

A new species of *Leucheria* (Nassauvieae, Asteraceae) from the Patagonian Andes

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Abstract

A new species of *Leucheria* endemic to the Patagonian Andes in northern Neuquén, Argentina, is reported. *Leucheria melorum* is characterized by its cushion-like growth habit composed of dense woolly rosettes, rhizomes covered by persistent old leaves, and capitula with white to pink flower corollas. The species inhabits high-elevation volcanic environments (2550–2900 m a.s.l.) on the Domuyo and the Wayle massifs. We provide a detailed morphological description, illustrations highlighting the diagnostic morphological traits and a key for distinguishing *L. melorum* from related species. Based on the IUCN criteria and categories, a preliminary conservation status assessment is also given.

Key words: Flora Altoandina, *Leucheria*, Nassauvieae, Patagonia

Resumen

Se da a conocer una nueva especie de *Leucheria* endémica de los Andes patagónicos del norte de Neuquén, Argentina. *Leucheria melorum* se caracteriza por su hábito de crecimiento en forma de cojín, compuesto por rosetas densamente lanosas, rizomas cubiertos por restos persistentes de hojas viejas y capítulos con flores de corolas blancas a rosadas. La especie está restringida a ambientes volcánicos de elevada altitud (2550–2900 m s.m.) en los macizos del Domuyo y del Wayle. Se proporciona una descripción morfológica detallada de la especie, ilustraciones resaltando los caracteres morfológicos diagnósticos y una clave dicotómica para diferenciarla de las especies afines. También se propone una evaluación preliminar de su estado de conservación según los criterios y categorías de la IUCN.

Palabras clave: Flora Altoandina, *Leucheria*, Nassauvieae, Patagonia

Introduction

Leucheria Lag. (Nassauvieae, Mutisioideae, Asteraceae) is a South American genus, distributed along the Andes from central Perú to southern Patagonia, the extra-Andean region of Chile, the Patagonian steppe and Islas Malvinas, with its highest center of diversity located in the temperate regions of Chile and Argentina. The species of *Leucheria* are perennial or annual, caulescent or acaulescent herbs, with alternate leaves arranged in a basal rosette, frequently exhibiting a distinctive lanate, tomentose or glandular-pubescent indumentum. The capitula have campanulate or hemispherical involucre with phyllaries arranged in 2 to 4 series (rarely more than 4); the inner phyllaries can be arranged like receptacular paleae, resulting in the compartmentalization of the capitulum (Katinas & Forte 2020). The flowers have bilabiate corollas, sagittate anthers, and styles cleft into two truncate branches with papillae on the internal surface and forming an apical crown, and white plumose pappus (Crisci 1976, Katinas *et al.* 2022).

Following the comprehensive revision by Crisci (1976), which recognized 46 species, the genus was long considered one of the largest in the Nassauvieae. Since then, some new species were described and others were redefined in their circumscription (Katinas *et al.* 2008a, 2018, Teillier 2010, Ratto *et al.* 2014, Jara-Arancio *et al.* 2019, Lavandero *et*

al. 2020, 2024). Taking together all these updates, Apodaca *et al.* (2021) and Katinas *et al.* (2022) reduced the total number of recognized species to 40 and 29, respectively. Subsequently, Muñoz-Schick & Moreira (2022) further reduced the number to 28 by the synonymization of *Leucheria graui* into *L. apiifolia*. More recently, Lavandero *et al.* (2024) described a new species and questioned the markedly “lumping” approach adopted by Apodaca *et al.* (2021) and Katinas *et al.* (2022), resurrecting some previously synonymized taxa. Furthermore, although significant progress has been made in the phylogenetics of *Leucheria*, this issue remains the subject of ongoing research, because its boundaries and its relationships within the Nassauvieae tribe are still under scrutiny (Katinas *et al.* 2008b, Jara-Arancio *et al.* 2017, Katinas & Forte 2020, Hershkovitz 2024a, 2024b, 2024c, 2024d, 2024e, 2025, Lavandero *et al.* 2024).

The first evidence of the existence of the species described here dates back to 2013, when a photograph of the plant from northern Patagonian Andes was published by Sheader (2013), a plant grower and photographer, who suggested that it represented a still undescribed species of the monotypic genus *Burkartia* Crisci. More recently, some other new images presumably of the same species appeared on social media. However, a careful examination of the morphological characters visible in all those photographs did not allow the plants to be assigned to the genus *Burkartia* with full certainty.

In order to clarify the taxonomic identity of these plants, we organized a field trip to the northern Patagonian Andes with the purpose of making some collections that would allow us to carry out an exhaustive morphological study of these unknown materials.

Upon direct field observation and subsequent morphological analysis, we concluded that the taxon did not belong to *Burkartia* but was, in fact, a species of *Leucheria* restricted to the high-elevation volcanic environments of northern Neuquén, Argentina. Given its unique morphological traits we are making it known here as a new species. This study also provides a detailed morphological description, illustrations, distribution map, a comparison with related species, and an assessment of its conservation status according to IUCN guidelines.

Materials and methods

The study area is located in the southern Andes, specifically in the northernmost Patagonian Andes (Fig. 1). This region is characterized by a landscape dominated by massive mountain complexes, such as the Volcán Domuyo, Volcán Tromen and Cerro Wayle. Fieldwork was carried out within the boundaries of Área Natural Protegida Domuyo and Parque Provincial Tromen in January 2026. Geographic coordinates were recorded in situ using a GPS. Specimens of the new entity were collected and herborized following the classical procedures. In order to characterize the associated plant communities, additional specimens of other species growing in the same habitats and in the vicinity of the individuals of the new species were also collected and herborized. All plant collections were made under research permits issued by the Áreas Técnicas de la Dirección General de Áreas Naturales Protegidas and the Dirección General del Centro de Ecología Aplicada del Neuquén (Resolution No. RESOL-2025-1678-NEU-SARN#MTUR).

The morphological description of the new species was based on the study of living plants in the field and our herbarium collections. Detailed observations of material previously fixed in 70% ethanol were made using a light microscope (Nikon Optiphot-2) and a stereomicroscope (Nikon SMZ-U). Additionally, vegetative structures were dehydrated and embedded in paraffin following standard botanical protocols, then sectioned and stained for microscopic analysis.

The collected materials were compared with specimens of related species (e.g., *L. candidissima*, *L. millefolium*) deposited at BAB and SI herbaria. Institutional abbreviations follow Index Herbariorum (Thiers 2026, continuously updated). The terminology used for the morphological general description follows Crisci (1976) and Katinas *et al.* (2022), while the pubescence terminology specifically follows Katinas (2025). The nomenclature of the new species is fully consistent with the rules and recommendations established in the International Code of nomenclature for algae, fungi and plants (Turland *et al.* 2025).

Conservation status was assessed following the IUCN Red List categories and criteria (2024). Area of occupancy (AOO) and extent of occurrence (EOO) were calculated using GeoCAT (Bachman *et al.* 2011).

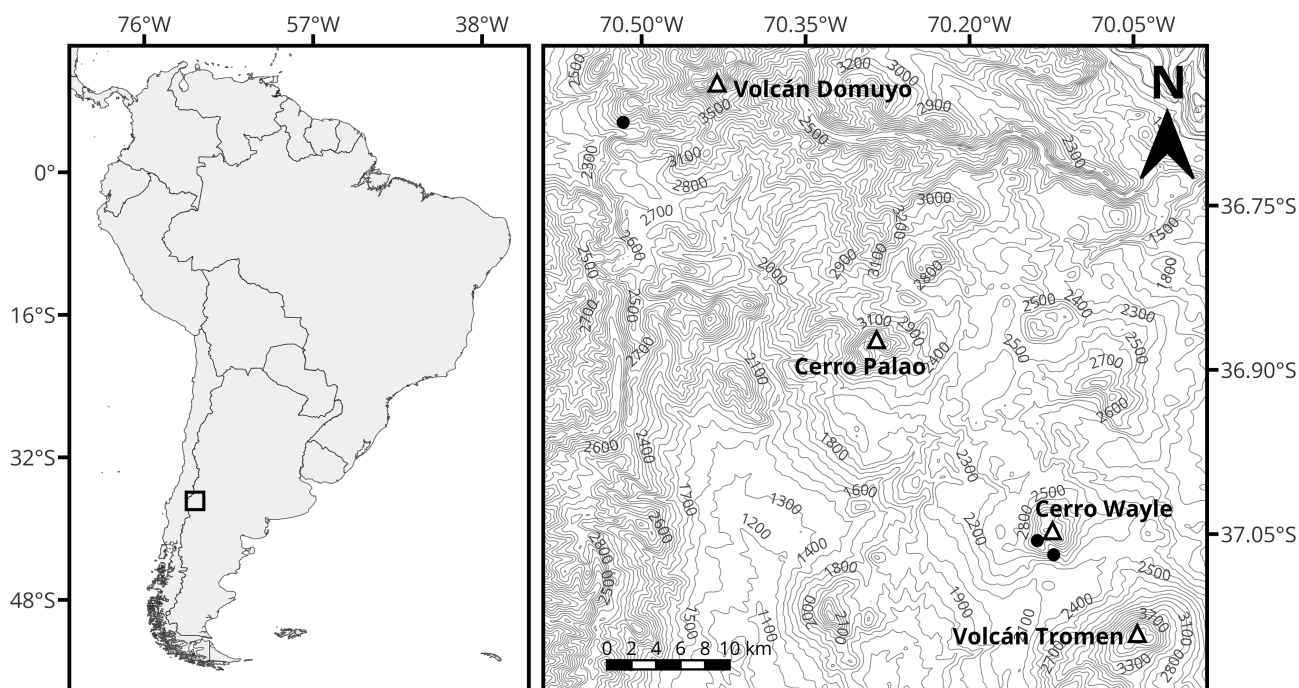


FIGURE 1. Known localities of *Leucheria melorum* (indicated by black dots) in northern Patagonian Andes. Main nearby peaks are indicated by white triangles.

Results

Taxonomic treatment

Leucheria melorum Horton & Picca, *sp. nov.* (Figs. 2–3).

Type:—ARGENTINA. Neuquén: Minas, Volcán Domuyo, “Punta de camino”, 36.674°S, 70.516°W, 2652 m a.s.l., 9 January 2026, Picca 3025 (holotype SI202281, isotypes BAB102906, to be distributed: BCRU).

Diagnosis:—*Leucheria melorum* is morphologically similar to *L. candidissima* and *L. millefolium*, which are also present in the northern Neuquén volcanic massifs. However, the new species is readily distinguished by its compact, cushion-like growth habit. It further differs from both by having very short stems (vs. more or less elongated in *L. candidissima* and *L. millefolium*), flabelliform leaf blades (vs. lanceolate in *L. candidissima* and elliptic in *L. millefolium*) and by having bi- or tri-pinnatisect leaves with oblong segments closely approximated towards the apex (vs. pinnatisect with an elongate terminal lobe in *L. candidissima* and bi- or tri-pinnatisect with rhomboidal segments in *L. millefolium*; segments regularly distributed along the rachis in both species).

Description:—**Perennial** herb, rhizomatose, scapose, forming a more or less compact cushion with an irregular outline, composed of one, or more frequently, few to several fragrant rosettes. **Rhizome** brown, 2–3 mm wide, cylindrical, branching, horizontal, oblique to vertical at the distal ends; roots fleshy, brown, reaching to 25 cm long × ca. 1 mm wide, circular in cross-section. **Stems** short, densely covered at the base by decaying leaf remnants, apex forming a tight rosette, 4–6 cm tall × 3–5 cm diam. **Leaves** alternate, 25–45 mm long; basal leaves separated by very short internodes, pseudopetiolate, spatulate; upper leaves similar to the basal ones but gradually reduced in size and less divided upwards, becoming narrower and even linear towards the stem apex. **Pseudopetiole** flat, whitish at the base to pale green near the lamina, 20–35 × 2–4 mm, vaginate at the proximal end, with scarious margins, 3- or 5-veined, veins parallel, straight, brown-reddish to dark brown, midvein cylindrical; adaxial surface glabrous, abaxial surface and margins with uniseriate, simple multicellular (5–16 cells) glandular trichomes, and sparse, long (up to 1 cm), nonglandular flagelliform trichomes on the edges. **Lamina** green, flabelliform in outline, 5–12 mm wide, bi- or tri-pinnatisect; last order segments oblong, up to 2 mm long, apex rounded to obtuse with margins and sinuses thickened, sinuses rounded; indumentum composed by the same trichomes types as those on the pseudopetiole,

uniseriate glandular trichomes present on both surfaces and on the margins, nonglandular flagelliform trichomes sparse along the margins and on the midvein of the adaxial surface, increasingly dense towards the last order segments tips, giving the rosettes a characteristic woolly appearance. **Capitula** solitary or 2(–4) by scape ramification, homogamous, discoid. **Scapes** accrescent, elongating to up to 6 cm long in fruit, densely covered by uniseriate glandular trichomes (8–11 cells) and nonglandular flagelliform trichomes that are restricted to the base. **Involucre** cylindrical to narrowly campanulate, involucre bracts in 2–3(–4) series, herbaceous, slightly imbricate, concave, thick, specially along the midrib, covered by uniseriate, simple multicellular (7–11 cells) glandular trichomes on the abaxial surface and on the margins, adaxially glabrous; apex rounded to obtuse with thickened margins, 3-veined, veins straight, dark purplish; inner phyllaries 5–6, green to pale green, narrowly obovate, $7.6\text{--}8.9 \times 1.8\text{--}2.8$ mm, with scarious margins, erose towards the apex; outer phyllaries 5–6, green, narrowly oblong to narrowly obovate, $6.6\text{--}9.1 \times 1.2\text{--}2.3$ mm; middle phyllaries (if present) with intermediate characters, margins non-scarious on exposed portions and broadly scarious where overlapped by the outer phyllaries; rarely a single, narrowly obovate, bract-like phyllary occurs outer to the main series, inserted slightly lower on the receptacle, $8\text{--}9 \times 1.1\text{--}1.3$ mm. **Receptacle** slightly convex, epaleate, glabrous. **Flowers** isomorphic, bisexual, 20–35 per capitulum. **Corollas** bilabiate, white to pink, glabrous, tube $4.2\text{--}4.6 \times 0.8\text{--}0.9$ mm; outer lip $2.4\text{--}3.5 \times 1.6\text{--}1.8$ mm at its widest, 4-veined, apex 3-dentate, teeth equal; inner lip bifid, $1.7\text{--}2.6 \times 0.8\text{--}1.7$ mm at its widest, 1-veined, segments connivent. **Stamens** 5, glabrous. **Filaments** distally dilated into an antheropodium, 2.4–3 mm long, antheropodium 0.6–0.75 mm long. **Anthers** sagittate, 1.4–1.8 mm long, apical appendages white, pink or purple, lanceolate, 0.8–1.2 mm long, apex acute; tails 0.9–1 mm long, papillose at the ends. **Style** base with a globose stylopodium, $0.3\text{--}0.4 \times 0.3\text{--}0.4$ mm; style 4.7–4.8 mm long including the stylopodium, cleft into two truncate branches; branches 1.1–1.3 mm long, with papillae on the internal surface and forming an apical crown. **Cypselae** brown, obovoid, $2.5\text{--}2.7 \times 0.7\text{--}0.9$ mm, pilose, with abundant nonglandular medium-sized (125–156 μm long) twin trichomes and sparse biseriate, simple glandular trichomes (two series of 5–7 cells, 40–50 μm long); carpopodium short, cylindrical, light brown. **Pappus** uniseriate, deciduous, bristles 16–22, white, plumose, 4.6–5.1 mm long, basally connate into a ring; lateral cilia filiform, increasing in density towards the apex, 0.2–1 mm long.

Phenology:—Flowering from December to January.

Etymology:—The specific epithet honors Mabel and Sergio Melo, a couple of dedicated naturalists, who were the first people to collect specimens of this new species. Their keen observations of the high Andean flora and kind cooperation were very important to the recognition of this novelty.

Distribution and ecology:—*Leucheria melorum* is endemic to a restricted area from the Patagonian Andes. Until now it has only been recorded at the Volcán Domuyo and Cerro Wayle massifs, growing at elevations between 2550 and 2900 m a.s.l. The species inhabits high-elevation volcanic environments, growing specifically on rocky and scoriaceous substrates with high exposure to solar radiation and strong winds. These habitats correspond to the Altoandina (Cuyano District) and Patagónica (Payunia District) Phytogeographic Provinces (Cabrera 1976; Cabrera & Willink 1980; Movia *et al.* 1982; Roig 1997). The high Andean communities where *L. melorum* occurs show a distinct, elevation-dependent plant species composition. A detailed list of the associated species for each site and elevation is provided in Table 1. Pictures of some of the accompanying species are shown in Fig. 4.

Conservation status:—To date, *Leucheria melorum* is known only from two isolated localities within a very restricted geographic and altitudinal range, being strictly confined to the volcanic massifs of Wayle and Domuyo between 2550 and 2900 m a.s.l. In northern Neuquén, mountain peaks reaching or exceeding these elevations are extremely scarce, suggesting that the species is naturally restricted to isolated high-elevation habitats. Extensive searches conducted on nearby summits with comparable elevations and environmental conditions, including Cerro Palao, failed to reveal additional populations. The species has an estimated area of occupancy (AOO) of 12 km² calculated using 2×2 km grid cells. Its extent of occurrence (EOO) is likewise very restricted (5.6 km²). However, this value should be interpreted cautiously because the known records are nearly linearly distributed, a spatial configuration that may artificially underestimate EOO values. Nevertheless, the low EOO likely reflects a genuine ecological restriction, since suitable habitats above 2500 m a.s.l. are naturally scarce and geographically isolated throughout the region. Although the species appears to occur in naturally isolated populations the available data do not support the inference of continuing decline or extreme fluctuations required for assignment to the categories Critically Endangered (CR) or Endangered (EN) under criterion B of the IUCN guidelines. Nevertheless, the species remains susceptible to stochastic environmental events and localized anthropogenic disturbances. In particular, high-elevation mountaineering and hiking activities and intensive goat grazing may affect the entirety of its restricted altitudinal habitat. Consequently, *L. melorum* is here preliminarily assessed as Vulnerable (VU D2) according to IUCN criteria.

TABLE 1. Floristic composition of the plant communities associated with *Leucheria melorum* recorded during fieldwork.

Family	Species	Locality		
		Domuyo (2550– 2650 m a.s.l.)	Wayle (2550 m a.s.l.)	Wayle (2900 m a.s.l.)
Apiaceae	<i>Azorella fuegiana</i>			x
	<i>Azorella prolifera</i>	x	x	
	<i>Bowlesia ruiz-lealii</i>	x		
	<i>Pozoa coriacea</i>	x	x	
Asteraceae	<i>Chaetanthera villosa</i>	x	x	
	<i>Erigeron schnackii</i>	x		
	<i>Grindelia prunelloides</i>	x	x	x
	<i>Hypochaeris tenuifolia</i>	x	x	
	<i>Nassauvia lagascae</i>	x		
	<i>N. revoluta</i>	x	x	
	<i>Perezia pilifera</i>	x	x	
	<i>P. recurvata</i>	x	x	
	<i>Senecio depressus</i>			x
	<i>S. subumbellatus</i>	x		
	<i>S. pachyphyllos</i>	x	x	
	<i>S. tricephalus</i>		x	
	<i>Trichocline dealbata</i>	x		
Brassicaceae	<i>Menonvillea scapigera</i>		x	
Boraginaceae	<i>Phacelia secunda</i>	x	x	
Calyceraceae	<i>Gamocarpha scapigera</i>	x	x	
	<i>Moschopsis leyboldii</i>			x
Caryophyllaceae	<i>Cerastium arvense</i>	x	x	x
Fabaceae	<i>Adesmia corymbosa</i>	x		
	<i>Adesmia</i> aff. <i>schneiderii</i>	x		
	<i>Astragalus</i> aff. <i>cruckshanskii</i>		x	
Juncaceae	<i>Luzula chilensis</i>	x		
Loasaceae	<i>Blumenbachia prietea</i>	x	x	
	<i>Pinnasa kurtzii</i>			x
Iridaceae	<i>Olsynium junceum</i>	x		
Montiaceae	<i>Cistanthe picta</i>	x		x
	<i>Montiopsis cistiflora</i>	x		
Oxalidaceae	<i>Oxalis erythrorhiza</i>	x		x
Plantaginaceae	<i>Plantago barbata</i>	x		
	<i>Plantago monanthos</i>			x
Plumbaginaceae	<i>Armeria curvifolia</i>	x		
Poaceae	<i>Hordeum comosum</i>	x		
	<i>Poa holciformis</i>	x	x	
Polygalaceae	<i>Senega salasiana</i>	x		
Rubiaceae	<i>Oreopolus glacialis</i>	x	x	
Schoepfiaceae	<i>Arjona patagonica</i>	x	x	
Violaceae	<i>Viola</i> aff. <i>turritella</i>	x		

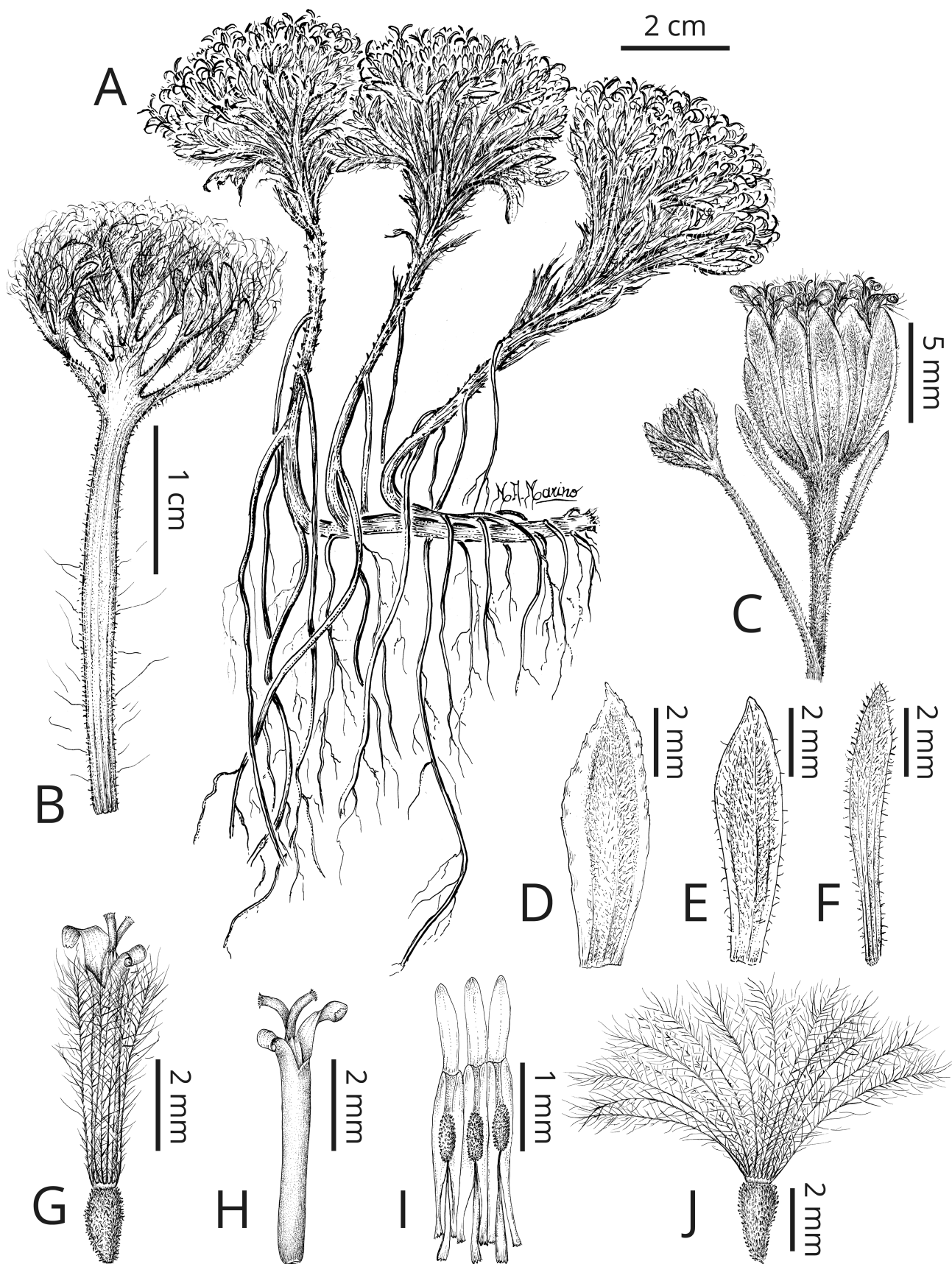


FIGURE 2. *Leucheria melorum*. **A.** Habit; **B.** Leaf, adaxial view; **C.** Scape and capitulum; **D.** Inner phyllary, dorsal view; **E.** Outer phyllary, dorsal view; **F.** Bract-like phyllary, dorsal view; **G.** Flower; **H.** Flower (ovary and pappus removed); **I.** Stamens; **J.** Fruit. Line drawings by Angélica Marino.

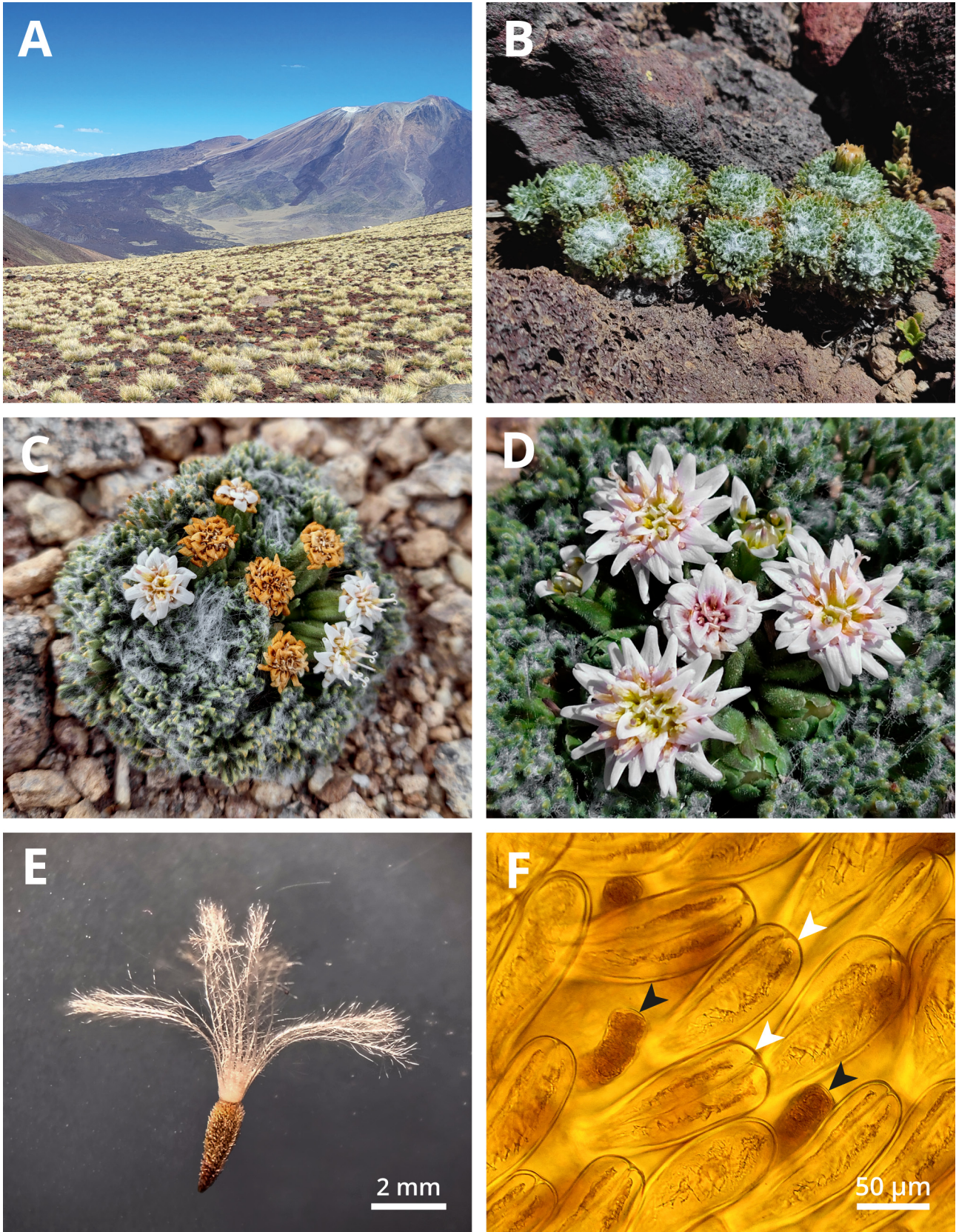


FIGURE 3. **A.** General view of the habitat of *Leucheria melorum* on Cerro Wayle at 2900 m a.s.l. with the Volcán Tromen in the background; **B.** Several dense rosettes; **C.** Rosette with capitula at different developmental stages; **D.** Close-up view of some flowering capitula; **E.** Fruit; **F.** Photomicrograph of the cypsela surface showing characteristic twin trichomes (indicated by white arrows) and biserial glandular trichomes (indicated by black arrows). Photos **A**, **C**, **E** & **F**: Pablo Picca; **B** & **D**: J. Felipe Horton.

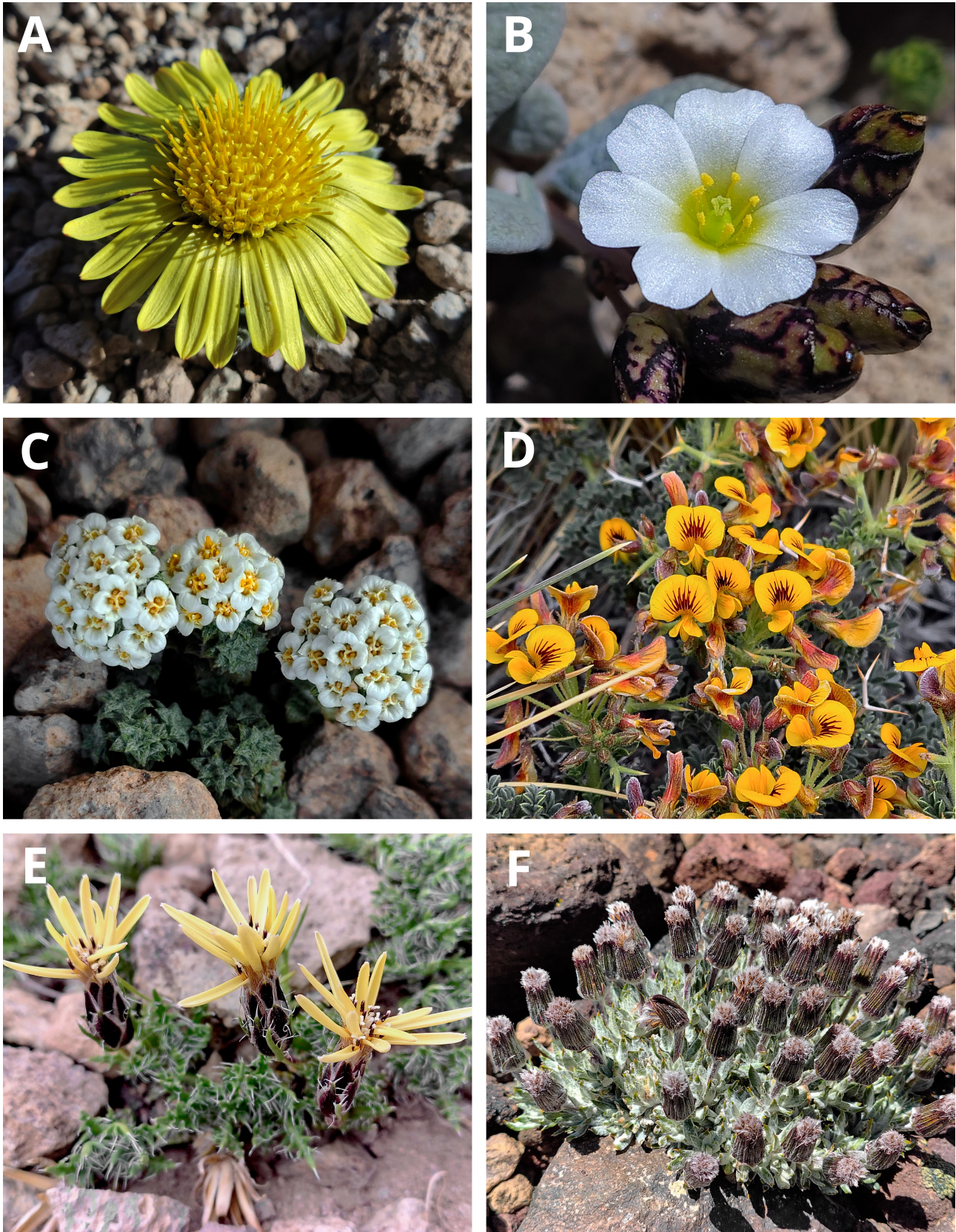


FIGURE 4. Selected accompanying species of *Leucheria melorum* in its natural habitat. **A.** *Chaetanthera villosa*; **B.** *Cistanthe picta*; **C.** *Nassauvia lagascae*; **D.** *Adesmia* aff. *schneiderii*; **E.** *Perezia pilifera*; **F.** *Senecio depressus*. Photos **A, B & C:** J. Felipe Horton; **D, E & F:** Pablo Picca.

Observations:—*Leucheria* sect. *Lasiorrhiza* (Lag.) Hershk. comprises acaulescent or subacaulescent perennial herbs with solitary (often with more than one) capitula (Jara-Arancio *et al.* 2017), horizontal, thick rhizomes covered by old leaf remnants, and long, dark, cylindrical roots (Lavandero *et al.* 2020), and uncompartimentalized capitula (Katinas & Forte 2020). *Leucheria melorum* exhibits all of these diagnostic features. Although molecular data are not yet available, the morphological evidence strongly supports its assignment to *L.* sect. *Lasiorrhiza*.

Additional material examined:—ARGENTINA. Neuquén: Depto. Chos Malal, Cerro Wayle, 2910 m a.s.l., 37.056°S, 70.138°W, 10 January 2026, *Picca* 3034, 3035 (SI); Depto. Chos Malal, Cerro Wayle, 2557 m a.s.l., 37.069°S, 70.123°W, 10 January 2026, *Picca* 3037, 3038 (SI); Depto. Minas, Volcán Domuyo, November 2022, *Melo* & *Melo s.n.* (SI); Depto. Minas, Volcán Domuyo, “Punta de Camino”, 2562 m a.s.l., 36.678°S, 70.518°W, 8 January 2026, *Picca* 3005 (SI); Depto. Minas, Volcán Domuyo, “Punta de Camino”, 2652 m a.s.l., 36.674°S, 70.516°W, 9 January 2026, *Picca* 3026 (SI).

Key to the species of *Leucheria* sect. *Lasiorrhiza* from Patagonian Andes

This key is adapted and modified from Cabrera (1971). The taxonomic frame followed here differs from Katinas *et al.* (2022) in the recognition of *Leucheria hahnii* and *L. leontopodioides* as distinct from *L. suaveolens*, *L. millefolium* as separate from *L. purpurea*, and *L. papillosa* as independent from *L. eriocephala*. These taxonomic decisions are supported by our morphological analysis of herbarium specimens, field observations of natural populations, and a review of available phylogenetic data (Jara-Arancio *et al.* 2017, Lavandero *et al.* 2020, 2024, Hershkovitz 2024b, 2025).

1. Caulescent plants, with several capitula arranged in lax corymbiform cymes *L. achillaeifolia*
- Acaulescent/subacaulescent plants, with solitary capitula (often 2–4) at the apex of scapes or simple stems 2.
2. Leaves entire, lobed or toothed 3.
- Leaves deeply pinnatisect or bi-pinnatisect 5.
3. Leaves glabrous or only lanuginose. Stems leafy in the lower part *L. nutans*
- Leaves densely white-tomentose. Capitula on leafless scapes 4.
4. Dwarf plants. Leaves spatulate, crenate at the apex, 10–20 mm long. Scapes up to 30 mm tall *L. diemii*
- More robust plants. Leaves entire or lobed, 40–120 mm long. Scapes 50–300 mm tall *L. hahnii*
5. Plants densely tomentose or woolly 6.
- Plants glabrescent or glandular-pubescent 11.
6. Leaves bi- or tri-pinnatisect 7.
- Leaves pinnatisect, with segments generally entire 8.
7. Stems elongate, 5–25 cm long. Leaf blades elliptic in outline. Involucre densely lanate on the dorsal surface *L. millefolium*
- Stems short, 4–6 cm long. Leaf blades flabelliform in outline. Involucre with short glandular trichomes on the dorsal surface *L. melorum*
8. Capitula surrounded by numerous linear bracts. Stems simple, leafy *L. suaveolens*
- Capitula not surrounded by linear bracts. Capitula on leafless scapes 9
9. Leaves lanceolate in outline, with terminal segment long and acute. Plants densely canescent-tomentose *L. candidissima*
- Leaves elliptic to oblanceolate in outline, with terminal segment short, acute or obtuse. Plants woolly 10.
10. Leaves only 5–15 mm long, loosely lanate *L. leontopodioides*
- Leaves more than 40 mm long *L. hahnii*
11. Plants very loosely woolly or glabrescent. Flowers red *L. purpurea*
- Plants glandular-pubescent or almost glabrous. Flowers white or lilac 12.
12. Acaulescent plants, glabrous, tomentulose or scarcely papillose *L. eriocephala*
- Plants with a simple or bifurcate stem, with 1 or 2 leaves, densely glandular pubescent *L. papillosa*

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