

Veronica tetragona subsp. tetragona

COMMON NAME

whipcord hebe

SYNONYMS

Podocarpus ?dieffenbachii Hook., *Hebe tetragona* (Hook.) Anderson subsp. *tetragona*, *Hebe tetragona* (Hook.) Cockayne et Allan nom. superfl. nom. illeg., *Leonohebe tetragona* (Hook.) Heads,

FAMILY

Plantaginaceae

AUTHORITY

Veronica tetragona Hook. subsp. *tetragona*

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

CHROMOSOME NUMBER

2n = 40

CURRENT CONSERVATION STATUS

2017 | Not Threatened

PREVIOUS CONSERVATION STATUSES

2012 | Not Threatened

2009 | Not Threatened

2004 | Not Threatened

BRIEF DESCRIPTION

Bushy shrub bearing erect knobbly yellowish-green twigs inhabiting the Volcanic Plateau and East Cape mountains. Twigs 2.8–3.5mm wide, square in cross-section, Leaves scale-like, 2–3.2mm long, with thickened tip, margins hairy (lens needed), flowers white, in clusters of 2–12 at tip of twigs.

DISTRIBUTION

Mountains of North Island, including the Raukumara Range, volcanoes of the central North Island, Kaimanawa Range, Kaweka Range and northern Ruahine Range (Otupae Range).

HABITAT

Grows in subalpine shrubland/penalpine grassland.



Rangipo desert, January. Photographer: John Smith-Dodsworth, Licence: CC BY-NC.



Rangipo desert, January. Photographer: John Smith-Dodsworth, Licence: CC BY-NC.

DETAILED DESCRIPTION

Spreading low or bushy shrub to 0.6 m tall, of whipcord form. Branches erect or ascending; internodes (0.5-) 0.6-1.2 (-1.6) mm long; strongly tetragonous to cruciform in cross section; maximum width of ultimate branchlets (2.4-) 2.8-3.5(-4.5) mm; connate leaf bases hairy; nodal joint distinct, often hidden and/or exposed (can vary on one branch); leaves not readily abscising, persistent along the stem for some distance. Leaves connate, appressed or erect; lamina (1.8-) 2-3.2 (-4) mm long, strongly keeled and narrowed toward elongated tip; apex acute to subacute; margin ciliate; lower surface yellowish-green or dark green, veins not visible, glossy. Reversion leaves incised or entire, glabrous. Inflorescences with 2-12 flowers, terminal, unbranched, 0.35-1.2 cm. Bracts opposite and decussate, connate, ovate or deltoid or oblong, obtuse to subacute (sometimes more or less attenuate toward apex), sometimes hairy outside (near basal, connate portion). Flowers hermaphrodite. Calyx 2-3.2 mm, 4-5-lobed (5th lobe small, posterior): lobes ovate or elliptic. Corolla tube hairy inside, 1.5-2.1 x 1.7-2 mm, funnelform, shorter than (usually) or equalling calyx; lobes white at anthesis, ovate or elliptic (sometimes broadly), obtuse, erect to recurved, longer than corolla tube. Stamen filaments 3.3-3.7 mm; anthers magenta or purple, 1.4-1.7 mm. Ovary 0.6-0.8 mm, apex (in septum view) obtuse or slightly emarginate; ovules 10-12 per locule, in 1-2 layers; style approximately 3.4-6 mm. Capsules obtuse or truncate, 1.5-3 x 1.7-2.4 mm, loculicidal split extending 1/4-1/2-way to base. Seeds flattened, ellipsoid (sometimes broadly) or irregular, more or less smooth, pale brown, (0.9-) 1.1-1.5 x (0.7-) 0.8-1.1 mm, micropylar rim 0.2-0.4 mm.

SIMILAR TAXA

Similar to *V. tetragona* subsp. *subsimilis*, which it does not occupy the same geographic range (apart from a potential central Ruahine Range cross over), *V. tetragona* subsp. *tetragona* is found north of the Mokai Patea Range in the Ruahine Range; Central Plateau mountains and further north-east in the Raukumara Range. Key features of the species include: anterior calyx lobes free for most of their length; leaves not obviously ribbed, with conspicuous nodal joints; internodes mostly hidden. It is most similar to *V. hectorii*, from which it is distinguished by having leaves that are thickened at their apices (to varying extents), and a distinctive flavonoid profile (Markham et al. 2005). It is the only whipcord species of North Island. It sometimes hybridises with *V. odora* (Mitchell et al. 2007).

FLOWERING

December-February (-April)

FLOWER COLOURS

White

FRUITING

(January-) February-May (-November)

ETYMOLOGY

veronica: Named after Saint Veronica, who gave Jesus her veil to wipe his brow as he carried the cross through Jerusalem, perhaps because the common name of this plant is 'speedwell'. The name Veronica is often believed to derive from the Latin *vera* 'truth' and *iconica* 'image', but it is actually derived from the Macedonian name Berenice which means 'bearer of victory'.

tetragona: From the Greek tetragonum 'tetragon', refers to a four-angled part of the plant's anatomy.

TAXONOMIC NOTES

A range of views have been presented on the classification of plants included under this species and *V. hectorii*. Two species (*V. tetragona* with two subspecies, and *V. hectorii* with three subspecies) are accepted here (Bayly & Kellow 2006). However, Ashwin (in Allan 1961) accepted five species (two of which had two varieties), Druce (1980, 1993) accepted one species (with six varieties/subspecies), Heads (1994a, as *Leonohebe*) accepted five species (but noted that they are “perhaps better treated as five or six subspecies of a single species”), and Wagstaff & Wardle (1999) accepted two species (one with six subspecies). Defining two species on the basis of leaf apex thickening, Flavonoid profile and geographic distribution seems useful for the present but may not be a long-term solution. Further data are needed to assess whether *V. tetragona* and *V. hectorii* are most closely related to each other, and whether each is monophyletic (i.e. *V. hectorii* might be paraphyletic with respect to *V. tetragona* or vice versa). It may be that, when more is known about the relationships of these taxa, the most appropriate scheme will include all under one species, as suggested by Druce (1980, 1993) and Heads (1994). This would require publication of several new subspecific combinations under *V. tetragona* (the name with priority).

Analyses of ITS sequences published by Wagstaff & Wardle (1999) suggested that *V. tetragona sensu stricta* is more closely related to some larger-leaved members of *Veronica* than to the other whipcords (including subsp. *subsimilis*). Although supported in the context of their data, it seems unlikely the result is a correct assessment of relationships. ITS sequence variation within the whipcords is low and some characters are homoplasious. Trees showing the whipcords as monophyletic (obtained by reanalysis of the ITS data) are only one step longer than Wagstaff and Wardle’s shortest trees; if other relevant data (e.g. on leaf form and inflorescence structure) were also considered in such analyses the results would be different.

WHERE TO BUY

Not commercially available

ATTRIBUTION

Description adapted by M. Ward from Bayly & Kellow (2006).

REFERENCES AND FURTHER READING

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

Bayly, M.J., Kellow, A.V. 2006: An illustrated guide to New Zealand *Hebes*. Wellington, N.Z.: Te Papa press pg. 92-94.

Druce, A.P. 1980: Trees, shrubs, and Lianes of New Zealand (including wild hybrids). Unpublished checklist held at Landcare Research, Lincoln, New Zealand. (Copy also held in the library of the Museum of New Zealand Te Papa Tongarewa, Wellington.)

Druce, A. P. 1993: Indigenous vascular plants of New Zealand. 9th revision. Unpublished checklist held at Landcare Research, Lincoln, New Zealand. Copy also held in the library of the Museum of New Zealand Te Papa Tongarewa, Wellington.

Heads, M.J. 1994: Biogeography and evolution in the Hebe complex (Scrophulariaceae): *Leonohebe* and *Chionohebe*. *Candollea* 49: 81-119.

Markham, K.R., Mitchell, K.A., Bayly, M.J., Kellow, A.V., Brownsey, P.J. and Garnock-Jones, P.J. 2005: Composition and taxonomic distribution of leaf flavonoids in *Hebe* and *Leonohebe* (Plantaginaceae) in New Zealand - I. “*Buxifoliatae*”, “*Flagrifformes*” and *Leonohebe*. *New Zealand Journal of Botany* 43: 165-203.

Mitchell, K.A., Kellow, A.V., Bayly, M.J., Markham, K.R., Brownsey, P.J., & Garnock-Jones, P.J. 2007: Composition and distribution of leaf flavonoids in *Hebe* and *Leonohebe* (Plantaginaceae) in New Zealand—2. “*Apertae*”, “*Occlusae*”, and “*Grandiflorae*”. *New Zealand Journal of Botany*, 45(2): 329-392.

Wagstaff, S.J. and Wardle, P. 1999: Whipcord hebes - systematics, distribution, ecology and evolution. *New Zealand Journal of Botany* 37: 17-39.

NZPCN FACT SHEET CITATION

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<https://www.nzpcn.org.nz/flora/species/veronica-tetragona-subsp-tetragona/> (Date website was queried)

MORE INFORMATION

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