

THE GENUS *LAGENOPHORA* (COMPOSITAE)

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The genus *Lagenophora* was first described by Cassini under the name *Lagenifera* (in Bull. Soc. Philomat. 12, 1816, 199) with the following diagnosis:

'Ce genre, de la tribus des astérées, comprend le calendula magellanica, Willd. et le bellis stipitata, Labill. Son principal caractère reside dans la cypsèle lagéniforme, comprimée, prolongée au sommet en un col qui ne porte point d'aigrette. Les fleurons sont mâles'.

Two years later, in the same periodical (1818, p. 34) he changed the name *Lagenifera* without comment into *Lagenophora*, the latter being simply the latinized Greek equivalent of *Lagenifera*. Later authors have unanimously accepted the name *Lagenophora*, although Davis pointed out that *Lagenifera* has priority. Only recently Backer & Bakhuizen van den Brink Jr (Flora of Java 2, 1965, 381) have accepted the name *Lagenifera*, pointing out that this is the legitimate generic name, adding that *Lagenophora* is to be treated as an etymological variant. This would imply that under *Lagenifera* no new combinations are necessary.

Though it is perfectly true that Cassini in 1818 not intended to give a new name (*nomen novum*), but preferred a latinized Greek spelling, it is a border case touching the ticklish question of defining more exactly what is a different name in the nomenclatural sense.

To settle this, and to preserve customary usage, Bullock has recently proposed (Taxon 15, 1966, 75—76) to conserve the name, at least the spelling *Lagenophora* and this is here adhered to.

As to typification Davis in 1950 proposed as the type species *Bellis stipitata* Labill. and this was also followed by Bullock in his proposal to conserve the generic name. They overlooked that I had in 1939 already typified the genus by *Calendula magellanica* Willd., based on *Aster nudicaulis* Commers. ex Lamk. (Rev. Mus. La Plata n.s. Bot. 2, 1939, 243). This was the other species Cassini based the genus on; besides it is the oldest species described belonging to *Lagenophora*. This typification should hence be retained.

GENERIC RELATIONSHIPS

Lagenophora belongs to the tribe *Astereae* and was included by Bentham and Hooker in the subtribe *Bellidinae* on account of its ligulate ray florets and its achenes without pappus. The same criterion was followed by Hoffmann in the 'Pflanzenfamilien' and by other authors. In the opinion of De Jong (in litt.) who is making a comprehensive study on the genera of the *Bellidinae*, this is not a natural group and both *Lagenophora* and *Myriactis* should be transferred to the subtribe *Grangeinae*.

Lagenophora is closely related to the genera *Solenogyne*, *Laestadia*, *Myriactis*, and *Keysseria* (= *Hecatactis*). The characters of these genera are the following:

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Lagenophora Cass., Bull. Soc. Philom. 1816 (1816) 199 ('*Lagenifera*'); ibid 1818 (1818) 34.

Small rhizomatous herbs with rosulate leaves and mostly scapiform stems. Head usually solitary. Ray florets pistillate, ligulate, white to purple. Disk florets tubular, pentamerous, hermaphrodite or male. Achenes compressed, ending in a short, glandular beak. — South-East Asia, Malesia, Australia, New Zealand, Central and South America (Fig. 1.)

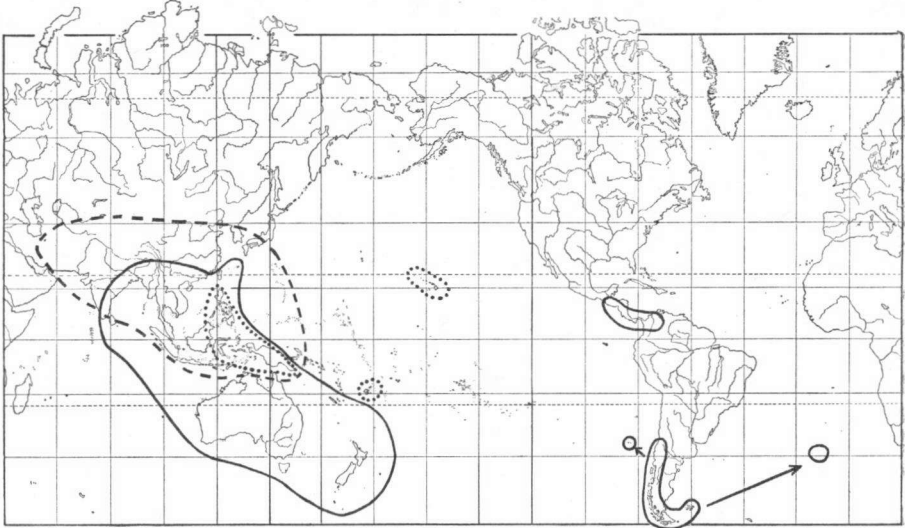


Fig. 1. Distribution of *Lagenophora* (—), *Keysseria* (...), and *Myriactis* (---).

Solenogyne Cass., Dict. Sci. Nat. 56 (1828) 174.

Small perennial herbs with rosulate leaves and scapiform stems. Head solitary. Ray florets pistillate, in 3—4 rows, *tubular* with or without a very short ligule. Disk florets tubular, pentamerous, staminate. Achenes compressed, *without beak, without glands*. — Japan, New Caledonia, Australia, and New Zealand (introduced).

Laestadia Kunth ex Lessing, Syn. Gen. Compos. (1832) 203.

Small perennial herbs or undershrubs with branched leafy stems. Heads solitary at the end of the branches. Ray florets pistillate, *tubular*, pentamerous. Disk florets tubular, pentamerous, staminate. Achenes usually glandular at the tip, without beak. — North-western South America.

Myriactis Lessing, Linnæa 6 (1831) 127.

Cauliscent perennial herbs with branched stems. Heads usually *numerous*. Ray florets pistillate, ligulate. Disk florets tubular, pentamerous or tetramerous. Achenes compressed, *without beak* (seldom with a short beak), glandular at the tip. — South Asia and Malesia (Fig. 1).

Keysseria Lauterbach, in Fedde Repert., 13 (1914) 241. — *Hecatactis* F. von Mueller ex Mattfeld, Bot. Jahrb. 62 (1929) 407.

Perennial herbs with *thick* rhizomes. Stems scapiform. Head solitary. Ray florets

pistillate, ligulate. Disk florets tubular, *tetramerous*. Achenes compressed, without or with a short beak, glandular at the tip. — Malesia and Pacific Islands (Fig. 1).

Laestadia is a clearly different genus. *Solenogyne* is also quite different from *Lagenophora* by the tubular ray florets and the achenes which are acute or acuminate at apex, but neither beaked nor glandular.

The differentiation between *Lagenophora* and *Myriactis* is complicated by the existence of species such as *Myriactis humilis* Merr. with short-beaked achenes and subscapiform stems. On the other hand, *Lagenophora andina* Badillo has stems with 1—3 heads. But in my opinion this convergence of characters is insufficient to join both genera.

Keysseria differs mainly by the tetramerous disk florets and the habit. *Lagenophora panamensis* S. F. Blake, however, has the aspect of the Hawaiian species of *Keysseria*.

Doubtless, more critical investigations, especially on the karyology, are necessary to establish the status of and relationships between these genera.

KEY TO THE GENERA RELATED WITH LAGENOPHORA

1. Achenes without glands at the apex. Ray florets tubular or nearly so **Solenogyne**
1. Achenes with glands at the apex or on the beak.
 2. Ray florets tubular. Stems branched, leafy **Laestadia**
 2. Ray florets ligulate.
 3. Caulicent herbs with ramose leafy stems. Heads usually many. Achenes usually without beak (seldom with a short beak) **Myriactis**
 3. Herbs usually with scapiform stems. Head usually solitary.
 4. Disk florets pentamerous. Achenes always beaked. Rhizomes slender **Lagenophora**
 4. Disk florets tetramerous. Achenes with or without a beak. Rhizomes thick . . . **Keysseria**

LAGENOPHORA Cass. *nom. cons. prop.*

Cassini, Bull. Soc. Philomatique, 1818 (1818) 34. — *Lagenifera* Cass. loc. cit. 1816 (1816) 199, *nom. rejic. prop.* — *Ixauchenus* Cass., Dict. Scien. Nat. 56 (1826) 176. — *Microcalia* A. Rich., Fl. Nouv. Zél. (1832) 230.

Small perennial herbs, usually with slender stoloniferous rhizomes. Stem unbranched, scapiform, leafy at base and usually nearly without leaves in the middle and upper parts, seldom leafy throughout, more or less hairy by septate hairs. Basal leaves rosulate, obovate or oblanceolate, dentate to lobed. Head solitary (only in one species 1—3 heads at the top of the stem), radiate. Involucre campanulate to hemispherical with 2—4 series of phyllaries, these herbaceous, oblong-lanceolate to oblanceolate, acute to obtuse, with narrow, scarious margins, hispidous or glabrate on the back. Ray florets in one or more rows, pistillate, ligulate, white to purple. Disk florets staminate or hermaphrodite, with 5-dentate, tubular corolla. Style-branches lanceolate, papillose on the outer surface. Receptacle flat to hemispherical, glabrous. Achenes compressed, obovate to oblanceolate, with thickened margins, produced into a short glandulous beak. Pappus absent.

Type species: *Calendula magellanica* Willd. = *Lagenophora nudicaulis* (Comm.) Dusén.

Fifteen species in Australia, New Zealand, South-East Asia, and Central and South America.

Geographical distribution (fig. 1).

Most of the species of *Lagenophora* are austral. The main center of distribution is New Zealand and Australia with 9 species, one of which extends through Malesia as far as India and Japan. Three other species are characteristic of the austral part of South America; one of these, *L. nudicaulis*, also occurs in Tristan da Cunha and Gough Islands, and another one, *L. hariotii*, is found in the Juan Fernandez Is. The other three species constitute a third center in Central America from Guatemala to Venezuela.

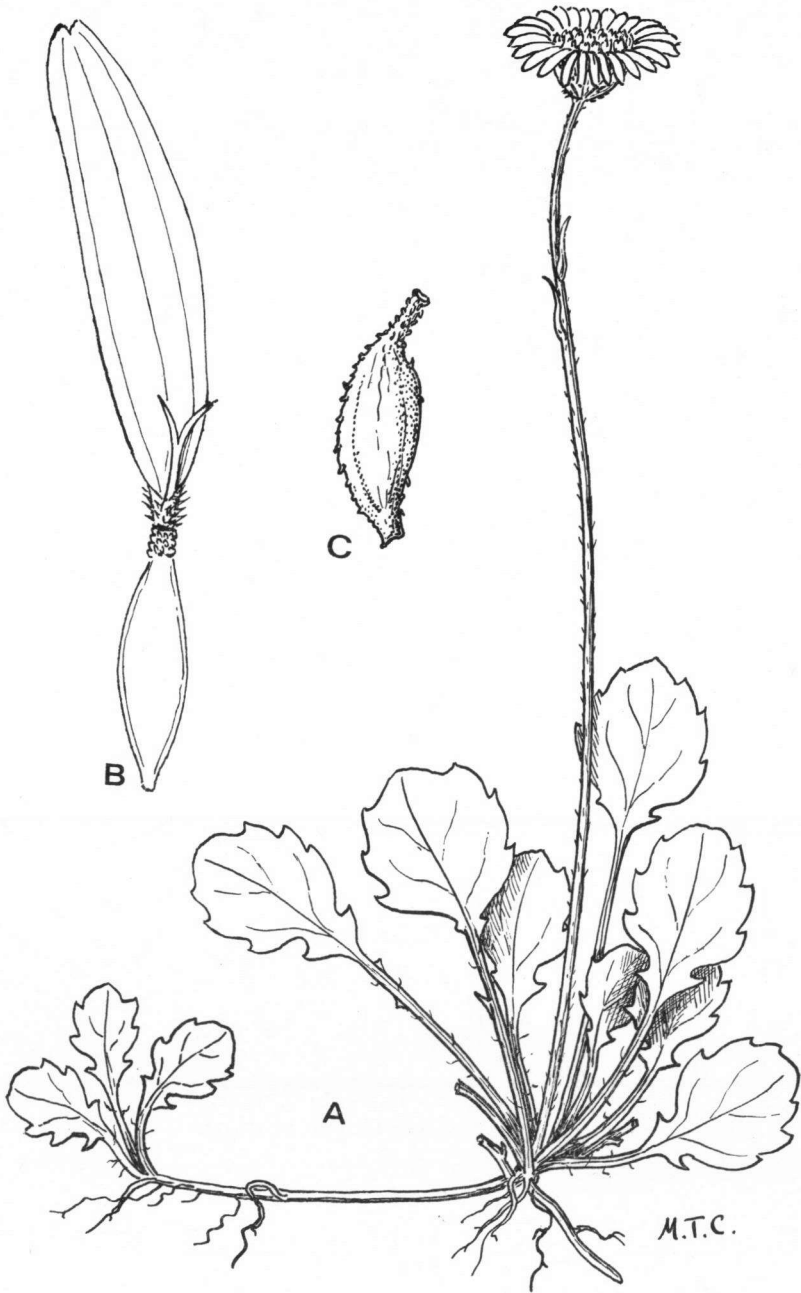


Fig. 2. *Lagenophora pumila* (Forst. f.) Chees. a. Habit, $\times 1\frac{1}{2}$, b. ray floret, $\times 17$, c. achene, $\times 17$. From Walker 4432.

Notwithstanding the characteristic austral distribution of *Lagenophora* this genus is not a useful example to establish floristic or paleogeographical relations. Actually, its fruits may be transported by marine birds during their periodical migrations epizoically by means of their apical glands. Several species of petrels and shearwaters which have been registered on the Patagonia coasts, nest in Tristan da Cunha or in the Gough Islands, or, alternatively, nest in Patagonia or in the Malvinas Islands and visit Tristan da Cunha and the Gough Islands. It is easy to imagine the transport of these adhesive achenes to long distances ¹⁾.

KEY TO THE SPECIES

1. Stems scapiform, leafy at the base only. Beak of achenes conspicuous. (Sect. *Lagenophora*).
 2. Leaves abruptly narrowed into a long petiole (New Zealand).
 3. Involucre 5 mm wide; ligules 3—4 mm long. Leaves usually with minute lobes at the base.
 1. *L. pumila*
 3. Involucre 3—4 mm wide; ligules 1.5—2.5 mm long. Leaves without lobes at the base.
 4. Leaves ovate, cuneate or truncate at base, regularly dentate-crenate 2. *L. petiolata*
 4. Leaves orbicular with very few teeth 3. *L. strangulata*
 2. Leaves gradually narrowed into the petiole.
 5. Leaves very small (blades 4—12 mm long) with only 1—2 teeth on each margin.
 6. Leaves with 1—2 small lobes at the base 1. *L. pumila*
 6. Leaves without lobes at the base.
 7. Ray florets 0.2 mm wide. Phyllaries numerous, obtuse 4. *L. cuneata*
 7. Ray florets 0.5—0.8 mm wide. Phyllaries few, acute to subobtusate 5. *L. nudicaulis*
 5. Leaves larger, with several teeth or lobes.
 8. Leaves deeply lobed.
 9. Involucre 3—3.5 mm high. Ligules 2—2.5 mm long. 6. *L. pinnatifida*
 9. Involucre 5 mm high. Ligules 5 mm long. 7. *L. huegelii*
 8. Leaves dentate, serrate, or short-crenate.
 10. Leaves obovate, short-petioled.
 11. Leaves obovate-spathulate, with few teeth at apex. 8. *L. hariotii*
 11. Leaves obovate-elliptical, regularly crenate.
 12. Involucre 4—5 mm high 9. *L. hirsuta*
 12. Involucre 3 mm high 10. *L. lanata*
 10. Leaves oblanceolate-spathulate, long-petioled.
 13. Involucre (in flower) 3—4 mm wide; phyllaries few, subobtusate. Scape glabrous. Roots fleshy 11. *L. gracilis*
 13. Involucre (in flower) 5—8 mm wide; phyllaries numerous. Scape hirsute. Roots thin.
 12. *L. stipitata*
 1. Stem leafy up to the apex. Beak of achenes very short. (Sect. *Pseudomyriactis*).
 14. Involucre 4 mm high, c. 9 mm wide. Ray florets 50—60 13. *L. panamensis*
 14. Involucre 4—5 mm high, 6—7 mm wide. Ray florets 10—45.
 15. Stems unbranched, monocephalous. Ray florets in one row, 10—20. 14. *L. cuchumatana*
 15. Stems 1—2-branched at apex. Ray florets 35—45 in two rows 15. *L. andina*

Sect. I. *Lagenophora*

Caules inferne tantum foliosi, superne scapiformes. Rostrum achenii conspicuum. — Typus: *Calendula magellanica* Willd. = *L. nudicaulis* (Comm.) Dusén.

Distribution. — Austral South America, New Zealand, Australia, Malesia, and South-East Asia.

I. *Lagenophora pumila* (Forst. f.) Cheeseman, Subantarct. Isl. New Zeal. 2 (1909) 412. — *Calendula pumila* Forst. f., Prod. (1786) 57. — *Microcalia australis* A. Rich., Essai

¹⁾ Dabene, R., Los petreles y albatros del Atlantico austral. El Hornero, 3: 1—33, 125—158, and 227—238, 1923—24.

Fl. Nouv. Zél. (1832) 231. — *L. forsteri* DC., Prod. 5 (1836) 367. — *L. forsteri* A. Cunn., Ann. Nat. Hist. 2 (1839) 126. — Fig. 2.

Var. *pumila*.

Low perennial herb with thin stoloniform rhizome. *Leaves* rosulate, with slender petioles, entire or with 1—2 pairs of obtuse lobes below, pilose, ciliate with multicellular hairs, 10—15 (—30) mm long; blade suborbicular to broadly elliptic or obovate, obtuse at apex and cuneate at base, crenate-dentate, scattered-hairy with multicellular hairs, 10—15 mm long, 7—10 mm wide; cauline leaves few and similar or none. Stem scapiform, slender, pilose, with few linear bracts or without bracts, 8—16 cm tall. *Head* solitary; involucre hemispheric, 2.5—3 mm high, 5—6 mm wide; phyllaries linear-lanceolate, acute, ciliate or lacinate near the tip. Ray florets many, pistillate with hairy tube, 0.2—0.3 mm long, ligule oblong, white to pink, 3—4 mm long. Disk florets with 5-dentate corolla. *Achenes* obliquely obovate, 1.5—2.5 mm long, 0.5—0.6 mm wide, produced into a glandular beak 0.5 mm long.

Distribution: New Zealand and surrounding islands.

Vern. name: *papataniwhaniwha* (fide Allan).

NEW ZEALAND. 'Calendula pumila Forster. Habitat in New Zealand' Herb. Forster (K, type); 'Calendula pumila. Microcalia australis A. Rich. Flor. N. Zealand. 231. C. 30. A. Rich' (P, type of *Microcalia australis*); Mt Peel, Canterbury, S. Island, *L. V. Lester-Garland*, 1—1922 (K); Hunterville, *C. J. Burgess*, 1905 (K); mossy rocks in Crek hed Masyonui County, *H. Carse 9921* (K); open moorland, Central Volc. Plateau, *H. Carse 9937* (K); North Island, Wellington Prov., Orongorongo Valley, *E. H. Walker 4432* (K, US); South Island, Nelson Prov.: west slopes of Wooded Peak, along the Dun Mt Tram Line, *E. H. Walker 5037* (US); Flagstaff, *M. Watt*, 11—1927 (K); Sunday I. *W. R. B. Oliver*, 9—1908 (K); Shing of Cass River, near Cass, Canterbury, *W. A. Sledge 442* (K); Kermadec Group, Sunday bland, cliffs in Oenham Bay, *T. F. Cheeseman*, 8—1887 (K); North Island, vic. of Auckland, *T. F. Cheeseman* (US); Salisbury, *A. Meebold 17543* (M); Akaroa, *Raoul* (GH, K); Akaroa, *M. Ste. Croix de Belligny* (GH); North Island, National Forest, Waimarino, *W. A. & C. B. Setchell*, 3—1927 (UC); North Island, Bay of Islands, *S. Berggren*, 1874 (BM); Baie des Isles, *Thouroude* (P); Presqu'île de Banks, *M. Raoul*, 1843 (P, L); South Island, Hanmer, *H. H. Travers*, 1—1909 (L, M, P); Wellington, *M. Filhol*, 1875 (P); Otago, Coté S.E., *M. Le Guillón*, 1841 (P); Bay of Islands, *Capt. Wilkes* (US); New Zealand: *R. Cunningham 436* (K), *R. Cunningham 52* (P), *A. Cunningham*, 1839 (P); *Banks et Solander* (BM, US), *Colenso* (BM, P), *Hombron* (P), *Capt. Wilkes* (GH); North Island, *T. Kirk* (GH).

Var. *barkeri* (Kirk) Simpson, Trans. Proc. R. Soc. New Zealand 75 (1945) 197. — *L. barkeri* Kirk, Students' Flora (1899) 257.

Stems longer than in var. *pumila*, with several leaves, these larger and thinner. Looks like a shadow form.

NEW ZEALAND. Auckland, *Sinclair* (K); South Island, Lake Yeuyuow, S. Nelson, *T. F. Cheeseman* (BM); Franz Josef Gletscher, *A. Meebold 25116* (M); New Zealand, *Colenso*, 1849 (K).

Var. *minima* (Kirk) Cheeseman, Man. New Zeal. Flora, ed. 2 (1925) 905. — *L. forsteri* var. *minima* Kirk, Students' Flora (1899) 257. — *L. petiolata* var. *minima* (Kirk) Cheeseman, Man. New Zeal. Flora (1906) 273.

Identical to the var. *pumila* but smaller, with leaves only 5—6 mm long and involucre 3—4 mm wide.

NEW ZEALAND. *W. T. L. Travers*, 1883 (LP); Yitirangi Ranges, *J. T. Cheeseman 75* (LP).

2. *Lagenophora petiolata* Hook. f., Fl. Nov. Zel. 1. (1853) 125, pro var. *a*. — *L. purpurea* Kirk, Students' Flora (1899) 257. — *L. pumila* var. *purpurea* Simpson, Trans. Proc. Roy. Soc. New Zeal. 75 (1945) 196. — Fig. 3 D—F.

Dwarf perennial herb with very thin rhizome and roots. Stem nearly glabrous, 10—15 cm long. *Leaves* scattered in the lower half of the stems; petiole 25—30 mm long, ciliate-hairy; blade ovate, obtuse at apex, cuneate or truncate at base, dentate-crenate with c. 6 pairs of short, mucronate teeth, sparsely hairy, 15—20 mm long, 12—15 mm wide. *Head* solitary; involucre hemispherical, 3—3.5 mm high, c. 4 mm wide, phyllaries lanceolate, acute, denticulate near the tip, almost glabrous. Ray florets pistillate, ligulate, white or purplish, tube short-hairy, 0.2 mm long, ligule oblong-linear, 2—2.5 mm long, 0.5 mm wide. *Achenes* broadly oblanceolate, more or less distinctly curved, compressed, 2—2.5 mm long, produced into a short-glandular beak 0.7—1 mm long.

Distribution: Mountains of New Zealand.

NEW ZEALAND. *Colenso 1636* (K, Typus). South Island: Caclins River, *J. Kirk 821* (K), *J. Kirk 471* (BM, US, GH).

Lagenophora petiolata Hook. *f.* was described from two different plants: var. *a* is the form with larger, ovate, regularly crenate-dentate leaves and is the type. Var *β* is a smaller plant with nearly orbicular, minute, few-dentate leaves; it is conspecific with *L. strangulata* Colenso.

3. *Lagenophora strangulata* Colenso, Trans. Proc. New Zeal. Inst. 22 (1890) 471. — *L. petiolata* var. *β*. Hook. *f.*, Fl. Nov. Zel. 1(1853) 125. — **Fig. 3 A—C.**

Small perennial herb with slender horizontal rhizome. *Leaves* rosulate; petioles slender, 15—30 mm long, sparsely ciliate-hairy; blades orbicular, rotundate at apex and base, crenate with 2—3 pairs of obtuse teeth, shortly apiculate, sparsely hairy on both faces, 5—15 by 4—14 mm. Stem solitary, erect, graceful, scapiform, without or with 1—2 bracts, hairy at the lower part, 7—12 cm tall. *Involucre* hemispherical, 2.5—3 mm high, c. 4 mm wide, phyllaries linear-lanceolate, acute, minutely serrate near the tip, glabrate on the back. Ray florets ligulate, white, tube villous, 0.1—0.2 mm long, ligule linear-oblong, 1.5—2 mm long. *Achenes* curved, obovate, c. 2.5 mm long, with a glandular beak 0.3—0.5 mm long.

Distribution: New Zealand.

NEW ZEALAND. North Island: *Colenso 926* (K, typus?); Tongariro National Park, near The Chateau' 1250 m, *H. J. Lam 7055* (L), *H. H. Haines 56-NZ* (K), *F. W. Hunnewell 13775* (GH); Thames, *T. F. Cheeseman 11-1894* (NY); Great Omaha, *T. Kirk 284* (US); near Chateau, Tongariro National Park, *H. L. Mason 14969* (UC); Ruapehu, *A. Meebold 21417* (M). — South Island: Prov. Canterbury, *S. R. Haast, 1860—61* (K); Nothofagus Forest, *Dr. Haast, 11-1866* (K); Otago, *H. Buchanan 1863* (K); Mnigha Valley, *W. R. B. Oliver, 1-1928* (K); Swanson, Waitaken Ranges, *J. L. Neville, 12-1950* (L); Nelson, Wacrum Valley, *T. F. Cheeseman* (US); Hermitage, Mt Cook region, *W. A. & C. B. Setchell, 3-1927* (UC, LP); Governors Bush, Mt Cook region, *W. A. & C. B. Setchell, 3-1927* (UC, LP); Canterbury, Hermitage, *F. W. Hunnewell 13776* (GH); Canterbury Province, The Governors Bush near The Hermitage, among the Southern Alps, *E. H. Walker 4619* (US); Lake Wakatipu, *A. Meebold 4391* (NY).

4. *Lagenophora cuneata* Petrie, Trans. Proc. New Zeal. Inst. 51 (1919) 106.

Small herb with slender rhizome. *Leaves* rosulate, obovate, rounded at apex, narrowed into a short petiole, subentire or with 1—3 pairs of short crenatures, with sparse hairs on both faces or subglabrous, 4—10 by 3—6 mm. Scape slender, 5—12 cm long, more or less pubescent towards apex, with 1—2 minute bracts or without bracts. *Head* solitary; involucre hemispherical, 2—2.5 mm high, 4—5 mm wide, phyllaries numerous, oblanceolate, obtuse or nearly so, often ciliolate at the tip. Ray florets short, 0.2 mm wide. *Achenes* narrowly obovate, compressed, 1.5—2.5 mm long, produced into a glandular beak 0.4 mm long.

Distribution: New Zealand.



Fig. 3. *Lagenophora strangulata* Colenso. a. Habit, nat. size, b. ray floret, $\times 10$, c. achene, $\times 10$. From Hunnewell 13775. — *Lagenophora petiolata* Hook. f. d. Habit, $\times 1$, e. ray floret, $\times 10$, f. achene, $\times 10$. From Kirk 471.

NEW ZEALAND. South Island: *A. Menzies* (K); Waimarino Plain, Central Volcan. Plateau, *H. Carse* 9953 (K); Mt Cool, *L. S. Gibbs* 1125 (BM); Hanmer, *H. H. Travers*, 1-1909 (L, P); Nelson, Mt Hector, *Filhol* 875 (P); Lake Wanaka, *T. Kirk* GH).

L. cuneata Petrie is nearly identical with *L. nudicaulis* from South America. Apparently it differs by the more numerous phyllaries which are oblanceolate, obtuse at apex, and by the ray florets which are only 0.2 mm wide; it would be necessary to study a greater number of specimens to establish the true differences between both species.

5. *Lagenophora nudicaulis* (Comm. ex Lam.) Dusén, Svensk. Exped. till Magell. 3 (1901) 98. — *Aster nudicaulis* Commerson ex Lamarck, Encycl. Méthod. 1 (1783) 308. — *Calendula magellanica* Willd., Sp. Pl. 3 (1800) 2344. — *Bellis magellanica* DC. in Lamarck, Encycl. Méth. 5 (1804) 7. — *Calendula pusilla* Du Petit-Thouars, Fl. Trist. Acun. (= Mél. Bot. Voy. 1) (1811) 40. — *L. commersonii* Cassini, Dict. Sc. Nat. 25 (1822) 110. — *L. purpurascens* Philippi, Anal. Univ. Chile 43 (1873) 489. — Fig. 4.

Icon. Lamarck, Illustr. Gen. (1823) tab. 681, f. 4; Du Petit-Thouars, Fl. Trist. Acun. (= Mél. Bot. Voy. 1) (1811) tab. 9; Hook. f., Fl. Antarct. 2 (1847) tab. 108; Weddell, Chloris Andina 1 (1857) tab. 32 C.

Dwarf perennial herb with slender rhizome *c.* 0.5 mm diam. and scapiform, slender stems 1-7 cm high, glabrous or nearly so. *Leaves* rosulate; petiole slender, flat, 3-12 mm long, glabrous or ciliate; blade obovate to oblong-cuneate, obtuse to rounded at apex, cuneate at base, with 1-3 pairs of minutely apiculate crenatures, or subentire, glabrate or with scattered, long hairs, 4-12 by 2-7 mm. Scape with 0-2 minute, linear bracts. *Head* solitary with hemispherical involucre *c.* 3 mm high, 5-6 mm wide, phyllaries 2-3-seriate, oblong-lanceolate, acute to subobtuse and denticulate at apex, with light coloured margin, 0.7-1 mm wide. Ray florets 14-30, 2-3-seriate, ligulate, with glandular tube 0.2-0.3 mm long, ligule linear-oblong, white to lilac, 2-2.5 mm long, 0.5-0.8 mm wide, entire to 2-3-dentate. Disk florets few, male, with 5-dentate corolla, glandular, *c.* 2 mm long. *Achenes* oblanceolate, short-beaked, 20-27 mm long, 0.5-0.9 mm wide; beak glandular, 0.25-0.3 mm long.

Distribution: Austral South America, in the Subantarctic Province, also in Tristan da Cunha and Gough Is.

CHILE. Prov. Colchagua, Andes de Talcaregue, *Cl. Gay* 327 (LP, P), *Cl. Gay* 332 (P). — Prov. Talca: Laguna de Maule, Paso Pehuenche, *Boelcke, Bacigalupo et Correa* 10348 (LP). — Prov. Malleco: Termas de Tolhuaca, *E. Barros* 500 (LP). — Terr. Aysen: Puerto Puyuhuapi, *G. H. Schwabe* 68 (NY). — Prov. Magallanes: 'D'étroit de Magellan', *Commerson* (P, typus; LP, FI); Isla Diego de Almagro, Seno Mulín del Medio, *W. Biese* 1675 (LL); Isla Hermite, Isla Herschel, Puerto Piedrabuena, *Vervoorst* 364 (LL); Isla Hermite, *J. D. Hooker* (P); Punta Arenas, *C. Spegazzini*, 1-1924 (LPS); Sholl Bay, *C. Spegazzini*, 1-1924 (LPS); Cape Horn, *J. D. Hooker* (K); Canal Smith, *M. Gusinde*, 1-1924 (M); Puerto Bueno, *L. Savatier* 146 (P); Puerto del Hambre, *M. Hombron* (P), *Capt. King* (K).

ARGENTINA. Prov. Neuquen: Termas de Copahue, *A. L. Cabrera* 6276 (LP), *R. De Barba* 1974 (LL). — Prov. Rio Negro: Sierra de Lopez, *C. C. Hosseus* 352 (CORD). — Prov. Tierra del Fuego: Isla de los Estados, Puerto San Juan, *A. Castellanos*, 12-1933 (BA, LP).

ISLAS MALVINAS (FALKLAND ISLANDS). West Falkland I.: *E. Vallentin* 87 (K). — East Falkland: Stanley to Rincon Grande, *W. J. L. Sladen* Fa-10/49 (BM); Sparrow Cove, N. of Port Stanley, *W. J. L. Sladen* FA-20-50 (BM); Rincon Grande, *W. J. L. Sladen* Fa 32-49 (BM); Mt Tumbledown, W. of Port Stanley, *D. M. Moore* 503 (LEICESTER, LP); Falkland Islands, *J. D. Hooker* (K).

TRISTAN DA CUNHA ISLANDS. *Aub. Du Petit-Thouars* (P).

GOUGH ISLAND. Gouydale, *N. M. Wace* 119 (BM); Gully, behind Hut Main Glen, *N. M. Wace* 73 (BM).

6. *Lagenophora pinnatifida* Hook. f., Fl. Nov. Zeland. 1 (1853) 126. — *L. pinnatifida* var. *hirsutissima* Cockaine, Trans. New Zeal. Inst. 48 (1916) 197. — Fig. 5 A-D.

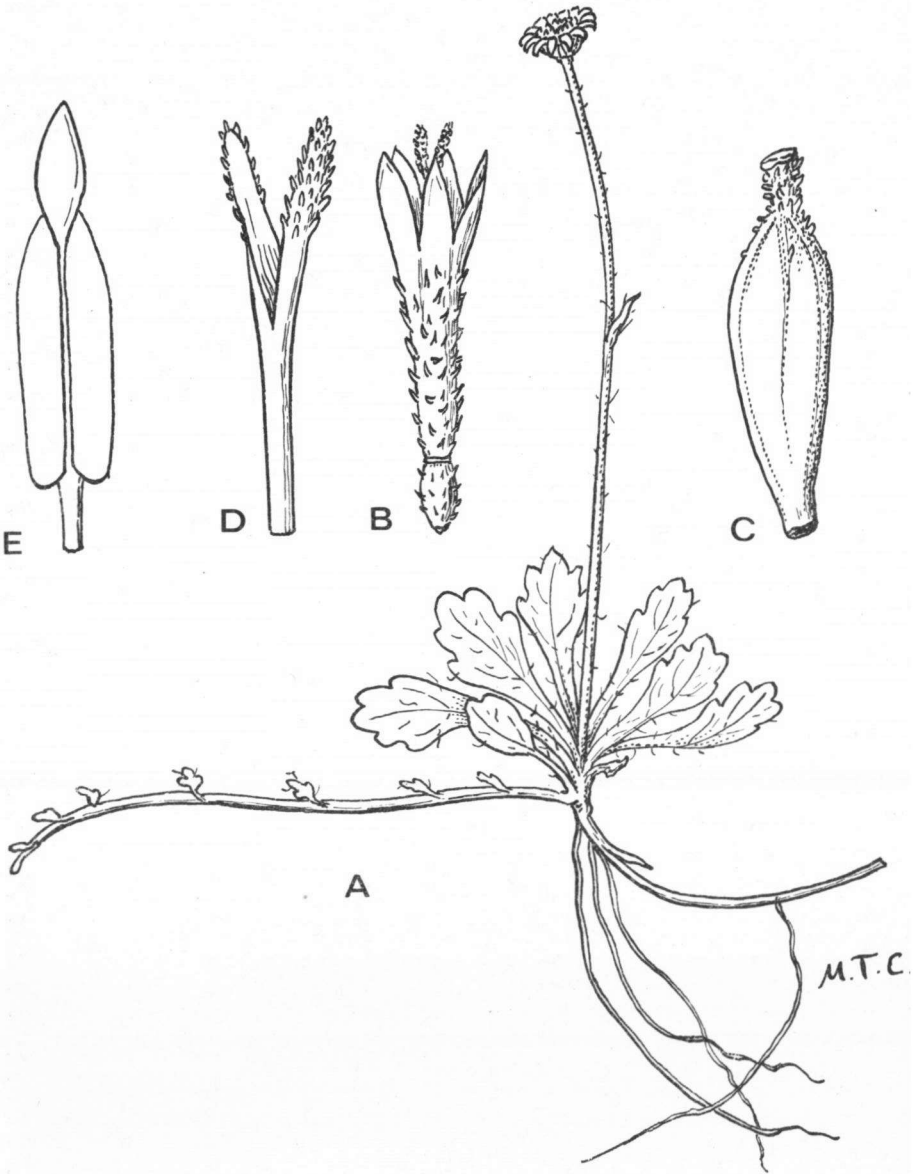


Fig. 4. *Lagenophora nudicaulis* (Comm.) Dusén. a. Habit, $\times 2$, b. disk floret, $\times 20$, c. achene, $\times 20$, d. upper part of style, $\times 60$, e. anther, $\times 80$.

Small perennial herb with long slender rhizome. *Leaves* crowded at the lower part of the stem, obovate-spathulate, obtuse, narrowed to base, margin deeply crenate to pinnatifid with 4—6 pairs of obtuse, apiculate lobes, 20—60 by 15—25 mm, densely hairy on both surfaces with long, subappressed hairs; petioles 10—20 mm long. Scapes erect, 5—25 cm high, sparsely hairy. *Head* solitary; involucre 3—3.5 mm high, c. 7 mm wide, phyllaries lanceolate-oblong, acute, ciliate towards apex, glabrous on the back, with scarious margins. Ray florets many, pistillate, short-ligulate; corolla tube glandular, 0.3 mm long; ligule oblong, 2—2.5 mm long. *Achenes* obliquely obovate, compressed, glandular and thickened at the margins, 2—2.5 mm long, 0.75—1 mm broad, produced into a glandular beak 0.5—0.75 mm long.

Distribution: New Zealand, in lowland and montane light forests.

NEW ZEALAND. 'N. Zealand', *Colenso 1634* (K, typus); Mt Nelson, *Sinclair, 1-1861* (K); Kikiiva, Nelson, *H. H. Allan, 1-1929* (K); Raurimu forest, Central Volc. Plateau, c. 2000 ft, *H. Carse 9983* (K); Ball's Clearing, Pukelitiri, *E. A. Hodgson, 1-1925* (US); Otago Lakes District, Diamond Lake, *L. Cockayne 5071* (NY); Mt Hector, *M. Filhold, 1875* (P); Banks Peninsula, *A. Meebold 5677* (M); Poketisiri, Raweka Range, *A. Meebold 4893* (M); South Island, Wairau Valley, *T. Kirk 504* (BM, GH, US); Wairau Valley, Nelson, *J. F. Cheeseman, 1-1878* (GH, NY); Jarndale, *Hector, 1876* (BB).

Similar to *L. huegelii* from Australia, but heads smaller and with shorter ligules.

7. *Lagenophora huegelii* Benth., Enum. Pl. Hueg. (1837) 59. — *L. gunniana* Steetz in Lehmann, Plant. Preiss. I (1845) 431. — Fig. 5 E—G.

Icon. Hook. f., *Flora Tasmania I* (1860) tab. 49-B; Davis, *Proc. Linn. Soc. N. S. Wales 75* (1950) 130.

Perennial herb with rosulate leaves and several scapiform stems. Basal leaves oblanceolate, obtuse at apex, tapering into a long or short petiole, dentate or serrate with large teeth, 70—140 by 10—30 mm, densely hairy with long hairs; cauline leaves 5—11, lanceolate, entire, small. Stems 7—31 cm high, villose with long hairs. *Heads* solitary; involucre hemispherical, 5 mm high, 8—11 mm wide, phyllaries numerous in several rows, oblong, obtuse to subacute, inner ones c. 1.2 mm wide, outer ones narrower, glabrous or hispidulous at the lower part of the back. Ray florets c. 70 in c. 4 rows, corolla white or pink, tube glandular, 1 mm long, ligule oblong, up to 5 mm long, 1 mm wide. *Achenes* obovate, compressed, dark brown, glandular at the upper part, 3—4 mm long, 1.2—2 mm broad, produced into a glandular beak 0.8—1 mm long.

Distribution: Australia: Western Australia, South Australia, Victoria, and Tasmania.

AUSTRALIA. Western Australia: Riv. des Cygnes, *de Preiss 118, 1843* (P); R. des Cygnes (Swan-river), *Drummond, 1843* (K, P); Midland Junction, Swan River, *A. Morrison, 7-1889* (K); Guilford, near Perth, *C. Andrews 423* (BM, K); Claremont, near Perth, *C. Andrews 424* (BM); between Perth and King George Sound, *W. H. Harvey, 4/7-1854* (GH); Farm Entdley, Broomhille, *A. Meebold 705* (M); Cannington, lower Cannington River, *A. Morrison, 9-1906* (K). — Victoria: Moyston, *F. von Mueller* (BM); Sassafra, *A. Meebold 2079* (M); Donna Buang, *A. Meebold 2544* (M); County of Follet, *J. M. Reader, 9-1907* (BM, UC); Newstead, *J. M. Reader, 10-1909* (NY); north of Huntly Station, *R. Melville 1434* (K); Victoria, *Robertson* (K). — Tasmania: *R. Gunn 510, 1844* (K, typus a *L. gunniana* ?; GH, M); Tasmania, *J. D. Hooker* (GH, P); New Norfolk, *R. Gunn 510, 1842* (BM).

This species clearly differs from *L. stipitata* by the more robust habit, the scapes with few leaves, and the larger fruits, but according to Davis some forms closely approach the latter species.

Lagenophora huegelii is also closely related to *L. pinnatifida* from New Zealand, but its heads are larger.

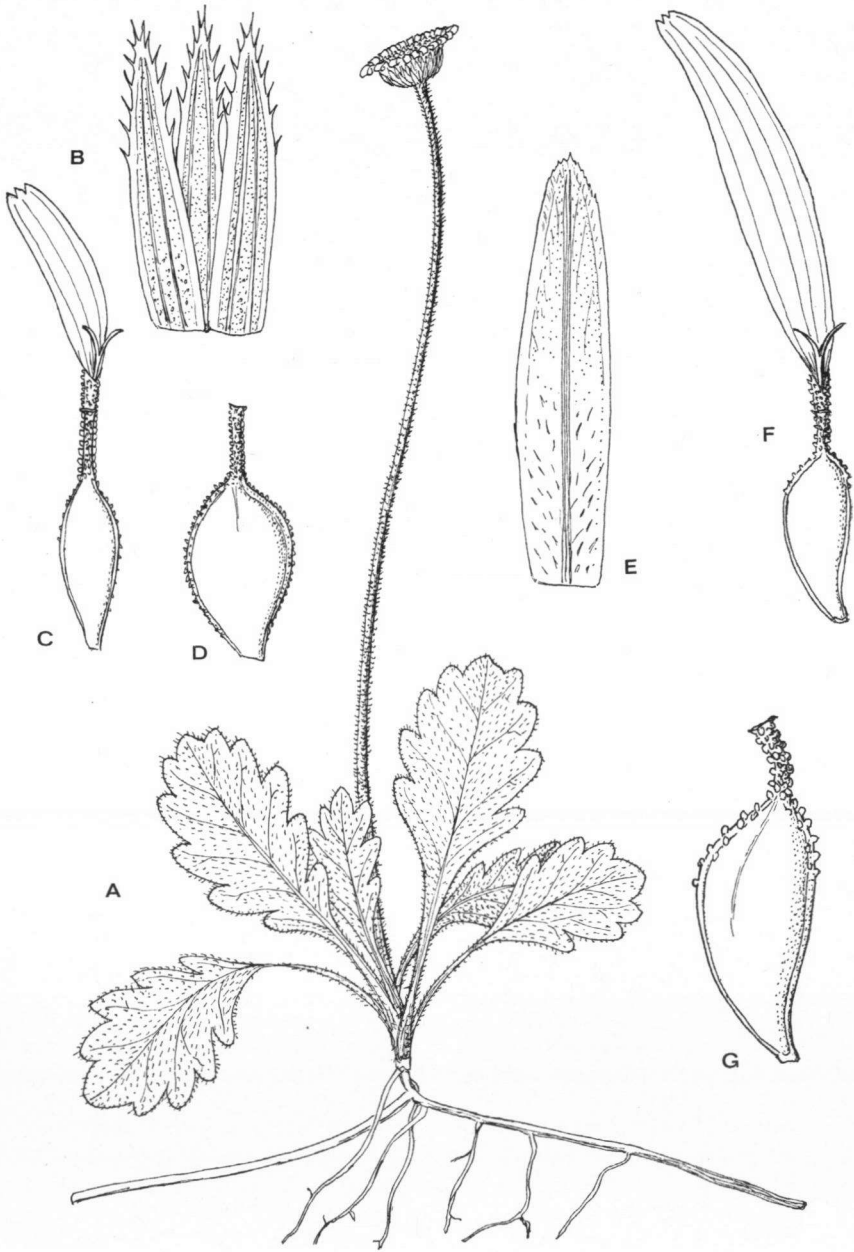


Fig. 5. *Lagenophora pinnatifida* Hook. f. a. Habit, nat. size, b. phyllaries, $\times 11$, c. ray floret, $\times 11$, d. achene, $\times 11$. From Kirk 504. — *Lagenophora huegelii* Benth. e. Phyllary, $\times 11$, f. ray floret, $\times 11$, g. achene, $\times 11$ From 'Tasmania, Hooker'.

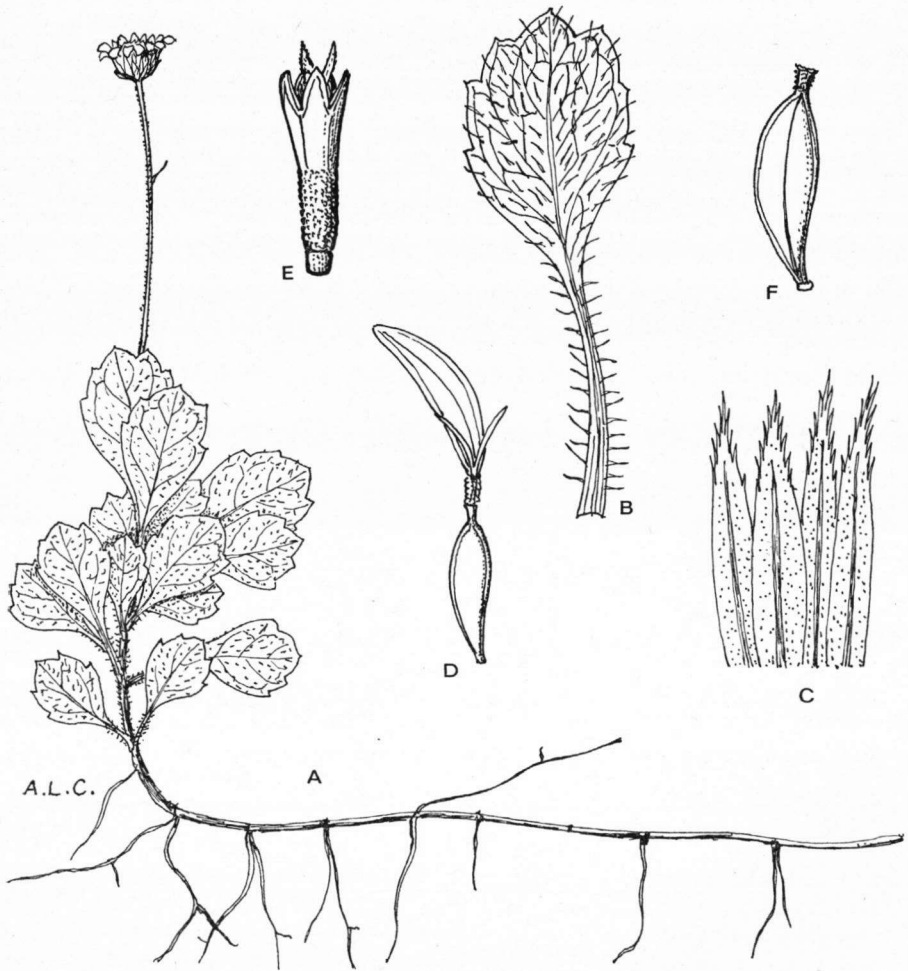


Fig. 6. *Lagenophora hariotii* Franch. a. Habit, nat. size, b. leaf, $\times 2$, c. phyllaries, $\times 12$, d. ray floret, $\times 12$, e. disk floret, $\times 12$, f. achene, $\times 12$. From *Werdermann* 663.

8. *Lagenophora hariotii* Franchet, Miss. Sc. Cap Horn 5, Bot. (1889) 344. — *L. hirsuta* var. *gracilis* Alboff, Rev. Mus. La Plata, 7 (1896) 379. — Fig 6.

Dwarf perennial herb with long, slender rhizome 0.5–1 mm diam. and short, hirsute stems. *Leaves* crowded at the lower part of the stem, alternate; petiole flat, ciliate, 5–15 mm long; blade obovate, rotundate at apex, cuneate at base, with 2–3 pairs of broad teeth which are obtuse and short-apiculate at the upper margin, soft-hairy on both surfaces, 6–15 by 6–12 mm. Scape slender, short-hirsute, without or with only one very small linear bract, 2–5 cm high. *Head* solitary; involucre hemispherical, 2.5–3 mm high, 4–6 mm wide, phyllaries 2–3-seriate, imbricate, oblong-lanceolate, acute and lacinate at apex, 0.6–0.7 mm wide, glabrous with lighter margins. Ray florets numerous, 2-seriate, pistillate, ligulate, tube glandular, 3 mm long, ligule lanceolate, white to purple,

2—2.5 mm long. Disk florets male, corolla 2—2.3 mm long, 5-dentate, glandular at the lower part. *Achenes* curved oblanceolate, c. 2.5 mm long, with short-glandular beak 0.2—0.3 mm long.

Distribution: Austral South America in the Subantarctic Province and the Juan Fernandez Islands.

CHILE. Prov. Talca: Cordillera de Talca, el Picazo, *E. Barros 1859* (LP). — Prov. Nuble: Baños de Chillán, *Reed* (K); Termas de Chillán, *F. Jaffuel 2720* (GH). — Prov. Osorno: Volcan Antillanca, *W. J. Eyerdam 10509* (US, UC), *Sparre et Constance 17872* (UC). — Prov. Llanquihue: Lago Todos los Santos, Monte Techado, *L. Hauman 236* (LIL); Volcan Yates, 1200 m, *E. Werdermann 663* (BM, K, LIL, LP, SI, UC, GH, NY, US); Volcan Calbuco, *Reed* (GH), *Downton* (K). — Prov. Magallanes: Isla Clarence, Bahía Sholl, *P. Harriot* (P, Typus); Laguna Dickson, *A. Donat 441* (BM, p.p., GH, K, LIL, SI); Isla Navarino, Puerto Douglas, *Vervoort 252* (LIL), *Vervoort 390* (LIL); Orange Arbor, *Capt. Wilkes* (P, GH).

ARGENTINA. Prov. Neuquén: Pino Hachado, *Burkart 9682* (SI, LP); Villa La Angostura, *T. M. Pedersen 1526* (P, US); Zapala District, *H. F. Comber 1260* (K); Cerro Colorado, *J. Diem 17* (LP); Lago Nahuel Huapi, Brazo Viento, *E. E. Ljungner 921* (NY). — Prov. Rio Negro: Lago Nahuel Huapi, Paso de las Nubes, 1400 m, *A. L. Cabrera 5916* (LP); Cerro Lopez, *A. Corte 213* (LP). — Prov. Chubut: Lago Fontana, *J. Kozlowsky* (LP); Lago La Plata, *J. Kozlowsky* (LP). — Prov. Santa Cruz: Lago Argentino, *C. W. Furlong 145* (GH, NY); Lago San Martin, *A. Donat 7* (LP). — Prov. Tierra del Fuego: Canal Beagle, Puerto Remolino, *A. Castellanos* (LP); *M. Gusinde* (M); Valle de Oliva, *N. Alboff 463* (LP, SI); Valle de Tierra Mayor, *A. Ruiz Leal et F. A. Roig 15037* (LP).

ISLA DE JUAN FERNANDEZ. Masafuera: Las Torres, *C. et I. Skottsberg 484* (BM, K, NY, P, US).

L. hariotii is closely related to *L. nudicaulis*, but it is much more hairy and the leaves are larger.

9. *Lagenophora hirsuta* Poeppig ex Lessing, *Linnaea* 6 (1831) 131.—*L. commersonii* var. *β. hirsuta* (Poepp.) Hook. f., *Fl. Antarct.* 2 (1847) 307.

Icon. Poeppig et Endl., *Nov. Gen. Spec.* 1 (1835) tab. 26; Skottsberg, *Nat. Hist. of Juan Fernandez* 2 (1922) 180—181, figs 27 and 28; Cabrera, *Rev. Mus. La Plata* (N.S.) Bot. 2 (1939) 245, fig. 5. — **Fig. 7.**

Small perennial herb with slender rhizome and long runners. Stems very short, hairy. *Leaves* subrosulate; petiole flat, hispidous, 10—20 mm long; blade obovate, rounded at apex, cuneate at base, margins crenate with 5—8 pairs of obtuse, minute-apiculate teeth, hirsute on both surfaces, 15—45 by 15—30 mm. Scape slender, hirsute, with only 1—2 minute, linear bracts, 30—90 mm high. *Head* solitary; involucre hemispherical, 4—5 mm high, 6—7 mm wide, phyllaries 3-seriate, lanceolate, acute, 0.8—0.9 mm wide, with light coloured margins. Ray florets numerous, 2—3-seriate, ligulate, tube glandular, 0.5 mm long, ligule lanceolate, white to purple, about 2 mm long. Disk florets c. 10, male, with 5-dentate, tubular corolla, 2—2.3 mm long. *Achenes* obovate, compressed, with strong lateral nerves, about 2.5 mm long, 1 mm broad, produced into a glandular beak 0.5—0.8 mm long.

Distribution: Austral South America, in the forests of the Subantarctic Province.

CHILE. Prov. Bio-Bio: 'Cresc. in Chil. austr. sylv. obscur. alpin. Andes de Antuco. Nov. flor.', *Poeppig 224* (BM, P, M, NY, Isotypi). — Prov. Nuble: Cordillera de Chillan, *Ph. Germain* (BM, K, NY, P); Termas de Chillan, *F. Jaffuel 2857* (GH). — Prov. Malleco: Termas de Tolhuaca, *E. Barros 501* (LP); Fundo Solano, Los Alpes, Cordillera de Nahuelbutá, *W. J. Eyerdam 10331* (US). — Prov. Cautin: Volcan Llaima, *H. Gunckel 1215* (LIL), *H. Gunckel 12304* (LIL); Termas de Rio Blanco, *G. Montero 2723* (GH); Dep. Victoria, Salto de la Culebra and Laguna Verde, *J. L. Morrison et R. Wagenknecht 17523* (GH, K, SI, UC). — Prov. Valdivia: Andes de Valdivia, *R. A. Philippi, 2-1888* (K, US); Volcan Chodhuenco, *A. Hollermayer 1395* (BM, GH, K, LIL, LP, NY, SI, UC, US); Cordillera de Ranco, *W. Lechler 2922* (P, K). — Prov. Llanquihue: Cayutué, Lago Todos los Santos, *R. Wolffhugel 4* (SI). — Prov. Talca: El Picazo, *E. Barros 149* (GH). — Chile: *Cl. Gay* (GH); *S. Julia, F. W. Neger, 1-1896* (M).

ARGENTINA. Prov. Neuquen: Lago Traful, *Teague, 12-1946* (LIL); Lago Huechulafquen, *H. F. Comber*

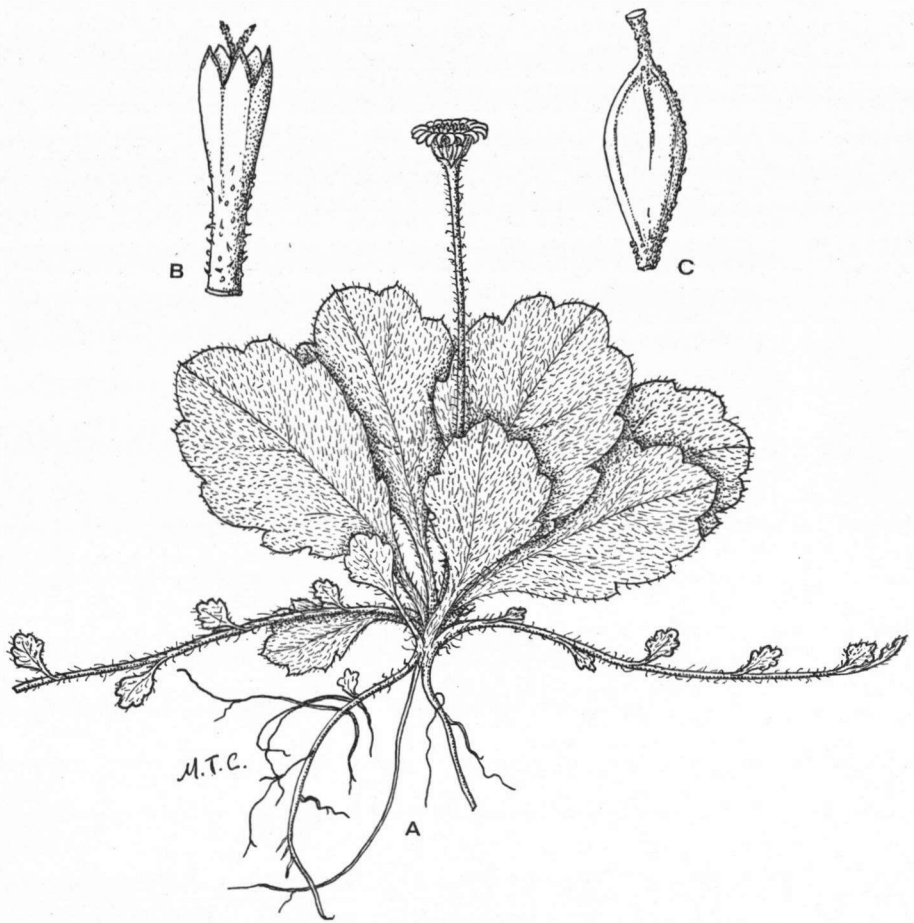


Fig. 7. *Lagenophora hirsuta* Poepp. a. Habit, nat. size, b. disk floret, $\times 17$, c. achene, $\times 12$. From Cabrera 11269.

948 (K); entre Hua-Hum y el Lago Queñi, A. L. Cabrera 11269 (LP); Cerro Belvedere, A. L. Cabrera et M. Job 195 (LP), leg. A. Burkart 6406 (LP). — Rio Negro: Nahuel Huapi, Arroyo La Hilda, T. M. Pedersen 1625 (P, NY, US); Laguna Frias, L. R. Parodi 11745 (GH), T. Meyer 7360 (LIL), H. Descole 2579 (LIL), H. Descole 2631 (LIL), Perez Moreau 268 (LIL), O. Caso, 2-1948 (LP); Puerto Blest, A. L. Cabrera et M. M. Job 293 (LP), H. Descole 3083 (LIL), J. C. Montiel 212 (LIL, LP), H. Fabris 2207 (LP); Brazo Blest, Arroyo Bravo, A. Castellanos, 2-1938 (LP); valle del rio Frias, O. Boelcke 2085 (LP); Paso de las Nubes, R. De Barba 2271 (LIL); Lago Mascardi, A. Donat 46 (LP).

10. *Lagenophora lanata* A. Cunningham, Ann. Nat. Hist. 2 (1839) 126.

Small perennial herb with slender rhizome and fleshy, bunched roots. Basal leaves rosulate, obovate, obtuse at apex, narrowed at base into a short petiole, crenate-toothed, on both faces with appressed soft hairs, c. 20—30 by 10 mm; petiole 5—20 mm long; cauline leaves few or none, smaller. Scapes slender with few linear bracts, sparsely hirsute, 7—20 cm high. Head solitary; involucre hemispherical, 3 mm high, 5 mm wide, phyllaries

lanceolate, broad, acute, lacinate toward the tip. Ray florets numerous, ligule short, more or less revolute. *Achenes* obliquely obovate to oblanceolate, 2.5—2.8 mm long, beak glandular, 0.5 mm long.

Distribution : Papua, New Caledonia, and New Zealand.

PAPUA. Milne Bay District, Maneau Peak, Mt Dayman, 2750 m alt., *L. J. Brass 22255* (K, L).

NEW CALEDONIA. Auf den Hügeln Yaouhé, *R. Schlechter 14804* (K, L, M, P).

NEW ZEALAND. Between Waitangi and Keri-Keri, *R. Cunningham 437* (K, typus); North Island, Waitangi, *T. Kirk 512* (BM, GH, US); Bay of Islands, *J. Kik* (P, NY); Bay of Islands, *Capt. Wilkes* (GH, US); North Island, Whangarei, *D. Petrie 5071* (NY); Heath near Opuia, Bay of Islands, N. Auckland, *W. A. Sledge 38* (K, M). New Zealand, *Colenso, 1844* (K), *Kick 540* (K), *D. Banks* (BM, US).

This species resembles *L. stipitata* from Australia, but its involucre has less and broader phyllaries. It is also related to *L. gracilis*, but its leaves are more hairy.

II. *Lagenophora gracilis* Steetz, in Lehmann, *Plantae Preissianae* 1 (1845) 431. — *L. billardieri* β . *media* DC., *Prod.* 5 (1836) 307. — *L. billardieri* γ . *glabrata* DC., loc. cit. — *L. sundana* Miq., *Fl. Ind. Bat.* 2 (1856) 32. — *L. harveyi* Thwaites, *Enum. Pl. Zeyl.* (1860) 162. — *L. billardieri* var. *microcephala* Benth., *Flora Austr.*, 3 (1866) 507. — *L. crepidioides* Koidzumi, *Pl. Nov. Amami-Ohsimensis* (1928) 3. — **Fig. 8 G—K.**

Small, perennial, acaulous herb with slender rhizome and fleshy roots. *Leaves* rosulate, obovate-spatulate, obtuse at apex, attenuate at base, short-petioled, sinuate-dentate with acute or obtuse teeth, sparsely hirsute or nearly glabrous, 15—50 mm long (or sometimes longer). Scape slender, without or with 1—2 minute bracts, nearly glabrous, 10—20 (—30) cm long. *Head* small, solitary; involucre hemispherical, c. 3 mm high, 3—4 mm wide (to 4 mm high and 6 mm wide in fruit), phyllaries lanceolate, acute to sub-obtuse at apex. Ray florets numerous, 2—3-seriate, pistillate, ligulate, tube glandular, 0.2—0.3 mm long, ligule white to purple, 1.5—2 mm long, 0.2—0.3 mm wide; disk florets few, male, with tubular 5-dentate corolla. *Achenes* lanceolate, compressed, 2.1—3.5 mm long, 0.5—0.8 mm wide, produced into a short-glandular beak 0.2—0.5 mm long.

Distribution : South-East Asia, Malesia, and Australia.

INDIA. Pomrang, leg.?, 23-9-1950 (K); Concan, *Dr. Stocks 144*, 1860 (P, M, GH); E Joway, 4000 ft., *C. B. Clarke 44774*, 1-9-1886 (K); Kollong, 8-7-50, leg.? (K); Khasi: Shillong, 14-7-1885, *C. B. Clarke 38341* (K, US); Shillong, 5000 ft., 21-8-1886, *C. B. Clarke 44612* (BM).

CEYLON. Galagama, Feb. 1846, *Thwaites C.P. 513* (K, holotypus of *Lagenophora harveyi* Thwait.); Adam's Peak, March 1846, *Thwaites C.P. 21* (K); On patana land, at 3 to 4000 ft. alt., *Thwaites* (K); Ceylon, 1854, *Thwaites 21* (P, GH); *Thwaites 607* (P); *Thwaites* (NY).

CHINA. Yunnan-sen District: Long-ly, 1902, *J. Cavalerie 7481* (K). Prov. Kweichow, environs du Touchan, 25-5-1898, *R. P. Bodinier 2330* (P, LP).

HONG-KONG. Sommet du Pic Victoria, 7-5-1895, *E. Bodinier 1462* (P). Hong Kong, *C. Wright 282* (K, US, GH); *Champion 234* (K); *H. F. Hance* (BM).

VIET-NAM. Annam: Prov. Niu-thuan, Langbian, *Eberhardt 1787* (P, LP); Nhatrang, 28-6-1922, *Poilane 4116* (P); Sud Annam, massif du Langbian, Dalat, 1500 m alt., 28-4-1919, *A. Chevalier* (P); Dalat-Dran, 13-6-1921, *B. Hayata 771* (P); Dalat, 25-10-1920, *F. Evrard 297* (P); Dalat, chemin de la montagne de l'Eléphant, 29-11-1924, *F. Evrard 1931* (P).

PHILIPPINES. Luzon: Benguet Prov., Dauguidan, *A. Loher 3664* (K); Benguet, Mastgilgrara, 2200 m alt., *A. Loher 3663* (K, US); Benguet, 5-1911, *E. D. Merrill 833* (M, SI, US); Baguio, 13-3-1935, *Clemens 51836* (US, GH); Bontoc, Nov. 1912, *Father Vanoverbergh 1615* (P).

SUMATRA. N. Sumatra: Medan, Karobatak plateau, *L. C. P. Kerling, 1938* (K); Brastagi, Feb. 1921, *H. N. Ridley* (K); Deleng, Piso-Piso, Karoland, *C. Hamel et R. S. Toroes 705* (NY); Brastagi, *C. Hamel et R. S. Toroes 509* (GH); Brastagi, 31-5-1923, *H. S. Yates 578* (UC, US); Along the Toba trail north of the Asahan River between Toetoeopan and Si Makkoek, 21-5-1927, *H. H. Bartlett 7528* (US, NY); Toba plateau, *Jochems, 1924*, (L); Atjeh, Gajo lands, 1600 m alt., 27-2-1937, *Van Steenis 9362* (L); Sumatra, *Fr. Jungkuhn 359* (L, isotypus of *L. sundana* Miq.).

JAVA. In apricis saxosis ad pedem montis Waliran, 2800 m alt., Zollinger 2234 et 2334 (P); M. Tampak merang near Modjokerto, 900 m alt., H. Zollinger 2234/10 (K, BM, NY).

LESSER SUNDA ISLANDS. Soemba: Lairondja, 950 m alt., 16-7-1938, Grevenstuek 2 (L, GH, K). — Portuguese Timor: Mt Perdido, ascent of Ossu, 1200 m alt., 23-12-1953, Van Steenis 18251 (L).

NEW GUINEA. Western part: Balim River, 1700 m alt., Dec. 1938, L. J. Brass 11782 (L). — Papua: Mafulu, Central Division, 9/11-1933, L. J. Brass 5151 (K, L, US NY, LP); Boridi, 20-3-1935, C. E. Carr 13441 (K, BM, L); Milne Bay District, Maneau Peak, Mt Dayman, L. J. Brass 22255 (A, US); Milne Bay District, Goodenough I., 13-10-1953, L. J. Brass 24666 (L, A, US).

AUSTRALIA. Western Australia: Swan River, Drummond (K); Lowden, 11-10-1909, M. Koch 1924 (GH). — Queensland: Moreton Bay, M. Verreaux (P); Wombo, Gum forest, E. Thomson 146 (K); Buderim Mt, north of Brisbane, H. A. Longman 1912 (K); Brisbane, Aug. 1855, F. v. Mueller (K); Tin Can Bay, Wide Bay District, 11-10-1946, M. S. Clemens (K); Border of N.S. Wales, Liston, Nov. 1943, M. S. Clemens (GH); Springbrook, M. S. Clemens 43053 (GH). — New South Wales: Sydney, Verreaux C-518 (P); Sydney and Newcastle, May—Jun. 1855, W. H. Harvey (GH); West Cambewarra, 2-5-1931, F. A. Rodway 422 (K); Rosely Park, near Kinghorn Head at mouth of Shvalhaven River, 30-3-1931, F. A. Rodway 398 (K, LP); Iduskisson, Jervis Bay, 29-3-1931, F. A. Rodway 395 (K); Bayview, southern end of Pittwater, Broken Bay, D. O. Cross 9821 (K). — Victoria: Joakleigh, 4-5-1895, A. Morrison (K).

TASMANIA. Piper Heads, 30-10-1959, T. E. Burns 251 (K).

NEW CALEDONIA. Malada, Vieillard 817 (P); Slope of Mt Koghi towards Vallée de Thy, St. Louis, 24-5-1956, H. S. McKee 4651 (L, A); Vallée de Thy, slope towards Mt Koghi, 7-1-1956, H. S. McKee 3741 (L, A); Forest on Mt Pouitchaté, on ridge between upper Tipindjé and upper Kamendoua, above Ateu, 29-8-1956, H. S. McKee 5139 (L); Mt Kaghis, 25-1-1927, J. Franc 486 (P).

Lagenophora gracilis possesses the most extensive area in the genus. Consequently, it shows a considerable variability. The specimens from Australia are nearly glabrous with oblanceolate leaves with 1—2 pairs of large teeth. Some forms from Java are identical. The specimens from India, Ceylon, and South China have usually broader, more or less hirsute leaves; moreover, the plants are smaller. The Viet-Nam forms are similar to those of India, but frequently more vigorous (Evrard 1931, Eberhardt 1787, Evrard 297). These forms very much resemble *L. lanata* from New Zealand, which is hirsute-lanate.

I have neither seen the type of *L. gracilis* nor that of *L. crepidioides*, but the descriptions of both species are clear enough to prove their synonymy with *L. sundana* and *L. harveyi*. About the relations of this species with *L. stipitata*, see there.

12. *Lagenophora stipitata* (Labill.) Druce, Rep. Bot. Exch. Cl. Brit. Isles, 1916 (1917) 630. — *Bellis stipitata* Labillardière, Pl. Nov. Holl. 2 (1806) 55. — *L. billardieri* Cassini, Dict. Sc. Nat. 25 (1822) III. — *Ixauchenus sublyratus* Cassini, Dict. Sc. Nat. 56 (1828) 176. — *Ixauchenus lyratus* Cass. ex Lessing, Syn. Gen. Compos. (1832) 193. — *L. billardieri* var. *a. pusilla* DC., Prod. 5 (1836) 307. — *L. latifolia* Hook. f., Lond. Journ. Bot. 6 (1847) 113. — *L. billardieri* var. *normalis* Benth., Fl. Austr. 3 (1866) 507.

Icon. Davis, Proc. Linn. Soc. N.S. Wales 75 (1950) 127, fig. 2 and pl. vii. — Fig. 8 A—F.

Var. *stipitata*

Perennial herb with slender horizontal rhizomes. *Leaves* subrosulate or crowded at the lower part of the stem (seldom stem leafy in shadow plants), obovate-spathulate, obtuse at apex, narrowed into a short petiole, with crenate to sublobate (lobes rounded) margin, densely hirsute on both faces. Scape short, 4—12 (—17) cm high, with few linear bracts, hirsute. *Heads* solitary; involucre hemispherical, 5 mm high, 4—8 mm wide, phyllaries numerous, in 3—4 rows, lanceolate, acute, with lighter margins. Ray florets numerous, in 3—4 rows, pistillate, ligulate, ligule white to pink, 2.5—4 mm long. Disk florets numerous, male. *Achenes* obovate or oblanceolate, compressed, 3—4 mm long, 0.8—1 mm wide, produced into a glandular beak 0.5—0.8 mm long.

Distribution: South-East Australia, Tasmania, and Papua.

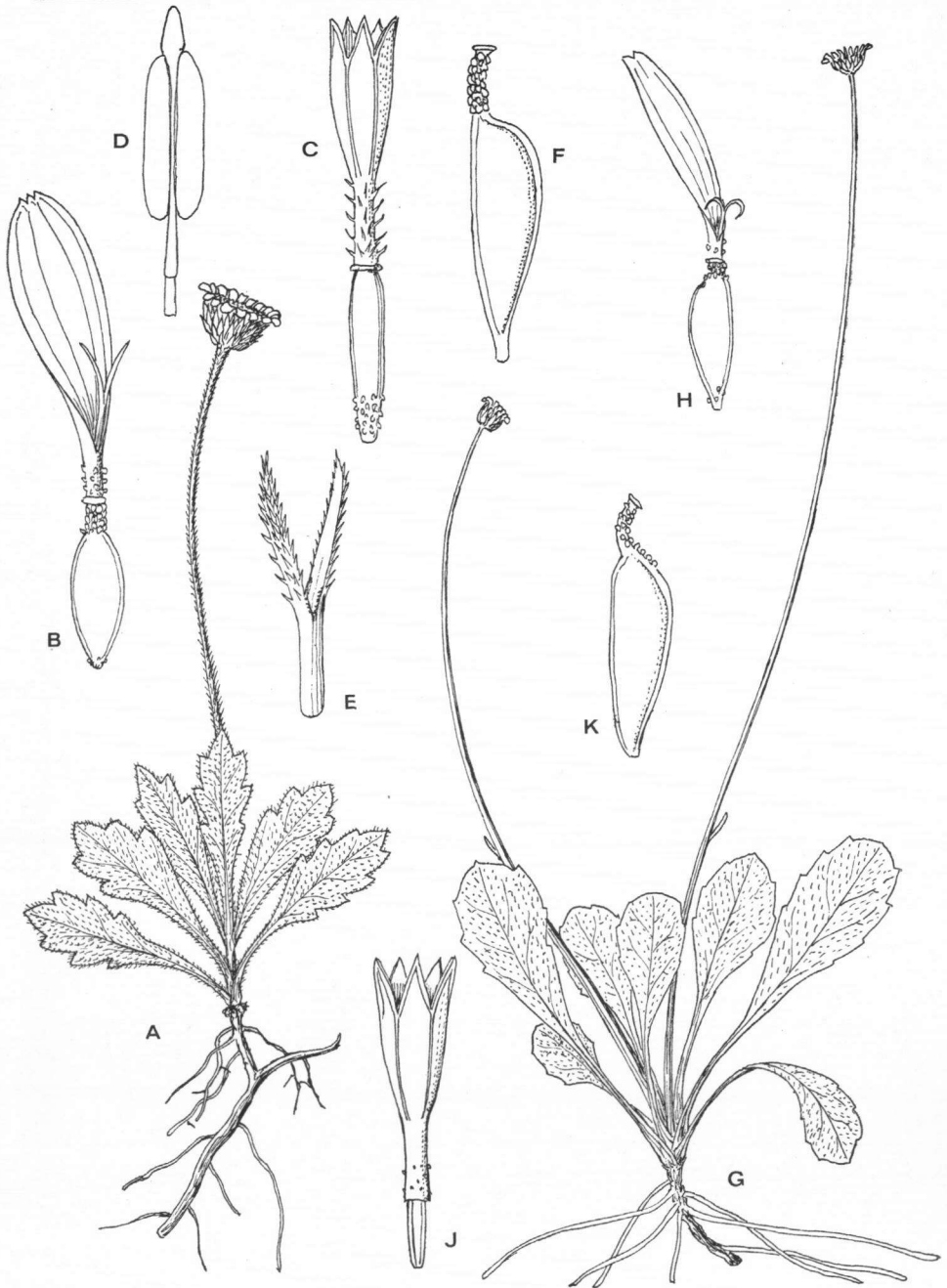


Fig. 8. *Lagenophora stipitata* (Labill.) Druce. a. Habit, nat. size, b. ray floret, $\times 12$, c. disk floret, $\times 12$, d. anther, $\times 24$, e. upper portion of style, $\times 24$, f. achene, $\times 12$. From A. Morrison, 28-10-1890. — *Lagenophora gracilis* Steetz. g. Habit, nat. size, h. ray floret, $\times 12$, j. disk floret, $\times 12$, k. achene, $\times 12$. From M. S. Clemens, -11-1943.

AUSTRALIA. 'New Holland, Herbarium Webbianum ex Herb. Labillardière' (FI, Typus); 'Nouvelle Hollande; Labillardière' (P, isotypus); 'Nova Hollandia, Labillardière' (M, isotypus); 'Bellis stipitata ex Herb. Labillardière' (BM, isotypus); Australia, *F. v. Mueller*, 1863 (P); Australia, *A. Morrison*, 2-1893 (P); Australie méridionale, *M. Emeric*, 1859 (P); 'N. Holl. Ile', *King* (P). — New South Wales: Huskisson, western shore of Jarvis Bay, *E. F. Constable* 16615 (L). — Victoria: Ringwood, *A. Morrison*, 12-1892 (K); Hall's Gap, Grampian Mountains, *J. E. Tilden* 973 (K, BM, GH); Cheltenham, *A. Morrison*, 10-1890 (A, K); County of Foket, *Readeg*, 12-1906 (M). — Tasmania: *M. J. Milligan* 507 (P), 1024 (P, BM); *R. C. Gun* (P); *R. Gun* 67 (BM, GH, K); *J. Milligan* 607 (BM); *J. D. Hooker* (GH, K); *L. Styx*, *A. V. Giblin* 417 (K); Huon Road, *E. Atkinson* 74 (K); Blacksman Bay, *L. Rodway* 45 (K); Cradle Valley, *C. S. Sutton* 474 (K); Ralph's Bay, SE. of Hobart, *H. F. Comber* 1616 (K); Mt Wellington, *R. Gunn* 1140 (BM); Hobarton, *J. Backhouse* 481 (BM); Pocait, South Huson, *A. F. Oldfield* 237 (US); Mt Wellington, *A. F. Oldfield* 238 and 239 (US).

PAPUA. Central Division, Mt Albert Edward 3680 m alt., *L. J. Brass* 4226 (NY, US).

Var. montana (Hook. f.) Cabrera, *nov. stat.* — *L. montana* Hook. f., *Lond. Journ. Bot.* 6 (1847) 113. — *L. montana* *a. major* Hook. f. loc. cit. — *L. montana* *β. minor* Hook. f., loc. cit.

Icon. Hook. f., *Fl. Tasman.* 1 (1860) tab. 49—A.

Differs from *L. stipitata* var. *stipitata* by the phyllaries which are nearly obtuse.

Distribution: Tasmania.

TASMANIA. 'Insula Van Diemen', *R. Gunn* 832, 11-1-1837 (K, typus); Tasmania, *J. D. Hooker* (P).

Bentham (*Flora Australiensis* 3, 1866) and later authors have reduced *L. gracilis* Steetz to *L. stipitata*. This was supported by Davis in her revision of the Australian *Lagenophorae*. Bentham suggested that *L. stipitata* is a very variable species and established two varieties: *normalis* with larger heads and longer ray florets, typical of South-East Australia, and *microcephala* with small heads and shorter ray florets, common in tropical and subtropical regions of Australia.

In my opinion there are two good species: true *L. stipitata* is characterized by densely hairy leaves and stems, short scapes, and larger heads, and occurs in South-East Australia, Tasmania, and Papua. *L. gracilis* has longer, nearly glabrous scapes, glabrous or sparsely hirsute leaves, and smaller heads; it occurs in warmer climates and is common not only in the tropical and subtropical regions of Australia, but also in Malesia and South-East Asia.

The specimens of *L. stipitata* from Labillardière in Firenze, Paris, London, and Munich, are typical, but plate 205 of Labillardière's book agrees more with *L. gracilis*. This plate has been referred by De Candolle to his var. *β. media*. Perhaps it is possible to find intermediate forms, but this is not a conclusive evidence to join both species.

Sect. II. *Pseudomyriactis* Cabrera, *nov. sect.*

Caules usque ad apicem foliosi. Rostrum achenii brevissimum. — Typus: *L. panamensis* Blake.

Distribution: Central America, from Guatemala to northern Venezuela.

13. *Lagenophora panamensis* S. F. Blake, *Ann. Mo. Bot. Gard.* 26 (1939) 314, tab. 23. — Fig. 9.

Plant apparently caespitose with oblique rootstock about 4 mm thick. Stems several, glabrous below, sparsely puberulous and with scattered long hairs above, leafy throughout. Basal leaves few; petiole 20—25 mm long, ciliolate with long hairs; blade oblanceolate-spathulate, crenate-serrate with 5—8 pairs of obtusely callous-pointed teeth, shortly

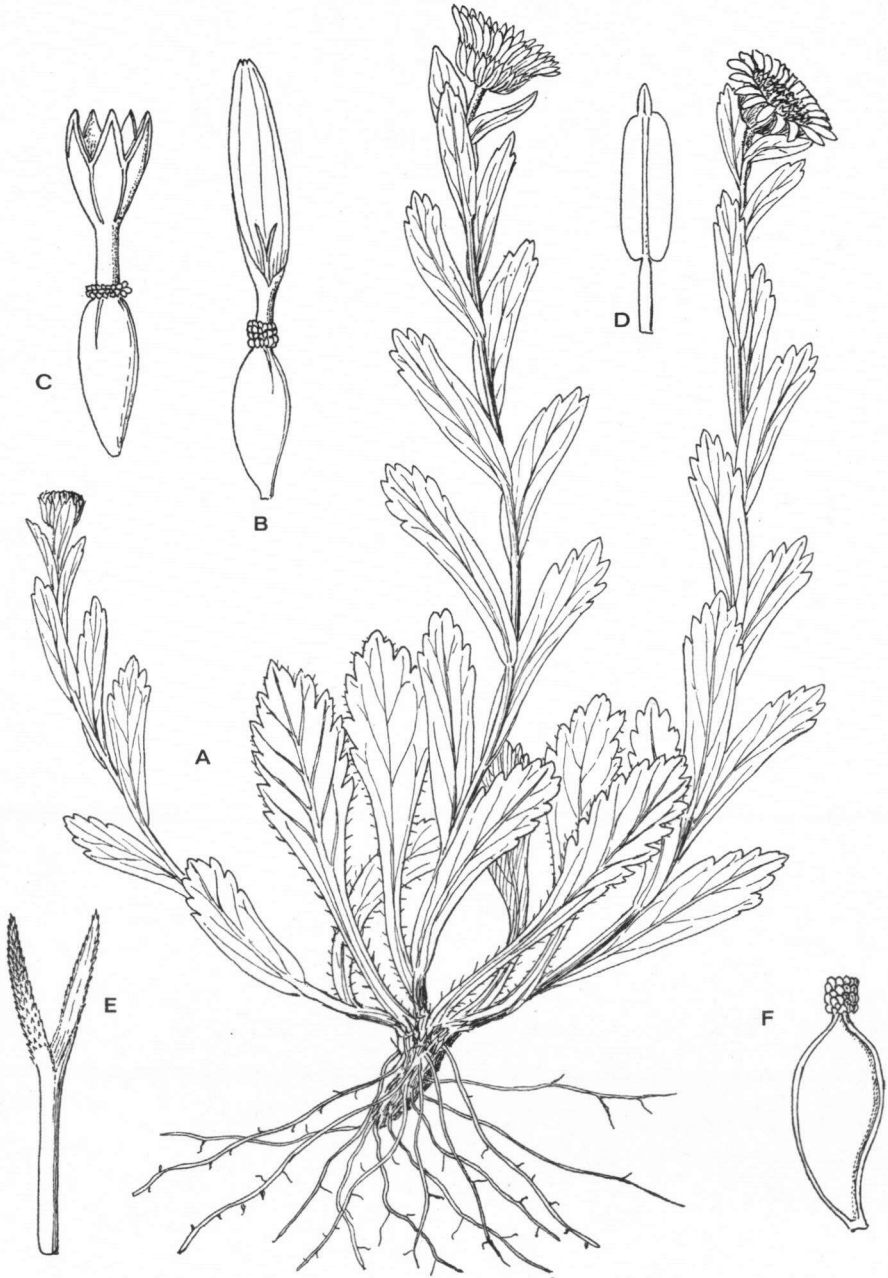


Fig. 9. *Lagenophora panamensis* Blake. a. Habit, nat. size, b. ray floret, $\times 12$, c. disk floret, $\times 12$, d. anther, $\times 24$, e. upper portion of style, $\times 24$, f. achene, $\times 12$. From the type.

pilose-ciliate, narrowed into the petiole, 20—28 by 10—12 mm; stem-leaves oblong-spathulate, sparsely pilose-ciliate, crenate-serrate towards the apex, 15—25 by 3—5 mm. *Heads* solitary with *c.* 5 mm long peduncles; involucre hemispherical, *c.* 9 mm wide, 4 mm high, phyllaries oblong-lanceolate, acute, 0.6—0.8 mm wide, sparsely pilose-ciliate. Ray flowers *c.* 50—60, 2-seriate, pistillate, tube 0.3 mm long, ligule narrow-oblong, 2—3-dentate, 2.5—2.8 mm long, 0.6—1 mm wide. Disk flowers *c.* 28, apparently mostly sterile but some perhaps fertile, corolla glabrous, 2.2—2.5 mm long, 5-dentate. Ray *achenes* obovate, compressed, thick-nerved on the margin, 2.2 mm long, narrowed into a short, thick, densely sessile-glandular neck 0.4 mm long; disk *achenes* obovate, compressed, 2 mm long, with a ring-like, usually densely sessile-glandular neck *c.* 0.1 mm high.

Distribution: High mountains of Panama, Central America.

PANAMA. Chiriquí: on potrero, Loma Larga to summit, Volcan Chiriquí, alt. 2500—3380 m, 4/6-7-1938, Woodson, Allen & Seibert 1047 (US, Typus).

By the thick rootstock and the leafy stems this species resembles the *Keisseria* species of Hawaii, but the pentamerous disk flowers and the similarity with *L. cuchumatana* induce its inclusion in *Lagenophora*.

14. *Lagenophora cuchumatana* Beaman et De Jong, Rhodora 67 (1965) 36, pl. 1309. — Fig. 10 A—E.

Low perennial herb with slender rhizome and fibrous roots. Stems 1—4, simple, decumbent or ascending, to 20 cm long, pilose with short to long, spreading to appressed hairs, leafy throughout. Basal *leaves* few; petioles sheathing at the base, densely pilose with patent hairs, 7—33 mm long; blades ovate-elliptic to orbicular, obtuse, the margins crenate-dentate with 3—5 pairs of callous-tipped teeth, minutely white-dotted and glabrate to appressed-pubescent above, pubescent beneath by appressed to patent hairs, 9—18 by 7—14 mm; lower cauline leaves similar but smaller; middle and upper cauline leaves oblanceolate to spatulate, sessile and widened at base, with 1—4 small callous-tipped teeth, sparsely appressed-pubescent beneath, glabrate above. *Heads* terminal, solitary, rarely more than one per stem, shortly peduncled; involucre campanulate, 4—5 mm high, 6—7 mm wide, phyllaries imbricate, about 3-seriate, linear-lanceolate, acute to obtuse, with narrow scarious margin and prominent midrib, glabrate to sparsely pilose on the back, margins sparsely long-ciliate towards the base, apices ciliate-fringed with often purple, sometimes subglandular hairs. Ray florets 10—20, pistillate, in one series, tube *c.* 0.1 mm long with short, thick glands, ligule 2—2.2 mm long with 2—3-dentate apex, greenish-white, turning purple with age. Disk florets 8—14, hermaphrodite, limb greenish-yellow, campanulate, 1.9—2.4 mm long, 5-lobed with spreading, *c.* 0.7 mm long lobes. *Achenes* of disk and ray flowers similar, obovate, those towards the periphery increasingly oblique, compressed, with thickened margins, faces with minute ridges near the base, glabrous, 3.3—4 mm long, 1—1.5 mm wide, apices produced into a sticky glandular ring 0.4 mm high in ray, 0.2 mm in disk flowers.

Distribution: Endemic of the mountains of Guatemala, Central America, above 3000 m alt., collected in the Sierra de los Cuchumatanes and in the Tecum Uman Ridge.

GUATEMALA. Dept. Huehuetenango: Sierra de los Cuchumatanes, between Tojiah and Chermal at km 320 on Ruta Nacional 9 N, *c.* 3365 m alt. in *Pinus rudis* forest, John H. Beaman 3756, 29-7-1960 (LP, Isotypus), D. C. D. De Jong 694 (LP).

This species is the third *Lagenophora* found in the Venezuela-Guatemala area. It is closely related to *L. andina* Badillo, but differs by the unbranched stems, the lower number of ray florets, and other characteristics.



Fig. 10. *Lagenophora cuchumatana* Beaman & De Jong. a. Habit, nat. size, b. phyllaries, $\times 10$, c. ray floret, $\times 10$, d. disk floret, $\times 10$, e. achene, $\times 10$. From an isotype. — *Lagenophora andina* Badillo. f. Habit, nat. size, g. ray floret, $\times 10$, h. disk floret, $\times 10$, j. achene, $\times 10$. From Steyermark 57501.

15. *Lagenophora andina* Badillo, *Darwiniana* 7 (1947) 331, with fig.; Aristeguieta, *Compositae*, in T. Lasser, *Flora de Venezuela* 10 (1964) 256, fig. 30. — **Fig. 10 F—J.**

Low rhizomatous perennial herb with simple stems to 20 cm high, ascending to decumbent, leafy throughout, hirsute. Basal *leaves* rosulate; petiole pilose-ciliate, 20—30 mm long; blade obovate, obtuse, crenate-dentate, rounded to narrowed at the base, hairy on both faces, 25—45 by 12—25 mm. Stem leaves scattered, sessile, oblong-spathulate or oblong-lanceolate, acute, with few teeth toward the apex, hirsute, 15—30 by 4—8 mm. *Heads* 1—3 at the apex of the stem; peduncles 5—20 mm long; involucre hemispheric, 4—4.5 mm high, 6 mm wide, phyllaries 2-seriate, lanceolate, obtuse, ciliate, scanty-pilose. Ray florets 2-seriate, *c.* 35—45, pistillate, tube 0.5 mm long, ligule lineal-oblong, *c.* 1.5—2 mm long. Disk florets hermaphrodite, corolla 5-lobed, 2—2.5 mm long. *Achenes* obovate, 3 mm long, compressed, produced into a short, sessile-glandular, *c.* 0.5—1 mm long neck.

Distribution: Andes of Venezuela at 3500 m alt.

VENEZUELA. Estado Merida: Laguna Mucubají, arriba de Apartaderos, 3600 m alt., *J. Steyermark* 57501.

DOUBTFUL TAXON

Lagenophora pumila* var. *multidentata (Simpson) Simpson, *Trans. Proc. Roy. Soc. New Zeal.* 75 (1945) 197. — *Lagenophora barkeri* var. *multidentata* Simpson et Thomson, *Trans. Proc. Roy. Soc. New Zeal.* 73 (1943) 167.

Seems to be a form of *L. pumila* or *L. petiolata*. I have not seen material of this taxon.

EXCLUDED SPECIES

Lagenophora bellidioides (Cass.) Druce, *Rep. Bot. Exch. Cl. Brit. Isles*, 1916 (1917) 630 = *Solenogyne bellidioides* Cass.

Lagenophora emphysopus Hook. f., *Fl. Tasman.* 1 (1860) 187 = *Solenogyne gunnii* (Hook. f.) Cabrera, *nov. comb.*

Lagenophora erici Forbes, *Occas. Pap. Bishop Mus. Honolulu*, 6 (5) (1918) 60 = *Keysseria erici* (Forbes) Cabrera, *nov. comb.*

Lagenophora gibbsiae Merrill, *Journ. As. Soc. Straits* 77 (1917) 246 = *Keysseria gibbsiae* (Merrill) Cabrera *ex Steen.*, *Proc. Roy. Soc. B.* 161 (1964) 27.

Lagenophora gunnii (Hook. f.) Black, *Trans. Proc. Roy. Soc. S. Austral.* 51 (1927) 58. — *Enphysopus gunnii* Hook. f., *Lond. Journ. Bot.* 6 (1847) 114 = *Solenogyne gunnii* (Hook. f.) Cabrera, *nov. comb.*

Lagenophora helena Forbes et Lydgate, *Occas. Pap. Bishop Mus. Honolulu* 6 (5) (1918) 62 = *Keysseria helena* (Forb. et Lydg.) Cabrera, *nov. comb.*

Lagenophora lechleri Sch. Bip., *Bonplandia* (1856) 54 (*nomen nudum*) = *Laestadia lechleri* Wedd.

Lagenophora linearis Petrie, *Trans. N.Z. Inst.* 25 (1893) 271 = *Brachycome linearis* (Petrie) Druce.

Lagenophora maviensis Mann, *Proc. Amer. Acad.* 7 (1867) 172 = *Keysseria maviensis* (Mann) Cabrera, *nov. comb.*

Lagenophora mikadoi Koidz., *Pl. Nov. Amami. Ohsim.* (1928) 17 (*in syn.*) = *Solenogyne mikadoi* Koidz.

Lagenophora muscicola Sch. Bip., *Bonplandia* (1856) 54 (*nomen nudum*) = *Laestadia muscicola* Wedd.

Lagenophora neocaledonica S. Moore, *Journ. Linn. Soc. Bot.* 45 (1921) 345 = *Brachycome* aff. *neocaledonica* Guillaum.

Lagenophora pickeringii A. Gray, *Proc. Amer. Acad.* 5 (1861) 121 = *Keysseria pickeringii* (A. Gray) Cabrera, *nov. comb.*

Lagenophora solenogyne F. Müll. *ex Benth.*, *Fl. Austral.* 3 (1866) 506 = *Solenogyne bellidioides* Cass.

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