



2022 NZPCN Conference: Drylands Field Trip notes - Roaring Meg



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Kawarau Gorge-Roaring Meg (Hydro-electric power-station)

Geoff Rogers

The antecedent gorge of the Kawarau River snakes for 25-km between the southern Pisa and Crown Ranges to the north and the Remarkables and Mt Difficulty to the south.

Shady slopes have mixed native scrub (composed principally of *Coprosma propinqua*, *Olearia odorata*, *matagouri* and *Pimelea aridula*, infused with exotic woody species, especially briar. Sunny slopes have less advanced, seral native shrubland interspersed with extensive thyme.

A natural bridge ("Whatatorere") spanning the Kawarau River near the Roaring Meg confluence was important, first to Maori, then to goldminers as the only place the Clutha River/Mata Au and the Kawarau River could be crossed without boats. It subsequently vanished early in the European era.

In the 1860s, the gorge saw much goldmining, especially by Chinese migrants, and several of their cottages, along with copious tailings, comprise the Goldfields Mining Centre at the eastern end of the gorge.

The Roaring Meg hydro scheme refers to two small power stations built in 1934 and supplied by water from the 10-m high Roaring Meg Dam, 3.6-km upstream.

Notable plants (sadly, most unlikely to be seen from a vehicle):

Achnatherum petriei

Lepidium sisymbrioides

Myosotis goyenii

Pachycladon cheesemanii

Olearia hectorii

Anisotome caudicola

Carmichaelia compacta

Lophozonia menziesii

Achnatherum petriei

SYNONYMS

Stipa petriei Buchanan

FAMILY

Poaceae

AUTHORITY

Achnatherum petriei (Buchanan) S.W.L.Jacobs et J.Everett

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Grasses

NVS CODE

ACHPET

CHROMOSOME NUMBER

2n = 42

CURRENT CONSERVATION STATUS

2018 | At Risk – Declining

PREVIOUS CONSERVATION STATUSES

2012 | At Risk – Naturally Uncommon | Qualifiers: EF, Sp

2009 | At Risk – Naturally Uncommon | Qualifiers: CD

2004 | Range Restricted

DISTRIBUTION

Endemic. South Island only from South Canterbury to Central Otago

HABITAT

Montane to subalpine (up to 1000 m a.s.l.). On dry stony ground and on rock outcrops (especially limestone and schist).



Awahokomo Bluffs, St Mary, Waitaki.
Photographer: G. M. Crowcroft



Limestone.

FEATURES

Erect, wiry, yellow-green to brownish-grey perennial frequently branching at nodes. Branching extravaginal; cataphylls short. Leaf-sheath to 30 mm, usually glabrous, sometimes retrorsely pubescent. Ligule to 0.5 mm, auriculate, auricular lobes to 1 mm long, symmetrical or asymmetrical, usually finely pubescent. Collar thickened, occasionally with a very small tuft of hairs. Leaf-blade to 300 x 0.8 mm, narrow, involute, rigid, acicular, undersides glabrous, upper surface bearing short, stiff, white hairs. Culm to 600 mm long, wiry, internodes smooth, nodes purple, glabrescent. Panicle to 250 mm long, narrow; rachis smooth below, scabrid above, branches and pedicels scabrid. Glumes ± equal, to 7 mm long, hyaline, glossy, pink-suffused, produced into an awn-like process up to 0.5 mm long, or split at apex, < awn column; lower 1-nerved, upper 3-nerved. Lemma to 5.0 mm long, cylindrical, 3-5-nerved, margins contiguous, fulvous, clothed in white, ± appressed hairs; coma to 0.5 mm long, lobes short and inconspicuous; awn to 40 mm long, ± straight or weakly 1-geniculate, short and stiffly hairy, column loose twisted to 10 mm in length, arista to 30 mm long. Pale = lemma, clothed in long white hairs, apex ciliate, 2-nerved. Callus short (to 0.3 mm long), oblique, hairs white, to 1 mm long. Lodicules 3, one usually emarginate, or entire, 1-nerved, to 1 mm. Anthers to 2.7 mm long, weakly penicillate and shortly caudate. Seed 2.5-3.5 mm; hilum linear.

SIMILAR TAXA

One of the five stipoid grass genera known in New Zealand. From the other four genera it is distinguished by the margins of the 3-nerved lemma contiguous, by the persistent awn, and long hairs on the palea. From *Achnatherum caudatum* (Trin.) S.W.L.Jacobs et J.Everett it is distinguished by the extravaginal rather than intravaginal branching; by the upper surface of the leaf-blade clothed in hairs rather than finely prickly-toothed; by the glume nerves being obscure rather than conspicuous; by the completely hairy lemma (in *A. caudatum* the hairs are confined to the lemma keel and outer margin); by the minute, obscure rather than conspicuous coma; prominent long awn (40 cf. 20 mm long), and free flowering rather than mostly cleistogamous flowering habit.

FLOWERING

November - February

FRUITING

January - May

LIFE CYCLE

Floret dispersed by wind (Thorsen *et al.*, 2009).

PROPAGATION TECHNIQUE

Easy from fresh seed and the division of whole plants. Requires full sun, and excellent drainage, on a fertile soil to grow well. Will not tolerate humidity or damp conditions.

THREATS

Rather widespread but localised in its occurrences. Probably better qualifies as Sparse because this is a naturally biologically sparse species. However, its survival now also depends on effective weed control. In some parts of its range it might be at risk from the spread of wild thyme (*Thymus vulgaris* L.) and stonecrop (*Sedum acre* L.).

ETYMOLOGY

petriei: Named after Donald Petrie (1846 -1925), Scottish born Otago botanist

WHERE TO BUY

Not commercially available

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange June 2005. Description modified from Edgar and Connor (2000)

REFERENCES AND FURTHER READING

Edgar, E.; Connor, H.E. 2000: *Flora of New Zealand. Vol. V. Grasses*. Christchurch, Manaaki Whenua Press. 650 pp.
Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009: Seed dispersal systems in the New Zealand flora. *Perspectives in Plant Ecology, Evolution and Systematics* 11(4): 285-309.

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/achnatherum-petriei/>

Myosotis goyenii

SYNONYMS

None (first described in 1891)

FAMILY

Boraginaceae

AUTHORITY

Myosotis goyenii Petrie

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Herbs - Dicotyledons other than Composites

NVS CODE

MYOGOY

CURRENT CONSERVATION STATUS

2012 | At Risk – Naturally Uncommon | Qualifiers: Sp

PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Naturally Uncommon

2004 | Not Threatened

DISTRIBUTION

Endemic. South Island: South Canterbury and Central Otago.

HABITAT

Dry bare banks, rocky steep slopes

FEATURES

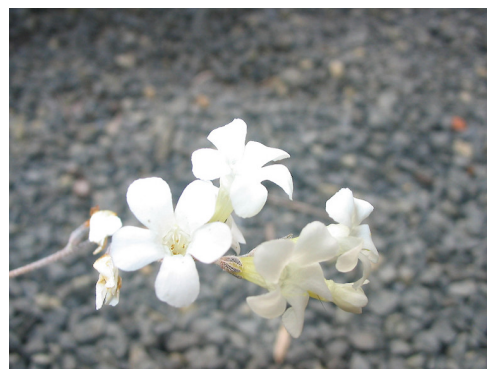
Perennial herb with stout branched stock producing one or more loose rosettes. Leaves spatulate, 30-140 × 3-14 mm, tip subacute, petiole longer than lamina; hairs alike on both surfaces, short, stiff, straight, closely appressed, barely overlapping, rather sparser on undersurface, clinging to margin. Lateral branches few, ascending or erect, sometimes again branched, 80-300 mm long, internodes equal in length to leaves. Uppermost stem-leaves 10-20 × 2-5 mm, narrow-oblong, sessile, tip acuminate-acute; hairs as on rosette-leaves but more crowded. Cymes ebracteate, on long leafless peduncles, simple or once (occasionally twice) forked; internodes between lower flowers becoming greater than calyx length; pedicels occasionally up to 5 mm long. Calyx c.4mm long, lobes greater than half calyx length, very narrow, acute; hairs usually all short, straight, stiff and appressed as on rest of plant, very crowded at base, evenly covering lobes. Corolla white (rarely pale yellow), c. 7-10 mm diameter, tube 7-8 mm long, narrow-funnelform, inconspicuous scales below mouth, lobes c.3 × 3 mm; filaments very short, fixed below (occasionally much below) scales, anthers 1-5 mm long, tips at or below level of scales; style much greater than calyx; stigma capitate. Nutlet 1.8-3.3 × 1.0-1.9 mm, ovate, black

SIMILAR TAXA

Myosotis goyenii is easily recognised by the ashen grey colouration, loose rosette-forming growth habit, grey long-petioled leaves and leaf hairs which overlap but do not obscure the epidermis.



Cult. plant ex Luggate terraces. Photographer: John Barkla



Cult. plant ex Luggate terraces. Photographer: John Barkla

FLOWERING

October - January

FLOWER COLOURS

White, Yellow

FRUITING

December - March

PROPAGATION TECHNIQUE

Difficult. Best grown in a rock garden or put, planted within a free draining, fertile soil (enriched with lime). The soil should be kept moist (never fully drying out) but not saturated. Does best in partial shade rather than full sun.

THREATS

Myosotis goyenii is a naturally uncommon species confined to a small part of the South Island. Within its range the species is rarely common - a pattern that is not that unusual for the New Zealand members of the genus. Despite this natural scarcity, as far as is known there are no active threats affecting this species.

ETYMOLOGY

myosotis: Mouse-eared

WHERE TO BUY

Not commercially available.

ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 1 February 2008. Description based on Allan (1961).

REFERENCES AND FURTHER READING

Allan, H.H. 1961: Flora of New Zealand. Vol. I. Government Printer, Wellington.

NZPCN FACT SHEET CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Myosotis goyenii* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/myosotis-goyenii/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/myosotis-goyenii/>

Lepidium sisymbrioides

SYNONYMS

Lepidium sisymbrioides Hook.f. subsp. *sisymbrioides*, *Lepidium kawarau* Petrie. *Lepidium sisymbrioides* subsp. *ovatum* Thell., *L. kawarau* var. *dubium* Kirk

FAMILY

Brassicaceae

AUTHORITY

Lepidium sisymbrioides Hook.f.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Herbs - Dicotyledons other than Composites

NVS CODE

LEPSIS

CHROMOSOME NUMBER

2n = 56

CURRENT CONSERVATION STATUS

2018 | Threatened – Nationally Critical

PREVIOUS CONSERVATION STATUSES

2012 | Threatened – Nationally Endangered | Qualifiers: DP

2009 | Threatened – Nationally Endangered | Qualifiers: DP, Sp

2004 | Threatened – Nationally Endangered

DISTRIBUTION

Endemic to S. Island. N. and Central Otago. Known in north Otago from S side of upper Waitaki, and from Central Otago near Falls Dam in upper Manuherika Gorge and from the Kawarau Gorge near Cromwell.

HABITAT

Schist and limestone outcrops and cliff faces. Also on sparsely vegetated clay pan and salt licks overlying limestone talus and semi-saline soils



Nevis Bluff. Mar 1995. Photographer: David Norton



Flowering plant. Photographer: John Barkla

FEATURES

Perennial dioecious herb, with up to 15 compact, leafy rosettes. Rootstock deep rooted, up to 20 mm diam. near crown; stems spreading to erect, up to 25 mm long and 6.0 mm wide. Basal and lower stem leaves persistent, pinnatifid, pinnate, to bipinnatifid, narrow-oblong to oblong, up to 120(–190) mm long, green or green-brown, central part of lamina 1.0–3.4 mm wide; pinnae in 6–25 pairs, linear to lanceolate, usually recurved, with 1–6 secondary pinnae, terminal pinnae 7.8–30.0 × 0.9–2.9 mm, lateral pinnae 8.0–28.9 × 0.8–2.7 mm. Middle stem leaves similar, often becoming shallowly pinnatifid, serrate, or entire. Cauline leaves 8.3–25.6 × 1.6–6.2 mm, with up to 8 narrow or small lobes, or entire. Inflorescences terminal, 2–40 cm long, 1.0–5.6 mm diam. at base, usually ascending or erect, sometimes spreading, with up to 12 lateral branches, glabrous to sparsely hairy; pedicels 2.7– 6.4 mm long, 0.25–0.35 mm wide, slightly recurved, adaxial surface glabrous to moderately hairy, abaxial surface glabrous. Flowers up to 4 mm wide. Sepals 0.7–1.0 × 0.6–1.6 mm, green to maroon, glabrous to sparsely hairy, sometimes moderately hairy, margins scarious, apex obtuse. Petals present or absent, when present spreading and clawed, white, limb obovate, apex obtuse to emarginate; males: 1.5–2.2 mm long; females 1.2–1.5 mm long. Female flowers: ovary 1.0–2.7 × 0.8–1.9 mm, ovate, orbicular, to rhomboid, glabrous to sparsely hairy, sometimes moderately hairy; style 0.1–1.1 mm long; stigma 0.2–0.4 mm wide; 4–7 staminodes, 0.6–1.4 mm long. Male flowers: 4–6 stamens, 1.6–3.0 mm long, white; anthers 0.3–0.4 mm long, white or maroon; ovary rudimentary, 0.2–0.9 × 0.3–0.9 mm. Nectaries 0.2–0.6 mm long, oblong, green to green-red. Siliques 3.5–5.0 × 1.9–4.6 mm, usually ovate to rhomboid, sometimes orbicular, suture usually maroon, apex emarginate to retuse, style base often persistent. Seed usually obovate, rarely obovate-oblong, straighter along one margin, compressed but with broad rounded margins, 1.5–2.5 mm long, not winged; both surfaces with a distinct groove from hilum at base towards apex, and the seed folded around it; apex broad and rounded; base cuneate or slightly rounded. Testa dull, orange or orange-brown to dark henna, with a fine reticulum of very thick walled cells.

SIMILAR TAXA

Distinguished from *L. solandri* by longer, narrower cauline leaves, longer terminal and primary pinnae with more frequent secondary lobing; less hairy sepals and ovaries; narrower ovaries; shorter stamen filaments; and ecology.

FLOWER COLOURS

Red/Pink, White

FRUITING

December to March

LIFE CYCLE

Mucilaginous seeds are dispersed by attachment and possibly wind and water (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easily grown from fresh seed. Dislikes excessive moisture and humidity.

THREATS

Less than 800 plants are known in the wild. Few sites on protected land. At all sites threatened by weed competition, animal browsing, and for most sites changes in land-use management.

ETYMOLOGY

lepidium: Scale-shaped (pods)

WHERE TO BUY

Not commercially available.

TAXANOMIC NOTES

One of only two dioecious *Lepidium* taxa in the world.

ATTRIBUTION

Description from: Heenan, P.B.; Mitchell, A.D.; McLenachan, P.A.; Lockhart, P.J.; de Lange, P.J. 2007: Natural variation and conservation of *Lepidium sisymbrioides* Hook.f. and *L. solandri* Kirk (Brassicaceae) in South Island, New Zealand, based on morphological and DNA sequence data. *New Zealand Journal of Botany* 45: 237–264.

REFERENCES AND FURTHER READING

Allen, R.B. 200. Inland Lepidium recovery plan 200-2019. Threatened Species Recovery Plan 32. Department of Conservation

Heenan, P.B.; Mitchell, A.D.; McLenachan, P.A.; Lockhart, P.J.; de Lange, P.J. 2007: Natural variation and conservation of *Lepidium sisymbrioides* Hook.f. and *L. solandri* Kirk (Brassicaceae) in South Island, New Zealand, based on morphological and DNA sequence data. *New Zealand Journal of Botany* 45: 237-264.

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. *Perspectives in Plant Ecology, Evolution and Systematics* 11: 285-309

NZPCN FACT SHEET CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Lepidium sisymbrioides* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/lepidium-sisymbrioides/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/lepidium-sisymbrioides/>

Pachycladon cheesemanii

COMMON NAME

dryland cress

SYNONYMS

Sisymbrium novae-zelandiae Hook.f., *Ischnocarpus novae-zelandiae* (Hook.f.) O.E.Schulz

FAMILY

Brassicaceae

AUTHORITY

Pachycladon cheesemanii Heenan et A. Mitch.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Herbs - Dicotyledons other than Composites

NVS CODE

PACCHE

CHROMOSOME NUMBER

2n = 20

CURRENT CONSERVATION STATUS

2018 | Threatened – Nationally Endangered

PREVIOUS CONSERVATION STATUSES

2012 | Threatened – Nationally Vulnerable | Qualifiers: Sp

2009 | Threatened – Nationally Vulnerable | Qualifiers: Sp

2004 | Gradual Decline

DISTRIBUTION

Endemic to the South Island where it occurs east of the main divide from Marlborough south to the northern portion of Southland

HABITAT

Lowland to subalpine tussock grassland, grey scrub, boulderfalls, talus, stable scree, rock overhangs and cliff faces. Now virtually confined to inaccessible habitats such as cliff faces, rock overhangs and amongst dense grey scrub.



Pachycladon cheesemanii, Hector Mountains.
Photographer: John Barkla



Pachycladon cheesemanii, Old Woman Range.
Photographer: John Barkla

FEATURES

Robust, green, perennial herb, up to 500 mm tall. Basal leaves 15–80 mm long, simple, initially sparsely covered with branched hairs, becoming glabrescent with age; early basal leaves elliptic, entire or with a few blunt serrations, later leaves pinnatifid to pinnatisect, lobed 2–4 times in opposite to subopposite pairs; lamina, 10–60 × 8–30 mm; petioles 5–20 mm long. Stem leaves 1–4, lower ones similar to basal leaves, upper up to 10 × 3 mm, linear, minutely serrated. Inflorescences 150–500 mm long, up to 2.75 mm diameter at base, racemose; peduncle, pedicels, and siliques without glaucous bloom. Pedicels 10–15 mm long, glabrous. Sepals 3.3–3.5 × 1.4–1.5 mm, green with pale margins, oblong to elliptic, apex subacute. Petals 5.0–6.7 × 1.5–2.2 mm, white, obovate to obovate–spatulate, apex obtuse. Filaments 4–6, 3.3–4.2 mm long; anthers yellow. Ovary dorsiventrally compressed, green, glabrous; style indistinct, virtually absent; ovules 90–165. Siliques up to 60 mm long, green, without glaucous bloom, compressed, usually curved, glabrous. Seeds 0.8–1.1 mm long, pale brown, short–oblong.

SIMILAR TAXA

Most likely to be confused with the very similar *P. exile* (Heenan) Heenan et A.Mitch, which is a much smaller plant that *P. cheesemanii* with a circular ovary. *P. exile* is now only known from a single site in the Waitaki Valley (see fact sheet for that species for further information).

FLOWERING

September - February

FLOWER COLOURS

White

FRUITING

October - March

PROPAGATION TECHNIQUE

Difficult and should not be removed from the wild

THREATS

Formerly widespread along the eastern side of the South Island from the Wairau River, Marlborough to northern Southland. Although it is still found within this range but populations usually small and widely scattered. The exact cause of its decline is not clear though it is palatable and browsing animals and introduced pests of brassiaceous crops may be partially responsible for its loss from some areas. Another probable factor in its decline has been the spread of naturalised plants into the open tussock grassland, stabilised scree, talus and boulderfield habitats it once favoured. Many of the extant populations now occur in dark rock overhangs, where competition from the normally higher-light demanding weed species is less.

ETYMOLOGY

cheesemanii: Named after Thomas Frederick Cheeseman (1846 - 15 October 1923) who was a New Zealand botanist and naturalist who, in 1906, produced *The Manual of the New Zealand Flora*.

WHERE TO BUY

Not commercially available

ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 1 July 2007. Description by P.B. Heenan and published in de Lange et al. (2010)

REFERENCES AND FURTHER READING

de Lange, P.J.; Heenan, P.B.; Norton, D.A.; Rolfe, J.R.; Sawyer, J.W.D. 2010: *Threatened Plants of New Zealand*. Canterbury University Press, Christchurch.

NZPCN FACT SHEET CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Pachycladon cheesemanii* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network.

<https://www.nzpcn.org.nz/flora/species/pachycladon-cheesemanii/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pachycladon-cheesemanii/>

Olearia hectorii

COMMON NAME

deciduous tree daisy, Hector's tree daisy

SYNONYMS

None

FAMILY

Asteraceae

AUTHORITY

Olearia hectorii Hook.f.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

OLEHEC

CHROMOSOME NUMBER

2n = 108

CURRENT CONSERVATION STATUS

2012 | Threatened – Nationally Endangered | Qualifiers: CD, De, RF

PREVIOUS CONSERVATION STATUSES

2009 | Threatened – Nationally Endangered | Qualifiers: CD, De, RF

2004 | Threatened – Nationally Vulnerable

BRIEF DESCRIPTION

Rare small-leaved shrub with wide-angled grooved reddish stems bearing clusters of thin grey-green leaves inhabiting river valleys of the eastern South Island. Leaves 20-50mm long by 5-20mm wide. Flowers small, yellowish, on drooping 15mm long stalks, in small groups at base of leaves. Seeds fuzzy.

DISTRIBUTION

Endemic. Eastern South Island.

HABITAT

Lowland to subalpine often at the base of steep hills on colluvium, or on alluvium in situations affected by flooding, debris avalanching, water-logging, drought and/or frost.



Olearia hectorii. Photographer: Shannel Courtney



Olearia hectorii plant bearing Flowers. Photographer: John Barkla

FEATURES

Deciduous shrub or small tree up to 10 m tall. Trunk up to 1 m diam., bark thick, somewhat corky, grey, persistent, deeply marked with longitudinal furrows. Branches one to many, often spreading. Branchlets slender, grooved, glabrescent; bark red, red-brown to bronze-red. Adult leaves 2-4 on short shoots or widely spaced along fast growing branchlets; petioles 5 mm, slender; leaf lamina 20-50 x 5-20 mm, grey-green to green above, silvery-grey beneath, narrow-oblong, oblong-ovate to broadly-ovate, undersides clad in silvery tomentum, upper surface glabrescent; lamina margins flat and entire. Capitula in fascicles of 2-6, 5 x 5 mm; pedicels slender, silky hairy, 15 mm long. Florets 20-25, pale yellow, ray-florets 10-15, narrow, rather short, disc florets 10-15. Phyllaries in 2 series, weakly imbricate, oblong, obtuse, exposed surface pilose hairy. Achenes 1-2 mm, narrow-obovate. Pappus-hairs 3-5 mm long.

SIMILAR TAXA

Olearia odorata Petrie and *O. fragrantissima* Petrie are superficially similar to *O. hectorii*. From those species *O. hectorii* can be distinguished by the leaves which are opposite and by its straight branchlets. *O. fragrantissima* has alternate leaves and zigzag twig stems, while *O. odorata* has narrower, smaller leaves lacking leaf stalks, and is usually a shrub, rarely a small tree. The North Island *O. gardneri* Heads, though similar differs by the broadly deltoid, truncate, rather than oblanceolate juvenile leaves, by the smaller, distinctly less hairy adult leaves, white rather than yellow flowers, and narrowly lanceolate, toothed, finely hairy phyllaries (bracts surrounding the flowers). The phyllary hairs are long and wavy.

FLOWERING

October - December

FLOWER COLOURS

Yellow

FRUITING

December - February

PROPAGATION TECHNIQUE

Can be grown from fresh seed and semi-hardwood cuttings. The strike rate of these can be variable, and best results are obtained from cuttings taken after leaf fall in autumn, and kept in a cold frame over winter

THREATS

This species is seriously threatened by recruitment failure. The seed of this species requires open sites to germinate in, and in most places such sites are scarce due to the presence of introduced grasses and herbs. Very few *O. hectorii* populations occur on protected land, and many are now dominated by old senescent trees. This species is also susceptible to browsing animals, and because of the dynamic habitats it occupies floods and slips once so critical for this species regeneration is now a serious threat. Isolated plants produce little viable seed.

ETYMOLOGY

olearia: Named after Johann Gottfried Olearius, a 17th-century German scholar, writer of hymns and author of *Specimen Florae Hallensis*

hectorii: Named after Sir James Hector, 19th century New Zealand geologist and botanist who was originally from Scotland

NOTES

Published as *hectori* but *hectorii* is correct under the ICBN (International Code of Botanical Nomenclature).

WATCH THE VIDEO

[*Olearia hectori*](#) - watch the TVNZ - Meet the Locals (DOC)

ATTRIBUTION

Fact Sheet prepared for the NZPCN by P.J. de Lange 14 April 2006. Description by P.B Heenan (adapted from Heads (1998) and subsequently published in de Lange et al. (2010).

REFERENCES AND FURTHER READING

de Lange, P.J.; Heenan, P.B.; Norton, D.A.; Rolfe, J.R.; Sawyer, J.W.D. 2010: Threatened Plants of New Zealand. Canterbury University Press, Christchurch.

Heads, M. 1998. Biodiversity in the New Zealand divaricating tree daisies: *Olearia* sect. nov. (Compositae). Botanical Journal of the Linnean Society 127(3): 239-285.

Hooker, J.D. 1864. *Handbook of the New Zealand Flora: a systematic description of the native plants of New Zealand and the Chatham, Kermadec's, Lord Auckland's, Campbell's and Macquarie's Islands*. Part I ed. London, Reeve. 392 p.

NZPCN FACT SHEET CITATION

Please cite as: de Lange, P.J. (Year at time of access): *Olearia hectorii* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/olearia-hectorii/> (Date website was queried)

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/olearia-hectorii/>

Anisotome cauticola

FAMILY

Apiaceae

AUTHORITY

Anisotome cauticola J.W.Dawson

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Herbs - Dicotyledons other than Composites

NVS CODE

ANICAU

CURRENT CONSERVATION STATUS

2018 | At Risk – Declining

PREVIOUS CONSERVATION STATUSES

2012 | At Risk – Naturally Uncommon | Qualifiers: Sp

2009 | At Risk – Naturally Uncommon

2004 | Not Threatened

FLOWER COLOURS

White

LIFE CYCLE

Winged mericarps are dispersed by wind (Thorsen et al., 2009).

ETYMOLOGY

anisotome: Unequal sided

cauticola: From the Latin cautes 'rock rock' or 'cliff' and -cola a suffix to denote dweller, means growing on cliffs

REFERENCES AND FURTHER READING

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 2009 Vol. 11 No. 4 pp. 285-309

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/anisotome-cauticola/>



Wye Valley. Photographer: David Norton



Anisotome cauticola. Photographer: John Barkla

Carmichaelia compacta

COMMON NAME

Cromwell broom

SYNONYMS

Huttonella compacta (Petrie) Kirk; *Carmichaelia compacta* var. *procumbens* G.Simpson

FAMILY

Fabaceae

AUTHORITY

Carmichaelia compacta Petrie

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

CARCOP

CURRENT CONSERVATION STATUS

2012 | At Risk – Naturally Uncommon | Qualifiers: RR

PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Declining | Qualifiers: DP, RF, RR

2004 | Range Restricted

BRIEF DESCRIPTION

Small yellow-green shrub with many erect leafless twigs inhabiting the Central Otago gorges. Twigs oval in cross section, grooved. Leaves rare, sometimes in shaded parts, with 1-9 leaflets. Flowers small, pea-like, pink with slightly darker stripes, in erect clusters. Fruit a small dry flattened pod containing a single hard seed.

DISTRIBUTION

Endemic. New Zealand: South Island (Central Otago (centred on the Kawarau and Cromwell Gorges and immediate surrounding area, also near Alexandra, Omakau, and Cromwell))

HABITAT

A schist endemic. Colonising rock and debris slopes, rock outcrops, and associated steep tussock grassland, and river gorges.



A flowering plant Kawarau Gorge (November).
Photographer: John Smith-Dodsworth



Kawarau Gorge (November). Photographer:
John Smith-Dodsworth

FEATURES

Erect or spreading shrub, up to 1-2 x 1-2 m, with densely placed branches and cladodes. Branches erect and spreading from base, 10-60 mm diameter. Cladodes linear, striate, compressed, erect to spreading, green, glabrous, often crowded at ends of branches, 60-220 x 1.5-2.5 mm; apex subacute, yellow; leaf nodes 4-9. Leaves 1-9-foliolate, fleshy, obovate or sometimes ovate, hairy; upper surface mottled; lower surface green; apex emarginate to retuse; margin hairy; leaflets sessile or with short petiolule, 1.5-7.0 x 1.0-6.5 mm; petiole hairy, 8-16 mm long. Leaves on cladodes reduced to a scale, triangular, glabrous, < 0.5 mm long; apex acute. Stipules clasping shoot, triangular, 0.4-0.5 x 0.4-0.5 mm; adaxial surface glabrous; abaxial surface hairy, becoming glabrous with age; apex subacute to obtuse; margin hairy. Inflorescence a raceme, 1 per node, each with 3-6 flowers. Peduncle glabrous to sparsely hairy, green, 7-16 mm long. Bracts triangular to narrow-triangular, pale green becoming membranous, 0.5-1 mm long; apex acute to subacute; margin hairy. Pedicel glabrous, pale green, 2-4 mm long. Bracteoles at base of receptacle or on upper part of pedicel, narrow rounded, white, c. 0.25 mm long; claw pale green, c. 2 mm long. Stamens 3.0-3.5 mm long; lower filaments connate for c. 1/3 length and with outside filaments free for 0.3-0.5 mm. Pistil exerted beyond stamens, c. 4 mm long; style with a ring of hairs below stigma; ovules 6-7. Pod obovate, broad at distal part, dorsally compressed, brown, pale grey, or straw-coloured, indehiscent, with inflated valves, 5.0-5.5 x 3.0-4.0 mm; beak on upper suture, slightly curved, stout, pungent, c. 1 mm long. Seeds oblong-reniform, 1-2 per pod, light olive green or yellow-green with black mottling, 2.0-2.5 x 1.5-2.0 mm.

SIMILAR TAXA

Carmichaelia compacta is similar to *C. curta* Petrie and *C. juncea* Hook.f. from which it is distinguished by its more upright and shrubby habit, green and densely placed cladodes, large obovate pods, large seed, and the lower filaments being connate for c. 1/3 of their length.

FLOWERING

October - February

FLOWER COLOURS

Violet/Purple, White

FRUITING

December - July

LIFE CYCLE

Seeds are possibly dispersed by wind and granivory (Thorsen et al., 2009).

PROPAGATION TECHNIQUE

Easily grown from seed and hardwood cuttings. Dislikes humidity. Best in a well drained, sunny situation. An attractive species that deserves to be more widely grown.

THREATS

A narrow range endemic that is known from many sites but with a combined overall small population. Seedlings and juveniles are scarce, and there appears to be little recruitment. At accessible sites it is heavily browsed by sheep, goats, hares, and rabbits and these animals are probably the main reason for the lack of recruitment. Further, browsing pressure may be causing early senescence of older plants.

ETYMOLOGY

carmichaelia: After Carmichael, a botanist

compacta: Small growing

WHERE TO BUY

Not Commercially Available.

ATTRIBUTION

Description from Heenan (1996)

REFERENCES AND FURTHER READING

Heenan, P.B. 1995: A taxonomic revision of *Carmichaelia* (Fabaceae - Galegeae) in New Zealand (part I). *New Zealand Journal of Botany* 33: 455-475

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. *Perspectives in Plant Ecology, Evolution and Systematics* 2009 Vol. 11 No. 4 pp. 285-309

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/carmichaelia-compacta/>

Lophozonia menziesii

COMMON NAME

silver beech

SYNONYMS

Fagus menziesii Hook. f., *Nothofagus menziesii* (Hook.f.) Oerst.

FAMILY

Nothofagaceae

AUTHORITY

Lophozonia menziesii (Hook.f.) Heenan et Smissen

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

NVS CODE

NOTMEN

CHROMOSOME NUMBER

2n = 26

CURRENT CONSERVATION STATUS

2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Very common forest canopy tree with silvery bark and bearing rough-edged small leathery leaves arranged along the twig. Leaves almost as wide as long, 6-15mm long, with uneven blunt teeth on margin and with small hairy pits at the junction of the veins. Flowers and fruits inconspicuous, but colour tree.

DISTRIBUTION

North and South Islands - from latitude 37° southwards, except Mount Egmont.

HABITAT

Lowland to montane forest or as shrub in subalpine scrub



Silver beech. Photographer: DoC



Dunedin. Photographer: John Barkla

FEATURES

Tree up to 30 metres tall; trunk up to 2 metres diameter, often buttressed; branchlet-pubescent fulvous. Leaves thick, coriaceous, rigid; 6-15 × 5-15 mm., on petioles 2-3 mm. long; lamina glabrous except on veins below, broad-to deltoid-ovate to suborbicular, doubly crenate, cuneate at base; venation rather obscure; fringed domatia 1-2 in basal vein-axils. Staminate inflorescences 1-4 per branchlet; peduncles 2-3 mm. long, sparsely pubescent, with 1 terminal flower. Perianth 5-6 mm. diameter, of 2 unequal lobes, each again 2-3-partite. Stamens 30-36; anthers 2-3 mm. long, red above, greenish below, or straw coloured. Pistillate inflorescences 1-4 per branchlet, 3-(2)-flowered, on short densely pubescent peduncles. Lateral flowers trimerous, terminal dimerous or aborted; stigmas ligulate. Cupule 6-7 mm. long, 4-segmented, with 4-5 rows of gland-tipped processes, subtended by 2 foliaceous bracts. Nuts puberulous, 5 mm. long; lateral triquetrous, 3-winged; terminal flat, 2-winged; wings produced above, gland-tipped.

FLOWERING

November - January

FLOWER COLOURS

Green, Red/Pink

FRUITING

January - March

ATTRIBUTION

Description adapted by M. Ward from Allan (1961).

REFERENCES AND FURTHER READING

Allan, H. H. 1961: *Flora of New Zealand. Vol. 1.* Wellington: Government Printer. pg. 398.

Anonymous. 1957. Construction of key for the genus *Nothofagus*. *Auckland Botanical Society Journal*, 14: 2-3.

Heenan, P.B.; Smissen, R.D. 2013: Revised circumscription of *Nothofagus* and recognition of the segregate genera *Fucospora*, *Lophozonia*, and *Trisyngyne* (Nothofagaceae). *Phytotaxa* 146: 1-31.

<http://dx.doi.org/10.11646/phytotaxa.146.1.1>

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/lophozonia-menziesii/>