



Darwiniana, nueva serie

ISSN: 0011-6793

ISSN: 1850-1702

Instituto de Botánica Darwinion & Museo Botánico de Córdoba

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Darwiniana, nueva serie, vol. 7, núm. 2, 2019, pp. 330-334
Instituto de Botánica Darwinion & Museo Botánico de Córdoba

DOI: <https://doi.org/10.14522/darwiniana.2019.72.858>

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THE FIRST COLLECTION OF *PINNASA VOLUBILIS* (LOASACEAE) FOR THE FLORA OF ARGENTINA

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Abstract. Cohen, D. H. & A. Maza. 2019. The first collection of *Pinnasa volubilis* (Loasaceae) for the Flora of Argentina. *Darwiniana*, nueva serie 7(2): 330-334.

Plants of *Pinnasa* (Loasaceae) are vining or rosette-forming perennial herbs distributed across the southern Andes and Patagonian Steppe. Three species were formerly cited for Argentina. We report a fourth species, *P. volubilis*, until now known only from southern Chile, for the first time from Neuquén province. A description of the species, together with photos, a distribution map, and a key for *Pinnasa* species in Argentina are here provided.

Keywords. Flora; Neuquén; *Pinnasa*; taxonomy.

Resumen. Cohen, D. H. & A. Maza. 2019. La primera colección de *Pinnasa volubilis* (Loasaceae) para la Flora de Argentina. *Darwiniana*, nueva serie 7(2): 330-334.

El género *Pinnasa* (Loasaceae) incluye hierbas perennes, trepadoras o erectas, distribuidas en el sur de los Andes y la estepa patagónica. Tres especies fueron citadas para la Argentina con anterioridad y una cuarta, *P. volubilis*, hasta el presente sólo conocida para el sur de Chile, se cita por primera vez para la provincia de Neuquén. En este trabajo se presentan una descripción de la especie, fotografías, un mapa de distribución y una clave para identificar a las especies de *Pinnasa* que habitan en la Argentina.

Palabras clave. Flora; Neuquén; *Pinnasa*; taxonomía.

INTRODUCTION

The genus *Pinnasa* Weigend & R.H. Acuña comprises about 10 species that were previously assigned to *Loasa* ser. *Pinnatae* Urb. & Gilg. Molecular phylogenetics has demonstrated that *L.* ser. *Pinnatae* is distantly related to *Loasa* s.str. and sister to a clade containing *Caiophora* C. Presl and *Scyphanthus* Sweet. *Pinnasa* share many traits with *Caiophora* and *Scyphanthus* including elaborate floral scales, finely dissected

or pinnately compound leaves, and deeply pitted seeds with fenestrated anticlinal walls (Hufford et al., 2005; Acuña et al., 2017). Plants of *Pinnasa* differ due to their fringed-undulate petal margins, and by retaining the pleisomorphic condition of apically dehiscent capsules, traits that are mostly or entirely absent from *Caiophora* and *Scyphanthus*. *Pinnasa* differs from *Loasa* by having pinnatifid to pinnately compound leaves, erect flowers, fringed-undulate petal margins, terminal hilar scars and absence of stinging setae.

Species of *Pinnasa* are distributed across the southern Andes of Argentina and Chile, from the foothills of the western cordillera to the eastern Patagonian Steppe.

There are currently three species of *Pinnasa* recorded for Argentina (Weigend et al., 2008). They are distributed in the Andean cordillera and Patagonia from Mendoza to Santa Cruz Province. Previously, *Pinnasa volubilis* (Dombey ex Juss.) Weigend & R.H. Acuña was only recorded from Chile. While doing field work for a revisionary study of *Pinnasa* in Argentina and Chile (Cohen in prep), *P. volubilis* was collected in Neuquén Province, near the border with Chile. Herbarium material was also studied, but no previously existing specimens of *P. volubilis* from Argentina were found. The scope of this work is to shed light on this new occurrence.

MATERIALS AND METHODS

The material analyzed was collected from one locality in the province of Neuquén and deposited in CORD, SI, and RSA (Thiers, 2019). This collection was then compared to specimens, including type material, of other species of *Pinnasa* and related Loasaceae at CONC, CORD, HAL, MERL, P, SI and W.

RESULTS

Pinnasa volubilis (Dombey ex Juss.) Weigend & R.H. Acuña, Taxon 66(2): 374. 2017. *Loasa volubilis* Dombey ex Juss., Ann. Mus. Natl. Hist. Nat. 5: 26. 1804. TYPE: Chile. 1782/1783, *J. Dombey s.n.* (lectotype P 02273153! photo, designated by Acuña et al., Taxon 66(2): 374. 2017; possible isolectotypes P 02273154! photo; P 02273155!). Figures 1-2.

Loasa volubilis var. *alpina* Poepp., Fragm. Syn. Pl.: 24. 1833. *Loasa artemisiifolia* Poepp. ex Urb. & Gilg, Monogr. Loasacearum: 173, 359. 1900. TYPE: Chile. Sierra velluda ad Antuco, 1829, *E. Poeppig*, *Diar.* 945 (syntypes HAL 0121358! photo; P 04589413! photo; W 0017739! photo).

Note: Although *Loasa amabilis* was suggested to be a synonym of *Loasa volubilis* (= *Pinnasa volubilis*) in the Catalogue of the Southern Cone (Weigend et al., 2008), we treat it here as a synonym of *Loasa argentina* Urb. & Gilg. ex Speg.

Herbaceous vine, stems ca. 100-200 cm long (?), 1-2 mm diam. Stem tan to light brown, epidermis exfoliating with age, with simple scabrid trichomes and shorter, inconspicuous, glochidiate trichomes. Root system unknown.



Fig. 1. *Pinnasa volubilis*. **A**, flower. **B**, vining habit and pinnatifid leaf. Photo by D. Cohen, of Cohen 74 (SI). Color version at <http://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/858/1174>

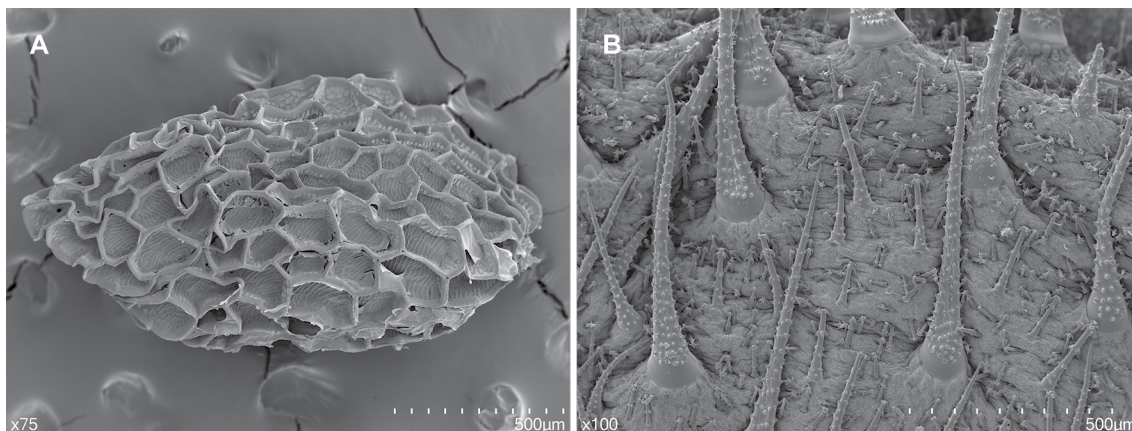


Fig. 2. *Pinnasa volubilis*. **A.** seed. **B.** larger scabrid and smaller glochidiate trichomes at roof of ovary. Micrograph material from *Cohen 74* (SI). Color version at <http://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/858/1174>

Leaves opposite, petiole sheathing, 10-34 mm, with scabrid and short glochidiate trichomes, lamina 22-88 × 12-64 mm, deeply pinnatifid, sometimes appearing bipinnatifid or compound, adaxial surface with many scabrid, few glochidiate, and glandular trichomes, abaxial surface with scabrid trichomes mostly along margins and veins, and few glochidiate trichomes. Inflorescences to 35+ cm long, lax, open, winding with axillary branches, flowering branches opposite, one- to many-flowered, each flower horizontal to erect in anthesis with two petiolate, frondose bracts, 9.2-34 × 5-23 mm, with indumentum similar to that of the leaves; pedicels 7-10 mm long during anthesis, with indumentum similar to that of the stem and petioles, lengthening considerably in fruit (up to 30 mm). Sepals five, ovate, 1.9-6 × 1.3-3.2 mm; with a main vein, margins entire, adaxially covered in scabrid trichomes with few glochidiate trichomes near margins, abaxially covered in glochidiate trichomes with scabrid trichomes on veins and margins. Petals five, spreading, strongly unguiculate, proximally clawed, distally triangularly, white to pale yellow, with a distinct longitudinal green band along the middle of abaxial surface, 8.5-12.5 mm long, with lacinate margins, adaxially with very short, sparse glochidiate and scabrid trichomes, distally with flattened elongated cells; abaxially with more glochidiate and scabrid trichomes. Nectar scales five, distinctly L-shaped in lateral view

and deeply cucullate, 4.4-7 × 1.9-4 mm, pale white to yellow/green, red markings apically, papillose at the base, with the neck thickened into shallow double arch, dorsal threads three, ca. 4 mm long, attached to either the winged margins of scale or the upper third of central ridge, slightly flattened and expanded apically. Staminodes two per scale, 3.8-6.5 mm long strongly L-shaped, the base flattened, at about 2 mm from the base thickened in a knob, the apex filiform. Stamens ca. 50, filaments 4-7 mm long. Style 3-6 mm, with shallow grooves that extend onto the stigma, covered in scabrid trichomes most of its length, proximally, distally glabrous. Ovary half-inferior, roof covered densely in long scabrid and short glochidiate trichomes, inferior part mostly with glochidiate trichomes and a few scabrid trichomes. Fruit a globose capsule, 4-11 × 5.5-10 mm, apically dehiscent by three valves. Seeds 1.4-2 × 0.6-1.1 mm, ovoid, dark brown/black with a reticulate testa with well-developed anticlinal walls, and indistinguishable hilar cone.

Distribution and habitat. This species is found in Chile, from Valparaíso south to Los Ríos Region (Rodríguez et al., 2018). In the present publication, its distribution is expanded to a single location in Neuquén Province, Argentina (Figure 3). The population found in Argentina is located in a disturbed habitat surrounded by *Nothofagus antarctica* (G. Forst.) Oerst., “ñire”, near the Ski Center in Cerro Caviahue.

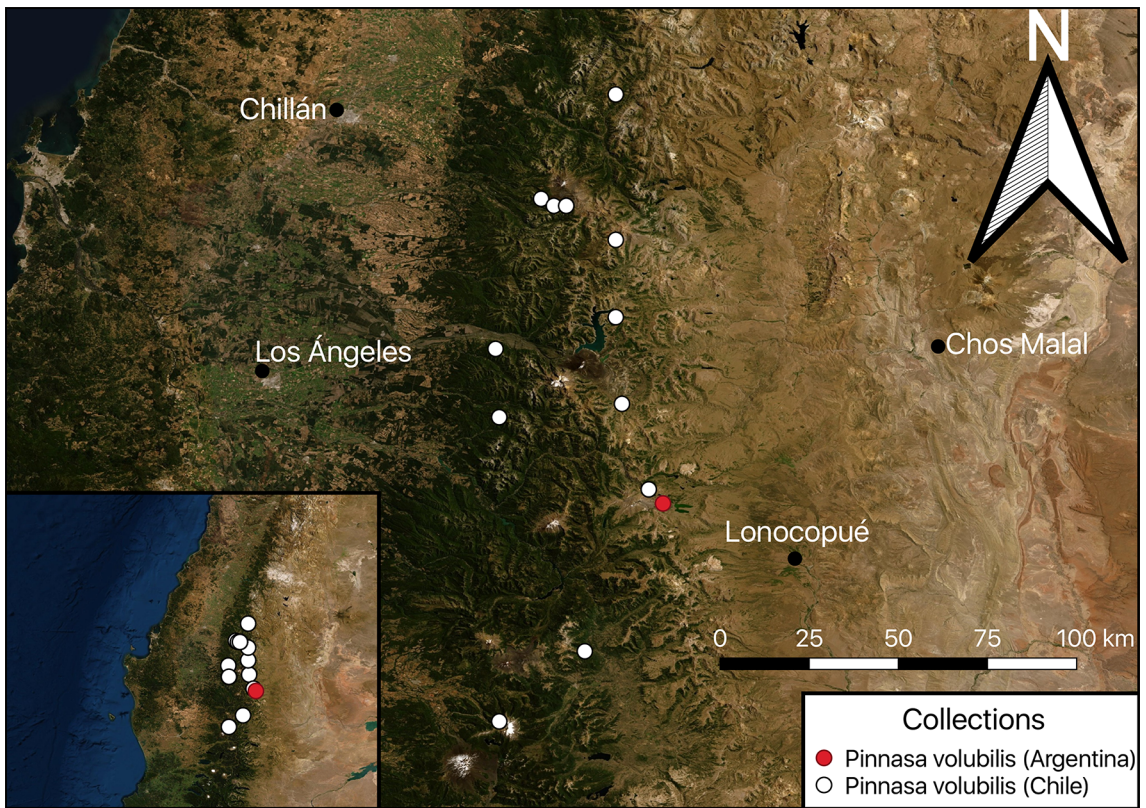


Fig. 3. Known collections of *P. volubilis* from Argentina and Chile. Color version at <http://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/858/1174>

It is likely that other populations of *P. volubilis* could be found in similar areas to the north and south within the Argentine Andes. Seeds are wind dispersed and plants tend to grow in disturbed areas or cliff habitats.

Observations. With this new record, there are now at least three species of vining *Pinnasa* from Argentina, one of which, *L. argentina*, has yet to be transferred to *Pinnasa*. *Pinnasa volubilis* differs from *P. bergii* (Hieron.) Weigend & R.H. Acuña and *L. argentina* by having much larger flowers and leaves. *Loasa argentina* could perhaps be confused with *P. volubilis*, but plants of the former species have linear leaflets whereas plants of the latter species have irregularly lobed and generally larger leaflets. In addition, *P. volubilis* has pronounced sheathing petioles in comparison to the other vining plants.

Additional material examined

ARGENTINA. **Neuquén.** Depto. Ñorquín, Cerro Caviahue, Vegetated area near ski slopes, 1805 m s.m., 37° 51' 43.308" S, 71° 5' 14.28" W, 21-I-2018, *Cohen 74* (CORD, RSA, SI).

CHILE. **Araucanía.** Prov. Malleco, Curacautín, 1060 m s.m., 12-II-1969, *Montero 8239* (CONC). **Bio-bío.** Prov. Biobío, Santa Bárbara, Cordillera de Los Andes: Reserva Nac. Ralco, road to Laguna Verde, 1539 m s.m., 37° 53' 33.8" S, 71° 21' 37.0" W, 17-I-2004, *Darwin Core Initiative 770* (CONC, E, SGO). Prov. Ñuble, Termas de Chillán, 4-II-1948, *Castillo s.n.* (CONC). Prov. de Ñuble, Nevados de Chillán, Neues Wegstück zu den Termas oberhalb der Puente Lechería, ca. 1600 m s.m., 26-II-1981, *Grau 3055* (M). Prov. Biobío, Termas de Chillán, 1925 m s.m., 36° 52' 38.532" S, 71° 28' 52.392" W, 22-I-2017, *Cohen 25* (CONC, RSA, SGO). Prov. Ñuble, Límite de la Reserva Nac. Ñuble, 1250 m s.m., 14-II-2003, *Mihoc 6799* (CONC).

Key to *Pinnasa* in Argentina

1. Plant ascending, erect or rosette-forming cespitose, stem epidermis not exfoliating 2
1. Plant twining, stem epidermis exfoliating with age 3
- 2(1). Plant ascending or erect, petals white, nectar scales white with orange apex *Pinnasa pinnatifida*
2. Plant cespitose, petals yellow, nectar scales white, distally elongated, apex flattened *Pinnasa nana*
- 3(1). Petals yellow, nectar scale yellow/orange, fruit obconical *Pinnasa bergii*
3. Petals white, nectar scale white/orange, fruit globose *Pinnasa volubilis*

ACKNOWLEDGMENTS

We thank the herbarium curators at CORD, MERL, SI, SGO, and CONC for sending images of specimens and loans. We also thank Dr. Manuel J. Belgrano, Dr. Lucinda McDade, and two anonymous reviewers for helpful comments that improved manuscript. This work was supported by funding obtained thru Rancho Santa Ana Botanic Garden graduate student research grant.

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