, densely covered with assurgent hairs in young parts, sparsely hairy in adult parts. Leaves 5–15 × 1–3.5 cm, oblique-oblongate, shortly petiolate, unequal-sided and semi-auriculate at base, acuminate at apex, rather minutely serrate with low, acute teeth along margins, greenish, glabrous and densely covered with conspicuous cystoliths above, more or less glaucous, appressedly pubescent along veins and covered with cytholiths along veinlets beneath. Stipules membranous, whitish, 0.8–1.8 cm long, subcaducous. Heads shortly pedicelate; involucre bract broadly elliptic, sub-glabrous, ciliate along margins; bracteoles narrowly oblong, densely with long marginal hairs.

Distribution. Peninsular Thailand and Malay Peninsula.

Habitat. On or among moist rocks along open streams, often submerged in water.

Specimens examined. P. Trang: Khao Chong 70–150 m, *Shimizu et al.* 27433, 27437 (κΥΟ). Yala: Bo Hin, *Ploenchit* 1428 (ВКФ); Kuansangweth, Banaste, *Adisai* 36 (ВКФ). Prov. ? : Narathiwash Bashow Bongo Lehdae Hill, *Sangkachand* 262 (ВКФ, КΥΟ).

9. *Elatostema platyphyllum* Wedd., Monogr. Urtic. 301, 1856 & in DC., Prodr. 16(1): 175, 1869; Hook. f., Fl. Brit. Ind. 5: 566, 1888; Tuyama in Hara, Fl. F. Himal. 58, 1966; Hara in Ohasi, Fl. E. Himal. 3: 22, 1975, excl. var.; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 75, 1980; Hara in Enum. Fl. Pl. Nepal 3: 203, 1982, excl. var.

var. **platyphyllum**

Distribution. Himalayas, China (Sichuan, Yunnan), northern Thailand.

Habitat. In hill evergreen forests.

Specimens examined. N. Chiangmai: Doi Chiangdao 600–800 m, *Koyama et al.* 33159 (κΥΟ); Mae Sao Watershed Management Station, 1250–1500 m, *Koyama et al.* 33352, 33391 (κΥΟ); Pah Hom Pak 1100 m, *Sørensen* 1640 (ВКФ), 1200 m, *Sørensen et al.* 1547; Wang Tao, 700 m, *Sørensen et al.* 1069 (ВКФ). Chiangrai: Kua Ku Tau, *Sutisorn* 1532 (ВК).

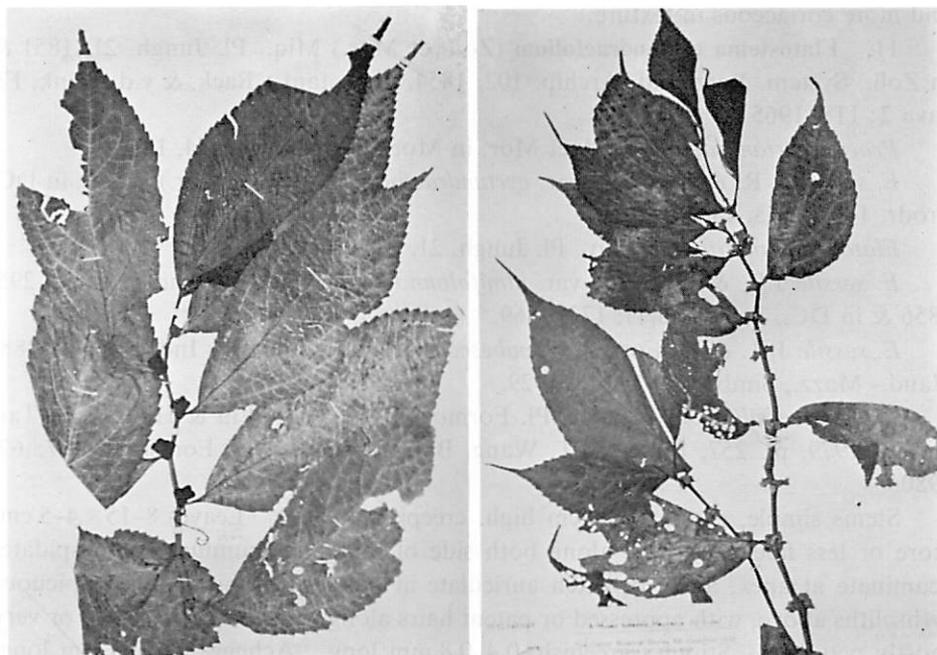
var. **balansae** (Gagnep.) Yahara, stat. et comb. nov. [Fig. 3]

*Elatostema balansae* Gagnep., Bull. Soc. Bot. Fr. 76: 80, 1929 & in Lecomte, Fl. Gén. Indo-Chine. 5: 916, fig. 106 (4–8), 1929; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 72, 1980.

Distribution. Southern China and northern Indo-China.

Habitat. In hill evergreen forests.

Specimens examined. N. Chiangmai: Doi Ka 1440 m, *Winit* 1368 (ВК, ВКФ); Doi Inthanon,



Figs. 3-4. 3 (left), *Elatostema platyphyllum* var. *balansae*. 4. (right), *E. macintyreii*.

*Smitinand & Alsterlund* 6655 (BKF), 1300 m, *Kerr* 5291 (BK); Doi Chang 1650 m, *Shimizu et al.* 20405 (KYO).

This variety is distinguished from var. *platyphyllum* only by leaves cuneate (not auriculate) at the base.

10. *Elatostema macintyreii* Dunn, *Kew Bull.* 1920: 210, 1920; W. T. Wang, *Bull. Bot. Lab. NE Forest. Inst.* 7: 72, 1980 [Fig. 4]

*E. platyphyllum* Wedd. var. *polycephalum* Hara in *Ohashi, Fl. E. Himal.* 3: 22, 1975 & in *Enum. Fl. Pl. Nepal* 3: 203, 1982.

*E. rupestre* auct. non (Buch.-Ham) Wedd.; *Hand.-Mazz., Symb. Sin.* 7: 147, 1929; *Merr., Lingn. Sci. Journ.* 13: 22, 1934; *anonym., Ic. Corm. Sin.* 1: 515, fig. 1029, 1972.

Specimens examined. N. Chiangmai: Nang Kruan Waterfall in Om Koi distr. 950-1000 m, *Shimizu et al.* 19302 (KYO, TI); Doi Inthanon, *Werawoat* 96 (BKF). Tak: Huai Krassa 900 m, *Hansen & Smitinand* 12957 (KYO, BKF). P. Ranong: Khao Pawta Luangkaeo 300-600 m, *Shimizu et al.* 26975 (KYO). Yala: Huangsangweth, Bansa, *Adisai* 37 (BKF).

Distribution. Southern China, Himalayas and Thailand.

Habitat. In hill evergreen forests.

This species is closely related to *E. platyphyllum* Wedd. and treated as its variety by Hara (1975). It is distinguished from *E. platyphyllum* Wedd. by heads divided to small cells, greenish (not reddish), shorter stipules and smaller leaves ( $8-20 \times 3.5-6$  cm while  $12-22 \times 3.5-9$  cm in *E. platyphyllum*) with very low teeth along margins, cuneate (not auriculate) at the base, with denser cystoliths above, harder

and more coriaceous in texture.

11. *Elatostema cyrtandraefolium* (Zoll. et Mor.) Miq., Pl. Jungh. 21, 1851 & in Zoll., System. Verz. Ind. Archip. 102, 1854, nom. tant.; Back. & v.d. Brink, Fl. Java 2: 118, 1965.

*Procris cyrtandraefolia* Zoll. et Mor. in Mor., System Verz. 74, 1846.

*E. sessile* J. R. & G. Forst. var. *cyrtandraefolium* (Zool. & Mor.) Wedd. in DC. Prodr. 16(1): 173, 1869.

*Elatostema ulmifolium* Miq., Pl. Jungh. 21, 1851.

*E. sessile* J.R. & G. Forst. var. *ulmifolium* (Miq.) Wedd., Monogr. Urtic. 295, 1856 & in DC., Prodr. 16(1): 173, 1869.

*E. sessile* J.R. & G. Forst. var. *pubescens* Hook. f., Fl. Brit. Ind. 5: 564, 1888; Hand.-Mazz., Simb. Sin. 7: 145, 1929.

*E. herbaceifolium* Hayata, Ic. Pl. Formos. 6: 57, 1916; Liu & Huang, Fl. Taiwan 2: 1979, pl. 257, 1976; W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 67, 1980.

Stems simple, erect, 40–50 cm high, creeping at base. Leaves 8–15 × 4–5 cm, more or less falcate, serrate along both side of margins, acuminate or cuspidate-acuminate at apex, acute or often auriculate at base, with abundant conspicuous cytholiths above, with appressed or patent hairs along veins beneath, sessile or very shortly petiolate. Stipules greenish, 0.4–0.8 mm long. Achenes ca. 0.6 mm long, longitudinally ribbed, whitish. Female bracteoles narrowly spatulate, obtuse at apex, densely covered with long hairs.

Distribution. Central and southern China, Taiwan, Himalayas, Indo-China, Sumatera and Java.

Habitat. In evergreen forests.

Specimens examined. N. Chiangmai: Doi Chiangdao 500 m alt., *Phengkklai et al.* 4216 (KYO, BKF), 500–600 m, *Geesink et al.* 5697 (KYO), 1300–1600 m, *Shimizu et al.* 20875 (KYO), 1300–1900 m, *Murata et al.* 15190 (KYO, BKF, TI); 10 km W of Fang, 600 m, *Larsen et al.* 2602 (BKF). SW. Kanchanaburi: Tham Tarn Lod National Park, *Shimizu et al.* 21959 (KYO); Khao Ko Kae, Erawan National Park, *Shimizu et al.* 21609 (KYO); Erawan National Park, *Shimizu et al.* 21582 (KYO), 21584 (KYO, TI).

12. *Elatostema garrettii* Yahara sp. nov. [Fig. 5]

*E. cyrtandraefolio* similis sed caulibus dense vel sparse pilis adpressis retrorsis obtectis, foliis crenulatis et capitulis masculis in pedunculo circa 1 cm longis distinctis.

Stems sparsely branched, erect, 40–50 cm high, densely or sparsely covered with appressed retrorse hairs. Leaves obliquely obovate, 7–12 cm long, 3.5–5 cm wide, acute at apex, obliquely cuneate at base, crenulate along margins, almost glabrous and with abundant cystoliths above, softly or appressedly pubescent beneath, sessile or very shortly petiolate. Stipules whitish green, 0.4–0.6 mm long. Female heads sessile, male heads on a pedicel 1 cm long.

Distribution. Peninsular Thailand and Malay Peninsula.

Habitat. In evergreen forests, especially on limestone areas.

Specimens examined. P. Phang Nga: E of Phang Nga, 30–150 m, *Shimizu et al.* 7842, 14666

( $\kappa\Upsilon\text{O}$ ); Me Ngao, Me Kawng 320 m, *Garrett 236* (holotype,  $\text{BK}\Phi$ ; isotype,  $\kappa\Upsilon\text{O}$ ). Yala: Bannang Sata, *Suvarnakoses 1729* ( $\text{BK}\Phi$ ). Trang: Khao Chong 70–150 m, *Shimizu et al. 27464* ( $\kappa\Upsilon\text{O}$ ). Malay Pen. Pahang: Bukit Chindamani, on limestone, *Henderson 25009* ( $\text{BK}$ ). Perak: Rotan Segar

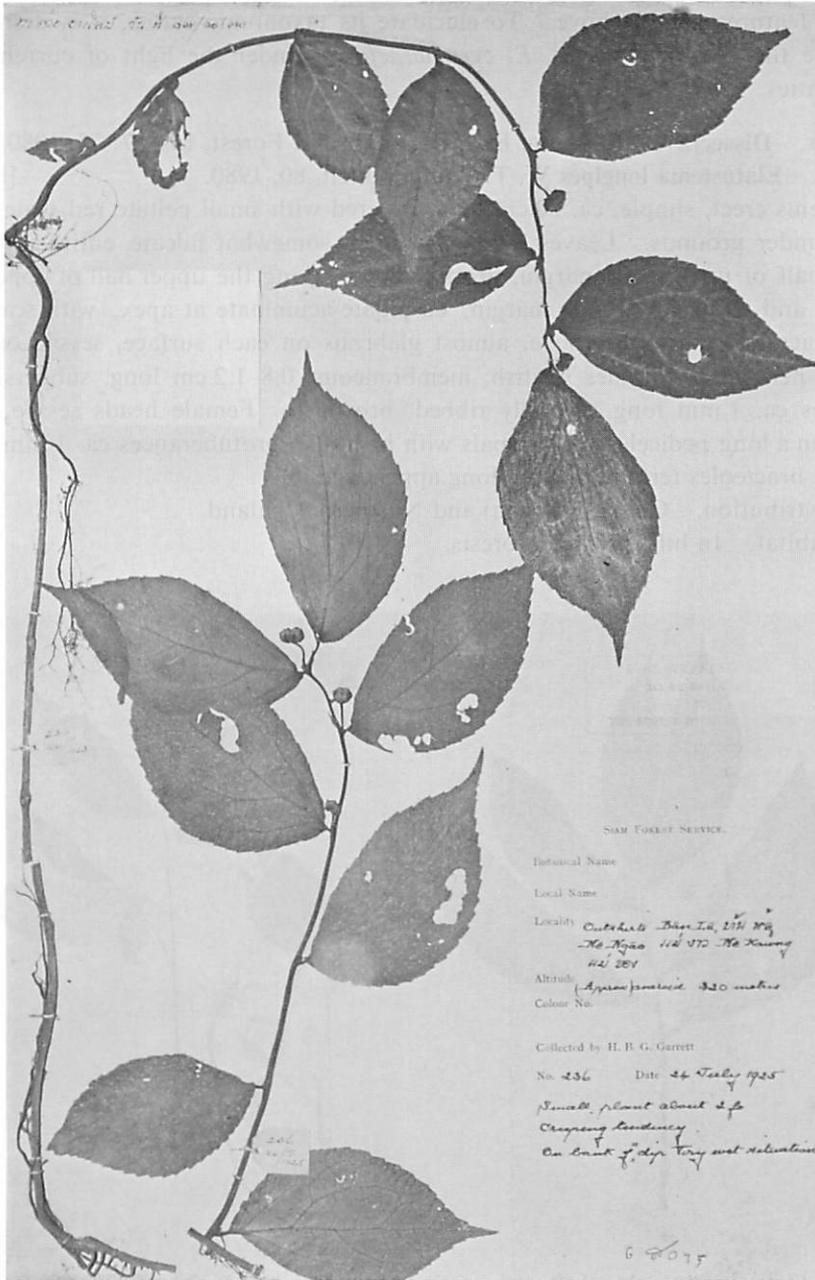


Fig. 5. Holotype of *Elatostema garrettii*.

limestone hill near Tambun, 300 m, *Henderson 501555* (SING).

This species seems to be a locally-differentiated relative of *E. cyrtandraefolium* which is an example of complex species poorly understood in its infraspecific taxonomy. The former is tentatively treated as a species here based on some characteristic features stated above. To elucidate its taxonomic status, it is desired to examine the complex species, *E. cyrtandraefolium* under the light of current bi-systematics.

Ser. *Dissecta* W. T. Wang, Bull. Bot. Lab. NE Forest. Inst. 7: 75, 1980.

13. *Elatostema longipes* W. T. Wang, op. cit. 80, 1980. [Fig. 6]

Stems erect, simple, ca. 50 cm high, covered with small peltate red scales, creeping under grounds. Leaves 8–15 × 3–4.5 cm, somewhat falcate, entire along the lower half of upper side margin, grossly serrate along the upper half of upper side margin and along lower side margin, cuspidate-acuminate at apex, with scattered inconspicuous cythtoliths above, almost glabrous on each surface, sessile or very shortly petiolate. Stipules whitish, membranous, 0.8–1.2 cm long, subpersistent. Achenes ca. 1 mm long, strongly ribbed, brownish. Female heads sessile, male heads on a long pedicel. Male tepals with horn-like protuberances ca. 1 mm long. Female bracteoles terminally with long appendages.

Distribution. China (Sichuan) and Northern Thailand.

Habitat. In hill evergreen forests.

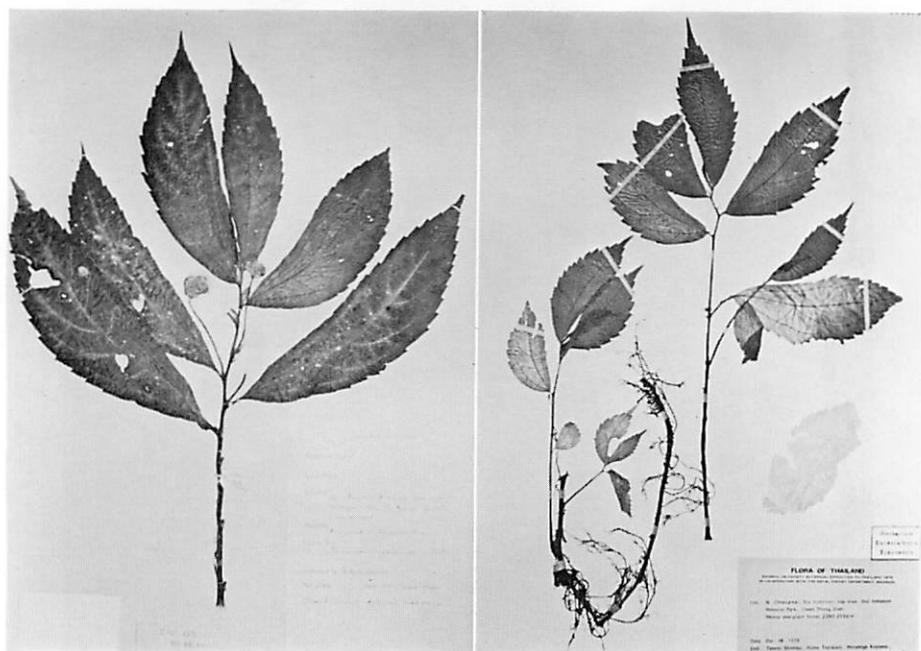


Fig. 6. *Elatostema longipes*. Left, male specimen from Doi Angka; right, female one from Doi Inthanon.

Specimens examined. N. Chiangmai: Doi Inthanon, *Shimizu et al.* 18826, 19828 (female, κγo); Doi Angka, Pa Ngem to top, *Garrett* 583 (male, BKF).

According to Wang's description and photograph, Thai materials are in good accordance with Chinese one. However, only a few materials have been collected from Thailand and also from China and their identity should be re-examined based on more specimens.

14. *Elatostema nigrescence* Miq. in Zoll., System. Verz. Ind. Archip. 101 & 105, 1854 & Fl. Ned. Ind. 1(2): 241, 1869; Wedd. in DC., Prodr. 16(1): 175, 1869; Back. & v.d. Brink, Fl. Java 2: 118, 1965.

Stems erect, 29–30 cm high, glabrous or sparsely pubescent, creeping under grounds. Leaves oblique-oblong, 6–12 × 3–5 cm, sessile or shortly petiolate, somewhat cuspidate at apex, semi-auriculate at lower-side base, cuneate at upper-side base, semi-trinervate with a lower side lateral vein starting near from leaf base and extending 1/2 or 2/3 of leaf blade and an upper side lateral vein starting from a point 3–6 mm distant from leaf base and extending near to the tip, serrate along both margins, glabrous or very sparsely pubescent and with many cystoliths above, more or less pubescent beneath, dark-colored upon drying. Young stems and leaves with small red peltate scales. Stipules 1.2–1.5 cm long, glabrous. Male heads on a peduncle 1–4 cm long, involucre bracts paired, with short spur below apex; male tepals corniculate. Female heads subsessile; achenes whitish with brownish longitudinal ribs.

Distribution. Peninsular Thailand, Sumatra and Java.

Habitats. In hill evergreen forests.

Specimen examined. P. Nakhon Srithamarat: Khao Luang, *Iwatsuki et al.* 8392 (κγo).

From Thailand, only one specimen is available. It has very sparse hair-coverings on stems and lower leaf surfaces compared with materials from Sumatra and Java.