A revision of *Passiflora* sections *Insignes* and ×*Inkea* (Passifloraceae)

by

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**Abstract**


During the compilation of the *Passifloraceae* for the *Catálogo de las Plantas Vasculares de Bolivia* we found a new species belonging to *Passiflora* sect. *Insignes*, which we call *Passiflora carrascoensis*. We here present a taxonomic revision of the *Passiflora* sect. *Insignes* and ×*Inkea* and a brief outline of the history of the groups. The number of species in *Passiflora* sect. *Insignes* is now six, with four species endemic to Bolivia, one to Peru, and one widespread frequently cultivated species. *Passiflora* sect. ×*Inkea* consists of the hybrid *Passiflora ×rosea*. Four names are lectotypified.

**Keywords:** Passifloraceae, *Passiflora*, Tacsonia, Elkea, Poggendorffia, Bolivia, Andes, endemic species.

**Introduction**

Our work on *Passifloraceae* in Bolivia (Jørgensen & al., in prep.) has led to the discovery of a new species that we call *Passiflora carrascoensis* P. Jørg. & R. Vásquez. The species clearly belongs to *Passiflora* subgenus *Passiflora* supersection *Tacsonia* section *Insignes* Feuillet & J.M. MacDougal, a small group of closely related species, best known in the group are *P. pinnatistipula* Cav. and *P. mandonii* (Mast.) Killip. *P. piloscorona* Sacco also belongs in this section, although originally placed in supersect. *Distephana* (Juss. ex DC.) Feuillet & J.M. MacDougal. The sect. *Insignes* is almost exclusively Bolivian, with four species endemic to that country, one endemic to Peru, and the last, *P. pinnatistipula*, frequently cultivated from Colombia to Chile, with the highest concentration of collections from southern Peru and northern Bolivia. Because of the knowledge accumulated in conjunction with these discoveries we found it appropriate to convey what we have learned about the *Passiflora* sect. *Insignes* Feuillet & J.M. MacDougal and the related ×*Inkea* Feuillet & J.M. MacDougal.

& MacDougal (1997) to establish their replacements sections *Insignes*, *Elkea* Feuillet & J.M. MacDougal, and ×*Inkea*, respectively. They maintained the overall taxonomical view of Escobar (1980, 1988) however, and only the nomenclature was corrected (Feuillet & MacDougal, 1997, 2004).

The sect. *Insignes* was known for 125 years linked to the generic name *Poggendorffia* H. Karst. Two years after the publication of the genus, Karsten (1859, http://www.botanicus.org/page/825076) included a beautiful colorful illustration of *Poggendorffia rosea* H. Karst. Karsten’s genus *Poggendorffia* and species *Poggendorffia rosea* have been treated in various ways and several times, and is central to understanding the history of the groups.

Six years later Bentham & Hooker (1862) reduced Karsten’s genus to a synonym of the genus *Tacsonia* Juss. and they called *Poggendorffia rosea* a monstrous form of *Tacsonia pinnatistipula* (Cav.) Juss. Karsten (1887; see also Killip, 1938) reacted strongly to his genus being reduced to synonymy and his species called monstrous, but today it seems strange that he waited 25 years to publish his reaction. Was the death of Bentham in 1884, a coincidence or an explanation for his delayed reply?

In the mean time, Masters (1872) simply placed *Poggendorffia rosea* in synonymy of *Tacsonia pinnatistipula*, but that was probably an over simplification. Studying Karsten’s illustration it is obvious that several key characteristics do not match *Passiflora pinnatistipula*. First, the stipules are not completely pinnatisect (if dissected at all), only the apical part of the stipule is dissected. Second, the bracts are much larger and may be fused at the base. Third, and most remarkably the stamens, with their odd appendages, have an opening on the adaxial surface at about the middle of the androgynophore and from that point upwards the stamens are free. Fourth, the basifixed anthers with a large apical connective are all characters not seen elsewhere in the entire genus *Passiflora*. The very different (referred to as monstrous by many) androecium was Karsten’s (1856, 1859) main argument for making a new genus.

Triana & Planchon (1873) did not accept the genus *Tacsonia* and changed the status of the genus *Poggendorffia* to a section of *Passiflora* within the subg. *Tacsonia*. They further stated that Karsten’s genus was based on a monstrous specimen with some characters that belongs to sect. *Bracteogama* (now *Elkea*), and they also synonymized *Poggendorffia rosea* with *Passiflora pinnatistipula*.

Triana was an eyewitness to Karsten’s discovery, and they (Triana & Planchon, 1873) wrote [translated from French] “One of us was with Mr. Karsten when, in a garden in Bogota, a Passifloreae caught our eyes” … “its five stamens had their filaments free since the middle of the column or gynophore; these filaments were concave like a dimple at their base and the anthers were deformed. This character of the androecium, described as normal by Mr. Karsten who could not have seen it but just in passing, was in fact nothing but accidental and monstrous. Indeed I observed that plant to collect seeds; at first the fruits from flowers with abnormal anthers aborted, then others became fertile because their androecium was normally built, that is: with filaments adherent to the column nearly to the ovary and with normally shaped anthers.” We believe that Triana’s observations come from two plants that may have been intertwined, one a typical *P. pinnatistipula* with normal stamens and anthers and the other a hybrid with abnormal stamens and anthers. They do not describe the shape or pubescence of the fertile or aborted fruits. Karsten (1887) observed fertile ellipsoid fruits on *Poggendorffia*, an intermediate character with species in sect. *Elkea*. The six species included by Triana & Planchon (1873) in sect. *Poggendorffia* are today placed in four different sections within superset. *Tacsonia* (Juss.) Feuillet & J.M. MacDougal.

Sodiro (1903) made the combination *Tacsonia × rosea* (H. Karst.) Sodiro and accepted the “species”, but was convinced that it was a hybrid between *P. pinnatistipula* and *P. mollissima* (Kunth) Bailey (today *P. tripartita* var. *mollissima* (Kunth) Holm-Niels. & P. Jorg.). Both species were, then as now, frequently cultivated and often close together. He used a multiplication sign in front of the “species” name and explained that he had numerous specimens that agreed with Karsten’s description of the androecium.

Harms (1925) accepted seven unranked groups within *Passiflora* sect. *Tacsonia* (Juss.) Triana & Planch. (superset. *Tacsonia* today). Two are of interest in this context. The fourth group was named *Pinnatistipulae* Harms including *P. pinnatistipula*. He also included *Poggendorffia rosea* here and cited Sodiro’s observation of it being a hybrid with *P. mollissima*. His fifth group was called *Insignes* Harms and was based on *P. insignis* (Mast.) Hook.f. The difference between Harm’s two groups was entire versus three-lobed leaves.

Killip (1938) also agreed with Sodiro, maybe due to his own field observation of a plant of *Passiflora × rosea* (H. Karst.) Killip at Tarma in Peru growing between a plant of *P. pinnatistipula* and *P. tripartita* var. *mollissima*. Killip did not accept any subdivisions of
In 1988, she added *Passiflora insignes*, *P. mandonii*, and *P. pin-

The subgenus *Tacsonia* and listed *Poggendorffia* as a synonym of *Tacsonia*.

Escobar (1980) used the name sect. *Poggendorffia* (H. Karst.) Triana & Planch. for a grouping of species that included *Passiflora insignis*, *P. mandonii*, *P. pinnatistipula*, and *P. ×rosea*. In 1988, she added *P. pilosicorona* to this section. The section has several unique characters and can be postulated as a monophyletic group within the supersect. *Tacsonia* if the hybrid is excluded.

In summary, Bentham, Hooker, Masters, and Triana and Planchon, would apparently have liked to “forget” about Karsten’s plant by simply calling it a monstrous individual and relegating it to synonymy. Sodiro, Harms, Killip, Escobar, and Feuillet and MacDougal were in our opinion correct in accepting it as a hybrid. Strangely enough nobody has, to our knowledge, tried to cross the two parents to confirm that the hybrid’s F1 morphology of the stamens is as indicated by Karsten.

Feuillet & MacDougal (1997) pointed out that if *Passiflora ×rosea* is a hybrid, all names based on this type are consequently hybrids, i.e. the genus and sect. *Poggendorffia*. The type contains genetic material from two species belonging to two different sections (now named *Insignes* and *Elkea*) and logically it cannot be restricted for use to only one of the groups, as done by Escobar (1980, 1988). Section *Poggendorffia* can only be the logical name if both parents are included (and then it would not be the oldest name). This, most logical, but unusual situation, simultaneously creates the dilemma that *Passiflora ×rosea* cannot be accepted within a section in a treatment that recognizes sect. *Insignes* or *Elkea*. The name *Poggendorffia* does not conform to the International Code of Botanical Nomenclature article H.7 (McNeill et al. 2006) and in consequence Feuillet & MacDougal established the hybrid sect. *×Inkea* with its only member *Passiflora ×rosea* (H. Karst.) Killip. They did not place *Poggendorffia* in synonymy of sect. *×Inkea*, which we interpret as an omission.

### Materials and methods

A total of 233 collections have been revised from AAU, BM, BOLV, CUZ, G, Herbarium Vásquez, K, LPB, MA, MO, P, QCA, S, US, USM, and USZ. Herbarium Vásquez is a private collection housed in the residency of the junior author. We have occasionally cited specimens that we have not seen to document the entire distribution of the species as we collectively know it at present. The non revised specimens are clearly marked and only included when they add a political unit to the specimen citation; and this information comes from either Escobar (1980) or Killip (1938). An appendix list all numbered collections with the species they belong to. Our emended descriptions are short and only include the most important and characteristic features. They are largely based on the literature, for the species *Passiflora insignis*, *P. lanceolata*, *P. mandonii*, and *P. ×rosea* we particularly consulted Escobar (1980), and for *P. lanceolata* and *P. ×rosea* we also included observations by Killip (1938). We do not know if fig. 7 was documented with a voucher and the photographer has not responded to requests for information.

### Taxonomic treatment

**KEY TO THE SPECIES**

1. Lamina entire ............................................. 2
2. Lamina (2)3 lobed ........................................ 3
3. Floral tube shorter than sepals; lamina densely pubescent abaxially ........................................ 1. *P. insignis* 2. *P. lanceolata* 3. Floral tube longer than sepals; floral tube 5-13.5 cm long .... 4
4. Lamina three-lobed, lobes triangular, lobed 1/3 to 1/4 their length; floral tube (6)10-13.5 cm long, dilated at base, densely yellow-brown pubescent outside .... 3. *P. mandonii* 4. Lamina three lobed, lobes ovate-lanceolate, lobed 1/2 to 4/5 their length; floral tube 4.4-6.7 cm long, dilated or not dilated at base, white outside ........................................ 5
5. Laminar lobes lanceolate, lobed 4/5 their length; sepals 3.3-6 cm long; outer corona 1.2-2 cm long; fruit spherical ...... 6


*Type: Passiflora insignis* (Mast.) Hook.f.

Lianas, often densely pubescent; leaves entire or three lobed; stipules deeply pinnatifid or divided into filiform segments. Bracts free to base with serrate irregular margins; floral tube of varying length; sepals...
carinate; petals slightly shorter than sepals; corona in one or two series, the outer series well developed or occasionally reduced to a tuberculate ring, acicular 1-2 cm long, the inner series, reduced to few denticulate projections, placed in the floral tube, between the operculum and the mouth, missing in some species or collections, but a slight difference in coloration often indicating where the lost corona originally was placed. Fruits are spherical or almost so in all species with known fruits.

**Morphology and affinities.** Killip (1938) placed a very high taxonomic value on the presence and fusion of a second corona row. This character was used, not very convincingly, to separate supersect. *Distephana* (Juss. ex DC.) Feuillet & J.M. MacDougal and sect. *Manicata* (Harms) Feuillet & J.M. MacDougal from sect. *Tacsoniopsis* Triana & Planch., *Rathea* (H. Karst.) Harms, and *Tacsonia* (Juss.) Harms (the last four names currently placed in supersect. *Tacsonia*, but were in Killip’s treatment all considered subgenera). Killip (1938) placed, for instance *Passiflora callimorpha* Harms in subg. *Distephana* while *P. insignis* was placed in subg. *Tacsonia* the two names are currently seen as synonyms of the same species with some variation in the formation and loss of a second corona series. There are obviously some similarities between supersect. *Distephana* and *Tacsonia*, in particular sect. *Insignes*. Furthermore, the presence of a well-developed corona is in *Tacsonia* seen as a primitive character, and it is tempting to present a hypothesis that suggest that *Tacsonia* have originated from *Distephana* and as the group adapted to the montane environment it spread northward and became increasingly diversified in Peru, Ecuador, and particularly Colombia. The species we have left today and may support such a hypothesis are *Passiflora buchtienii* Killip and *P. minia* Vanderplank. They are members of supersect. *Distephana*, but found at relatively high elevations in the Bolivian Andes. Representing an unusual distribution in the supersection that is elsewhere exclusively lowland. They may have shared an ancestor with sect. *Insignes*. Further adaptation took place while moving northward resulting in losing the well-developed corona. Parallel to the morphological changes a strong diversification took place within supersect. *Tacsonia* that now includes about 45 additional species.

**Distribution and habitat.** The sect. is almost exclusive to the northeastern slopes of the Bolivian Andes. One species is found in Junín, Peru, and one species is widely cultivated and occasionally escaped outside its natural occurrence in southern Peru and Bolivia. They are all montane forest dwellers found from (1000)2300-4000 m elevation, and they all display a typical hummingbird pollination syndrome.

1. **Passiflora insignis** (Mast.) Hook.f., Bot. Mag. ser. 3, 29(348), tab. 6069. 1893

**Basionym:** *Tacsonia insignis* Mast., Gard. Chron. 1113, fig. 239. 1873.

**Type:** *Backhouse s.n.*, grown at Sowerby House, Hull, England (grown from seeds collected in “Peru” by Yarborough Greame, specimens probably prepared by the gardener R. Anderson) (lectotype, here designated, K 000323343!; isolectotypes, K).


**Type:** BOLIVIA. La Paz: Mapiri, *Bang* 1556 (holotype B destroyed; lectotype, here designated, NY 00110422!; isolecotypes, BM, CM, G, GH, K!, PH, NY 00110421!, US 00114975!).

Liana, densely pubescent, except for adaxial surface of lamina and sepals, and the entire petals; indument yellow-brown, twisted. Stipules 1 cm, reduced to pinnatisect filiform segments; petiole 1-1.5 cm, with 2 pairs of elongate glands; lamina 8-17 × 3.7-6 cm, entire, coriaceous; apex acute; base cordate; margin serrate; venation impressed above and slightly pubescent. Peduncle 7.2-14.5 cm, stout but flowers pendant; bracts 2.8-4 × 2.2-4 cm, elliptic, free, alternate (not verticillate) 1-2 mm apart; apex acute, base cuneate; margin irregularly serrate glandular; stipule 1.3-2 cm; floral tube 2.4-1 × 0.5-0.9 cm, cylindrical, dilated to 1.7 cm at base; sepals 6.5-8 × 1.3-2.3 cm, narrowly elliptic-oblong, keeled and aristate; awn 1-5 cm; petals 2-4 × 1.5 cm, corolla in 1-2 series; outer corona 1 cm, filiform, incurved, at mouth of hypanthium; inner series a tubular membrane, if present, 7 mm below the outer series; margin fimbriate; androgynophore 1.3-3.7 cm; ovary ovoid, to 1 cm, pubescent. Fruit and seeds unknown. (Fig. 1).

**Diagnostic characters.** Escobar (1980) discussed in detail the minor differences found between the type of *Passiflora callimorpha* and typical *P. insignis* showing that variation is found in several features that Harms used to segregate the species, notably the one or two corona series and the fusion of the inner series into a tubular membrane; see also the discussion of morphology and affinities of the section. The species is easily recognized within the section by its entire leaves with densely pubescent undersurface.

**Distribution and habitat.** The species has so far been found in two valleys in northern Bolivia, in the valley below Unduavi, around the border between the provinces Nor and Sur Yungas, and in the valley below Sorata in...
the Province Larecaja where it grows in humid to wet montane forest (called Yungas in Bolivia) or remnants of such at (1200)2350-3400 m elevation. The species has been collected with flowers or fruits in January-February, May, July-October, and most specimens seem to have been taken in the later time period. An IUCN threat status of VU is here assigned to this species.

Additional specimens examined

BOLIVIA. La Paz: Yungas, 1200 m, H.H. Rusby 2465 (F n.v., NY n.v., US); Franz Tamayo: Parque Nacional Madidi, entre Queara y Mojos, sector entre Chuncani y Tocoaque, 14°38'05"S 68°57'37"W, 2850 m, 28-II-2008, A. Fuentes 12116 (LPB n.v., MO, USZ n.v.); Parque Nacional Madidi, bajando de Ichocorpa hacia Chuncani, camino entre Queara y Mojos, 14°38'18"S 68°57'47"W, 3300 m, 21-IV-2007, A. Fuentes 11347 (LPB n.v., MO). Larecaja:

**Fig. 1.** *Passiflora insignis*: a, leaf and terminal bud; b, stipule; c, pendent flower, normal position; d, bract; e, longitudinal section of flower [a-e from R. Vásquez 1921].

Mapirí, 15°19’S 68°12’W, VIII-1892, M. Bang 1536 (B destr., BM, CM n.v., G, GH n.v., K; lectotype, designated by Killip 1938, K!); near Unduavi, road to Chulumani, 16°19’S 67°51’W, 2570 m, 13-IX-1981, M. Hermann 305 (LPB); near Unduavi, road to Chulumani, 16°18’S 67°53’W, 2860 m, 7-VIII-1982, G. Mandon 616 (lectotype, designated by Killip 1938, K!; isolectotype, BM, B destr., NY n.v., USZ); 7.5 km below Chuspipata towards Coroico, 16°13’S 67°47’W, 2350 m, 7-X-1984, L.K. Escobar & J.C. Solomon 4813 (LPB, MO 3193785); Chuspipata, 6.5 km towards Chulumani, 16°18’S 67°53’W, 2600 m, 5-IX-1987, P.M. Jørgensen & R. Vásquez 1950, (herb. Vasq.); Sur Yungas: 10.1 km NE (below) Chuspipata (20.1 km from Unduavi, 16°00’S 68°30’W, 3330 m, 15-X-1984, R. Vásquez & al. 1921; road to Chulumani, 16°19’S 67°49’W, 2520 m, 5-IX-1987, J.C. Solomon 8646 (LPB); 5.7 km below Chusipata on road to Chulumani, 16°21’S 67°47’W, 2400 m, 21-X-1982, J.C. Solomon 4814 (LPB, MO 3193807). 2. **Passiflora lanceolata** (Mast.) Harms, Bot. Jahrb. 18(Beibl. 46): 11. 1894 (not P. lanceolata G. Don, nom. nud. and an error for P. lancevilia)


**Passiflora acutissima** Killip, J. Wash. Acad. Sci. 17: 428. 1927 (nom. nov. replacing, unnecessarily, **P. lanceolata** (Mast.) Harms).


Liana, glabrous, except for stems, petioles, and peduncles; indument pilose. Stipules 1-1.5 cm, reduced to pinnatisect filiform segments; petiole 0.3 cm, with 2-3 glands; lamina 4.2-5.3 × 0.9-1.3 cm, entire, lustrous; apex attenuate acuminate; base rounded; margin revolute; venation impressed above. Peduncle 2.2-3.5 cm; bracts 1.5-2.5 × 0.4-0.8 cm, elliptic, free, verticillate; apex acute; margin irregularly serrate; stipe 0.8-1.5 cm; floral tube 7.5 × 1 cm, cylindrical, scarcely dilated at base; sepals 3.5 × 1.3 cm, narrowly elliptic-oblong, keeled and aristate; awn 0.4 cm; petals slightly smaller than sepals; corona in 1 series, appears tuberculiform.

**Diagnostic characters.** *Passiflora lanceolata* is unusual in the section by being more a glabrous species and by having a corona that is reduced to a single series. In some ways it builds a connection to other sections within supersect. *Tacsonia,* but we know very little about it due to its rarity.

**Distribution and habitat:** *Passiflora mandonii* is known from a series of localities in the Yungas of...
Fig. 2. *Passiflora mandonii*: **a**, habit with bud and open flower; **b**, stipule; **c**, bract; **d**, two petals and a sepal; **e**, longitudinal section of flower; **f**, seed [a-f from R. Vásquez 1927].
Bolivia from Cochabamba to La Paz. One collection comes from Potosí, possibly cultivated, and one from Puno in Peru that is also from a cultivated plant; further north a single specimen from Cuzco of a white form has been apparently naturalized in roadides. We know of white forms of *P. pinnatistipula* and this could potentially be a hybrid. An IUCN threat status of NT is here assigned to this species.

**Additional specimens examined**


4. **Passiflora pinnatistipula** Cav., Icon. Pl. 16, pl. 428. 1799


**Passiflora pennipes** Sm. in Rees Cycl. 26: Passiflora no. 48. 1819 (nom. illeg. based on the type of *P. pinnatistipula*).

**TacASONIA pinnatistipula var. pennipes** (Sm.) DC., Prodr. 3: 334. 1828, nom. illeg.

**Tacasonia pennipes** (Sm.) M. Roem., Fam. Nat. Syn. 2: 194. 1846, nom. illeg.

**Type:** CHILE. Biobío: Talcahuano, *L. Neé* s.n. (lectotype, designated by Killip 1938, MA).

**Tacasonia micradenia** DC., Prodr. 3: 334. 1828.

**Tacasonia purpurata** DC. ex Mast. in Mart., Fl. Bras. 13(1): 537. 1872 (nom. nud., pro syn.).

**Type:** PERU: Junín: *Tarma*. H. Ruiz & J.A. Pavón s.n. (lectotype, designated by Killip 1938, BM; isolectotype, G).

**Liana, pubescent, except for adaxial surface of lamina and internal floral parts; indument white, curly and tangled. Stipules 7-9(11) mm, reduced to pinnatisect filiform segments; petiole (0.8)1.5-2 (3.5) cm, with 4-6 glands; lamina (4)6-8(11) × (3)5.7-9 (14) cm, three lobed; lobes 9-11 cm long, central lobe longer than lateral, lanceolate; apices acute; base cordate, shallowly cordate to rounded; margin serrate and glandular; venation impressed above. Peduncle (3.2)5-7(9.5) cm, flexible, flowers pendent; bracts 1.2-3 × 0.8-1.5 cm, ovate to lanceolate, free, verticillate; apex acute to rounded, base rounded; margin serrate lacerate; stipule 0.4 cm; floral tube 4.4-6 × 0.9-2 cm, cylindrical,
slightly dilated or not dilated at base; sepals 3.3-6 × 1.2-2 cm, oblong, aristate; awn 0.5 cm; petals 5-5.8 cm × 1.5-2 cm; corona in 1 or 2 series, the outer 1.2-2 cm filiform, the inner 1 mm at mouth of hypanthium; androgynophore 7-8 cm; ovary spherical. Mature fruits 6 × 6 cm, spherical; seeds 5.5 × 4 mm, obovoid, shallowly pitted. (Fig. 3).

Diagnostic characters. Passiflora pinnatistipula shares a 3-lobed leaf with P. mandonii, P. carrascoensis, and P. pilosicorona in this section. It shares a longer
than 5 cm hypanthium only with *P. mandonii*, and is distinct from that species by the color of the indument, the length of the hypanthium, and the shape of the leaf lobes.

**Distribution and habitat.** *Passiflora pinnatistipula* is widely distributed, from Chile and Bolivia to Colombia, in large part due to its frequent cultivation. Our best guess for its natural distribution would include areas in northern Bolivia and southern Peru, where it is most frequently collected. An IUCN threat status of LC is assigned to this species.

**Additional specimens examined**

**BOLIVIA.** Locality not recorded, X. Menbofer 1546 (LPB).

**Cochabamba:** Villa Pereira, 3870 m, 24-III-1997, L. Guzmán 77 (BOLV, MO 4907406); Illimani, Julio II 230 (US); Arani: montaños de Tiraque, 3000 m, II-1944, R. Vásquez 230.

**Mamani, Cordillera Tunari, road leading north from Quillacollo, ca. 3.5 km 23 km before Piusilla, 17°27'S 66°31'W, 3425 m, 21-II-1997, M. Zarate 2260 (LPB); Larecaja: Sorata, 17°45'S 68°39'W, 2800 m, 20-I-1980, R. Vásquez & al. 1945 (Herb. Vasq.); Murillo: La Paz, 3800 m, VII-1949, Araque & Barkley 19-B-004 (US). **Potosi:** Chonopaya, 3085 m, 17-III-1997, L. Guzmán 67 (BOLV, MO 4907396).

**CHILE.** Without locality, Bridges s.n. (G n.v.); W. Hooker s.n. (NY n.v.); H. Cuming 30 (W n.v.).

**Coquimbo (Region IV):** Aconcagua, 1876, R.A. Philippi s.n. (B destr., G n.v., W n.v.); Aconcagua, road between Quebrada El Tigre and Zapallar, 5-I-1949, O. Boelcke 4316 (MO 2477307); Zapallar, 1-V-1973, O. Zoller 8016 (MO 2325413); Aconcagua, between Zapallar and Papudo, 50 m, X-1948, G. Looser 5496 (US).

**Valparaíso (Region V):** Valparaíso, L. Sée s.n. (MA); C.L.G. Bertero s.n. (GH n.v., P); H. Cuming 362 (BM, G n.v., NY n.v.).

**Los Lagos (Region X):** Valdivia, R.A. Philippi s.n. (US n.v.).

**COLOMBIA. Without Department:** Huanacayco, Chavez 129 (G n.destr.).

**Antioquia:** San Pedro: VIII-1938, Brother Daniel & al. 1542 (US); Santa Rosa de Osos: finca La Cruz, 18-X-1981, L. Buitrago 4 (HUA n.v.).

**Biobío (Region VIII):** Concepción, J. Miers s.n. (BM).

**Los Lagos (Region XI):** Valdivia, R.A. Philippi s.n. (US n.v.).

**Colombia. Without Department:** Huanacayco, Chavez 129 (G n.destr.).

**Antioquia:** San Pedro: VIII-1938, Brother Daniel & al. 1542 (US); Santa Rosa de Osos: finca La Cruz, 18-X-1981, L. Buitrago 4 (HUA n.v.).

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**Antioquia:** San Pedro: VIII-1938, Brother Daniel & al. 1542 (US); Santa Rosa de Osos: finca La Cruz, 18-X-1981, L. Buitrago 4 (HUA n.v.).

**Biobío (Region VIII):** Concepción, J. Miers s.n. (BM).

**Los Lagos (Region XI):** Valdivia, R.A. Philippi s.n. (US n.v.).

**Colombia. Without Department:** Huanacayco, Chavez 129 (G n.destr.).

**Antioquia:** San Pedro: VIII-1938, Brother Daniel & al. 1542 (US); Santa Rosa de Osos: finca La Cruz, 18-X-1981, L. Buitrago 4 (HUA n.v.).
Stem cylindrical; internodes 5-8 cm long; stipules split in pinnatisect filiform segments, 4-6 mm long; petiole 1.5-2 cm, with 3-4 pairs of axillary glands; blade 3-lobed, 6-8 × 6-8 cm; lobes 5-6 cm long; central lobe slightly longer than the lateral lobes, triangular; apices acute to aciculate; base cordate; margins serrate; veination impressed above. Flowers axillary, solitary, pendent; peduncles 4-7(12) cm long; bracts 2.5-3 × 1-1.5 cm, lanceolate, free, verticillate; base subcordate; apex fimbriate-denticulate; margin serrate-fimbriate; stipe 8 mm long; floral tube 2.5-3.6(4) cm long, 7-9 mm wide, cylindrical; nectar chamber dilated at base; operculum reflexed, denticulate; sepal and petals rose-colored, spreading; sepal 6-7 × 1.4-1.6 cm wide, oblong, aristate; awn 7 mm; petals 5.5 × 1.5 cm, oblong, apex rounded; corona in 2 series, the outer series at mouth of floral tube, filiform, free, blue, 1 cm long, incurved towards the androgynophore, the inner series of few denticate elements scattered inside the floral tube; androgynophore to 7 cm long; ovary ovoid, pubescent, 10 mm long, 8 mm in diameter. Immature fruits appear nearly spherical, green and densely brown pubescent, mature fruits and seeds unknown. (Figs. 4, 5).

Diagnostic characters. Escobar (1980) saw two specimens with short floral tube and shorter corona filaments, but she discussed them with Passiflora mandonii and did not indicate collector and number of the deviating specimens. She remarked that there were “no gradual intergradation between the typical P. mandonii and these specimens”, and saw them as possible hybrids with P. insignis. Those specimens may well belong to the new species here described; if that is the case then it is strange that she did not note that the sepal and petals are about twice as long as in P. mandonii. This new species is, if it is of hybrid origin, more likely to be between P. mandonii and P. pilosicorona.

Passiflora carrascoensis and P. pilosicorona have very similar leaves, color of the indument, and a outer corona that is curved towards the androgynophore, but differs through the shape of the bracts (ovate-lanceolate versus broadly ovate), and the floral tube length that is normally longer. It differs from P. mandonii by the shape of the leaves (shorter in P. carrascoensis), by the length of the sepal and petals (7 and 6 versus 6 and 5 respectively), by the bracts (ovate-lanceolate versus ovate), by the stipules (more branched in P. mandonii), by the outer corona bent towards the androgynophore, and by the peduncles 4-7 cm versus 6-15 cm.

Distribution and habitat. Passiflora carrascoensis has a very restricted distribution in a rather small area along the road from Cochabamba to Villa Tunari, at 98-125 km from Cochabamba and from the region of Sehuencas (near the type locality of P. pilosicorona),
Fig. 4. *Passiflora carrascoensis*: a, leaf and stem, with detail of pubescence on upper surface; b, lateral leaf lobe tip with detailed pubescence on lower surface; c, stipules; d, bract; e, petal; f, sepal; g, longitudinal section of flower; h, longitudinal section of base of floral tube [a-g from S. Arrázola 166].
another 130 km from Cochabamba towards Santa Cruz along the old road. The species has only been collected 12 times in the last 45 years and to our knowledge, not before then. Two of the cited collections from Riksherbariet in Stockholm (S) could have been seen by Escobar, but they were never annotated by her. An IUCN threat status of EN is here assigned.

Additional specimens examined

BOLIVIA. Cochabamba: Carrasco: ca. 6 km below Sehuencas, 18°29’S 65°15’W, 2200 m, J.R.I. Wood 10286 (LPB); Sehuencas, 2500-2800 m, 29-IX-1990, S. Arrázola 166 (BOLV, Herb. Vasq.); Sehuencas, Mercado & al. 4 (BOLV); trail from Estancia Sehuencas along Río Fuerte, ca. 1 km E of Río Monte Puncu, 2200 m, N. Ritter 973 (BOLV); Sehuencas-Monte Puncu, 17°31’42’S 65°16’17”W, 2400 m, 18-II-2005, E. Fernández & J. Alhambra 3169 (BOLV n.v., MO); Sehuencas-Monte Puncu, 120 km desde Cochabamba, entrando 2 km de la carretera antigua a Santa Cruz, 17°32’36”S 65°16’08”W, 2610 m, 25-IX-2007, J. Terán & al. 1269 (BOLV n.v., MO); Siberia-Copachuncho, 150 km de Cochabamba, cerca Copachuncho, 17°45’12”S 65°01’43”W, 3031 m, 22-IX-2007, J. Terán & al. 1128 (BOLV n.v., MO); Chapare: km 98 old road Cochabamba-Todos Santos, 17°12’S 65°42’W, 3400 m, 27-VI-1996, M. Keissler & al. 6762 (LPB, MO); km 104-125 on the road Cochabamba-Todos Santos, 2100-3000 m, 23-IV-1959, L. Diers 877 (S); road to Chapare, 17°20’S 65°50’W, 3500 m, 6-VIII-1959, J. Castigual 12A (LPB).

Santa Cruz: Manuel María Caballero: Siberia, 17°50’07”S 64°44’42”W, 2700 m, L. Arroyo & al. 3677 (MO, USZ n.v.).


Type: BOLIVIA. Cochabamba: km 200 on road from Cochabamba to Santa Cruz, 17°50’S 64°45’W, 2590 m, 13-XI-1959, B. Maguire & C.K. Maguire 44485 (holotype, PEL; isotype, NY!).

Liana climbing 6-8 m over trees and shrubs, entirely covered by a lanuginose or pubescent indument except for the adaxial surface of leaves, internal floral parts, and petals. Stems terete, striate; internodes 4-7 cm long; stipules pinnatisect; filaments pilose, to 9-14 mm long; petiole 2-2.5 cm long, with 4-8 adaxial glands; blade 3-lobed, 8-10 × 7-11 cm; lobes 5.5-8 cm long along the lateral veins, to 10 cm long along the central vein, apex acute to apiculate; base cordate; margins irregular serrate; glabrous above, lanuginose beneath. Flower axillary, solitary, pendent; peduncles

Fig. 5. Passiflora carrascoensis: photography of flower and fruit [from J. Terán & al. 1128].
Additional specimens examined

BOLIVIA. Cochabamba: Carrasco: serranías de Siberia, entrance to Karawas, ca. 3-5 km N of old highway Santa Cruz-Cochabamba, 17°47'44.8"S 64°42'54.2", 2200 m, J.L. Clark & E. Rodríguez 6740 (LPB, US n.v.); 28 km NW of Comarapa on the Santa Cruz-Cochabamba road, 17°49'54"S 64°41'54"W, 2450 m, 10-II-1987, J.C. Solomon & M. Nee 15977 (LPB); Cochabamba, along or above main road from Monte Puncu to Parque Nacional Carrasco, 17°50'S 65°14"W, 2650-2990 m, 2-3-VIII-1995, N. Skinner 67 (USZ); serranía Siberia, 17°54'S 64°59"W, 2700 m, 26-V-1990, J.L. Clark & E. Rodríguez 6740 (LPB, MO 4966954, USZ); 15 km E of Vallegrande (Pottierillos), 18°33'S 63°56"W, 2300-2500 m, 8-IV-1993, I.G. Vargas C. & al. 2232 (LPB, MO 4966954, USZ); 10-15 km E of Vallegrande, below Peña de Lampasar, 18°31'01"S 63°54'54"W, 2300-2500 m, 8-V-2000, I.G. Vargas C. & al. 4477 (USZ).
Fig. 6. *Passiflora pilosicorona*: a, leaf and pendent flower, with detailed pubescence of upper leaf surface; b, detail of pubescence of lower leaf surface; c, stipule; d, bract; e, longitudinal section of flower; f, detail of the nectar chamber; g, sepal; h, petal; i, fruit; j, seed [a-j from R. Vásquez 1943].
Fig. 7. *Passiflora × rosea*: A, gynoecium and androecium, note the deform anthers with connective, the trochlea like development on the androgynophore where the filaments separate from the gynophore; B, longitudinal section of flower and bud; C, axil with pedicel and flower bud with fused bracts; D, immature fruit, note the ovoid fruit and the trochlea like structure still present in fruit. Scale bars: a-d = 1 cm.
separation from the androgynophore; androgynophore 1-3 cm, thin; gynophore 3-4 cm, stout; ovary ovoid; stamens partially free, the stamens separation area is shaped in several different ways (see photography), anthers basifixed or almost so, pollen scarce; connective awn shaped. Mature fruits 8 x 2.5 cm, ovoid oblong; seeds 6 mm, closely reticulate. (Fig. 7), see also http://www.botanicus.org/page/825076.

Diagnostic characters. A vigorous liana with well-developed corona as in P. pinnatifidipula while the leaf shape and pubescence is more similar to P. tripapartia var. mollisima. The stipules seem to either take after one species or the other. The most characteristic feature of this hybrid is the unique and “monstrous” androgynophore and base of the stamens which seem to take different shapes as well; we are not at all sure how to interpret the structure except as an indication that the two parents may not be as closely related as we think. Hybrids are readily produced in many areas of Subg. Passiflora and without such remarkable results.

Distribution. P. ×rosea can be found from Colombia to Chile and Bolivia, always under cultivation or near settlements frequently seen in close proximity of one or both its parent species. The native range of the parent species would probably not overlap, but that is difficult to ascertain as both species have been widely cultivated for a long time. P. pinnatifidipula is probably native to southern Peru and northern Bolivia (maybe also northern Chile) while P. tripapartia var. mollisima is a cultivar mainly from Colombia to central Peru. IUCN threat asignment is LC, parent species are frequently cultivated.

Note on typification. The material at P, which Killip annotated in 1927 as type material and cited (1938, p. 279), is not type material. The label clearly indicates that it was collected by J. Triana, in the “environ de Bogotá”, i.e. not a collection made by Karsten. This material was not seen by Escobar (1980), she however saw material from W, and indicated that as the holotype. Karsten worked, however, in Berlin in 1856 (TL-2, http://tl2.idcpublishers.info/ consulted 12-VIII-2008) so it would be most logical that the holotype would have been deposited there, as indicated by Killip (1938), but that specimen was destroyed. Escobar (1980) is furthermore not effectively published and her indication of a holotype can therefore not stand as a lectotypification, so the lectotypification is therefore made here.

Additional specimens examined


Acknowledgments

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References

Appendix I

L. Aceve 1 (3); Bro. Adolfo 312 (3); E.-F. André 1282 (4); Araque & Barkley 19-B-004 (4); A. Araujo-Murakami & F. Canqui 3782 (3); S. Arrázola 166 (3); L. Arroyo & al. 3677 (5); E. Asplund 3632 (5).

W.J. Badcock 433 (4); M. Bang 1556 (1); H.G. Barclay & al. 80 (4); S.G. Beck 972 (4), 4010 (3), 4787 (1), 12925 (1), 19882 (3); O. De Benavides 4231 (4); O. Boecke 4316 (4); W.M.A. Brooke 6743 (3), 6887 (1), 6788 (4); G.R. Brunel 309 (4), 740 (4); L. Buitrago 4 (4).

A.L. Cabrera & M.M. Gutiérrez 33774 (3); D. Candia 730 (4); P. Ibisch & C. Ibisch 940212 (6); Idrobo & al. 7872 (4), 9523 (3); R. F. Steinbach H. 752 (4); A. Tupayachi & W. Galiano 1195 (4), 1196 (7).

L. Uribe 142 (4), 2638 (4), 6643 (4).

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K. Zander 14 (4); M. Zarate 6743 (3), 6887 (1), 6788 (4); G.R. Brunel 309 (4), 740 (4); L. Buitrago 4 (4).

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