

NEW SPECIES OF *CLITORIA* SUBGENUS
BRACTEARIA SECTION *BRACTEARIA*
(LEGUMINOSAE) FROM PERU AND ECUADOR¹

PAUL R. FANTZ

Fairchild Tropical Garden, Miami, Florida 33156

Members of *Clitoria* L. subgenus *Bractearia* (Mart. ex Benth.) Fantz section *Bractearia* are distinguished by the large coriaceous bracteoles which subequal and obscure the sparsely pubescent to glabrate calyx, (sub-) paniculate inflorescences in which the pair of pedicels are borne at the apex of the primary lateral branches, broad thick-sutured fruits, and by the tall, erect, woody habit (trees or shrubs commonly 5–30 m tall). Section *Bractearia* includes seven species (Fantz, 1977): *C. arborea* Hoffm. ex Benth., *C. fairchildiana* Howard, *C. amazonum* Mart. ex Benth., *C. nervosa* Herz., and three newly described below.

1. *CLITORIA juninensis* Fantz, sp. nov.

Frutex 2–4 m altus. *Folia* trifoliolata *subtus subvelutina*; *foliola obtusa, acumine brevi*, 1–7 mm longo. *Stipulae deciduae*, 8–11 mm longae; *stipellae* 5–10 mm longae. *Inflorescentiae* subpaniculato-racemosae, axillares et terminales, multiflorae; *rami laterales primarii pedicelliferi subsessiles* ad 5 (–8) mm longi. *Bracteolae amplae, coriaceae, oblongo-ellipticae, calycem subaequant*, 14–18 (–20) mm longae. *Flores* 4–5.5 cm; *vexillum extus fluvum, sericeum*. *Stylus* 16–17 mm longae. *Legumen stipitatum, planum, glabrum, sutura incrassata*. *Semina fere orbiculata, anthracina, compressa, laevis*.

Shrub, erect, 2–4 m tall. Branches elongated (vide Killip & Smith 23380), hollow, to 10 mm thick, juvenile branches subangular with dense, spreading, rufus trichomes, branches becoming terete and seemingly glabrate, with uncinata trichomes becoming more conspicuous (observe at 30X); bark dark brown, splitting in longitudinal strips, lightened beneath; axillary buds 1–2 mm, scales glabrate. *Leaves* 3-foliolate, coriaceous, leaflets broadly elliptic, ovate-elliptic, or obovate, apex generally obtuse, rapidly narrowed to a short acumen of 1–7 mm, more or less mucronate, base broadly cuneate to rotund, midrib impressed above, glabrous or bearing short erect and/or uncinata trichomes, primary nerves of 10–16 (–18) pairs, upper surface dark green and glabrous, lower surface pale green and subvelutinous, lamina 8–22 cm long, 4–9 (–12.5) cm wide. Petioles subangular-terete, 4–11 cm ribbed, with moderately dense, spreading, short, rufus trichomes; rachis more com-

¹Taxonomic studies on *Clitoria* accomplished at the IFAS Herbarium, Dept. of Botany, University of Florida, Gainesville, Florida. Florida Agricultural Experiment Station Journal Series No. 1345.

pressed, (1.5-) 2-3.5 cm; petiolule subquadrangular, 6-10 mm, with dense, spreading, rufus trichomes. Stipules deciduous, lanceolate-deltoid, acute, 8-11 mm long, 2-3 mm wide; stipels more persistent, linear, acute, 5-10 mm long, 0.2-0.7 mm wide. Inflorescence subpaniculate-racemose, axillary and terminal, solitary, multiflowered, pubescence dense, trichomes short, spreading, rufus; central axis 5-23 cm long, lignose and nodose in fruiting stage, the primary



Figure 1. Holotype of *Clitoria juninensis* (Killip & Smith 23380, NY).

lateral branches which bear the pedicels subsessile to 5 (-8) mm long; pedicels paired, 4-7 mm. Bracts ovate, acute, reflexed in age, 4-7 mm long, 2-3 mm wide, pubescence dense, trichomes appressed, rufus. Bracteoles large, coriaceous, oblong-elliptic, subequal to calyx, 14-18 (-20) mm long, 7-10 mm wide, pubescence appressed. *Flowers* all chasmogamous, 4-5.5 cm, white to pink with a bluish-tinge. Calyx sparsely pubescent, trichomes appressed, tube 13-17 mm long, 3-5 mm wide at the base expanding to 8-12 mm wide at the throat, lobes ovate-deltoid, acuminate, 5-7 mm long, 3-4 mm wide, ventral lobe narrow, 7-8 mm long. Vexillum pubescence dense, trichomes appressed, rufous, blade 3-3.5 cm wide, claw 8-9 mm. Alae white to pinkish, extending 6-8 mm beyond the carina, blade 18-23 mm long, 5-9 mm wide, claw 13-15 mm. Carina bluish, falcate, blade 9-13 mm long, 4 mm wide, claw 24-27 mm. Staminal tube glabrous, 27-32 mm long, free filaments 3-5 mm long; anthers 1.5-1.7 mm long, 0.5-0.8 mm wide. Gynophore 3 mm; ovary ca. 14 mm long, 1.2 mm wide, pubescence dense, trichomes appressed, yellowish-white; style bearded, 16-17 mm long, geniculate 6-7 mm; stigma flattened, 1 mm diam. *Legume* stipitate, slightly exerted beyond calyx, greenish-brown, flat, coriaceous, glabrous, thick-sutured, 21 cm long, 2.5-3.2 cm wide; stipe 14-17 mm; beak to 4 mm; dehiscence causing valves to twist one-half of a turn. Seeds nearly orbicular, black, smooth, compressed, 1-2 mm thick, ca. 10 mm long, 9 mm wide; 7 seeds per pod. Fig. 1.

TYPE COLLECTIONS: Perú. Shrub, 8-12 ft., with elongated branches; standard and wings white, blue-tinged, keel blue, white proximally, La Merced, Dept. Junín, 700 m, 29 May-4 Jun 1929 *Killip & Smith 23380* (HOLOTYPE: NY. ISOTYPES: F 616214, US 1358082). PARATYPES: Clearing along Río Perené near "Hacienda 3", Colonia Perene, 600 m, *Killip & Smith 25136* (NY); Pampa Whaley, Colonia Perené, prov. Tarma, 700-750 m, 14 Feb 1959, *Ferreira 13555* (WIS-2 sheets).

Clitoria juninensis has close affinities with *Clitoria andrei* which is distinguished by the elongated acumens of the leaflets, shorter stipules and stipels, somewhat smaller flowers with larger bracteoles, a nonserrate vexillum, and by the tree habit. All known collections of *C. juninensis* occur from the Dept. of Junin, Peru, where the species is an apparent endemic of highland scrub communities at elevations of 600-2000 m.

2. CLITORIA andrei Fantz, sp. nov.

Arbor ad 20 m alta. *Folia* trifoliolata *subtus subvelutina, foliolis abrupte acuminatis, acumine elongato*, 1-2 cm longo. *Stipulae caducae, 4 mm longae*; stipellae breves, 2-5 mm longo. *Inflorescentiae elongatae, subpaniculato-racemosae, axillares et terminales, multiflorae*; rami primarii laterales pedicelliferi subsessiles ad 2 mm longi. *Bracteolae amplae, coriaceae, oblongae, obtusae, calycem subaequant, 22-25 mm longae*. Flores 4-4.5 cm; *vexillum extus fulvum, cum trichomatibus secus nervos*. Stylus 17-21 mm. Legumen ignotum.

Tree to 20 m tall. Branches subquadrangular becoming terete, to 1 mm diam., hollow, juvenile branches with short appressed to spreading trichomes, becoming glabrate; bark light brown; axillary buds 1.5-2 mm, bud scales

ovate, acute, concave, strigose. *Leaves* 3-foliolate, coriaceous, leaflets ovate-lanceolate to elliptic lanceolate, apex abruptly acuminate, acumen 1–2 cm, mucronate, base broadly cuneate to rotund, midrib impressed to subimpressed above, often bearing short erect trichomes, primary nerves 13–17 pairs, upper surface dark green, glabrous, lower surface pale green, subvelutinous, lamina 7–20 cm long, 3–8 cm wide. Petiole subangular-terete to compressed



Figure 2. Holotype of *Clitoria andrei* (Andre 4675, GH).

above, 4–7 cm, pubescence of short, spreading trichomes; rachis subquadrangular, 1–2.5 cm; petiolules quadrangular, 6–7 mm, trichomes falcate. Stipules caducous, deltoid, acute, 4 mm long, 3 mm wide; stipels deciduous, linear, 2–5 mm long. *Inflorescence* elongate, subpaniculate-racemose, axillary and terminal, solitary, multiflowered, pubescence of axes dense, trichomes short, erect, rufous on juvenile portions becoming less dense and whitened with age; central axis 7–20 cm long, the primary branches which bear the pedicels subsessile to 2 mm long; pedicels paired, 6–8 mm. Bracts ovate, acute, reflexed in age, 4–6 mm long, 1.5–2 mm wide, pubescence dense, trichomes rufous. Bracteoles large, coriaceous, oblong, obtuse, subequal to calyx, 22–25 mm long, 9–12 mm wide, pubescence strigose. *Flowers* resupinate, all chasmogamous, pink with bluish tinge, 4–4.5 cm. Calyx pubescence sparse, trichomes short, appressed, tube infundibular, 14–16 mm long, 4–5 mm wide at the base expanding to 9–11 mm wide at throat, lobes deltoid, 5–7 mm long, 2–3 mm wide, ventral lobe 6–8 mm long. Vexillum indumentum of short, appressed, rufous trichomes confined primarily along the nerves, blade 2.5–3 cm wide, claw ca. 12 mm. Alae extended 6–8 mm beyond the carina, blade ca. 16–18 mm long, 4–6 mm wide, claw ca. 15–17 mm. Carina falcate, blade ca. 9 mm long, 3–4 mm wide, claw ca. 24–27 mm. Staminal tube sparsely pubescent near apex, trichomes microscopic (observe 30X), uncinata, tube 28–30 mm long, free filaments 2–3 mm long, uncinata-trichomed; anthers 1.5–2 mm long, ca. 0.3 mm wide, connective apiculate. Gynophore 3 mm; ovary ca. 14 mm long, 1.3 mm wide, pubescence dense, trichomes yellowish-white; style 17–21 mm, bearded, geniculate 6–7 mm; stigma discoid, 0.5 mm diam. *Legume* unknown. Fig. 2.

TYPE COLLECTIONS: Ecuador. Inter Guayaquil and Santa Rosa, 60 m, July 1876, Andre 4675 (HOLOTYPE: GH. ISOTYPES: F 537681, K, NY).

Clitoria andrei has close affinities with *Clitoria juninensis* of Peru which is distinguished by the obtuse leaflets with a minute acumen, larger stipules and stipels which are more persistent, smaller bracteoles on somewhat larger flowers, a sericeous vexillum, and by the shrubby habit. The species is known only from its type locality in Ecuador.

3. *CLITORIA moyobambensis* Fantz, sp. nov.

Arbor. Folia trifoliolata *subtus glabrescentia*, foliolis acuminatis, acumine elongato, 1.5–3 cm longo. *Stipulae amplae*, concavae, 10–12 mm longae, 4–6 mm latae; stipellae caducae. Inborescentiae axillares et terminales, subpaniculato-racemosae, multiflorae; rami laterales primarii pedicelliferi subsessiles ad 2 mm longi. *Bractee amplae*, coriaceae, lanceolatae, breviacuminatae, 8–11 mm longae, 3–5 mm latae. *Bracteolae amplae*, coriaceae, oblongo-ellipticae, calycem subaequantas, obtusae vel abrupte apiculatae, 12–15 mm longae. Flores 4–5 cm; vexillum extus fulvo-sericeum. *Stylus brevis*, 14 mm longo. Legumen ignotum.

Tree. Branches hollow, 4–7 mm diam., juvenile branches subquadrangular, longitudinally striated and sulcate, grooves shallow to deep, pubescence

prominent, trichomes uncinata (observe 30X) and short, falcate to appressed (conspicuous at 10X), branches becoming subterete and glabrous with age; bark medium gray, splitting into longitudinal strips, whitish-tan beneath. *Leaves* 3-foliolate, coriaceous, leaflets elliptic-lanceolate, tapering to acuminate apex, acumen 1.5–3 cm long, to 1.2 cm wide at broadly cuneate base, mid-



Figure 3. Holotype of *Clitoria moyobambensis* (Matheus s.n., K-Hb. Hooker).

rib impressed above bearing uncinat trichomes, primary nerves 13–16 pairs, upper surface dark green, glabrous or with short trichomes along major nerves, lower surface light green, glabrous, lamina 12–15.5 cm long, 6–8 cm wide. Petioles conspicuously twisted at base, longitudinally striated and canaliculate, 4–5 cm long, pubescence scattered, trichomes minute, falcate to appressed; rachis similar, 4 cm; petiolules quadrangular, rugose, 8–9 mm. Stipules large, conspicuous, concave nearly halfway around stem, lanceolate-ovate, rapidly tapering above middle to acute apex, 10–12 mm long, 4–6 mm wide; stipels caducous, only one terminal stipel observed (2 mm x 0.4 mm). *Inflorescence* axillary and terminal, solitary, subpaniculate-racemose, multi-flowered, trichomes subappressed; central axis twisting, longitudinally striated and caniculate, to 4 cm long (juvenile?), primary lateral branches which bear the pedicels subsessile, 1 (–2) mm long; pedicels paired, 8–14 mm. Bracts large, conspicuous, lanceolate, short-acuminate, 8–11 mm long, 3–5 mm wide, trichomes appressed. Bracteoles large, coriaceous, multinerved, oblong-elliptic, obtuse or abruptly apiculate, subequal to calyx, 12–15 mm long, 9–10 mm wide, pubescence ciliolate and strigose. *Flowers* resupinate, all chasmogamous, 4–5 cm. Calyx infundibular, glabrate, trichomes widely scattered, appressed, tube inconspicuously multinerved, nerves subimpressed, 13–15 mm long, 4–6 mm wide at the base expanding to 8–10 mm wide at throat, lobes deltoid, acute, 5–6 mm long, 4 mm wide, ventral lobe 7 mm long, 2 mm wide. Vexillum tawny-sericeous, blade 3–4 cm wide, claw 11 mm. Alae and carina hidden by vexillum and/or damage, not clearly observed. Staminal tube glabrous, 27–28 mm long, free filaments 1–3 mm long; anthers 0.8 mm long, 0.5 mm wide. Gynophore ca. 5 mm; ovary 13 mm long, 1 mm wide, lateral surfaces densely pubescent, trichomes uncinat, sutural edges with 1 mm long, ascending trichomes; style 14 mm long, bearded, geniculate 6 mm; stigma dark, ca. 0.7 mm diam. with a ring of short, reflexed trichomes at its base. *Legume* unknown. Fig. 3.

TYPE COLLECTION: Perú. Prov. Moyobamba, 1838. *Mathews s.n.* (HOLOTYPE: K-Hb. Hooker).

Clitoria moyobambensis is easily distinguished from other species in the subgenus by the unusually large bracts and stipules, and the pubescence of the ovary, a type unique amongst those species with a tree habit. This species appears to have close affinities with *Clitoria juninensis* and *Clitoria andrei* which have similar floral structures. It is known only from the type locality.

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