A New Section of *Passiflora*, Subgenus *Decaloba* (Passifloraceae), from Central America, with Two New Species

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ABSTRACT. The new section *Pterosperma* in *Passiflora* subg. *Decaloba* (Passifloraceae) is described from southern Mexico and Central America on the basis of leaf, inflorescence, seed, and fruit morphology. Species in this section are the sole hosts of the specialized herbivore *Eueides lineata* (Heliconidae). A morphological key to its four species is given, and two species, *Passiflora lancetillensis* and *P. pedicellaris,* are newly described and illustrated.

Key words: Central America, *Eueides,* Mexico, *Passiflora,* Passifloraceae, *Pterosperma.*

Exploration of the lowland wet forests of southern Mexico and Central America has revealed the existence of a group of four closely related species of passionflower vines. When the first species to be named was grown and studied by L. Gilbert, it was obvious from the co-occurrence of the numerous petiolar nectaries with the stalked, relatively unspecialized inflorescence structure that the species did not fit into any known sections of the genus *Passiflora* L., and would not key out to any of the subgenera in Killip's monograph (1938). This unique group of large woody vines, distinguished by morphological characters and a shared specialized herbivore, is best recognized as a separate section of the genus and placed in subgenus *Decaloba* (DC.) Reichenbach. This subgenus is characterized by a plicate membranous floral operculum, variegation on juvenile leaves, and laminar nectaries not marginal. Two of the four species are newly described here; the other two recently have been described with detailed ecological observations (Gilbert & MacDougal, 2000; Knapp & Mallet, 1984).

Passiflora L. subg. **Decaloba** (DC.) Reichenbach sect. **Pterosperma** L. Gilbert & J. M. MacDougal, sect. nov. TYPE: *Passiflora microstipula* L. Gilbert & J. MacDougal.

Plantae scandentes ramulis juvenis apice cernuis. Folia stipulis minutis caducis; petiolo nectariis (0 vel) 1 ad 11 munito; lamina elobata, integra. Inflorescentia ex floribus uno ad sex sicut capreolo uno pedunculo portatis constans; pedicello bracteis tribus 0.8–3.5 mm longis praedito. Flos corona 2- ad 4-seriata; operculo plicato. Seminibus amplis, complanatis, reticulatis, marginibus 4-alatis.

Medium-sized woody vines to canopy lianas; stem and abaxial surface of leaves puberulent as seedlings, erect trichomes sometimes glandular, lightly puberulent to glabrous at maturity; stems terete, pith chambered, posture of shoot tip cernuous; stipules extremely reduced, caducous; petioles (0)1- to 11-glandular; laminas narrowly ovate to (very) widely ovate (conspicuously peltate in one species) with conduplicate ptyxis, entire, acute to abruptly acuminate (rarely obtuse), variegated adaxially or not in juveniles, usually glaucous abaxially, laminar nectaries present submarginally, or absent; prophylls of vegetative bud 2, collateral; tendrils in seedlings distally swollen and adhesive in at least one species; peduncle 1 per node, bearing both a tendril and 1 or 2 pedicels, these often branched so that the inflorescence is (1)2- to 6-flowered, the tendril expressed in the inflorescence sometimes aborting, the common peduncle sometimes reduced to nearly nothing so that the pedicels appear to arise from the leaf axils; bracts 3 per first order pedicel, 0.8–3.5 mm long, narrowly triangular to linear-lanceolate; floral stipe (pedicel distal to articulation) conspicuous, 9–42 mm long; flowers white with a yellow or white outer corona, this with a purplish red band or not; sepals and petals subequal, 17–25 mm long, coronal filaments in (2)3–4 series, the outermost 9–20 mm long, the inner 1.5–8 mm long; operculum plicate; androgynophore 7–14 mm; ovary puberulent to densely pubescent; fruit 4–6 cm diam., conspicuously stipitate, inflated, the pericarp very thin and leathery to parchment-like; seeds 6–12 × 5–11 mm, the testa retic-

ulate in center and surrounded by striate wings with erose to laciniate margins, the chalazal beak antiraphal; pollen 6-colporate; chromosome number n = 9 (one species known). Germination epigeal.

These four rather similar species are lianas of primary moist to wet tropical forest that form a cohesive and well-marked group here recognized as section *Pterosperma*. They flower in the canopy and thus are rarely seen or collected, and although considered to be uncommon to rare, they are sometimes locally common as sterile juveniles in light gaps (Gilbert, pers. obs.; Meerman, pers. comm.). Three of the four are known to be the sole host/food plant in their geographical area for the larvae of the uncommon heliconid butterfly, *Eueides lineata* (Mallet & Longino, 1982; Knapp & Mallet, 1984; Meerman, 1999). The stipules of each species are minute and deciduous, the new growth is cernuous, there are multiple petiolar nectaries, the minute laminar nectaries are submarginal when present, and the inflorescence type is very rare in the genus, i.e., a pedunculate dichasial cyme with the central pedicel modified to be a tendril. This is the type of inflorescence present in most of the other genera in the tribe Passifloreae. The white flowers have the characteristics of a bee-pollination syndrome, and indeed, one is known to be bee-pollinated (Meerman, pers. comm.). Each species has similar unusual marginally winged seeds, hence the name of the section. The arils and the shape, color, and persistence of the fruits are known for two of the four species of this section, and suggest dispersal by frugivorous bats (Gilbert & MacDougal, 2000). Leaves of *P. eueidipabulum* and *P. microstipula* were studied by Klucking, who published photographs of leaf clearings (1992: 239, pl. 88, fig. 4; 245–246, pl. 98, fig. 5).

This distinctive section is placed in *Passiflora* subg. *Decaloba* based on the presence of a plicate operculum, cernuous stem growth, and variegation along main veins of the leaf. Preliminary analysis of two genes also supports this placement (Hansen, in prep.). The new section is discordant in *Decaloba* by its multiple petiolar nectaries, 6-colporate pollen without secondary opercula (L. Escobar, pers. comm.), and the fundamentally cymose inflorescence. Though the stalked inflorescence type is like that of most other genera in the tribe Passifloreae, the placement of the bracts in the inflorescence is not. Here, as in most passifloras, the displacement of bracts onto the branches they normally subtend (the *recaulescence* of Cusset, 1968) has produced the evolutionarily derived state of 3-bracteate pedicels. Unpublished studies have found the chloroplast intron *rpoC1* to be present in *P. microstipula*, an evolutionarily basal state in the genus (Hansen, unpublished). The loss of this intron has occurred in some other species of subgenus *Decaloba*. Snow and MacDougal (1993) reported and illustrated the one chromosome count for this group, $2n = 18$ (from *P. microstipula* as "P. sp. nov. A"). The chromosomes were relatively small, more like those in the $2n = 12$ group, subgenus *Decaloba*, than in the subgenus *Passiflora*, in which $2n = 18$ is the norm. Thus, they concluded that the $2n = 18$ count is not homologous between this section and subgenus *Passiflora*.

KEY TO THE SPECIES OF *PASSIFLORA* SECTION *PTEROSPERMA*

1a. Leaves peltate 0.9–2.0 cm from the margin; floral stipe 9–15 mm (Costa Rica, Panama) . . . . . 4. *P. eueidipabulum*
1b. Leaves not peltate, or subpeltate 0.2–0.5 cm from the margin; floral stipe 16–42 mm (Mexico to Honduras).
  2a. Leaves puberulent or pubescent abaxially at maturity; petioles 6–11-glandular; flowers with white or whitish outer corona (Belize, Honduras) . . . . . 1. *P. lancetillensis*
  2b. Leaves glabrous abaxially, at least at maturity; petioles 1–10-glandular or glands absent; flowers with yellowish outer corona (Mexico, Guatemala).
    3a. Petioles 1-glandular or glands absent; floral stipe 28–40 mm, pubescent; flower buds and sepals pubescent; flowers 1(2) per node (Guatemala) . . . . . 2. *P. pedicellaris*
    3b. Petioles 4–8(–10)-glandular; floral stipe 16–26 mm, glabrous; flower buds and sepals glabrous; flowers 2 to 4 (to 6) per node (Mexico) . . . . . 3. *P. microstipula*

1. Passiflora lancetillensis J. M. MacDougal & J. Meerman, sp. nov. TYPE: Belize. Cayo: near San Ignacio, cultivated at the National Passionflower Collection of the Belize Tropical Forest Studies at Green Hills, *J. C. Meerman s.n.*, 9 June 1996, from several seedlings collected by Meerman on 2 Dec. 1994 in Belize, Cayo District, Tapir Mountain Nature Reserve, 17°09′N, 88°51′W, 100 m (holotype, BRH; isotypes, BM, GOET, MEXU, MO (2), TEX). Figures 1, 2, 3.

Haec species *Passiflorae microstipulae* similis, sed ab ea flore omnino albo filamentis coronalibus exterioribus filiformibus tortuosisque ornato, foliis latius ovatis ad nodos floriferos abaxialiter pubescentibus, sepalis pubescentibus atque nectariis petiolaribus plerumque multioribus distinguitur.

Large vine to low canopy liana, 9 m to at least 20 m, puberulent throughout with erect trichomes 0.3–0.6 mm long, these sometimes glandular, ex-

Figure 1. *Passiflora lancetillensis* J. M. MacDougal & J. Meerman. Flower and peduncle of clone of type material (*Meerman s.n.*). Note nectary glands on pubescent petiole at left. Photograph by Jan C. Meerman.

cept stem and adaxial surface of lamina glabrous at maturity; stems terete, 0.8–3 cm diam., with chambered pith, pubescent in younger plants, glabrous at maturity except pubescence persisting near nodes. Stipules minute to setaceous, 0.4–1.0 × 0.15–0.2 mm, deciduous; petioles 8- to 11-glandular, the nectaries 1.5–2.5 mm diam. in mature plants, obloid to depressed obovoid, (petioles 6–11-glandular in juvenile plants, the nectaries narrowly cylindrical, 0.3–1.0 × 0.1–0.3 mm); laminas (8)10–16(–22) × 7–15(–19) cm, not variegated (nor in seedlings seen, grown, or collected in Belize), widely ovate to very widely ovate, unlobed, not peltate, entire, abruptly acuminate to obtuse, often with submarginal laminar nectaries associated with the end of major secondary veins, sessile or short-cylindrical, borne 0.5–5 mm from margin; prophylls of vegetative bud 2, 0.6–1.5 mm long, widely to narrowly triangular, 3-toothed, collateral. Peduncle (common peduncle of tendril and flower) 1 per node, bearing both a tendril and 1 or 2 pedicels, 0–2(–3) cm long to the first branch, the pedicels 0.3–1.3 cm long, often 1- or 2-branched so that the inflorescence at the leaf axil is (1)2- to 4(to 6)-flowered, the tendril expressed in the inflorescence sometimes aborting, the common peduncle often reduced to nearly nothing so that the pedicels appear to arise from the leaf axils; bracts 0.8–2.0 × 0.2–0.5 mm, triangular to oblong-lanceolate. Flowers white with a whitish corona and light green center, borne upward; stipe 25–42 mm; sepals 18–23 × 6.0–9.0 mm, narrowly ovate-oblong, green abaxially, pale greenish yellow to white adaxially, with no projection; petals 19–22 × 7.0–8.5 mm, narrowly ovate-oblong, slightly narrowed at base, white; coronal filaments in 3 or 4 series, the outer 15–20 mm, filiform, tortuous in distal half, slightly attenuate toward tips, white or very pale cream, not banded, the inner 2 or 3 series 3.5–6 mm, filiform to capillary, straight, white; operculum 3.5–4.5 mm, membranous, plicate, green with white-fringed apex; limen floor apparently unmarked, androgynophore base not colored; androgynophore (8–)9–9.5 mm, light to pale green, in the type sparsely pubescent near the middle; staminal filaments free 6–8 mm, anthers 3.2–3.5 mm, not marked; ovary 3.7–4.5 × 2.7–3.5 mm, on a 1.5 mm gynophore, widely ellipsoid, densely pubescent; styles 9.5–11 mm in-

Figure 2. *Passiflora lancetillensis* J. MacDougal & J. Meerman. Two nodes along a stem, with associated leaves and peduncles. Interpretation of the structure of the inflorescence is aided by the letter "T" marking the tendrils. The articulations of the pedicels marking the floral stipes can be seen as darker lines on the pedicels. Scan by Jan C. Meerman of living plants of the type material (*Meerman s.n.*).

cluding stigmas, green and unmarked, usually lightly pubescent proximally. Fruit 6.5–8 cm long including 2.5–3.0 cm long stipe, 4.0–4.8 cm diam., widely ellipsoid or subglobose, slightly conical at attachment of stipe, blunt at apex, light green or yellowish green at maturity, inflated, indehiscent (but easily splitting into three parts with slight pressure), without strong odor, short-pubescent inside on placental walls with erect thick trichomes, exocarp very thin, leathery, drying parchment-like, ca. 1 mm thick; arils translucent whitish, insipid; seeds ca. 20 to 36 per fruit, 9.5–11.5 × 7.0–8.0 × 2 mm, dark brown, punctate-reticulate in center, the pits sometimes weakly organized into a few wavy rows, with 4 conspicuous marginal wings, (1.5–)2–2.5(–3.0) mm wide, striate, deeply erose to laciniate (to deeply laciniate at micropylar end), the chalazal beak antiraphal; germination epigeal.

Herbivory. The butterfly *Eueides lineata* (Nymphalidae: Heliconiinae) appears to be restricted to this species of vine in Belize. The females lay eggs singly on the underside of young but nearly fully expanded leaves and cause a distinctive feeding pattern of little windows in the leaf blade. The only other Heliconiinae butterfly utilizing this species is *Dione juno,* which is known to utilize a variety of passifloras as the larval food plant. *Passiflora lancetillensis* is rather toxic to *Dione,* however, and the larvae only rarely reach maturity (Meerman, pers. comm.).

Distribution and habitat. *Passiflora lancetillensis* is a low canopy-dwelling species of tropical evergreen or seasonal broadleaf lowland hill forest at elevations of 20–750 m where rainfall varies from 2000 to 4000 mm annually (Meerman & Sabido, 2001). In Belize, it is found in strongly karstic regions, with forest canopies at 20–35 m, and at least in some areas, with a marked dry season (Parker et al., 1993: 18). Because it has been found on the coast of Honduras and in extreme southwestern Be-

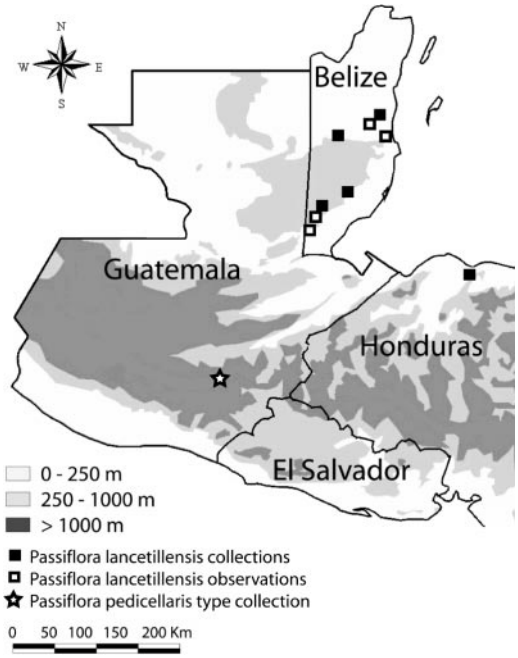

Figure 3. Map of northern Central America showing distributions of *Passiflora lancetillensis* and *P. pedicellaris*. Map courtesy of Jan C. Meerman.

lize, it might be expected in hilly forest patches in the intervening and neighboring departments of Izabal and Petén of Guatemala. Associated species of *Passiflora* include *P. obovata* Killip and *P. guatemalensis* S. Watson in southern Belize, and *P. mayarum* J. M. MacDougal in northern Belize.

This distinctive new species is presently known from five collection sites, one the Lancetilla Valley on the Atlantic coast of Honduras, and four from the hills of southern and central Belize. Additional localities where the species has been observed by Meerman, but not collected, are noted in Figure 3. The Honduran specimens, sterile and with large prereproductive leaves, were cited in the *Flora of the Lancetilla Valley* as a probable new species (Standley, 1931: 293, citing the monographer Killip).

The species is clearly closely related to, but distinct from, *Passiflora microstipula* and *P. eueidipabulum*. Large leaves at prereproductive nodes are non-peltate and evenly puberulent to pubescent beneath, and the petioles have significantly more glands. The stem is lightly puberulent. As in *P. microstipula*, there is a pronounced change of morphology of the petiolar glands from narrowly cylindrical in juvenile leaves to larger depressed obovoid glands in leaves on large plants or at reproductive nodes (Gilbert & MacDougal, 2000). Unlike *P. microstipula*, however, the leaves remain pubescent on the undersides at maturity, and the flower buds and longer floral stipes are pubescent. The flower is distinctive in the group, with an all-white filiform corona instead of stockier filaments that are laterally compressed and yellow or yellow with reddish purple bands.

Fruits are known from a few produced by open cross pollination of the type plants in cultivation, and from one fallen empty fruit of a canopy liana in the field (*Holst & Davidse 5459*). Seeds are known only from the cultivated type material. The seeds are similar to those of *Passiflora microstipula* and *P. eueidipabulum*, with the distinctive erose marginal wings found in all the species of the section, but the margins of the wings are cut more deeply, even laciniate to base at the micropylar end.

At the National Passionflower Collection of the Belize Tropical Forest Studies in Cayo District (240 m), the flowering season appears to be May through August. Flowers stand erect and open before dawn. On hot days, the flowers may wilt before noon, but mostly remain open all day, even into the evening on cooler days. Usually only one flower per peduncle opens each day. The flowers emit a strong and pleasant coumarin-like odor. Medium-small bees frequent the flowers in cultivation, with most activity ceasing in mid-morning around 10 a.m. (Meerman, pers. comm.). One of these visitors, a 1.0 cm long bee in the Anthophoridae, closely matched the functional size of the flowers and while foraging for nectar, appeared to carry pollen on its hairy thorax from flower to flower. The usual pollinators in wild habitat are probably bees of similar size. Hummingbirds have also been seen occasionally to visit the flowers (Meerman, pers. comm.).

Healthy F1 seedlings have been produced in the greenhouse by crossing between this new species and *Passiflora microstipula* (Gilbert & MacDougal, 2000), but these have not flowered yet.

This new passionflower was listed (as a nomen nudum, *P. lancetillensis* M[a]cDougal) in Parker et al. (1993: 10, 38, 51), and its associated vegetation was discussed. Jan Meerman introduced the species to horticulture by 1996, and briefly described and figured it in the Passiflora Society International's newsletter (Meerman, 1996). A color photograph and description in German soon appeared in a popular handbook on passionflowers (Ulmer & Ulmer, 1997). By 1998 it was listed in plant collections from at least four countries (Schappert, 1998: 23) and is now available from a few commercial plant dealers. The name also appeared in the 1997 version of the *IUCN Red Book* (Walter & Gillett, 1998: 446) where it was scheduled as R (Rare) from information provided by MacDougal.

The specific epithet refers to the Lancetilla Valley in northern Honduras where this species was first collected.

Paratypes. U.S.A. **Missouri:** cultivated at Missouri Botanical Garden 1996–2002, from seeds from Meerman's cultivated type plants, received Oct. 1996, *MacDougal 6035* (MO). BELIZE. **Belize:** Gracy Rock, 17°23′N, 88°26″W, 1996, *Meerman JM048 /JMP034* (MO). **Cayo:** Tapir Mountain Nature Reserve, 17°09′N, 88°51′W, UTM 16.303 E, 1897 N, 2 Dec. 1994, *Meerman s.n./JM017B* (MO). **Toledo:** southwestern Maya Mountains, Columbia River Forest Reserve, Union Camp, dry hills E and N of camp, 16°23′N, 89°09′W, 6 Apr. 1992, *Holst 4144* (MO); Maya Mountains, Bladen Nature Reserve, Upper Bladen Branch basin, hill immediately E of "AC Camp," ca. 1 km SW of Ek Xux ruin, 16°29′40″N, 88°54′30″W, 21 May 1996, *Holst & Davidse 5459* (BRH). HONDURAS. **Atlántida:** Lancetilla Valley, near Tela, ca. 15°42′N, 87°28′W, 6 Dec. 1927–20 Mar. 1938, *Standley 55285* (F, US), *Standley 56831* (F, photo: DUKE, HUA, MO; US).

2. Passiflora pedicellaris J. M. MacDougal, sp. nov. TYPE: Guatemala. Baja Verapaz: Niño Perdido, 15°10′N, 90°06′W, on Arroyo El Caracol, 6 km, 300–600 m, 23 June 1977 (bud, fl, imm. fr), *C. L. Lundell & E. Contreras 21209* (holotype, LL; isotypes, LL, MO). Figures 3, 4, 5.

Haec species *Passiflorae microstipulae* similis, sed ab ea nectariis petiolaribus deminutis carentibusve, foliis angustius ovatis, androgynophoro breviore atque nodis flores unum duosve tantum gerentibus distinguitur.

Vine, glabrous except minutely puberulent with straight, possibly glandular trichomes on the prophylls of the vegetative bud, the hypanthium and sepals, and the ovary; stems terete. Stipules 0.6–1.2 × 0.1–0.2 mm, linear-triangular, late deciduous; petioles eglandular or 1-glandular near or slightly distal to the middle, the nectary 0.8–1.8 × 0.2–0.4 mm; laminas 9.5–16 × 5.5–10 cm, not peltate, or subpeltate 2–5 mm from the margin, the base cordate, entire, not variegated at maturity, ovate (narrowly ovate), unlobed, acute; laminar nectaries absent; prophylls of vegetative bud 2, 1.1–2.5 mm long, narrowly triangular, slightly keeled at base, one usually slightly shorter, sometimes with a small marginal tooth. Peduncle (common peduncle of tendril and flower) 1 per node, reduced to near absence (then the flower appearing axillary at the base of the tendril) or up to 0.5 cm long, 1(2)-flowered, the pedicels 0.5–1.5 cm; bracts 1.1–1.9 × 0.3 mm, linear-triangular. Flowers white, the corona yellow; floral stipe 28–36 mm (to 40 mm in fruit); sepals 17–19 × 9 mm, ovate-oblong, greenish abaxially, whitish adaxially, with no projection; petals 17–18 × 9 mm, ovate-oblong, white; coronal filaments in ca. 3 series, the outer 11–13 mm, linear, basally yellow-green, distally bright to dark yellow, no purplish red banding seen, the inner ca. 2 series 2–5 mm, light greenish or yellow-green marked with purplish red; operculum 3 mm, membranous, plicate; limen floor pale with purplish ring or markings, the base of the androgynophore not colored; androgynophore 7.0–8.5 mm; anthers ca. 4 mm; ovary 3.0 × 1.7 mm, ellipsoid, sparsely to lightly puberulent with straight, possibly glandular, erect trichomes, styles ca. 4–6 mm long including stigmas, glabrous. Fruit known only from immature but apparently full-sized specimen, ca. 13 × 5.5–6 cm including a 20–25 mm long stipe, ellipsoid, apically somewhat conical, exocarp very thin, immature color green, apparently inflated; arils unknown; immature seeds 6 × 5 mm, punctate-reticulate in the center, with conspicuous 1 mm wide wings at the margins.

This species is known only from the type collection from tall moist forest in Baja Verapaz, Guatemala. A single unbranched pedicel is borne off a short to obsolete peduncle at or near the base of the tendril; rarely a second pedicel is borne more distally. Out of the dozen inflorescences in the type material only one tendril/peduncle had a second branch. With such limited material it is difficult, of course, to generalize about a complex character such as the inflorescence structure, especially when that is known to be variable in the related species. Nevertheless, it seems that this species normally sports only one flower per node, unlike its sisters in the section, which usually have 2 to 5 flower buds per node. The inflorescence structure, with the common peduncle much reduced to basically lacking, is most similar to *P. lancetillensis,* which also has very short peduncles. The floral stipe (that part of the pedicel distal to the articulation) is unusually long in both these species. Before the flowers of *P. lancetillensis* had been discovered, I chose the specific epithet, *pedicellaris,* to highlight this feature. The flower has an outer corona that is blunt and yellow, like most of the rest of the section, but unlike *P. lancetillensis.*

Passiflora pedicellaris is notable in this section in that the petiolar nectaries are very reduced or absent, the few single narrow stubs seen on the petioles of the type perhaps not even functional. These glands are inconspicuous and probably are not functioning as egg mimics. The glands are rather similar to those seen on seedlings and juveniles of its relative, *P. microstipula* (Gilbert & MacDougal, 2000). The fruit is similar in shape to that of the Oaxacan clone of *P. microstipula,* but is slightly larger. This poorly understood species is

Figure 4. *Passiflora pedicellaris* J. M. MacDougal. Holotype specimen conserved at LL. Scan by Fred Keusenkothen (MO).

Figure 5. *Passiflora pedicellaris* J. M. MacDougal. A pressed dried flower from the LL holotype. Scale marked in mm.

most probably a medium-sized woody vine to canopy liana like its sisters in the section. The vernacular name, "*granadia*," appears on the label of the type collection.

3. Passiflora microstipula L. Gilbert & J. M. MacDougal, Lundellia 3: 1, fig. 1, cover plate. TYPE: U.S.A. Texas: Travis Co., cultivated at The University of Texas at Austin, 1978–2000, *L. E. Gilbert 9271*, anno 1979, specimens grown from seeds collected 13–16 July 1978 in Mexico, Veracruz, Estación Biológica Los Tuxtlas, (seed *Gilbert 7828*) (holotype, MEXU; isotypes, MO, TEX, UPCB, XAL).

Distribution. Mexico: Oaxaca, Veracruz, 20–350 m.

4. Passiflora eueidipabulum S. Knapp & Mallet, Ann. Missouri Bot. Gard. 71: 1070, figs. 2, 3b. 1984. TYPE: Panama. Colón: Santa Rita Ridge Road 7 km from the Transisthmian Hwy., 9°22′N, 79°40′W, 200 m, 21 May 1982, *S. Knapp & Schmalzel 5256* (holotype, MO; isotypes, PMA, TEX).

Distribution. Costa Rica: Puntarenas. Panama: Coclé, Colón, 200–1000 m.

Acknowledgments. Lawrence E. Gilbert at the University of Texas at Austin first recognized the distinctiveness of this group and proposed a higher taxonomic placement. He recorded the main characteristics and biology of the section, and he has given the name. The other nomenclatural co-author is Jan Meerman of Green Hills Butterfly Ranch in Belmopan, Belize. Jan was able to grow *P. lancetillensis* to maturity and make specimens and studies of the flowers, fruit, and natural history of the species. Jan's photographs, map, and observations have greatly contributed to this work. Together we were able to fashion a detailed description for this new species, otherwise known from fragmentary material. Roy Gereau generously translated the Latin diagnoses. We thank Tom Wendt of TEX for his help with Lundell's collecting localities, and Rick Clinebell of MO for his identification of the bee. We acknowledge financial support to A. K. Hansen from an NSF Doctoral Dissertation Improvement Grant. The curators of BRH, DUKE, F, LL, TEX, and US kindly allowed loans of material from their herbaria.

Literature Cited

Cusset, G. 1968. Les vrilles des Passifloracées. Bull. Soc. Bot. France 115: 45–61.

Gilbert, L. E. & J. M. MacDougal. 2000. Lundellia 3: 1–5, fig. 1, cover plate.

Killip, E. P. 1938. The American species of Passifloraceae. Publ. Field Museum Nat. Hist., Bot Ser. 19: 1–613.

Klucking, E. P. 1992. Leaf Venation Patterns, Vol. 6. J. Cramer, Berlin.

Knapp, S. & J. Mallet. 1984. Two new species of *Passiflora* (Passifloraceae) from Panama, with comments on their natural history. Ann. Missouri Bot. Gard. 71: 1068–1074.

Mallet, J. & J. T. Longino. 1982. Hostplant records and descriptions of juvenile stages for two rare species of *Eueides* (Nymphalidae). J. Lep. Soc. 36: 136–144.

Meerman, J. 1996. Vegetative key to the passionflowers of Belize. Passiflora 6(3): 25–28, fig. 16. [Journal is the newsletter of the Passiflora Society International, Coconut Creek, Florida.]

———. 1999. Lepidoptera of Belize. 1. Butterflies, 2. Emperor Moths and Hawk Moths. Tropical Lepidoptera 10 (supplement 1).

——— & W. Sabido. 2001. Central American Ecosystems Map: Belize. Programme for Belize, Belize City. 2 vols.

Parker, T. A., III, B. K. Holst, L. H. Emmons & J. R. Meyer. 1993. A Biological Assessment of the Columbia River Forest Reserve, Toledo District, Belize. Conservation International, RAP Working Papers 3.

Schappert, P. 1998. Member's plant list. Passiflora 8(3): 23.

Snow, N. & J. M. MacDougal. 1993. New chromosome reports in *Passiflora* (Passifloraceae). Syst. Bot. 18: 261–273.

Standley, P. C. 1931. Flora of the Lancetilla Valley, Honduras. Publ. Field Mus. Nat. Hist., Bot. Ser. 10: 292–293, pl. 52.

Ulmer, T. & B. Ulmer. 1997. Passionsblumen: Eine faszinierende Gattung. Laupenmühlen Druck, Witten.

Walter, K. S. & H. J. Gillett (editors). 1998. 1997 IUCN Redlist of Threatened Plants. Compiled by the World Conservation Monitoring Centre. IUCN—The World Conservation Union, Gland, Switzerland, and Cambridge, UK. Page Bros. (Norwich) Ltd.