



**FLORA OF NEW ZEALAND**  
**SEED PLANTS**

**VERONICA**  
**(PLANTAGINACEAE)**



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**P.J. GARNOCK-JONES**

Fascicle 9 – DECEMBER 2023

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# Introduction

The genus *Veronica* currently includes about 450 species (Albach et al. 2004a, Mabberley 2008), which are found mostly in temperate northern hemisphere areas and Australasia. *Veronica* plants are herbs, subshrubs, shrubs or small trees with opposite, usually decussate, leaves and opposite or alternate floral bracts. The four, rarely five, calyx lobes are usually very shortly connate at the base, or occasionally the anterior or rarely the posterior pair are fused over most of their length. The corolla has a short to long tube and a spreading limb of four unequal (rarely five sub-equal) lobes. There are just two stamens, attached to the corolla tube. The pistil has a single style and stigma with a two-chambered ovary (in *V. benthamii*, often three-chambered) and axile placentation. The fruit is a capsule with two locules (often three in *V. benthamii*), either flattened orthogonal to a narrow septum (angustiseptate), and then usually notched, or flattened parallel to a broad septum (latiseptate), and then usually acute. The seeds are varied in size, shape, and ornamentation, but small, elliptic, smooth, and flattened in most species.

The English common name, speedwell, applies to European *Veronica*, and hebe can be used as a general common name for New Zealand shrubby *Veronica*, many of which have Māori names that are included with their descriptions below. In New Zealand, large-leaved hebes such as *Veronica stricta*, *V. salicifolia* (koromiko) and *V. speciosa* (napuka) have cultural significance and medicinal value to Māori (Wehi & Wehi 2010). *Veronica* are important garden plants worldwide, especially the shrubby New Zealand hebes, of which over 1000 hybrids and variants have been selected and given cultivar names (Metcalf 2001, 2006). Several naturalised annuals are widespread weeds of cultivated land, lawns, and waterways of temperate regions (and *V. javanica* in the tropics and sub-tropics).

The first hebes to be collected by European botanists were classified in the Linnean genus *Veronica* and many new species were added as botanical study proceeded. By 1925 Cheeseman's Flora (Cheeseman 1925) included 103 indigenous species of *Veronica*. *Hebe* as a genus name was proposed in 1789 for the South American *Hebe magellanica* (*V. elliptica*), but it did not gain widespread acceptance until Pennell (1921), followed in New Zealand by Oliver (1925), Andersen (1926), and Cockayne & Allan (1926b, 1926c). Oliver (1944b) discussed the problem posed by New Zealand plants that did not fit comfortably in *Hebe*, placing some in a new genus, *Parahebe*, and resurrecting *Pygmea* (of Hooker 1864) for others (later renamed *Chionohebe* because *Pygmaea* had already been used as a lichen genus name; see Briggs & Ehrendorfer 1976). Later additions similarly provided names at genus rank to recognisable groupings: *Leonohebe* (Heads 1987), *Heliohebe* (Garnock-Jones 1993a), and *Hebejeebie* (Heads 2003). *Leonohebe* was accepted by Bayly & Kellow (2006), but covering only five of the original 31 species. Further, Heads (1994a) enlarged *Parahebe* by including *Heliohebe* and *V. macrantha* in it. For these plants, the 20th century was a time of inconsistent and fragmentary attempts to classify their diversity at genus rank.

Over recent decades a shift in taxonomic philosophy has combined with technological developments in DNA sequencing and computerised analyses, leading to major changes in circumscriptions of many large genera. It is now widely considered essential that a genus or higher-ranked group should comprise a group of closest relatives. Practically, this means that every group member is more closely related to every other member than to any non-member. As a result, in *Veronica*, distinctive regional sub-groups of related species that in the 20th century had been treated as segregate genera – *Paederota* and *Pseudolysimachion* (Eurasia), *Synthyris* (North America), and the genera of the *Hebe* complex (Australasia) – have been returned to the broader circumscription of the genus that prevailed earlier (Albach 2008, Albach & Chase 2001, 2004, Albach et al. 2004b, 2004a). Every *Veronica* is now more closely related to every other *Veronica* than to any species classified in another genus.

For New Zealand plants, those species that had been classified from the 1920s until 2007 in *Hebe*, *Parahebe*, *Chionohebe*, *Heliohebe*, *Leonohebe* or *Hebejeebie* are now all included once again in *Veronica*, where they had been placed from 1769 to the 1920s. Similarly, *Derwentia* in Australia and *Detzneria* in New Guinea are also now included in *Veronica* (Garnock-Jones et al. 2007).

The most recent formal classification (Albach et al. 2004a) divided *Veronica* into 13 subgenera. Some of these are morphologically recognisable and align with previous generic segregates, but others are difficult to characterise morphologically, or some of their species are anomalous because of widespread convergent evolution. All indigenous southern hemisphere *Veronica* are classified in subg. *Pseudoveronica*; they are sub-woody to woody perennials and characterised by an almost unique chromosome base number of  $2n = 42$ . *V.* subg. *Pseudoveronica* has two sections, both of which are represented in New Zealand (Fig. 1).

First, two Australian species of *Veronica* sect. *Labiatooides* (Albach & Briggs 2012), *V. calycina* and *V. plebeia*, are wild in New Zealand. It is not clear if they are indigenous

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(e.g., Davidson et al. 2009), and thus represent two independent natural introductions, or have been naturalised through human activity.

Secondly, 122 indigenous species form the bulk of *Veronica* sect. *Hebe*, which includes the former genera *Hebe*, *Parahebe*, *Chionohebe* (= *Pygmea*), *Heliohebe*, *Leonohebe*, and *Hebejebbie*. Evidence suggests sect. *Hebe* arose in New Zealand from a single ancestor about 7–10 million years ago (Meudt et al. 2015) (Fig. 2), forming a rapid and complex adaptive radiation of species. Dispersal from New Zealand has established representatives of sect. *Hebe* in Australia (two alpine snow hebes shared with New Zealand), New Guinea (a group of 12 endemic speedwell hebes and *V. tubata*), Rapa Iti (SE Polynesia; the endemic *V. rapensis*), and temperate South America (two hebes shared with New Zealand). One hundred and eighteen species are endemic to New Zealand.

A morphology-based phylogenetic analysis (Garnock-Jones 1993b) suggested some relationships among groupings in the New Zealand hebe complex. Later, phylogenetic analyses of DNA sequence data (Wagstaff & Garnock-Jones 1998, Wagstaff et al. 2002, Meudt et al. 2015, Thomas et al. 2021) have begun to clarify the relationships within sect. *Hebe*, but results are not yet sufficiently clear and robust that a reliable formal classification is possible. Also, several species have not been reliably placed in groups, while other inferred relationships seem to be in conflict with morphological evidence. Nevertheless, there are several groupings that seem well supported, even if their relationships to each other are still opaque. These informal groupings are discussed below, and some are also evident in the key to species.

The largest group, the hebes, consists of about 86 species corresponding to the circumscription of *Hebe* by Bayly & Kellow (2006). They are woody plants, ranging from low sub-shrubs to small trees. Most hebe leaves are entire and overlap in several pairs at the shoot apex, not separating until they are fully grown. The flowers have short to long corolla tubes, usually longer than seen in northern hemisphere *Veronica*, and their stamen filaments are broad at the base where they join to the corolla tube. Their capsules are latiseptate and mostly acute at the apex, and contain relatively few small, discoid, smooth seeds, usually arranged in one plane on a flattened placenta (Jussieu 1789). The opposite-decussate entire leaves of many hebes (Fig. 3) give them a distinctive growth form, but very similar growth in some species of *Pimelea* (Thymelaeaceae) often cause them to be confused (Fig. 4).

Phylogenetically included among the 86 hebes, but morphologically very distinct, are nine whipcord hebes, characterised by very small, usually appressed and imbricate leaves and terminal inflorescences of opposite flowers. In all analyses so far the whipcord hebes have not emerged as a single group of closest relatives. Thomas et al. (2021) found two separate groupings of whipcord hebes, consistent with chromosome numbers, morphology, and hybridisation of some species with *V. odora*, which appears to be related to one group. Their wiry branchlets of small, appressed, imbricate leaves make the whipcord hebes appear similar to some native conifers (e.g., *Halocarpus bidwillii*), but the strictly opposite leaf pairs distinguish them (Fig. 5).

As with the whipcord hebes, other informal groups within the hebes are not supported in recent analyses of DNA sequences. Nevertheless, the informal groups recognised by Moore (in Allan 1961; Moore 1967; see also Bayly & Kellow 2006) are often distinctive and can be useful aids to identification.

Sun hebes (previously the genus *Heliohebe* or *Hebe* “*Paniculatae*”: Garnock-Jones 1993a) are low shrubs with toothed leaves and terminal compound racemes. Their stamens are erect and often have yellow or cream anthers. The small, woody, emarginate capsules are not strongly flattened, and they contain fusiform winged seeds. There are six species, found in eastern South Island between the Wairau and Rakaia Rivers.

Semi-whipcord hebes are a small group of four very similar species found in alpine sites of the South Island. Although superficially similar to whipcord hebes, the anatomy of their small, imbricate leaves is different, and they differ also in their lateral inflorescences of unisexual flowers and flattened, angustiseptate, acute capsules. *V. cupressoides*, also of whipcord growth form but with different flowers and fruits, is sister to those species in some analyses and was included with them in the genus *Leonohebe* by Bayly & Kellow (2006). *V. macrantha*, a species characterised by larger growth form with larger, toothed leaves but similar inflorescences and capsules, was placed close to the semi-whipcord hebes in the analysis of Thomas et al. (2021).

Finally, the speedwell hebes and snow hebes often cluster together and sometimes as sister to the groups discussed above. These plants are low sub-shrubs with a range of leaf, flower, and fruit forms and were previously included in *Parahebe* (Garnock-Jones & Lloyd 2004) and *Chionohebe* (Meudt & Bayly 2008, Meudt 2008). Most distinctive among them are four alpine cushion snow hebe species, compact cushion shrubs with small, entire, usually hairy leaves. Their solitary flowers are unisexual and have long, erect corolla tubes and five more-or-less equal corolla lobes. Their capsules open when wet and contain numerous small, weakly flattened seeds. Small, hairy cushion plants of

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*Myosotis* and *Kelleria* can seem very similar (Fig. 6). Phylogenetic analyses and evidence from hybrids indicate that four to six additional species of alpine *Veronica* are also snow hebes, including *V. trifida* and *V. densifolia*. These are distinguished by mat or lax sub-shrub habit, entire or lobed leaves, solitary flowers or a few in lax racemes, and a corolla with four to five large lobes and a somewhat flared tube. Some of these plants can be confused with *Ourisia*, especially *O. caespitosa* (Fig. 7).

The speedwell hebes (Garnock-Jones & Lloyd 2004, as *Parahebe* p.p.) stand out among sect. *Hebe* because their flowers are very like those of northern hemisphere *Veronica*: their corollas have very short tubes and rotate limbs of four unequal lobes, and in most the throat is surrounded by a dark-coloured ring from which coloured nectar guides radiate to the lobes, at least to the posterior lobe. Their stamen filaments taper to a very slender and flexible basal attachment. In many speedwell hebes the lateral corolla lobes are longitudinally folded and loosely enclose the stamens, a feature unique to this group. Their capsules are weakly flattened, emarginate, and contain numerous discoid seeds. The opposite-decussate, toothed leaves of speedwell hebes can be very similar to those of *Haloragis* and *Gonocarpus* (Haloragaceae), but the very different flowers and fruit easily distinguish them (Fig. 8).

An alternative generic classification was proposed by Heads (e.g., Heads 1987, 1994a, 1994b, 2003). Heads reduced *Hebe* by segregating 39 species as *Leonohebe*, transferring the sun hebes and *V. macrantha* to *Parahebe*, and bringing *V. trifida*, *V. birleyi*, and *V. densifolia* together as *Hebejeebie*. Heads's papers also address morphology, evolution, and biogeography in the group.

Adding to the indigenous New Zealand *Veronica*, 20 or so naturalised species belong to a diverse range of subgenera (Fig. 1). Most are members of subg. *Pocilla*, subg. *Chamaedrys*, or subg. *Beccabunga*.

The four naturalised species of subg. *Pocilla* can be recognised by their similar growth forms, with lax terminal inflorescences of pedicellate flowers and alternate leaf-like bracts. In addition, the corollas have marginal cilia at the bases of the posterior and lateral lobes, and the seeds are wrinkled and cup-shaped.

There are five naturalised species in *Veronica* subg. *Beccabunga*. Three of them are aquatic and more or less glabrous, with flowers in lateral racemes, but those features are also characteristic of *V.* (subg. *Veronica*) *scutellata* plants. *V. peregrina* and *V. serpyllifolia* are small herbs with terminal racemes.

In subg. *Chamaedrys*, *V. arvensis* and *V. verna* plants are very similar in their terminal racemes of small blue flowers, whereas *V. chamaedrys* plants have lateral racemes of large blue flowers and in New Zealand do not set fruit.

## Recognition

Below I describe only those characters and their states that might not be covered by standard botanical glossaries. I also describe the interpretations of a few characters or the range of their states found in *Veronica*. Bayly & Kellow (2006, as *Hebe* and *Leonohebe*) provide more detail.

**Hairs.** Hairs are always simple (unbranched) except in *V. notialis*. E glandular hairs are uniseriate and tapering, or rarely unicellular. Glandular hairs are of two types. First, long uniseriate and capitate glandular hairs (Fig. 9) are common in Plantaginaceae, including many *Veronica*, but are usually absent in hebes and semi-whipcord hebes. The stalk cells of long, multicellular hairs often collapse when dry, each at 90° to adjacent cells. Also, minute glandular hairs with a short stalk and a two-celled head are common on many plant parts. Because they are very small (0.03–0.06 mm long) and not easy to see even with a stereo microscope, they are mentioned in descriptions only as the glandular hairs often seen on calyx margins (e.g., in many hebes, where they are mixed with eglandular hairs). On stems, hairs may be distributed on each internode in two rows that run from the axils of the lower leaf pair to the space between the petiole bases of the leaf pair above (bifarious), or they may be scattered all over the stem (uniform), or absent (glabrous). Stems with very short (stubbly) hairs are described as puberulent (Fig. 10).

**Apical vegetative buds** (Fig. 11). In many hebes the vegetative buds at the tips of shoots are as large as the mature leaves and contain numerous pairs of leaves closely appressed at their margins. In other words, leaves of a pair remain appressed until they are fully grown. These large buds perhaps protect the stem's apical meristem from insects or weather and seem to be associated with woody growth in hebes. Adversely, though, they can also provide shelter for plant-feeding insects such as looper caterpillars (Fam. Geometridae). Sometimes the buds are grossly enlarged by big-bud galls

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caused by fly larvae (Fam. Cecidomyiidae). In formal and informal *Veronica* groups other than the hebes, the leaves of a pair generally separate and diverge early, before they are fully grown.

**Leaf bud sinus.** In many hebes the large terminal leaf buds have a characteristic gap at the base, where the presence of a petiole (leaf stalk) forces the appressed margins to separate. This gap was termed the sinus by Moore (in Allan 1961), and it has been extensively used as a diagnostic character in that, and later, treatments. Although large and tightly appressed leaf buds are only found in sect. *Hebe*, similar sinuses can be observed in other groups with more loosely organised buds (e.g., in *V. americana*).

The shape of the sinus, when present, is also a useful character. In *V. odora* and similar species where the leaf is abruptly tapered to a distinct petiole at the base, the sinus is broad and sometimes shield-shaped. In a few species (e.g., *V. speciosa*, *V. leiophylla*) it is very small and squarish or rounded. In most, it is narrow and tapers to an acute tip.

**Leaf arrangement** (Fig. 12). In *Veronica*, leaves are fundamentally opposite-decussate (i.e., arranged in opposite pairs, with each pair orthogonal to its neighbouring pairs above and below). Thus opposite-decussate leaves are carried in four rows along a stem. However, in some hebes (sun hebes, and speedwell hebes), the leafy branches are somewhat flattened by curving of the petioles, a condition termed sub-distichous by Moore (in Allan 1961). In cushion-forming snow hebes the leaf pairs are not perfectly at 90° to each other, but slightly offset, and thus the opposite pairs appear to take on a more spiralled appearance, a condition I have termed sub-decussate.

The scale leaves of whipcord hebes (e.g., *V. hectorii*, *V. propinqua*) and semi-whipcord hebes (e.g., *V. hookeri*) are very reduced, but nevertheless found in an opposite-decussate arrangement. Whipcord hebe nodes are marked by a horizontal line or groove that distinguishes the leaf from the swollen internode below (Fig. 13), but it may be covered by the leaf pair below. In general, if this groove is exposed it is usually indistinct (e.g., *V. salicornioides*), and if it is covered it is usually obvious once the covering leaf is removed (e.g., *V. hectorii*). Only in *V. propinqua* is the groove both exposed and distinct. Similarly, the internode is distinguished by a vertical and usually hairy groove between the swellings below each leaf base, and this may be covered by the leaf below (e.g., *V. hectorii*) or exposed (e.g., *V. salicornioides*).

Whipcord hebes have stout, parallel veins in the leaves and bracts. These are visible as ribs in the leaves of *V. lycopodioides* and *V. poppelwellii* and in the bracts of many species, especially when dry.

The semi-whipcord hebes have small scale leaves that are superficially similar to whipcord hebe leaves, but they have a much simpler internal structure (Bayly & Kellow 2006, as *Leonohebe*) and dull grey-green coloration.

**Inflorescences** (Fig. 14). *Veronica* inflorescences are commonly racemes borne in leaf axils (e.g., *V. anagallis-aquatica*, *V. speciosa*). Terminal inflorescences, either simple racemes (e.g., *V. serpyllifolia*, *V. arvensis*) or compound racemes (e.g., *V. hulkeana*), are also common. Usually these end the growth of that shoot, and fruiting is followed by the development of new lateral shoots from leaf axils below the inflorescences.

Bracts subtending flowers can sometimes be leaf-like, but are alternate in most species (e.g., *V. persica*, *V. filiformis*). In some (e.g., *V. odora*, whipcord hebes) the bracts are leaf-like and opposite. In a few herbaceous speedwells (e.g., *V. filiformis*, *V. persica*), a terminal raceme with alternate and leaf-like bracts may appear as if the flowers are solitary and axillary. Sometimes (e.g., *V. filiformis*) the terminal inflorescence axis can revert to vegetative growth, resuming opposite leaf arrangement after flowering. In some species (e.g., *V. lilliputiana*, *V. cheesemani*, and the cushion-forming snow hebes), flowers are solitary in the axils of opposite leaves, but these are interpreted as reduced lateral inflorescences because they bear a pair of small bracts, which rarely subtend additional flowers (Moore in Allan 1961). In many of the species with lateral or terminal racemes, bracts are small and very different from leaves.

**Sexual systems.** Most *Veronica* flowers are bisexual, with fertile male and female parts (stamens and pistil, respectively). In many species all flowers on every plant are of this type, and the plants are thus all hermaphrodites (e.g., *V. anagallis-aquatica*, *V. lanceolata*, *V. salicifolia*). In numerous species of sect. *Hebe* (e.g., *V. epacridea*, *V. stricta*), plants may be one of two kinds: females that have sterile stamens (staminodes) or hermaphrodites with bisexual flowers, a condition known as gynodioecy. In a few (e.g., *V. hookeri*, *V. pulvinaris*), some plants are female with sterile stamens (staminodes) and others male with sterile pistils (Fig. 15), a condition known as dioecy (Delph 1990).

**Corolla colour.** In descriptions and the key I have not tried to distinguish between violet, mauve, and purple, describing all such colours as “purplish”. I do this because there is considerable variation in the names people apply to such colours, in how they may be perceived, and in how corolla colour can fade as flowers age.

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*Nectar guides* (Fig. 16). Many naturalised species and some native ones are characterised by flowers that have radiating coloured lines on the corolla lobes, termed nectar guides (e.g., *V. persica*, *V. lanceolata*). Nectar guides are usually most obvious on the posterior corolla lobe, and may be faint or absent on the anterior lobe.

*Corolla lobe folds*. Most, but not all, speedwell hebes have longitudinal folds in the lateral corolla lobes that enclose the stamens (e.g., *V. lanceolata*, *V. senex*). This feature is otherwise unknown in *Veronica*.

*Capsules* (Fig. 17). The fruit of *Veronica* is a capsule with two (often three in *V. benthamii* only) chambers separated by a vertical internal wall, the septum. They open by splitting vertically, either in the septum (septicidal split) or in the middle of the outer walls of the chambers (loculicidal split), or both. The chambers may be rounded at the tips and notched between them (e.g., *V. scutellata*, *V. decora*), or more-or-less truncate (e.g., *V. hookeriana*), or acute (e.g., *V. brachysiphon*). Most capsules are weakly to strongly flattened, either parallel to the septum, which is then broad (latiseptate, e.g., *V. subalpina* and many other hebes), or orthogonal to the septum, which is then narrow (angustiseptate, e.g., *V. arvensis*, *V. scutellata*). In some, the capsules are only weakly or not flattened, and then are more rounded in cross-section (turgid, e.g., *V. raoulii*, *V. polita*).

*Seeds* (Fig. 18). Most *Veronica* seeds are small, elliptic, apparently smooth (although often papillose under very high magnification, see Webb & Simpson 2001), and strongly flattened (e.g., *V. arvensis*, *V. stricta*). Such seeds may be winged, but they may be so strongly flattened at the edges that a wing is difficult to discern. Indigenous New Zealand species are usually characterised by seeds of this type, but some of the cushion-forming species are characterised by more rounded seeds (e.g., *V. cheesemaniae*, *V. pulvinaris*), and the seeds of the sun hebes (e.g., *V. hulkeana*, *V. raoulii*) are elongated and barely flattened, often with a small wing. There is greater diversity among seeds of the naturalised species of *Veronica*. Some are cupped around the seed-stalk (e.g., *V. hederifolia*), and they may have ridges or protuberances on their surfaces (e.g., *V. polita*). Seed size can be diagnostic, but seed colour appears variable and depends to some extent on stage of maturity (Webb & Simpson 2001).

## Flora Treatment

This Flora treatment is a little different from others in the series because it has been based on recent revisions of native species that had already been published. These treated the formerly accepted genera *Hebe* and *Leonohebe* (Bayly & Kellow 2006), *Parahebe* (Garnock-Jones & Lloyd 2004), *Heliohebe* (Garnock-Jones 1993a), and *Chionohebe* (as *Veronica* snow hebe group, Meudt 2008). Because they were treating less-inclusive groups, their descriptions naturally focused on slightly different character sets. I have compiled new descriptions based on the measurements and much of the descriptive data published in those revisions, but I have needed to collect new data also to make the new descriptions comparable across the whole genus. Distributions have all been newly mapped. The key to species draws heavily on its predecessors, especially Moore (in Allan 1961), Walters & Webb (in Tutin et al. 1972), and Bayly & Kellow (2006). The illustration sets of 89 species prepared for Bayly & Kellow (2006) have been used again, and new illustrations obtained for some of these and about 50 additional species. All descriptions and illustrations are derived solely from New Zealand material. There were no recent collections of *V. agrestis* and *V. officinalis* from New Zealand so it was not possible to collect material for illustrations.

Lengths and widths are given in millimetres (mm) except plant height (metres, m). The range described is the full range observed, except for a few instances of rare extremes, which are specified separately. Nevertheless, users should allow for occasional plants that might have features outside the described size ranges.

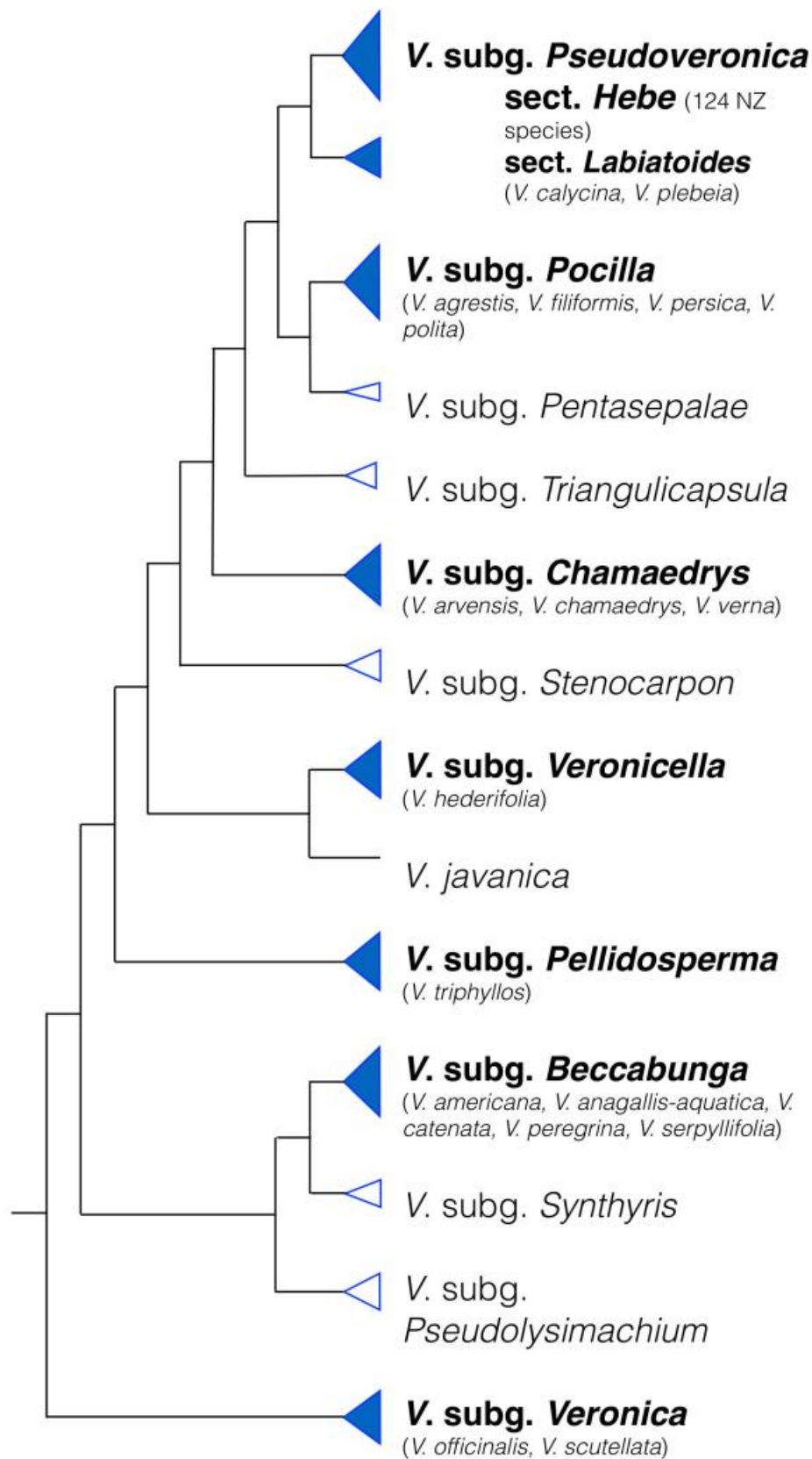
The treatment of naturalised *Veronica* is based on that of W.R. Sykes in *Flora of New Zealand Vol. 4* (Webb et al. 1988), but descriptions have been written anew and recent additional species (*V. peregrina*, *V. javanica*, *V. calycina*) have been added. *V. officinalis* (not treated in full) and *V. agrestis* are known from one or very few records.

Flora treatments are unlikely to be the last word on the taxonomy of a group, but each represents a compilation of the taxonomic understanding of its time. I have accepted the judgement of recent published revisions with a few minor exceptions. *V. stricta* var. *atkinsonii* and var. *macroura* have been included under a wider circumscription of var. *stricta*. In addition, *V. jovellanoides* and *V. saxicola* have been newly described since the relevant revisions were published. But in spite of this apparent stability, there are a number of species pairs or small groups for which separation at species rank seems to rest on only slight morphological and/or chemical differences. Examples include *V. birleyi* and *V. spectabilis*, *V. parviflora* and *V. strictissima*, *V. venustula* and *V. brachysiphon*, *V. simulans* and

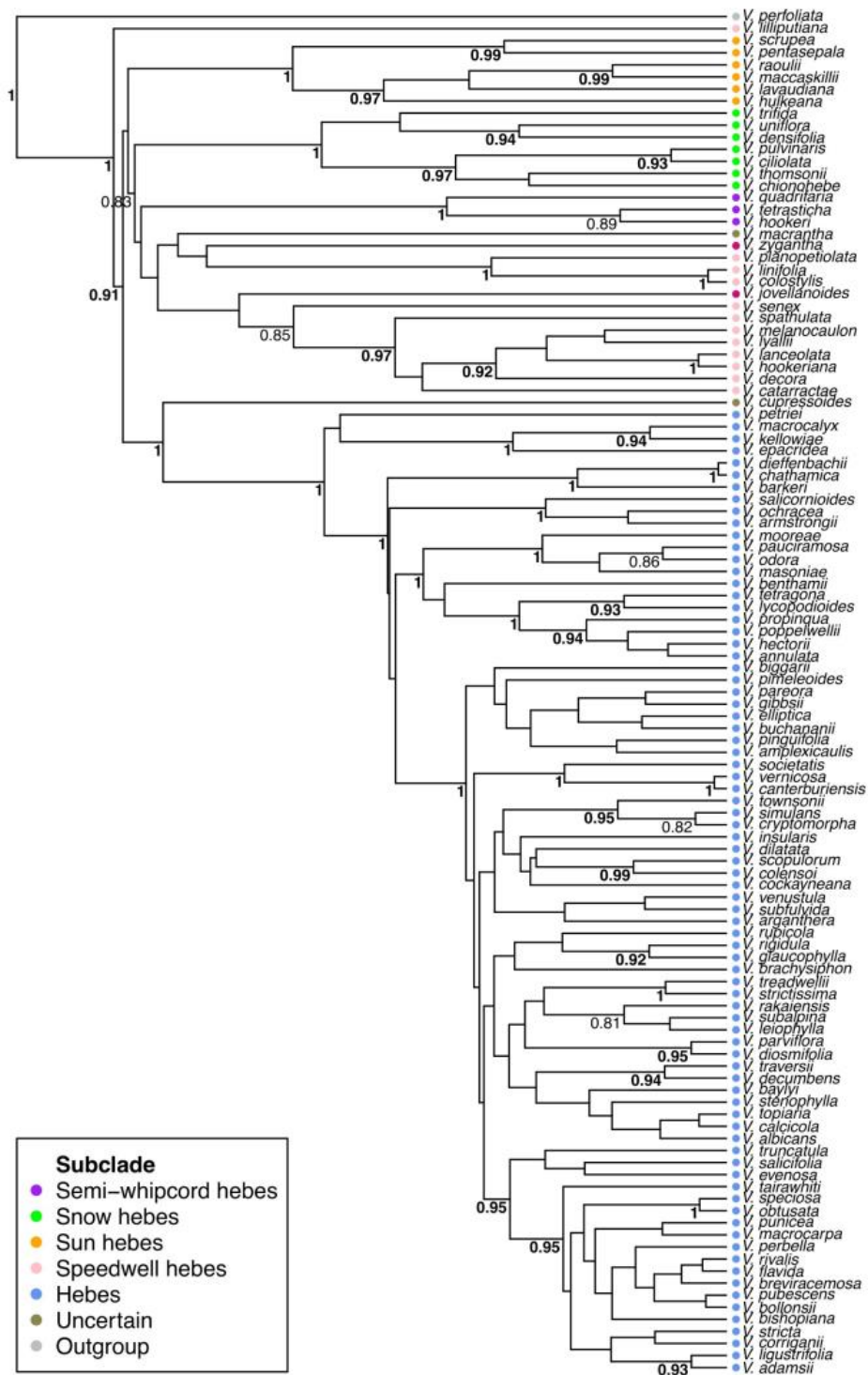
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*V. cryptomorpha*, and the clade of four very similar semi-whipcord hebes (*V. hookeri*, *V. quadrifaria*, *V. tetrasticha*, and *V. tumida*). On the other hand, there might well be unrecognised and cryptic speciation, including known local variants in some species or the diploid and tetraploid races of *V. odora*, *V. stricta*, and *V. diosmifolia*. Some species boundaries (e.g., between *V. bollonsii* and *V. pubescens* or between *V. phormiiphila* and *V. leiophylla*) might be placed differently. Finally, there remain a few collections that are currently unidentified to species and which will require further critical study. Detailed study on these taxonomic issues is recommended. As Lucy Moore said of New Zealand *Veronica* (Moore 1967, using the generic classification of the time), “there is still much to be learned from looking hard at *Hebe*”.



**Fig. 1:** An outline of the phylogenetic relationships of the subgenera of *Veronica*. Clades with representatives in New Zealand are represented by filled triangles and bold type, and their New Zealand species are listed except for sect. *Hebe*. Based on Albach & Meudt (2010).



**Fig. 2:** A diagram of relationships in *Veronica* sect. *Hebe* derived from 50 protein-coding gene sequences. The outgroup *V. perfoliata* represents sect. *Labiatooides*, which is sister to sect. *Hebe*. Numbers at the nodes indicate statistical support values (posterior probabilities; only values > 0.8 are shown). (Simplified and reproduced under CC-BY-4.0 from Thomas et al. 2023. *J. Biogeog.* 50: 947–960, Fig. 1)



**Fig. 3:** Nodes and internodes of a stem with opposite-decussate leaf arrangement (*V. parviflora*). Scale = 1 mm.



**Fig. 4:** *Veronica pimeleoides* (left and right) and *Pimelea urvilleana* (centre). As in *Veronica*, the *Pimelea* (Thymelaeaceae) corolla is 4-lobed, but the corolla lobes are equal and the tube is hairy outside; they also have 2 stamens, but the anthers are orange rather than white, pink or purplish. The inflorescence is a dense corymb rather than a raceme and the fruit is 1-seeded. If flowers and fruits are absent, *Pimelea* can be distinguished by its very tough fibrous and unbreakable stems and the tufts of fine, silky hairs around the leaf bases. Scale = 10 mm.





**Fig. 5:** Native conifers *Halocarpus bidwillii* (right) and *H. biformis* have similar appressed scale-like leaves to whipcord hebes (*V. hectorii* subsp. *coarctata*, left), but they are spiralled and overlapping at their bases, not opposite-decussate, and usually some leaves on a plant are longer, especially in *H. biformis*. Not to scale.



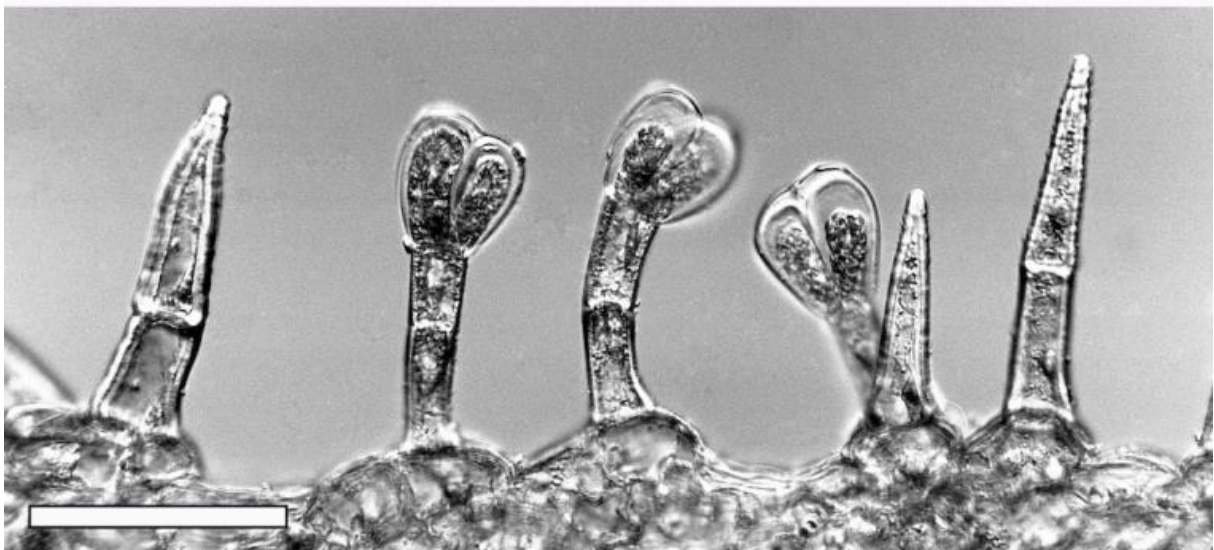
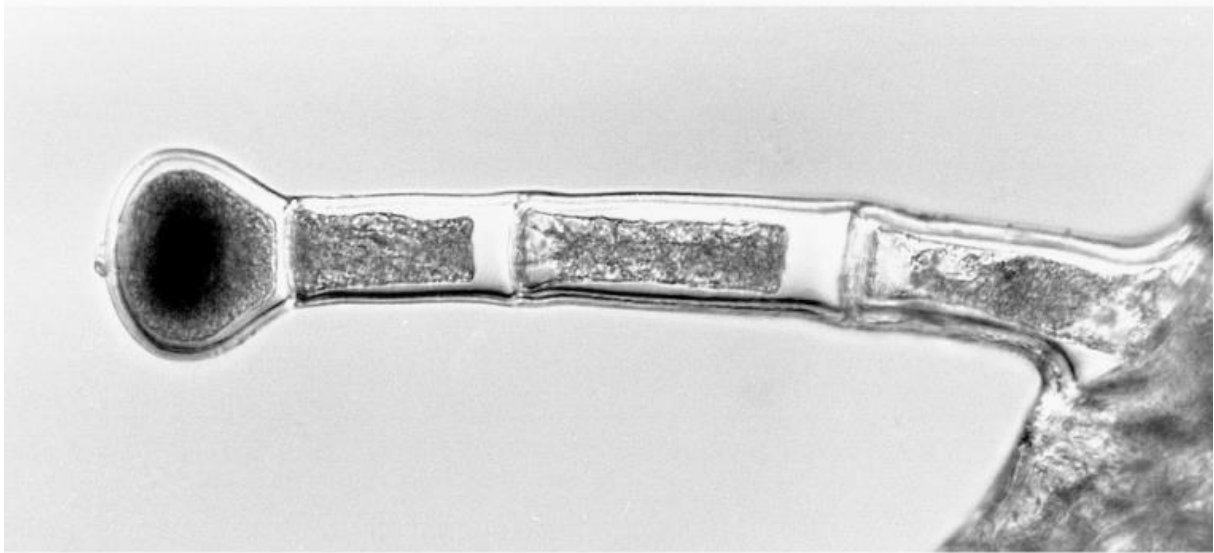
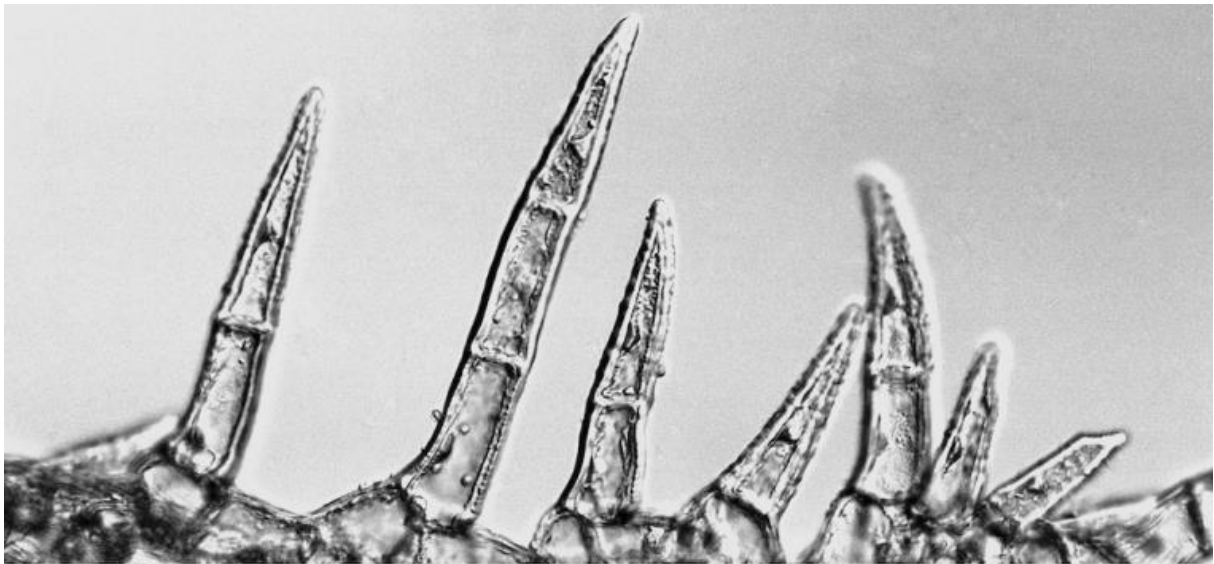
**Fig. 6:** Similar cushion plants: *Veronica thomsonii* (top left), *V. thomsonii* and *Myosotis pulvinaris* (top right), *Myosotis pulvinaris* (bottom left), *Pimelea sericeovillosa* subsp. *pulvinaris* (bottom right). *Myosotis* (Boraginaceae) flowers have 5 stamens and small, usually yellow, scales at the throat of the corolla tube; their fruits are 4 nutlets instead of a capsule; their leaves are spirally arranged, compared to the opposite pairs of snow hebes. *Pimelea* (Thymelaeaceae) have opposite-decussate leaves, but they differ from snow hebes in their fine hairs, hairy 4-lobed corollas, orange anthers, and fleshy fruits. Some *Kelleria* (Thymelaeaceae) form alpine cushions and have similar flowers to *Pimelea*, but they have spiralled leaves and 4 stamens (or staminodes). Alpine *Raoulia* (Asteraceae) cushions (e.g., *R. eximia*) are much firmer than snow hebe cushions and usually have a more glaucous to silvery appearance. The leaves are spiralled, and flowers are in terminal hairy capitula of tiny florets.



**Fig. 7:** *Ourisia caespitosa* (below) leaves have long, white, fringing hairs along the winged petiole. The inflorescences have up to 6 flowers in opposite pairs raised above the mat of leaves. The corolla is much larger (10.6–18.2 mm across) than in *V. planopetiolata* (top) and has 2 unequal lips (with 2 lobes above and 3 below) and 4 stamens. Not to scale.



**Fig. 8:** *Haloragis erecta* (Haloragaceae) plants have opposite-decussate toothed leaves like *V. lanceolata* and other speedwell hebes, but they differ in their small, wind-pollinated flowers with 8 stamens and small, indehiscent, woody fruits formed from an inferior ovary. Scale = 1 mm.



**Fig. 9:** Hair types in *Veronica*. Above, uniseriate tapering eglandular hairs; middle, long capitate glandular hair; below, sepal margin with short, eglandular hairs and short glandular hairs that have 2 apical cells. Scale = 0.1 mm.



**Fig. 10:** Indumentum in *Veronica*. Top left, bifarious eglandular hairs on stem of *V. senex*; top right, uniform eglandular hairs on stem of *V. senex*; bottom left, puberulent stem of *V. raoulii*; bottom right, glandular hairs on inflorescence of *V. trifida*. Scale = 1 mm.

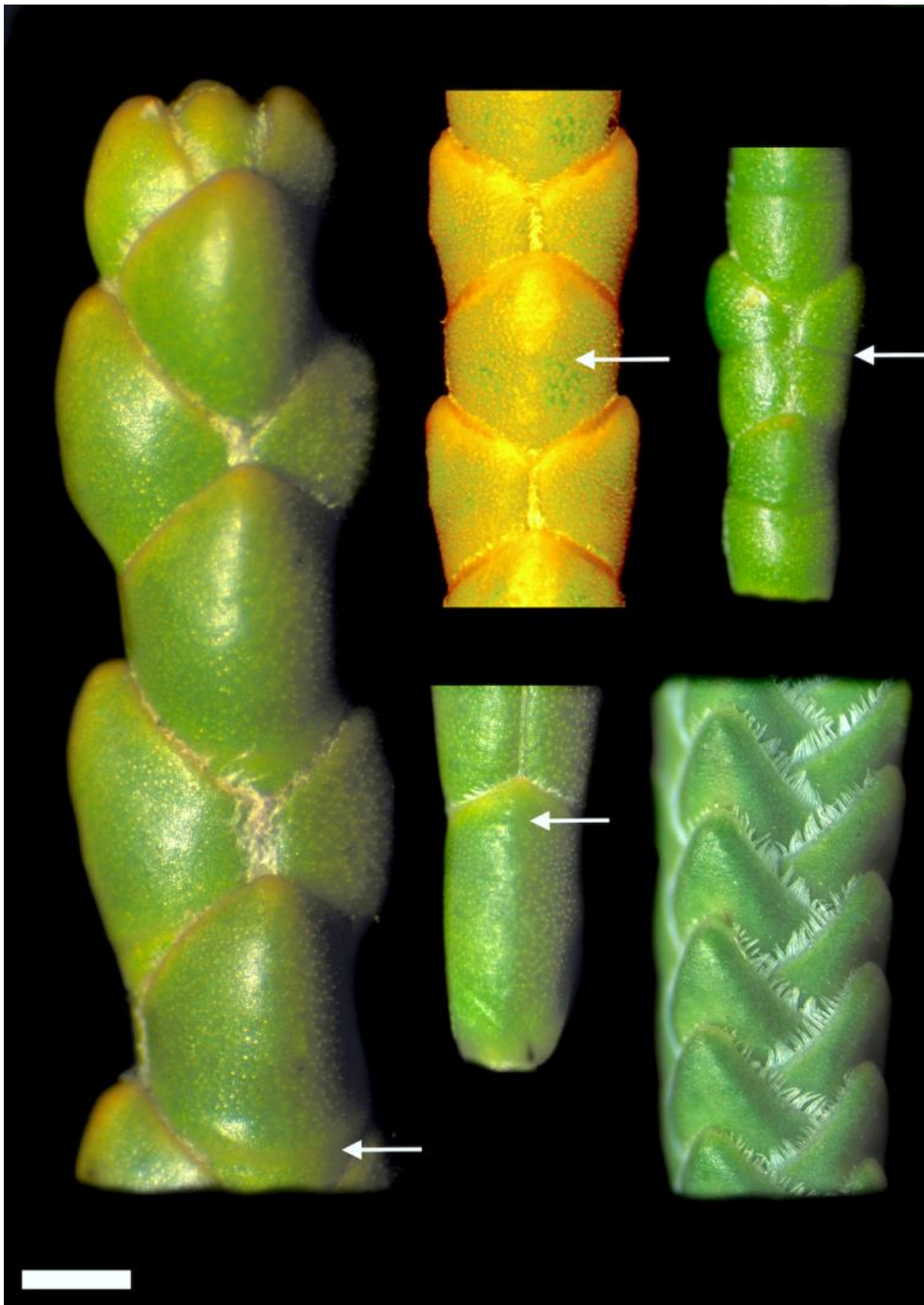


**Fig. 11:** Vegetative buds at shoot tips. From left: *Veronica lyallii* showing leaves diverging early; *V. parviflora*, large bud with no sinus; *V. albicans*, large bud with no sinus; *V. subfulvida*, large bud with a narrow acute sinus; *V. odora*, large bud with a broad, shield-shaped sinus. Note in *V. odora* the petioles break higher up to leave a short stump, and there are swollen patches on the internodes below each leaf that were shaped by the sinus. Scale = 10 mm.

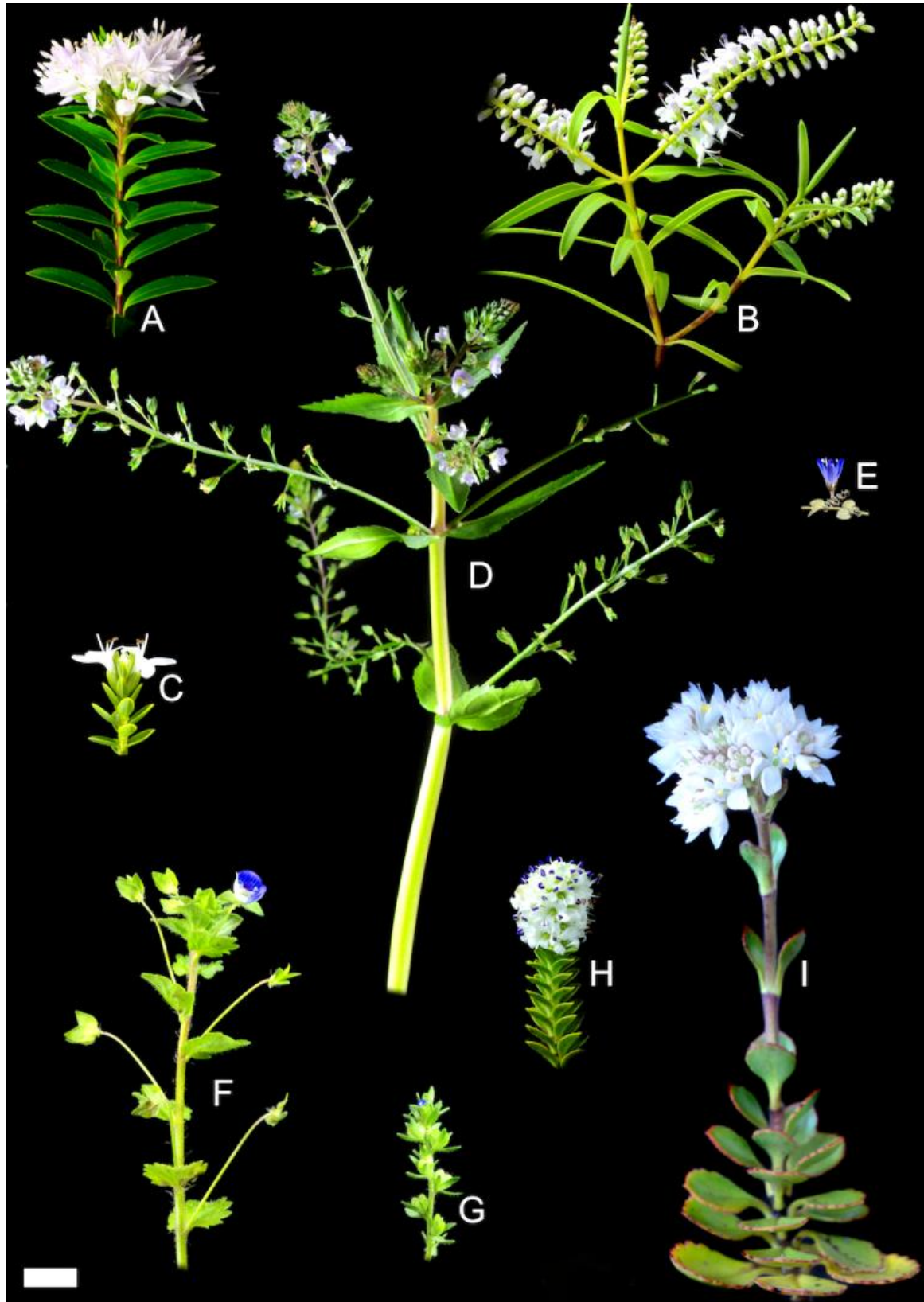


**Fig. 12:** Leaf arrangements on *Veronica* stems. Top, opposite-decussate (*V. odora*); middle right, subdecussate (*V. ciliolata*); bottom, subdistichous (*V. subfulvida*). Scale = 10 mm.





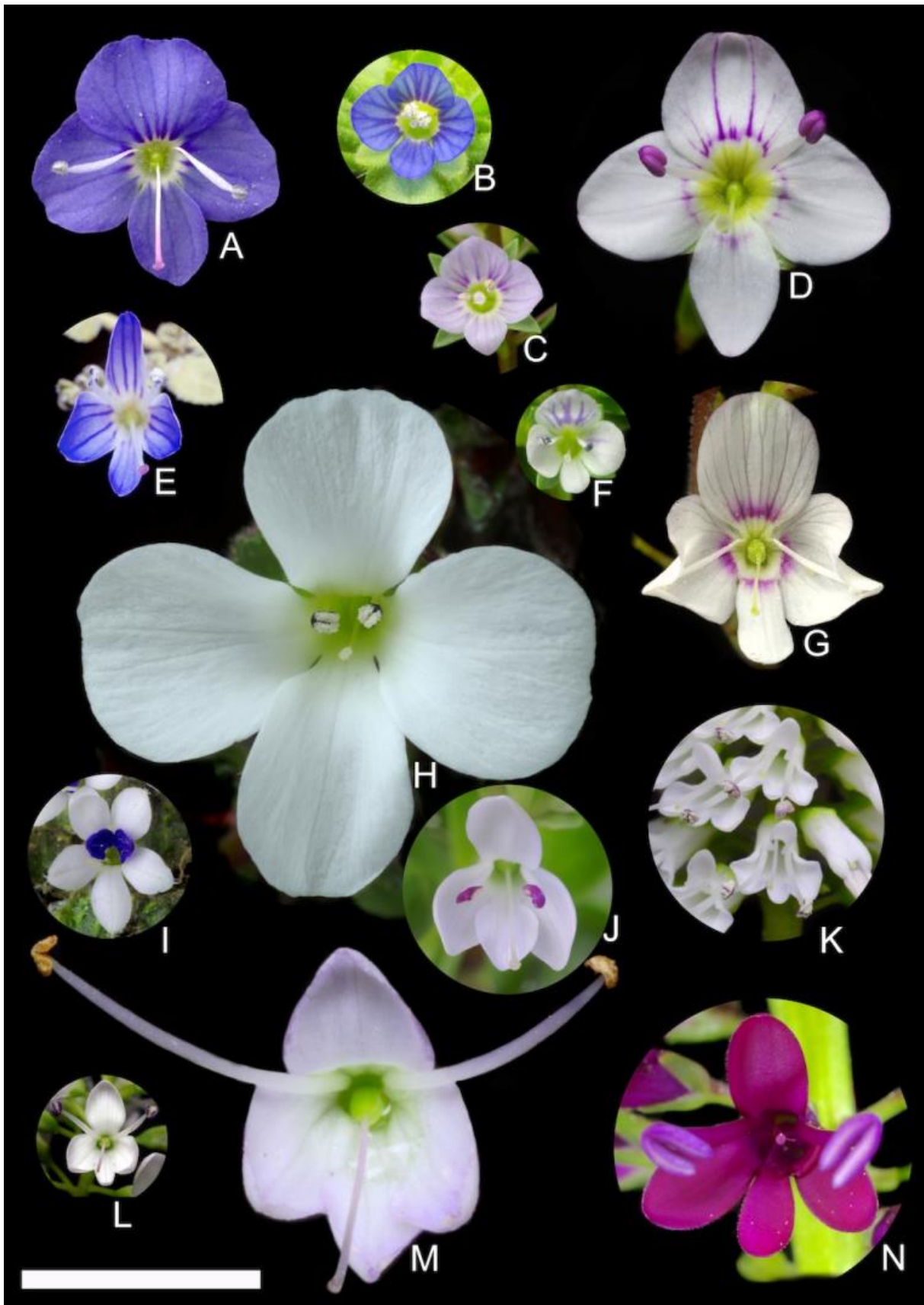
**Fig. 13:** Whipcord and semi-whipcord hebes: leaves, nodes, and internodes. Left, *V. tetragona* with nodes and internodes mostly covered by leaves, but a distinct and visible node arrowed; top middle, *V. annulata* with exposed internodes and barely evident nodes (arrowed); top right, *V. propinqua* with exposed internodes and evident nodes (arrowed); bottom middle, *V. salicornioides* with exposed internodes and obscure nodes (arrowed); bottom right, *V. quadrifaria*—a semi-whipcord hebe—with nodes and internodes hidden. Scale = 1 mm.



**Fig. 14:** Inflorescences of *Veronica*. A, *V. diosmifolia*: lateral compound racemes (the leaf tips of the continuing shoot apex can be seen at the top); B, *V. parviflora*: simple lateral racemes; C, *V. odora*, terminal spike (may be compound); D, *V. catenata*, simple lateral racemes; E, *V. lilliputiana*: solitary bibracteate flower; F, *V. persica*, terminal raceme; G, *V. arvensis*: terminal raceme or spike; H, *V. murrellii*, terminal raceme; I, *V. laudiana*: terminal compound raceme. Scale = 10 mm.



**Fig. 15:** *Veronica*, flowers of separate sexes on different plants. Top, *V. pulvinaris* (female left, male right; middle, *V. epacridea* (female left, bisexual right); bottom, *V. stricta* (female left, bisexual right). Scale = 1 mm.



**Fig. 16:** *Veronica* flowers. A, *V. americana*; B, *V. triphyllos*; C, *V. catenata*; D, *V. linifolia*; E, *V. lilliputiana*; F, *V. serpyllifolia*; G, *V. senex* (note nectar guides and folded lateral corolla lobes); H, *V. spectabilis*; I, *V. pulvinaris* (note 5 more-or-less equal corolla lobes); J, *V. treadwellii*; K, *V. stricta*; L, *V. strictissima*; M, *V. adamsii*; N, *V. speciosa*. Scale = 10 mm.



**Fig. 17:** *Veronica* capsules oriented to show the back of a locule on the left of each pair and the septum and sides of locules on the right. Top left, *V. hookeriana* (angustiseptate with septicial dehiscence); top right, *V. scutellata* (angustiseptate with loculicidal dehiscence); middle left, *V. raoulii* (weakly latiseptate with septicial and a little loculicidal dehiscence); middle right, *V. polita* (weakly angustiseptate, dehiscence not shown); bottom left, *V. brachysiphon* (latiseptate with mostly septicial dehiscence); bottom right, *V. subalpina* (latiseptate with mostly septicial dehiscence). Scale = 1 mm.



**Fig. 18:** *Veronica* seeds. A, *V. anagallis-aquatica*; B, *V. baylyi*; C, *V. calycina*; D, *V. cheesemanii*; E, *V. epacridea*; F, *V. hederifolia*; G, *V. hulkeana*; H, *V. laudiana*; I, *V. lyallii*; J, *V. persica*; K, *V. pinguifolia*; L, *V. plebeia*; M, *V. scutellata*; N, *V. triphyllos*; O, *V. verna*. Scale = 1 mm.

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## Veronica L., Sp. Pl. 9-14 (1753)

= *Beccabunga* Hill, *Brit. Herb.* 94 (1756)

Type taxon: *Veronica beccabunga* (designated by Fisher 1997)

= *Hebe* Comm. ex Juss., *Gen. Pl.* 105 (1789)

Type taxon: *Hebe magellanica* J.F.Gmel. (= *V. elliptica* G.Forst.)

= *Panoxis* Raf., *Med. Fl.* 109 (1830)

Type taxon: *Veronica salicifolia* G.Forst. (designated by Bayly & Kellow 2006)

= *Pygmea* Hook.f., *Handb. New Zealand Fl.* 217 (1864) nom. illeg., non *Pygmaea* Stackhouse 1809

≡ *Chionohebe* B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 1 (1976) nom. nov. pro *Pygmea* Hook.f. 1864

Type taxon: *Pygmaea ciliolata* Hook.f. (designated for *Pygmaea* Hook.f. by Oliver 1944)

= *Parahebe* W.R.B.Oliv., *Rec. Domin. Mus.* 1: 229 (1944)

Type taxon: *P. catarractae* (G.Forst.) W.R.B.Oliv. (≡ *V. catarractae* G.Forst.)

= *Leonohebe* Heads, *Bot. Soc. Otago Newsl.* 5: 4 (1987)

Type taxon: *Leonohebe ciliolata* (Hook.f.) Heads (= *V. hookeri* (Buchanan) Garn.-Jones)

= *Heliohebe* Garn.-Jones, *New Zealand J. Bot.* 31: 323 (1993)

Type taxon: *Heliohebe lavaudiana* (Raoul) Garn.-Jones (≡ *V. lavaudiana* Raoul)

= *Hebejeebie* Heads, *Bot. Soc. Otago Newsl.* 36: 11 (2003)

Type taxon: *Hebejeebie densifolia* (F.Muell.) Heads (≡ *V. densifolia* (F.Muell.) F.Muell.)

**Type taxon:** *Veronica officinalis* L.

**Vernacular names:** hebe; koromiko; kōkōmuka; speedwell

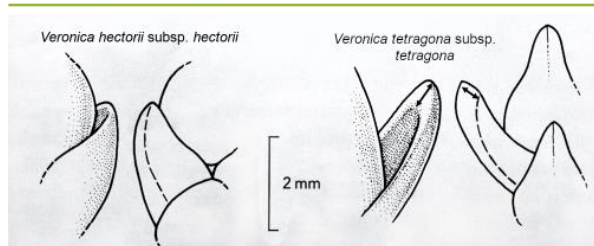
Annual to perennial herbs, sub-shrubs, and shrubs, rarely small trees; cosexual or gynodioecious, rarely dioecious. Stems prostrate to erect. Leaves opposite and usually decussate, sometimes alternate when subtending flowers, simple, entire, toothed, or crenate, or rarely pinnatifid, linear to broadly obovate to reniform; venation pinnate or sometimes palmate at the base and pinnate above, often obscure. Inflorescence terminal or lateral, bracteate raceme or compound raceme or spike, sometimes flowers solitary in axils of alternate or opposite leaves and these occasionally bibracteate. Calyx lobes 4, or rarely a 5th usually smaller posterior lobe, equal or the posterior pair shorter, shortly united at base or sometimes the anterior pair fused, rarely the posterior pair fused. Corolla tube very short to >> calyx, usually cylindrical or sometimes widening or narrowing towards throat; limb usually zygomorphic, rarely actinomorphic; lobes 4 or 5, usually divided more deeply between the anterior and lateral lobes; nectar spur absent; throat open. Stamens 2, rarely 3, epipetalous on corolla tube, usually exerted, rarely included, sometimes (♀ plants) sterile. Nectarial disc surrounding base or enclosing lower ½ of ovary. Ovary bilocular, rarely trilocular; placenta hemispherical with scattered ovules or peltate with marginal ovules; style short to long; stigma usually exerted, rarely included. Capsule ovoid, conical, obcordate, or didymous; apex acuminate, acute, truncate, emarginate, or deeply notched; locules 2, rarely 3; dehiscence septical or loculicidal or both. Seeds 6–c. 100, discoid, elliptic, ovoid, cup-shaped or fusiform, usually smooth to finely colliculate, sometimes ridged or tuberculate, wing usually absent or sometimes narrow.

- |   |   |    |
|---|---|----|
| 1 | Adult leaves < 5 mm long; low-growing herbs, sub-shrubs, compact cushion shrubs, or whipcord and semi-whipcord shrubs.....  | 2  |
|   | Adult leaves (including petiole if present) mostly > 5 mm long; herbs, sub-shrubs, shrubs, or trees, but never whipcord or semi-whipcord shrubs and if cushion-forming then leaves lobed to pinnatifid..... | 22 |
| 2 | Stems prostrate, leaves orbicular to elliptic; corolla blue or white; nectar guides present.....  | 3  |
|   | Stems erect, ascending, or cushion- or mat-forming; corolla white (sometimes purplish in <i>V. densifolia</i> ); nectar guides absent.....  | 4  |

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- 3 Short-lived perennial herb; lamina entire, dull grey-green and ciliate; flowers solitary or paired on short peduncles < 10 mm long; corolla blue with flat lateral lobes..... *lilliputiana*  
 Perennial sub-shrub; lamina sometimes entire or usually with 1(–2) pairs of teeth, glossy bright or reddish-green and glabrous; flowers 8–20 in pedunculate racemes 60–250 mm tall; corolla white or pink with folded lateral lobes ..... *decora*
- 4 Alpine cushion plants (sub-shrubs); leaves soft, imbricate; calyx and corolla 5-merous..... 5  
 Montane to alpine wiry (whipcord and semi-whipcord)) sub-shrubs or shrubs; leaves firm and appressed; calyx and corolla 4-merous..... 9
- 5 Mat- or cushion-forming sub-shrubs with decussate, imbricate leaves; leaves widest below middle, concave and often keeled, with thickened, minutely papillate upper margin; leaf hairs usually < 0.4 mm long; corollas > 7 mm diameter; corolla tube shorter than calyx; stamen filaments > 1 mm long..... *densifolia*  
 Cushion plants with sub-decussate imbricate leaves; leaves widest above middle, concave but never keeled, with upper margin smooth and not thickened; leaf hairs usually > 0.4 mm long (up to 1.4 mm); corolla < 7 mm diameter; corolla tube longer than calyx; stamen filaments < 0.8 mm long..... 6
- 6 Inner leaf surfaces with a tight band of densely distributed appressed hairs near the middle of the leaf (rarely reduced to a tight patch of isolated to sparsely distributed appressed hairs); outer leaf surfaces sometimes densely hairy on upper portion; leaf margins sparsely to densely ciliate on the lower  $\frac{2}{3}$  of the margin and glabrous above except for a tuft of hairs at the apex, or sometimes ciliate for the whole margin..... *thomsonii*  
 Inner leaf surfaces glabrous or with isolated hairs, if sparsely hairy then hairs evenly distributed on upper portion and never arranged in a tight patch or band; outer leaf surfaces variously glabrous or hairy on upper portion but never densely hairy; leaf margins variously glabrous to densely ciliate, with hairs generally on the upper margins only and becoming glabrous below..... 7
- 7 Leaves ciliate with isolated to sparsely distributed hairs and no apical tuft; inner leaf surfaces with isolated to sparsely distributed hairs (generally 6 or more hairs; rarely glabrous in some Mount Arthur and Lead Hills individuals); ovary apex (and often capsule apex) densely hairy..... *pulvinaris*  
 Leaves ciliate with sparsely to densely distributed hairs often with a dense apical tuft; inner leaf surfaces glabrous (rarely with 1–6 isolated hairs); ovary apex and capsule apex glabrous (rarely hairy in some eastern Fiordland individuals)..... 8
- 8 Leaf and bract margins sparsely to densely ciliate; corolla lobes obovate to very broadly obovate; capsules 2.4–3.4 mm long; seeds 0.7–1.1 mm long; alpine herbfield and cushion field, exposed rock outcrops and tors..... *ciliolata*  
 Leaf and bract margins glabrous or with isolated hairs only; corolla lobes narrowly to broadly ovate; capsules 1.8–2.5 mm long; seeds 0.5–0.8 mm long; wet gullies and snow banks..... *chionohebe*
- 9 Inflorescence a terminal spike of sessile opposite bisexual flowers; capsules weakly flattened, truncate or emarginate; leaves mostly bright glossy green (or yellow- to brown-tinted)..... 10  
 Inflorescence a lateral raceme of shortly stalked alternate unisexual flowers; capsules angustiseptate, acute; leaves dull grey-green (glaucous in *V. cupressoides*)..... 19
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- 10 Groove between connate leaf bases visible, not hidden by leaf below; anterior calyx lobes fused to > 1/2-way, usually completely (except in *V. propinqua*, included in this lead, where they may be almost free or fused to 1/3-way)..... 11  
 Groove between connate leaf bases hidden by leaf below, or rarely a very short portion visible; anterior calyx lobes free or fused no more than the basal 1/3..... 16
- 11 Foliage aromatic, glaucous; calyx bilabiate because both posterior pair and anterior pair fused; corolla lobes pink or mauve, about equal in width; capsule turgid..... *cupressoides*  
 Foliage not aromatic, green or yellowish; posterior calyx lobes always free; anterior fused or free; corolla lobes white, the anterior narrower than the others; capsule latisepate..... 12
- 12 Anterior calyx lobes free or fused at the base to about 1/3-way; leaf node marked by a distinct but shallow horizontal groove or line ..... *propinqua*  
 Anterior calyx lobes fused to > 1/2-way; leaf node indistinct..... 13
- 13 Leaves thick, keeled; branchlets usually glossy, firm in texture, and ochre-coloured when fresh (north-west Nelson)..... *ochracea*  
 Leaves thin, not keeled; branchlets not glossy, flexible or succulent and green when fresh (Canterbury, Otago)..... 14
- 14 Leaves with a small, blunt mucro, widely spreading when dry and encircling branchlets (Canterbury: Waimakariri and Rangitata catchments)..... *armstrongii*  
 Leaves subacute to rounded, but not mucronate, at apex, spreading slightly when dry..... 15
- 15 Internodes 1.2–3.8 mm long, so that leaves do not overlap, lamina flush with stem, especially when dry, anterior calyx lobes fused 1/2-way or more (western Marlborough, north Canterbury)..... *salicornioides*  
 Internodes 1.3–1.8 mm long; leaves overlapping at least slightly; anterior calyx lobes generally completely fused (Otago, Southland)..... *annulata*
- 16 Leaf veins close to abaxial surface and prominent, forming parallel longitudinal ribs, especially evident when dry..... 17  
 Leaf veins sunken and obscure even when dry (leaf may be longitudinally wrinkled when dry but lacks discrete ribs)..... 18
- 17 Leaves deltoid, acute to mucronate at apex; corolla tube ≥ calyx..... *lycopodioides*  
 Leaves rounded, obtuse to rounded at apex; corolla tube ≤ calyx..... *poppelwellii*
- 18 Leaf lamina not thickened at apex (South Island)..... *hectorii*  
 Leaf lamina thickened at apex (North Island)..... *tetragona*



**Fig. 19:** Examples of whipcord hebes without (*V. hectorii*) and with (*V. tetragona*) the leaf lamina thickened at the apex (indicated by arrows). (See Key, couplet 18.)

- 19 Leaf apex reaching, but not extending beyond, the connate junction of the pair above; back of leaf swollen, rounded..... *tumida*  
 Leaf apex extending beyond the connate junction of the pair above; back of leaf not swollen (although the apex may be), straight from base to apex ..... 20
- 20 Leafy branchlets with 4 flat faces, giving square cross-section..... *quadrifaria*  
 Leafy branches with 4 grooved or hollowed faces, to give cruciform cross-section..... 21

<b>21</b>	Leaves > 2–6 mm long; apex swollen and rounded with a prominent terminal hydathode.....	<i>hookeri</i>
	Leaves 1–2.8 mm long; apex acute, not swollen; hydathode absent.....	<i>tetrasticha</i>
<b>22</b>	Inflorescences terminating growth of vegetative shoot and subsequent new growth (if present) initiating below flowering zone; sometimes the floral bracts are leaf-like but then alternating.....	23
	Inflorescences strictly lateral racemes or compound racemes with the vegetative growth of the shoot continuing during and after flowering; floral bracts usually much smaller than leaves and more-or-less sharply delineated from them (but note: in <i>V. javanica</i> – included in this lead – the tiny, pale, sessile flowers can appear to be solitary or clustered in leaf axils because the inflorescence doesn't elongate until fruiting).....	47
<b>23</b>	Flowers sessile or pedicel 1–3(–10) mm long; floral bracts opposite or alternate and at least the upper ones distinctly different from the opposite leaves.....	24
	Flowers long-pedicellate; floral bracts alternate but otherwise leaflike.....	43
<b>24</b>	Stems herbaceous (annual or short-lived perennial weeds); corolla tube short (< 1 mm long); flowers often blue, sometimes white.....	25
	Stems woody (sub-shrubs to shrubs); corolla tube > 1 mm long; flowers mostly white, sometimes tinged pink or purplish or (only in <i>V. benthamii</i> of Auckland Is., Campbell I.) strongly blue.....	29
<b>25</b>	Middle stem leaves and lower bracts divided digitately almost to base.....	26
	All leaves at most toothed or crenate but not deeply divided.....	27
<b>26</b>	Corolla 4–6 mm diameter; capsule 3–5 × 4–6 mm; seeds cup-shaped, dark, wrinkled on outer face, 1.3–1.8 mm long.....	<i>triphyllos</i>
	Corolla 1–1.5 mm diameter; capsule 2.5–3.2 × 3.2–4.2 mm; seeds elliptic, flattened, straw-yellow to pale brown, smooth, 0.9–1.2 mm long.....	<i>verna</i>
<b>27</b>	Plants completely glabrous; corolla white without nectar guides.....	<i>peregrina</i>
	Plants hairy; corolla pale to bright blue with darker nectar guides (very rarely all white).....	28
<b>28</b>	Stems ascending to erect from single tuft of roots; stem hairs of 2 kinds: (1) dense, bifarious, short, and antrorse, and (2) scattered, uniform, long, and spreading; flowers bright blue (very rarely white).....	<i>arvensis</i>
	Stems rooting at lower nodes; stem hairs all short and uniform; flowers pale blue, fading white.....	<i>serpyllifolia</i>
<b>29</b>	Flowers all opposite.....	30
	Flowers spiralled (lowest rarely opposite).....	36
<b>30</b>	Leaf margins densely hairy; corolla strongly blue, often 5(–6)-lobed (Auckland & Campbell Is).....	<i>benthamii</i>
	Leaf margins glabrous or with a few short hairs near the base; corolla white or rarely tinged pink or purplish (NI, SI, Auckland & Campbell Is).....	31
<b>31</b>	Leaf margin abruptly narrowed to distinct petiole, making a shield-shaped sinus in the vegetative bud; corolla lobes spreading; anthers exserted.....	32
	Leaf margin cuneately narrowed to broad connate base, making an acute, narrow sinus in the vegetative bud; corolla lobes recurved; anthers held at corolla throat.....	33

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- 32 Leaf margin rounded in section; stomata distinct on both surfaces of lamina; inflorescence of terminal spikes only; bracts  $\geq$  calyx; corolla lobes broadly elliptic to suborbicular; stigma dark magenta (west Nelson & north Westland only)..... *masoniae*  
 Leaf margin sharply bevelled; stomata on abaxial lamina surface only (except on both surfaces at Arthur's Pass); inflorescences of terminal and lateral spikes; bracts not overtopping calyx; corolla lobes narrowly to broadly elliptic; stigma pale green, white, or brownish (NI, SI, subantarctic Is)..... *odora*
- 33 Inflorescences of compound spikes: dense terminal heads of lateral and terminal sessile spikes..... 34  
 Inflorescences simple spikes (occasionally lateral as well, but if so then shortly pedunculate)..... *kellowiae*
- 34 Leaves bright green, fleshy, usually narrowed into a petiole; calyx lobes usually linear, glabrous or minutely ciliolate, 4.0–8.5 mm long..... *macrocalyx*  
 Leaves dark green, coriaceous or rigid, not or only slightly narrowed to a petiole; calyx lobes elliptic to lanceolate, either minutely ciliolate or ciliate, 3.0–5.5 mm long..... 35
- 35 Leaves coriaceous but not rigid, often shallowly toothed; margin glabrous throughout or minutely ciliolate at base; calyx lobes minutely ciliolate..... *haastii*  
 Leaves rigid, entire; margin ciliate at base; calyx lobes long-ciliate..... *epacridea*
- 36 Flowers in dense simple terminal spikes barely wider than the leafy branchlet; corolla white; anthers magenta or purple; capsules latiseptate..... 37  
 Flowers in diffuse compound spikes or panicles wider than the leafy branchlet; corolla white, pink, or purplish; anthers pale cream or yellowish..... 38
- 37 Bracts 3–5  $\times$  1.7–2 mm, usually all subtending flowers; calyx lobes 4, 2.5–4 mm long, linear to narrowly elliptic; corolla tube 1.5–2 mm long, lobes elliptic to orbicular; anthers exerted, purple..... *murrellii*  
 Bracts 5–7  $\times$  1–1.5 mm, usually numerous sterile ones at base of inflorescence; calyx lobes 4–5, 3.5–6 mm long, linear to narrowly ovate; corolla tube 3–6 mm long, lobes linear to narrowly elliptic, sometimes suborbicular; anthers presented at corolla throat, magenta..... *petriei*
- 38 Leaves narrowly elliptic to oblanceolate or spatulate, < 10 mm wide..... 39  
 Leaves lanceolate, ovate, oblong, elliptic, rhomboid, obovate to orbicular, (5–)10–25(–35) mm wide..... 42
- 39 Leaves oblanceolate to spatulate, widest in distal half; anterior calyx lobes fused nearly to apex (except at Mt Cass, Canterbury)..... 40  
 Leaves narrowly elliptic, widest at about the middle; anterior calyx lobes free..... 41
- 40 Leaves 7–17(–25) mm long; apex subacute to acute, subapiculate; margin serrate with (0–)2–4(–8) pairs of teeth; calyx usually without posterior lobe..... *raoulii*  
 Leaves 4–9(–15) mm long; apex obtuse to rounded; margin entire to crenate, with up to 3 pairs of crenations; calyx with small, posterior 5th lobe..... *maccaskillii*
- 41 Posterior 5th calyx lobe present; corolla (6–)7–8 mm diam..... *pentasepala*  
 Posterior 5th calyx lobe absent; corolla 4–5 mm diam..... *scrupea*
- 42 Inflorescence compact at flowering, with long, glandular hairs; corolla > 10 mm diam.; leaves dull..... *lavadiana*  
 Inflorescence diffuse at flowering, with short, eglandular or glandular hairs; corolla < 10 mm diam.; leaves glossy..... *hulkeana*
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- 43 Lamina circular to reniform, cordate at base, crenate; pedicels 15–40 mm long; corolla 8–10 mm diameter; fruit and seeds absent in New Zealand..... *filiformis*
- Lamina ovate to broadly ovate, truncate at base, toothed or bluntly lobed; either pedicels > 15 mm long or corolla < 5 mm diameter; capsule angustiseptate; seeds cupped around short funicle, finely papillate..... 44
- 44 Capsule glabrous; pedicel hairs in 1 row; calyx lobes widest at base, with a fringe of long, straight, eglandular cilia on margins; seeds dark, > 2 mm long; leaf lobes in 1–2 pairs with large terminal lobe..... *hederifolia*
- Capsule hairy on edges or all over; pedicel hairy all around; calyx lobes widest about middle, with short or long eglandular or glandular hairs at the margins; seeds pale to mid-brown, < 2 mm long; leaf teeth in 2–8 pairs, evenly serrate or serrate-crenate..... 45
- 45 Corolla 8–12 mm diameter when fully open; style 1.5–3 mm long; capsule 3.5–4 × 6–7 mm, sinus shallow, lobes spreading and keeled on edges, strongly veined when dry..... *persica*
- Corolla < 5 mm diameter when fully open; style < 1.5 mm long; capsule < 5 mm at widest point, sinus shallow or deep, lobes erect and rounded to bluntly keeled on edges, not or weakly veined when dry..... 46
- 46 Stem hairs bifarious; pedicel hairs short eglandular and long glandular; calyx lobe margins with long glandular hairs; style < 1 mm long; capsule with rounded lobes, deep sinus, and short, glandular hairs on margin..... *agrestis*
- Stem hairs uniform; pedicel hairs all short, eglandular; calyx lobe margins with short, eglandular hairs; style 1–1.5 mm long; capsule with rounded lobes, shallow sinus, and dense, short, eglandular hairs all over with short, glandular hairs on margins..... *polita*
- 47 Herbs; flowers blue or sometimes white or pinkish, with very short corolla tube; stamen filaments tapering to very slender and curved base..... 48
- Shrubs, or low or mat-forming sub-shrubs, or trees with woody stems; flowers usually white or sometimes blue, magenta, or pink with short to long corolla tube; stamen filaments broad or slender at base..... 57
- 48 Plants glabrous or with very few and scattered eglandular or glandular hairs; stems often hollow (wetland plants or in seepages and damp hollows)..... 49
- Stems and leaves (at least beneath) hairy; stems solid (plants of drier habitats)..... 52
- 49 Stems slender, 1–2 mm thick, straggling; leaves linear to narrow-lanceolate, usually 1–6 mm wide, rarely to 12 mm, with distant, very shallow teeth; inflorescences mostly single at each node; capsule didymous with a deep sinus and 2 rounded flattened lobes; seeds 1.2–1.4 mm long..... *scutellata*
- Stems stout (usually > 5 mm thick), erect above; leaves narrowly lanceolate to elliptic to ovate, usually > 10 mm wide but sometimes narrower, with fine to coarse close teeth; inflorescences mostly 2 at each node; capsule broadly ovoid to suborbicular, truncate or shallowly emarginate; lobes weakly flattened at base and more strongly towards the apex; seeds 0.5–0.7 mm long..... 50
- 50 Leaves that subtend the inflorescences shortly petiolate and distinctly serrate; pedicels 7–14 mm long; corolla 7–10 mm diameter, tube glabrous inside; style 3.5–4 mm long..... *americana*
- Leaves that subtend the inflorescences sessile to amplexicaul, finely serrate or more or less entire; pedicels 3–8 mm long; corolla 3.5–7 mm diameter; tube sparsely to densely hairy inside; style 1.5–2.5 mm long..... 51
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<b>51</b>	Leaves dull pale green; corolla 5–7 mm diameter, with ovate to rhomboid lobes and purple veins on all lobes; bracts < pedicels....	<i>anagallis-aquatica</i>
	Leaves somewhat glossy mid-green; corolla 3–5 mm diameter, with rounded lobes and pink veins on the posterior and lateral lobes only; bracts mostly > pedicels.....	<i>catenata</i>
<b>52</b>	Flowers subsessile on pedicels 0.5–1 mm long; corolla never opening, lobes 1–1.5 mm long, white or pale pink without nectar guides.....	<i>javanica</i>
	Flowers subsessile to pedicellate; corolla opening although sometimes closed in dull or cool weather, lobes usually > 2 mm long, rarely 1–1.5 mm long, white, pink, blue, or bluish, with or without nectar guides.....	53
<b>53</b>	Hairs of stems, pedicels, and margins of leaves and calyx very short (c. 0.1 mm long), although sparse, longer hairs may be present on leaf and calyx surfaces; leaves deltoid and sharply serrate to biserrate; style 0.8–1.5 mm long.....	<i>plebeia</i>
	Hairs of stems and pedicels all > 0.5 mm long; very short hairs (c. 0.1 mm long) absent; leaves ovate to orbicular, sometimes broadly deltoid, usually serrate-crenate; style > 1.8 mm long.....	54
<b>54</b>	Leaves about as broad as long, or broader; leaf teeth in 3–6 pairs; flowers (5–)8–30 per inflorescence.....	55
	Leaves longer than broad; leaf teeth in (4–)6–12 pairs; flowers 2–8 per inflorescence.....	56
<b>55</b>	Corolla blue with dark blue nectar guides; inflorescence hairs all eglandular; pedicel hairs in 1 row; capsule ciliate on margins.....	<i>calycina</i>
	Corolla white with magenta nectar guides; inflorescence hairs mixed glandular and eglandular; pedicel hairs all around; capsule glabrous.....	<i>jovellanoides</i>
<b>56</b>	Leaf base truncate to cordate; apex obtuse to rounded; leaf margin serrate-crenate; pedicels 5–10 mm long.....	<i>chamaedryis</i>
	Leaf base cuneate; apex shortly acuminate; leaf margin finely and shortly dentate; pedicels 1–1.5 mm long.....	<i>officinalis</i>
<b>57</b>	Leaves with a thick, transparent, yellowish cuticle; marginal hairs irregularly branched (low sprawling to sub-erect shrubs confined to alpine habitats in Fiordland).....	<i>notialis</i>
	Leaves with a thin glossy or dull waxy cuticle; marginal hairs simple or absent.....	58
<b>58</b>	Apical vegetative buds small, leaves diverging early and while still not fully grown; capsules turgid or angustiseptate, often notched or obtuse; ovules/seeds scattered on surface of placenta or in 2 adjacent rows; herbs, cushion shrubs, low, softly woody sub-shrubs, sometimes small, woody shrubs to 0.5 m tall; leaves often serrate or crenate, sometimes entire.....	59
	Apical vegetative buds large, formed of several overlapping pairs of leaves that are appressed at their margins until fully grown; capsules latiseptate, often acute; ovules/seeds marginal on flattened placenta; distinctly woody low shrubs to small trees; leaves usually entire or sometimes toothed.....	77
<b>59</b>	Leaves all entire.....	60
	Leaves mostly toothed, crenate or lobed.....	63
<b>60</b>	Lamina elliptic to ovate, bronze-green; margin thickened and minutely papillate near apex; flowers sessile; calyx lobes ciliolate near base; corolla 5-lobed.....	<i>densifolia</i>
	Lamina narrow-oblong or narrow-elliptic to narrowly lanceolate, bright glossy green above; margin not thicker than rest of lamina, smooth; flowers on a distinct short to long pedicel; calyx glabrous; corolla 4-lobed (or rarely the posterior lobe divided).....	61

- 61 Low and usually compact mat-forming sub-shrub with trailing stems; leaves narrowly elliptical; peduncle 1–2 mm long.....*planopetiolata*  
Small, softly woody sub-shrub with trailing to erect stems; leaves linear to narrowly oblong; peduncle > 10 mm long..... 62
- 62 Corolla rotate, tube < 1.5 mm long, shortly hairy inside; nectar guides magenta; stamen filaments > 4–8 mm long; style > 4–9 mm long.....*linifolia*  
Corolla funnelform, tube 1.2–3.5 mm long, glabrous; nectar guides absent or 2(–4) faint lines on posterior lobe; stamen filaments 1–3 mm long; style 2–4 mm long..... *colostylis*
- 63 Inflorescence with 1–3(–7) flowers; corolla tube (1.5–)2–7 mm long; lateral corolla lobes not longitudinally folded about the anthers; capsule angustiseptate, often (in low-growing alpine plants) hygrocastic..... 64  
Inflorescence with (4–)7–30 flowers; corolla tube 1–2 mm long; lateral corolla lobes longitudinally folded about the stamens; capsule weakly angustiseptate or turgid, xerocastic.....72
- 64 Lamina glabrous on surfaces but the margin sometimes sparsely ciliate, especially near the base or ciliate throughout, bright green or bronze-green..... 65  
Lamina surface hairy with short or long, glandular or eglandular hairs, dull greyish-green or sometimes brownish..... 69
- 65 Erect or sometimes decumbent to sub-erect shrubs to 0.5 m tall; stems glabrous or eglandular-puberulent; lamina 5.5–30 mm long, coriaceous; capsules acute to acuminate, 6–12.5 mm long..... *macrantha*  
Sprawling to ascending low or mat-forming sub-shrubs to 0.2 m tall; stems eglandular- to glandular-pubescent or rarely glabrous; lamina < 10 mm long, thin or slightly fleshy; capsules emarginate, < 6 mm long.....66
- 66 Leaves shallowly crenate or toothed; stem hairs patent or antrorse arching, or absent; corolla 5–9 mm diameter..... 67  
Leaves 3–7-fid; stem hairs stiffly retrorse, straight; corolla (7–)10–20 mm diameter..... 68
- 67 Lax, softly woody sub-shrub; stem hairs antrorse, curved; lamina elliptic to orbicular, shallowly toothed; inflorescence branches hairy.....*zygantha*  
Compact sub-shrub, cushion or mat plant; stem hairs patent; lamina oblanceolate oblong, elliptic, or rhomboid, shallowly and bluntly toothed or crenate, rarely some leaves entire; inflorescence branches glabrous..... *planopetiolata*
- 68 Leaf margin thickened, minutely papillate; flowers usually solitary, sessile; calyx 5-lobed, hairy to ½-way on outer face.....*densifolia*  
Leaf margin thin, smooth; flowers 2–3, rarely solitary, distinctly pedicellate; calyx 4-lobed, hairy to apex on outer face.....*trifida*
- 69 Leaves long-petiolate; lamina and calyx with short, curved, eglandular hairs; corolla > 7 mm diameter..... 70  
Leaves sessile; lamina and calyx with long, straight, eglandular and glandular hairs; corolla < 8 mm diameter..... 71
- 70 Cushion plants with deeply toothed to pinnatifid leaves; flowers solitary or rarely 2–3; calyx lobes pinnatifid or deeply lobed; corolla tube 3.5–7 mm long; seeds weakly flattened, finely papillate, 0.6–1.1 mm long (South Island)..... *cheesemanii*  
Lax, sprawling or mat-forming plants with crenate leaves; flowers 2–8; calyx lobes usually entire or rarely shallowly toothed; corolla tube 3–4 mm long; seeds flattened, smooth, 1–1.5 mm long (North Island)..... *spathulata*
- 71 Lamina eglandular hairy with a few glandular hairs as well; peduncles 1.5–2 mm long; pedicels 0.3–1.5 mm long; corolla 7–10 mm diameter, lobes 5, sometimes 4; capsules glabrous..... *birleyi*  
Lamina mixed eglandular- and glandular-hairy; peduncles 5–15 mm long; pedicels 2.5–5 mm long; corolla 18–25 mm diameter, lobes 4; capsules mixed glandular- and eglandular-hairy at apex..... *spectabilis*

<b>72</b>	Leaves discolorous: green above and white beneath (sometimes pale buff when dry); pedicel hairs in one row (Fiordland).....	<i>catarractae</i>
	Leaves concolorous or if discolorous pale green beneath or sometimes pinkish; pedicels hairy all around (rarely glabrous) (all New Zealand).....	73
<b>73</b>	Lamina 3–15 × 2–10 mm; width ≥ ⅔ length; margin often crenate or crenate-serrate in 1–4(–10) pairs of teeth or lobes; apex rounded; base truncate or abruptly cuneate.....	74
	Lamina 5–100 × 1.5–38 mm; width ≤ ½ length; margin often serrate with teeth out-turned at the tip, in 3–15 pairs; apex usually acute to acuminate, sometimes obtuse or rounded; base cuneate.....	75
<b>74</b>	Leaves hairy or glabrous; corolla pink or purplish; inflorescences usually glandular-hairy, sometimes eglandular only; seeds 1–3 mm long (North Island).....	<i>hookeriana</i>
	Leaves glabrous; corolla white, rarely bluish or pale pink; inflorescences glabrous or eglandular-hairy, rarely some glandular hairs as well; seeds 0.6–0.8 mm long (South Island).....	<i>lyallii</i>
<b>75</b>	Stems prostrate to decumbent, purplish-black contrasting strongly with pale green petioles; lamina obovate or oblanceolate (broadest above ½-way) or rarely elliptic; pedicels glabrous or sparsely eglandular or glandular-hairy.....	<i>melanocaulon</i>
	Stems usually ascending to sub-erect, or sometimes prostrate or (on cliffs) trailing, reddish or brownish and not contrasting strongly with often reddish petioles; lamina ovate or lanceolate to linear (broadest at or below ½-way) or rarely elliptic; pedicels hairy all around, usually eglandular but sometimes glandular.....	76
<b>76</b>	Calyx lobe outer faces, ovary, capsule, and often leaves hairy with short, straight, pale hairs.....	<i>senex</i>
	Ovary, capsule, and leaves glabrous; calyx lobes ciliate and rarely pubescent on outer faces.....	<i>lanceolata</i>
<b>77</b>	Sinus present in vegetative buds at branch tips.....	78
	Sinus absent in vegetative buds at branch tips.....	110
<b>78</b>	Leaves glaucous or glaucescent on one or both surfaces; corolla tube glabrous.....	79
	Leaves green on both surfaces (although may be dull or glossy on one or both); corolla tube glabrous or hairy inside.....	89
<b>79</b>	Leaf bud strongly tetragonous in transverse section (midribs and leaf margins forming defined angles in buds) (North Island).....	80
	Leaf bud terete, flattened, or only weakly tetragonous in transverse section (either midribs or margins but not both forming defined angles in buds) (South Island or Three Kings Is.).....	81
<b>80</b>	Corolla tube 3–4.2 mm long, > calyx; margins of calyx lobes eglandular- or mixed glandular- and eglandular-ciliolate; stem with bifarious eglandular hairs; leaves glossy green to dark green above; style 6–9 mm long (west Waikato).....	<i>scopulorum</i>
	Corolla tube 1.8–2.5 mm long, about equal to calyx; margins of calyx lobes glabrous or rarely with a few sparse eglandular cilia; stem glabrous or rarely with sparse bifarious eglandular hairs; leaves dull and glaucous above; style 2.2–4.5 mm long (Kaimanawa Mountains, Kaweka Range, northern Ruahine Range).....	<i>colensoi</i>
<b>81</b>	Bracts ≥ calyx, surrounding and obscuring calyx in anterior view (east Marlborough).....	<i>rupicola</i>
	Bracts < calyx, not surrounding nor completely obscuring calyx in anterior view (Three Kings Is., west Marlborough, Nelson, Fiordland).....	82

<b>82</b>	Flowers, at least the lowest, on distinct pedicels longer than the bracts (Three Kings Is.).....	<i>insularis</i>
	Flowers, even the lowest, sessile or on short pedicels < bracts (South Island).....	83
<b>83</b>	Inflorescence usually a tripartite compound raceme, sometimes multipartite, rarely a few simple; if simple then lowest bracts without flowers.....	84
	Inflorescence usually a simple raceme with flowers in even the lowest bracts, rarely a few tripartite.....	85
<b>84</b>	Leaves concolorous, dull green to glaucous above and beneath; anterior calyx lobes fused to 1/3-way or more; corolla tube ≤ calyx.....	<i>dilatata</i>
	Leaves discolorous, green or yellowish-green above, glaucous beneath; anterior calyx lobes free; corolla tube > calyx.....	<i>rigidula</i>
<b>85</b>	Leaves concolorous, dull and glaucous or glaucescent on both surfaces at least when young.....	86
	Leaves discolorous, upper surface dull or glossy green but not glaucous.....	87
<b>86</b>	Decumbent and sparsely branching shrub; leaf margin glabrous or sparsely ciliate; peduncle 4–7 mm long, < subtending leaf.....	<i>societatis</i>
	Suberect to erect shrub; leaf margin glabrous, minutely papillate; peduncle 6–11 mm long, about = the subtending leaf.....	<i>baylyi</i>
<b>87</b>	Leaf midrib finely pubescent above or glabrous (hairs mostly < 0.05 mm long or a few up to 0.075 mm long); leaves 5–22 mm long; lowest flowers usually shortly pedicellate or sometimes sessile (Fiordland, west Otago, south Westland).....	<i>cockayneana</i>
	Leaf midrib coarsely pubescent above (hairs 0.075–0.175 mm long); leaves 6–28 mm long; flowers usually sessile or sometimes shortly pedicellate (Nelson and Marlborough).....	88
<b>88</b>	Leaves entire or shallowly toothed; longest leaves on plant 12–25 mm long; ovules (hermaphrodite flowers) 7–18.....	<i>simulans</i>
	Leaves always entire; longest leaves on plant up to 33 mm long; ovules (hermaphrodite flowers) 15–33 .....	<i>cryptomorpha</i>
<b>89</b>	Leaf undersides with a regular row of short oblique domatia just in from each margin.....	<i>townsonii</i>
	Leaves without domatia.....	90
<b>90</b>	Leaves glossy above and coriaceous, elliptic to broadly obovate, 45–100 mm long and 21–51 mm wide; apex obtuse, truncate, or slightly retuse; corolla, stamen filaments, and styles dark magenta.....	<i>speciosa</i>
	Leaves dull above, or thin, or linear to lanceolate or ovate, or < 25 mm wide, or apex sub-acute to acuminate; corolla white or pale purplish.....	91
<b>91</b>	Leaves all or most > 40 mm long, > 4 × as long as broad; inflorescences all or most with > 30 flowers and > 40 mm long; corolla tube hairy inside.....	92
	Leaves all or most < 40 mm long, < 3.5 × as long as broad; inflorescences all or most with < 30 flowers and mostly < 50 mm long; corolla tube either glabrous or hairy inside.....	98
<b>92</b>	Inflorescences usually < the subtending leaves; corolla tube ≤ 2.3 mm long, < calyx; stamen filaments ≤ 3 mm long (Kermadec Is. only).....	<i>breviracemosa</i>
	Inflorescences usually ≥ the subtending leaves; corolla tube > calyx and/or > 2.3 mm long; stamen filaments > 4 mm long (rest of New Zealand).....	93
<b>93</b>	Lateral corolla lobes shorter than corolla tube; leaves linear-lanceolate (North Island south of Hunua Ranges).....	<i>corriganii</i>
	Lateral corolla lobes ≥ the corolla tube; leaves usually linear-lanceolate or broader, rarely linear or linear-lanceolate (Northland or Coromandel and nearby islands, or South Island).....	94



<b>94</b>	Corolla tube > 2 mm wide; lateral corolla lobes broad (about as wide as long) and narrowed abruptly at base (far north of North Island, near Spirits Bay).....	<i>adamsii</i>
	Corolla tube < 2 mm wide; lateral lobes longer than wide and narrowed gradually to base (Coromandel and Hauraki Gulf islands; South Island).....	95
<b>95</b>	Leaf margins entire, pubescent or rarely puberulent; leaves often pubescent beneath, or sometimes glabrous; faces of calyx lobes usually hairy, sometimes glabrous; corolla tube < to about = calyx; tube and lobes often hairy outside, sometimes glabrous; capsules usually hairy at least in septal groove and often all over, sometimes glabrous (Coromandel and Hauraki Gulf islands to Mokohinau Is.).....	<i>pubescens</i>
	Leaf margins entire or with distant minute teeth, puberulent or ciliolate; leaves glabrous beneath; faces of calyx lobes glabrous or rarely hairy towards the base; corolla tube > calyx; tube and lobes glabrous outside (South Island).....	96
<b>96</b>	Leaves either not tapering to a fine point or gradually tapering from about or just past the midpoint; corolla tube often 2 × calyx; ovules 6–12 per locule.....	<i>leiophylla</i>
	Leaves tapering to a fine point, often conspicuously narrowed (acuminate) c. $\frac{3}{4}$ of the way to apex; corolla tube 1–1.5 × calyx; ovules 12–30 per locule.....	97
<b>97</b>	Stems usually glabrous, sometimes bifariously or rarely uniformly puberulent; leaves (6–)11–28 mm wide, widest point $\frac{1}{2}$ – $\frac{2}{3}$ -way from base; plants of open sites, scrub, and forest margins but rarely swamps or wetlands, throughout South Island.....	<i>salicifolia</i>
	Stems uniformly puberulent; leaves 5.5–11(–14) mm wide, widest point about $\frac{1}{3}$ -way from base; plants usually in swamps and wetlands, Westland.....	<i>phormiiphila</i>
<b>98</b>	Leaves distinctly shouldered at junction with petiole, to give a broad and shield-shaped sinus; flowers sessile or very shortly stalked, opposite; bracts large and almost leaf-like.....	99
	Leaves gradually to steeply cuneate to petiole, to give a narrow, acute sinus; flowers mostly pedicellate, usually alternate, or the lower ones opposite; bracts mostly small and very different from leaves (large in <i>V. rupicola</i> , which has a narrow and acute sinus).....	100
<b>99</b>	Midrib beneath keeled throughout; lamina (7–)14–18(–28) mm long, with stomata evident only on the abaxial surface (but on both surfaces at Denniston Plateau and Caswell Sound); margin often minutely crenulate, bevelled; anterior calyx lobes free or fused in lower $\frac{1}{3}$ ; corolla lobes elliptic to broadly elliptic.....	<i>mooreae</i>
	Midrib beneath keeled except for short, flattened portion near the apex; lamina 3–9 mm long, with stomata evident on both surfaces; margins smooth, rounded; anterior calyx lobes fused to $\frac{2}{3}$ or more; corolla lobes narrowly elliptic to elliptic.....	<i>pauciramosa</i>
<b>100</b>	Leaves with conspicuous, white, dense pubescent margins, contrasting with the glabrous surfaces, plicate-mucronate apex, and petiole; flowers 10–15(–20) mm diameter; calyx > 3.5 mm long.....	<i>elliptica</i>
	Leaf margin glabrous or minutely or sparsely hairy without a strong contrast at apex and petiole; flowers usually <10 mm diameter; calyx < 4 mm long.....	101
<b>101</b>	Inflorescences simple or sometimes tripartite, with flowers in the axils of lowest bracts.....	102
	Inflorescences compound racemes, sometimes tripartite or unbranched, but if unbranched then lowest bracts large and not bearing flowers.....	108

<b>102</b>	Bracts usually equalling or > calyx, surrounding and obscuring calyx in anterior view; flowers sessile; corolla lobes narrowly acute.....	<i>rupicola</i>
	Bracts usually < calyx, not surrounding and obscuring calyx in anterior view; flowers sessile or pedicellate; corolla lobes rounded to obtuse or broadly acute.....	103
<b>103</b>	Leaf bud sinus small, rounded, not much longer than broad.....	<i>leiophylla</i>
	Leaf bud sinus at least twice as long as broad, narrow and acute.....	104
<b>104</b>	Lamina mostly > 20 mm long; anthers white or cream (known from limestone cliffs in a few localities in Fiordland National Park).....	<i>arganthera</i>
	Lamina mostly < 20 mm long; anthers pink to purple (or pale on male-sterile flowers) (mostly Canterbury northwards).....	105
<b>105</b>	Low, openly branching shrubs with spreading branches; internodes usually < 2 × branchlet diameter; leaf apex broad, sub-acute.....	106
	Bushy, densely branched, rounded shrubs with erect branches; internode usually > 2 × branchlet diameter; leaf narrowing to acute or sometimes sub-acute apex.....	107
<b>106</b>	Calyx lobes 1.8–3.1 mm long, obtuse to sub-acute, or rarely acute; corolla tube 1.4–3.5 mm long, usually slightly > calyx; anthers purple; capsule ≤ 2 × calyx.....	<i>canterburiensis</i>
	Calyx lobes 1.0–1.5 mm long, usually rounded to obtuse, rarely sub-acute or acute; corolla tube 0.6–1.5 mm long, < calyx; anthers usually pale pink or white; capsule 3–4 × calyx.....	<i>vernica</i>
<b>107</b>	Stomata conspicuous on adaxial leaf surface; petiole broadly winged, leaving a narrow sinus in the bud (South Island).....	<i>brachysiphon</i>
	Stomata inconspicuous on adaxial leaf surface; petiole narrowly winged, leaving a broad sinus in the bud (North Island).....	<i>venustula</i>
<b>108</b>	Low-growing shrub (< 0.5 m tall), often creeping or spreading, sometimes mat-forming; flowers sessile or subsessile; corolla tube about ≤ calyx (South Otago, Southland).....	<i>dilatata</i>
	Erect, bushy shrubs or small trees to 2.5 m or sometimes more; flowers, at least the lowest, distinctly pedicellate; corolla tube ≥ calyx.....	109
<b>109</b>	Either some leaves minutely toothed or incised or the anterior calyx lobes fused for most of their length; corolla tube glabrous inside (north of Auckland).....	<i>diosmifolia</i>
	Leaves entire and anterior calyx lobes free for most of their length; corolla tube hairy inside (Nelson, western Marlborough).....	<i>subfulvida</i>
<b>110</b>	Inflorescence a compound raceme or ternate (Three Kings Is. only).....	<i>insularis</i>
	Inflorescence a simple raceme (North and South Islands).....	111
<b>111</b>	Leaves glaucous, at least beneath, usually glaucous above, but occasionally glaucescent.....	112
	Leaves green on both surfaces or reddish beneath, often glossy but sometimes dull.....	121
<b>112</b>	Flowers, at least the lowest in an inflorescence, borne on obvious pedicels; bracts usually alternate or whorled but sometimes the lowermost opposite.....	113
	Flowers usually sessile (rarely short pedicels present in <i>V. amplexicaulis</i> and <i>V. buchananii</i> ); bracts opposite and decussate, sometimes becoming alternate above.....	117
<b>113</b>	Stems and peduncles glabrous; branches often long, trailing, leafless (South Canterbury).....	<i>pareora</i>
	Stems and peduncles minutely hairy or pubescent; branches mostly spreading to erect (Nelson to mid Canterbury or Southland).....	114

<b>114</b>	Stem uniformly puberulent; ovary and capsule minutely hairy; corolla tube < calyx.....	<i>glaucophylla</i>
	Stem glabrous or uniformly pubescent, rarely bifariously puberulent to pubescent; ovary and capsule glabrous; corolla tube $\geq$ calyx.....	115
<b>115</b>	Leaves elliptical to rhomboid, tapering to a blunt apex; corolla tube equal or slightly longer than calyx (Southland, Otago).....	<i>biggarii</i>
	Leaves linear-lanceolate to ovate to elliptic or obovate, acute or apiculate at apex; corolla tube usually distinctly > calyx (northern South Island).....	116
<b>116</b>	Dense, neatly rounded shrubs, much branched at tips; leaves 5–23 $\times$ 3–8 mm; corolla tube < 2.5 mm long.....	<i>topiaria</i>
	Sprawling to erect, usually more open-branched shrubs, with most branches near the base, but sometimes dense, rounded or flat-topped shrubs; leaves 11–42 $\times$ 3–17 mm; corolla tube > 2.5 mm long.....	<i>albicans</i>
<b>117</b>	Corolla lobes purplish or bluish when young, sometimes fading to pale pink or white with age.....	<i>pimeleoides</i>
	Corolla white, rarely slightly pink in bud and when opening.....	118
<b>118</b>	Leaf margins fringed with long hairs, surfaces glabrous except sometimes near the base and midrib above.....	<i>gibbsii</i>
	Leaf margins glabrous or ciliolate, or if pubescent then surfaces pubescent also.....	119
<b>119</b>	Leaves 2.5–8 $\times$ 2–6 mm; leaf bud closely invested with newly separated leaves, hiding the internode below; corolla tube $\leq$ 2 mm long.....	<i>buchananii</i>
	Leaves 7–30 $\times$ 4–17 mm; leaf bud separated from newly separated leaves by a short internode; corolla tube $\geq$ 2 mm long.....	120
<b>120</b>	Corolla tube 2–3 mm long.....	<i>pinguifolia</i>
	Corolla tube 3.4–4.8 mm long.....	<i>amplexicaulis</i>
<b>121</b>	Most leaves on a plant > 40 mm long, although some may be shorter.....	122
	Most leaves on a plant < 40 mm long, although some may be longer.....	139
<b>122</b>	Leaves cuneately narrowed to branchlet width or less at the base.....	123
	Leaves wider than branchlet width at the base, usually amplexicaul or rounded at the base.....	137
<b>123</b>	Leaves mostly < 5 mm wide, linear; calyx lobes never hairy on faces, although hairy on margins; stamen filaments conspicuously incurved in the bud, straightening as flower opens.....	124
	Leaves mostly > 8 mm wide or if narrow and linear then the calyx lobes pubescent on faces as well as margins; stamen filaments straight or slightly curved at apex in bud.....	125
<b>124</b>	Shrub or small tree; leaf margins usually hairy; leaf surfaces smooth or faintly pitted with small depressions; corolla tube hairy inside.....	<i>parviflora</i>
	Shrub; leaf margins usually glabrous; leaf surfaces at least below conspicuously pitted with small depressions, each containing a minute glandular hair with 2 apical cells; corolla tube glabrous inside.....	<i>stenophylla</i>
<b>125</b>	Youngest shoots strongly tinged maroon, purple, or red, or if green, then outsides of leaf buds and undersides of young leaves tinged purple (North Island west coast from Muriwai to Kawhia only; note, some plants similar to <i>V. stricta</i> from Hikurangi Swamp also have this feature).....	126
	Youngest shoots green, yellow or orange; outside of leaf buds and undersides of young leaves (apart from margins and midribs) not tinged purple (various North Island localities).....	127

- 126** Usually prostrate shrub, < 0.5 m tall; leaves elliptic to obovate, broadest at or above mid-way and obtuse to rounded at apex, 13–55 mm long; margins conspicuously ciliate..... *obtusata*  
 Sprawling to semi-erect shrub, up to 1 m tall; leaves usually lanceolate to narrow-elliptic, broadest below mid-way and acute to acuminate at apex, (20–)40–90 mm long; margins usually minutely ciliate..... *bishopiana*
- 127** Corolla tube > calyx or rarely (some flowers of *V. stricta*) about = calyx; corolla lobes oblong, elliptic, or suborbicular, rounded at apex..... 128  
 Corolla tube < or = calyx; corolla lobes ovate to triangular or elliptic, sub-acute to acute at apex..... 132
- 128** Leaves rather soft except in exposed habitats, dull yellowish- to dark green; corolla 3–6(–8.5) mm long (tube + lobe length), 2.5–6.0 mm diameter, corolla tube 1.0–1.5(–1.7) mm wide; stamen filaments 3.0–5.0(–6.5) mm long; capsule 1.3–4.0(–5.2) mm long ..... 129  
 Leaves firm, glossy green to dark green; corolla 5–11 mm long (tube + lobe length), 5–9 mm diameter, corolla tube (1.8–)2–3.5 mm wide; stamen filaments 5–12 mm long; capsule 3.8–10 mm long..... 131
- 129** Widest point of leaves ~ 1/8-way from base; leaf base abruptly cuneate..... *tairawhiti*  
 Widest point of leaves 1/3–2/3-way from base; leaf base gradually cuneate..... 130
- 130** Leaves (5.5–)12.0–45.0 mm wide; lamina thin to subcoriaceous; calyx lobes glabrous or hairy on face..... *stricta*  
 Leaves 3–9 mm wide; lamina thin; calyx lobes glabrous on face..... *angustissima*
- 131** Corolla white to purple, sometimes pinkish; calyx lobes obtuse to acute; stamen filaments white to pale purplish; stems pubescent (Northland and Auckland from Ahipara to Kawhia)..... *macrocarpa*  
 Corolla deep red or magenta; calyx lobes rounded to obtuse; stamen filaments magenta to purplish; stems puberulent (Surville Cliffs and surrounding plateau only)..... *punicea*
- 132** Leaves linear-lanceolate to lanceolate or rarely oblanceolate or narrowly elliptic..... 133  
 Leaves oblanceolate to obovate or rarely lanceolate to elliptic..... 135
- 133** Leaves linear to linear-lanceolate, (3–)4–9(–12) mm wide; lamina and midrib green, even at base; plants of river gorges near the water..... *rivalis*  
 Leaves elliptic to oblong-elliptic or oblanceolate, rarely linear-lanceolate; lamina green or yellowish, midrib yellowish, especially at base; plants of scrub and forest margins, slips, outcrops, and coastal sites..... 134
- 134** Large shrub or small tree to 8 m tall; leaves (30–)50–100(–135) × 6–20(–29) mm, often conspicuously narrowed towards apex; calyx lobes hairy outside (upland sites, central and western Northland)..... *flavida*  
 Open or spreading shrub to 2.5 m tall; leaves (12–)26–50(–100) × (4.2–)6–10(–20) mm, often more evenly tapered towards apex; calyx lobes often glabrous outside, sometimes hairy (mostly coastal and lowland sites, eastern Northland and North Cape to Cape Reinga)..... *ligustrifolia*
- 135** Calyx lobes red; calyx margin very densely glandular-ciliolate with a few eglandular hairs; corolla lobes purplish, pink, red, or carmine, fading whitish; capsule 7–8 × 5–6 mm; seeds 1.8–2 mm long..... *perbella*  
 Calyx lobes green sometimes with pink margins; calyx margin mixed eglandular- and glandular-ciliolate, 0.075 mm long; corolla lobes flushed pale purple, fading white; capsule < 5.5 × 4.0 mm; seeds 1–1.8 mm long..... 136
- 136** Stems uniformly puberulent; lamina oblanceolate to obovate; corolla tube 3–5 mm long, puberulent inside, lobes pale mauve..... *bollonsii*  
 Stems glabrous or rarely bifarious puberulent; lamina lanceolate, elliptic, or oblanceolate; corolla tube 1–1.5 mm long, glabrous inside, lobes white..... *saxicola*

<b>137</b>	Leaf at least 8 times as long as broad, broadest at the base and tapering evenly to narrow apex; midrib above often yellowish at base (Gisborne and northern Hawke's Bay).....	<i>tairawhiti</i>
	Leaf 4–6 times as long as broad, broadest between lower third and halfway; midrib green throughout (Chatham Is.).....	138
<b>138</b>	Tree when mature; pedicel pubescent; corolla tube $\leq$ 2 mm long, < calyx, < corolla lobes.....	<i>barkeri</i>
	Shrub; pedicel puberulent; corolla tube $\geq$ 2.5 mm long, $\geq$ calyx, > or about = corolla lobes.....	<i>dieffenbachii</i>
<b>139</b>	Inflorescence a compound raceme, rarely ternate; seeds papillate (Three Kings Is.).....	<i>insularis</i>
	Inflorescence a simple raceme; seeds smooth (throughout New Zealand).....	140
<b>140</b>	Leaves linear to narrow oblong, usually > 3 $\times$ as long as wide, usually rather dull yellowish-green.....	141
	Leaves narrowly to broadly elliptical or ovate, usually < 3 $\times$ as long as broad, glossy light to dark green or bronze-green at least adaxially.....	147
<b>141</b>	Corolla tube distinctly > calyx.....	142
	Corolla tube $\leq$ calyx.....	145
<b>142</b>	Leaves linear to linear-lanceolate, rather thin, tapering gradually from halfway to a narrowly acute apex; corolla lobes oblong, erect or sub-erect, their width $\leq$ the width of the corolla tube.....	<i>angustissima</i>
	Leaves linear or linear-oblong, subcoriaceous, tapering rather abruptly to an acute apex; corolla lobes ovate to suborbicular, erecto-patent to recurved, their width > the width of the corolla tube.....	143
<b>143</b>	Corolla tube about 3 $\times$ as long as calyx and hairy inside; capsules 3–4 $\times$ calyx.....	<i>traversii</i>
	Corolla tube either $\leq$ 2 $\times$ calyx or, if longer then glabrous inside; capsules about 2 $\times$ calyx.....	144
<b>144</b>	Shrub or small tree; leaf margins usually hairy; leaf surfaces smooth or faintly pitted with small depressions; corolla tube hairy inside.....	<i>parviflora</i>
	Shrub; leaf margins usually glabrous; leaf surfaces at least below conspicuously pitted with small depressions, each containing a minute glandular hair with 2 apical cells; corolla tube glabrous inside.....	<i>stenophylla</i>
<b>145</b>	Vegetative bud flattened in cross-section; leaves often yellow on midrib especially near base; calyx lobes acute to acuminate, 1.7–3 mm long; corolla lobes acute, pale purple when young (Northland).....	<i>ligustrifolia</i>
	Bud rounded in TS; leaf midrib green; calyx lobes rounded to acute at apex, 1.2–1.7 mm long; corolla lobes rounded, white (South Island).....	146
<b>146</b>	Leaf adaxial surface glossy; corolla tube 0.7–1.2 mm long; style glabrous, but ovary and capsule hairy (on marble in north-west Nelson).....	<i>callicola</i>
	Leaf adaxial surface dull; corolla tube 1.4–2.9 mm long; style, ovary, and capsule either all hairy or all glabrous (Banks Peninsula).....	<i>strictissima</i>
<b>147</b>	Low-growing coastal plants of Chatham Is.; leaves dull green; calyx lobes narrowly deltoid, acute to acuminate, tapering evenly from base.....	<i>chathamica</i>
	Low-growing to erect plants of North Island or South Island; leaves dull or glossy green; calyx lobes ovate to elliptic, obtuse to acute, tapering from about mid-way.....	148
<b>148</b>	Ovary and capsule hairy.....	149
	Ovary and capsule glabrous.....	150
<b>149</b>	Leaves mostly 6–20 mm (rarely to 30 mm) long; corolla lobes ciliolate on margins.....	<i>rakaiensis</i>
	Leaves mostly 20–45 mm (rarely some leaves 13–20 mm) long; corolla lobes glabrous on margins.....	<i>callicola</i>

<b>150</b>	Sprawling, low-growing (rarely erect) shrubs; leaves elliptic to obovate, glossy bronze or dark green above; leaf margin usually red, ciliate or ciliate or rarely glabrous.....	151
	Erect, bushy shrubs; leaves lanceolate to ovate, glossy or dull bright green; leaf margin green, glabrous or minutely puberulent.....	152
<b>151</b>	Leaves 6.5–23.5 × 2–13 mm, glossy yellowish or bronze green above and beneath, surfaces glabrous, margin glabrous or with short, tapering, stiff hairs; inflorescence 6–30 mm long with 2–25 flowers; pedicels 0.2–1.7 mm long, mixed glandular- and eglandular-hairy; calyx lobes 1–1.5 mm long; corolla tube 3–6 mm long, >> calyx, glabrous inside.....	<i>decumbens</i>
	Leaves 13–55 × 7.0–28.5 mm, glossy green to dark green above, dull pale green beneath, surfaces usually hairy along midrib and sometimes on surface beneath, margin ciliate with long, soft hairs; inflorescence 38–126 mm long with 34–88 flowers; pedicels 1.0–3.3 mm long, eglandular-hairy; calyx lobes 1.5–2.2 mm long; corolla tube 2.3–4.0 mm long ≥ calyx, eglandular-hairy inside.....	<i>obtusata</i>
<b>152</b>	Leaves lanceolate to elliptic, usually very glossy green; margin glabrous (although sometimes minutely papillate in <i>V. urvilleana</i> ), usually with narrow translucent border (South Island).....	153
	Leaves elliptic to obovate, not very glossy; margin minutely puberulent (North Island).....	155
<b>153</b>	Corolla 4–6 mm diameter, lobes 2–3 mm long (lowland D’Urville I. and the Bryant Range, Nelson).....	<i>urvilleana</i>
	Corolla 5–10 mm diameter, lobes 3–6 mm long (subalpine to alpine South Island).....	154
<b>154</b>	Leaves more or less flat, lanceolate, elliptic or oblong-elliptic, rarely linear-lanceolate; apex subacute to acute, not or only very weakly plicate-acuminate; corolla tube 1–2.2 mm long, eglandular-hairy inside; seeds 1.2–2 mm long.....	<i>subalpina</i>
	Leaves weakly dished, elliptic to obovate, sometimes oblanceolate; apex obtuse to rounded and minutely plicate-acuminate; corolla tube 1.9–3.5 mm long, eglandular-hairy, glandular-hairy or glabrous inside; seeds 0.9–1.5 mm long.....	<i>treadwellii</i>
<b>155</b>	Leaves elliptic, obovate to oblanceolate, usually obtuse, mostly < 20 mm (rarely to 28 mm) long; stomata evident and crowded on abaxial surface; inflorescence 14–50 mm long, with 15–40 flowers (Tararua Range).....	<i>evenosa</i>
	Leaves linear-lanceolate to narrow-elliptic, mostly > 20 mm long (sometimes 13–20 mm); stomata not evident on abaxial surface; inflorescence 30–90 mm long, with 28–68 flowers (Ruahine Range).....	<i>truncatula</i>

**Distribution:** About 450 spp., worldwide but mostly temperate and often alpine, with most diversity in Eurasia and New Zealand. One hundred and twenty-two species indigenous; 118 of these endemic to New Zealand; 19 species naturalised.

**Biostatus:** Indigenous (Non-endemic).

Number of species and named hybrids in New Zealand.

**Table 1:** Number of species in New Zealand within *Veronica* L.

<b>Category</b>	<b>Number</b>
Indigenous (Endemic)	118
Indigenous (Non-endemic)	4
Exotic: Fully Naturalised	16
Exotic: Casual	1
Origin uncertain: Present in wild	2
<b>Total</b>	<b>141</b>

**Cytology:** n = 6–63 (Albach et al. 2008, Hair 1967, 1970).

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**Hybridisation:** Wild hybrids between indigenous species of *Veronica* occur occasionally and a few are quite common, such as *V. ×lewisii* and the hybrids between *V. odora* and several whipcord hebes. In addition the genus has a reputation for extensive hybridisation in cultivation, where over 1000 cultivars, many of hybrid origin, have been given cultivar names under the International Code of Nomenclature of Cultivated Plants (see Metcalf 2006 for a comprehensive treatment of cultivars). The following wild and cultivated hybrids have been given hybrid binomial names under the International Code of Nomenclature for Algae, Fungi, and Plants (Turland et al. 2018). See Garnock-Jones (2008) for more detail on nomenclature and hybrid origins. Additional wild hybrids have been reported but not given scientific names.

***Veronica ×affinis* (Cheeseman) Garn.-Jones**, *New Zealand Journal of Botany* 46: 524 (2008).

Hybrid parentage: Wild origin, *Veronica macrocarpa* × *V. stricta* var. *stricta* (Cheeseman 1925, Cockayne & Allan 1926c).

***Veronica ×andersonii* Lindley & Paxton**, *Paxton's Flower Garden* 2: t. 38 (1851, as *V. andersonii*).

Hybrid parentage: Garden origin, thought to be *V. stricta* var. *stricta* × *speciosa* (Cockayne & Allan 1926c, Heenan 1994b).

***Veronica ×balfouriana* Hook.f.**, *Botanical Magazine* 123: t. 7556 (1897, as *V. balfouriana*).

Hybrid parentage: Garden origin, thought to be *V. pimeleoides* × *vernica* (Moore in Allan 1961)

***Veronica ×bidwillii* Hook.**, *Icones Plantarum*, t. 814 (1864, as *V. bidwillii*).

Hybrid origin: Wild origin, *V. decora* × *lyallii* (Ashwin in Allan 1961, Garnock-Jones & Lloyd 2004).

***Veronica ×carsei* Petrie**, *Transactions of the New Zealand Institute* 55: 96 (1924, as *V. carsei*).

Hybrid origin: Wild origin, *V. stricta* var. *stricta* × *venustula* (Cockayne & Allan 1926c, Bayly & Kellow 2006).

***Veronica ×cassinioides* Petrie**, *Transactions of the New Zealand Institute* 47: 52 (1915, as *V. cassinioides*).

Hybrid origin: Wild origin, *V. odora* × either *V. hectorii* or *V. annulata* (Bayly & Kellow 2006).

***Veronica ×divergens* Cheeseman**, *Manual of the New Zealand Flora*: 502 (1906, as *V. divergens*).

Hybrid origin: Wild origin, thought to be *V. elliptica* × *leiophylla* (Moore in Allan 1961).

***Veronica ×edinensis* R.Linds.**, *Gardeners' Chronicle* 48: 103 (1910).

Hybrid origin: Garden origin, described as *V. hectorii* × *V. pimeleoides*.

***Veronica ×erecta* Kirk**, *Transactions of the New Zealand Institute* 28: 517 (1896, as *V. erecta*).

Hybrid origin: Garden origin, thought to be *V. pimeleoides* × *salicifolia* (Moore in Allan 1961).

***Veronica ×fairfieldii* Hook.f.**, *Botanical Magazine* 49: t. 7323 (1893). ≡ *Veronica hulkeana* var. *fairfieldii* (Hook.f.) Kirk, *Transactions of the New Zealand Institute* 28: 518 (1896).

Hybrid origin: Garden origin, *V. hulkeana* × *lavaudiana*.

***Veronica ×franciscana* Eastw.**, *Leaflets of Western Botany* 3: 221 (1943, as *V. franciscana*).

Hybrid origin: Garden origin, *V. elliptica* × *speciosa* (Heenan 1994b).

***Veronica ×kirkii* J.B.Armstr.**, *New Zealand Country Journal* 3: 58 (1879, as *V. kirkii*).

Hybrid origin: Wild origin, thought to be *V. salicifolia* × perhaps *V. rakaiensis* (Moore in Allan 1961).

***Veronica ×laevastonii* (Cockayne & Allan) Garn.- Jones**, *New Zealand Journal of Botany* 46: 525 (2008).

Hybrid origin: wild origin, *V. venustula* × *V. tetragona* subsp. *subsimilis* (Bayly & Kellow 2006).

***Veronica ×leiosala* (Cockayne & Allan) Garn.- Jones**, *New Zealand Journal of Botany* 46: 526 (2008).

Hybrid origin: Wild origin, described as *leiophylla* × *salicifolia* (Cockayne & Allan 1926c).

***Veronica ×lewisii* J.B.Armstr.**, *Transactions of the New Zealand Institute* 13: 357 (1881, as *V. lewisii*).

Hybrid origin: Wild origin, *V. elliptica* × *salicifolia* (Moore in Allan 1961, Metcalf 2001, 2006).

***Veronica ×loganioides* J.B.Armstr.**, *New Zealand Country Journal* 3: 59 (1879, as *V. loganioides*).

Hybrid origin: Wild origin, perhaps *V. odora* or *V. macrantha* × a whipcord hebe (Moore in Allan 1961, Garnock-Jones 2008).

***Veronica ×simmonsii* Cockayne**, *Transactions of the New Zealand Institute* 48: 202 (1916).

Hybrid origin: Wild origin, *V. stenophylla* × *V. stricta* var. *stricta*.

***Veronica ×uniflora* Kirk**, *Transactions of the New Zealand Institute* 28: 522 (1896, as *V. uniflora*).

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Hybrid origin: Wild origin, *V. densifolia* × *V. thomsonii* (Mark & Adams 1973; H. M. Meudt in Garnock-Jones 2008).

***Veronica* ×*wallii* Garn.-Jones**, *New Zealand Journal of Botany* 46: 527 (2008).

Hybrid origin: Garden origin, parentage unknown.



**Fig. 20:** *Veronica* ×*lewisii*. Habit. Milford Sound, Fiordland.



**Fig. 21:** *Veronica* ×*lewisii*. Sprig.



**Fig. 22:** *Veronica* ×*franciscana*. Sprig. Scale = 10 mm.



**Fig. 23:** *Veronica* ×*franciscana*. Leaf bud with sinus. Scale = 1 mm.





**Fig. 24:** *Veronica xfranciscana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 25:** *Veronica xfranciscana*. Leaf apex and margin, adaxial surface. Scale = 1 mm.



**Fig. 26:** *Veronica xfranciscana*. Flowers. Scale = 1 mm.



**Fig. 27:** *Veronica xfranciscana*. Capsules. Scale = 1 mm.



**Fig. 28:** *Veronica xuniflora*. Habit.



**Fig. 29:** *Veronica xuniflora*. Habit (centre) with *V. densifolia* (left) and *V. thomsonii* (right).



**Fig. 30:** *Veronica xuniflora*. Branchlets and leaves. Scale = 1 mm.



**Fig. 31:** *Veronica xuniflora*. Flower. Scale = 1 mm.

**Notes:** Treatment of the indigenous species closely follows Bayly & Kellow (2006; hebes and semi-whipcord hebes), Meudt (2008, snow hebes), Garnock-Jones (1993a; sun hebes), and Garnock-Jones & Lloyd (2004, speedwell hebes and similar plants). Treatment of naturalised species follows *Flora Europaea* (Walters & Webb in Tutin et al. 1972) and Albach et al. (2004a).

#### **Cultivated species and cultivars**

In addition to the species treated here, *V. longifolia* and *V. umbrosa* are commonly cultivated in New Zealand; the latter is distinguished from the similar *V. chamaedrys* under that species. Other species are occasionally found in cultivation, including *V. perfoliata*, *V. derwentiana*, and *V. nivea*.

A very large number of cultivars in *Veronica* sect. *Hebe* have been selected and named in New Zealand and overseas (mostly as *Hebe*). Many of these are spontaneous garden hybrids of undocumented parentage, but a few are minor variants of known species (e.g., flower colour variants or variegated forms). It is not possible in a treatment of this kind to mention and describe them all; the most comprehensive treatment is by Metcalf (2001, 2006, as *Hebe*). A few are mentioned here under the species treatments.

### ***Veronica adamsii* Cheeseman, *Man. New Zealand Fl.*, ed. 2, 786 (1925)**

≡ *Hebe adamsii* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 15 (1926)

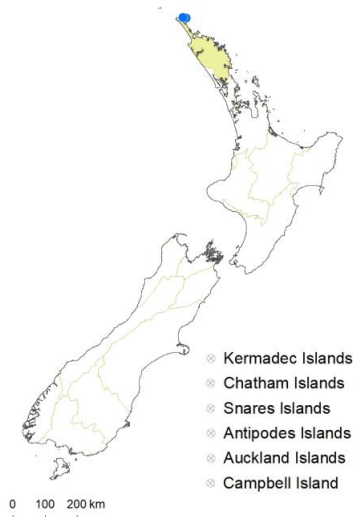
Lectotype (designated by Garnock-Jones & Clarkson 1994): Kapowairua to Tom Bowline's Bay, North Cape, *T. F. C[heeseman]*, Jan 1896, 1545 to Kew, AK 7666. Isolectotypes: AK 7665, 20330, WELT 79581 (although the wording of locality details on the label of this last sheet differs slightly from that on the lectotype)

**Etymology:** Named after James Adams (1839—1906), former headmaster of Thames High School, who accompanied T.F. Cheeseman on his North Cape expedition in 1896.

**Vernacular names:** koromiko; kōkōmuka

Low spreading or bushy shrub to 1 m tall. Stems ascending to erect, glabrous to minutely eglandular-puberulent; hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus elliptic, acute. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, lanceolate to broadly lanceolate or narrowly elliptic to elliptic, 15–85 mm long, 5–18 mm wide, glossy above, dull beneath, bronze-green to yellowish-green; midrib evident, secondary veins faint; surfaces glabrous or sometimes with minute eglandular hairs along midrib above, or rarely sparse sessile glandular hairs beneath; margin glabrous or sparsely ciliolate, entire; apex sub-acute to acute; base cuneate; petiole 1–2 mm long. Inflorescence a lateral raceme, 45–150 mm long; flowers crowded, 20–65, all bisexual; bracts alternate, linear, < or rarely = pedicels; pedicels erecto-patent to spreading, 2.5–6.0 mm long, minutely puberulent all around. Calyx lobes 4, acuminate or sometimes the posterior pair rounded, 2.5–4.0 mm long, sub-equal, glabrous or with sparse, minute sessile glands on faces; mixed glandular- and eglandular-ciliolate. Corolla 7–8 mm diameter; tube white,

2.3–4.0 mm long, slightly < to slightly > calyx, eglandular hairy inside; lobes 4, white to purplish, fading white, erect to erecto-patent, sub-equal, ovate or elliptic to deltoid, 3.5–5.5 mm long, sub-acute; nectar guides absent. Stamen filaments white to purplish, 6.0–9.5 mm long; anthers mauve to purple. Style glabrous, 4.0–8.5 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 3.4–6.0 mm long, 2.8–4.0 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, pale brown to brown, 1.4–2.5 mm long.



**Fig. 32:** *Veronica adamsii* distribution map based on databased records at AK, CHR & WELT.

leaves are not glossy; both occur much further south than the known distribution range of *V. adamsii*.

**Distribution:** North Island: Northland. Known only from Unuwahao Ridge, The Pinnacle, Pinnacle Ridge, and Tarure Hill, east of Spirits Bay.

**Biostatus:** Indigenous (Endemic).

**Habitat:** East-facing breccia cliffs, usually among *Astelia banksii* or in vertical joints in the rock, sometimes in scrub. Recorded elevations range from 200 to 279 m.

**Recognition:** The presence of a sinus in the leafy bud is distinctive among large-leaved hebes of the mainland of Northland, shared only with *V. diosmifolia* (characterised by smaller incised leaves and compound inflorescences) and *V. speciosa* (characterised by broad, fleshy leaves and robust red flowers).

Plants of *V. adamsii* could be mistaken for the similar *V. perbella* and *V. saxicola*; these all have large flowers with broad, acute or sub-acute corolla lobes. *V. perbella* and *V. saxicola* plants differ by having no sinus in the leaf bud, glabrous stems (rarely bifarious-puberulent in *V. saxicola*), and  $2n = 40$  chromosomes. Also, *V. perbella* capsules usually have a few short hairs along the septal groove and *V. saxicola*

**Table 2:** Comparison of *Veronica adamsii*, *V. macrocarpa*, *V. perbella*, and *V. saxicola*, 4 similar species that all occur in Northland. This table is based on a more detailed one presented by de Lange P.J. & J.R. Rolfe (2008), New Zealand Journal of Botany 46: 531–545 (as Hebe).

	<i>adamsii</i>	<i>macrocarpa</i>	<i>perbella</i>	<i>saxicola</i>
Stem hairs	uniformly to bifariously puberulent or glabrous	uniformly to bifariously puberulent	glabrous	usually glabrous or rarely bifariously-puberulent
Leaf bud sinus	present	absent	absent	absent
Lamina (above)	glossy	glossy	glossy	dull
Calyx colour	dark green or bronze-green	yellow-green	pink, reddish, violet, or red- to brown-green	yellowish- to dark green
Calyx lobes outer surface	minute sessile glands	glabrous or eglandular-puberulent	minute sessile glands	minute sessile glands
Corolla colour	white to mauve, rarely violet	white, rarely lilac, sometimes tinged lilac or pink	violet-red, violet, pink, deep mauve, very rarely carmine	pale lavender (rarely lilac)
Corolla tube	≤ calyx; hairy inside	> calyx; hairy inside	≤ calyx; hairy inside	< calyx; glabrous inside
Corolla lobes	subacute	obtuse to rounded	acute	subacute or bluntly acute
Capsule	glabrous	glabrous	glabrous except for a few short hairs along septal grooves	glabrous
Distribution	far North, known only from four sites, all within 1 km <sup>2</sup> , west of Spirits Bay	southern Northland from Whangārei and southern Kaipara Harbour southwards to South Auckland, Coromandel, and near Kawhia	western Northland between Ahipara and Waima Forest	known only from Maungaraho Rock, near Dargaville

**Phenology:** Flowers: October–July; fruits: April–August and probably earlier.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe adamsii*).

**Notes:** *Veronica adamsii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

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Plants from Tarure Hill have longer and wider leaves and longer, more robust inflorescences than plants in other populations (de Lange 1991, Garnock-Jones & Clarkson 1994). The Māori names koromiko, kōkōmuka, and variants – applied to *V. stricta* and *V. salicifolia* – might be applied also to similar large-leaved hebes, such as *V. adamsii*.



**Fig. 33:** *Veronica adamsii*. Habit, Tarure Hill, Northland.



**Fig. 34:** *Veronica adamsii*. Sprig. Scale = 10 mm.



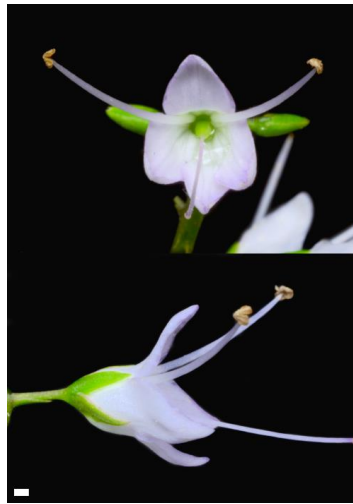
**Fig. 35:** *Veronica adamsii*. Leaf bud with small sinus. Scale = 1 mm.



**Fig. 36:** *Veronica adamsii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 37:** *Veronica adamsii*. Inflorescence. Scale = 10 mm.



**Fig. 38:** *Veronica adamsii*. Flowers. Scale = 1 mm.

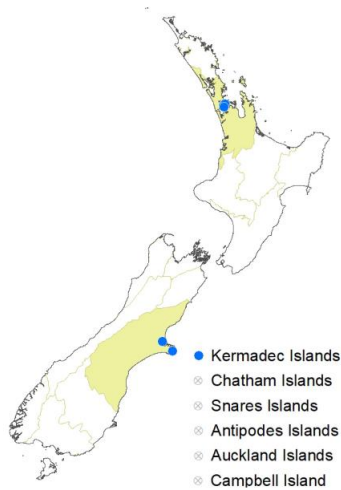


**Fig. 39:** *Veronica adamsii*. Capsules. Scale = 1 mm.

## ***Veronica agrestis* L., Sp. Pl. 13 (1753)**

**Etymology:** The epithet *agrestis* means rural, rustic, or wild, a reference to its habitat.

Annual herb to 0.1 m tall. Stems spreading to decumbent, hairs of two types: sparse, long, spreading, and uniform, and dense, short, antrorse, and bifarious. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, lanceolate to ovate, sometimes elliptic or deltoid, 5–10 mm long, 2.2–8.0 mm wide, dull green above, paler beneath, midrib and palmate secondary veins evident; surfaces eglandular-hairy and also some shorter glandular hairs; margin pubescent, serrate; teeth in 3–8 pairs; apex rounded to sub-acute; base truncate; petiole 1–4 mm long. Inflorescence a terminal raceme, 50–150 mm long. Flowers distant, 5–35, all bisexual; bracts alternate, leaf-like,  $\geq$  pedicels; pedicels spreading, 3–6 mm long, up to 12 mm long at fruiting, shortly antrorse pubescent all around with scattered, long, glandular hairs. Calyx lobes 4, acuminate to narrow obtuse apex, sub-equal, 3–4 mm long, enlarging to 6–7 mm at fruiting, with long, glandular hairs on margins, veins and tube. Corolla 4–5 mm diameter; tube white, c. 0.5 mm long, much < calyx, glabrous; lobes 4, white or posterior lobe pale blue to pink, erecto-patent to spreading, unequal, elliptical to broadly elliptical, 2.0–2.5 mm long, rounded; nectar guides pale blue, on posterior lobe. Stamen filaments white, c. 1 mm long; anthers purple. Style glabrous, 0.5–1.0 mm long. Capsules angustiseptate, didymous with faint veins, erect rounded lobes and narrow sinus between, glandular hairy (hairs appearing eglandular on old capsules), 3.0–4.0 mm long, 5.5–7.0 mm at widest point. Seeds ellipsoid, smooth, and deeply concave on funicle side, wrinkled and convex on back, straw-yellow to brown, 1.5–1.8 mm long.



**Fig. 40:** *Veronica agrestis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (one early collection from Epsom).

South Island: Canterbury; Kermadec Is. (one early collection).

**Biostatus:** Exotic; fully naturalised.

Native to Europe and north Africa.

**Habitat:** A very local weed of open disturbed sites, in gardens and waste ground. Recorded elevations range from 0 to 100 m.

**First record:** T. Kirk in Hooker (1867, p. 761). Voucher AK 94092, T. Kirk, Epsom.

**Recognition:** Several species are characterised by a similar growth form of straggly trailing or decumbent stems, with opposite leaves, terminal racemes with alternate leaf-like bracts, and cup-shaped, wrinkled seeds.

*V. persica* plants have larger, usually blue flowers (8–12 mm diameter, but rarely pale blue or white), lack glandular hairs on pedicels and calyx, although they may have them on the distal half of the capsule, and the capsule is larger, with diverging obtuse lobes and a broad sinus; the style is 1.3–3.0 mm long

and extends beyond the capsule sinus. Their capsule valves are conspicuously veined when dry.

Plants of *V. polita* differ in their calyx having only short, eglandular hairs on the lobe margins, a bright blue corolla with a pale tube and throat, and smaller capsules, which are hairy all over with short, eglandular hairs and a few glandular hairs along the margins. Also, they lack glandular hairs on the pedicels.

*Veronica hederifolia* plants have a similar growth form but very different appearance; they differ in their bluntly and shallowly 3- to 5-lobed leaves with a large broad terminal lobe, pedicel hairs distinctly in 1 row, calyx lobes plicate at first and cordate at the base, with very long, straight, spreading, eglandular marginal hairs, and few and larger (c. 2.5 mm) seeds.

**Phenology:** The Akaroa collection made in February has flowers and mature fruits.

**Cytology:**  $2n = 14$  in Europe (Albach et al. 2008).

**Notes:** *Veronica agrestis* is classified in *V.* subg. *Pocilla* (Albach et al. 2004a; Albach & Meudt 2010).

*V. agrestis* is known only from a few early records from Auckland, the Kermadec Is., and Akaroa. Other records are based on specimens now identified as *V. persica*, *V. arvensis*, and *V. plebeia*. The description above is based on a single specimen (CHR 33837, Akaroa, Healy) and the dimensions might not be typical.

## ***Veronica albicans* Petrie, *Trans. & Proc. New Zealand Inst.* 49: 53 (1917)**

≡ *Hebe albicans* (Petrie) Cockayne, *Trans. New Zealand Inst.* 60: 468 (1929)

Lectotype (designated by Kellow et al. 2005): Mt Cobb, N. W. Nelson, *H. J. Matthews*, Feb 1909, WELT 16954

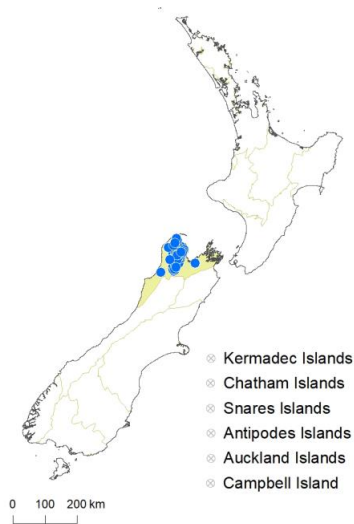
= *Hebe recurva* G.Simpson & J.S.Thomson, *Trans. Roy. Soc. New Zealand* 70: 32 (1940)

Lectotype (designated by Moore, in Allan 1961): near Bainham, Aorere River, Nelson, rock platforms on river banks, G. Simpson & J. S. Thomson, CHR 33032

**Etymology:** The epithet *albicans* means becoming white, which Bayly & Kellow (2006) interpret as a reference to the glaucous leaves.

Low or bushy shrub to 1 m tall. Stems decumbent to erect, or sometimes pendent, eglandular-puberulent to pubescent, hairs bifarious to uniform, or sometimes tufted between leaf bases and in axils, glabrous with age. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to recurved; lamina coriaceous, linear-lanceolate to lanceolate or ovate to elliptic or oblong, 11–42 mm long, 3–17 mm wide, dull and glaucous above and beneath; midrib evident; 2 lateral veins visible at least when fresh; surfaces glabrous, or sometimes eglandular hairs along midrib above especially near base; margin glabrous, entire; apex obtuse to

acute or weakly plicate-acuminate; base cuneate to truncate or cordate and amplexicaul; petiole absent. Inflorescence a lateral raceme, 17–55 mm long; flowers crowded, 15–45, all bisexual; bracts alternate or in irregular whorls, lanceolate, elliptic, or ovate, < to > pedicels; pedicels erecto-patent to spreading, 0.5–3.5 mm, rarely to 6.0 mm long, eglandular-pubescent or -puberulent all around. Calyx lobes 4, rounded to acute, 1.8–3.0 mm long, equal, mixed eglandular- and glandular-ciliolate, sometimes with longer eglandular hairs as well. Corolla 4.5–8.0 mm diameter; tube white, 2.5–6.0 mm long, much > calyx, eglandular hairy inside or rarely glabrous; lobes 4, white, erecto-patent to spreading, unequal, elliptic to ovate, 2.0–3.5 mm long, rounded; nectar guides absent. Stamen filaments white, 3.0–5.5 mm long; anthers magenta. Style glabrous, 4.5–9.0 mm long. Capsules latiseptate, obtuse to sub-acute or slightly emarginate, glabrous, 2.5–4.5 mm long, 2.0–3.2 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, brown, 1.0–1.8 mm (rarely to 2.0 mm) long.



**Fig. 41:** *Veronica albicans* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Nelson (common in western Nelson from Mt Burnett southwards and west of the Motueka River), Westland (Glasgow Range), Sounds Nelson (one population at Roding River, Bryant Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rocky places on river banks and gorges to rock outcrops and open places in grassland and forest margins, from lowland to sub-alpine and penialpine altitudes. Often on calcareous rocks. Recorded elevations range from 40 to 1538 m.

**Recognition:** Although *V. albicans* is a very variable species, it can be distinguished from other hebes with glaucous leaves. *V. topiaria* and *V. glaucophylla* plants have smaller leaves and short corolla tubes, whereas *V. simulans*, *V. cryptomorpha*, and *V. baylyi* plants have a sinus in the vegetative bud. *V. pinguifolia* plants have sessile flowers and shorter corolla tubes. *V. gibbsii* plants are similar in many ways, but differ in fringing long hairs on the leaf margins, leaves narrower than many forms of *V. albicans*, corolla tubes glabrous, and capsules narrower (1.6–2.0 mm wide).

Some plants of *V. albicans* with large amplexicaul leaves can look similar to *V. pareora* from South Canterbury, but plants of that species have glabrous stems and inflorescences and larger corolla lobes, and their capsules are barely flattened.

Plants of *V. amplexicaulis* (from South Canterbury) could be confused with *V. albicans*, but are distinguished by their shorter corolla tubes and hairy capsules, at least at the apex. *V. amplexicaulis* plants often have smaller leaves than plants of *V. albicans*.

**Phenology:** Flowers: November–March, extending to May; fruits: January–August, persisting to November.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe albicans*).

**Hybridisation:** Putative hybrids between *V. albicans* and *V. calcicola* were discussed by Bayly et al. (2001).

**Notes:** *Veronica albicans* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. albicans* is a very variable species with respect to several morphological characters, flavonoid chemistry, and chromosome number, but diverse populations are united by the large, glaucous leaves and the long corolla tubes. The variation was studied in detail by Kellow et al. (2005), who concluded there was little evidence of correlations among the various character states, geography, and chromosome numbers that would suggest the existence of breeding barriers between groups of populations.

Plants of *V. albicans sensu stricto* (e.g., from Cobb Valley and Arthur Range) tend to have broad leaves and pubescent stems, and they vary in several other characters. Plants previously assigned to *Hebe recurva* (from mostly lowland sites, e.g. Aorere River) have narrow leaves, often longer pedicels, and narrow and more acute capsules, and they also vary in other characters. A range of additional populations (including from Mt Burnett, Tākaka Hill, The Gorge Creek, Hoary Head, and Owen Range) include plants that tend to have broad leaves, often short pedicels, and puberulent stems, but vary in

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other characters. Kellow et al. (2005) provided detailed descriptions of variation and discuss its significance; they concluded there is no clear basis for further subdivision of the complex.

### Cultivars

Widely cultivated and also used as a parent in some cultivated hybrids (e.g., some of the 'Wiri' series of cultivars, such as hebe 'Wiri Dawn' 'Wiri Desire' and 'Wiri Mist'). See <http://www.terrain.net.nz/friends-of-te-henui-group/friends-of-te-henui.html> for details and photographs.



**Fig. 42:** *Veronica albicans*. Habit. Gorge Creek, Nelson.



**Fig. 43:** *Veronica albicans*. Habit. Lake Peel, Nelson.



**Fig. 44:** *Veronica albicans*. Sprig. Gorge Creek, Nelson. Scale = 10 mm.



**Fig. 45:** *Veronica albicans*. Leaf bud without sinus. Mt Burnett, Nelson. Scale = 1 mm.





**Fig. 46:** *Veronica albicans*. Leaves, adaxial surface. Mt Burnett (right), Tākaka Hill (centre), Aorere River (left). Scale = 10 mm.



**Fig. 47:** *Veronica albicans*. Inflorescences. Top: Mt Arthur; below: Gorge Creek, Nelson. Scale = 10 mm.



**Fig. 48:** *Veronica albicans*. Flowers. Top left and centre: Gorge Creek; top right and below: Mt Arthur, Nelson. Scale = 1 mm.



**Fig. 49:** *Veronica albicans*. Branch with inflorescences. Cobb Valley, Nelson. Scale = 10 mm.



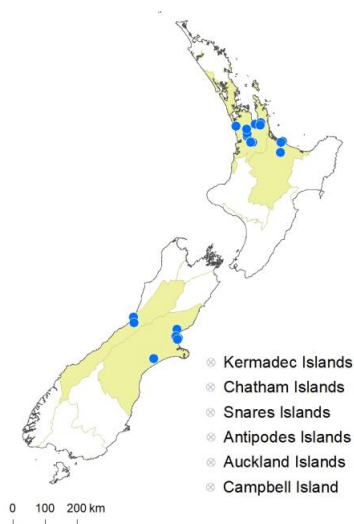
**Fig. 50:** *Veronica albicans*. Fruit. Mt Burnett, Nelson. Scale = 1 mm.

## *Veronica americana* Schwein. ex Benth. in de Candolle, *Prodr.* 10 468 (1846)

**Etymology:** The epithet means “of America”; *V. americana* is indigenous to North America.

**Vernacular name:** American brooklime

Perennial herb to 0.8 m tall. Stems decumbent to ascending (stout, solid, with adventitious roots at nodes in contact with the ground or submerged), glabrous. Leaf bud obscure; leaves separating while small, opposite-decussate, erecto-patent to spreading; lamina thin, linear-lanceolate to lanceolate, or elliptic to narrowly oblong, 20–90 mm long, 5–20 mm wide, dull green above, pale green or green beneath, midrib and lateral veins evident; surfaces glabrous; margin glabrous, crenate-serrate to serrate; teeth in 12–30 pairs; apex sub-acute to acute; base truncate; petiole 4–10 mm long. Inflorescence a lateral raceme, 80–170 mm long; flowers crowded at first, becoming distant, 10–27, all bisexual; bracts alternate or the lowest opposite, linear to linear-spathulate, < or rarely about = pedicels; pedicels spreading, straight at fruiting, 7–14 mm long, glabrous. Calyx lobes 4, acute, 2.5–3.5 mm long, sub-equal to unequal, glabrous. Corolla 7–10 mm diameter; tube white, 1.0–1.5 mm long, < calyx, hairy inside; lobes 4, blue to purplish-blue, erecto-patent to spreading, sub-equal, oblong-elliptic to orbicular, 3.0–4.5 mm long, rounded or obtuse; nectar guides purple. Stamen filaments white, 2.5–3.5 mm long; anthers white. Style glabrous, 3.5–5.0 mm long. Capsules angustiseptate, truncate to slightly emarginate, glabrous, 3–4 mm long, 3–4.3 mm at widest point. Seeds ellipsoid, flattened on face, rounded on back, smooth, pale brown or brown, 0.6–0.7 mm long.



**Fig. 51:** *Veronica americana* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Waikato and Thames valleys), Volcanic Plateau (western Bay of Plenty).

South Island: Westland (near the coast between Greymouth and Hokitika), Canterbury (between Amberley and Kaiapoi, near Ashburton).

Indigenous to North America.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Wetlands: banks of streams and drains in mud, gravel, and silt. Recorded elevations range from 5 to 40 m.

**First record:** Allan (1940a, p. 303). Vouchers: likely based on CHR 7789–7790, Allan?, Hamilton; CHR 8148, SDT [?], Hamilton; CHR 20510, A.L. Poole, Hamilton. The identifications on the undated but very early collections CHR 7789, 7790, and 8148 appear to be in Allan's handwriting; CHR 20510 is dated 1937 and was likely seen by Allan.

**Recognition:** Two other aquatic and glabrous or almost-glabrous speedwells are very similar and difficult to distinguish.

*V. anagallis-aquatica* plants differ from *V. americana* by their hollow stems, sessile, amplexicaul, and very shallowly toothed uppermost leaves (the lower and mid leaves may be shortly stalked), longer racemes (50–200 mm long and with 10–80 flowers), shorter pedicels (5–8 mm long at fruiting), smaller (5–7 mm) pale blue or sometimes pinkish flowers, and shorter styles (1.5–2.5 mm long).

*V. catenata* plants differ in their sessile amplexicaul leaves, sparsely glandular inflorescences and pedicels, shorter pedicels (3–5 mm at fruiting and usually overtopped by the bracts), and smaller (3.5–4.5 mm diameter) pink flowers with shorter styles (1.5–2.0 mm long) and smaller capsules (2.0–3.0 × 2.5–3.5 mm).

Plants of a 4th aquatic species, *V. scutellata*, are very slender and weak-stemmed, with very narrow leaves and filiform inflorescences that are only one at each node; their deeply emarginate or didymous capsules are larger and distinctly flattened, and their seeds are 1.2–1.4 mm long with a central chalaza.

**Phenology:** Flowers: October–June; fruits: November–June, probably extending longer.

**Cytology:**  $2n = 36$ , based on northern hemisphere samples (Albach et al. 2008).

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**Notes:** *Veronica americana* is classified in *V.* subg. *Beccabunga* (Albach et al. 2004a; Albach & Meudt 2010; Ellmouni et al. 2017) along with similar aquatic species *V. anagallis-aquatica* and *V. catenata*, and also *V. peregrina* and *V. serpyllifolia*.



**Fig. 52:** *Veronica americana*. Habit. Cambridge Domain, Waikato.



**Fig. 53:** *Veronica americana*. Habit of a flowering and fruiting branch. Scale = 10 mm.



**Fig. 54:** *Veronica americana*. Sprig. Cambridge, Waikato. Scale = 10 mm.



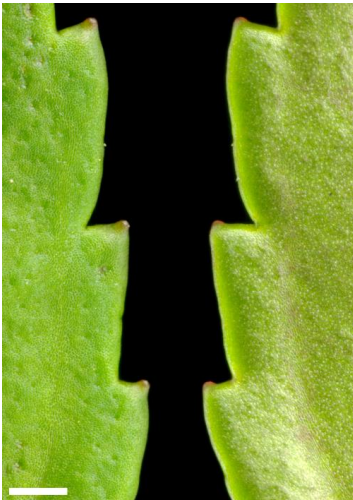
**Fig. 55:** *Veronica americana*. Stem. Scale = 1 mm.



**Fig. 56:** *Veronica americana*. Petioles. Scale = 1 mm.



**Fig. 57:** *Veronica americana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



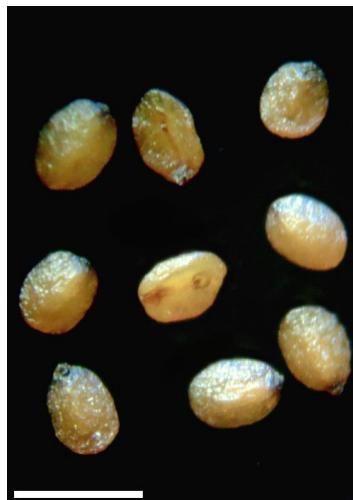
**Fig. 58:** *Veronica americana*. Leaf margins, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 59:** *Veronica americana*. Flower. Scale = 1 mm.



**Fig. 60:** *Veronica americana*. Capsules. Scale = 1 mm.



**Fig. 61:** *Veronica americana*. Seeds. Scale = 1 mm.

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## ***Veronica amplexicaulis* J.B.Armstr., N.Z. Ctry. J. 3: 56 (1879)**

≡ *Hebe amplexicaulis* (J.B.Armstr.) Cockayne & Allan, *Trans. & Proc. New Zealand Inst.* 56: 26 (1926)  
Holotype: Upper Rangitata, J.F. Armstrong, 1869, CHR 635751

= *Hebe allanii* Cockayne, *Trans. & Proc. New Zealand Inst.* 56: 25 (1926)

≡ *Hebe amplexicaulis* f. *hirta* Garn.-Jones & Molloy, *New Zealand J. Bot.* 20: 395 (1983 [1982]) nom.  
nov. pro *Hebe allanii* Cockayne 1926

Lectotype (designated by Moore, in Allan 1961): Eastern South Island, upper gorge of Lynn Stream near waterfall, Mt Peel, pubescent form, decumbent, *H. H. A[llan]*, 3 Jan 1919, CHR 10823

= *Hebe amplexicaulis* var. *erecta* Cockayne & Allan, *Trans. & Proc. New Zealand Inst.* 56: 26 (1926)

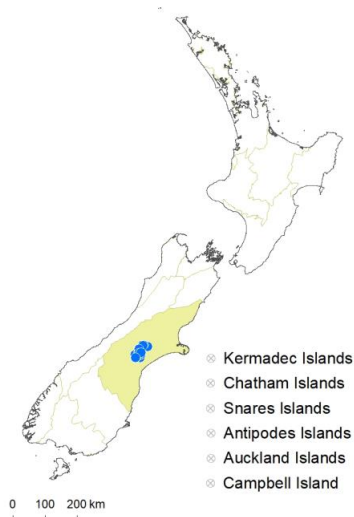
Lectotype (designated by Moore, in Allan 1961): Eastern South Island, stream entering Rangitata from south above gorge, *H. H. A[llan]*, 2 Jan 1919, erect form with close strict branches, CHR 10805 [piece mounted on right of sheet only; piece on left is *H. amplexicaulis* f. *hirta*]

= *Hebe amplexicaulis* var. *suberecta* Cockayne & Allan, *Trans. & Proc. New Zealand Inst.* 56: 26 (1926)

Lectotype (designated by Moore, in Moore & Edgar 1970): Eastern South Island, upper gorge of Lynn Stream, Mt Peel, c. 400 m, rock crevice, decumbent, abundant on rocks of northern and southern faces from 350–850 m, *H. H. A[llan]*, 3 Jan 1919, CHR 10820.  
Isolectotype: CHR 89155

**Etymology:** The epithet *amplexicaulis* (stem-clasping) refers to the way the wide leaf bases encircle the stem.

Low shrub to 0.5 m tall. Branches decumbent to erect, glabrous or eglandular pubescent, hairs uniform or sometimes just a few near the leaf margins at the base. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading or sometimes recurved; lamina coriaceous, broadly oblong to elliptic to ovate, 8–30 mm long, 4–17 mm wide, dull, glaucous above and beneath; veins not evident or midrib weak beneath; surfaces glabrous or densely eglandular-hairy above and beneath; margin glabrous, entire; apex obtuse to sub-acute; base rounded to sub-cordate and amplexicaul; petiole absent. Inflorescence a lateral spike, 20–46 mm long; flowers crowded, 10–25, all bisexual; bracts opposite-decussate, sometimes becoming alternate above, ovate to deltoid to oblong, ≤ calyx; pedicels usually absent or 0–0.5 mm long, eglandular-hairy all around. Calyx lobes 4, obtuse to sub-acute, 2.5–3.6 mm long, sub-equal, glabrous or eglandular-hairy, with short, glandular hairs on margins as well. Corolla 7–10 mm diameter; tube white, 3.4–4.8 mm long, slightly > to 2× calyx, glabrous or eglandular hairy inside; lobes 4, white, sub-erect to spreading, unequal, lanceolate to elliptic, 4.0–4.5 mm long, acute to obtuse; nectar guides absent. Stamen filaments white, 3.8–4.0 mm long; anthers magenta or purple. Style glabrous or eglandular hairy, especially at base, 4–10 mm long. Capsules latisepate, obtuse, eglandular-hairy all over or at least at the apex, 3–4 mm long, 1.8–2.2 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow to brown, 1.0–1.8 mm long.



**Fig. 62:** *Veronica amplexicaulis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury (Mt Somers, Mt Peel, Orari Gorge, Four Peaks Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine to alpine rock outcrops and debris, occasionally in forest. Recorded elevations range from 400 to 1525 m.

**Recognition:** Plants of 2 species that occur also in South Canterbury might be confused with *V. amplexicaulis*. These are *V. pareora* and *V. pinguifolia*, species that are also characterised by glaucous leaves. *V. pareora* plants, usually identified as *V. amplexicaulis* before 1983, are readily distinguished by glabrous peduncles and fruits; they also have generally larger leaves that never have red edges, shortly pedicellate flowers, larger and broader corolla lobes, and capsules that are not so strongly flattened, ranging from broadly angustiseptate to narrowly latiseptate. *V. pinguifolia* may be distinguished by bifarious, short, stem pubescence, leaves that taper to the base, and a shorter corolla tube 2–3 mm long. Also, *V. pinguifolia* inflorescence and capsule hairs are short and stubby (0.05–0.20 mm long) compared with the longer, shaggy hairs of

*V. amplexicaulis* (0.30–0.50 mm).

Plants of *V. albicans* from Nelson could be confused with *V. amplexicaulis*, but are distinguished by their long corolla tubes and glabrous capsules. *V. albicans* plants often have larger leaves than plants of *V. amplexicaulis*.

**Phenology:** Flowers: October–January; fruits: February–April, persisting longer.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe amplexicaulis*).

**Notes:** *Veronica amplexicaulis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Subcarnosae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Plants with hairy leaves, stems, calyx, and capsules were treated as a separate species by Cockayne (in Cockayne & Allan 1926b, as *Hebe allanii*), but the hairy character state behaves as an allele at a single locus, with hairy dominant to glabrous (Garnock-Jones & Molloy 1983). Hairy plants can produce both hairy and glabrous progeny in nature and when self-pollinated by hand. Hairy plants (*H. amplexicaulis* forma *hirta* Garn.-Jones & Molloy) occur mixed with glabrous ones in the Four Peak and Mt Peel Ranges, reaching 20–40% of populations between 1200 and 1400 m, but the plants on Mt Somers are all glabrous (Garnock-Jones & Molloy 1983).

The leaf margins are bevelled and the bevelled surface is strictly glabrous, even on leaves that are otherwise hairy. Leaf edges are often red or yellowish. The hairs are relatively long and shaggy (0.3–0.5 mm long), and although their presence on leaves and stems varies, they are always densely present on peduncles. The peduncle is about = the flowering portion of the inflorescence.



**Fig. 63:** *Veronica amplexicaulis*. Habit. Four Peaks Range, Canterbury.



**Fig. 64:** *Veronica amplexicaulis*. Sprig. Scale = 10 mm.



**Fig. 65:** *Veronica amplexicaulis*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 66:** *Veronica amplexicaulis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 67:** *Veronica amplexicaulis*. Adaxial surface of a hairy leaf (*V. amplexicaulis* f. *hirta*). Scale = 1 mm.



**Fig. 68:** *Veronica amplexicaulis*. Inflorescences. Scale = 1 mm.



**Fig. 69:** *Veronica amplexicaulis*. Flower in lateral view. Scale = 1 mm.



**Fig. 70:** *Veronica amplexicaulis*. Infructescence. Scale = 1 mm.



**Fig. 71:** *Veronica amplexicaulis*. Capsule. Scale = 1 mm.

## ***Veronica anagallis-aquatica* L., Sp. Pl. 12 (1753)**

as "anagallis  $\Delta$ "  
= *Veronica anagallis* Tate (1885)

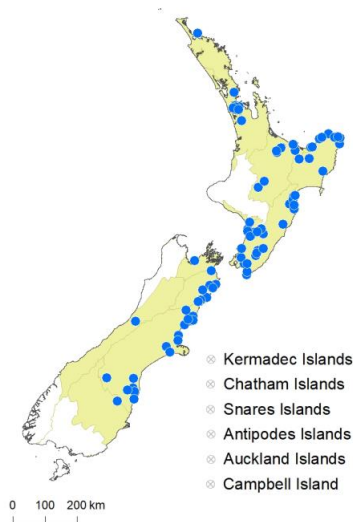
**Etymology:** From *anagallis*, pimpernel, and *aquatica*, water, i.e., water pimpernel, one of its common names in England.

**Vernacular names:** blue water speedwell; water speedwell

Perennial herb to 0.9 m tall. Stems creeping at first, later erect (stout, succulent and hollow, with adventitious roots at nodes that are in contact with soil or submerged), glabrous. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to spreading or reflexed; lamina thin, elliptic to obovate or oblong or oblanceolate, lanceolate and membranous if submerged, 30–85 mm (rarely to 150 mm) long, 10–40 mm (rarely to 75 mm) wide, dull pale green to green above, dull pale green beneath; midrib and lateral veins evident; surfaces glabrous; margin glabrous, minutely toothed to serrulate, rarely entire; teeth in 10–40 pairs; apex acute to acuminate; base cordate, amplexicaul and sessile, or the lower to mid leaves cuneate to petiole 2–5 mm long. Inflorescence a lateral raceme, 50–200 mm long; flowers crowded at first, becoming distant, 10–80, all bisexual; bracts alternate, linear, usually about  $\frac{1}{2}$  as long as pedicels or rarely about equal; pedicels erecto-patent to spreading, usually incurved at fruiting, 2.5–5.0 mm long at flowering, 5–8 mm long at fruiting, glabrous or rarely with sparse glandular hairs all around. Calyx lobes 4, acute to acuminate, 1.8–2.5 mm long at flowering, up to 4.5 mm long at fruiting, sub-equal, glabrous. Corolla 5–7 mm diameter; tube yellow



and white, c. 0.5 mm long, < calyx, eglandular hairy inside; lobes 4, pale blue, mauve, or pink, spreading, unequal, broadly ovate, orbicular, or broadly rhomboid, 2.5–3.0 mm long, obtuse; nectar guides magenta or purple, on all lobes. Stamens white, mauve, or pink, filaments 1.5–2.5 mm long; anthers white, pink, or mauve. Style glabrous, 1.5–2.5 mm long. Capsules angustiseptate, truncate to shallowly emarginate, glabrous or sparsely glandular ciliate on margins, 2.8–3.8 mm long, 2.5–4.0 mm at widest point. Seeds ellipsoid or oblong, flattened on face, rounded on back, smooth, pale brown or brown, 0.5–0.6 mm long.



**Fig. 72:** *Veronica anagallis-aquatica* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: throughout.

South Island: throughout but not recorded from Western Nelson and Southland.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** River banks, shores of lakes and pools, ditches, drains, swamps. Recorded elevations range from 0 to 420 m.

**First record:** Hooker (1853, p. 197, as *V. anagallis* L.).  
Voucher: not located.

**Recognition:** *V. anagallis-aquatica* plants are most likely to be misidentified as *V. americana* and *V. catenata*; they are all glabrous or almost glabrous aquatic plants and their seeds have an excentric chalaza. *V. americana* plants differ by solid stems and by leaves that are all shortly petiolate, even the uppermost, and more coarsely toothed. In *V. anagallis-aquatica*, at least the leaves that subtend inflorescences are sessile. *V. americana* plants also have shorter inflorescences (80–170 mm long) with fewer flowers (10–27), longer pedicels 7–14 mm long, larger and darker flowers (7–10 mm diameter), longer styles (3.5–4.0 mm long), and completely glabrous capsules that are a bit smaller (3.0–4.0 × 3.0–4.3 mm).

*V. catenata* plants differ in their sparsely glandular inflorescences, bracts being nearly always slightly longer than the pedicels, rather blunter calyx lobes, smaller pink flowers with the corolla tube glabrous or sparsely hairy within, glossier and darker green leaves, and emarginate capsules that are broader than their length.

Plants of a fourth aquatic species, *V. scutellata*, are very slender and weak-stemmed, with very narrow leaves and filiform inflorescences that are only one at each node; their deeply emarginate or didymous capsules are larger and distinctly flattened, and their seeds are 1.2–1.4 mm long with a central chalaza.

**Phenology:** Flowers: all year, but mostly spring and summer; fruits: all year.

**Cytology:** 2n = 36 based on overseas counts (Albach et al. 2008).

**Notes:** *Veronica anagallis-aquatica* is classified in *V.* subg. *Beccabunga* (Albach et al. 2004a; Albach & Meudt 2010), along with similar aquatic species *V. americana* and *V. catenata*, and also *V. peregrina* and *V. serpyllifolia*. The species has also been recorded in New Zealand as *V. anagallis*.



**Fig. 73:** *Veronica anagallis-aquatica*. Habit. The Brook, Nelson.



**Fig. 74:** *Veronica anagallis-aquatica*. Habit. Lake Horowhenua, Manawatu.



**Fig. 75:** *Veronica anagallis-aquatica*. Sprig. Scale = 10 mm.



**Fig. 76:** *Veronica anagallis-aquatica*. Flowering stem with amplexicaul leaf bases.



**Fig. 77:** *Veronica anagallis-aquatica*. Stem. Scale = 1 mm.



**Fig. 78:** *Veronica anagallis-aquatica*. Leaf surfaces, adaxial (left), abaxial (right). Scale = 1 mm.



**Fig. 79:** *Veronica anagallis-aquatica*. Inflorescence. Scale = 1 mm.



**Fig. 80:** *Veronica anagallis-aquatica*. Bract, pedicel and calyx. Scale = 1 mm.



**Fig. 81:** *Veronica anagallis-aquatica*. Flowers. Scale = 1 mm.



**Fig. 82:** *Veronica anagallis-aquatica*. Capsule and seeds. Scale = 1 mm.

### ***Veronica angustissima* (Cockayne) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 576 (2007)**

≡ *Veronica salicifolia* var. *angustissima* Cockayne, *Trans. & Proc. New Zealand Inst.* 50: 184 (1918)

≡ *Hebe angustissima* (Cockayne) Bayly & Kellow, *Illustr. Guide New Zealand Hebes* 305 (2006)

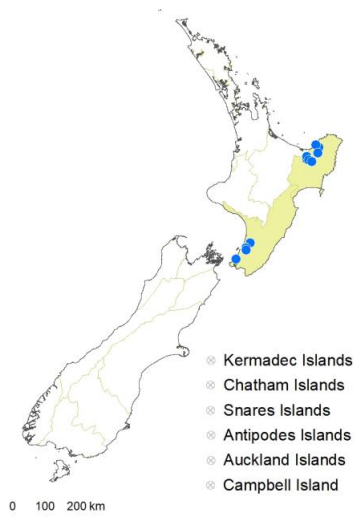
Neotype designated by Bayly & Kellow 2006): New Zealand, North Island, Wellington, Otaki Gorge, north of Pukehinau Stream, 100 m, rockface beside road, shrubs to c. 1.2 m tall, common, *M. J. Bayly* 1177, 13 Mar 1999, WELT 81521

**Etymology:** The epithet *angustissima* is the superlative of *angustus*, narrow, referring to the leaves.

**Vernacular names:** koromiko; kōkōmuka

Openly branched, bushy shrub to 1.4 m tall. Stems ascending to erect; eglandular-pubescent; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, spreading to recurved; lamina thin, linear to linear-lanceolate, 22–75 mm long, 3–9 mm wide, dull, dark green above, pale green beneath; midrib evident; surfaces often eglandular-hairy along midrib, sometimes minutely glandular-hairy, or glabrous; margin eglandular- and glandular-ciliolate, entire; apex mostly acute or sometimes sub-acute; base cuneate; petiole indistinct, winged, 1–2 mm long. Inflorescence a lateral raceme, 47–110 mm long; flowers crowded, 29–95, all bisexual; bracts alternate or loosely whorled, narrowly oblong to oblanceolate, ≤ pedicels; pedicels spreading to recurved, 1.8–3.5 mm long, puberulent all around. Calyx lobes 4, mostly acute

or sometimes obtuse, 2.0–2.5 mm long, equal or sub-equal, mixed glandular- and eglandular-ciliate, sometimes also eglandular-hairy or minutely glandular-hairy on outside of lobes. Corolla 2–4 mm diameter; tube white, 2.2–4.0 mm long, > calyx, hairy inside; lobes 4, white or pale purplish, sub-erect to erecto-patent, sub-equal, lanceolate to elliptic or oblong, 2.0–3.2 mm long, sub-acute to obtuse; nectar guides absent. Stamen filaments white, 4.0–4.5 mm long; anthers purplish to magenta. Style glabrous, 3.5–6.0 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 2.2–3.0 mm long, 1.4–2.6 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, straw-yellow to brown, 0.8–1.0 mm long.



**Fig. 83:** *Veronica angustissima* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Gisborne (Mōtū and Waioeka Valleys); Southern North Island (Ōtaki River and tributaries and a single collection from Takapu Valley, near Wellington). Also, a specimen from Whakataki, near Castlepoint [Oliver, WELT], identified as *V. stricta*, closely resembles *V. angustissima* plants, but it is not mapped here).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rocky sites in river gorges, often within the flood zone. Recorded elevations range from 30 to 244 m.

**Recognition:** *V. angustissima* is very similar to *V. stricta* and its recognition as a distinct species based only on its narrower leaves would be problematic except for its different flavonoid profile (Bayly & Kellow 2006, Mitchell et al. 2007). *V. stricta* plants usually have broader leaves (5–45 mm wide). However, narrow leaves that overlap with the range seen in *V. angustissima* can be found in all varieties of *V. stricta*. Some in the tetraploid *V. stricta* var. *egmontiana*, which does not overlap in geographic range with *V. angustissima*, may be narrower than those seen in *V. angustissima*. North of the Manawatu Gorge, *V. stricta* plants generally have calyx lobes that are hairy on their outer surfaces, whereas such hairs

occur only rarely in *V. angustissima*. However, some samples collected together with *V. angustissima* were assigned to *V. stricta* because of their broader leaves, but they have glabrous surfaces on the calyx lobes (e.g., Bayly 1205, WELT SP081603). *V. stricta* populations are usually gynodioecious, including some female plants, which are distinguished by having generally smaller and paler anthers that are empty of pollen.

*V. tairawhiti* is also similar and grows in the Gisborne region, close to the locations of *V. angustissima* in eastern Bay of Plenty, but the ranges of the two do not overlap. *V. tairawhiti* plants also have narrow leaves, but these are broadest at the very base and thicker. *V. tairawhiti* plants are usually larger and have more flowers per inflorescence.

**Phenology:** Flowers: February–April, rarely extending to June; fruits: March–July, persisting to January.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe angustissima*).

**Notes:** *Veronica angustissima* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

The flowers are slender and delicate and don’t open widely. The calyx lobes have broad white or pinkish margins.

The Māori names koromiko, kōkōmuka, and variants – applied to *V. stricta* and *V. salicifolia* – might also be applied to similar large-leaved hebes, such as *V. angustissima*.



**Fig. 84:** *Veronica angustissima*. Habit. Ōtaki Gorge, Wellington.



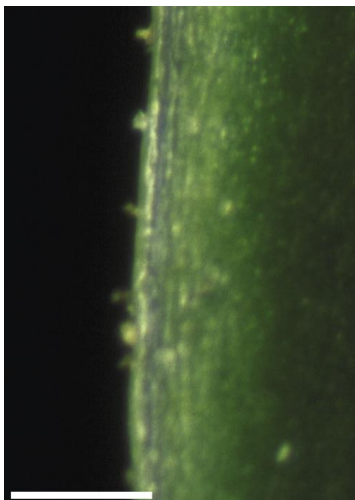
**Fig. 85:** *Veronica angustissima*. Sprig. Scale = 10 mm.



**Fig. 86:** *Veronica angustissima*. Leaf bud with no sinus. Scale = 1 mm.



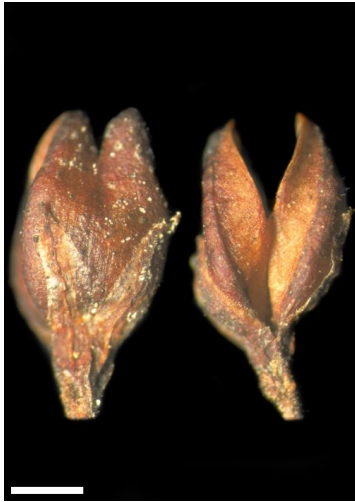
**Fig. 87:** *Veronica angustissima*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 88:** *Veronica angustissima*. Leaf margin with minute hairs. Scale = 0.1 mm.



**Fig. 89:** *Veronica angustissima*. Flowers. Scale = 1 mm.



**Fig. 90:** *Veronica angustissima*. Capsules.  
Scale = 1 mm.

### ***Veronica annulata* (Petrie) Cheeseman, *Man. New Zealand Fl.*, ed. 2, 819 (1925)**

≡ *Veronica armstrongii* var. *annulata* Petrie, *Trans. & Proc. New Zealand Inst.* 45: 273 (1913)

≡ *Hebe annulata* (Petrie) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

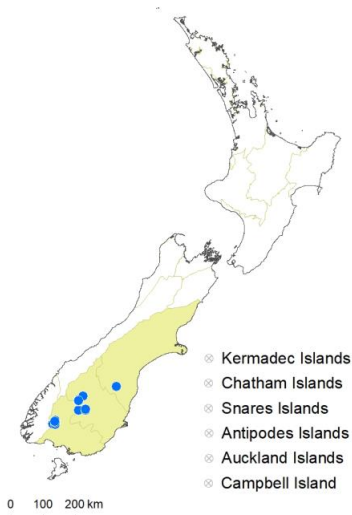
≡ *Leonohebe annulata* (Petrie) Heads, *Bot. Soc. Otago Newsl.* 5: 7 (1987)

Lectotype (designated by Ashwin, in Allan 1961): on rock face of northern slope of Takitimu Mts, at about 900 m altitude, *L. Cockayne* 7617, 13 Mar 1912, WELT 5347. Isolectotypes: K, CHR 328337, WELT 17493

**Etymology:** The epithet *annulata* means ringed, a reference to the connate leaves that encircle the stem.

**Vernacular name:** whipcord hebe

Spreading low whipcord shrub to 0.5 m tall. Stems ascending or erect, glabrous except for narrow line of eglandular hairs at the connate leaf bases, and sometimes hairs bifarious or uniform at base of internodes. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed but not usually covering the obscure node above, scale-like; lamina coriaceous, broadly deltoid to rectangular, 1–2 mm long, 2–3 mm wide, more or less glossy green or yellowish-green above and beneath; veins not evident, although leaf sometimes longitudinally wrinkled when dry; surfaces glabrous; margin conspicuously shortly ciliate to ciliolate, entire; apex obtuse to truncate; base broad; petiole absent. Inflorescence a terminal spike, 2.5–7.0 mm long; flowers crowded, 4–10, all bisexual; bracts opposite-decussate and connate, broadly deltoid to semi-circular; pedicels absent. Calyx lobes 4, seemingly 3 because anterior pair fused, obtuse, 1.5–2.0 mm long, unequal, densely shortly eglandular-ciliate to -ciliolate. Corolla 4.5–6.0 mm diameter; tube white, 1.5–2.0 mm long, ≤ calyx, hairy inside; lobes 4, white, erecto-patent to recurved, unequal, elliptic or obovate, 2–3 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 2.6–3.5 mm long; anthers pink to purple. Style glabrous, 2.8–5.0 mm long. Capsules latiseptate, obtuse to rounded, glabrous, 1.8–2.7 mm long, 1.5–1.9 mm at widest point. Seeds obovoid or irregular, weakly flattened, smooth, pale brown, 0.9–1.3 mm long.



**Fig. 91:** *Veronica annulata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Otago (Criffel Range, Remarkables, Hector Mts); Southland (Takitimu Mountains). An old record from near Kurow, Waitaki Valley, has not been corroborated. Also, a cultivated specimen (CHR 331852), said to have originated at Hump Ridge, Southland, is not included in the distribution.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sparse scrub and rock outcrops. Recorded elevations range from 710 to 1350 m.

**Recognition:** Superficially, *V. annulata* plants resemble *V. hectorii* plants, but the latter differ in having their nodal joints concealed although well marked, and in having their anterior calyx lobes free. Several other whipcord hebes are characterised by fused anterior calyx lobes: *V. salicornioides* plants have longer internodes and a smooth surface to the leafy stem; *V. armstrongii* plants have more sub-acute to acuminate leaf apices, leaves not so strongly appressed, and more slender, leafy branches; *V. ochracea* plants have thicker, leafy stems, ovate to deltoid leaves, more yellowish to bronze coloration, and paler anthers, as well as a higher chromosome number and distribution in the northern South Island.

**Phenology:** Flowers: October–January; fruits: December–March.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe annulata*).

**Notes:** *Veronica annulata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). It is most likely related to *V. armstrongii*, *V. salicornioides*, and *V. ochracea*, similar whipcord hebes that have  $2n = 42, 84$  and the anterior calyx lobes fused together.



**Fig. 92:** *Veronica annulata*. Habit. Wye Creek, Remarkables, Otago.



**Fig. 93:** *Veronica annulata*. Sprig. Scale = 10 mm.



**Fig. 94:** *Veronica annulata*. Branchlet. Scale = 1 mm.



**Fig. 95:** *Veronica annulata*. Close-up of leaves with obscure nodal joint. Scale = 1 mm.



**Fig. 96:** *Veronica annulata*. Terminal inflorescence. Scale = 1 mm.



**Fig. 97:** *Veronica annulata*. Infructescence. Scale = 1 mm.



**Fig. 98:** *Veronica annulata*. Capsule. Scale = 1 mm.



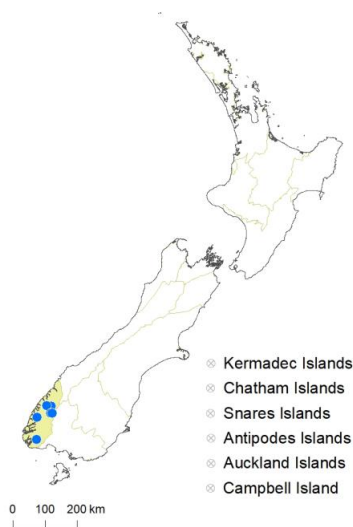
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***Veronica arganthera* (Garn.-Jones, Bayly, W.G.Lee & Rance) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 576 (2007)**

≡ *Hebe arganthera* Garn.-Jones, Bayly, W.G.Lee & Rance, *New Zealand J. Bot.* 38: 380 (2000)  
Holotype: Lk. Monk, south-west Fiordland, limestone face within beech forest, 780 m,  
B. D. Rance, 4 Apr 1993, CHR 489369

**Etymology:** The epithet *arganthera* means white-anthered. Most *Veronica* flowers have magenta, mauve or blue anthers.

Bushy shrub to 1.5 m tall. Stems ascending to erect, or old ones hanging on cliffs; eglandular-pubescent, hairs bifarious. Leaf bud distinct, its outer leaves fully grown, appressed at margins; sinus narrowly acute. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous to coriaceous, narrowly elliptic, oblong, or oblanceolate, 12–38 mm long, 5–11 mm wide, dull green or yellowish-green above, dull pale green beneath; midrib evident; surfaces glabrous except for eglandular hairs along midrib above; margin ciliolate or papillate or rarely ciliate, entire; apex sub-acute, plicate-acuminate; base cuneate; petiole 3–4 mm long. Inflorescence a lateral raceme sometimes with 1–2 branches at base, 20–50 mm long; flowers crowded, 9–25, all bisexual; bracts opposite, sometimes becoming alternate above, linear, lanceolate, or narrowly deltoid, ≥ pedicels; pedicels erecto-patent, 0.5–5.0 mm long, eglandular-pubescent all around. Calyx lobes 4, obtuse, 2.2–2.8 mm long, equal, eglandular-ciliolate or mixed glandular- and eglandular-ciliolate. Corolla 7–9 mm diameter; tube white, 1.5–2.5 mm long, ≤ calyx, glabrous; lobes 4, white, erecto-patent to recurved, sub-equal, deltoid or broadly ovate to broadly elliptic, 4.5–6.0 mm long, obtuse; nectar guides absent. Stamen filaments white, 4.0–6.5 mm long; anthers white or pale yellow. Style glabrous, 5–7 mm long. Capsules latiseptate, acute, glabrous, 3–4 mm long, 2.5–3.5 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, straw-yellow to pale brown, 0.5–0.9 mm long.



**Fig. 99:** *Veronica arganthera* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Fiordland (Lake Wapiti, Takahe Valley, Doubtful Sound above Kellard Point, Lake Monk). Additional to vouchered location records is a photographic record from c. 500 m north-west of Evans Peak, Bradshaw Sound, on karst limestone, not included on the map.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Calcareous bluffs and steep slopes near and above tree line. Recorded elevations range from 840 to 1600 m.

**Recognition:** *V. arganthera* has some characteristic features not covered in the above description: prominent leaf base scars on the stems, giving them a rough appearance, and the petiole is hairy above and beneath. The plants look superficially similar to *V. subalpina*, but plants of *V. subalpina* differ in their glossy, bright green leaves, glabrous leaf margins, absence of a sinus in the leaf bud, and magenta anthers. In southern New Zealand, *V. cockayneana* and *V. dilatata* are similar in having a narrowly acute sinus in the vegetative bud, but plants of either may be distinguished from *V. arganthera* by their smaller, more glaucous or glaucescent leaves (discolorous and sometimes glandular-ciliate in

*V. cockayneana*) and magenta anthers.

**Phenology:** Flowers: December–January (extending to May); fruits: March (probably also earlier and later).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe arganthera*).

**Notes:** *Veronica arganthera* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 100:** *Veronica arganthera*. Habit. Takahe Valley, Murchison Mts, Southland.



**Fig. 101:** *Veronica arganthera*. Sprig. Scale = 10 mm.



**Fig. 102:** *Veronica arganthera*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 103:** *Veronica arganthera*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 104:** *Veronica arganthera*. Close-up of margin showing minute hairs.



**Fig. 105:** *Veronica arganthera*. Inflorescence. Scale = 1 mm.



**Fig. 106:** *Veronica arganthera*. Flowers.  
Scale = 1 mm.



**Fig. 107:** *Veronica arganthera*. Capsules.  
Scale = 1 mm.

### ***Veronica armstrongii* Johnson ex J.B.Armstr., *N.Z. Ctry. J.* 3: 59 (1879)**

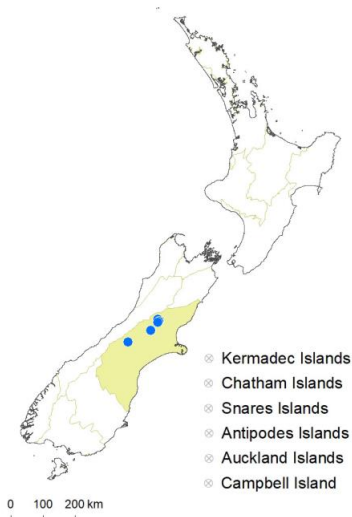
≡ *Hebe armstrongii* (Johnson ex J.B.Armstr.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 40 (1926)

≡ *Leonohebe armstrongii* (Johnson ex J.B.Armstr.) Heads, *Bot. Soc. Otago Newsl.* 5: 7 (1987)  
Lectotype (designated by Ashwin, in Allan 1961): Rangitata Sources, 4-5000 ft., *J. F. A[rmstrong]*, 1869, CHR 635752. Possible isoelectotypes: AK 8252 [this differs from the type in the stated altitude, "4-6000 ft"], K [this is a duplicate of AK 8252 (both have the number 1620, from T. F. Cheeseman), but gives the collector as J. B. Armstrong]

**Etymology:** Named after Canterbury horticulturalist and botanist John F. Armstrong (Godley 1999). The type material was collected by J.F. Armstrong and the plant became widely known informally in horticulture as *V. armstrongii* before his son, Joseph B. Armstrong, named it formally in 1879 (Godley 1999, Bayly & Kellow 2006).

**Vernacular name:** whipcord hebe

Bushy whipcord shrub to 1 m tall. Stems ascending to erect, glabrous except for narrow line of eglandular hairs at the connate leaf bases, and sometimes hairs bifarious to uniform at base of internodes. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed but not usually covering the more or less distinct node above, scale-like; lamina coriaceous, broadly deltoid, 1.0–1.5 mm long, 2–3 mm wide, more or less glossy yellowish-green above and beneath; veins not evident, although sometimes leaf longitudinally wrinkled when dry; surfaces glabrous; margins conspicuously shortly ciliate to ciliolate, entire; apex obtuse, apiculate or sub-apiculate; base broad; petiole absent. Inflorescence a terminal spike, 2.5–8.5 mm long; flowers crowded, 2–10, all bisexual; bracts opposite-decussate and connate, broadly deltoid; pedicels absent. Calyx lobes 4, seemingly 3 because anterior pair fused to apex and sometimes shortly split there, occasionally posterior pair partly fused as well, obtuse, 1.3–1.8 mm long, unequal, densely shortly eglandular-ciliate to -ciliolate mixed with short glandular hairs as well. Corolla 4.5–7.0 mm diameter; tube white, 1.0–1.7 mm long, ≤ calyx, hairy inside; lobes 4, white, sometimes tinged mauve, sub-erect to spreading, unequal, elliptic to obovate, 2.0–3.5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 2–3 mm long; anthers magenta or pink to yellowish. Style glabrous, 2–4 mm long. Capsules latiseptate, rounded, glabrous, 2–3 mm long, 1.4–2.2 mm at widest point. Seeds ellipsoid-oblong to discoid, weakly flattened, smooth, straw-yellow to pale brown, 0.9–1.3 mm long.



**Fig. 108:** *Veronica armstrongii* distribution map based on databased records at AK, CHR & WELT.

However, whipcord hebes have strictly opposite-decussate leaves, whereas those of podocarps like *Halocarpus* are spiralled.

**Phenology:** Flowers: October–January; fruits: December–May, persisting all year.

**Cytology:**  $2n = 84$  (see Bayly & Kellow 2006, as *Hebe armstrongii*).

**Hybridisation:** A plant of *V. armstrongii* × *odora* from Pūkio Stream, Esk Valley, has been brought into cultivation as *Veronica* ‘Karo Golden Esk’.

**Notes:** *Veronica armstrongii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). It is most likely related to *V. annulata*, *V. salicornioides*, and *V. ochracea*, similar whipcord hebes that have  $2n = 42, 124$ , and the anterior calyx lobes fused together.



**Fig. 109:** *Veronica armstrongii*. Habit. Waimakariri catchment, Canterbury.



**Fig. 110:** *Veronica armstrongii*. Sprig. Scale = 10 mm.

**Distribution:** South Island: Canterbury (Waimakariri and Rangitata Valleys).

**Biostatus:** Indigenous (Endemic).

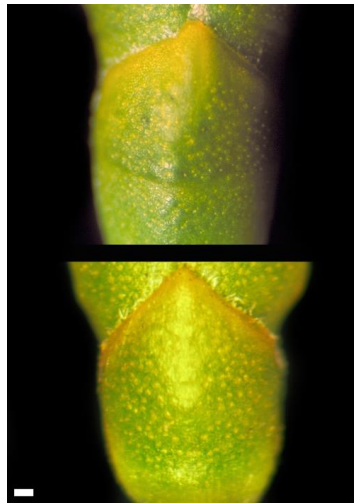
**Habitat:** River terraces and bogs, often with *Halocarpus bidwillii*. Recorded elevations range from 700 to 1220 m.

**Recognition:** In dried (herbarium) specimens the leaves spread away from the stems and each connate pair forms an almost obconic skirt around the leafy branch. *Veronica armstrongii* plants are most similar to *V. annulata*, which can be distinguished by their slightly larger leaves that remain more or less appressed when dried, and their leaf apex obtuse without an apiculus. Two other whipcord hebes have fused anterior calyx lobes: *V. salicornioides* plants have longer internodes and tightly appressed leaves, which gives a smooth surface to the leafy stem; *V. ochracea* plants have thicker, leafy stems, ovate to deltoid leaves, more yellowish to bronze coloration, as well as a higher chromosome number and distribution in the northern South Island.

*V. armstrongii* is sometimes mistaken for *Halocarpus bidwillii* (bog pine), which it resembles when not in flower.



**Fig. 111:** *Veronica armstrongii*. Branchlet. Scale = 1 mm.



**Fig. 112:** *Veronica armstrongii*. Close-up of leaves with nodal joint either obvious (above) or obscure (below). Scale = 0.1 mm.



**Fig. 113:** *Veronica armstrongii*. Terminal inflorescence. Scale = 1 mm.



**Fig. 114:** *Veronica armstrongii*. Infructescence. Scale = 1 mm.

## ***Veronica arvensis* L., Sp. Pl. 13 (1753)**

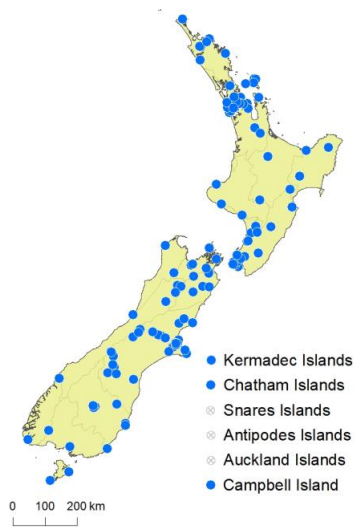
= *Veronica hirsuta* Colenso, *Trans. & Proc. New Zealand Inst.* 24: 393 (1892)

**Etymology:** The epithet *arvensis* means found in fields, a reference to its status as a weed of cultivated ground.

**Vernacular name:** field speedwell

Annual herb to 0.45 m tall. Stems decumbent to erect; hairs of two types: dense, bifarious, antrorse, short, eglandular; and sparse, long, uniform, eglandular or sometimes glandular. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, elliptic to ovate or sub-orbicular, becoming deltoid above, 5–20 mm long, 3–12 mm wide, dull green above, pale green to pinkish beneath; midrib and secondary veins distinct; surfaces eglandular-pubescent above and beneath, at least on veins; margin pubescent, serrate-crenate to serrate-dentate; teeth in 3–6 pairs; apex obtuse to sub-acute; base truncate to sub-cordate; petiole 0–4 mm rarely to 10 mm long. Inflorescence a terminal spike or raceme, 5–40 mm long; flowers crowded, distant at fruiting, 5–60, all bisexual; bracts alternate, lowest leaf-like, becoming lanceolate-elliptic, > pedicels; pedicels erecto-patent, 0–2 mm long, eglandular-pubescent all around. Calyx lobes 4, sub-acute to acute, unequal (the posterior  $\frac{1}{2}$ – $\frac{3}{4}$  the anterior), 1.5–3.0 mm long, elongating to 5–6 mm at fruiting, glandular- and eglandular-hairy. Corolla 2–3 mm diameter; tube white and yellow, 1 mm long, < calyx, glabrous; lobes 4, blue, rarely white or pinkish, erecto-patent, unequal, elliptic to orbicular,

1.0–1.5 mm long, rounded; nectar guides dark blue. Stamen filaments white, 0.5–1.0 mm long; anthers blue. Style glabrous, c. 0.5 mm long. Capsules angustiseptate, obcordate, glandular- or eglandular-ciliate on edges, 2.5–3.0 mm long, 3–4 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown, 1–1.2 mm long.



**Fig. 115:** *Veronica arvensis* distribution map based on databased records at AK, CHR & WELT.

having only short stem hairs (glandular above), upper leaves and lower bracts lobed to at least halfway, and pubescent faces on the capsules (glandular on capsule margins). *V. triphyllos* plants have rather larger blue flowers, digitately lobed leaves, densely glandular inflorescence and calyx, much longer pedicels at fruiting, larger capsules, and cup-shaped seeds.

*V. arvensis* plants have been misidentified as *V. polita*. *V. polita* plants have rather larger flowers with longer pedicels, and even their uppermost bracts are leaf-like. Their capsule lobes are rounded, only weakly flattened, and hairy all over. Their seeds are wrinkled and cup-shaped.

**Phenology:** Flowers: July–April (mostly October–January); fruits: August–June (mostly November–May).

**Cytology:**  $2n = 16$  in Europe (Albach et al. 2008).

**Notes:** *Veronica arvensis* is classified in *V.* subg. *Chamaedrys* (Albach et al. 2004a; Albach & Meudt 2010).

In *V. arvensis* the transition between leaves and bracts is gradual, so that lower bracts are leaf-like and may be coarsely few-toothed.

**Distribution:** North Island: throughout.

South Island: throughout.

Kermadec Is., Chatham Is., Stewart I., Campbell I./Motu Ihupuku.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Open, modified and disturbed habitats, waste places, roadsides, arable land, short, poor, and depleted pasture, lawns, stream beds, and cliffs. Recorded elevations range from 0 to 1360 m.

**First record:** Kirk, T. in Hooker (1864, p. 217). Voucher: not located.

**Recognition:** *V. arvensis* plants can be recognised by a combination of characters: short, bifarious, mixed with long, uniform stem hairs, leaves toothed but not deeply lobed, tiny bright blue (very rarely white) sessile flowers in a terminal inflorescence, small, obcordate ciliate capsules, and flattened seeds.

*V. verna* plants have a similar growth form, with sessile, small blue flowers and flattened seeds, but can be distinguished by



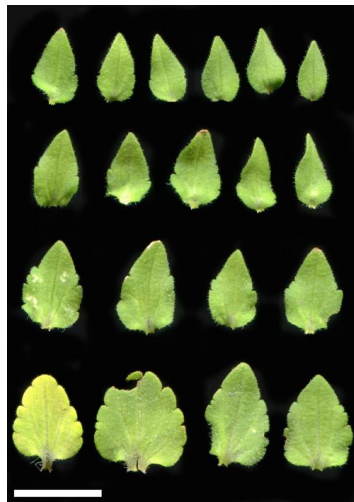
**Fig. 116:** *Veronica arvensis*. Habit. Atawhai, Nelson. Scale = 10 mm.



**Fig. 117:** *Veronica arvensis*. Habit. Karori, Wellington. Scale = 10 mm.



**Fig. 118:** *Veronica arvensis*. Sprig with flower and fruits. Scale = 1 mm.



**Fig. 119:** *Veronica arvensis*. Sequence of leaves showing a gradual transition from the base of the plant (lower left) towards the apex (upper right). Scale = 10 mm.



**Fig. 120:** *Veronica arvensis*. Leaf surfaces, adaxial (above) and abaxial (below), from lower leaf (left) and upper leaf (right). Scale = 1 mm.



**Fig. 121:** *Veronica arvensis*. Terminal inflorescence. Scale = 1 mm.



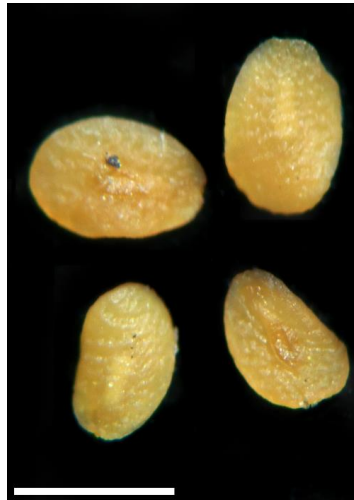
**Fig. 122:** *Veronica arvensis*. Flower. Scale = 1 mm.



**Fig. 123:** *Veronica arvensis*. Flower of a white morph. Scale = 1 mm.



**Fig. 124:** *Veronica arvensis*. Capsule. Scale = 1 mm.



**Fig. 125:** *Veronica arvensis*. Seeds. Scale = 1 mm.

***Veronica barkeri* Cockayne, *Trans. New Zealand Inst.* 31: 421 (1899)**

≡ *Hebe barkeri* (Cockayne) Cockayne, *Trans. New Zealand Inst.* 60: 469 (1929)

Lectotype (designated by Moore, in Allan 1961): cultivated at Christchurch, plant originally from the Chatham Islands, L. Cockayne, AK 7663

= *Veronica gigantea* Cockayne, *Trans. & Proc. New Zealand Inst.* 34: 319 (1902)

≡ *Veronica salicifolia* var. *gigantea* (Cockayne) Cheeseman, *Man. New Zealand Fl.* 504 (1906)

≡ *Hebe gigantea* (Cockayne) Cockayne in Cockayne & Allan, *Trans. New Zealand Inst.* 57: 19 (1927)

See Bayly & Kellow (2006, p. 324) for a discussion on the typification of *V. gigantea* and the uncertainty surrounding its placement under either *V. barkeri* or *V. dieffenbachii*.

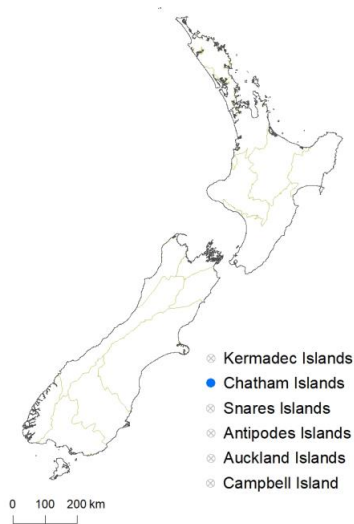
**Etymology:** Named after Samuel Delabere Barker (1848–1901), who collected the original material during a 2-month visit to the Chatham Is. in 1873 (Godley 1993).

**Vernacular name:** Barker's koromiko

Small tree to 13 m tall. Stems erect; eglandular-puberulent to -pubescent; hairs uniform. Leaf bud distinct, its outer leaves fully grown, appressed at margins; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, linear-lanceolate to lanceolate, 24–79 mm long, 4–22 mm wide, dull pale green or green above, pale green beneath; midrib evident, secondary veins usually visible in fresh leaves; surfaces with eglandular hairs along midrib and sometimes elsewhere above, sometimes along midrib and rarely elsewhere beneath, and conspicuous to obscure short or sessile glandular hairs, usually in minute pits, especially beneath; margin pubescent, entire; apex



acute; base cuneate to abruptly cuneate or sub-cordate; petiole absent. Inflorescence a lateral raceme, 28–76 mm long; flowers crowded, 23–39, all bisexual; bracts alternate to loosely whorled, deltoid or narrowly deltoid to oblong, < pedicels; pedicels erecto-patent to spreading, 1.0–5.5 mm long, eglandular-hairy all around. Calyx lobes 4, acute, 1.5–2.5 mm long, sub-equal, mixed glandular- and eglandular-ciliate, also often pubescent outside. Corolla 6–8 mm diameter; tube white, 1.4–2.0 mm long, < calyx, eglandular-hairy inside; lobes 4, usually white, occasionally pink or bluish, erecto-patent to spreading or recurved, sub-equal to unequal, elliptic, obovate, or rhomboid, 2.5–4.0 mm long, obtuse; nectar guides absent. Stamen filaments white or pale purplish, 4–5 mm long; anthers purple. Style eglandular-hairy, 2.5–4.5 mm long. Capsules latiseptate, sub-acute to obtuse, eglandular-hairy, 4–5 mm long, 2.8–3.3 mm at widest point. Seeds broadly ellipsoid to ellipsoid oblong, flattened, smooth, pale to dark brown, 1.0–1.2 mm long.



**Fig. 126:** *Veronica barkeri* distribution map based on databased records at AK, CHR & WELT.

the calyx and longer than the corolla lobes.

**Phenology:** Flowers: October–December; fruits: December–January.

**Cytology:**  $2n = 40, 80$  (the latter all from specimens of cultivated origin) (see Bayly & Kellow 2006, as *Hebe barkeri*).

**Notes:** *Veronica barkeri* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Juvenile leaves have been described as minutely denticulate, ciliate with long multicellular hairs, pubescent on midrib beneath (Bayly & Kellow 2006).

Hairs inside the ovary locules have been noted in several flowers of *V. barkeri* and might be a unique and constant characteristic of the species.

**Distribution:** Chatham Is. Known from the southern half of Chatham I. and a single plant on Pitt I. (*Rangiauria*). An unvouchered record from South East I. (*Rangatira*) is not represented on the map.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Forest, especially near streams, scrub, coastal scarps. Recorded elevations range from 2 to 244 m.

**Recognition:** The tree habit and hairy leaves are distinctive. *V. flavida* and *V. parviflora* also form small trees, but they occur naturally on the New Zealand mainland; *V. parviflora* leaves are much smaller and narrower, and those of *V. flavida* are less hairy and have a prominent yellowish patch at the leaf base and the basal part of the midrib.

Among species that also occur on the Chatham Is., *V. barkeri* can be confused with *V. dieffenbachii*, but plants of *V. dieffenbachii* are shrubs, have duller or often greyish-green adult leaves, broadest at or above the middle, leaf margins glabrous although sometimes fringed with a row of long hairs and also occasionally a minute pubescence of short hairs, leaf stomata conspicuous beneath, and corolla tube longer than



**Fig. 127:** *Veronica barkeri*. Habit. Tuku a tamatea River, Chatham I.



**Fig. 128:** *Veronica barkeri*. Sprig. Scale = 10 mm.



**Fig. 129:** *Veronica barkeri*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 130:** *Veronica barkeri*. Leaf surfaces, adaxial (left) and abaxial (right), with magnified inset of margin. Scale = 10 mm.



**Fig. 131:** *Veronica barkeri*. Inflorescence. Scale = 1 mm.



**Fig. 132:** *Veronica barkeri*. Flowers in lateral view. Scale = 1 mm.



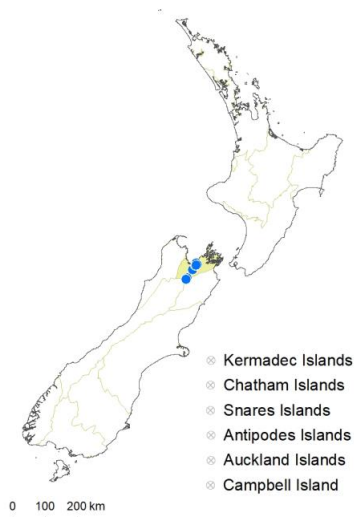
**Fig. 133:** *Veronica barkeri*. Capsules.  
Scale = 1 mm.

### ***Veronica baylyi* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 576 (2007)**

- nom. nov. pro *Veronica laevis* var. *carnosula* Hook.f. 1853  
 ≡ *Veronica laevis* var. *carnosula* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I*, 210 (1853)  
 ≡ *Veronica carnosula* (Hook.f.) Hook.f., *Handb. New Zealand Fl.* 210 (1864) nom. illeg., non *Veronica carnosula* Lam. 1791  
 ≡ *Hebe carnosula* (Hook.f.) Cockayne, *Trans. New Zealand Inst.* 60: 469 (1929)  
 Holotype: near Nelson, Morse's Mountain, 5000 ft., Bidwill n. 10, K

**Etymology:** Named for Michael James Bayly, whose research on New Zealand *Veronica* (as *Hebe*, e.g., Bayly & Kellow 2006) included the reinstatement of this species, as *Hebe carnosula* (Hook.f.) Cockayne.

Low shrub to 1 m tall. Stems erect, eglandular-puberulent, glabrous with age; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, appressed at margins; sinus acute. Leaves opposite-decussate, sub-erect to spreading, lamina coriaceous, elliptic to obovate, 6.0–12.5 mm long, 4.5–9.0 mm wide, dull olive-green to sub-glaucous or glaucescent above, glaucescent or glaucous beneath; midrib evident; surfaces glabrous; margin glabrous, minutely papillate, entire; apex obtuse to sub-acute or weakly apiculate; base cuneate to truncate; petiole 1.0–1.5 mm long. Inflorescence a lateral spike or raceme, 12–30 mm long; flowers crowded, 6–22, female or bisexual on separate plants, ♂ > ♀; bracts opposite-decussate, sometimes becoming alternate above, lanceolate to ovate, > pedicels; pedicels absent or erecto-patent, 0–1.5 mm long, eglandular-hairy all around. Calyx lobes 4–5 (5th small, posterior), obtuse to sub-acute, 1.5–2.8 mm long, sub-equal, mixed glandular- and eglandular-ciliate or -ciliolate. Corolla 5–9 mm diameter; tube white, 2.1–2.7 mm long, ≥ calyx, glabrous; lobes 4, white, erecto-patent to spreading, sub-equal, lanceolate to narrowly elliptic, 3–5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 2.5–5.2 mm long; anthers magenta. Style glabrous or sometimes eglandular-hairy, especially towards base, 5–6 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous or rarely a few eglandular hairs at apex, 3.0–4.5 mm long, 2.6–3.0 mm at widest point. Seeds oblong to elliptic, flattened, smooth, brown, 1.3–1.7 mm long.



**Fig. 134:** *Veronica baylyi* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Bryant Range: Dew Lakes, Mt Starveall, Dun Mountain; Red Hills Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Scrub and grassland on ultramafic rocks. Recorded elevations range from 762 to 1600 m.

**Recognition:** *Veronica baylyi* plants have a distinctive appearance, and may be distinguished from other glaucous hebes on a suite of minor characters. The plants generally have an erect habit (but sometimes can be straggly, depending on environment), glaucous to olive-green leaves, narrow acute sinus, rounded calyx lobes, and mostly glabrous capsules. Those features distinguish it from *V. pinguifolia*, which can occur nearby and further south. Also, *V. baylyi* is strictly confined to ultramafic rocks, whereas *V. pinguifolia* occurs on a range of substrates, but mostly on greywacke and never on ultramafic rocks. *V. pinguifolia* leaf buds normally lack a sinus, but some plants in Marlborough and Nelson have a small sinus at the base of the bud, rather shorter and broader than the sinus of *V. baylyi* plants.

**Phenology:** Flowers: November–January, sometimes extending to April; fruits: January–April.

**Cytology:** The chromosome number of *V. baylyi* is not yet established, but preliminary counts (B. Murray, pers. comm.) and flow cytometry results (H.M. Meudt, pers. comm.) indicate it is close to  $2n = 120$ .

**Hybridisation:** Near the margins of the ultramafic belt, especially on the Red Hills Range, plants may be more variable, especially in leaf colour, and it seems possible that some hybridisation is occurring. Both *V. brachysiphon* and *V. subfulvida* grow nearby.

**Notes:** *Veronica baylyi* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

*Veronica baylyi* had been placed *incertae sedis* by Moore (in Allan 1961, as *Hebe carnosula*), and Cheeseman (1906, 1925, as *V. carnosula*) gave it a broader circumscription to include plants treated here as part of the range of *V. pinguifolia*.

The seed description above is based on a single collection. We need more collections of *V. baylyi* fruit and seed to establish the range of variation.



**Fig. 135:** *Veronica baylyi*. Habit. Red Hills, Marlborough.



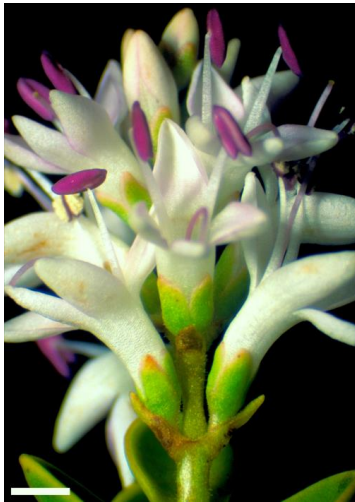
**Fig. 136:** *Veronica baylyi*. Sprig. Scale = 10 mm.



**Fig. 137:** *Veronica baylyi*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 138:** *Veronica baylyi*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 139:** *Veronica baylyi*. Inflorescence. Scale = 1 mm.



**Fig. 140:** *Veronica baylyi*. Flowers. Scale = 1 mm.



**Fig. 141:** *Veronica baylyi*. Infructescence with unripe capsules. Scale = 1 mm.



**Fig. 142:** *Veronica baylyi*. Capsule. Scale = 1 mm.



Fig. 143: *Veronica baylyi*. Seeds. Scale = 1 mm.

***Veronica benthamii* Hook.f., *Bot. Antarct. Voy. I. (Fl. Antarct.) Part I, 60, pl. 39, 40 (1844)***

as "benthami"

≡ *Hebe benthamii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 43 (1926) – as *benthami*

≡ *Leonohebe benthamii* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 7 (1987)

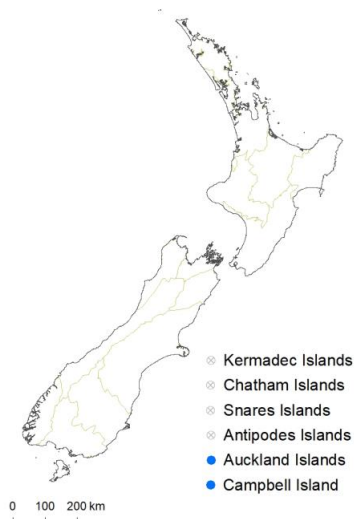
Lectotype (designated by Moore, in Allan 1961): Lord Auckland's Isd, *J. D. H[ooker]*, Nov. 1840, K

= *Veronica finaustrina* Hombr. & Jacquinot, *Voy. Pôle Sud, Bot. Plate 9, Fig. y* (1845)

Holotype: *Voyage au Pôle Sud et dans l'Océanie – Botanique: plate 9, fig. y* (1845)

**Etymology:** Named after George Bentham (1800–1884), English botanist and collaborator of Joseph Hooker.

Shrub to 1 m tall. Stems decumbent or ascending, eglandular-pubescent or glabrous; hairs bifarious. Leaf bud indistinct; leaves separating while small, opposite-decussate, shortly connate and encircling stem, erecto-patent to spreading or reflexed; lamina coriaceous, elliptic to obovate, 10–33 mm long, 3.5–14.5 mm wide, dull to somewhat glossy green above, dull green beneath; midrib evident; surfaces with eglandular hairs along midrib and near margins above, sometimes with scattered long hairs above; margin ciliate in a dense, tangled, fringing band of long, white, eglandular and very short glandular hairs, shallowly crenate to bluntly serrate or rarely entire; teeth in 1–6 pairs; apex obtuse to truncate; base cuneate to sub-cordate; petiole 1–2 mm long. Inflorescence a terminal raceme or rarely compound raceme, 30–80 mm long; flowers crowded, 10–22, or more in compound racemes, all bisexual; bracts opposite-decussate, obovate or sometimes elliptic, > pedicels; pedicels erecto-patent to spreading, 1–6 mm long, eglandular-hairy all around or glabrous. Calyx lobes 4–6, obtuse or sub-acute, 4.5–8.5 mm long, unequal, densely eglandular-ciliate on margins with minute glandular hairs as well. Corolla 7–12 mm diameter; tube pale to dark blue or purplish, 2.0–3.2 mm long, < calyx, glabrous; lobes 4–6, pale to dark blue or purplish, erect to spreading, equal to sub-equal, elliptic, obovate, or orbicular, 4–6 mm long, obtuse or posterior lobe sometimes emarginate; nectar guides absent although veins sometimes visible. Stamen filaments blue, 1–2 mm long; anthers blue to purplish. Style glabrous, 2.5–4.0 mm long. Capsules latiseptate or trigonous, acute or sub-acute, glabrous, 4–8 mm long, 4–6 mm at widest point. Seeds broadly ellipsoid to discoid, flattened, smooth, straw-yellow to dark brown, 1.2–1.9 mm long.



**Fig. 144:** *Veronica benthamii* distribution map based on databased records at AK, CHR & WELT. (*benthamii*).

**Distribution:** Auckland Is. (Adams I., Auckland I., Disappointment I.), Campbell I. / Motu Ihupuku. Widespread and common.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine tussock grassland, low scrub, and often on steep and rocky slopes. Recorded elevations range from 90 to 495 m.

**Recognition:** *Veronica benthamii* is unusual and distinctive. The plants have bluntly toothed to crenate leaf margins with a thick band of dense, tangled hairs, blue to purplish flowers, and often 3-locular ovaries and capsules. There are no other species with this combination of characters and nothing else that looks remotely similar, especially on the Auckland Is. and Campbell I. / Motu Ihupuku, where it grows.

**Phenology:** Flowers: October–May (mostly November–February); fruits: November–June, and persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe benthamii*).

**Notes:** *Veronica benthamii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006). Chloroplast DNA sequence data place *V. benthamii* within the shrubby hebe clade, and date that clade as 3.9 million years old (Wagstaff et al. 2002). Within that clade, ITS sequence data place *V. benthamii* with high support as sister to most of the rest of the clade, as sole species of a lineage that is probably close to that inferred age. Those findings also support the view (Heads 1987) that *V. benthamii* is not closely related to the core of the informal group “Connatae” (i.e., *V. epacridea*, *V. haastii*, *V. kellowiae*, *V. macrocalyx*).

The dense band of fringing hairs along the margins of leaves and bracts is quite distinctive and otherwise seen to this extent only in *V. elliptica*, which has entire leaves. Other species, also with entire leaves, have marginal hairs: in *V. notialis* the hairs are often branched, in *V. obtusata* they are not as dense, and in *V. gibbsii* they are longer and the leaves are very glaucous. *V. benthamii* leaves are shortly connate in pairs, and the portion where the margins join is often persistent as a little forked stump when the rest of the leaves have fallen. The bracts are often quite leaf-like, especially the lower ones, which may be toothed.

In many flowers the ovary and resulting capsules are 3-locular, a very unusual feature in the family. The calyx and corolla often have more than 4 lobes.

Based on specimens at WELT and CHR, it seems that the capsules of *V. benthamii* on Campbell I. / Motu Ihupuku are smaller than on the Auckland Is., and the few photos I have seen suggest flowers are smaller there too. The type specimens of both available names are from the Auckland Is.

**Table 3:** Comparison of inflorescence and capsule characteristics for specimens collected on Auckland and Campbell Is. Based on specimens at CHR and WELT.

	<b>Auckland Is.</b>	<b>Campbell I.</b>
Inflorescence	elongated with sterile bracts at base	compact, without sterile bracts
Capsule length (mm)	5–8	4.0–6.5
Capsule width (mm)	4–6	3–5



**Fig. 145:** *Veronica benthamii*. Habit. Campbell I.



**Fig. 146:** *Veronica benthamii*. Sprig. South-west Cape, Auckland I.



**Fig. 147:** *Veronica benthamii*. Leaf bud. Scale = 1 mm.



**Fig. 148:** *Veronica benthamii*. Shoot apex showing diverging leaves. Scale = 1 mm.



**Fig. 149:** *Veronica benthamii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 150:** *Veronica benthamii*. Terminal inflorescence.





**Fig. 151:** *Veronica benthamii*. Flowers. Campbell I. Scale = 1 mm.



**Fig. 152:** *Veronica benthamii*. Capsule, showing 3 locules. Scale = 1 mm.

***Veronica biggarii* Cockayne, *Trans. New Zealand Inst.* 48: 199 (1916)**

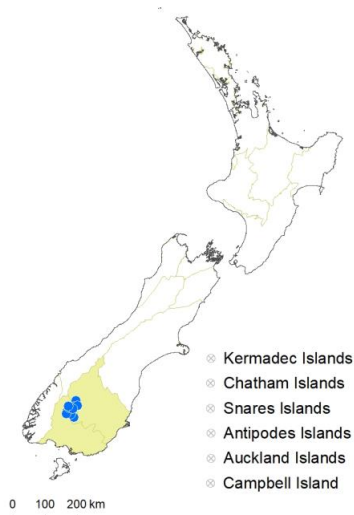
≡ *Hebe biggarii* (Cockayne) Cockayne, *Trans. New Zealand Inst.* 60: 469 (1929)

Lectotype (designated by Bayly & Kellow 2006): specimen from cultivated plant originally from the Eyre Mts, subalpine, L. C[ockayne] ex Hal Poppelwell, CHR 332289 (ex CANTY).

Probable isoelectotype: AK 107833

**Etymology:** Named after George Biggar (1885–1952) of Gore (Godley 2002), collecting companion of D.L. Poppelwell collector of the type.

Small, bushy shrub to 0.5 m tall. Stems decumbent to erect; glabrous or sparsely eglandular-puberulent; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, appressed at margins; sinus absent. Leaves opposite-decussate to weakly sub-distichous, erecto-patent to spreading; lamina coriaceous, narrowly to broadly elliptic or rhomboid, 5–20 mm long, 2–10 mm wide, dull and glaucous above and beneath or sometimes red, especially beneath; midrib obscure or faint; surfaces glabrous; margin glabrous or a few minute hairs at base, entire; apex bluntly acute to rounded; base cuneate; petiole absent. Inflorescence a lateral raceme, 20–50 mm long; flowers crowded, 8–25, all bisexual; bracts alternate, linear to narrowly deltoid, ≤ pedicels; pedicels erecto-patent, 1–3 mm long, sparsely eglandular-puberulent all around or sometimes glabrous. Calyx lobes 4, rarely 5 (5th lobe small, posterior), sub-acute to acute, 1.2–2.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 5.5–8.0 mm diameter, tube white, 1.5–2.0 mm long, = or slightly > calyx, glabrous; lobes 4, white, spreading to recurved, sub-equal, elliptic or narrowly elliptic, 3–4 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 3–4 mm long; anthers magenta. Style glabrous, 3.5–5.0 mm long. Capsules latisepate, acute to acuminate, rarely obtuse, glabrous, 3–4 mm long, 2–3 mm at widest point. Seeds ellipsoid to oblong or irregular, flattened, smooth, straw-yellow to pale brown, 0.9–1.3 mm long.



**Fig. 153:** *Veronica biggarii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Otago, Southland (Eyre Mountains, Thomson Mountains, Mid Dome).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops and cliffs, also in open places in snow tussock grassland. Recorded elevations range from 720 to 1448 m.

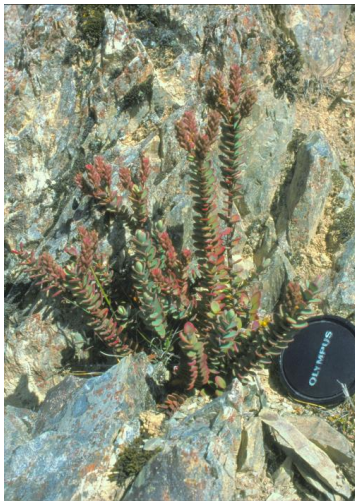
**Recognition:** *Veronica biggarii* plants are usually small, and the stems often don't branch much. The glaucous or reddish leaves are elliptic to almost rhomboid. The hairs are sparse, if present at all, and very short (and bifarious) on stems, margins of leaves at the base, inflorescences, and calyx margins (where they include short, glandular hairs mixed with eglandular). Among similar small-leaved glaucous hebes, *V. amplexicaulis* plants can be distinguished by having amplexicaul leaves, long hairs, and sessile flowers; *V. gibbsii* by long fringing leaf margin hairs; while *V. pinguifolia*, *V. buchananii*, *V. pimeleoides*, and *V. gibbsii* all have sessile or very shortly pedicellate flowers, the lowermost opposite, and all have hairy capsules (except for some plants of *V. pimeleoides*, which is characterised by mauve to purple flowers).

Many plants display intense red pigmentation in the leaves (especially the margins) and inflorescences (including developing capsules), but this may vary among individuals in populations. Many other hebes have red leaf margins (Hughes et al. 2010), but *V. biggarii* plants are often conspicuously very red.

**Phenology:** Flowers: October–January (some seen as late as June); fruits: November–May.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe biggarii*).

**Notes:** *Veronica biggarii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group "Subcarnosae" (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 154:** *Veronica biggarii*. Habit. Von River, Eyre Mts, Southland.



**Fig. 155:** *Veronica biggarii*. Sprigs from two plants from the same population, showing variation in leaf colour. Scale = 10 mm.



**Fig. 156:** *Veronica biggarii*. Leaf bud with no sinus. Scale = 1 mm.



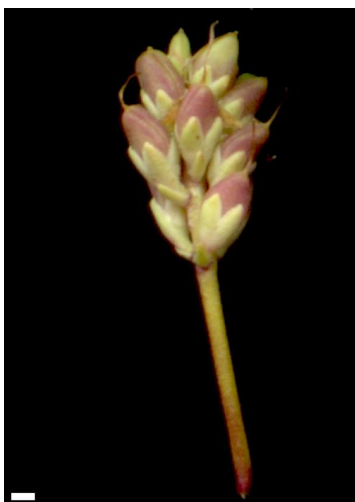
**Fig. 157:** *Veronica biggarii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 158:** *Veronica biggarii*. Flowering shoot. Scale = 1 mm.



**Fig. 159:** *Veronica biggarii*. Flowers. Scale = 1 mm.



**Fig. 160:** *Veronica biggarii*. Infructescence. Scale = 1 mm.



**Fig. 161:** *Veronica biggarii*. Infructescences with young fruit showing variation in colour. Scale = 1 mm.



**Fig. 162:** *Veronica biggarii*. Capsules.  
Scale = 1 mm.

***Veronica birleyi* N.E.Br., *Kew Bull.* 8: 345 (1911)**

≡ *Parahebe birleyi* (N.E.Br.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

≡ *Hebejeebie birleyi* (N.E.Br.) Heads, *Bot. Soc. Otago Newsl.* 36: 11 (2003)

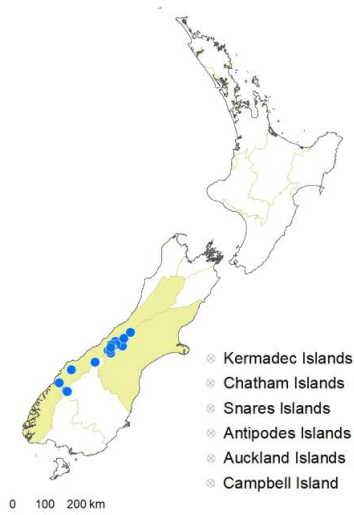
Holotype: Top Ridge of Mt Bonpland, near L. Wakatipu, 2435 m, Feb 1908, L. S. Gibbs 1172, K. Isotypes: AK 8415, BM

= *Veronica grahamii* Petrie, *Trans. & Proc. New Zealand Inst.* 45: 273 (1913) – as *Grahami*

Lectotype (designated by Garnock-Jones & Lloyd 2004): Peak N. of Copeland Pass, 7000 ft, In Mar 1913, WELT 41402; Copeland Pass, 6800 ft, *Graham*, 5 Feb 1913, WELT 41403, 6115; Peak N. of Copeland Pass, Nr Mt. Cook, 7000 ft, *Graham*, 4 Mar 1912, WELT5121

**Etymology:** *Birleyi*, after Harry Birley, climber, alpine guide, and explorer, of Glenorchy, who guided the collector of the holotype, Miss L.S. Gibbs (Godley 2004).

Low sub-shrub to 0.2 m tall. Stems decumbent to ascending, eglandular-pubescent, rarely a few glandular hairs as well; hairs uniform. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, elliptic, oblong, orbicular, broadly obovate, to obtriangular, 4–12 mm long, 2.5–11.0 mm wide, dull dark green to purplish-green above and beneath; veins obscure; surfaces densely eglandular-hairy above and beneath, occasionally with a few long, glandular hairs as well; margins ciliate, deeply crenate to lobed; lobes in 1–3 pairs; apex obtuse, rounded, truncate, or retuse; base cuneate; petiole 0–1 mm long. Inflorescence a lateral raceme 2–5 mm long or a solitary bibracteate flower; flowers distant, 2–3 or rarely solitary, all bisexual; bracts opposite, narrowly spatulate, > pedicels; pedicels erecto-patent, 0.3–1.5 mm long, eglandular-hairy all around. Calyx lobes 4, sub-acute or obtuse, 4–6 mm long, equal, mixed eglandular- and glandular-hairy. Corolla 7–10 mm diameter; tube white and greenish-yellow, 3–4 mm long, < calyx, glabrous; lobes 5, sometimes 4, white, spreading to recurved, unequal, elliptic to orbicular, 3–5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 2–3 mm long; anthers pink, magenta, or purplish. Style glabrous, 1.0–1.5 mm long. Capsules angustiseptate, emarginate, glabrous, 3–4 mm long, 3–4 mm at widest point. Seeds elliptic to obovate, flattened, smooth, buff to brown, 0.6–1.0 mm long.



**Fig. 163:** *Veronica birleyi* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury, Westland, Otago (Remarkables), Southland (Eyre Mountains), Fiordland; mostly along and close to the main divide from Mt Westland to Mt Tūtoko.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Nival rock crevices. Recorded elevations range from 1830 to 2835 m.

**Recognition:** *V. birleyi* and three similar species, *V. spectabilis*, *V. densifolia*, and *V. trifida*, are placed together in the snow hebe group. *Veronica birleyi* is distinctive. The unusual combination of broad, blunt, dull dark green, hairy leaves, often purplish (especially beneath), white solitary flowers, or 2 to 3 together, and short stamens and style enclosed in the corolla tube, is shared only with *V. spectabilis*, to which it is probably closely related. So far as is known, *V. spectabilis* plants are generally larger, and differ in having a higher proportion of glandular hairs on the leaves and inflorescences, longer inflorescences (10–25 mm long), much larger flowers (18–25 mm diameter), usually with 4 corolla lobes, and hairy capsules. In *V. spectabilis* the longer peduncles and pedicels tend to cause the flowers to be more

exserted than they are in *V. birleyi*. The related *V. trifida* and *V. densifolia* are similar, but have bronze or yellowish leaves, which are narrower, and in *V. densifolia* usually entire.

(See: Table 8)

**Phenology:** Flowers: December–March; fruits: January–March.

**Cytology:**  $2n = 42$  (Hair 1970).

**Notes:** *Veronica birleyi* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010). It has not been included in molecular phylogenetic studies so far; records under the name *Parahebe birleyi* refer to material of *V. spectabilis*. Morphological similarities suggest a close relationship to *V. spectabilis*, and it is likely these are allopatric sister species. Its wider relationships are with *V. trifida* and *V. densifolia* and the cushion snow hebes (e.g., *V. pulvinaris*).

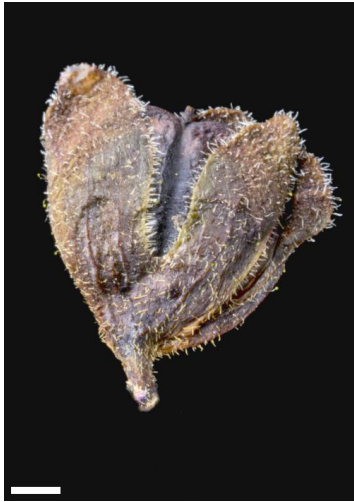
*V. birleyi* is one of a trio that attains the highest altitudes of flowering plants in New Zealand, about 2900 m (the others are *V. epacridea* and *Ranunculus grahamii*).



**Fig. 164:** *Veronica birleyi*. Habit. Copland Pass, Westland. Scale = 10 mm.



**Fig. 165:** *Veronica birleyi*. Flower. Scale = 1 mm.



**Fig. 166:** *Veronica birleyi*. Capsule.  
Scale = 1 mm.

***Veronica bishopiana* Petrie, *Trans. New Zealand Inst.* 56: 15 (1926)**

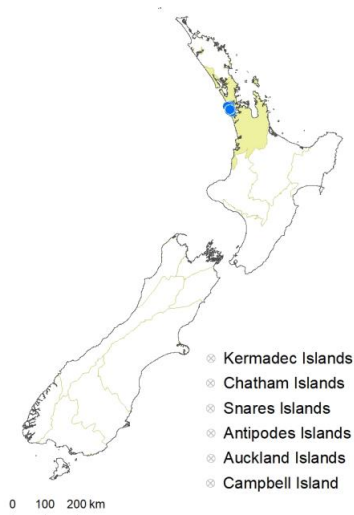
as "*V. ×bishopiana*"

≡ *Hebe bishopiana* (Petrie) Hatch, *Newslett. Auckland Bot. Soc.* 23: 1 (1966)

Lectotype (designated by L.B.Moore, in Allan 1961): hill at Huia near Manukau Heads,  
J. J. Bishop, H. Carse, E. Jenkins, April 1924, WELT 5329

**Etymology:** *V. bishopiana* was named after John J. Bishop (1865–1933) of Titirangi, who collected and cultivated plants.

Spreading low or bushy shrub to 1 m tall. Stems sprawling to ascending; glabrous or minutely eglandular-puberulent; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to recurved; lamina sub-coriaceous, lanceolate to narrow-elliptic or oblanceolate, 20–90 mm long, 8–22 mm wide, glossy dark green above, tinged maroon, especially on midrib, maroon or pinkish beneath, sometimes pale green; midrib evident; surfaces usually with eglandular hairs along midrib above, sometimes glabrous; margin ciliolate, entire; apex acute to weakly acuminate; base cuneate; petiole absent. Inflorescence a lateral raceme, 50–170 mm long; flowers crowded, 70–170, all bisexual; bracts alternate or loosely whorled, linear-lanceolate to elliptic, < to > pedicels; pedicels erecto-patent to spreading, recurved at fruiting, 1.5–4.0 mm long, eglandular-pubescent all around. Calyx lobes 4 (rarely a small 5th posterior lobe present), sub-acute to acuminate, 1.7–2.5 mm long, equal or sub-equal, mixed glandular- and eglandular-ciliolate, usually pubescent or sometimes glabrous outside. Corolla 4.5–6 mm diameter; tube white, 2–4 mm long, ≥ calyx, eglandular-hairy inside and sometimes outside; lobes 4, white or tinged pale purplish, erecto-patent to spreading, sub-equal, 2–4 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white or pale purplish, 5.5–8.0 mm long; anthers purplish or buff. Style glabrous or sparsely hairy, 6–8 mm long. Capsules latiseptate, sub-acute, glabrous or eglandular-hairy, 3.0–4.5 mm long, 2.4–3.0 mm at widest point. Seeds discoid to broadly ellipsoid, flattened, smooth, pale brown, 0.6–0.8 mm long.



**Fig. 167:** *Veronica bishopiana* distribution map based on databased records at AK, CHR & WELT.

6–29 mm) and have a distinctive yellowish base to the midrib. *V. ligustrifolia*, *V. rivalis* and *V. flavida* do not occur in the Waitākere Ranges.

**Phenology:** Flowers: October–July (mostly between February and June); fruits: May–August (persisting until November).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe bishopiana*).

**Notes:** *Veronica bishopiana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. bishopiana* appears intermediate between *V. obtusata* and *V. stricta*, and was at first thought to be a hybrid between them. It may be that it has originated from such a cross, but it now appears to be locally stable and true-breeding and probably represents a diploid hybrid species. This question is discussed more fully by de Lange (1996) and by Bayly & Kellow (2006).

**Distribution:** North Island: Auckland (Waitākere Ranges).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Stream-sides, shaded cliff faces, seepages on exposed outcrops, track margins in low scrub. Recorded elevations range from 60 to 390 m.

**Recognition:** *V. bishopiana* plants are similar to *V. obtusata*, but plants of the latter can be distinguished by their thicker and broader leaves, which have longer cilia on the margins and taper abruptly to an obtuse apex, their shorter pedicels, blunter calyx lobes fringed with eglandular hairs and only a few glandular ones, but glabrous on the outer surfaces, broader and more pointed corolla lobes, and more acute capsules, which are nearly always glabrous, and larger seeds.

*V. bishopiana* plants may resemble *V. stricta*, which can be distinguished by a more open and spreading habit, green young stems, brighter green leaves only rarely red underneath, and hairier calyces. Plants of *V. ligustrifolia*, *V. rivalis* and *V. flavida* can be distinguished by their green stems and leaves, corolla tube  $\leq$  calyx, and acute corolla lobes; in addition *V. flavida* leaves are often larger (30–135 ×



**Fig. 168:** *Veronica bishopiana*. Habit. Mt Donald McLean, Waitākere Ranges, Auckland.



**Fig. 169:** *Veronica bishopiana*. Sprig. Scale = 10 mm.



**Fig. 170:** *Veronica bishopiana*. Leaf bud without sinus. Scale = 1 mm.



**Fig. 171:** *Veronica bishopiana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 172:** *Veronica bishopiana*. Inflorescence and infructescence. Scale = 10 mm.



**Fig. 173:** *Veronica bishopiana*. Flowers. Scale = 1 mm.



**Fig. 174:** *Veronica bishopiana*. Capsules. Scale = 1 mm.



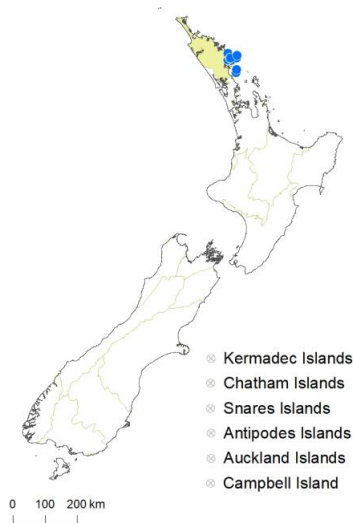
***Veronica bollonsii* Cockayne, *Trans. & Proc. New Zealand Inst.* 44: 50 (1912)**

≡ *Hebe bollonsii* (Cockayne) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 15 (1926)

Lectotype (designated by Moore, in Allan 1961): Poor Knights Islands, in coastal scrub, L. Cockayne 9033, WELT 5296

**Etymology:** Named in honour of Capt. John P. Bollons (1862–1929), sea captain and naturalist. Bollons captained several Marine Department ships and was responsible for transporting scientists on several island research expeditions.

Bushy shrub to 2.5 m tall. Stems erect, eglandular-puberulent, hairs uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erect to spreading; lamina coriaceous, usually oblanceolate to obovate, sometimes oblong to elliptic, 14–130 mm long, 8–42 mm wide, dull or glossy, dark green above, pale green to green beneath, midrib and secondary veins evident; surfaces glabrous or eglandular-hairy along midrib above; margin glabrous or ciliolate, entire; apex obtuse to sub-acute and often shortly acuminate; base cuneate; petiole absent. Inflorescence a lateral raceme, 35–150 mm long; flowers crowded, 24–125, all bisexual; bracts alternate or loosely whorled, or the lowermost pair opposite, lanceolate to linear-lanceolate or ovate, < pedicels; pedicels erecto-patent, 1.0–6.5 mm long, eglandular-hairy all around. Calyx lobes 4, acute to acuminate, 2.5–3.5 mm long, equal, mixed glandular- and eglandular-ciliolate and rarely hairy outside. Corolla 6.5–8.0 mm diameter; tube white, 3–5 mm long, ≥ calyx, eglandular-hairy inside and often also outside; lobes 4, flushed pale purple, fading white, erecto-patent to spreading, sub-equal to unequal, narrowly lanceolate to elliptic, 3.5–4.5 mm long, acute to sub-acute; nectar guides absent. Stamen filaments white, 3.8–7.0 mm long; anthers pale purple, fading brown. Style glabrous, 5.5–8.5 mm long. Capsules latiseptate, sub-acute, glabrous, 2.5–5.5 mm long, 1.8–4.0 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, straw-yellow to brown, 1.0–1.7 mm long.



**Fig. 175:** *Veronica bollonsii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Northland (Poor Knights Is., Hen and Chickens Is., and the nearby east coast between Mimiwhangata Bay and Tutukaka).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal and near-coastal scrub and forest. Recorded elevations range from 0 to 152 m.

**Recognition:** *Veronica bollonsii* is quite distinctive, characterised by leathery, bright green, usually obovate leaves with visible lateral veins, erect inflorescences, narrow acute to acuminate calyx lobes, and acute corolla lobes. In leaf shape, plants are similar to some coastal plants of *V. stricta* (particularly forms recognised as var. *macroura*), which can be distinguished by smaller, more numerous flowers, narrower corolla lobes, which are more rounded at the apex, longer corolla tubes, and smaller capsules. Some plants of *V. pubescens* subsp. *sejuncta* may be similar, but they have a sinus in the leaf bud.

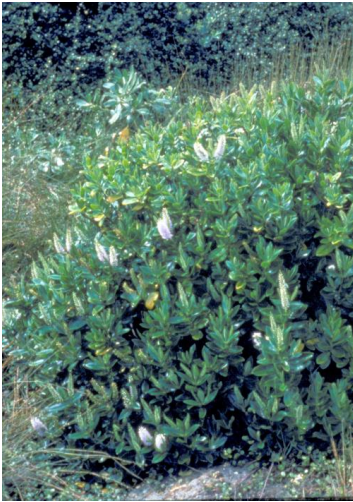
**Phenology:** Flowers: October–February, extending to September; fruits: November–February (persisting all year).

**Cytology:** 2n = 40 (see Bayly & Kellow 2006, as *Hebe*

*bollonsii*).

**Notes:** *Veronica bollonsii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Corolla lobes may be ciliate near the base.



**Fig. 176:** *Veronica bollonsii*. Habit. Crater Bay, Aorangi I., Poor Knights Is.



**Fig. 177:** *Veronica bollonsii*. Sprig. Scale = 10 mm.



**Fig. 178:** *Veronica bollonsii*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 179:** *Veronica bollonsii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 180:** *Veronica bollonsii*. Part of an inflorescence. Scale = 1 mm.



**Fig. 181:** *Veronica bollonsii*. Flowers, corolla lobes tinged mauve (above) and white (below). Scale = 1 mm.



**Fig. 182:** *Veronica bollonsii*. Capsules. Scale = 1 mm.



**Fig. 183:** *Veronica bollonsii*. Seeds. Scale = 1 mm.

***Veronica brachysiphon* (Summerh.) Bean, *Bull. Misc. Inform. Kew* 1934: 224 (1934)**

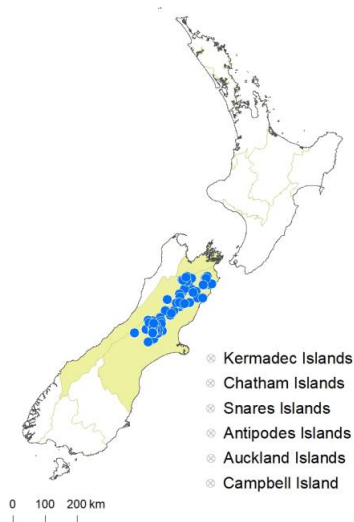
≡ *Veronica traversii* Hook.f., *Curtis's Botanical Magazine* 104, Plate 6390 (1878) nom. illeg., non *Veronica traversii* Hook.f. 1864

≡ *Hebe brachysiphon* Summerh., *Kew Bull.* 1927: 397 (1927)

Lectotype (designated by Bayly & Kellow 2004): from Sir J. D. Hooker's garden, 26 June 1893, K, flowering pieces on top left and bottom right only (these are mounted on the same sheet as pieces collected in March 1893, and another specimen – comprising two pieces – collected at Edinburgh Botanical Gardens)

**Etymology:** The epithet *brachysiphon* means short tube, a reference to the corolla tube in relation to that of *V. traversii*, with which it had been confused.

Bushy and often rounded shrub, to 1.8 m tall. Stems erect; eglandular-pubescent with minute glandular hairs; hairs usually bifarious, sometimes uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus narrow, acute. Leaves opposite-decussate to weakly sub-distichous, erecto-patent to spreading; lamina sub-coriaceous to rigid, ovate to obovate, usually elliptic, or sometimes oblanceolate or oblong, 5.5–25.5 mm long, 3.3–10.0 mm wide, usually more or less glossy or sometimes dull light to dark green above, paler and duller beneath; midrib and sometimes two lateral veins evident; surfaces glabrous except for eglandular hairs along midrib above; margin eglandular- and/or glandular-ciliolate when young, becoming minutely papillate with age, entire; apex sub-acute to obtuse, mostly acute, keeled beneath and weakly apiculate; base cuneate; petiole 0.5–3.5 mm long. Inflorescence a lateral raceme or sometimes ternate, 12–41 mm long; flowers crowded, 9–36, female or bisexual on separate plants, ♀ > ♂; bracts alternate or the lowest opposite, lanceolate to ovate or narrowly deltoid, ≥ pedicels; pedicels erecto-patent, 0.6–3.0 mm long, eglandular-hairy all around or sometimes almost glabrous. Calyx lobes 4–5 (5th small, posterior), obtuse to sub-acute, occasionally emarginate, 1.9–3.0 mm long, equal or sub-equal, glandular- or mixed glandular- and eglandular-ciliolate. Corolla 6–8 mm diameter; tube white, 1.6–4.0 mm long, > calyx, eglandular-hairy inside; lobes 4, white or sometimes pale purplish, erecto-patent to spreading, sub-equal, usually elliptic to ovate, sometimes oblong, obovate, or orbicular; nectar guides absent. Stamen filaments white, 1.0–4.5 mm long; anthers magenta to purplish. Style glabrous, 4.2–7.2 mm long. Capsules latiseptate, sub-acute, usually glabrous or rarely eglandular hairy, 3–6 mm long, 2.3–4.5 mm at widest point. Seeds ellipsoid to oblong, flattened, weakly wrinkled and undulate at margin, pale brown to brown, 0.8–2.8 mm long.



**Fig. 184:** *Veronica brachysiphon* distribution map based on databased records at AK, CHR & WELT.

supported by flavonoid chemistry and geographic distribution in the decision to recognise them at species rank (Bayly & Kellow 2006).

In Marlborough, the distinction between *V. brachysiphon* and *V. subfulvida* becomes unclear, but in general, plants with simple inflorescences and stout, elliptic leaves are determined as *V. brachysiphon*, while those with branching inflorescences and thinner, narrowly elliptic leaves are determined as *V. subfulvida*. The two differ in chromosome number.

(See: Table 11)

**Phenology:** Flowers: October–March; fruits: January–May, persisting until December.

**Cytology:**  $2n = 120$  (see Bayly & Kellow 2006, as *Hebe brachysiphon*).

**Hybridisation:** The difficulty in distinguishing *V. brachysiphon* from *V. subfulvida* might be due to introgression.

**Notes:** *Veronica brachysiphon* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

The seed description above is based on very few specimens and might understate the variability.

**Distribution:** South Island: Sounds Nelson (Red Hills Range), Marlborough, Canterbury, Westland, from the Main Divide to the eastern foothills, reaching a southern limit near Mt Hutt.

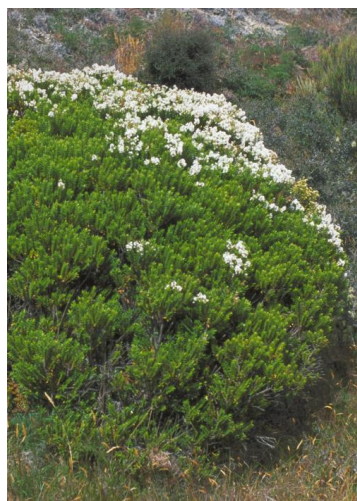
**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane to sub-alpine tussock grassland and scrub and in beech forest close to tree line. Recorded elevations range from 600 to 1605 m.

**Recognition:** In all respects *V. brachysiphon* and *V. venustula* are very similar to each other. In addition, their appearance is superficially similar to *V. odora* and they are often confused.

*V. odora* plants may be readily distinguished by the broad, shield-shaped sinus in the vegetative buds, the rounded shoulders to the leaf base, terminal inflorescence with large, opposite, leaf-like bracts that cover the calyx, and the narrow corolla lobes.

*V. brachysiphon* is not easily distinguished from *V. venustula*, but the latter is described as cosexual (Bayly & Kellow 2006), has a narrower petiole and rather inconspicuous stomata on the lamina above. These morphological differences were



**Fig. 185:** *Veronica brachysiphon*. Habit. Near Lake Lyndon, Canterbury.



**Fig. 186:** *Veronica brachysiphon*. Sprig. Scale = 10 mm.



**Fig. 187:** *Veronica brachysiphon*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 188:** *Veronica brachysiphon*. Leaf surfaces with conspicuous stomata, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 189:** *Veronica brachysiphon*. Inflorescence. Scale = 10 mm.



**Fig. 190:** *Veronica brachysiphon*. Flowers. Scale = 1 mm.



**Fig. 191:** *Veronica brachysiphon*. Capsules. Scale = 1 mm.



**Fig. 192:** *Veronica brachysiphon*. Seeds. Scale = 1 mm.

***Veronica breviracemosa* W.R.B.Oliv., *Trans. & Proc. New Zealand Inst.* 42: 170 (1910)**

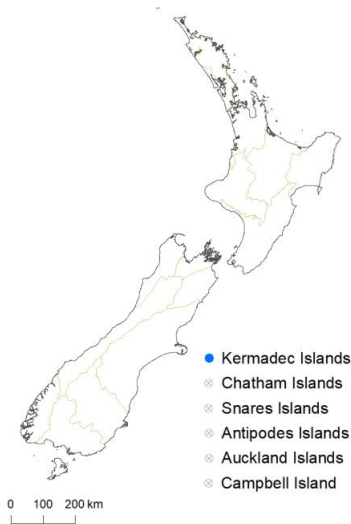
≡ *Hebe breviracemosa* (W.R.B.Oliv.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

Lectotype (designated by Moore, in Allan 1961): cliffs above Denham Bay, Sunday Island [Raoul Island], *W.R.B. Oliver*, 10 May 1908, WELT 5292. Isolectotypes: CHR 291122, OTA 18705. Possible isolectotype (although collection details do not match exactly): K

**Etymology:** The epithet *breviracemosa* refers to the distinctive short inflorescences, which are nearly always shorter than the leaves, an unusual feature in *V.* sect. *Hebe*.

**Vernacular name:** Kermadec koromiko

Openly branched, bushy shrub to 2 m tall. Stems erect, eglandular-puberulent; hairs uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus narrowly acute. Leaves opposite-decussate, erecto-patent to recurved; lamina thin to sub-coriaceous, narrowly elliptic to elliptic to obovate or oblanceolate, 23–112 mm long, 9–26 mm wide, glossy green above, dull pale green beneath; midrib and secondary veins evident; surfaces hairy along midrib above and often beneath and minutely glandular-hairy beneath; margin ciliolate to glabrous, entire; apex sub-acute to acute; base cuneate; petiole indistinct, 1.5–3.0 mm long. Inflorescence a lateral raceme, 25–50 mm long; flowers crowded, 19–45, all bisexual; bracts alternate, lanceolate to narrowly deltoid, usually > or sometimes = pedicels; pedicels erecto-patent, 1–3 mm long, eglandular-pubescent all around. Calyx lobes 4, narrowly acute to acuminate, 3–5 mm long, sub-equal, mixed glandular- and eglandular-ciliate and sometimes sparsely eglandular-hairy outside. Corolla 7–9 mm diameter; tube white, 1.3–2.3 mm long, < calyx, eglandular-hairy inside and out; lobes 4, white or tinged pale purplish, erecto-patent to recurved, sub-equal, elliptic to ovate, 3.5–4.0 mm long, sub-acute to acute; nectar guides absent. Stamen filaments white, 2.4–3.0 mm long; anthers purplish. Style glabrous, 2.4–4.0 mm long. Capsules latiseptate, acute to acuminate, glabrous, 2.5–5.0 mm long, 2–3 mm at widest point. Seeds broadly ellipsoid or discoid, flattened, smooth, straw-yellow to brown, 0.7–1.0 mm long.



**Fig. 193:** *Veronica breviracemosa* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** Kermadec Is. (Raoul I. only). At one time it was thought to be extinct, but since its rediscovery in 1983 the population has recovered following removal of goats from the island.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Open places in forest, especially on cliffs. Recorded elevations range from 30 to 300 m.

**Recognition:** *V. breviracemosa* is the only woody *Veronica* known from Raoul I.

*V. breviracemosa* plants are superficially similar to *V. stricta*, but *V. stricta* is clearly distinguished by the absence of a leaf bud sinus, the longer inflorescences of smaller and usually more numerous flowers, which have longer corolla tubes, narrow erect to sub-erect corolla lobes, and longer filaments and styles.

**Phenology:** Flowers: January–July; fruits: February–August (probably persisting longer).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe breviracemosa*).

**Notes:** *Veronica breviracemosa* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

Although a narrow leaf bud sinus is visible at least in fresh specimens, the leaf narrows gradually to the petiole with only a very obscure transition. In addition, hairs are often dense towards the base of the margin and along the petiole and can obscure the sinus.



**Fig. 194:** *Veronica breviracemosa*. Habit. Raoul I.



**Fig. 195:** *Veronica breviracemosa*. Sprig. Scale = 10 mm.



**Fig. 196:** *Veronica breviracemosa*. Leaf bud with small, acute sinus. Scale = 1 mm.



**Fig. 197:** *Veronica breviracemosa*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 198:** *Veronica breviracemosa*. Flowers. Scale = 1 mm.



**Fig. 199:** *Veronica breviracemosa*. Inflorescences with a leaf for size comparison. Scale = 10 mm.



**Fig. 200:** *Veronica breviracemosa*. Capsules.  
Scale = 1 mm.

### ***Veronica buchananii* Hook.f., *Handb. New Zealand Fl.* 211 (1864)**

≡ *Hebe buchananii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 36 (1926)

Lectotype (designated by Bayly & Kellow 2004): Otago, Lake district, *Hector and Buchanan* no. 9, Herb. Hookerianum, K, two pieces on lower left of sheet

= *Veronica buchananii* var. *exigua* Cheeseman, *Man. New Zealand Fl.* 527 (1906)

Lectotype (designated by Moore, in Allan 1961): Hooker Glacier, 3500 ft, *T. F. C[heeseman]*, Jan 1898, 1604 to Kew, AK 8147

= *Veronica buchananii* var. *major* Cheeseman, *Man. New Zealand Fl.* 527 (1906)

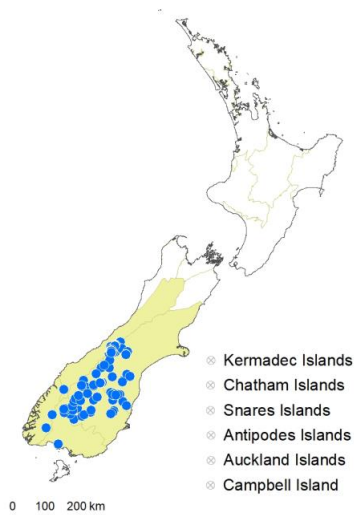
≡ *Hebe buchananii* var. *major* (Cheeseman) A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 384 (1929)

Syntypes: Herb. Cheeseman, AK [see notes by Moore, in Allan 1961; Herrick & Cameron 1994]

**Etymology:** The epithet honours John Buchanan (1819–1898), draughtsman, botanist, and artist.

Spreading low shrub to 0.3 m tall. Stems decumbent to erect, eglandular-puberulent or pubescent or sometimes glabrous; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus usually absent, sometimes very small, rounded to acute. Leaves opposite-decussate, erecto-patent to spreading, the youngest sub-erect and closely investing the leaf bud; lamina coriaceous, fleshy to rigid, usually obovate to broadly elliptic or orbicular, sometimes lanceolate, 2.5–8.0 mm long, 2–6 mm wide, rarely 1.5 × 1.0 mm, dull glaucous or glaucescent above and beneath; veins not evident, but leaf sometimes keeled beneath; surfaces glabrous; margin glabrous or rarely with a few short, glandular hairs especially near base, often minutely papillate; apex usually obtuse to rounded, occasionally acute to sub-acute; base cuneate; petiole absent. Inflorescence a lateral spike, 5–23 mm long; flowers crowded, 3–12, all bisexual; bracts opposite below, alternate above, usually oblong, ovate or elliptic, sometimes lanceolate-acuminate to deltoid, > pedicels; pedicels usually absent or sometimes erecto-patent, 0–1 mm long, eglandular-hairy all around. Calyx lobes 4, sub-acute to obtuse, 2–3 mm long, sub-equal or equal, usually eglandular-ciliate with a few shorter, glandular hairs as well, occasionally eglandular-hairy abaxially. Corolla 5–7 mm diameter; tube white, 1–2 mm long, ≤ calyx, glabrous; lobes 4, white, sub-erect to spreading, sub-equal to unequal, ovate to lanceolate to elliptic, 2.5–3.0 mm long, obtuse; nectar guides absent. Stamen filaments white, 4.0–4.7 mm long; anthers magenta. Style eglandular-hairy, especially near base, 2.5–5.0 mm long. Capsules latiseptate, sub-acute to obtuse, eglandular-hairy, 2.0–3.7 mm long, 1.9–2.5 mm at widest point. Seeds ovoid-ellipsoid or irregular, weakly flattened, smooth, pale brown, 1–1.5 mm long.





**Fig. 201:** *Veronica buchananii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury (south from Malte Brun Range, near Mt Cook), Westland, Otago, Fiordland, Southland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penialpine and sub-alpine rocks, stony debris, scrub, and grassland mostly east of the Main Divide. Recorded elevations range from 420 to 1981 m.

**Recognition:** *Veronica buchananii* plants are small-leaved glaucous hebes with usually close-set almost imbricate leaves and stout branches. The internodes are often wider than long. They usually form low mats, but sometimes stems are more erect and up to 0.3 m tall. The leaves are usually slightly more glaucous above than beneath, and their margins may be reddish but are more usually yellowish-green.

*V. pimeleoides* plants have leaves of similar size, but they are thinner, narrower, more acute, and usually more distant; their corollas are usually mauve or purple, flowers are always opposite, and their habit is less compact, tending to be more straggly.

*V. pinguifolia* plants are similar in many respects, but may be identified by their larger, more bluish, glaucous leaves, more than 12 flowers per inflorescence, ciliolate rather than ciliate calyx lobes, and a taller, more lax and shrubby habit.

**Phenology:** Flowers: December–March; fruits: February–April, persisting until November.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe buchananii*).

**Hybridisation:** At Mt Cook, populations seem to display more variability with respect to habit, leaf size and shape, and length of the hairs on stems and inflorescences (these Mt Cook plants include Cheeseman's var. *exigua* and var. *major*). Moore (in Allan 1961) suggested that some such plants might be hybrids between *V. buchananii* and *V. subalpina*.

**Notes:** *Veronica buchananii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group "Subcarnosae" (Albach & Meudt 2010; Bayly & Kellow 2006).

Indumentum varies, and possibly this has a geographic component. For example, plants from the Garvie Mountains (Bayly 1108 et al., WELT 81444) have almost glabrous peduncles and their bracts and calyx margins have mostly short, glandular hairs (plus a few long, eglandular ones), whereas plants from Mt Ida Range (Petrie, WELT 17134) have dense, eglandular hairs on peduncles and the margins of bracts and calyx lobes, with very few short, glandular hairs. Stem pubescence also varies; the bifarious eglandular hairs may be sparse to dense and short to long.

Plants from the Black Birch Range, Marlborough (e.g., Bayly 748 et al., WELT 80927) are very similar to *V. buchananii* in overall appearance, but they have been identified as *V. pinguifolia* because of the short cilia on their bract and calyx margins.



**Fig. 202:** *Veronica buchananii*. Habit. Mt Cerberus.



**Fig. 203:** *Veronica buchananii*. Habit. Garvie Mts.



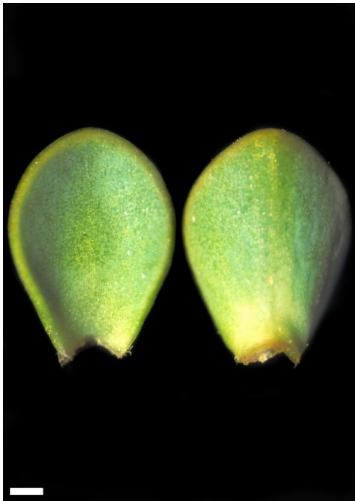
**Fig. 204:** *Veronica buchananii*. Sprig. Scale = 10 mm.



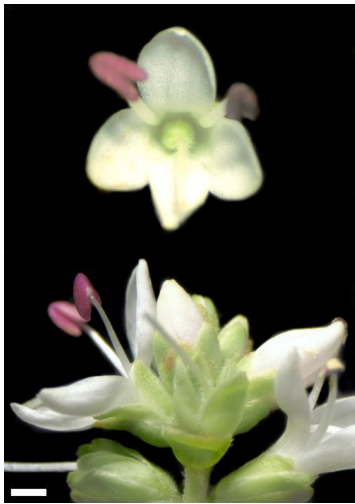
**Fig. 205:** *Veronica buchananii*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 206:** *Veronica buchananii*. Apical view of leaf bud, showing that it is surrounded by several imbricate and partly separated leaf pairs. Scale = 1 mm.



**Fig. 207:** *Veronica buchananii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 208:** *Veronica buchananii*. Flowers.  
Scale = 1 mm.



**Fig. 209:** *Veronica buchananii*. Young inflorescence, showing large bracts overlapping calyxes. Scale = 1 mm.



**Fig. 210:** *Veronica buchananii*. Capsules.  
Scale = 1 mm.



**Fig. 211:** *Veronica buchananii*. Seeds.  
Scale = 1 mm.

### ***Veronica calcicola* (Bayly & Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 576 (2007)**

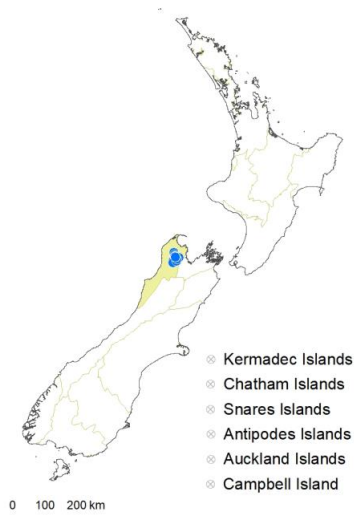
≡ *Hebe calcicola* Bayly & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 39: 57 (2001)

Holotype: S of Salisbury Hut, Mt Arthur Tableland, NW Nelson, 3500 ft, limestone cliff beside pothole, A. P. Druce, Jan 1975, CHR 277568

**Etymology:** The epithet *calcicola* means lime-dwelling, a reference to its habitat on calcareous rocks (usually marble).

Bushy shrub to 1.4 m tall. Stems spreading to ascending or erect, eglandular-pubescent or -puberulent; hairs bifarious to uniform. Leaf bud distinct, its outer leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading or recurved, lamina thin to sub-coriaceous, lanceolate, oblong-elliptic or oblanceolate, 13–45 mm long, 3.5–9.0 mm wide, glossy, dark green above, green beneath, midrib and two lateral veins evident; surfaces glabrous or with short, eglandular hairs along midrib above; margin ciliolate, especially towards apex, or glabrous, entire; apex sub-acute to obtuse, very weakly plicate-apiculate; base cuneate; petiole absent. Inflorescence a lateral raceme, 25–85 mm long; flowers crowded, 25–45, all bisexual; bracts alternate to loosely whorled, ovate to deltoid, < or rarely = pedicels; pedicels erecto-patent to spreading, 0.5–3.0 mm long, eglandular hairy all around. Calyx lobes 4, or small 5th posterior lobe sometimes present, obtuse to acute, 1.2–1.7 mm long, sub-equal, eglandular-ciliate with shorter glandular hairs

and minute glandular hairs on surfaces. Corolla 5–7 mm diameter; tube white, 0.7–1.2 mm long, < calyx, eglandular- and glandular-hairy inside and on lower part of lobes above; lobes 4, white, erecto-patent to spreading or slightly recurved, sub-equal or unequal, ovate, elliptic, or obovate, 2.5–3.0 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 3–5 mm long; anthers magenta. Style glabrous, 3.5–5.0 mm long. Capsules latiseptate, sub-acute, eglandular-hairy, 2.2–3.8 mm long, 1.5–3.3 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, brown, 1.2–1.9 mm long.



**Fig. 212:** *Veronica calcicola* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson (Peel, Lockett, Douglas, and Arthur Ranges and an unvouchered record from the Turk's Cap Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops of Mt Arthur marble. Recorded elevations range from 820 to 1460 m.

**Recognition:** *V. calcicola* plants resemble a number of other hebes that have glossy green leaves and no sinus in the bud, but a combination of characters is diagnostic: plants are cosexual (Bayly & Kellow 2006); flowers have short, wide corolla tubes; corolla lobes hairy near the base above but not on the margins; ovary and capsule hairy, but style glabrous.

*V. subalpina* plants differ in their always-glabrous leaf margins, longer corolla tubes, and glabrous ovaries and capsules.

*V. rakaiensis* plants have similar ciliolate leaf margins and short-tubed, small flowers, but differ in broader leaves, hairy styles at the base, and usually ciliate corolla lobes.

*V. truncatula* plants have similar hairs on leaf margins and similar leaf dimensions, but their leaves have a more prominent and minutely truncate apiculus, corolla tubes are longer, and their ovaries and capsules are glabrous.

*V. traversii* plants have flowers with a much longer corolla tube and capsules that are 3 to 4 times as long as the calyx.

*V. traversii* plants have flowers with a much longer corolla tube and capsules that are 3 to 4 times as long as the calyx.

**Phenology:** Flowers: January–April; fruits: March–June.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe calcicola*).

**Hybridisation:** *V. calcicola* is believed to hybridise with *V. salicifolia* and *V. albicans*, and this is supported by collections that are intermediate in morphology and flavonoid chemistry (Bayly et al. 2001).

**Notes:** *Veronica calcicola* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 213:** *Veronica calcicola*. Habit. Near Mt Mytton, Peel Range, Nelson.



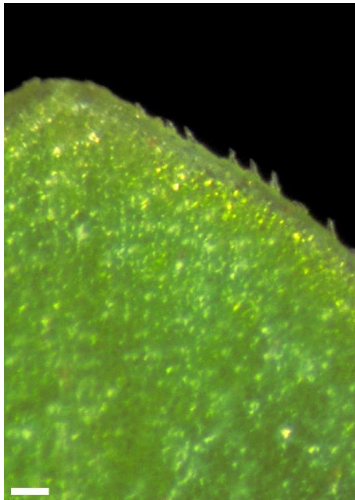
**Fig. 214:** *Veronica calcicola*. Sprig. Scale = 10 mm.



**Fig. 215:** *Veronica calcicola*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 216:** *Veronica calcicola*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 217:** *Veronica calcicola*. Close-up of leaf margin showing minute hairs. Scale = 0.1 mm.



**Fig. 218:** *Veronica calcicola*. Flowers. Scale = 1 mm.



**Fig. 219:** *Veronica calcicola*. Close-up of ovary and base of style showing ovary hairs. Scale = 0.1 mm.



**Fig. 220:** *Veronica calcicola*. Capsules. Scale = 1 mm.

## *Veronica calycina* R.Br., *Prodr. Fl. Nov. Holland.* 435 (1810)

Lectotype (designated by Briggs & Ehrendorfer 2006): [Tasmania] In summitati montis primaevi rotundati prope Mount Tabular, R. Brown, Mar 1804, BM

**Etymology:** From Latin *calyx*, a cup or the outer whorl of a flower.

Perennial herb, or sometimes softly woody at base, to 0.15 m tall. Stems prostrate to ascending, stoloniferous, pubescent, hairs bifarious, or sometimes uniform. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to spreading; lamina thin, deltoid, broadly ovate, or sub-orbicular, 4–15 mm long, 3–20 mm wide, dull green above, paler and sometimes pinkish beneath; veins palmate, 3–5 from base; surfaces with scattered tapering eglandular hairs above and beneath, especially along veins beneath; margin sparsely ciliate, serrate-dentate; teeth in 3–6 pairs; apex acute or sub-acute; base usually truncate, sometimes weakly sub-cordate or abruptly cuneate; petiole 2–15 mm long. Inflorescence a lateral raceme, 3–8 mm long, or sometimes a solitary bibracteate flower; flowers distant, 2–8 per inflorescence, all bisexual; bracts alternate or sub-opposite, oblanceolate to spatulate, < pedicels; pedicels erect at flowering, spreading to reflexed at fruiting, 2–13 mm long, with 1 row of long, slender hairs. Calyx lobes 4, sub-acute to obtuse, 4.0–4.5 mm long at flowering, 6–7 mm long at fruiting, equal to sub-equal, glabrous on faces, ciliate on margins with mostly long, slender hairs. Corolla 7–10 mm diameter; tube white, 0.5 mm long, < calyx, hairy within; lobes 4, pale blue, spreading, unequal, orbicular or elliptic, 5–7 mm long, rounded; nectar guides dark blue. Stamen filaments white 2.5–3.0 mm long, anthers white. Style glabrous, 1.8–2.2 mm long. Capsules angustiseptate, shallowly emarginate, glabrous on faces, ciliate on margins, 4.0–5.2 mm long, 4–5 mm at widest point. Seeds ellipsoid, flattened, smooth, straw-yellow to pale brown, 1.2–1.5 mm long.

**Distribution:** North Island: Auckland (between Waihi Beach and Orokawa Bay; Kaimai Range near Aongatete).

**Biostatus:** Origin uncertain; present in wild.

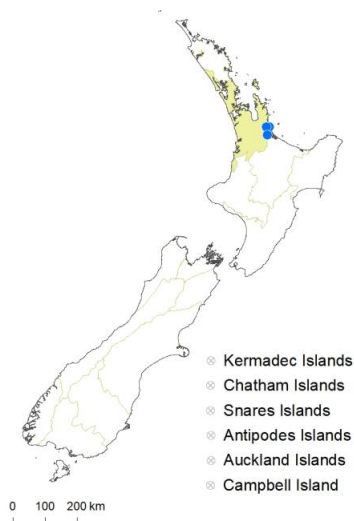
*V. calycina* was first collected (at Waihi) in 1906 and again several times since 2010 (near Waihi Beach and near Aongatete). It is well established now and might be a natural introduction from Australia, hence a native plant, or it could be an early naturalised species that has not spread far beyond the original introduction. In addition to its presence in New Zealand, *V. calycina* is indigenous to south-eastern Queensland, eastern New South Wales, Victoria, south-eastern South Australia, south-western Western Australia, and northern Tasmania.

**Habitat:** Coastal, among grasses and sedges under *Metrosideros excelsa* and beside tracks in forest. Recorded elevations range from 9 to 250 m.

**First record:** de Lange et al. (2018, p. 6, 27, as indigenous). Voucher AK 310554, de Lange 8781 & de Lange, Orokawa Bay north of Waihi Beach.

**Recognition:** *V. calycina* is most likely to be confused with *V. plebeia*. The inflorescence hairs on *V. calycina* plants are in single rows and the single row of long hairs on the pedicel is particularly distinctive, whereas in *V. plebeia* plants the hairs are shorter and all around the rachis and pedicels. When not flowering the most distinctive feature to distinguish *V. plebeia* from *V. calycina* plants is the presence of very short hairs on stems and leaf margins of *V. plebeia*, even though longer hairs are also present on the leaves (shortest hairs < 0.4 mm compared with 0.5–1.0 mm for *V. calycina*). *V. plebeia* plants have a similar creeping habit, but also differ from *V. calycina* plants in having sharper leaf teeth, some of the hairs very short on stems and among longer hairs on leaves, calyx margins and capsules, smaller corollas not exceeding the calyx lobes, purplish red stigmas, and smaller capsules and seeds. The cells of the longer hairs of *V. calycina* tend not to collapse on drying, or sometimes they slightly collapse orthogonally to adjacent cells.

Plants of the native *V. jovellanooides*, known from only one locality, have a similar creeping habit, but differ in having glandular (among the eglandular) hairs on the inflorescence, larger and white corolla with magenta nectar guides, longer stamens (4.0–4.5 mm) and style (3.5–4.0 mm), and larger capsules.



**Fig. 221:** *Veronica calycina* distribution map based on databased records at AK, CHR & WELT.

**Table 4:** *Veronica calycina* and *V. plebeia*

	<i>calycina</i>	<i>plebeia</i>
Stem hairs	≥ 1 mm long	< 0.4 mm long; a few long ones at nodes
Leaf hairs	all long, tapering from broad base, especially on veins beneath, near margin above, and a few on petiole (very short hairs absent)	both short and long: short scabrid hairs dense near margins above (looking marginal because margin is in-rolled) and along petiole; long hairs tapering from swollen base, especially on veins beneath
Pedicle hairs	long, in one row	very short, all around
Calyx lobes (mm)	4–4.5 mm at flowering; 6–7 mm at fruiting	2–3 mm at flowering; 5–6 mm at fruiting
Calyx lobes	usually narrowly elliptic, sometimes oblanceolate	oblanceolate to spatulate
Calyx hairs	lobes long ciliate	lobes with minute scabrid hairs on margins and longer ones on faces
Corolla diameter	7–10 mm	4–6 mm
Style	1.8–2.2 mm long, glabrous, not swollen at base	0.8–1.5 mm long, glabrous to sparsely bristly, distinctly swollen at base (for about 0.1 mm)
Stigma	white	purplish red
Capsule	weakly emarginate; ciliate on margins, glabrous on faces; 4–5.2 × 4–5 mm	truncate to weakly emarginate; with scattered very short hairs on faces and margins, or glabrous; 2.5–4 × 2.5–4.5 mm
Seeds	1.2–1.5 mm long	0.9–1.2 mm long

**Phenology:** Flowers: October–February; fruits: November–February.

**Cytology:** Australian material has  $2n = 36$  (Briggs & Ehrendorfer 2006).

**Notes:** *Veronica calycina* is classified in *V.* subg. *Pseudoveronica* sect. *Labiatooides* (Albach et al. 2004a; Albach & Meudt 2010). Albach & Briggs (2012) used nuclear and chloroplast DNA markers to place *V. calycina* with seven other species in the *V. calycina* clade, and it appears to be sister species to *V. subtilis*. If it is native, it appears to be a *Veronica* introduction that is independent of *V.* sect. *Hebe* and *V. plebeia*.

An earlier record of *V. calycina* R.Br. by Allan Cunningham (1836) is based on a specimen of *V. plebeia*. Nomenclaturally, that record is based on a misidentification, and the name is not a newly described later homonym.



**Fig. 222:** *Veronica calycina*. Habit, cultivated.



**Fig. 223:** *Veronica calycina*. Habit. Near Waihi Beach, Coromandel.



**Fig. 224:** *Veronica calycina*. Sprig.



**Fig. 225:** *Veronica calycina*. Sprig. Scale = 10 mm.



**Fig. 226:** *Veronica calycina*. Stem, showing long bifarious hairs. Scale = 1 mm.



**Fig. 227:** *Veronica calycina*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 228:** *Veronica calycina*. Leaf margin. Scale = 0.1 mm.



**Fig. 229:** *Veronica calycina*. Calyx and pedicel, showing long hairs in a single row on the pedicel. Scale = 1 mm.





**Fig. 230:** *Veronica calycina*. Flower.  
Scale = 1 mm.



**Fig. 231:** *Veronica calycina*. Capsule.  
Scale = 1 mm.



**Fig. 232:** *Veronica calycina*. Seeds.  
Scale = 1 mm.

### ***Veronica canterburiensis* J.B.Armstr., *N.Z. Ctry. J.* 3: 58 (1879)**

as "canterburiense"

≡ *Hebe vernicosa* var. *canterburiensis* (J.B.Armstr.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 30 (1926)

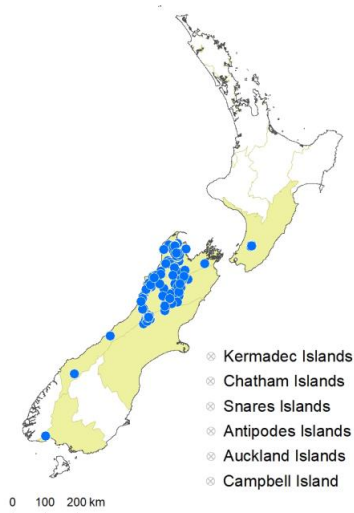
≡ *Hebe canterburiensis* (J.B.Armstr.) L.B.Moore in Allan, *Fl. New Zealand* 1, 899 (1961)

Lectotype (designated by Moore, in Allan 1961): Arthurs Pass, 3-4000 ft., *J. B. A[rmstrong]*, CHR 635754

**Etymology:** The epithet means "from Canterbury", and was originally published as "*canterburiense*".

Open spreading shrub to 1 m tall. Stems obliquely ascending or decumbent to spreading, eglandular-pubescent; hairs usually uniform, rarely bifarious. Leaf bud distinct, its outer leaves appressed at margins until fully grown; sinus acute. Leaves sub-distichous, erecto-patent to spreading, narrow to broad, tapering; lamina coriaceous to rigid, ovate to elliptic to obovate, 8.0–18.5 mm long, 3.2–7.8 mm wide, usually glossy or rarely dull green to dark green above, dull green beneath; midrib evident; surfaces with short, eglandular hairs along midrib above; margin ciliate, especially on young leaves, entire; apex obtuse to sub-acute, weakly and broadly plicate-acuminate; base cuneate or rarely more or less truncate; petiole 1–3 mm long. Inflorescence a lateral raceme, 11–30 mm long; flowers crowded, 5–12 per inflorescence, all bisexual; bracts alternate, or the lower ones opposite-decussate, ovate to elliptic or deltoid, > pedicels; pedicels erecto-patent, 0–4 mm long, eglandular-hairy all around. Calyx lobes 4, obtuse to sub-acute, or rarely acute, 1.8–3.1 mm long, sub-equal, mixed

glandular- and eglandular-ciliate. Corolla 7–12 mm diameter; tube white, 1.4–3.5 mm long,  $\geq$  calyx, glabrous; lobes 4, white, sometimes pink in bud, erecto-patent to recurved, sub-equal to unequal, elliptic, ovate, obovate, or orbicular, 3.5–4.2 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 3–5 mm long; anthers purple. Style glabrous, 3.5–7.2 mm long. Capsules latiseptate, acute to sub-acute, glabrous, 2.6–4.9 mm long, 2.1–3.8 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, brown, 1.3–1.7 mm long.



**Fig. 233:** *Veronica canterburiensis* distribution map based on databased records at AK, CHR & WELT.

capsules that are about three times as long as the calyx (two times or less in *V. canterburiensis*).

*V. societatis* plants are also similar in growth form, but their leaves are glaucous. *V. societatis* is found only on Mt Murchison, Braeburn Range, from where *V. canterburiensis* is also known.

Plants with a more erect growth form than usual can look similar to *V. odora*, but *V. odora* leaves are abruptly narrowed to the petiole, and inflorescences are terminal, with sessile opposite flowers with narrow corolla lobes.

**Phenology:** Flowers: October–April; fruits: November–April, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe canterburiensis*).

**Notes:** *Veronica canterburiensis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 234:** *Veronica canterburiensis*. Habit. St Arnaud Range, Nelson.



**Fig. 235:** *Veronica canterburiensis*. Sprig. Scale = 10 mm.



**Fig. 236:** *Veronica canterburiensis*. Leaf bud with narrow acute sinus. Scale = 1 mm.



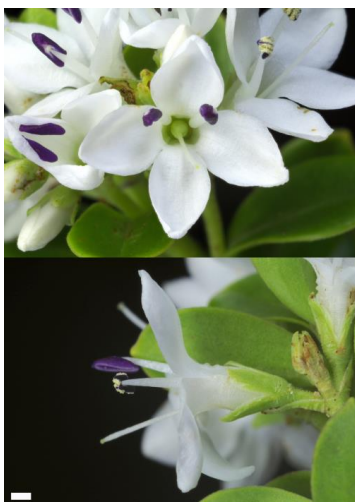
**Fig. 237:** *Veronica canterburiensis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 238:** *Veronica canterburiensis*. Margin of a young leaf. Scale = 1 mm.



**Fig. 239:** *Veronica canterburiensis*. Inflorescence. Scale = 1 mm.



**Fig. 240:** *Veronica canterburiensis*. Flowers. Scale = 1 mm.



**Fig. 241:** *Veronica canterburiensis*. Capsules. Scale = 1 mm.

## *Veronica catarractae* G.Forst., *Fl. Ins. Austr.* 3 (1786)

≡ *Hebe catarractae* (G.Forst.) A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 384 (1929)

≡ *Parahebe catarractae* (G.Forst.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

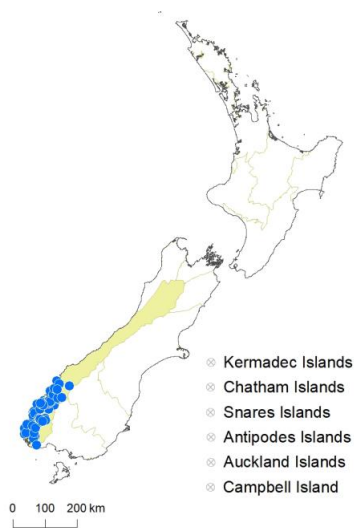
Type: Forster. "Habitat in Nova Zelande". Specimens of this collection are held at BM (said to be collected by "Capt. Cooke 1775"), K, and, according to Richard (1832), P.

= *Veronica catarractae* var. *minor* Hook.f., *Bot. Antarct. Voy. II (Fl. Nov.-Zel.) Part II*, 195 (1854)

Type: Not designated: "the type cannot be chosen from among the three collections definitely studied by Hooker" (Garnock-Jones & Langer 1980)

**Etymology:** The epithet *catarractae* probably refers to the habitat, on rocks alongside rivers, streams, and waterfalls.

Sub-shrub to 0.5 m tall. Stems ascending to erect, eglandular-pubescent; hairs bifarious. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, linear to lanceolate or rarely elliptic to oblanceolate, 20–120 mm long, 5–30 mm wide, dull, green above, greenish-white beneath; midrib and lateral veins evident, especially above; surfaces glabrous except for eglandular hairs along midrib above; margin glabrous, serrate; teeth in 5–25 pairs; apex acute; base cuneate; petiole 2–10 mm long. Inflorescence a lateral raceme, 60–250 mm long; flowers distant, 12–40, all bisexual; bracts alternate, linear to narrowly lanceolate, < pedicels; pedicels sub-erect, incurved at fruiting, 9–23 mm long, eglandular- or glandular-hairy in one row or rarely all around. Calyx lobes 4, acute or acuminate, 2–4 mm long, equal, eglandular-ciliate, sometimes mixed eglandular- and glandular-ciliate. Corolla 10–14 mm diameter; tube white and yellow, 1.0–1.5 mm long, < calyx, eglandular-hairy inside; lobes 4, sometimes 5 by division of posterior lobe, white, sub-erect to spreading, unequal, elliptic to orbicular, 5–7 mm long, rounded; nectar guides purplish, sometimes pink or absent. Stamen filaments white, 3–6 mm long; anthers magenta. Style glabrous, 4–5 mm long. Capsules weakly angustiseptate, emarginate, glabrous, 3.5–5.0 mm long, 3.5–5.0 mm at widest point. Seeds 20–50 per locule, ellipsoid to discoid, flattened, smooth, pale brown, 0.8–1.1 mm long.



**Fig. 242:** *Veronica catarractae* distribution map based on databased records at AK, CHR & WELT.

1980). Previous counts recorded as *Parahebe catarractae* have been from plants of *V. lanceolata* and *V. melanocaulon*.

**Notes:** *Veronica catarractae* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the "speedwell hebe" group (Albach & Meudt 2010). It is a member of the speedwell hebe clade, and appears to be sister to *V. lyallii* based on nuclear and chloroplast DNA sequence data.

Sometimes the lowest inflorescence bracts may be leaf-like (i.e., larger and toothed).

### Cultivars

*Veronica* 'Baby Blue' appears to be a hybrid cultivar derived from *V. catarractae* × *hookeriana*.

*V.* 'Snowcap' is very similar to *V. catarractae*, differing only in having hairs all around the pedicels.

**Distribution:** South Island: Westland (southernmost parts), Fiordland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** River banks, usually rooted in sand and silt in rock crevices, cliffs, landslide debris, lowland to montane. Recorded elevations range from 30 to 1006 m.

**Recognition:** *Veronica catarractae* plants are larger than most other speedwell hebes, a group of *Veronica* characterised by flowers that have short corolla tubes with magenta nectar guides and usually plicate lateral corolla lobes. Among speedwell hebes, plants of *V. senex* and some forms of *V. lanceolata*, especially from Taranaki and Coromandel, have similar large leaves, but these differ in having pale green or sometimes pinkish leaf undersides and hairs all around the pedicel rather than in a line. Also, *V. senex* plants often have short, eglandular hairs on both leaf surfaces.

**Phenology:** Flowers: December–February, sometimes to April; fruits: January to April.

**Cytology:**  $2n = 42$  (as  $n = 21$ ; Garnock-Jones & Langer 1980).



**Fig. 243:** *Veronica catarractae*. Habit. West Arm, L. Manapouri.



**Fig. 244:** *Veronica catarractae*. Sprig. Scale = 10 mm.



**Fig. 245:** *Veronica catarractae*. Stem showing brownish bifarious hairs. Scale = 1 mm.



**Fig. 246:** *Veronica catarractae*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



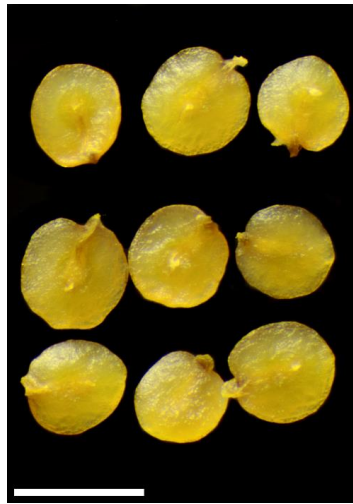
**Fig. 247:** *Veronica catarractae*. Pedicel, showing hairs in a single row, and calyx. Scale = 1 mm.



**Fig. 248:** *Veronica catarractae*. Flower of a pure white form; usually the corolla has a magenta eye surrounding the throat. Scale = 1 mm.



**Fig. 249:** *Veronica catarractae*. Capsule.  
Scale = 1 mm.



**Fig. 250:** *Veronica catarractae*. Seeds.  
Scale = 1 mm.

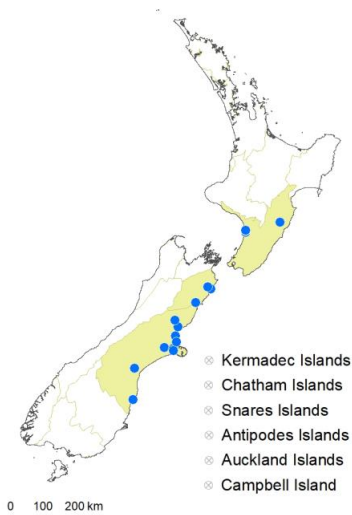
### ***Veronica catenata* Pennell, *Rhodora* 23: 37 (1921)**

= *Veronica aquatica* Bernh., *Begr. Pflanzenart* 66 (1834) nom. illeg., non *Veronica aquatica* S.F.Gray 1821

**Etymology:** The adjective *catenata* translates as chained. The protologue states, “Named from the chain-like aspect of the long racemes of short-pedicelled flowers”.

**Vernacular name:** pink water speedwell

Perennial herb to 0.7 m tall. Stems ascending to erect from prostrate base, glabrous. Leaf bud indistinct; leaves separating while small, opposite-decussate, spreading; lamina thin, linear to lanceolate or narrowly triangular, 15–100 mm long, 3–35 mm wide, somewhat glossy green to dark green above, dull pale green to green beneath; midrib and lateral veins evident; surfaces glabrous; margin glabrous, serrulate to serrate; teeth in 10–40 pairs; apex acute to acuminate; base sub-cordate to cordate, amplexicaul; petiole absent. Inflorescence a lateral raceme, sometimes branched below, 70–150 (rarely to 250) mm long; flowers crowded at first, becoming distant at fruiting, 10–50, all bisexual; bracts alternate, linear, > pedicels at flowering; pedicels erecto-patent to spreading, 1.5–2.0 mm long at flowering, 3–5 mm long at fruiting, sparsely to moderately glandular hairy all around. Calyx lobes 4, obtuse to acute, 3–4 mm long, sub-equal, glabrous. Corolla 3.5–5.0 mm diameter; tube white and greenish-yellow, c. 0.5 mm long, < calyx, glabrous or sparsely eglandular-hairy inside; lobes 4, pale pink, erecto-patent to spreading, sub-equal, elliptic to orbicular, 1.8–2.0 mm long, rounded to obtuse; nectar guides magenta, usually absent on anterior lobe. Stamen filaments white or pink, 1.5–2.0 mm long; anthers pink. Style glabrous, 1.5–2.0 mm long. Capsules angustiseptate, shallowly emarginate, glabrous or sparsely glandular-ciliate on margins, 2.0–3.0 mm long, 2.5–3.5 mm at widest point. Seeds ellipsoid or oblong, flattened on face, rounded on back, smooth, pale brown to brown, 0.5–0.6 mm long.



**Fig. 251:** *Veronica catenata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Southern North Island (Waipukurau, Lake Koputara, Pukepuke Lagoon).

South Island: Marlborough (Kekerengu, Clarence Reserve, Chalk Range), Canterbury (Waipara, Hurunui, Woodend, Tai Tapu, Motukarara, Ōpihi, Oamaru).

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Drains, swamps, stream sides, wet places. Most known sites are close to the coast. Recorded elevations range from 0 to 91 m.

**First record:** Healy (1944, p. 228, as *Veronica anagallis Linn.*). Voucher CHR 41293, Healy, Waitohi R.

**Recognition:** *Veronica catenata* plants are very similar to *V. anagallis-aquatica* and very easily confused with it, especially as some plants of *V. anagallis-aquatica* have pinkish flowers. *V. anagallis-aquatica* is distinguished by duller and paler leaves, glabrous inflorescences, a larger corolla, which is 5–10 mm diameter and has ovate to rhomboid lobes and coloured veins on all lobes, and its bracts are shorter than the pedicels, even at flowering. The corolla tube in *V. anagallis-aquatica* is densely hairy within.

*V. americana* plants are similar and also grow in wet places; they are distinguished by short petioles even on the uppermost leaves, completely glabrous inflorescences and capsules, longer pedicels, larger (7–10 mm) and blue flowers, longer styles 3.0–4.5 mm, and larger capsules 3.0–4.0 × 3.0–4.3 mm.

Plants of a fourth aquatic species, *V. scutellata*, are very slender and weak-stemmed, with very narrow leaves and filiform inflorescences that are only one at each node; their deeply emarginate or didymous capsules are larger and distinctly flattened, and their seeds are 1.2–1.4 mm long with a central chalaza.

**Phenology:** Flowers: September–April; fruits: September–April.

**Cytology:**  $2n = 36$  based on overseas material (Albach et al. 2008).

**Hybridisation:** The hybrid *V. anagallis-aquatica* × *catenata* is common in Europe but has not been recorded in New Zealand. It closely resembles *V. catenata* but doesn't produce fruit.

**Notes:** *Veronica catenata* is classified in *V.* subg. *Beccabunga* (Albach et al. 2004a; Albach & Meudt 2010) along with similar aquatic species *V. anagallis-aquatica* and *V. americana*, and also *V. peregrina* and *V. serpyllifolia*.



**Fig. 252:** *Veronica catenata*. Habit. Himatangi Beach, Manawatu.



**Fig. 253:** *Veronica catenata*. Habit. Himatangi Beach, Manawatu.



**Fig. 254:** *Veronica catenata*. Sprig.  
Scale = 10 mm.



**Fig. 255:** *Veronica catenata*. Stem in cross section and side view. Scale = 1 mm.



**Fig. 256:** *Veronica catenata*. Leaf bud.  
Scale = 1 mm.



**Fig. 257:** *Veronica catenata*. Lower leaves.  
Scale = 10 mm.



**Fig. 258:** *Veronica catenata*. Mid stem leaves.  
Scale = 1 mm.

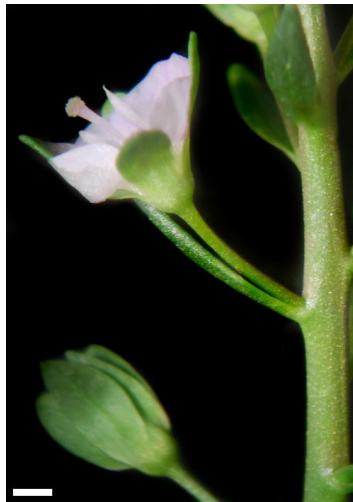


**Fig. 259:** *Veronica catenata*. Upper leaves.  
Scale = 10 mm.

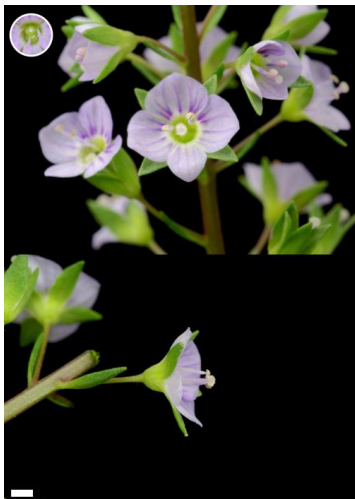




**Fig. 260:** *Veronica catenata*. Inflorescence. Scale = 1 mm.



**Fig. 261:** *Veronica catenata*. Bract, pedicel, and flower in side view. Scale = 1 mm.



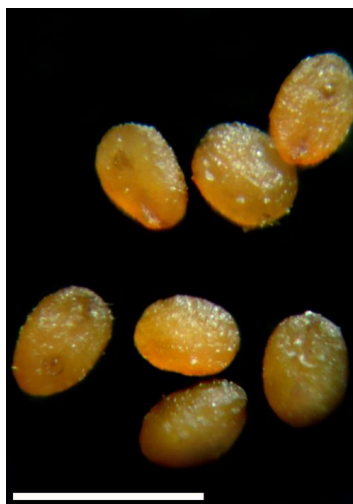
**Fig. 262:** *Veronica catenata*. Flower (inset top left shows corolla tube). Scale = 1 mm.



**Fig. 263:** *Veronica catenata*. Mature capsule. Scale = 1 mm.



**Fig. 264:** *Veronica catenata*. Immature capsule. Scale = 1 mm.



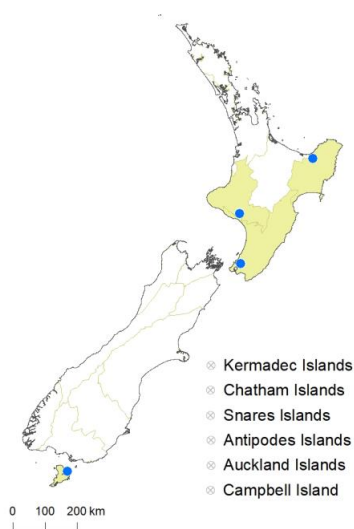
**Fig. 265:** *Veronica catenata*. Seeds. Scale = 1 mm.

## *Veronica chamaedrys* L., Sp. Pl. 13 (1753)

**Etymology:** The epithet derives from that of germander, *Teucrium chamaedrys*, itself derived from Greek *chamai* (ground) and *drys* (oak).

**Vernacular name:** germander speedwell

Spreading, loose mat-forming or sprawling herb to 0.3 m tall. Stems decumbent to ascending, eglandular-pubescent; hairs bifarious, sometimes a few scattered hairs between the rows. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to spreading; lamina thin, ovate, elliptic, or ovate-deltoid, 8–35 mm long, 8–25 mm wide, dull, green to dark green above, pale green beneath; midrib and secondary veins evident; surfaces sparsely hairy or becoming glabrous above, moderately hairy especially on veins beneath; margin ciliate, bluntly serrate or crenate-serrate; teeth in 4–10 pairs; apex obtuse to rounded; base truncate to sub-cordate; petiole 1.5–7.0 mm long. Inflorescence a lateral raceme, 50–150 mm long; flowers distant, 5–15, all bisexual; bracts alternate, linear to narrowly elliptic, < pedicels; pedicels erecto-patent to spreading, 5–10 mm long, eglandular-hairy all around, with a few glandular hairs. Calyx lobes 4, sub-acute to acute, 2.5–3.0 mm long at flowering, elongating later to 4 mm long, sub-equal, with long glandular and a few eglandular hairs on faces, mixed glandular- and eglandular-ciliate on margins. Corolla 10–14 mm diameter; tube white and yellowish, 0.5–1.0 mm long, < calyx, eglandular-hairy inside; lobes 4, blue to purplish, spreading, sub-equal, broadly elliptic, ovate, obovate, or orbicular, 4.5–6.5 mm long, rounded; nectar guides dark blue. Stamen filaments purplish, 3.5–5.0 mm long; anthers blue or purple. Style glabrous, 4–5 mm long. Capsules and seeds not seen in New Zealand material.



**Fig. 266:** *Veronica chamaedrys* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Gisborne (Toatoa), Taranaki (near Rangitatau), southern North Island (Trentham).

Stewart I. (Halfmoon Bay).

In the South Island, *V. chamaedrys* has been collected from gardens in Nelson and Christchurch, but was probably not naturalised there.

**Biostatus:** Exotic; fully naturalised.

Indigenous to temperate Eurasia.

**Habitat:** Roadsides, stream-sides, forest margins, probably an escape from cultivation. Recorded elevations range from 40 to 530 m.

**First record:** Healy (1957, p. 650–651). Voucher CHR 78751, Healy, Barton's Bush, Hutt Valley. An earlier record (Thomson 1875) was based on a specimen of *V. persica*.

**Recognition:** *V. chamaedrys* plants are vegetatively similar to those of several other species in leaf size, shape, and toothiness. The flowers are in lateral racemes, rather like those of native species such as *V. lanceolata*, which, however, have thicker leaves and usually white flowers that often have the lateral corolla lobes longitudinally folded.

*V. arvensis* plants have terminal inflorescences of very small sub-sessile flowers.

*V. persica* plants can be distinguished by terminal inflorescences with large, leaf-like bracts, much shorter style and stamens, pale anterior corolla lobes, and by forming capsules, which are broader than long.

*V. javanica* plants have very much smaller and cleistogamic flowers, and the inflorescence elongates at fruiting rather than before flowering. *V. calycina* and *V. plebeia* are similar, but their leaves have shorter hairs. *V. plebeia* leaves are more sharply toothed, stems have much shorter hairs, and the corolla is shorter than the calyx.

*V. umbrosa* plants have similar growth form, inflorescences, and large blue flowers. *V. umbrosa* is commonly cultivated, often as *V. peduncularis*, *V.* 'Georgia Blue', or *V.* 'Oxford Blue' (Albach 2006). The plants are distinguished by their reddish stems with very short, recurved, bifarious hairs, and leaves that are lanceolate, cuneate at base, and glabrous on surfaces with a few short bristles on the margins. Their capsules and seeds also distinguish them (Albach 2006), but capsules have not been seen in either species in New Zealand.

**Phenology:** Flowers: September–November; fruits: not seen in New Zealand.

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**Cytology:**  $2n = 32$  in Europe (Albach et al. 2008).

**Notes:** *Veronica chamaedrys* is classified in *V.* subg. *Chamaedrys* (Albach et al. 2004a; Albach & Meudt 2010).

The hairs on stems and leaves are long, slender, and tapering, and between 0.5 and 1 mm long.

*V. chamaedrys* plants are self-sterile and fruits and seeds have not been observed in New Zealand.



**Fig. 267:** *Veronica chamaedrys*. Habit. Garden plant, originally from Rangitatau, Whanganui.



**Fig. 268:** *Veronica chamaedrys*. Sprig. Scale = 10 mm.



**Fig. 269:** *Veronica chamaedrys*. Portion of stem. Scale = 1 mm.



**Fig. 270:** *Veronica chamaedrys*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 271:** *Veronica chamaedrys*. Calyx, pedicel, and bract. Scale = 1 mm.



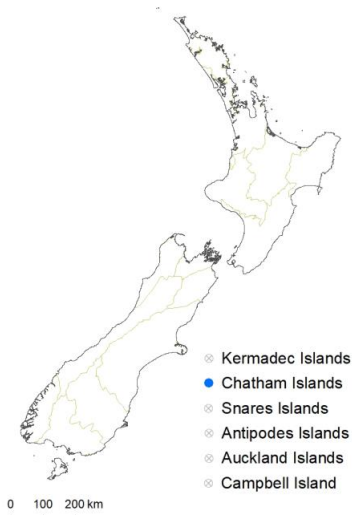
**Fig. 272:** *Veronica chamaedrys*. Flower. Scale = 1 mm.

### ***Veronica chathamica* Buchanan, *Trans. New Zealand Inst.* 7: 338 (1875)**

- ≡ *Hebe chathamica* (Buchanan) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 22 (1926)  
Lectotype (designated by Bayly & Kellow 2006): Transactions of the New Zealand Institute 7: 338, plate 13, fig. 1 (1875)
- = *Veronica coxiana* Kirk, *Trans. New Zealand Inst.* 28: 529 (1896)
- ≡ *Veronica chathamica* var. *coxiana* (Kirk) Cheeseman, *Man. New Zealand Fl.*, ed. 2, 794 (1925)
- ≡ *Hebe coxiana* (Kirk) Cockayne, *Trans. New Zealand Inst.* 60: 470 (1929)  
Lectotype (designated by Moore, in Allan 1961): Chatham Islands, F. A. D. Cox, WELT 5295

**Etymology:** The epithet *chathamica* refers to its distribution on the Chatham Is.

Spreading low or mat-forming shrub to 0.25 m tall. Stems prostrate to decumbent, or pendent on cliffs, eglandular-pubescent; hairs uniform or rarely bifarious. Leaf bud indistinct; leaves separating while small, opposite-decussate to sub-distichous, erecto-patent to recurved; sinus absent or very rarely minute and rounded; lamina coriaceous, elliptic to obovate or oblanceolate, 8–33 mm long, 3–17 mm wide, dull green to dark green above, green beneath; midrib evident; surfaces with eglandular hairs on midrib, or eglandular-hairy, or rarely glabrous; margin pubescent or glabrous, entire; apex obtuse to sub-acute; base cuneate; petiole absent. Inflorescence a lateral raceme, 13–41 mm long; flowers crowded, 20–40, all bisexual; bracts alternate or the lowest pair opposite, lanceolate or linear-lanceolate, ≥ pedicels; pedicels erecto-patent, 1–2.6 mm long, eglandular-hairy all around. Calyx lobes 4, acute to acuminate, rarely sub-acute, 1.7–3.5 mm long, sub-equal, eglandular-ciliate or with a few glandular hairs as well, often also hairy on outer surface. Corolla 6–8 mm diameter; tube white, 2.5–4.0 mm long, > calyx, eglandular-hairy inside and at bases of lobes; lobes 4, white or tinged pale purple, erecto-patent to spreading, sub-equal, elliptic to ovate, 2.0–3.5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 4.0–4.5 mm long; anthers pale brown to pale purple. Style glabrous or eglandular-hairy, 5–6 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous or eglandular-hairy, 3.5–5.0 mm long, 2.5–3.5 mm at widest point. Seeds ellipsoid to sub-discoid, flattened, smooth, brown, 1.2–1.6 mm long.



**Fig. 273:** *Veronica chathamica* distribution map based on databased records at AK, CHR & WELT.

**Notes:** *Veronica chathamica* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. chathamica* is variable in a number of features: leaf shape and size, stem and leaf indumentum, and the shape and hairiness of the calyx. Some plants of *V. dieffenbachii* and *V. chathamica* have been observed with blue or purple pollen, but more often it is whitish.



**Fig. 274:** *Veronica chathamica*. Habit. Near Kaingaroa, Chatham I.



**Fig. 275:** *Veronica chathamica*. Sprig. Scale = 10 mm.

**Distribution:** Chatham Is. (The Sisters [Rangitatahi], Chatham I., Pitt I. [Rangiauria], South East I. [Rangatira]).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal rocks and cliffs, low vegetation at beach and lagoon margins. Recorded elevations range from 0 to 100 m.

**Recognition:** *Veronica chathamica* plants have smaller leaves than plants of the other two woody hebes on the Chatham Is., and their leaves are relatively broader in shape. *V. dieffenbachii* plants might be confused with them, but tend to have larger leaves, longer inflorescences with more flowers, and often a taller growth form.

**Phenology:** Flowers: December–March; fruits: January–March, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe chathamica*).

**Hybridisation:** Where *V. chathamica* and *V. dieffenbachii* occur together they may be hard to distinguish and it is possible that hybridisation is occurring.



**Fig. 276:** *Veronica chathamica*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 277:** *Veronica chathamica*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 278:** *Veronica chathamica*. Inflorescence. Scale = 1 mm.



**Fig. 279:** *Veronica chathamica*. Flowers. Scale = 1 mm.



**Fig. 280:** *Veronica chathamica*. Capsules. Scale = 1 mm.



**Fig. 281:** *Veronica chathamica*. Seeds. Scale = 1 mm.

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***Veronica cheesemanii* Benth. in Hooker, *Hooker's Icon. Pl.* 14, t. 1366 (1881)**

≡ *Parahebe cheesemanii* (Benth.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

Holotype: Raglan Mountains, Wairau Valley, 5000 ft, T. F. Cheeseman, K. Isotype: AK 8428

**Etymology:** The epithet *cheesemanii* honours Thomas Frederick Cheeseman (1845–1923), Auckland botanist and Curator of Auckland Museum, author of *Manual of the New Zealand Flora*.

Cushion or mat-forming sub-shrub to 0.04 m tall. Stems prostrate to ascending, sometimes rhizomatous, eglandular-pubescent; hairs uniform. Leaf bud indistinct; leaves separating while small, opposite-decussate, erect to recurved. Lamina sub-coriaceous, ovate, elliptic, orbicular, rhomboid, deltoid, or spatulate, 2–5 mm long, 2–3 mm wide, dull dark, grey-, or bronze-green above, similar or pinkish beneath; midrib evident; surfaces eglandular-hairy above and beneath, rarely glabrous; margins denticulate or minutely papillate, deeply crenate-serrate or pinnatifid, sometimes bipinnatifid; teeth or lobes in 2–5 pairs; apex sub-acute to obtuse; base cuneate or abruptly cuneate; petiole 3–6 mm long. Inflorescence a solitary axillary bibracteate flower, rarely a raceme of 2–3 flowers, 2–10 mm long, eglandular hairy, all bisexual; bracts opposite, spatulate, > pedicels; pedicels erect, 0–2 mm long, eglandular hairy all around. Calyx lobes 4, rarely a small 5th lobe, obtuse to sub-acute, equal, 4–7 mm long, eglandular-hairy. Corolla 4–7 mm diameter; tube white, 3.5–7.0 mm long, ≥ calyx, hairy outside or glabrous; lobes 4, sometimes 5, white, spreading to recurved, sub-equal to unequal, elliptic to orbicular or deltoid, 2–3 mm long, obtuse to rounded or posterior emarginate; nectar guides absent. Stamen filaments white, 1.5–2.0 mm long; anthers pink to magenta. Style glabrous, 1.5–3.0 mm long. Capsules angustiseptate, emarginate to didymous, eglandular-hairy, 3–4 mm long, 3–4 mm at widest point. Seeds ellipsoid to obovoid, barely flattened, finely papillate, pale to dark brown, 0.6–1.1 mm long.

- 1 Lamina (excluding petiole) ovate, deltoid, spatulate, or rhomboid, pinnatifid, lobed to  $\frac{3}{4}$ -way or more; petiole hairs 0.5–1 mm long.....subsp. *cheesemanii*  
.....  
Lamina (excluding petiole) elliptic or orbicular, crenate to shallowly pinnatifid, lobed to about halfway; petiole hairs 0.3–0.5 mm long.....subsp. *flabellata*

**Distribution:** South Island: Western Nelson, Sounds Nelson (Richmond Range), Marlborough (Raglan Range), Canterbury (Arthur's Pass National Park), Westland (Nelson Lakes National Park, Arthur's Pass National Park).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine stable rock fields and fell-fields, occasionally more mobile screes, in fine gravel or small stones overlying silty soil.

**Recognition:** *Veronica cheesemanii* plants are very distinctive and seem most similar to *V. spathulata*. *V. spathulata* plants have a more lax growth form, larger flowers, and more of them per inflorescence; their calyx lobes are entire or sometimes shallowly toothed.

*V. cheesemanii* is the only New Zealand species of *Veronica* with pinnatifid or lobed bracts and calyx lobes. A few other species occasionally have toothed or crenate bracts, and the calyx lobes in *V. spathulata* are occasionally bluntly toothed.

Lobed or pinnatifid leaves, bracts, and calyx lobes and its overall dark greyish- or brownish-green colour distinguish it from other cushion-forming veronicas, which all have these parts entire.

**Phenology:** Flowers: December–March; fruits: January–May, persisting all year.

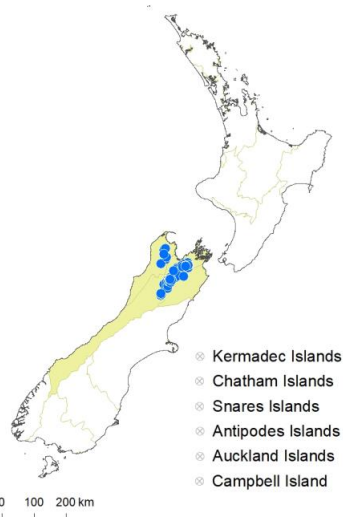
**Cytology:** 2n = 42 (var. *cheesemanii* only; see Hair 1970).

**Notes:** *Veronica cheesemanii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* but is not currently assigned to any informal group (Albach & Meudt 2010). In its morphology its habit suggests a relationship to *V. spathulata*, and this is supported by these two species sharing a unique feature: the division or toothedness of the calyx lobes. However, molecular phylogenetic research so far does not support a close relationship between them (Albach & Meudt 2010).

***Veronica cheesemanii* Benth. in Hooker, *Hooker's Icon. Pl.* 14, t. 1366 (1881) subsp. *cheesemanii***

≡ *Parahebe cheesemanii* (Benth.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944) subsp. *cheesemanii*

Lamina ovate, deltoid, spatulate, or rhomboid; margin pinnatifid, to bipinnatifid on basal lobes; leaf hairs unicellular and uniseriate; petiole hairs 0.5–1.0 mm long. Calyx lobe margins pinnatifid.



**Fig. 282:** *Veronica cheesemanii* subsp. *cheesemanii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Sounds Nelson (Richmond Range), Marlborough (Raglan Range), Westland (Nelson Lakes National Park).

**Biostatus:** Indigenous (Endemic).

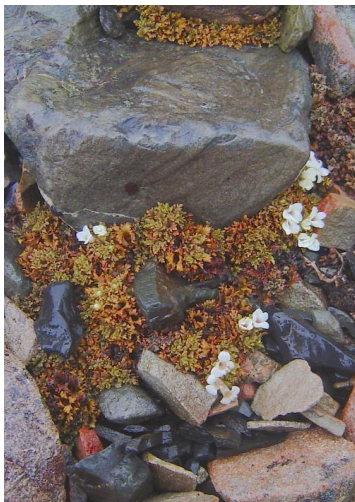
**Habitat:** Alpine stable rock fields and fell-fields, occasionally more mobile screes, in fine gravel or small stones overlying silty soil. Recorded elevations range from 1372 to 1890 m.

**Recognition:** The deeply pinnatifid lamina, bracts, and calyx lobes, and the longer leaf hairs distinguish this subspecies from subsp. *flabellata*.

**Phenology:** Flowers: December–March; fruits: January–May, persisting all year.

**Cytology:**  $2n = 42$  (Hair 1970).

**Notes:** Some plants, especially in north-west Nelson, have hairs on the abaxial surfaces of corolla lobes.



**Fig. 283:** *Veronica cheesemanii* subsp. *cheesemanii*. Habit. Rainbow Ski Field, Marlborough.



**Fig. 284:** *Veronica cheesemanii* subsp. *cheesemanii*. A small cushion in flower. Rainbow Ski Field, Marlborough. Scale = 10 mm.





**Fig. 285:** *Veronica cheesemanii* subsp. *cheesemanii*. Sprig. Scale = 1 mm.



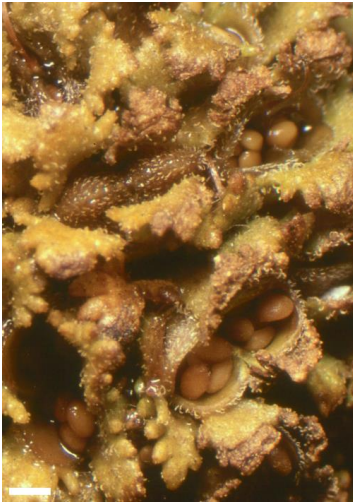
**Fig. 286:** *Veronica cheesemanii* subsp. *cheesemanii*. Leaf surfaces, adaxial (right) and abaxial (left). Scale = 1 mm.



**Fig. 287:** *Veronica cheesemanii* subsp. *cheesemanii*. Flower with 4 corolla lobes. Note pinnatifid calyx lobes and hairs on the outside of the corolla lobes in the opening bud. Scale = 1 mm.



**Fig. 288:** *Veronica cheesemanii* subsp. *cheesemanii*. Capsule and seeds. Scale = 1 mm.



**Fig. 289:** *Veronica cheesemanii* subsp. *cheesemanii*. Open capsule and seeds. Scale = 1 mm.

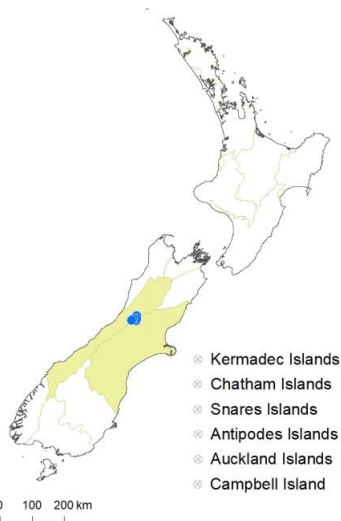
***Veronica cheesemanii* subsp. *flabellata* (Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 576 (2007)**

≡ *Parahebe cheesemanii* subsp. *flabellata* Garn.-Jones in Garnock-Jones & Lloyd, *New Zealand J. Bot.* 42: 197 (2004)

Holotype: Head of Otira River, Wall, Feb 1927, CHR 289703

**Etymology:** The epithet *flabellata* refers to the flabellate lamina, in contrast to the narrower and pinnatifid lamina of subsp. *cheesemanii*.

Lamina elliptic or orbicular; margin crenate or lobed; leaf hairs unicellular; petiole hairs 0.3–0.5 mm long. Calyx lobe margins shallowly lobed.



**Fig. 290:** *Veronica cheesemanii* subsp. *flabellata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury and Westland (Arthur's Pass National Park: Kelly Range, Upper Otira Valley, Upper Bealey Valley, Rough Creek).

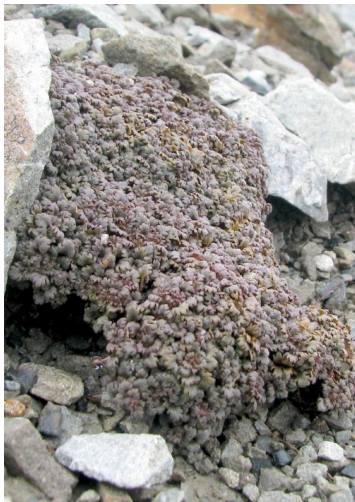
**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine stable rock fields and fell-fields, occasionally more mobile screes, in fine gravel or small stones overlying silty soil, rarely on rock. Recorded elevations range from 1150 to 1676 m.

**Recognition:** The shallowly lobed or crenate lamina and calyx lobes, and the much shorter leaf hairs, distinguish this subspecies from subsp. *cheesemanii*.

**Phenology:** Flowers: February–March (and probably earlier); fruits: February (probably earlier and later).

**Cytology:** Not known.



**Fig. 291:** *Veronica cheesemanii* subsp. *flabellata*. Habit. Arthur's Pass National Park.



**Fig. 292:** *Veronica cheesemanii* subsp. *flabellata*. Cushion and flower. Cultivated plant originally from near Arthur's Pass.

## ***Veronica chionohebe* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 576 (2007)**

nom. nov. pro *Veronica thomsonii* var. *glabra* Cheeseman 1906

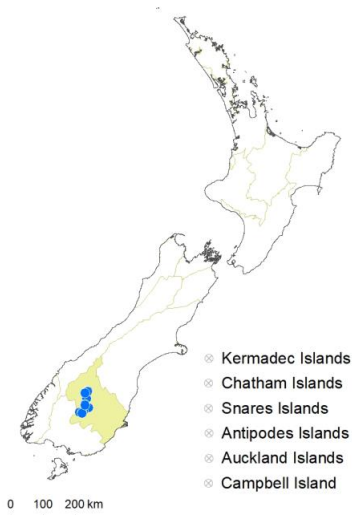
≡ *Veronica thomsonii* var. *glabra* Cheeseman, *Man. New Zealand Fl.* 540 (1906)

≡ *Chionohebe glabra* (Cheeseman) Heads, *Bot. Soc. Otago Newsl.* 5: 4 (1987)

Lectotype (designated by Garnock-Jones et al. 2007): Mt Pisa, Petrie, AK 8335 (upper left hand piece)

**Etymology:** The epithet *chionohebe* is a reference to the former genus name *Chionohebe* (literally snow hebe), now a synonym of *Veronica*. Grammatically, it is a noun in apposition. Of all the species in the snow hebe group, this one has a particular association with summer snow-banks and snow-bank melt-water in the Central Otago ranges

Low mat or cushion sub-shrub to 0.05 m tall. Stems decumbent to erect, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves sub-decussate, erecto-patent to erect; lamina thin, oblanceolate to obovate, spatulate or rarely lanceolate to broadly ovate, 1.8–4.6 mm long, 0.7–2.3 mm wide, dull, medium to pale green in distal half, brownish to purplish near base; veins not evident; surfaces glabrous or with isolated trichomes distally or about middle; margin glabrous or very sparsely ciliate, entire; apex obtuse to sub-acute; base slightly narrowed; petiole absent. Inflorescence a solitary, axillary, bibracteate flower; flowers female or male on separate plants, ♂ > ♀; bracts opposite, narrowly lanceolate to ovate, rarely oblanceolate, or narrowly to very narrowly elliptic, ± equalling and investing calyx; pedicel absent. Calyx lobes 5, obtuse to sub-acute, 1.3–2.5 mm long, equal, glabrous or sparsely eglandular-ciliate, rarely a few hairs on upper abaxial surface. Corolla 1.5–4.1 mm diameter; tube white, 1.6–3.5 mm long, ≥ calyx, glabrous; lobes 5, white, erecto-patent to spreading, equal, narrowly to broadly ovate, 1–2 mm long, obtuse; nectar guides absent. Stamen filaments white, 0.16–0.90 mm long; anthers purple. Style glabrous, 2.6–5.5 mm long. Capsules angustiseptate, emarginate, glabrous, 1.9–2.5 mm long, 1.5–1.9 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown to brown, 0.5–0.8 mm long.



**Fig. 293:** *Veronica chionohebe* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Otago (Pisa Range, Carrick Range, Old Woman Range, northern Old Man Range, Garvie Mountains).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Cushion herb-field and fell-field, damp sheltered sites in gullies and slopes often downhill from summer snow-banks in melt-water, in stony seepages and hollows. Recorded elevations range from 1360 to 1890 m.

**Recognition:** Among the four species of New Zealand *Veronica* that are characterised by a cushion growth form and entire leaves (i.e., the cushion-forming snow hebes), *Veronica chionohebe* may be recognised by being almost entirely glabrous on leaves, bracts, calyx, ovary, and capsules, or at most having a very few hairs, usually on leaf, bract, and calyx margins. Plants may be similar to *V. ciliolata* subsp. *fiordensis*, but plants of that subspecies are usually more densely hairy, and have larger capsules and seeds; their distributions do not overlap.

(See: Table 8)

**Phenology:** Flowers: January–March (sometimes December);

fruits: March and probably later.

**Cytology:**  $2n = 42$  (Hair 1970, as "*P[ygmea] thomsonii* var. *glabra*").

**Hybridisation:** *V. chionohebe* × *trifida* (see under *V. trifida*).

*V. chionohebe* × *thomsonii*. *V. chionohebe* and *V. thomsonii* grow together in the Garvie Mountains and Pisa Range, and it is possible that hybridisation occurs between them. This might be the reason that molecular systematics techniques have so far not provided evidence of genetic divergence between them, despite morphological and habitat differences (Meudt 2008; Meudt & Bayly 2008).

**Notes:** *Veronica chionohebe* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the "snow hebe" group (Albach & Meudt 2010).

*V. chionohebe* is closely related to *V. thomsonii* although clearly recognisable by its morphology and habitat. Meudt (2008) and Meudt and Bayly (2008, as *Chionohebe glabra*) discussed its species status in relation to its possible derivation as an ecotype of *V. thomsonii* and the extent of gene flow between them through hybridisation.

Male plants have larger corollas than female plants do, and large, dark-coloured anthers.



**Fig. 294:** *Veronica chionohebe*. Habitat. Welshman's Creek, Garvie Mts.



**Fig. 295:** *Veronica chionohebe*. Habit. Welshman's Creek, Garvie Mts.



**Fig. 296:** *Veronica chionohebe*. Habit and male flowers. Scale = 10 mm.



**Fig. 297:** *Veronica chionohebe*. Male flowers. Scale = 10 mm.



**Fig. 298:** *Veronica chionohebe*. Capsule. Scale = 1 mm.

### ***Veronica ciliolata* (Hook.f.) Cheeseman, *Man. New Zealand Fl.* 540 (1906)**

≡ *Pygmea ciliolata* Hook.f., *Handb. New Zealand Fl.* 217 (1864)

≡ *Chionohebe ciliolata* (Hook.f.) B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 2 (1976)

Lectotype (designated by Ashwin in Allan 1961): Hopkins River, New Zealand, *Haast s.n.*, No. 15, K

**Etymology:** *Ciliolata* refers to the ciliate leaf margins, which contrast with the usually glabrous leaf surfaces.

Dense cushion sub-shrub to 0.06 m tall. Stems erect, densely crowded, rarely more lax and ascending, glabrous. Leaf bud indistinct, its outer leaves fully grown, separating early. Leaves sub-decussate, sub-erect to appressed; lamina thin, oblanceolate, obovate, or spatulate, rarely broadly obovate, 1.7–4.5 mm long, 0.8–2.9 mm wide, dull green to olive-green above and beneath in distal half, becoming pale green, brownish, or purplish at base; veins not evident; hairs stiff, eglandular, appressed or spreading: on surfaces absent or isolated and scattered distally; margin sparsely to densely, irregularly to regularly ciliate throughout or in distal or basal half, often with an apical tuft, sometimes a few glandular hairs as well; apex obtuse; base slightly narrowed; petiole absent. Inflorescence a solitary axillary bibracteate flower; flowers female or male on separate plants, ♂ > ♀; bracts 2, opposite, narrowly to very narrowly lanceolate to oblanceolate, rarely narrowly ovate to obovate, ± equalling and investing calyx; pedicel absent. Calyx lobes 5, obtuse to sub-acute,

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1.8–3.6 mm long, equal, eglandular-ciliate, rarely also glandular-ciliate, glabrous on adaxial surface, usually sparsely hairy distally on abaxial surface. Corolla 2.1–6.5 mm diameter; tube white, 2.7–6.0 mm long,  $\geq$  calyx, glabrous; lobes 5, white, erecto-patent to spreading, equal, obovate to broadly obovate, 1.2–3.0 mm long, obtuse; nectar guides absent. Stamen filaments white, 0.25–1.25 mm long; anthers magenta or purple. Style glabrous, 3–7 mm long. Capsules angustiseptate, emarginate, glabrous or with isolated hairs at apex, 2.5–3.5 mm long, 1.4–3.1 mm at widest point. Seeds ellipsoid, weakly flattened, smooth, brown to orange-brown, 0.6–1.0 mm long.

- 1 Ovary and capsule glabrous; bracts and calyx lobes glabrous at least in lower half; leaf margin ciliate throughout, or ciliate in upper half and glabrous below.....subsp. *ciliolata*  
Ovary and capsule hairy at apex; bracts and calyx lobes sparsely to densely hairy to base; leaf margin sparsely to densely ciliate in lower half, glabrous above except for apical tuft..... subsp. *fiordensis*

**Distribution:** South Island: Westland, Canterbury (mostly near the main divide), Fiordland, Southland (western mountains).

**Biostatus:** Indigenous (Non-endemic).

**Recognition:** Among the four species of New Zealand *Veronica* that are characterised by a cushion growth form and entire leaves (i.e., the cushion-forming snow hebes), plants of *V. ciliolata* may be recognised by their characteristic leaf indumentum. The surfaces are generally glabrous (occasionally with a few scattered, isolated hairs distally) and the margins ciliate, often with a dense apical tuft. Some plants of *V. pulvinaris* (e.g., from Spenser Mountains, Lewis Pass, and Lookout Range) have almost glabrous surfaces and may appear similar to *V. ciliolata*, but *V. pulvinaris* can usually be distinguished by sparsely hairy margins without an apical tuft, and sparse hairs on the adaxial surface. Also, *V. ciliolata* plants have broader leaves and bracts than *V. pulvinaris*, although the ranges overlap. The ovaries and capsules in *V. pulvinaris* are densely hairy, whereas in *V. ciliolata* they are either glabrous (subsp. *ciliolata*) or have scattered apical hairs (subsp. *fiordensis*).

(See: Table 8)

**Phenology:** Flowers: October–March (mostly December–January); fruits: November–May.

**Notes:** *Veronica ciliolata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010). Analysis of nuclear ITS sequence data indicate the cushion snow hebes are a natural group, with *V. ciliolata* sister to a clade comprising *V. chionohebe*, *V. thomsonii*, and *V. pulvinaris*, whereas chloroplast DNA data have the relationships of these species associated with *V. trifida*, *V. densifolia*, and related species, suggesting, as is strongly indicated by morphology, that hybridisation sometimes occurs within this wider group.

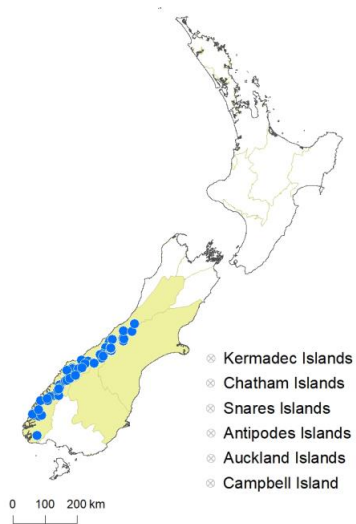
## ***Veronica ciliolata* (Hook.f.) Cheeseman, *Man. New Zealand Fl.* 540 (1906) subsp. *ciliolata***

≡ *Pygmea ciliolata* Hook.f., *Handb. New Zealand Fl.* 217 (1864) var. *ciliolata*

≡ *Chionohebe ciliolata* (Hook.f.) B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 2 (1976) subsp. *ciliolata*

≡ *Veronica ciliolata* (Hook.f.) Cheeseman, *Man. New Zealand Fl.* 540 (1906) var. *ciliolata*

Leaves 1.3–2.1 (sometimes to 2.6) × as long as broad; margins sparsely to densely ciliate, especially on the upper portion, becoming glabrous below or sometimes regularly ciliate the whole length. Bracts ciliate in upper half only. Calyx lobes glabrous on surfaces or with isolated or scattered hairs in upper half only; margins ciliate in upper half only. Ovary and capsules glabrous.



**Fig. 299:** *Veronica ciliolata* subsp. *ciliolata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland, Canterbury, Fiordland, along and west of the main divide.

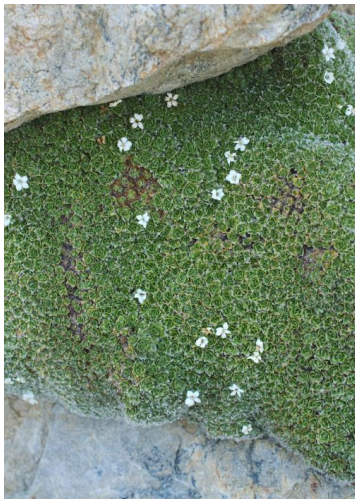
**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine to alpine herb-field, cushion herb-field, fell-field, and tussock grassland, open stony ground, among rocks and boulders, on rock outcrops and in crevices, often on exposed ridges. Recorded elevations range from 915 to 2385 m.

**Phenology:** Flowers: October–March (mostly December–January); fruits: November–May.

**Cytology:**  $2n = 42$  (Hair 1970).

**Hybridisation:** *V. ciliolata* subsp. *ciliolata* × *pulvinaris*. Some specimens from Aoraki / Mt Cook National Park appear intermediate between *V. ciliolata* subsp. *ciliolata* and *V. pulvinaris* and might be hybrids.



**Fig. 300:** *Veronica ciliolata* subsp. *ciliolata*. Habit. Sealy Range, Mt Cook National Park, Canterbury.



**Fig. 301:** *Veronica ciliolata* subsp. *ciliolata*. Sprig. Scale = 1 mm.



**Fig. 302:** *Veronica ciliolata* subsp. *ciliolata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 303:** *Veronica ciliolata* subsp. *ciliolata*. Male flowers. Scale = 1 mm.

### ***Veronica ciliolata* subsp. *fiordensis* (Ashwin) Meudt, *Austral. Syst. Bot.* 21: 413 (2008)**

≡ *Pygmea ciliolata* var. *fiordensis* Ashwin in Allan, *Fl. New Zealand* 1, 874 (1961)

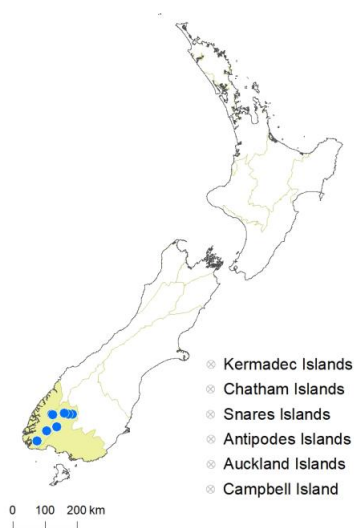
≡ *Veronica ciliolata* var. *fiordensis* (Ashwin) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)

≡ *Chionohebe ciliolata* subsp. *fiordensis* (Ashwin) de Lange & A. Mark in Mark & de Lange, *Above Treeline: Nature Guide Alpine N. Zeal.*, 280, 450 (2012)

Holotype: Takahe Valley, rim of cirque, 4000 ft., *Oliver s.n.*, 20 Feb 1952, WELT SP006128

**Etymology:** The epithet *fiordensis* means living in fiords, a reference to its distribution in Fiordland, New Zealand.

Leaves 1.9–3.3 (sometimes 1.6) × as long as broad; margins sparsely to densely ciliate in lower half, ± glabrous above except for apical tuft. Bracts ciliate for whole length of margin. Calyx lobe surfaces sparsely to densely hairy for whole length; margins ciliate for whole length. Ovary and capsules hairy at apex.



**Fig. 304:** *Veronica ciliolata* subsp. *fiordensis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Fiordland (eastern parts), Southland (western mountains).

**Biostatus:** Indigenous (Non-endemic).

Also indigenous in Tasmania.

**Habitat:** Sub-alpine to alpine herb-field, cushion herb-field, fell-field, and tussock grassland, open stony ground, among rocks and boulders, on rock outcrops and in crevices, often on exposed ridges. Recorded elevations range from 1340 to 1830 m.

**Phenology:** Flowers: November–January; fruits: December–March.

**Cytology:**  $2n = 42$  (Hair 1970).

**Hybridisation:** *V. ciliolata* subsp. *fiordensis* × *spectabilis* (Mark, Takitimu Range, OTA 31255).

*V. ciliolata* subsp. *fiordensis* × *thomsonii*: plants from Eyre Mountains may have sparse hairs in patches (resembling *V. thomsonii*) or scattered (resembling *V. ciliolata*) on the adaxial surface.





**Fig. 305:** *Veronica ciliolata* subsp. *fiordensis*.  
Habit. Takitimu Range, Southland.



**Fig. 306:** *Veronica ciliolata* subsp. *fiordensis*.  
Sprig. Scale = 1 mm.



**Fig. 307:** *Veronica ciliolata* subsp. *fiordensis*.  
Leaf surfaces, adaxial (left) and abaxial (right).  
Scale = 1 mm.



**Fig. 308:** *Veronica ciliolata* subsp. *fiordensis*. Male  
flowers. Scale = 1 mm.



**Fig. 309:** *Veronica ciliolata* subsp. *fiordensis*.  
Female flowers. Scale = 1 mm.



**Fig. 310:** *Veronica ciliolata* subsp. *fiordensis*. Calyx  
with two lobes removed and ovary showing hairs.  
Scale = 1 mm.

## *Veronica cockayneana* Cheeseman, *Man. New Zealand Fl.* 522 (1906)

as "cockayniana"

≡ *Hebe cockayneana* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 32 (1926)

Lectotype (designated by Moore, in Allan 1961): Humboldt Mountains, Otago, L. Cockayne 7949, 19 Feb. 1897, Herb. T. F. Cheeseman (1588 to Kew), AK 8054.  
Isolectotypes: CHR 331811, 331810

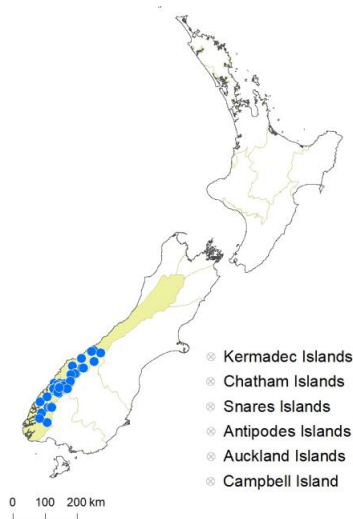
= *Veronica willcoxii* Petrie, *Trans. & Proc. New Zealand Inst.* 45: 272 (1913)

≡ *Hebe willcoxii* (Petrie) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 34 (1926)

Lectotype (designated by Moore, in Allan 1961): top of Routeburn Valley, nr Lake Wakatipu, D. Petrie, Feb 1911, WELT 13453

**Etymology:** Named after Leonard Cockayne (1855–1934), New Zealand botanist.

Bushy or spreading shrub to 1.2 m tall. Stems erect, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its outer leaves appressed at margins until fully grown; sinus narrow, acute. Leaves opposite-decussate to sub-distichous, erecto-patent to spreading; lamina coriaceous to rigid, usually elliptic or narrowly elliptic, sometimes obovate, 5–22 mm long, 3–9 mm wide, glossy green above, dull and glaucous beneath; midrib evident; surfaces glabrous or with eglandular hairs along midrib above; margin minutely papillate or sparsely glandular-ciliolate, entire; apex sub-acute and bluntly plicately-acuminate; base cuneate; petiole 0.5–2.0 mm long. Inflorescence a lateral raceme, 7–32 mm long; flowers crowded, 6–23, female or bisexual on separate plants, ♀ > ♂; bracts opposite-decussate, deltoid to ovate, < to > pedicels; pedicels sub-erect to erecto-patent, 0.5–5.5 mm long, pubescent all around. Calyx lobes 4, anterior pair free or fused to 2/3-way, sub-acute to obtuse, 1.8–2.5 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 9–11 mm (♀) or 5–7 mm (♂) diameter; tube white, 1–2.3 mm long, ≤ calyx, glabrous; lobes 4, white, sub-erect to spreading, sub-equal, broadly ovate to sub-orbicular, 4–5 mm (♀) or 2–3 mm (♂) long, sub-acute to obtuse; nectar guides absent; stamen filaments white, 1.4–4.3 mm long; anthers magenta (pale in ♀ flowers). Style glabrous 1.5–7.0 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 3.0–5.5 mm long, 2.2–3.3 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, pale brown to brown, 1.1–1.2 mm long.



**Fig. 311:** *Veronica cockayneana* distribution map based on databased records at AK, CHR & WELT.

December–April.

**Cytology:** 2n = 120 (see Bayly & Kellow 2006, as *Hebe cockayneana*).

**Notes:** *Veronica cockayneana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group "Apertae" (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). It shares its hexaploid chromosome number with several other species, including in southern New Zealand *V. dilatata*, but *V. dilatata* has an ITS sequence that indicates a similarity with *V. arganthera*.

**Distribution:** South Island: South Westland from Lake Sweeney and the Mataketake Range south to Fiordland north of about Centre Pass and Green Lake, also in West Otago near the main divide.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland and grassland, occasionally in rocky places. Recorded elevations range from 600 to 1495 m.

**Recognition:** *Veronica cockayneana* is the only hebe in Fiordland and South Westland that has discolorous leaves. It is also characterised by long, stiff, tapering, golden or sordid, spreading stem hairs and glandular leaf margin hairs (when present) with brown clavate heads. Some plants are male-sterile and have small anthers; others are hermaphrodite. Its distribution overlaps with that of *V. arganthera*, which differs in its larger and concolorous leaves, crowded, very short, tapered eglandular hairs on leaf margins, white or yellowish anthers, and its cosexual populations. Two species in Nelson, *V. simulans* and *V. cryptomorpha*, resemble *V. cockayneana* quite closely.

**Phenology:** Flowers: December–March; fruits:



**Fig. 312:** *Veronica cockayneana*. Habit. Lake Harris, Routeburn Valley.



**Fig. 313:** *Veronica cockayneana*. Sprig. Scale = 10 mm.



**Fig. 314:** *Veronica cockayneana*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 315:** *Veronica cockayneana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 316:** *Veronica cockayneana*. Bisexual flowers. Scale = 1 mm.



**Fig. 317:** *Veronica cockayneana*. Female flowers. Scale = 1 mm.



**Fig. 318:** *Veronica cockayneana*. Inflorescence and immature infructescence showing opposite decussate flowers, sessile on left and pedicellate on right. Scale = 10 mm.



**Fig. 319:** *Veronica cockayneana*. Capsules. Scale = 1 mm.

### ***Veronica colensoi* Hook.f., *Handb. New Zealand Fl.* 209 (1864)**

≡ *Hebe colensoi* (Hook.f.) Cockayne, *Trans. New Zealand Inst.* 60: 469 (1929)

Lectotype (designated by Moore, in Allan 1961): high stony ridge above the River Taruarau, *Colenso 4062*, K

= *Veronica hillii* Colenso, *Trans. & Proc. New Zealand Inst.* 28: 606 (1896)

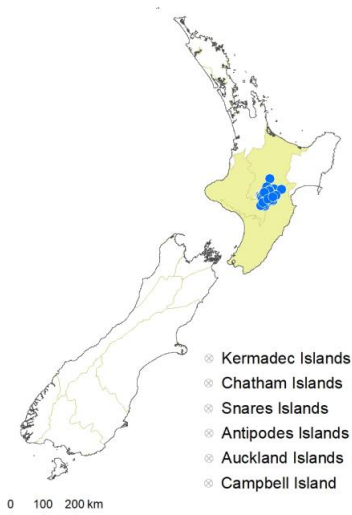
≡ *Hebe hillii* (Colenso) A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 384 (1929)

≡ *Hebe colensoi* var. *hillii* (Colenso) L.B.Moore in Allan, *Fl. New Zealand* 1, 895 (1961)

Lectotype (designated by Moore, in Allan 1961): *H. Hill*, 1894, K

**Etymology:** The epithet *colensoi* commemorates William Colenso (1811–1899), pioneer printer, explorer, missionary, natural scientist, and politician.

Small, often spreading shrub to 0.75 m tall. Stems erect, glabrous or sparsely eglandular-pubescent; hairs bifarious. Leaf bud distinct, its outer leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate to sub-distichous, erecto-patent, spreading with age; lamina coriaceous, narrowly to broadly elliptic or obovate, 10–42 mm long, 4–16 mm wide, dull and glaucous above and beneath; midrib evident; surfaces glabrous or eglandular-hairy along midrib above; margin minutely papillate, entire or shallowly toothed in up to 10 pairs; apex sub-acute to obtuse, usually weakly plicate-acuminate; base cuneate; petiole 1–2 mm, rarely to 3 mm long. Inflorescence a lateral, rarely terminal, raceme, sometimes the lower ones tripartite, rarely compound, 17–45 mm long; flowers crowded, 11–29, female or bisexual on separate plants,  $\sigma \geq \rho$ ; bracts alternate, the lowest sometimes opposite, lanceolate to deltoid or oblong,  $\geq$  pedicels; pedicels erect to erecto-patent, 0.5–3.0 mm long, eglandular-hairy all around, rarely glabrous. Calyx lobes 4 or 5th lobe small, posterior; anterior lobes free or fused up to  $\frac{2}{3}$ -way, 1.8–2.3 mm long, unequal, glabrous or rarely sparsely eglandular-ciliolate. Corolla 6–11 mm diameter; tube white, 1.8–2.5 mm long, slightly < to slightly > calyx, glabrous; lobes 4, white, erecto-patent to spreading, sub-equal, narrowly lanceolate to ovate, 2.5–3.5 mm long, acute to acuminate, sometimes tapering to obtuse tip; nectar guides absent. Stamen filaments white, 2.0–3.5 mm long; anthers yellow, buff, pink or pale purplish. Style glabrous, 2.2–4.5 mm long. Capsules latiseptate, acute, glabrous, 2.5–3.8 mm long, 1.9–2.5 mm at widest point. Seeds ellipsoid-oblong, flattened, smooth, pale brown or orange-brown, 1.1–1.5 mm long.



**Fig. 320:** *Veronica colensoi* distribution map based on databased records at AK, CHR & WELT.

October).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe colensoi*).

**Notes:** *Veronica colensoi* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). ITS sequence data suggest *V. colensoi* and *V. scopulorum* are sister species; this is supported by their close similarity and North Island distributions. Beyond that, their relationships are likely to be with other species that are characterised by glaucous leaves, all of which occur in the South Island, such as *V. rigidula*.

Elder (1940) included *V. darwiniana* Colenso in synonymy of *V. colensoi*, but Bayly & Kellow (2006) placed it *incertae sedis*.

**Distribution:** North Island: Volcanic Plateau (southern parts), Taranaki (eastern parts), Southern North Island (north-western parts). *V. colensoi* is confined to the Kaimanawa Mountains, Kaweka Range, and northern Ruahine Range only.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops, on bluffs, gorges, and river banks. Recorded elevations range from 500 to 1533 m.

**Recognition:** *V. colensoi* is characterised by calyx lobes that are glabrous even on their margins. This is a very unusual character state in *Veronica*, being seen sometimes in *V. macrocalyx* and *V. pareora* and some northern hemisphere herbaceous speedwells, such as the naturalised *V. scutellata*. Its glaucous leaves are unusual for a North Island hebe; the only other North Island hebe characterised by glaucous leaves is *V. scopulorum*. *V. scopulorum* is distinguished from *V. colensoi* by its somewhat discoloured leaves (green above and glaucous beneath), ciliolate calyx lobes, and longer corolla tube.

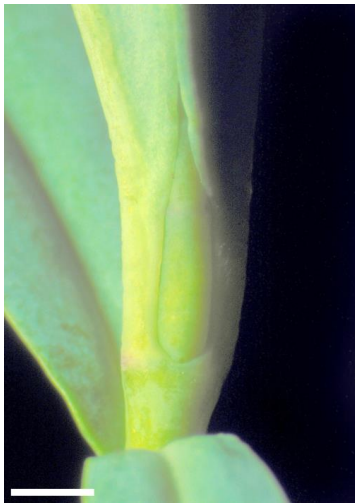
**Phenology:** Flowers: September–November (rarely August, December, January); fruits: December–April (persisting until



**Fig. 321:** *Veronica colensoi*. Habit. Taruarau R., Hawke's Bay.



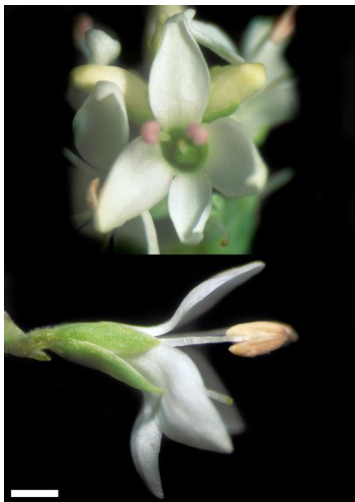
**Fig. 322:** *Veronica colensoi*. Sprig. Scale = 10 mm.



**Fig. 323:** *Veronica colensoi*. Leaf bud.  
Scale = 1 mm.



**Fig. 324:** *Veronica colensoi*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 325:** *Veronica colensoi*. Flowers.  
Scale = 1 mm.



**Fig. 326:** *Veronica colensoi*. Infructescences.  
Scale = 10 mm.



**Fig. 327:** *Veronica colensoi*. Capsules.  
Scale = 1 mm.



**Fig. 328:** *Veronica colensoi*. Seeds. Scale = 1 mm.

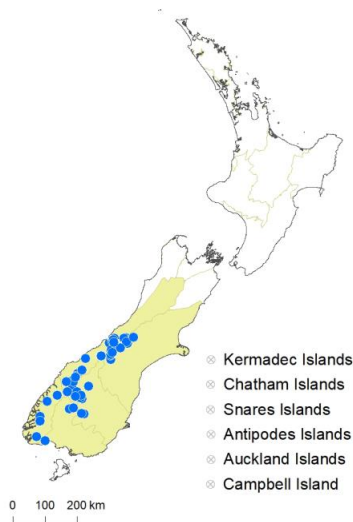
## *Veronica colostylis* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)

= *Parahebe linifolia* subsp. *brevistylis* Garn.-Jones, *New Zealand J. Bot.* 14: 288-289 (1976) nom. nov.  
 ≡ *Parahebe brevistylis* (Garn.-Jones) Heads, *Bot. J. Linn. Soc.* 115: 72 (1994)

Holotype: Franz Josef Glacier, Westland, New Zealand, *Garnock-Jones* 302, CHR. Isotypes: K, AK 141355, WELT 59696

**Etymology:** The epithet is an equivalent of the replaced epithet *brevistylis*, from the Greek *kolos*: docked, curtailed, shortened, or stunted (Brown 1956), a reference to the short styles in comparison with *V. linifolia*.

Sub-shrub to 0.15 m tall. Stems trailing to erect, glabrous or eglandular-pubescent; hairs bifarious on distal portion of internodes. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to recurved; lamina sub-coriaceous, linear to narrow-oblong, 4–15 mm long, 1–3 mm wide, glossy green above, dull pale green to purplish beneath; midrib evident; surfaces glabrous; margin ciliate towards base, entire; apex rounded to truncate; base cuneate; petiole 1–3 mm long. Inflorescence a lateral raceme, 10–40 mm long; flowers distant, 2–6, all bisexual; bracts alternate, linear to narrowly elliptic, < pedicels; pedicels erecto-patent to sub-erect, incurved at fruiting, 4–15 mm long, glabrous. Calyx lobes 4, obtuse to sub-acute, 3–8 mm long, sub-equal, glabrous. Corolla 5–10 mm diameter; tube white, 1.2–3.5 mm long, < calyx, glabrous inside; lobes 4, white, erecto-patent, sub-equal, elliptic to ovate, 4–7 mm long, sub-acute to obtuse; nectar guides absent or rarely 2–4, pink, on posterior lobe only. Stamen filaments white, 1–3 mm long; anthers pink to magenta. Style glabrous, 2–4 mm long. Capsules angustiseptate, truncate to emarginate, glabrous, 3.5–4.0 mm long, 3.5–4.0 mm at widest point. Seeds ellipsoid, flattened, smooth, brown, 0.5–0.9 mm long.



**Fig. 329:** *Veronica colostylis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland (from Whataroa River south), Canterbury (western parts from Rangitata River south), Otago (west), Southland (west), Fiordland. A specimen from Camp Creek, Alexander Range, Westland (CHR 521968), is probably *V. colostylis*, which suggests its distribution overlaps with that of *V. linifolia*. There are specimens of *V. linifolia* also from Mt Alexander.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane to alpine cliffs, rock outcrops, river gravel, river banks, moraines, sometimes in grassland, commonest near the Main Divide. Recorded elevations range from 220 to 1585 m.

**Recognition:** *V. colostylis* is difficult to distinguish from *V. linifolia* unless flowers or fruits are present, when its smaller flower parts, especially the filaments and style, and the smaller corolla, which doesn't open so widely and has a glabrous tube, will distinguish it. Also, the corolla almost always lacks the coloured nectar guides of *V. linifolia* (Garnock-Jones 1976a, 1981). These two are easily distinguished from all other species by their linear, entire, glossy green leaves combined with their low sub-shrub habit.

**Table 5:** Comparison of *Veronica colostylis* and *V. linifolia*.

	<i>colostylis</i>	<i>linifolia</i>
Leaf length (mm)	(5-)8-12(-15)	(10-)12-20(-30)
Pedicle length (mm)	(4-)6-12(-15)	(8)-13-30-(40)
Corolla	white, nectar guides absent or rarely faint, pink, on posterior lobe.	white or pale blue (rarely pink), with magenta nectar guides on posterior and lateral lobes.
Stamens	erect; filaments 1-3 mm long	diverging; filaments (4)-6-8 mm long
Style length (mm)	2-4	(4)-6-8(-9)

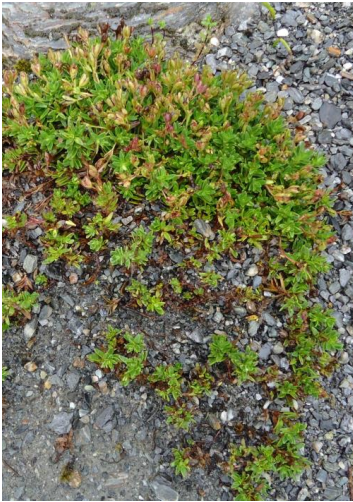
*Veronica colostylis* plants are sometimes misidentified as *V. planopetiolata*. *V. planopetiolata* plants can be distinguished by their mat-forming habit, leaves that are often broader (up to 6 mm wide), and usually shallowly crenate although sometimes entire, flowers usually paired but sometimes solitary, on short peduncles 1–2 mm long below the bracts; the capsules are often held at the surface of the plant mat, and are hygrochastic (open when wet); the seeds are often slightly larger, 0.8–1 mm long.

**Phenology:** Flowers: October–March; fruits: November–April, persisting all year.

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**Cytology:**  $2n = 42$  (Hair 1970, as *Parahebe linifolia*).

**Notes:** *Veronica colostylis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “speedwell hebe” group (Albach & Meudt 2010). *V. colostylis* and the very similar *V. linifolia* appear to belong with *V. lyallii* and several other species in a clade (the speedwell hebes, Albach & Meudt 2010) that is characterised by short corolla tubes, nectar guides on the corolla, and rather lax inflorescences, although *V. colostylis* usually lacks nectar guides. Most species in this grouping also have flowers with plicate lateral corolla lobes, which enfold the stamens, but flowers of *V. linifolia* and *V. colostylis*, along with those of *V. lilliputiana* and *V. jovellanoides*, lack them.



**Fig. 330:** *Veronica colostylis*. Habit. Waiho Valley, Westland.



**Fig. 331:** *Veronica colostylis*. Leafy branches. Moke Ck, Otago.



**Fig. 332:** *Veronica colostylis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 333:** *Veronica colostylis*. Inflorescence. Scale = 1 mm.





**Fig. 334:** *Veronica colostylis*. Flower.  
Scale = 1 mm.



**Fig. 335:** *Veronica colostylis*. Ovary and style.  
Scale = 1 mm.



**Fig. 336:** *Veronica colostylis*. Immature capsule.  
Scale = 1 mm.



**Fig. 337:** *Veronica colostylis*. Dehiscent capsule.  
Scale = 1 mm.

### ***Veronica corriganii* (Carse) Garn.-Jones in Garnock-Jones et al., Taxon 56: 577 (2007)**

≡ *Hebe corriganii* Carse, *Trans. & Proc. New Zealand Inst.* 60: 573 (1930)

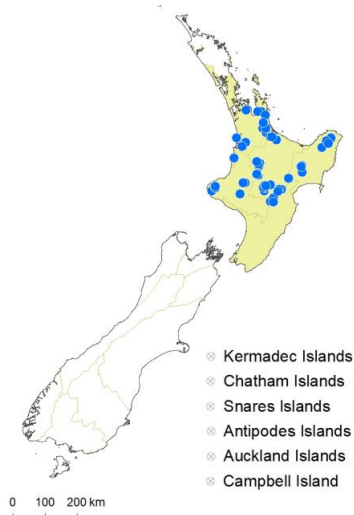
Lectotype (designated by Bayly & Kellow 2004): McLaren Falls, Wairoa River, Bay of Plenty, B. Sladden, Carse Herbarium 1237/6a, CHR 328473

**Etymology:** The epithet honours Mr D.H.L. Corrigan, who collected this species.

**Vernacular names:** koromiko; kōkōmuka

Openly branched bushy shrub to 2.5 m tall. Stems erect, glabrous or eglandular-puberulent; hairs usually bifarious or occasionally uniform. Leaf bud distinct, its outer leaves appressed at margins until fully grown; sinus small, squarish, rounded, elliptic or oblong. Leaves opposite-decussate, erecto-patent to spreading or reflexed; lamina coriaceous, linear-lanceolate, 70–145 mm long, 7–20 mm wide, glossy or dull, dark green or green above, green or pale green beneath; midrib evident, secondary veins sometimes evident in fresh leaves; surfaces with eglandular hairs along midrib above; margin ciliate to ciliolate, entire or with distant minute teeth; apex sub-acute to acute; base abruptly cuneate; petiole 2.5–3.2 mm long. Inflorescence a lateral raceme, 80–145 mm long; flowers crowded, 100–120 per inflorescence, all bisexual; bracts alternate to loosely whorled, lanceolate, ≤ pedicels; pedicels erecto-patent, 1.4–4.0 mm long, eglandular-hairy all around. Calyx lobes 4, usually obtuse, rarely acute to acuminate, 1.8–2.1 mm long, sub-equal, mixed glandular- and

eglandular-ciliolate. Corolla 4–6 mm diameter; tube white, 3.5–5.0 mm long, > calyx, eglandular-hairy inside; lobes 4, white or tinged pale purple, sub-erect to spreading, sub-equal, ovate, 2.5–3.5 mm long, rounded; nectar guides absent. Stamen filaments white, 4.5–5.0 mm long; anthers pink. Style glabrous, 4.5–9.0 mm long. Capsules latiseptate, sub-acute to acute, glabrous, 3.6–7.0 mm long, 2.3–4.0 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, pale brown, 1.3–2.2 mm long.



**Fig. 338:** *Veronica corriganii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (south of Hunua Ranges), Volcanic Plateau, Gisborne, Taranaki, Southern North Island (Ruahine Range and Kaweka Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Often in forest or scrub from coastal to sub-alpine altitudes. Recorded elevations range from 46 to 1433 m.

**Recognition:** *Veronica corriganii* is most similar to *V. macrocarpa*, which it replaces geographically from western Bay of Plenty eastward and southward. *V. macrocarpa* plants differ in not having a leaf bud sinus, shorter petioles 0–2 mm long, fewer flowers (13–85) per inflorescence, and stamen filaments 5.5–13 mm long.

*V. corriganii* can also be difficult to distinguish from *V. stricta*, especially the sub-alpine tetraploid forms var. *egmontiana* and var. *lata*. However, *V. stricta* plants consistently lack a sinus in the vegetative bud, have smaller flowers with narrower, usually acute to acuminate calyx lobes, more slender corolla tubes, and narrower corolla lobes than *V. corriganii*, and smaller capsules (1.3–4.0 × 2.0–3.3 mm) and seeds (0.9–1.2 mm long).

**Phenology:** Flowers: July–March; fruits: August–April, persisting all year.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe corriganii*).

**Notes:** *Veronica corriganii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

The Māori names koromiko, kōkōmuka, and variants, applied to *V. stricta* and *V. salicifolia*, might be applied also to similar large-leaved hebes, such as *V. corriganii*.



**Fig. 339:** *Veronica corriganii*. Habit. Kaweka Range.



**Fig. 340:** *Veronica corriganii*. Sprig. Scale = 10 mm.



**Fig. 341:** *Veronica corriganii*. Leaf bud with small, rounded sinus. Scale = 1 mm.



**Fig. 342:** *Veronica corriganii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 343:** *Veronica corriganii*. Part of an inflorescence. Scale = 1 mm.



**Fig. 344:** *Veronica corriganii*. Flowers. Scale = 1 mm.



**Fig. 345:** *Veronica corriganii*. Capsules. Scale = 1 mm.

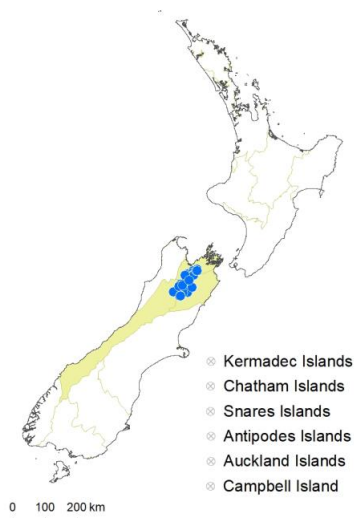
***Veronica cryptomorpha* (Bayly, Kellow, G.Harper & Garn.-Jones)  
Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)**

≡ *Hebe cryptomorpha* Bayly, Kellow, G.Harper & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 40: 596 (2002)

Holotype: New Zealand, South Island, Marlborough, Mt Richmond Forest Park, beside road to Mt Patriarch, *Hebe* shrubland, *M. J. Bayly 846 & R. Ansell*, 21 Dec 1997, WELT 80780.  
Isotypes: AK, CHR

**Etymology:** The epithet refers to the very close similarity between this species and *V. cockayneana* and *V. simulans*, with which it was previously confused. Cryptomorphy (*kryptos*, hidden; *morphe*, form or shape) refers to biological species that are morphologically very hard to distinguish.

Spreading low or bushy shrub to 1.2 m tall. Stems spreading to ascending to erect, eglandular-pubescent; hairs bifarious, sometimes sparse. Leaf bud distinct, its outer leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate, usually erecto-patent, becoming reflexed with age; lamina coriaceous, narrowly oblanceolate to obovate, sometimes elliptic, 7–33 mm long, 3–9 mm wide, dull or somewhat glossy green above, dull and glaucous or glaucescent beneath; midrib evident; surfaces glabrous except midrib pubescent or puberulent above, sometimes only towards base; margin glabrous, minutely papillate, entire or very rarely with 1–3 pairs of shallow teeth, these sometimes with minute glandular hairs in sinus; apex sub-acute to acute and plicate-acuminate; base cuneate; petiole 1–6 mm long. Inflorescence a lateral raceme or spike, rarely tripartite, 12–37 mm long; flowers crowded, 5–17, female or bisexual on separate plants, ♀ ≥ ♀; bracts opposite, lanceolate, ovate, or deltoid, > pedicels; pedicels absent or erect, 0–5 mm long, eglandular-hairy all around. Calyx lobes 4, anterior usually free or sometimes partly to completely fused, acute to obtuse, 1.5–3 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 5–9 mm diameter, ♀ > ♀; tube white, 1.5–3.0 mm long, slightly < to slightly > calyx, glabrous; lobes 4, white, erecto-patent to recurved, sub-equal, elliptic to ovate, 3–5 mm long, obtuse; nectar guides absent. Stamen filaments white, 3.5–5.5 mm long; anthers dark pink to purplish. Style glabrous, 3.0–6.5 mm long. Capsules latiseptate, obtuse to sub-acute, glabrous or sometimes sparsely eglandular-hairy along groove, 3–4 mm long, 2.4–2.8 mm wide. Seeds oblong, flattened, smooth, straw-yellow to brown, c. 1.1 mm long.



**Fig. 346:** *Veronica cryptomorpha* distribution map based on databased records at AK, CHR & WELT.

*V. cryptomorpha*, but its leaves are often smaller and more often shallowly toothed. Separate species status is supported by their different chromosome numbers and flavonoid chemistry, combined with their allopatric distributions.

**Phenology:** Flowers: December–February; fruits: January–March, persisting all year.

**Cytology:** 2n = 40 (see Bayly & Kellow 2006, as *Hebe cryptomorpha*).

**Distribution:** South Island: Sounds Nelson (Richmond Range), Westland (Nelson Lakes National Park), Marlborough (Wairau Mountains, north of Island Pass, and west of Saxton Valley).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine grassland and shrub-land, sometimes among rocks and boulder fields. Recorded elevations range from 1220 to 1677 m.

**Recognition:** *V. cockayneana*, *V. cryptomorpha*, and *V. simulans* are three very similar species. They are characterised by discoloured leaves (green above and glaucous to glaucescent beneath), an acute leaf bud sinus, coarse bifarious hairs on stem internodes, simple (rarely tripartite) inflorescences with opposite-decussate flowers, corolla tube shorter than or about equal to the calyx, and obtuse corolla lobes.

*V. cockayneana* occurs in southern New Zealand and mostly has shorter and broader, more elliptic leaves than *V. cryptomorpha*.

*V. simulans* is very hard to separate morphologically from *V. cryptomorpha*, but its leaves are often smaller and more often shallowly toothed. Separate species status is supported by their different chromosome numbers and flavonoid chemistry, combined with their allopatric distributions.

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**Notes:** *Veronica cryptomorpha* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). The phylogenetic relationships of *V. cryptomorpha* are not clear, but its morphology suggests a close relationship with *V. simulans* and *V. cockayneana*, and perhaps other species that are characterised by glaucous leaves. This is not contradicted by ITS sequence data (E.M. Low, unpublished).

The seed description is based on limited material and might not represent the range present.



**Fig. 347:** *Veronica cryptomorpha*. Habit. St Arnaud Range, Nelson.



**Fig. 348:** *Veronica cryptomorpha*. Sprig. Scale = 10 mm.



**Fig. 349:** *Veronica cryptomorpha*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 350:** *Veronica cryptomorpha*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 351:** *Veronica cryptomorpha*. Young inflorescence showing opposite-decussate arrangement of bracts. Scale = 10 mm.



**Fig. 352:** *Veronica cryptomorpha*. Flowers. Scale = 1 mm.



**Fig. 353:** *Veronica cryptomorpha*. Capsule. Scale = 1 mm.

### ***Veronica cupressoides* Hook.f., *Handb. New Zealand Fl.* 212 (1864)**

≡ *Hebe cupressoides* (Hook.f.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

≡ *Leonohebe cupressoides* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 8 (1987)

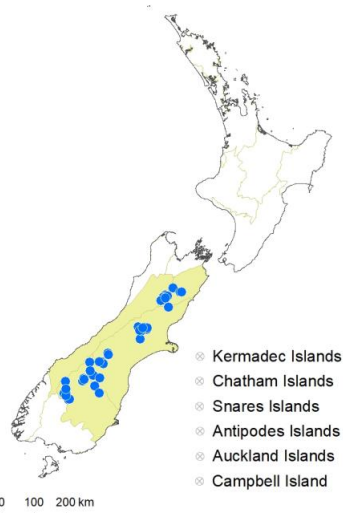
Lectotype (first designated by Moore, in Allan 1961; designated by Bayly & Kellow 2006 more precisely): Lindis Pass & Lake Dis[trict], on river flats, *Hector* and *Buchanan* no. 7, K (sprig in lower left corner of sheet only)

**Etymology:** *Cupressoides*, cypress-like (genus *Cupressus*), a reference to the habit of the plants.

**Vernacular names:** cypress koromiko; cypress-like hebe; whipcord hebe

Whipcord shrub to 2 m tall. Stems erect, glabrous or eglandular-pubescent; hairs bifarious. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, scale-like, appressed (slightly spreading when dry); lamina sub-coriaceous, ovate to deltoid, 0.8–2.0 mm long; 0.4–2.0 mm wide, dull glaucous to yellowish-green above and beneath; veins not evident; surfaces glabrous or sometimes with dense, minute, glandular hairs; margin eglandular- or glandular-ciliolate, entire; apex sub-acute to obtuse; bases broad; petiole absent. Inflorescence a terminal spike, 3–37 mm long; flowers crowded, 2–22, all bisexual; bracts opposite-decussate, connate, ovate to deltoid; pedicels absent. Calyx lobes 4, seemingly 2–3 because posterior pair completely fused, anterior pair fused  $\frac{2}{3}$  or more, these pairs fused together to about halfway, obtuse to rounded, 0.5–1.0 mm long, eglandular-ciliate or -ciliolate mixed with short glandular cilia.

Corolla 3–4 mm diameter; tube white to purplish, 0.9–1.4 mm long, = calyx, eglandular-hairy inside; lobes 4, white, pink, pale blue or pale purplish, sub-erect to recurved, sub-equal, elliptic, oblong, or sub-orbicular, 2–3 mm long, obtuse; nectar guides absent. Stamen filaments white, 2.1–4.0 mm long, anthers pink, magenta, or brownish. Style glabrous, 2–3 mm long. Capsule angustiseptate, emarginate, glabrous, 1.9–2.4 mm long, 0.9–1.4 mm at widest point. Seeds ovoid, ellipsoid, oblong, or obovoid, weakly flattened, smooth, pale brown, 0.7–1.1 mm long.



**Fig. 354:** *Veronica cupressoides* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (south-west), Canterbury (eastern foothills), and Otago (western parts, south to Wye Creek).

**Biostatus:** Indigenous (Endemic).

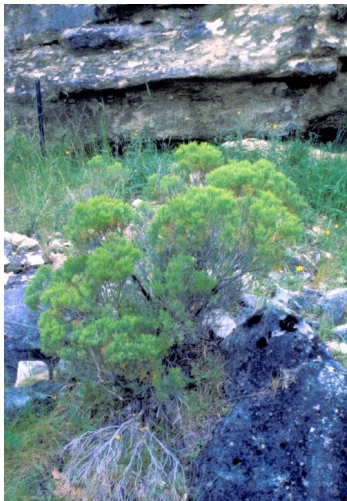
**Habitat:** Montane, in scrub, rock outcrops, moraine, and slips, often near lakes and streams. Recorded elevations range from 300 to 1372 m.

**Recognition:** *Veronica cupressoides* is a distinctive species with a unique combination of characters: a whipcord growth form with tiny appressed, scale-like, dull to glaucescent leaves; long internodes (two to three times the leaves) with conspicuous nodal joints where the leaves are attached; the calyx lobes all fused for about half their length, the posterior pair completely fused, and the anterior pair fused  $\frac{2}{3}$  or more; narrow elliptic or oblong sub-equal corolla lobes; and angustiseptate capsules. Other unique features are the nectarial disc covering the lower third of the ovary at flowering and the aromatic foliage.

**Phenology:** Flowers: December–February; fruits: February–May (persisting all year).

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Leonohebe cupressoides*).

**Notes:** *Veronica cupressoides* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “semi-whipcord hebe” group (Albach & Meudt 2010). It is sister to the other semi-whipcord hebes, which are smaller subshrubs with similar, rather glaucous leaves but short internodes.



**Fig. 355:** *Veronica cupressoides*. Habit. Cave Stream, Canterbury.



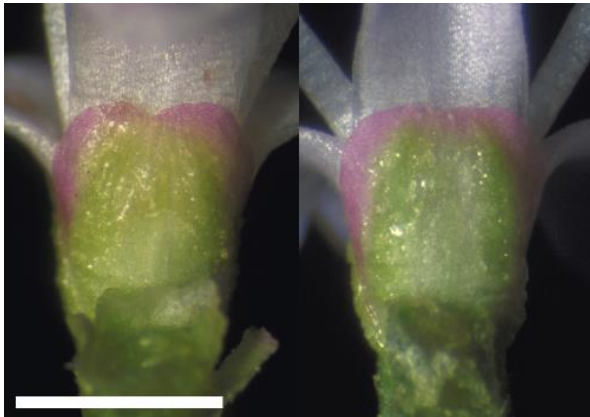
**Fig. 356:** *Veronica cupressoides*. Flowering shoots on a cultivated plant. Scale = 10 mm.



**Fig. 357:** *Veronica cupressoides*. Leafy branchlet. Scale = 1 mm.



**Fig. 358:** *Veronica cupressoides*. Flowers. Scale = 1 mm.



**Fig. 359:** *Veronica cupressoides*. Calyx showing fused anterior lobes (left) and fused posterior lobes (right). Scale = 1 mm.



**Fig. 360:** *Veronica cupressoides*. Immature infructescence. Scale = 1 mm.



**Fig. 361:** *Veronica cupressoides*. Capsules. Scale = 1 mm.



***Veronica decora* (Ashwin) Garn.-Jones in Garnock-Jones et al.,  
Taxon 56: 577 (2007)**

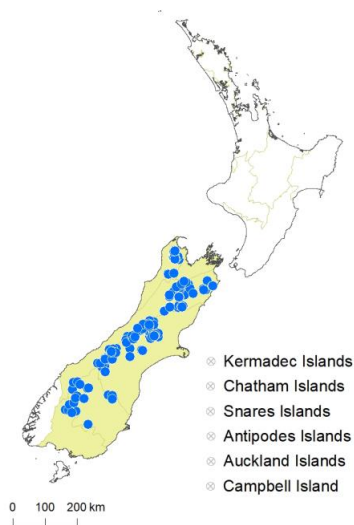
≡ *Parahebe decora* Ashwin in Allan, *Fl. New Zealand* 1, 877, 974 (1961)

Holotype: *Cheeseman*, Hooker Valley, Mount Cook District, alt 2500ft, AK 8392. Isotypes: AK 8388-8391, WELT 41444 (as "syntype" in protologue)

= *Veronica bidwillii* Auctt. nom. illeg., non *Veronica ×bidwillii* Hook. 1852

**Etymology:** The epithet refers to the pretty flowers.

Mat-forming sub-shrub to 0.03 m tall. Stems prostrate or decumbent, eglandular-pubescent; hairs usually uniform, rarely bifarious. Leaf bud indistinct, leaves separating while very small, opposite-decussate, spreading to recurved, separating early; lamina coriaceous, obovate to orbicular or lyrate, 1.5–5.0 mm long, 1–5 mm wide, glossy green, dark green, red-tinged, or bronze above, dull pale green or pinkish beneath, midrib evident, at least basally; surfaces usually glabrous, rarely with a few eglandular hairs especially when young; margin usually glabrous, rarely ciliate, usually crenate or lobed at base, sometimes entire, lobes in 1–2 pairs; apex rounded; base cuneate; petiole 0.5–1.5 mm long. Inflorescence a lateral raceme, 60–250 mm long; flowers distant, 8–20 or rarely fewer, all bisexual; bracts alternate, the lowest usually in a whorl of 3, lanceolate to elliptic, < pedicels. Pedicels erecto-patent to sub-erect, 2–10 mm long, glabrous or eglandular-hairy all around. Calyx lobes 4, acute to sub-acute, 2–3 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 6–12 mm diameter; tube white and yellow, 1 mm long, < calyx, eglandular-hairy inside; lobes 4, white or pink, sub-erect to spreading, unequal, linear to orbicular, 3.5–6.0 mm long, rounded; nectar guides magenta, on posterior and sometimes on lateral lobes. Stamen filaments white, 3–5 mm long; anthers white or pink or magenta. Style glabrous, 3–4 mm long. Capsules broadly angustiseptate, emarginate, glabrous, 4.0–4.5 mm long, 3–4 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow to brown, 0.7–1.0 mm long.



**Fig. 362:** *Veronica decora* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Marlborough, Westland (near the Main Divide), Canterbury, Otago, Southland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Shingle river beds, screes, stony places in grassland, moraines. Recorded elevations range from 439 to 1554 m.

**Recognition:** *V. decora* plants are usually easily distinguished from all other species by their prostrate, dark brown to almost black stems with antrorse, curved, uniform stem hairs, very small, glossy, rounded leaves with usually one pair of lobes, and stout, erect, long peduncles usually with the lowermost three flowers in a whorl.

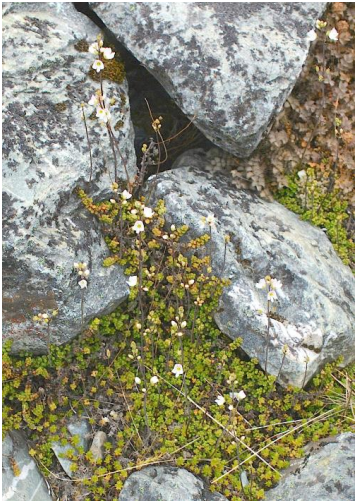
**Phenology:** Flowers: December to February, occasionally earlier; fruits: January to May.

**Cytology:**  $2n = 40$  (Frankel & Hair 1937, as *V. bidwillii*; Hair 1970, as *P. decora*).

**Hybridisation:** Garnock-Jones & Lloyd (2004) list specimens identified as hybrids, *V. decora* × *Iyallii*. These two species have widely overlapping distributions, but different

chromosome numbers. The hybrids have low pollen stainability. The name *V. ×bidwillii* Hook. applies to this hybrid.

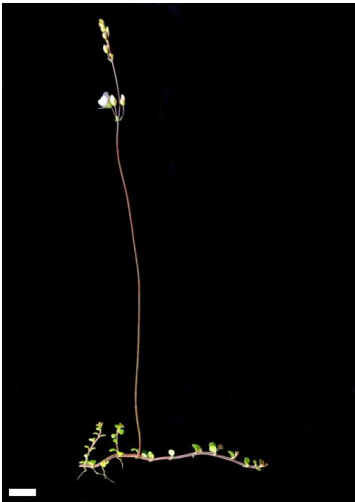
**Notes:** *Veronica decora* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the "speedwell hebe" group (Albach & Meudt 2010). Speedwell hebes are characterised by short corolla tubes, nectar guides on the corolla, and rather lax inflorescences. Flowers of most speedwell hebes, including *V. decora*, have plicate, lateral corolla lobes, which enfold the stamens.



**Fig. 363:** *Veronica decora*. Habit. Hooker Valley, Mt Cook National Park, Canterbury.



**Fig. 364:** *Veronica decora*. Sprig, in side view (left) and from above (right). Scale = 1 mm.



**Fig. 365:** *Veronica decora*. Sprig. Scale = 10 mm.



**Fig. 366:** *Veronica decora*. Part of inflorescence showing basal trio of flowers. Scale = 1 mm.



**Fig. 367:** *Veronica decora*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 368:** *Veronica decora*. Flowers. Scale = 1 mm.



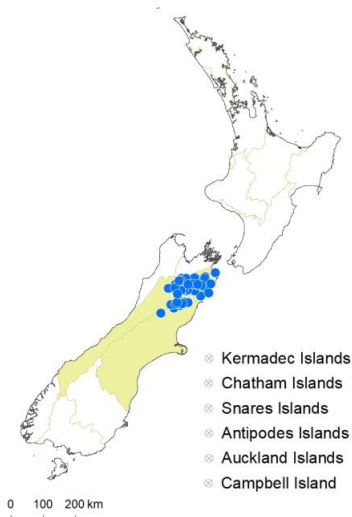
**Fig. 369:** *Veronica decora*. Capsule.  
Scale = 1 mm.

### ***Veronica decumbens* J.B.Armstr., N.Z. Ctry. J. 3: 57 (1879)**

≡ *Hebe decumbens* (J.B.Armstr.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 34 (1926)  
Lectotype (designated by Moore, in Allan 1961): Rutherfords Bridge, Waiau, Nelson, Dec. 1869, J. B. A[rmstrong], CHR 635756

**Etymology:** The epithet refers to the decumbent habit seen in many plants, although some are erect.

Low shrub to 0.35 m tall. Stems usually decumbent to ascending, sometimes erect; pubescence usually bifarious, rarely uniform, eglandular. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent; lamina coriaceous, elliptic to broadly elliptic, or oblanceolate to obovate, 6.5–23.5 mm long, 2–13 mm wide, glossy yellowish- or bronze-green above and beneath; midrib evident and 2 lateral veins sometimes visible; surfaces glabrous; margin glabrous or with very short, stiff, tapering eglandular and sometimes glandular hairs, entire, usually red or sometimes yellowish; apex sub-acute to acute; base cuneate; petiole indistinct 1–2 mm long. Inflorescence a lateral spike or raceme, 6–30 mm long; flowers crowded, 2–25, all bisexual; bracts alternate or sometimes the lowermost opposite or a whorl of 3, narrowly deltoid or sometimes ovate, > pedicels; pedicels erecto-patent, 0.2–1.7 mm long, with very short, glandular and eglandular hairs all around. Calyx lobes 4–5 (5th small, posterior), acute to acuminate or obtuse, 1.0–1.5 mm long, sub-equal, mixed glandular- and eglandular-ciliolate, surface with scattered, minute, sessile, glandular hairs or glabrous. Corolla 6–7 mm diameter; tube white, 3–6 mm long, > calyx, glabrous; lobes 4, white, sub-erect to spreading, unequal, elliptic to ovate, 2–3 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 4.2–7.0 mm long; anthers magenta or purplish. Style glabrous, 6–11 mm long. Capsules latisepate, sub-acute, glabrous, 2.5–5.5 mm long, 2–3.5 mm at widest point. Seeds ovoid to oblong, flattened, very finely papillate, brown, 1.0–1.7 mm long.



**Fig. 370:** *Veronica decumbens* distribution map based on databased records at AK, CHR & WELT. (*decumbens*).

**Notes:** *Veronica decumbens* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Brian Molloy (pers. comm., 27 Jan. 1992) observed black scree butterflies visiting the flowers of *V. decumbens* at Hanmer Springs.



**Fig. 371:** *Veronica decumbens*. Habit. Near Upcot Saddle, Awatere Valley, Marlborough.



**Fig. 372:** *Veronica decumbens*. Sprig. Scale = 10 mm.

**Distribution:** South Island: Marlborough, Canterbury (north of Waiou River), Westland (north and east of Mātakitaki River valley).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Grassland and low shrubland, often in open and stony sites. Recorded elevations range from 600 to 1538 m.

**Recognition:** *Veronica decumbens* is a distinctive hebe, characterised by green to bronze-green leaves with very short, tapered, stiff hairs on the usually red margins, dark red-brown to almost black stems, very long, slender, and slightly curved corolla tubes, and short, compact inflorescences with sessile to sub-sessile flowers. Dry specimens often have very dark, almost black, leaves and then can be mistaken for *V. pinguifolia*. *V. pinguifolia* plants differ in their glaucous leaves, shorter corolla tube (2–3 mm long), hairy capsule and style base, and opposite flowers.

**Phenology:** Flowers: November–February; fruits: January–May, persisting all year.

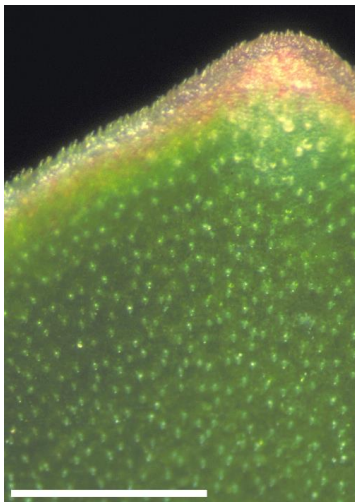
**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe decumbens*).



**Fig. 373:** *Veronica decumbens*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 374:** *Veronica decumbens*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 375:** *Veronica decumbens*. Leaf apex, showing minute hairs on margin. Scale = 1 mm.



**Fig. 376:** *Veronica decumbens*. Inflorescence, showing relative sizes of bracts, calyces and corolla tubes. Scale = 1 mm.



**Fig. 377:** *Veronica decumbens*. Flower showing long corolla tube. Scale = 1 mm.



**Fig. 378:** *Veronica decumbens*. Capsules. Scale = 1 mm.

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***Veronica densifolia* (F.Muell.) F.Muell., *Fragm. (Mueller)* 2, 137 (1861)**

≡ *Paederota densifolia* F.Muell., *Trans. & Proc. Roy. Soc. Victoria* 1: 107 (1855)

≡ *Chionohebe densifolia* (F.Muell.) B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 2 (1976)

≡ *Leonohebe densifolia* (F.Muell.) Heads, *Bot. Soc. Otago Newsl.* 5: 4 (1987)

≡ *Hebejeebie densifolia* (F.Muell.) Heads, *Bot. Soc. Otago Newsl.* 36: 11 (2003)

Lectotype (designated by Briggs and Ehrendorfer (2006): Muniyang Mountains, Mount Coskiusko [=Kosciuszko], 6000–6500 ft, *Mueller s.n.*, Jan 1855, MEL 21502. Syntypes: MEL 21503, K (2 sheets); possible syntype: MEL 21504

= *Logania tetragona* Hook.f., *Handb. New Zealand Fl.* 188 (1864)

≡ *Veronica dasyphylla* Kirk, *Trans. New Zealand Inst.* 28: 519 (1896)

≡ *Hebe dasyphylla* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 42 (1926)

≡ *Pygmea tetragona* (Hook.f.) Ashwin in Allan, *Fl. New Zealand* 1, 874 (1961)

Holotype: *Hector and Buchanan s.n.* Otago, lake district, alpine, No. 6, K

= *Veronica dasyphylla* var. *minor* Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 72: 30 (1942)

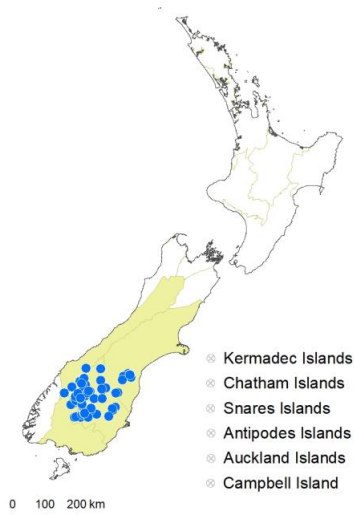
Lectotype (designated by Meudt 2008): turf hollows among low grasses, summit of Mt St Mary, Kurow, *Simpson & Thomson s.n.*, CHR 75709, photo CHR 75709P. Isolectotype: AK 107848

= *Veronica dasyphylla* var. *subacuta* Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 72: 30 (1942)

Lectotype (designated by Meudt 2008): peaty ridges—cultivated, Rough Peaks, Lake Wakatipu, *Simpson s.n.*, CHR 70216, photo CHR 70216P. Isolectotype: AK 107847

**Etymology:** *Densifolia*, from the closely appressed or imbricate leaves.

Low sub-shrub to 0.05 m tall. Stems decumbent to ascending to erect, densely eglandular-hairy, becoming glabrous with age; hairs uniform. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, sub-erect to imbricate and appressed; lamina coriaceous, lanceolate, narrowly ovate, or triangular, rarely narrowly obovate, spatulate, or narrowly lanceolate, 2.0–6.5 mm long, 0.7–3.0 mm wide, more or less glossy olive- or bronze-green above and beneath, sometimes yellowish at apex and margins, brownish to purplish at base; veins not evident but lamina keeled beneath; surfaces glabrous but usually with dense, minute papillae at thickened edges; margin glabrous distally, ciliate at middle and towards base, entire or rarely trifid; apex obtuse to sub-acute or acute, rarely rounded; base cuneate; petiole absent. Flowers solitary, bibracteate, sessile, all bisexual; bracts opposite, lanceolate (rarely narrowly lanceolate) to narrowly ovate, rarely oblanceolate, 3–6 mm long. Calyx lobes 5, obtuse to sub-acute, 3–6 mm long, equal, eglandular- and/or glandular-ciliate; glabrous or hairy to ½-way on outer face. Corolla usually 7–16 mm diameter, sometimes smaller; tube white and yellow, 2–6 mm long, ≤ calyx, glabrous; lobes 5, sometimes 6, white, sometimes purplish or bluish especially abaxially, erecto-patent to spreading, sub-equal, narrowly to broadly obovate, 2.6–8.4 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white or yellowish, 1.0–4.5 mm long; anthers purple or magenta. Style glabrous, 3.0–7.5 mm long. Capsules angustiseptate, obcordate, glabrous, 2.7–5.0 mm long, 1.7–4.3 mm at widest point. Seeds ellipsoid to oblong, flattened or angled, smooth, straw-yellow to pale brown, 0.5–1.1 mm long.



**Fig. 379:** *Veronica densifolia* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury (south of Mt St Mary), Westland (Mt Turner only), Otago, Southland (Cecil Peaks, Mid Dome, Mt Whitcomb), on the drier ranges east of the Main Divide.

**Biostatus:** Indigenous (Non-endemic).

Also present in Australia (Kosciuszko National Park).

**Habitat:** Alpine herb-field, cushion vegetation, grassland, scrub, feldmark or fell-field, in rock crevices, bluffs, outcrops, among boulders, on exposed ridges, rocky turf, sometimes in seepage sites and boggy ground. Recorded elevations range from 1158 to 1830 m.

**Recognition:** *Veronica densifolia* is a distinctive but variable species, and can be confused with several related plants.

The cushion-forming snow hebes are distinguished by their densely pulvinate growth forms and very much smaller flowers, with corolla tubes longer than the calyx. However, the plants occasionally form soft, lax sub-shrubs, but then their smaller and thinner leaves, which are widest above the middle, separate them from the compact forms of *V. densifolia*, and also their stems are glabrous, compared with the dense,

retorse hairs of *V. densifolia* stems.

*V. trifida* plants can usually be distinguished by their trifid or lobed leaves, two- to three-flowered inflorescences, and mostly exclusively glandular indumentum on leaves (both *V. densifolia* and *V. trifida* plants have retrorse eglandular stem hairs). However occasional plants of *V. densifolia* may have trifid leaves (especially from localities outside the range of *V. trifida*: Mt Nimrod, Dunstan Range, and Rock & Pillar Mountains) and then they can be harder to distinguish. The thickened and minutely papillate leaf margins of *V. densifolia* are unlike the thin, varnished, and smooth margins of *V. trifida*; generally *V. trifida* plants have longer internodes, and distinct but short peduncles and pedicels; often with 2 to 3 flowers per inflorescence. The calyx of *V. trifida* is 4-lobed, compared to the 5-lobed calyx of *V. densifolia*, and its calyx lobes are glandular hairy on the outside all the way to the apex.

(See: Table 8)

**Phenology:** Flowers: November–January (rarely October); fruits: January–March (old fruit may be present at any time).

**Cytology:**  $2n = 42$  (Hair 1970, as *Pygmea tetragona*).

**Hybridisation:** *V. densifolia* × *thomsonii* (Meudt 2008) is a rarely collected hybrid; it has been given the binomial *V. ×uniflora*. The presence of occasional plants of *V. densifolia* with trifid leaves suggests a close relationship and perhaps hybridisation with *V. trifida*.

**Notes:** *Veronica densifolia* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010). Albach & Meudt (2010) showed a well-supported relationship with *V. trifida* based on ITS sequence data, but with chloroplast DNA sequence data this relationship was not evident. Instead, chloroplast sequences of *V. densifolia* were closer to those from the cushion-forming snow hebes. This might reflect chloroplast capture following hybridisation. A close relationship with *V. trifida* is also consistent with AFLP data (Meudt & Bayly 2008).

The variability of *V. densifolia* is not able to be resolved into recognisable subspecies (Meudt 2008).

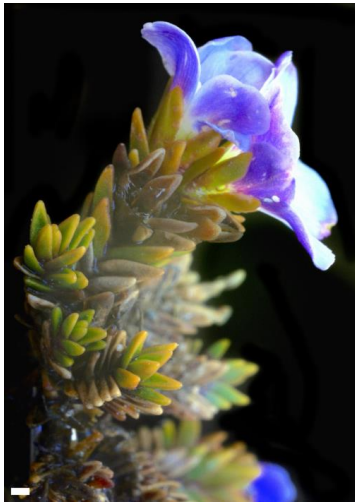
The lectotype was selected by Briggs & Ehrendorfer (2006).



**Fig. 380:** *Veronica densifolia*. Habit. Dunstan Range, Otago.



**Fig. 381:** *Veronica densifolia*. Habit. Lake Alta, Otago.



**Fig. 382:** *Veronica densifolia*. Sprig. Scale = 1 mm.



**Fig. 383:** *Veronica densifolia*. Leaf buds and shoots. Scale = 1 mm.



**Fig. 384:** *Veronica densifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 385:** *Veronica densifolia*. Flowers. Scale = 1 mm.





**Fig. 386:** *Veronica densifolia*. Calyx, showing eglandular cilia on the margins only, and style. Scale = 1 mm.



**Fig. 387:** *Veronica densifolia*. Capsule and seeds. Scale = 1 mm.

### ***Veronica dieffenbachii* Benth. in de Candolle, *Prodr.* 10 459 (1846)**

≡ *Hebe dieffenbachii* (Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 14 (1926)

Holotype: Chatham Islands, New Zealand, Dieffenbach, Herb. Hookerianum, K (mounted on right of sheet that also includes collections by *Enys* and *Travers*)

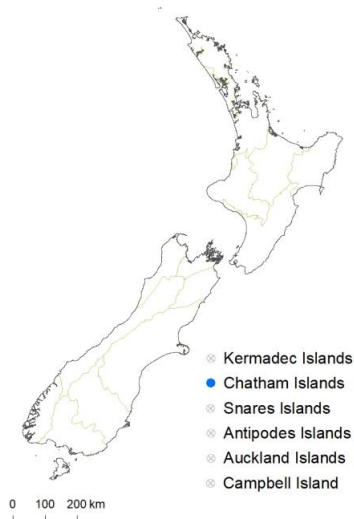
= *Veronica dorrien-smithii* Cockayne, *Trans. New Zealand Inst.* 44: 51 (1912)

≡ *Hebe dorrien-smithii* (Cockayne) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 14 (1926)

Lectotype (designated by Bayly & Kellow 2004): growing overhanging the water of L. Tekua Taupo [Lake Tuku a taupo], tobacco country, Chatham Island, L. Cockayne 8003, Feb 1901, WELT 5293. Isolectotypes: CHR 328354, AK 7660

**Etymology:** Named after J.K. Ernst Dieffenbach (1811–1855), German naturalist and explorer.

Spreading and low to erect shrub to 3 m tall. Stems spreading to erect, or pendent on cliffs, eglandular-pubescent or sometimes glabrous; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate or sub-distichous, erecto-patent to recurved; lamina coriaceous, elliptic, oblong-elliptic, obovate, or oblanceolate, 26–102 mm long, 4.5–25.0 mm wide, dull, pale to dark green above, pale green to glaucescent beneath; midrib evident; surfaces eglandular-hairy all over or along midrib above, minutely glandular-hairy or sometimes glabrous or rarely eglandular-hairy beneath; margin glabrous or rarely sparsely ciliate, entire; apex sub-acute or acute; base truncate, sub-cordate, or amplexicaul; petiole absent. Inflorescence a lateral raceme, 50–115 mm long; flowers crowded, 34–135, all bisexual; bracts alternate or loosely whorled, linear-lanceolate to deltoid, usually <, rarely about =, pedicels; pedicels erecto-patent to spreading, 0.7–3.8 mm long, eglandular-puberulent all around, sometimes with minute glandular hairs as well. Calyx lobes usually 4, rarely 5 (5th lobe small, posterior), sub-acute to acuminate, 1.5–2.0 mm long, unequal, glabrous or eglandular-hairy on surfaces, mixed glandular- and eglandular-ciliate on margins. Corolla 5.5–7.0 mm diameter; tube white, 2.5–3.5 mm long, > calyx, eglandular-hairy inside and on bases of lobes; lobes 4, white or pale purplish fading white, spreading to recurved, sub-equal, elliptic to ovate, 2.5–3.5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white or pale purplish, 3.5–4.0 mm long; anthers magenta. Style glabrous or eglandular-hairy, 4.0–7.5 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous or sometimes eglandular-hairy, 3.5–5.6 mm long, 2.7–4.3 mm at widest point. Seeds discoid, flattened, smooth, pale brown to brown, 0.8–1.5 mm long.



**Fig. 388:** *Veronica dieffenbachii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** Chatham Is. (Chatham I., Pitt I. [Rangiauria], and South East I. [Rangatira]).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops and scrub, mostly near the coast or lagoon shores. Recorded elevations range from 0 to 240 m.

**Recognition:** Of the woody veronics on the Chatham Is., *V. barkeri* plants are distinguished from *V. dieffenbachii* by usually being trees, having greener leaves, broadest below or towards the middle, usually with ciliate margins and dense stomata beneath, and the corolla tube < calyx. *V. chathamica* plants are usually smaller, with smaller, more rounded leaves that are cuneate at the base, inflorescence rachis and pedicel hairs longer (0.10–0.25 mm), and long narrow bracts  $\geq$  pedicels.

**Phenology:** Flowers: December–February, extending to March; fruits January–April, persisting all year.

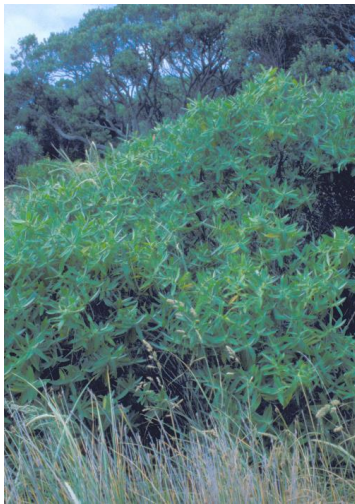
**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe dieffenbachii*).

**Hybridisation:** It is possible that *V. dieffenbachii* hybridises with *V. chathamica*, because some specimens combine features of both species, such as longer bracts and longer inflorescence hairs than are usually found in *V. dieffenbachii*.

**Notes:** *Veronica dieffenbachii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. dieffenbachii* is variable in some characters (e.g., leaf size and shape, stem pubescence, inflorescence pubescence, and bract length and shape).

Some plants of *V. dieffenbachii* and *V. chathamica* have been observed with blue or purple pollen, but it is more often whitish.



**Fig. 389:** *Veronica dieffenbachii*. Habit. Near Kaingaroa, Chatham I.



**Fig. 390:** *Veronica dieffenbachii*. Sprig. Scale = 10 mm.



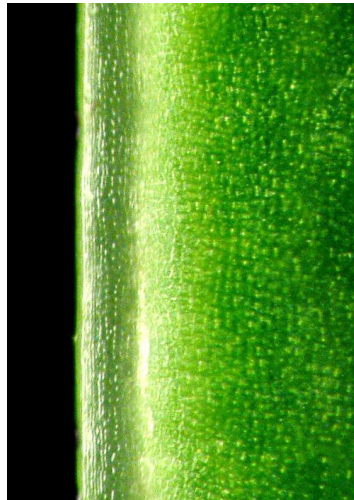
**Fig. 391:** *Veronica dieffenbachii*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 392:** *Veronica dieffenbachii*. Broad, slightly amplexicaul leaf base. Scale = 1 mm.



**Fig. 393:** *Veronica dieffenbachii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 394:** *Veronica dieffenbachii*. Close-up of glabrous leaf margin.



**Fig. 395:** *Veronica dieffenbachii*. Inflorescence (left) and infructescence (right). Scale = 10 mm.



**Fig. 396:** *Veronica dieffenbachii*. Flowers of a form with corolla tube about equal to calyx. Scale = 1 mm.



**Fig. 397:** *Veronica dieffenbachii*. Flower with corolla tube much longer than calyx. Scale = 1 mm.



**Fig. 398:** *Veronica dieffenbachii*. Capsules. Scale = 1 mm.

### ***Veronica dilatata* (G.Simpson & J.S.Thomson) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)**

≡ *Hebe dilatata* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 73: 164 (1943)

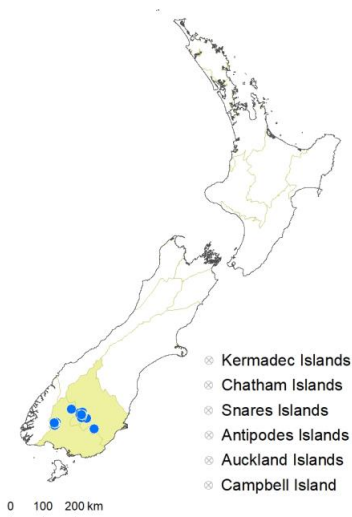
Holotype: Blue Lake, Garvie Mountains, Otago, 1370 m above sea level, G. Simpson & J. S. Thomson, CHR 63426 (a collection mounted on three sheets, labelled 63426A, 63426B and 63426C)

= *Hebe crawii* Heads, *Bot. Soc. Otago Newsl.* 5: 11 (1987)

Holotype: Excelsior Peak, Takitimu Mountains, 4800', occasional spreading shrubs ca. 40 cm tall in fellfield, A. F. Mark, 2 Feb 1971, OTA 31283

**Etymology:** The epithet *dilatata* might mean broadened or widened, from Latin *dilatatus*, but Simpson and Thomson (1943) did not explain its derivation. Bayly and Kellow (2006) suggested it might refer to the spreading habit of some plants. However, Simpson and Thomson's description mentions the corolla tube is widest at the throat, and it might thus be a reference to the dilated corolla tube.

Spreading low shrub to 0.4 m tall. Stems decumbent or ascending, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate to sub-distichous, erecto-patent to recurved; lamina coriaceous, obovate to spatulate to elliptic, 4–25 mm long, 4–11 mm wide, dull or somewhat glossy pale green or glaucescent above and beneath; midrib evident and two lateral veins sometimes faintly visible; surfaces glabrous or eglandular-hairy along midrib above; margin glabrous or minutely papillate, entire; apex obtuse to rounded, sometimes weakly plicate-emarginate; base abruptly cuneate; petiole 0.5–4.0 mm long. Inflorescence a lateral spike or raceme, tripartite or simple, 5–42 mm long; flowers crowded, 5–52, female or bisexual on separate plants, ♂ > ♀; bracts opposite below and the lowermost usually flowerless, becoming alternate above, narrowly deltoid to lanceolate to elliptic to ovate, > pedicels; pedicels erecto-patent, 0.5–3.0 mm long, eglandular-hairy all around and sometimes also with short glandular hairs. Calyx lobes 4 or posterior small 5th lobe sometimes present, anterior pair fused 1/3 to completely, sub-acute to obtuse, 2.0–2.7 mm long, unequal, mixed glandular- and eglandular-ciliolate. Corolla 5–10 mm diameter; tube white, 1.2–2.5 mm long, ≤ calyx, glabrous; lobes 4, white, sub-erect to spreading, unequal, elliptic or oblong to ovate, 2.0–4.5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 3.8–4.5 mm long (1.0–2.5 mm in staminodes); anthers magenta (pale in staminodes). Style glabrous, 3.4–7.0 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 3.4–4.5 mm long, 2.1–2.8 mm wide. Seeds ovoid to subdiscoid, flattened, smooth, straw-yellow to pale brown, 0.9–1.1 mm long.



**Fig. 399:** *Veronica dilatata* distribution map based on databased records at AK, CHR & WELT.

*V. arganthera* have  $2n = 40$ .

**Phenology:** Flowers: November–January, sometimes to March); fruits: November–March, persisting longer.

**Cytology:**  $2n = 120$  (see Bayly & Kellow 2006, as *Hebe dilatata*).

**Notes:** *Veronica dilatata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). Limited molecular studies have not provided strong evidence of close relationships of *V. dilatata*. Morphology and chromosome numbers suggest *V. cockayneana* might be a close relative, and beyond that it might be related to *V. arganthera* and to several similar species from Nelson (*V. baylyi*, *V. rigidula*, *V. cryptomorpha*, *V. simulans*).

Plants from the Takitimu Mountains tend to have pedicels  $>$  calyx, and they more often have some glandular hairs, than plants from the Garvie, Umbrella, and Eyre Mountains, which have pedicels  $\leq$  calyx. They also have more tripartite inflorescences and their leaves are more glaucescent. These have been separated taxonomically (as *Hebe crawii*), but consistent and qualitative differences that would indicate the existence of genetically separate and differentiated lineages are lacking.



**Fig. 400:** *Veronica dilatata*. Habit. Takitimu Mts, Southland.



**Fig. 401:** *Veronica dilatata*. Sprig. Scale = 10 mm.

**Distribution:** South Island: South Otago and Southland (Eyre Mountains, Garvie Mountains, Umbrella Mountains, Takitimu Mountains).

An early record from the Blue Mountains has not been supported by recent collecting.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine tussock grassland, especially in rocky sites, rock outcrops, screes. Recorded elevations range from 823 to 1600 m.

**Recognition:** In Fiordland, west of the range of *V. dilatata*, two species, *V. cockayneana* and *V. arganthera*, have similar dull or glaucous leaves and a narrow, acute leaf bud sinus. In *V. cockayneana* the leaves are discolourous, glossy green above and dull glaucescent beneath; the plants tend to grow more erect but may be low-growing in exposed sites. *V. arganthera* plants are often larger (up to 1.5 m tall); that species is distinguished from *V. dilatata* by longer leaves (12–38 mm long, 5–11 mm wide), ciliate or ciliolate leaf margins, and white anthers. *V. cockayneana* plants have the same chromosome number as *V. dilatata* ( $2n = 120$ ), whereas



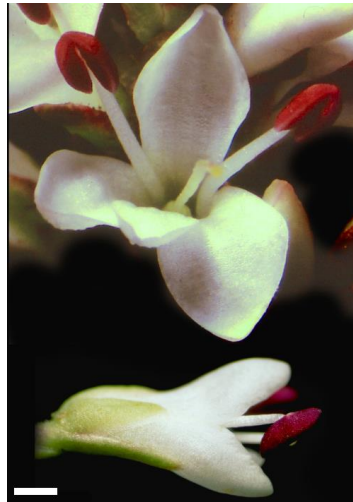
**Fig. 402:** *Veronica dilatata*. Leaf bud with small, acute sinus. Scale = 1 mm.



**Fig. 403:** *Veronica dilatata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 404:** *Veronica dilatata*. Female flowers. Scale = 1 mm.



**Fig. 405:** *Veronica dilatata*. Bisexual flowers, the lower barely open. Scale = 1 mm.



**Fig. 406:** *Veronica dilatata*. Capsule. Scale = 1 mm.

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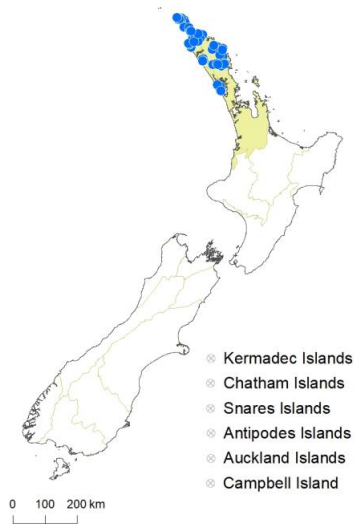
## ***Veronica diosmifolia* A.Cunn., *Bot. Mag.* 63, sub-plate 3461 (1836)**

- ≡ *Hebe diosmifolia* (A.Cunn.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
Lectotype (designated by Bayly & Kellow 2004): a slender twiggy shrub from 3–12 feet high found first at the head of the Wycaddy [Waikare] River and afterwards below the fall of the Keri Keri – also on the South Head of Hokianga, New Zealand, *R. Cunningham* no. 301, 1834, Allan Cunningham's New Zealand herbarium, K, piece mounted on the lower left of a sheet (which also includes material collected by Hector)
- = *Veronica menziesii* Benth. in de Candolle, *Prodr.* 10 461 (1846)  
≡ *Hebe menziesii* (Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 25 (1926)  
Lectotype (designated by Bayly & Kellow 2004): New Zealand, *Menzies*, Herb. Hookerianum, K, piece on left of sheet only.
- = *Veronica trisepala* Colenso, *Trans. New Zealand Inst.* 15: 324 (1883)  
≡ *Veronica diosmifolia* var. *trisepala* (Colenso) Kirk, *Trans. New Zealand Inst.* 28: 525 (1896)  
≡ *Hebe diosmifolia* var. *trisepala* (Colenso) A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 384 (1929)  
Lectotype (designated by Moore, in Allan 1961): Kaweka Range, *A. Hamilton*, WELT 5352, Herb. Petrie. Isolectotypes: WELT 79807, K (two pieces in upper right hand corner of a sheet that also includes material from near Cape Reinga, *T. F. Cheeseman*)
- = *Hebe diosmifolia* var. *vernalis* Carse, *Trans. New Zealand Inst.* 60: 306 (1929)  
Lectotype (designated by Moore, in Allan 1961): on bank of Mangere Creek, Whangarei, *H. Carse*, 22 Oct [18]98, Carse Herbarium 1249, CHR 332300 (transferred from CANTY, May 1975). Isolectotype: K. Possible isolectotype: WELT 13213 (Mangere Falls, *H. Carse*, 22 Oct 1898)

**Etymology:** The epithet means leaves like *Diosma*, a genus of Rutaceae.

**Vernacular name:** aute

Bushy shrub to 2.5 m tall, or occasionally small tree to 6 m tall. Stems erect or spreading, eglandular-pubescent; hairs uniform or tending bifarious. Leaf bud distinct, leaves appressed at margins until fully grown; sinus narrowly to broadly acute. Leaves sub-distichous, spreading; lamina sub-coriaceous to rigid, narrowly oblong-elliptic to oblong to linear-lanceolate, 8–30 mm long, 3–6 mm wide, rarely smaller, dull, green to dark green above, pale green beneath; midrib evident and faint lateral veins sometimes evident; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous or glandular- and/or eglandular-ciliolate, especially when young, bevelled, crenulate or papillate, entire or shallowly incised or shallowly serrate; teeth in 0–6 pairs; apex obtuse to acute or acuminate, plicate-mucronate; base cuneate; petiole 0.3–4.0 mm long. Inflorescence a lateral ternate to compound or rarely simple raceme, 10–55 mm long; flowers crowded, 4–54, all bisexual; bracts opposite-decussate, or becoming alternate above, lanceolate to broadly ovate, ≤ pedicels; pedicels erecto-patent, 1.5–4.2 mm long, eglandular-hairy all around. Calyx lobes 4–5 (5th lobe small, posterior; anterior lobes free or partly to completely connate, obtuse to sub-acute, 1.3–2.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 8–11 mm diameter, tube white, 2.0–2.5 mm long, ≥ calyx, glabrous; lobes 4, white, pink, purplish or bluish, erecto-patent to spreading, sub-equal, lanceolate to ovate to deltoid, 3–6 mm long, sub-acute to acute; nectar guides absent. Stamen filaments white, 4–6 mm long; anthers white to pale purplish. Style glabrous, 5.5–8.5 mm long. Capsules latiseptate, sub-acute to acute, glabrous, 3.5–5.4 mm long, 1.8–3.7 mm at widest point. Seeds ellipsoid, ovoid, obovoid, or discoid, flattened, smooth, straw-yellow to pale brown, 1.2–2.0 mm long.



**Fig. 407:** *Veronica diosmifolia* distribution map based on databased records at AK, CHR & WELT.

every plant) and the leaves never toothed (often toothed in *V. diosmifolia*). Plants of *V. venustula* and *V. brachysiphon*, again distributed much further south, have a similar form of narrow, acute sinus, but differ in having free calyx lobes, longer corolla tubes, usually simple racemose inflorescences, and entire leaves.

**Phenology:** Flowers: all year round but mostly September–January; fruits: all year but mostly October–May.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe diosmifolia*).

**Hybridisation:** *Veronica* ‘Spring Monarch’ and *V.* ‘Waikanae’ are believed to be artificial hybrids between *V. diosmifolia* and *V. hulkeana* (Garnock-Jones 2008).

**Notes:** *Veronica diosmifolia* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

There is variation within the species in chromosome number, flowering times (*var. vernalis* was based on spring-flowering plants), and the fusion of the anterior pair of calyx lobes (*var. trisejala* was based on plants with fused lobes), yet these differences were not found to be correlated (Murray et al. 1989). Tetraploid plants were all found in northern populations, but there is overlap in the distribution of tetraploid and diploid cytotypes. Bayly & Kellow (2006) and Murray et al. (1989) concluded that no taxonomic division within *V. diosmifolia* (as *Hebe diosmifolia*) could be justified.

### Cultivars

*Veronica diosmifolia* ‘Wairua Beauty’ is widely cultivated.

**Distribution:** North Island: Northland, Auckland (west of Kaipara Harbour).

A specimen said to be from the Kaweka Range, Hawke’s Bay, is not included in the accepted distribution, following Bayly & Kellow (2006).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Lowland scrub, forest margins, often near the coast or along river banks. Recorded elevations range from 0 to 274 m.

**Recognition:** *Veronica diosmifolia* plants can be distinguished from other hebes that grow with it in northern New Zealand by its small, darker green, often toothed leaves, narrow, acute sinus, and compound racemes.

*V. diosmifolia* plants are similar to *V. subfulvida*; both are large shrubs with narrow leaves, a narrow sinus in the bud, and clusters of compound racemes near the tips of the shoots. They have widely separate distributions: *V. diosmifolia* in the North Island north of about Helensville; *V. subfulvida* in the South Island north of Lake Rotoiti. Also, *V. subfulvida* has the anterior calyx lobes free (fused in at least some flowers on





**Fig. 408:** *Veronica diosmifolia*. Habit (flowers & leaves of *V. ligustrifolia* at lower right). Cape Reinga, Northland.



**Fig. 409:** *Veronica diosmifolia*. Sprig. Scale = 10 mm.



**Fig. 410:** *Veronica diosmifolia*. Leaf bud with narrow sinus still apparent as the leaves begin to separate. Scale = 1 mm.



**Fig. 411:** *Veronica diosmifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 412:** *Veronica diosmifolia*. Immature inflorescence (left) and infructescence (right). Scale = 10 mm.



**Fig. 413:** *Veronica diosmifolia*. Flower to show fused anterior calyx lobes. Scale = 1 mm.



**Fig. 414:** *Veronica diosmifolia*. Flowers.  
Scale = 1 mm.



**Fig. 415:** *Veronica diosmifolia*. Capsules.  
Scale = 1 mm.



**Fig. 416:** *Veronica diosmifolia*. Seeds.  
Scale = 1 mm.

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## ***Veronica elliptica* G.Forst., *Fl. Ins. Austr.* 3 (1786)**

≡ *Veronica forsteri* F.Muell., *Veg. Chatham Isl.* 45 (1864) nom. illeg.

≡ *Hebe elliptica* (G.Forst.) Pennell, *Rhodora* 23: 39 (1921)

Lectotype (designated by Moore, in Allan 1961): Forster Herbarium, K

= *Veronica decussata* Moench, *Verz. Ausländ. Bäume* 137 (1785) nom. rej.

= *Veronica decussata* Aiton, *Hortus Kew. [W. Aiton]* 1, 20 (1789) nom. illeg., non *Veronica decussata* Moench 1785

Type: None designated

= *Hebe magellanica* J.F.Gmel., *Syst. Nat., ed. 13[bis]* 27 (1791)

Type: unknown. The locality of J. F. Gmelin's herbarium and types is unknown; he was mainly a compiler and may not have had a herbarium of his own of any size (Stafleu & Cowan 1976)

= *Veronica simpsonii* Phil., *Anales Univ. Chile* 43: 526 (1873)

Lectotype (designated by Moroni & O'Leary 2018): Chile. Aysén: Río Aysén, Jan. 1871, E. Simpson s.n.

= *Veronica marginata* Colenso, *Trans. & Proc. New Zealand Inst.* 28: 608 (1896)

Lectotype (designated by Bayly & Kellow 2006): from a garden of Mr A. Wall, Porirua, near Wellington, 1895, K

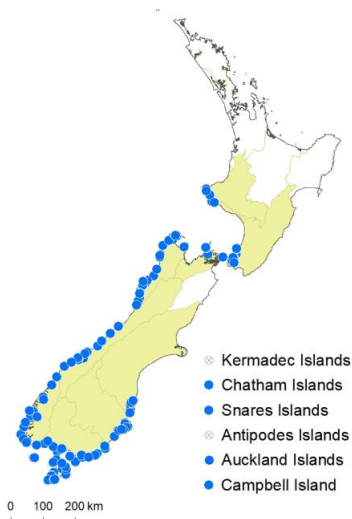
= *Hebe elliptica* var. *crassifolia* Cockayne & Allan, *Trans. New Zealand Inst.* 57: 27 (1926)

Lectotype (designated by Moore, in Allan 1961): Kapiti Island, near Waterfall Rock, in rock crevices exposed to salt spray, *H. H. Allan*, Easter Monday, 1924, WELT 5297

**Etymology:** The epithet refers to the elliptical leaves.

**Vernacular names:** koromiko; shore hebe

Bushy shrub to 2 m tall. Stems erect or sometimes spreading, eglandular-pubescent, hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus square to oblong. Leaves opposite-decussate to more or less sub-distichous, erecto-patent to spreading; lamina coriaceous, narrowly to broadly ovate, elliptic, obovate, or oblanceolate, 5–42 mm long, 3–18 mm wide, dull or slightly glossy green or dark green above, dull pale green beneath; midrib evident; surfaces with eglandular hairs along midrib above; margin densely ciliate except at apex, entire (sometimes minutely sinuate or crenulate); apex obtuse to truncate or sub-acute, conspicuously plicate mucronate; base cuneate to truncate; petiole 1.0–8.5 mm long. Inflorescence a lateral (rarely terminal) raceme, 15–51 mm long; flowers crowded, 3–14, all bisexual; bracts alternate, or sometimes 2–3 together at base, deltoid or narrowly deltoid, < to slightly > pedicels; pedicels erecto-patent, 1.5–9.0 mm long, puberulent all around. Calyx lobes 4, rarely the anterior pair fused almost to the apex, acute to obtuse or acuminate, 3–4 mm long, sub-equal, densely eglandular-ciliate, usually with a few glandular cilia as well. Corolla 10–15 mm, sometimes to 20 mm, diameter, tube white, 2–4 mm long, ≤ calyx, glabrous or eglandular-hairy inside; lobes 4 or rarely 5, white or pale blue to purple, erecto-patent to spreading, sub-equal, ovate to elliptic, 5–10 mm long, sub-acute to obtuse or rounded; nectar guides absent. Stamen filaments white or pale purple, 4.5–5.5 mm long; anthers purplish. Style glabrous, 2.0–6.5 mm long. Capsules latiseptate, sub-acute, glabrous, 5.5–8.5 mm long, 3.5–5.5 mm at widest point. Seeds broadly ellipsoid to discoid, flattened, smooth, straw-yellow to brown, 0.9–2.0 mm long.



**Fig. 417:** *Veronica elliptica* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Taranaki (west and south-west coasts), Southern North Island (Kapiti I. and south-west coast).

South Island: Western Nelson, Sounds Nelson (Cook Strait coast), Westland, Fiordland, Canterbury (south of Oamaru), Otago, Southland.

Stewart I., Chatham Is. (naturalised), Solander I., Snares Is., Auckland Is., Campbell I.

In addition, some specimens are labelled from Kennedy Bay, Coromandel, and Banks Peninsula, but there are no recent records and these localities have not been included in the map.

**Biostatus:** Indigenous (Non-endemic).

Indigenous, also to southern Chile, Patagonian Argentina, and the Falkland Is. Naturalised in Tasmania (Rozefelds et al. 1999) and north-west France (Walters & Webb, in Tutin et al. 1972).

**Habitat:** Coastal sites, often on rocks and cliffs, sometimes in coastal shrub communities on other substrates. Recorded elevations range from 0 to 45 m.

**Recognition:** *Veronica elliptica* is a distinctive hebe. The densely hairy leaf margin and glabrous, strongly plicate-mucronate apex is unusual, seen otherwise in *V. benthamii*, which is characterised by crenate leaves, and *V. obtusata*, which is distinguished by much smaller flowers, larger leaves, and no sinus in the leaf bud.

*V. elliptica* plants have large flowers and capsules, which are also unusual in the genus. *V. macrantha* plants have quite similar large flowers, but their leaves are toothed and their capsules have a narrow septum.

**Phenology:** Flowers: August–March (rarely extending to June); fruits: November–April (a few later, persisting all year).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe elliptica*).

**Hybridisation:** Hybrids between *V. elliptica* and *V. salicifolia* are common where the two coexist, and are correctly known as *V. ×lewisii* (see Garnock-Jones 2008, who listed other names that have been used for this hybrid combination).

**Notes:** *Veronica elliptica* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. elliptica* is variable in several characters. Stem hair distribution, leaf size, and leaf shape vary and might be influenced by hybridism with *V. salicifolia* in places. Flower size and capsule size also vary. In plants from North Island sites, leaves may be obovate and truncate to retuse, calyx lobes broadly obovate to sub-orbicular (rather than elliptic), 3–5-veined, and sometimes mucronate, and styles are very short, often 2–3 mm long. These character states are not always associated with each other at these locations, and some of them may also occur at other sites. Plants of this type from Kapiti I. and Tītahi Bay have been called *Hebe elliptica* var. *crassifolia* Cockayne & Allan. No clear boundary can be established, especially in the light of the variation in other characters throughout the range of the species.

- At Tītahi Bay, plants have very broad obovate to orbicular calyx lobes that are 3–5-veined and usually mucronate, the anterior pair sometimes fused almost to the apex, short styles 2–3 mm long, and obovate leaves that are truncate to retuse at the plicate-mucronate apex.
- At Kapiti I., plants have broadly elliptic to obovate calyx lobes that are 1–3-veined and slightly acuminate, short styles, and a broadly obtuse leaf apex.
- On the Taranaki coast, plants have elliptic to ovate calyx lobes that are mostly 1-veined and acute to obtuse, short styles, and obtuse leaf apices.

Thus it is not possible to clearly delineate two infraspecific groups. Bayly & Kellow (2006) did not recognise var. *crassifolia*, and the combination is not available to be used under the genus *Veronica*.

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### Cultivars

Several cultivated hybrids are derived from garden crosses between *V. elliptica* and other hebes. *V. ×franciscana* is a popular hybrid between *V. elliptica* and *V. speciosa*. The plants have large, thick, fleshy leaves and robust, purple flowers. *V. 'Youngii'* is the hybrid between *V. elliptica* and *V. pimeleoides* subsp. *pimeleoides*. The plants are small-leaved and low-growing, and also have purple flowers.



**Fig. 418:** *Veronica elliptica*. Habit. Campbell I.



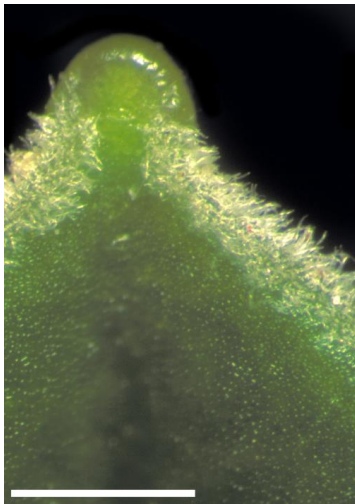
**Fig. 419:** *Veronica elliptica*. Branchlets and flowers, Milford Sound.



**Fig. 420:** *Veronica elliptica*. Leaf buds with oblong sinus (left) and squarish sinus (right). Scale = 1 mm.



**Fig. 421:** *Veronica elliptica*. Leaf surfaces, adaxial (left) and abaxial (right). Ōkarito, Westland (above) and Titahi Bay, Wellington (below). Scale = 1 mm.



**Fig. 422:** *Veronica elliptica*. Close-up of glabrous plicate-mucronate leaf apex and densely hairy leaf margins. Scale = 1 mm.



**Fig. 423:** *Veronica elliptica*. Flowers. Scale = 1 mm.



**Fig. 424:** *Veronica elliptica*. Flowers, bluish when young.



**Fig. 425:** *Veronica elliptica*. Capsules. Scale = 1 mm.

### ***Veronica epacridea* Hook.f., *Handb. New Zealand Fl.* 213 (1864)**

≡ *Hebe epacridea* (Hook.f.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

≡ *Leonohebe epacridea* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 6 (1987)

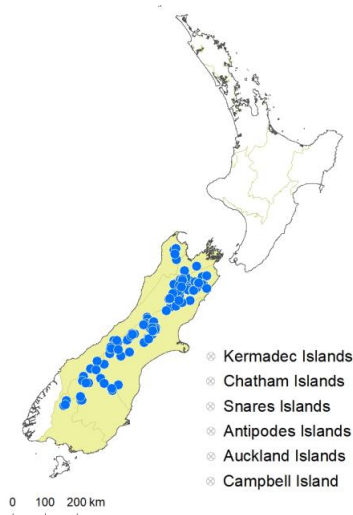
Lectotype (designated by Moore, in Allan 1961): New Zealand, Nelson, Tarndale, 3500 ft, Sinclair, 1861, K

**Etymology:** The epithet *epacridea* is a reference to the vegetative similarity of the plants to *Epacris* (Ericaceae), which can have similar small, rigid leaves.

**Vernacular name:** scree hebe

Spreading low shrub to 0.4 m tall. Stems decumbent to ascending, eglandular-pubescent or rarely glabrous; hairs bifarious or sometimes uniform. Leaf bud distinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, erect when young, erecto-patent to recurved, separating early; lamina coriaceous and rigid, broadly ovate, elliptic, oblong or orbicular, 2.5–9.0 mm long, 2.5–7.0 mm wide, more or less dull green to dark green above, green beneath; veins not evident but lamina keeled beneath; surfaces glabrous but eglandular-hairy at connate bases beneath; margin ciliate towards base, otherwise glabrous or minutely papillate, entire or rarely minutely crenulate or with a few shallow teeth; apex obtuse or sub-acute; base broad; petiole absent. Inflorescence a terminal compound spike, 5–26 mm long; flowers crowded, 2–8 per lateral spike, female or bisexual on separate plants, ♀ > ♂; bracts opposite-decussate and connate below,

becoming alternate above, ovate or deltoid, = calyx; pedicels absent. Calyx lobes 4, obtuse, sub-acute, or acuminate, 3.0–5.5 mm long, sub-equal, ciliate with long eglandular mixed with long and short glandular hairs. Corolla 6–8 (♂) or 4–5 (♀) mm diameter; tube white, 3.8–5.5 (♂) or 2.4–4.0 (♀) mm long,  $\geq$  calyx, glabrous; lobes 4, white or creamy white, sub-erect to spreading or recurved, sub-equal, lanceolate, elliptic, ovate, or orbicular, 2.5–3.5 (♂) or 2.0–2.5 (♀) mm long, sub-acute or obtuse; nectar guides absent. Stamen filaments white, 0.8–1.2 mm long (shorter in ♀); anthers yellow, pink, or magenta. Style glabrous, rarely hairy at base, 2.5–7.0 mm long. Capsule latiseptate, sub-acute, glabrous or sometimes hairy, 2.7–4.5 mm long, 1.5–2.6 mm at widest point. Seeds ellipsoid, ovoid, or obovoid, flattened, smooth, straw-yellow, 0.8–1.1 mm long.



**Fig. 426:** *Veronica epacridea* distribution map based on databased records at AK, CHR & WELT.

September.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe epacridea*).

**Notes:** *Veronica epacridea* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006). Phylogenetic analyses of nuclear DNA (ITS) strongly supported a sister relationship between *V. epacridea* (as *Hebe epacridea*) and *V. kellowiae* (as *Hebe ramosissima*). When more species of “Connatae” were included (E.M. Low, unpublished), *V. epacridea* and *V. haastii* were sister species, closely related to *V. macrocalyx* and *V. kellowiae*, but not to other “Connatae” such as *V. murrellii* and *V. petriei*.

This widespread species shows some patterns of regional variation. In Nelson, Marlborough, and Canterbury north of Aoraki / Mt Cook National Park, the marginal vein is heavily thickened and smooth. Further south, especially at Aoraki / Mt Cook National Park and in South Otago, leaves are not strongly concave and recurved, and the marginal vein is barely thickened. In those leaves the marginal vein connects the radiating veins near the margin with arching loops. In some locations the looping marginal vein is weakly thickened, presenting a scalloped appearance (see Bayly & Kellow 2006, Fig. 61).

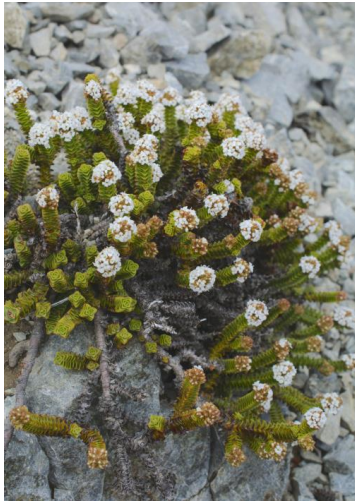
**Distribution:** South Island: Western Nelson, Sounds Nelson, Marlborough, Westland (near the Main Divide), Canterbury, Otago (west), Southland (Eyre and Livingston Mountains).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock debris and screes, sometimes descending to lower altitudes in gullies, screes and stream beds. Recorded elevations range from 638 to 2745 m.

**Recognition:** Plants of *V. epacridea* and several similar species such as *V. haastii*, *V. macrocalyx*, and *V. kellowiae* are similar in habit, connate leaf bases, and compact terminal simple or compound inflorescences. Plants of *V. epacridea* can be distinguished from the others by their thick and rigid leaves, which are often concave or recurved and keeled (flat from Mt Cook southwards), not narrowed at the base, by the dead leaves being retained along stems, and by the margins of bracts and calyx lobes being fringed with long cilia. Leaves often have red margins, and these may or may not be heavily thickened (reinforced by a marginal vein).

**Phenology:** Flowers: December–February, occasionally to April; fruits: December–April, sometimes persisting to



**Fig. 427:** *Veronica epacridea*. Habit. Mt Torlesse, Canterbury.



**Fig. 428:** *Veronica epacridea*. Sprig. Scale = 10 mm.



**Fig. 429:** *Veronica epacridea*. Leaves and stem. Scale = 1 mm.



**Fig. 430:** *Veronica epacridea*. Shoot apex. Scale = 1 mm.



**Fig. 431:** *Veronica epacridea*. Connate leaf bases, of the typical form with characteristically thickened leaf margins and midvein. Scale = 1 mm.



**Fig. 432:** *Veronica epacridea*. Connate leaf bases, of the variant form found at Mt Cook and in N. Otago, which lack characteristically thickened leaf margins and midvein. Scale = 1 mm.





**Fig. 433:** *Veronica epacridea*. Inflorescence. Scale = 1 mm.



**Fig. 434:** *Veronica epacridea*. Female flowers. Scale = 1 mm.



**Fig. 435:** *Veronica epacridea*. Bisexual flowers. Scale = 1 mm.



**Fig. 436:** *Veronica epacridea*. Calyx, with long hairs on the lobe margins, and immature capsule. Scale = 1 mm.



**Fig. 437:** *Veronica epacridea*. Capsule and seeds. Scale = 1 mm.

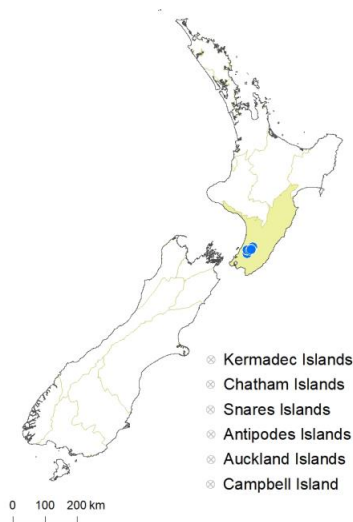
***Veronica evenosa* Petrie, *Trans. & Proc. New Zealand Inst.* 48: 189 (1916)**

≡ *Hebe evenosa* (Petrie) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 29 (1926)

Lectotype (designated by Moore, in Allan 1961): Mt Holdsworth, Tararua, c. 3500 ft, at upper edge of forest, D. P[etrie], 25 Jan 1908, WELT 5334

**Etymology:** *Evenosa* = veinless, a reference to the lack of visible lateral veins on the leaves.

Rounded shrub to 2 m tall. Stems erect, hairs eglandular-pubescent; hairs uniform to bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading, or recurved with age; lamina sub-coriaceous, elliptic, obovate, or oblanceolate, 12–28 mm long, 4–9 mm wide, glossy green above, dull or glossy pale green beneath; midrib evident; surfaces glabrous or with eglandular hairs along midrib above; margin ciliolate, entire, cartilaginous; apex usually obtuse or sub-acute or shortly plicate-acuminate; base cuneate; petiole indistinct, 1–2 mm long. Inflorescence a lateral raceme, 14–50 mm long; flowers crowded, 15–40, female or bisexual on separate plants, ♀ > ♂; bracts alternate, narrowly deltoid to lanceolate or elliptic, slightly < to = pedicels; pedicels erecto-patent, 0.5–3.3 mm long, eglandular-pubescent all around. Calyx lobes 4–5 (5th small, posterior), obtuse or sub-acute, 1.5–2.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 5–8 mm diameter (♂ similar to ♀); tube white, 1.5–2.0 mm long, < (♀) to = (♂) calyx, eglandular-hairy inside; lobes 4, white, sub-erect to erecto-patent, recurved with age, sub-equal, rhomboid to ovate or elliptic, 3–4 mm long, obtuse; nectar guides absent. Stamen filaments white, 2.5–5.0 mm long; anthers pink or pale purplish. Style glabrous, 3.0–7.2 mm long. Capsules latiseptate, obtuse, glabrous, 3–3.7 mm long, 3–4 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, brown, 1.2–1.5 mm long.



**Fig. 438:** *Veronica evenosa* distribution map based on databased records at AK, CHR & WELT.

*V. evenosa*. They share high chromosome numbers ( $2n = 120$  in *V. evenosa* and *V. urvilleana*;  $2n = 122$  in *V. topiaria*). *V. urvilleana* plants have leaves that are more narrowly acute at the apex and more tapered to the base, and capsules that are only shortly loculicidal. *V. topiaria* plants have dull, glaucous leaves.

**Phenology:** Flowers: January–February; fruits: February–April, sometimes to June.

**Cytology:**  $2n = 120$  (see Bayly & Kellow 2006, as *Hebe evenosa*).

**Notes:** *Veronica evenosa* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

So far, DNA data have not been able to resolve the closest relatives of *V. evenosa*. However, it has similarities of habit, morphology, and chromosome number to *V. topiaria* and *V. urvilleana*.

**Distribution:** North Island: Southern North Island (Tararua Range: Mt Denny, Mt Holdsworth, Mt Mitre).

An additional record extends the northern limit to Herepai, about 12 km north of Mt Mitre, but this is supported by only a photograph and has not been mapped.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine scrub around tree line. Recorded elevations range from 915 to 1279 m.

**Recognition:** *Veronica evenosa* is one of a group of species characterised by neat, rounded habit, small leaves, no sinus in the vegetative bud, and short, rounded corolla lobes. Only one other such species, *V. truncatula*, also occurs in the North Island; it is distinguished by larger and more lanceolate leaves, longer inflorescences with up to 68 flowers, and by chromosome number and flavonoid chemistry. *V. truncatula* plants have no or few stomata on the upper leaf surface, whereas *V. evenosa* plants have many, and *V. truncatula* inflorescences tend to be longer, with more flowers.

Two species from the South Island, *V. topiaria* and *V. urvilleana*, are very similar and might be related to



**Fig. 439:** *Veronica evenosa*. Habit. Mt Holdsworth, Wellington.



**Fig. 440:** *Veronica evenosa*. Sprig. Scale = 10 mm.



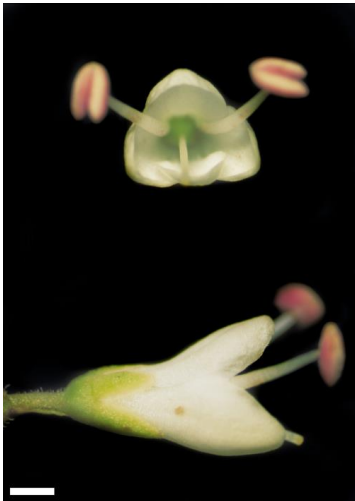
**Fig. 441:** *Veronica evenosa*. Leaf bud with no sinus. Scale = 1 mm.



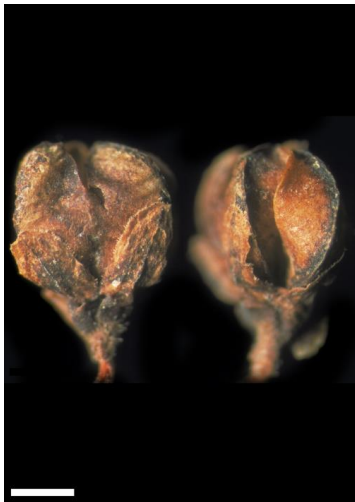
**Fig. 442:** *Veronica evenosa*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 443:** *Veronica evenosa*. Inflorescence. Scale = 1 mm.



**Fig. 444:** *Veronica evenosa*. Flowers. Scale = 1 mm.



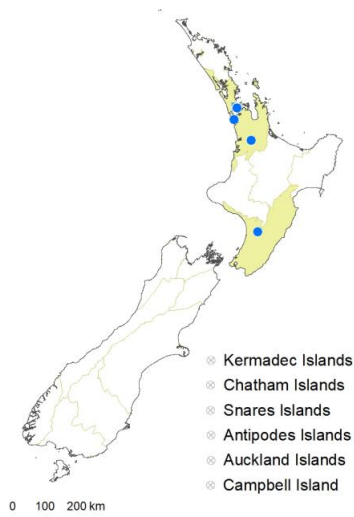
**Fig. 445:** *Veronica evenosa*. Capsules.  
Scale = 1 mm.

### ***Veronica filiformis* Sm., *Trans. Linn. Soc. London* 1: 195 (1791)**

**Etymology:** The epithet *filiformis* means thread-like, and probably refers to either the very slender pedicels or to the slender, creeping stems.

**Vernacular name:** creeping speedwell

Perennial herb to 0.05 m tall. Stems creeping and prostrate, sometimes ascending at tips, rooting at nodes; hairs eglandular, somewhat retrorse, uniform, also a few longer glandular hairs sometimes present. Leaf bud indistinct; leaves diverging while still small, opposite-decussate but sub-distichous on prostrate stems, spreading; lamina thin, broadly ovate to orbicular or reniform, 3–8 mm long, 5–12 mm wide, dull green above, pale green beneath; midrib and lateral veins visible; surfaces and margins with mixed long eglandular and glandular hairs; margin crenate or crenate-serrate; teeth in 2–5 pairs; apex obtuse to rounded; base truncate to sub-cordate; petiole 1–3 mm long. Inflorescence a terminal raceme, 50–300 mm long, sometimes resuming vegetative growth with opposite leaves after flowering; flowers distant, 5–20, all bisexual; minute, undeveloped flowers sometimes present in axils of lower bracts; bracts alternate, leaf-like; pedicels filiform, erect, often deflexed at fruiting, 15–40 mm long, with mixed short eglandular and longer glandular hairs all around. Calyx lobes 4, obtuse, 2.5–3.5 mm long, sub-equal, mixed glandular- and eglandular-hairy on outer surface and margins, glabrous within. Corolla 8–10 mm diameter; tube white and yellow, 0.5 mm long, < calyx, eglandular-hairy inside; lobes 4, blue, spreading, sub-equal, elliptic to orbicular, 3.0–4.5 mm long, rounded; nectar guides dark blue. Stamen filaments white, 2.5–3.0 mm long; anthers blue. Style glabrous, 2–4 mm long. Capsules and seeds not seen in New Zealand material.



**Fig. 446:** *Veronica filiformis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (in and near Auckland City, Hamilton), Southern North Island (Palmerston North).

**Biostatus:** Exotic; fully naturalised.

Indigenous to Caucasus, Crimea, and SW Asia.

**Habitat:** Lawns, golf courses. Recorded elevations range from 30 to 120 m.

**First record:** Sykes (1981, p. 56). Voucher: CHR 363223, A.E. Esler, Mt Eden.

**Recognition:** The creeping growth form and solitary flowers on long filiform pedicels are distinctive. *V. lilliputiana* plants are similar in being prostrate and creeping and having blue flowers, but their leaves are very much smaller, greyish-green, and entire, and flowers are carried on very short stalks, each with a pair of bracts. *V. jovellanooides* plants are also prostrate and have similar leaves, but their flowers are in short racemes and the corolla is white. Plants of *V. persica* have a spreading growth form, blue flowers, and leaf-like bracts, but their leaves are generally slightly narrower than long, ovate, truncate, and toothed (rather than circular, sub-cordate, and crenate), their

pedicels are stouter and shorter, and the anterior corolla lobe is usually distinctly paler than the other 3 lobes. In addition they set fruit, whereas *V. filiformis* plants are sterile in New Zealand. Plants of *V. hederifolia* have a similar growth form although not so strictly prostrate, and they differ in leaf shape and size, pedicel hairs in 1 row, distinctive cordate triangular fringed calyx lobes, smaller and paler corolla, and by producing capsules, which contain large, cup-shaped seeds.

When not in flower, *V. filiformis* might be confused with unrelated small creeping plants, especially *Glechoma hederacea* (Lamiaceae), which is locally naturalised throughout New Zealand. *Glechoma* stems are 4-angled and have longer hairs than *V. filiformis* stems. *G. hederacea* leaves are usually larger, more deeply cordate, and have deeper and rounder crenations. *Glechoma* flowers are subsessile in axillary clusters, and the corolla is long-tubed and 2-lipped.

**Phenology:** Flowers: August–November; fruits: not seen in New Zealand.

**Cytology:**  $2n = 14$  in Europe (Albach et al. 2008).

**Notes:** *Veronica filiformis* is classified in *V.* subg. *Pocilla* (Albach et al. 2004a; Albach & Meudt 2010). *V. filiformis* has spread around the temperate world as a cultivated plant and has escaped and become a troublesome weed in many places. The plants are self-incompatible and spread vegetatively, probably establishing freely from small fragments when lawns are mowed.

It is possible a single clone was introduced in New Zealand; in any case, self-incompatibility is the reason fruits are not produced in places where *V. filiformis* is naturalised. Scalone & Albach (2012) reported flower anomalies in clonal populations, which they attributed to accumulation of deleterious mutations in the absence of recombination and selection for flower function. The minute, undeveloped flowers seen in some New Zealand collections are likely to be of similar origin.



**Fig. 447:** *Veronica filiformis*. Habit.



**Fig. 448:** *Veronica filiformis*. Sprigs, flowering with alternate bracts (left) and non-flowering with opposite leaves transitioning to alternate (right). Scale = 10 mm.



**Fig. 449:** *Veronica filiformis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 450:** *Veronica filiformis*. Pedicel, calyx, and abaxial surface of corolla. Scale = 1 mm.



**Fig. 451:** *Veronica filiformis*. Flowers. Scale = 1 mm.

## *Veronica flavida* (Bayly, Kellow & de Lange) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)

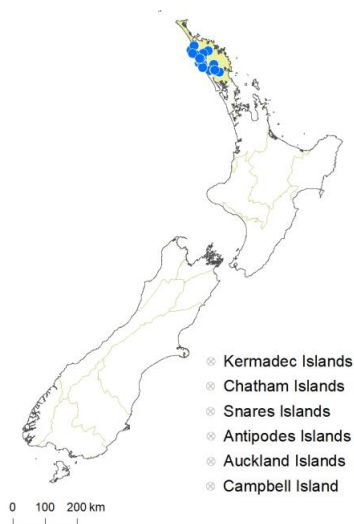
≡ *Hebe flavida* Bayly, Kellow & de Lange, *Illustr. Guide New Zealand Hebes* 310 (2006)

Holotype: New Zealand, North Island, North Auckland, "Waima Range", Hauturu State Forest, Frampton Block, 600 m, common on exposed outcrops and bluffs, growing with *Quintinia serrata*, *Weinmannia silvicola*, *Ackama rosifolia*, *A. sp. nov.* [= *A. nubicola*], *P. J. de Lange* 5163, 12 Feb 2001, WELT 82916. Isotype: AK

**Etymology:** The epithet *flavida* means yellow, and refers to the yellow midribs and bases of the leaves.

**Vernacular names:** koromiko; kōkōmuka

Small tree, or sometimes bushy shrub, to 8 m tall. Stems erect, minutely eglandular-puberulent; hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina thin to sub-coriaceous, linear-lanceolate to narrowly elliptic or oblanceolate, 30–135 mm long, 6–29 mm wide, dull, green to dark green above with yellowish midrib and base, pale green beneath; midrib and secondary veins evident; with eglandular hairs on midrib above and beneath, surface sometimes minutely glandular-hairy beneath; margin puberulent, entire or minutely and distantly toothed; teeth in 0–8 pairs; apex acute to acuminate; base cuneate or abruptly cuneate; petiole indistinct, 3–5 mm long. Inflorescence a lateral raceme, 40–250 mm long; flowers crowded, 60–155, all bisexual; bracts alternate to loosely whorled, lanceolate to deltoid, < pedicels; pedicels erecto-patent to spreading, 1.5–4.2 mm long, puberulent or rarely pubescent all around. Calyx lobes 4, acute to acuminate, 1.5–2.5 mm long, sub-equal, eglandular-hairy on outside, mixed glandular- and eglandular-ciliolate. Corolla 6–8 mm diameter; tube white, 1.5–3.0 mm long, ≤ calyx, puberulent inside; lobes 4, white to pale purplish, erecto-patent to spreading, sub-equal, narrowly lanceolate, lanceolate or elliptic, 4.0–5.5 mm long, acute or the posterior lobe sometimes tapering to a rounded apex; nectar guides absent. Stamen filaments white, 5.5–6.8 mm long; anthers purplish or bluish. Style glabrous or puberulent, 4.0–7.2 mm long. Capsules latiseptate, acute to obtuse, glabrous or shortly puberulent near septal groove, 2.5–4.5 mm long, 2.0–3.5 mm at widest point. Seeds broad-ellipsoid to discoid, flattened, smooth, straw-yellow to pale brown, 0.8–1.6 mm long.



**Fig. 452:** *Veronica flavida* distribution map based on databased records at AK, CHR & WELT.

*V. stricta* plants look very similar but don't reach the small tree size of *V. flavida*; they also differ in green midribs, more crowded, smaller flowers with corolla lobes that are narrower and shorter than the tube.

*V. ligustrifolia* and *V. rivalis* plants have similar flowers with broad, tapering corolla lobes, pale purplish when young, that are equal to or longer than the white tubes. *V. ligustrifolia* is difficult to distinguish, but the plants tend to have a low, shrubby habit, sometimes with sub-distichous leaf arrangement, shorter and more elliptic leaves that are often pale and yellowish, and acute posterior corolla lobes. Its distribution is more eastern in Northland and it occupies lowland habitats (although some eastern specimens included here under *V. flavida* are very similar to *V. ligustrifolia*; see Bayly & Kellow 2006 for discussion).

Plants of *V. rivalis* are smaller, have leaves that are narrower (3–12 mm wide), slightly smaller flowers, and acute posterior corolla lobes. They are low shrubs and grow exclusively on river banks within the flood zone.

**Distribution:** North Island: Northland (western coasts and inland, from Okahu near Kaitiāia (a historical record), Waikaraka Valley and Warawara Forest south to Tangihua Forest.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Hill tops and rock outcrops, often in cloud forest. Recorded elevations range from 240 to 620 m.

**Recognition:** *Veronica flavida* plants are often small trees and their leaves have a conspicuous yellow midrib that broadens at the base of the leaf.

*V. stricta* plants look very similar but don't reach the small tree size of *V. flavida*; they also differ in green midribs, more crowded, smaller flowers with corolla lobes that are narrower and shorter than the tube.

*V. ligustrifolia* and *V. rivalis* plants have similar flowers with broad, tapering corolla lobes, pale purplish when young, that are equal to or longer than the white tubes. *V. ligustrifolia* is difficult to distinguish, but the plants tend to have a low, shrubby habit, sometimes with sub-distichous leaf arrangement, shorter and more elliptic leaves that are often

Plants of *V. adamsii*, *V. perbella*, and *V. saxicola* are low shrubs with thicker, glossy leaves, and larger and more distant flowers; *V. adamsii* is also characterised by a sinus in the leaf bud.

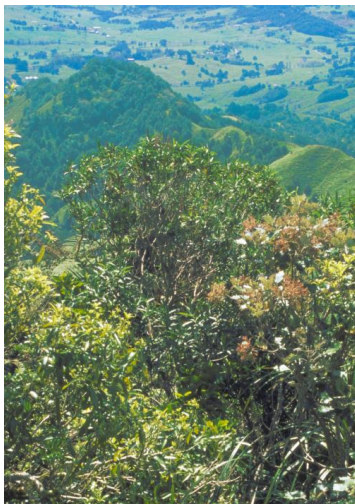
**Phenology:** Flowers: January–June; fruits: March–September.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe flavida*).

**Notes:** *Veronica flavida* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

There is considerable variation among specimens of *V. flavida*, which confuses its boundaries with *V. ligustrifolia* and *V. rivalis*. Leaves can be crowded at stem apices or widely spaced along stems, a difference that possibly relates to degree of exposure to wind and sunlight. Leaf shape also varies, with some narrow-leaved plants from Herekino and Warawara forest appearing similar to *V. rivalis*. Other plants with long, broad leaves from Waipoua Forest, Ohae Stream, and Kararoa Road might belong under *V. flavida*, *V. rivalis*, or *V. ligustrifolia* (see Bayly & Kellow 2006). Specimens from Katui Scenic Reserve have longer stem hairs, shorter leaves, and short, broad corolla tubes.

The Māori names koromiko, kōkōmuka, and variants – applied to *V. stricta* and *V. salicifolia* – might be applied also to similar large-leaved hebes, such as *V. flavida*.



**Fig. 453:** *Veronica flavida*. Habit (plant in the centre of the picture). Horokaka, Tangihua Range, Northland.



**Fig. 454:** *Veronica flavida*. Sprig. Scale = 10 mm.



**Fig. 455:** *Veronica flavida*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 456:** *Veronica flavida*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm. Magnified inset shows small tooth and hairs on leaf margin.





**Fig. 457:** *Veronica flavida*. Inflorescence (left) and infructescences (centre & right). Scale = 10 mm.



**Fig. 458:** *Veronica flavida*. Flowers. Scale = 1 mm.



**Fig. 459:** *Veronica flavida*. Capsules. Scale = 1 mm.

***Veronica gibbsii* Kirk, *Trans. New Zealand Inst.* 28: 524 (1896)**

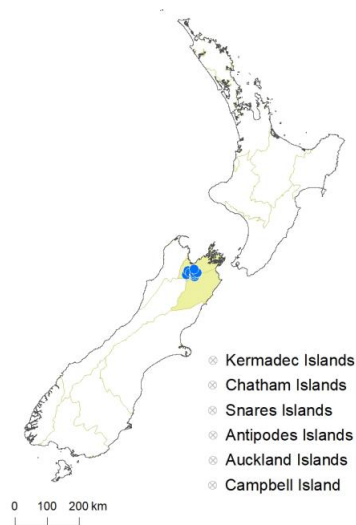
≡ *Hebe gibbsii* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 56: 20 (1926)

Lectotype (designated by Moore, in Allan 1961): Mt Rintoul, ex Herb. T. Kirk, AK 8098

**Etymology:** Named after Nelson botanist and teacher Frederick G. Gibbs (1886–1953).

Low shrub to 0.35 m tall. Stems decumbent to erect, glabrous or eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous to fleshy, ovate to broadly elliptic, 9–20 mm long, 4–13 mm wide, dull glaucous above and beneath; midrib (at least beneath) and sometimes 2 lateral veins evident; surfaces glabrous; margin ciliate (hairs mostly 0.3–0.8 mm long), entire; apex sub-acute to acute; base cuneate; petiole indistinct, winged, 1–2 mm long. Inflorescence a lateral spike or rarely raceme, 15–35 mm long; flowers crowded, 6–30, all bisexual; bracts opposite below, becoming alternate above, linear to deltoid,  $\geq$  calyx; pedicels absent or rarely erecto-patent, 0–1 mm long, eglandular-hairy all around. Calyx lobes 4, all free or sometimes anterior fused  $\frac{1}{3}$ – $\frac{2}{3}$  length, acute or sub-acute, 2.0–2.8 mm long, sub-equal, eglandular-ciliate or sometimes the outer face hairy as well. Corolla 5.5–7.0 mm diameter; tube white, 2.5–4.0 mm long,  $\geq$  calyx, glabrous; lobes 4, white, erecto-patent, sub-equal, elliptic or narrowly elliptic, 2.5–3.3 mm long, sub-acute to acute; nectar guides absent. Stamen filaments white, 6.0–6.5 mm long; anthers magenta. Style glabrous or eglandular-hairy, 6.5–9.5 mm long. Capsules latiseptate, acute or sub-acute, glabrous or eglandular-

hairy, 2.5–4.0 mm long, 1.6–2.0 mm at widest point. Seeds discoid, ellipsoid, or ovate, flattened, smooth, brown or pale brown, 0.8–1.7 mm long.



**Fig. 460:** *Veronica gibbsii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Ben Nevis, Mt Patriarch, Lake Chalice, Mt Rintoul, Mt Starveall).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Open, rocky sites, mostly above timberline. Recorded elevations range from 854 to 1524 m.

**Recognition:** The long, fringing hairs on the leaves distinguish *V. gibbsii* from other hebes with glaucous leaves. The margin of the leaves is bevelled, and the hairs are on the edge of the lamina adjacent to the margin itself, so that they appear as two rows of hairs, at least in dried leaves.

Plants of *V. albicans* are similar in many respects, but they differ in having glabrous leaf margins, the leaves often broader, especially near the base, and sometimes with eglandular hairs on midribs above, corolla tubes usually hairy, and broader capsules (2.0–3.2 mm wide). Some plants of *V. amplexicaulis* have hairy leaves, but those are hairy on the surfaces whereas *V. gibbsii* leaves are hairy on the margins only.

**Phenology:** Flowers: October–March; fruits: January–May, persisting until November.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe gibbsii*).

**Hybridisation:** Bayly & Kellow (2006) suggested that one specimen (WELT SP79817, Mt “Z”, Wairau Valley, *Martin*), which has branched inflorescences and distinctly pedicellate flowers (pedicels to 2 mm long), could be of hybrid origin, perhaps with *V. subfulvida* (as *Hebe divaricata*).

**Notes:** *Veronica gibbsii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Subcarnosae” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. gibbsii* may be closely related to other glaucous-leaved hebes, such as *V. pinguifolia* and *V. buchananii*, which share a number of features. Molecular studies (E.M. Low, unpublished), do not reliably place it, other than within the large hebe clade.

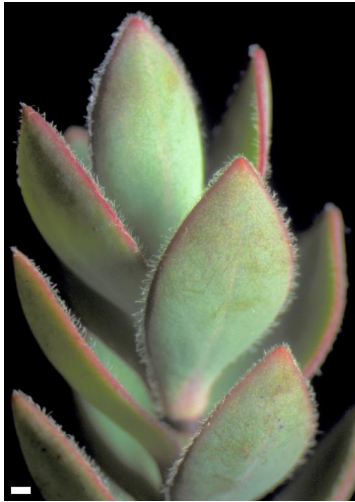
There are a number of additional localities (Dun Mt, Gordon’s Knob, Mt Franklin) not mapped here that are supported by specimens from cultivated, but not wild-collected, plants or for which the locality must be regarded as unproven (Bayly & Kellow 2006).



**Fig. 461:** *Veronica gibbsii*. Habit. Mt Patriarch, Marlborough.



**Fig. 462:** *Veronica gibbsii*. Sprig. Scale = 10 mm.



**Fig. 463:** *Veronica gibbsii*. Shoot tip, of a variant with red leaf margins. Scale = 1 mm.



**Fig. 464:** *Veronica gibbsii*. Leaf bud with no sinus. Scale = 1 mm.



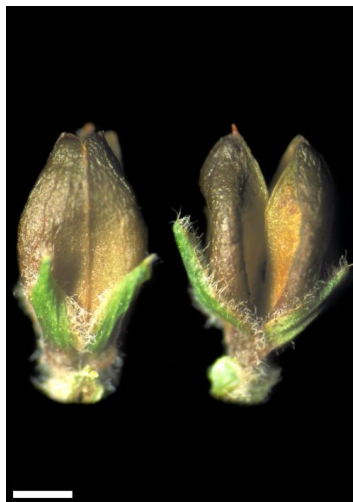
**Fig. 465:** *Veronica gibbsii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 466:** *Veronica gibbsii*. Infructescence (left) and inflorescence (right) showing compact spikes and elongated peduncles. Scale = 1 mm.



**Fig. 467:** *Veronica gibbsii*. Flowers. Scale = 1 mm.



**Fig. 468:** *Veronica gibbsii*. Capsules. Scale = 1 mm.

***Veronica glaucophylla* Cockayne, *Trans. New Zealand Inst.* 31: 422 (1899)**

≡ *Hebe glaucophylla* (Cockayne) Cockayne, *Trans. New Zealand Inst.* 60: 471 (1929)

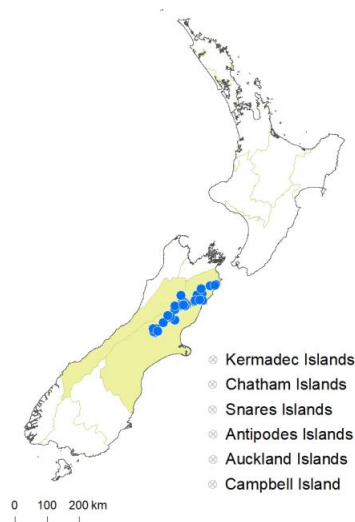
Neotype (first designated by Cockayne 1929, then more precisely by Moore, in Allan 1961): cultivated plant, originally from Craigieburn Mts, *L. Cockayne No. 8037*, 11 Jan 1902, AK 7970. Isonotypes: WELT 47659, WELT 47658, CHR 331797

= *Veronica traversii* var. *fallax* Cheeseman, *Man. New Zealand Fl.* 519 (1906)

Lectotype (designated by Bayly & Kellow 2006): St James Station, Clarence River, 3000 ft., *T. Kirk n.775*, 1577 to Kew, AK 7978

**Etymology:** The epithet means glaucous leaved.

Shrub to 2 m tall. Stems erect, eglandular-puberulent; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading, becoming recurved; lamina coriaceous, lanceolate to elliptic or oblong, 7–25 mm long, 4–8 mm wide, dull glaucous above and beneath; midrib and often two lateral veins evident; surfaces glabrous, or eglandular hairs along midrib above, especially near base; margin usually glabrous and minutely papillate, rarely with very minute, forwardly directed hairs, entire; apex sub-acute to acuminate; base cuneate; petiole indistinct, 0–1 mm long. Inflorescence a lateral raceme, 13–46 mm long; flowers crowded, 15–31, all bisexual; bracts alternate or often the lowermost opposite, deltoid to broadly elliptical, rarely narrower, ≤ pedicels; pedicels erecto-patent, 0.5–3.0 mm long, puberulent all round. Calyx lobes 4, rarely 5 (5th lobe small, posterior), rounded, obtuse, or sometimes sub-acute, 1.5–2.0 mm long, sub-equal, mixed eglandular- and glandular-ciliolate, or rarely eglandular-ciliolate. Corolla 5–6 mm diameter; tube white, 1.0–2.3 mm long, usually < calyx, sometimes > calyx, eglandular-hairy inside; lobes 4, white, erecto-patent to spreading, unequal, broadly elliptic to obovoid or rhomboid, 2.5–3.5 mm long, rounded; nectar guides absent. Stamen filaments white, 3.0–4.6 mm long; anthers magenta, pink, or yellowish. Style eglandular-hairy or sometimes glabrous, 3.0–5.3 mm long. Capsules latiseptate, sub-acute to obtuse, eglandular-puberulent or sometimes glabrous with age, 2.5–4.0 mm long, 1.9–3.1 mm at widest point. Seeds ellipsoid, flattened, smooth, brown, 1.6–2.2 mm long.



**Fig. 469:** *Veronica glaucophylla* distribution map based on databased records at AK, CHR & WELT.

(Albach & Meudt 2010; Bayly & Kellow 2006).

It is not certain that all populations of *V. glaucophylla* are cosexual, and there may be male-sterile plants in some populations (Bayly & Kellow 2006).

**Distribution:** South Island: Marlborough, Canterbury (inland from Lake Tennyson and mountains near Hanmer Springs to the Craigieburn Range, especially near Castle Hill Basin), Westland (near the Main Divide in the far north-west).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane, or occasionally lowland, scrub, often on rock outcrops. Recorded elevations range from 250 to 1219 m.

**Recognition:** The very short, puberulent indumentum on the stems, inflorescences, and capsules, the pedicels usually > bracts, and the usually very short corolla tube distinguish plants of *V. glaucophylla* from many other hebes that also have glaucous leaves and no sinus in the leaf bud. *V. topiaria* plants are similar but have quite long hairs on the stems.

**Phenology:** Flowers: December–March; fruits: January–May, persisting until December.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe glaucophylla*).

**Notes:** *Veronica glaucophylla* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae”



**Fig. 470:** *Veronica glaucophylla*. Habit. Jack's Pass, Canterbury.



**Fig. 471:** *Veronica glaucophylla*. Sprig. Scale = 10 mm.



**Fig. 472:** *Veronica glaucophylla*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 473:** *Veronica glaucophylla*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 474:** *Veronica glaucophylla*. Inflorescence. Scale = 1 mm.



**Fig. 475:** *Veronica glaucophylla*. Flowers. Scale = 1 mm.



**Fig. 476:** *Veronica glaucophylla*. Capsules.  
Scale = 1 mm.

### ***Veronica haastii* Hook.f., *Handb. New Zealand Fl.* 213 (1864)**

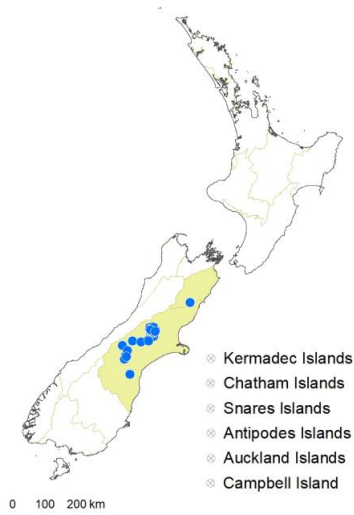
≡ *Hebe haastii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 42 (1926)

≡ *Leonohebe haastii* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 6 (1987)

Lectotype (designated by Kellow et al. 2003b): [Mt Dobson], Canterbury, New Zealand, *J. Haast* 625, 1862, K (two sprigs on upper left of sheet)

**Etymology:** *Haastii*, after Julius von Haast, geologist, explorer, and botanist who collected the first specimens and sent them to Joseph Hooker at Kew.

Sub-shrub or low-spreading shrub to 0.2 m tall. Stems decumbent or ascending or spreading, eglandular-puberulent; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, erecto-patent; lamina coriaceous to fleshy, elliptic, obovate, ovate, or spatulate, 6.6–13.0 mm long, 4.2–11.6 mm wide, dull or glossy green or dark green above and beneath, or sometimes reddish beneath; midrib obscure above, slightly thickened beneath; surfaces glabrous; margin glabrous, entire or erose, crenulate, or shallowly to deeply toothed, green or red, teeth in 1–3 pairs; apex rounded to sub-acute; base cuneate, broad; petiole absent. Inflorescence a terminal compound spike, 8–33 mm long; flowers crowded, 4–6 per lateral spike, female or bisexual on separate plants, ♀ > ♂; bracts opposite, or becoming alternate above, oblong, deltoid, or lanceolate, about = calyx; pedicels absent. Calyx lobes 4, sub-acute to obtuse, 4–5 mm long, sub-equal, ciliolate. Corolla 3.5–5.0 mm diameter, tube white, 3–6 mm long, about = calyx, glabrous; lobes 4, white, erecto-patent to spreading, unequal, elliptic or ovate, 1.5–3.0 mm long, sub-acute; nectar guides absent. Stamen filaments white, 0.1–0.4 mm long; anthers pink or magenta. Style glabrous, 2–4 mm long. Capsules latiseptate, sub-acute to acute, glabrous or rarely eglandular-hairy, 5–6 mm long, 2.5–3.7 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, straw-yellow, 0.9–1.3 mm long.



**Fig. 477:** *Veronica haastii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (Mt Terako only), Canterbury (widespread in the eastern mountains from the Craigieburn Range to the Hunters Hills).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock debris and scree. Recorded elevations range from 1200 to 2154 m.

**Recognition:** Plants of *V. haastii* and *V. macrocalyx* are similar. *V. macrocalyx* is distinguished by the leaves being narrowed at the base into a distinct, short, broad petiole, longer and narrower calyx lobes, and smaller and more lax flowering heads. Usually some leaves of *V. haastii* are toothed, and the upper ones, within or near the flowering heads, are usually erose to crenulate. Although they are similar, their status as separate species is supported by chemical differences (Kellow et al. 2003).

*V. epacridea* and *V. haastii* plants can often be found growing together. *V. epacridea* can be distinguished by more rigid leaves, which are strongly keeled and thickened at the entire margin, and ciliate (rather than ciliolate) calyx lobes.

**Phenology:** Flowers: December–February; fruits:

January–April (sometimes persisting to August).

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe haastii*).

**Notes:** *Veronica haastii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. haastii* is related to *V. macrocalyx*, *V. epacridea*, and *V. kellowiae* and this small group appears to be sister to *V. odora* and *V. pauciramosa*. *V. petriei* and *V. murrellii* are similar but appear not to be closely related to them.

The inflorescence is formed of 8–25 spikes each of 4–6 flowers, forming a compact, clavate, terminal compound spike.



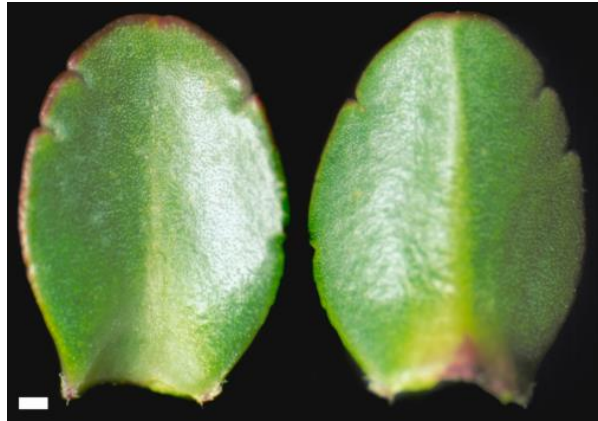
**Fig. 478:** *Veronica haastii*. Habit. Mt Hutt, Canterbury.



**Fig. 479:** *Veronica haastii*. Sprig. Scale = 10 mm.



**Fig. 480:** *Veronica haastii*. Connate leaf bases. Scale = 1 mm.



**Fig. 481:** *Veronica haastii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 482:** *Veronica haastii*. Terminal flowering head of numerous small lateral spikes and terminal spike. Scale = 1 mm.



**Fig. 483:** *Veronica haastii*. Female flowers. Scale = 1 mm.

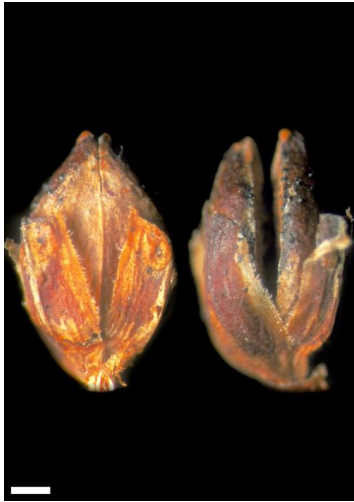


**Fig. 484:** *Veronica haastii*. Infructescence. Scale = 10 mm.



**Fig. 485:** *Veronica haastii*. Calyx and immature capsule. Scale = 1 mm.





**Fig. 486:** *Veronica haastii*. Capsules.  
Scale = 1 mm.

***Veronica hectorii* Hook.f., *Handb. New Zealand Fl.* 212 (1864)**

as "hectori"

≡ *Hebe hectorii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 40 (1926)

≡ *Leonohebe hectorii* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 8 (1987)

Lectotype (designated by Ashwin, in Allan 1961): Otago, Mt Alta, *Hector no.* 27, 1863, Herb. Hookerianum, K (small broken piece, mounted on lower right of sheet that also includes material collected by *Sinclair* and *Haast*, and *Hector* and *Buchanan*)

**Etymology:** The epithet *hectorii* honours James Hector (1834–1907), geologist, explorer, and founder of several scientific institutions in New Zealand.

**Vernacular name:** whipcord hebe

Whipcord shrub to 1.0 m tall. Stems ascending to erect, glabrous except for a line of eglandular hairs at the connate leaf bases. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed and usually covering the well-marked node above, scale-like; lamina coriaceous, deltoid to broadly deltoid to sub-orbicular, 1.5–3.5 mm long, 2.0–4.5 mm wide, glossy green, olive-green, or yellowish-green above and beneath; midrib and veins not evident; surfaces glabrous; margin ciliolate, entire (incised to dentate in juvenile and reversion leaves); apex obtuse, sub-acute, apiculate, or mucronate; base broad; petiole absent. Inflorescence a terminal spike, 3.5–15.0 mm long; flowers crowded, 4–16, all bisexual or some female; bracts opposite-decussate, connate, deltoid; pedicels absent. Calyx lobes 4–5 (usually free or rarely anterior pair fused from 1/3 to 2/3 of the way to apex; 5th lobe small, posterior), obtuse to sub-acute, sub-equal, 1.5–3.0 mm long, usually eglandular-ciliate with long, deflexed, sinuous hairs, sometimes ciliolate, mixed with short glandular hairs as well. Corolla 5.0–8.5 mm diameter, tube white, 1.5–2.5 mm long, ≤calyx, eglandular-hairy inside; lobes 4, white, erect to spreading, sub-equal, oblong to ovate to broadly elliptic, 3.0–4.5 mm long, obtuse; nectar guides absent. Stamen filaments white, 3.5–4.2 mm long; anthers pink to purple. Style glabrous, 3.3–6.5 mm long. Capsule latisepate, obtuse to sub-acute, 1.8–3.2 mm long, 1.8–2.5 mm at widest point. Seeds ellipsoid to oblong, flattened, smooth, straw-yellow or brown, 0.9–1.4 mm long.

- 1 Leaf apex of some or most leaves apiculate or mucronate..... subsp. *demissa*  
Leaf apex sub-acute or obtuse or rounded..... 2
- 2 Leaves longer than to about as long as broad, mostly 1.2–2.0 mm, occasionally to 2.7 mm, long (northern South Island)....  
.....subsp. *coarctata*  
Leaves broader than long, mostly 1.7–3.1 mm, occasionally 1.2–2.7 mm long (southern South Island)..... subsp. *hectorii*

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**Distribution:** South Island: Western Nelson, Sounds Nelson, Westland, Canterbury, Otago Southland, Fiordland.

Stewart I.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane to alpine grassland and shrubland.

**Recognition:** The differences between *V. hectorii* and *V. tetragona* plants are slight and were discussed in detail by Bayly & Kellow (2006), along with discussion of various options for taxonomic treatment at species rank. Although they are very similar, differences in flavonoid chemistry and distribution support their recognition at species rank (Bayly & Kellow 2006).

*V. tetragona* and *V. hectorii* can be reliably distinguished by the thickened leaf apex of *V. tetragona*, compared to that of *V. hectorii*, which is not thickened (Bayly & Kellow 2006, Fig. 48, p. 91). The strongly tetragonous to cruciform leafy branchlets of *V. tetragona* subsp. *tetragona* provide a clear distinction from *V. hectorii*, but the more rounded branchlets of subsp. *subsimplis* are not so easily distinguished, particularly from *V. hectorii* subsp. *coarctata*.

Bracts and calyx lobes, but not the leaves, often have one to several longitudinal ribs, resembling the leaves of *V. lycopodioides* and *V. poppelwellii*.

**Phenology:** Flowers: November–April; Fruit: January–June (persisting all year).

**Cytology:**  $2n = 40$  (Bayly & Kellow 2006, as *Hebe hectorii*).

**Hybridisation:** *Veronica hectorii* hybridises occasionally with *V. odora*, to form whipcord-like plants, but with longer leaves and internodes. In general, the parentage of *V. odora* × whipcord hybrids is hard to deduce from morphology, and in the field proximity of putative parents is the best criterion.

**Notes:** *Veronica hectorii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as whipcord hebes (Albach & Meudt 2010; Bayly & Kellow 2006).

### ***Veronica hectorii* subsp. *coarctata* (Cheeseman) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)**

≡ *Veronica coarctata* Cheeseman, *Man. New Zealand Fl.* 531 (1906) pro parte

≡ *Hebe coarctata* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 40 (1926)

≡ *Leonohebe coarctata* (Cheeseman) Heads, *Bot. Soc. Otago Newsl.* 5: 8 (1987)

≡ *Hebe hectorii* subsp. *coarctata* (Cheeseman) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 33 (1999)

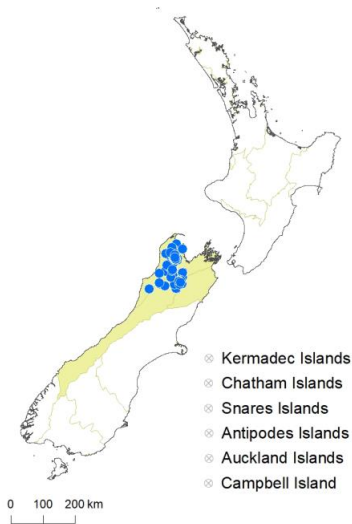
Lectotype (designated by Ashwin, in Allan 1961): Mt Arthur Plateau, Nelson, 4000 ft,

*T. F. C[h]eeseman*, Jan 1886, AK 8233

**Etymology:** *Coarctatus* means crowded, presumably a reference to the leaves.

**Vernacular name:** whipcord hebe

Leaves longer than to about as long as broad, mostly 1.2–2.0 mm, occasionally to 2.7 mm long; apex sub-acute to rounded.



**Fig. 487:** *Veronica hectorii* subsp. *coarctata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Sounds Nelson (south-western mountains), Westland (north of Mt Stevenson, Paparoa Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penalpine and alpine grassland and sub-alpine shrubland. Recorded elevations range from 900 to 1736 m.

**Cytology:**  $2n = 40$  (Bayly & Kellow 2006, as *Hebe hectorii* subsp. *coarctata*).

**Notes:** Some populations (e.g., at Cobb Ridge near Lake Peel, Nelson) appear to be sexually dimorphic, with about half the plants setting seed and these having small, empty anthers.



**Fig. 488:** *Veronica hectorii* subsp. *coarctata*. Habit. Mt Arthur, Nelson.



**Fig. 489:** *Veronica hectorii* subsp. *coarctata*. Habit. Mt Robert, Nelson.



**Fig. 490:** *Veronica hectorii* subsp. *coarctata*. Flowering branches. Mt Robert, Nelson.



**Fig. 491:** *Veronica hectorii* subsp. *coarctata*. Flowering branches. Cobb Valley, Nelson.



**Fig. 492:** *Veronica hectorii* subsp. *coarctata*. Sprig. Scale = 10 mm.



**Fig. 493:** *Veronica hectorii* subsp. *coarctata*. Branchlet. Scale = 1 mm.



**Fig. 494:** *Veronica hectorii* subsp. *coarctata*. Close-up of leaves with evident nodal joints. Scale = 1 mm.



**Fig. 495:** *Veronica hectorii* subsp. *coarctata*. Terminal inflorescence of opposite sessile bisexual flowers. Scale = 1 mm.



**Fig. 496:** *Veronica hectorii* subsp. *coarctata*. An opposite pair of female flowers, with small pale empty anthers. Scale = 1 mm.



**Fig. 497:** *Veronica hectorii* subsp. *coarctata*. Ripening capsule. Scale = 1 mm.

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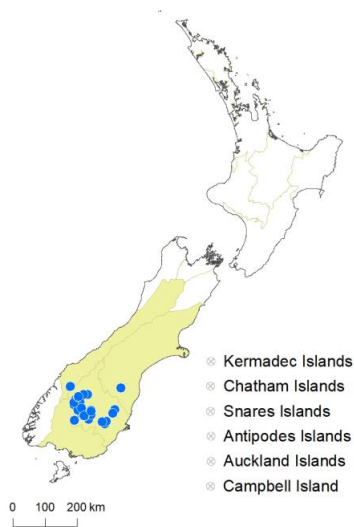
## ***Veronica hectorii* subsp. *demissa* (G.Simpson) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)**

- ≡ *Hebe demissa* G.Simpson, *Trans. Roy. Soc. New Zealand* 75: 193 (1945)
- ≡ *Hebe hectorii* var. *demissa* (G.Simpson) Ashwin in Allan, *Fl. New Zealand* 1, 931 (1961)
- ≡ *Leonohebe hectorii* var. *demissa* (G.Simpson) Heads, *Bot. Soc. Otago Newsl.* 5: 8 (1987)
- ≡ *Hebe hectorii* subsp. *demissa* (G.Simpson) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 33 (1999)  
Lectotype (designated by Ashwin, in Allan 1961): ex Rock and Pillar Range, garden grown, Dunedin, G. Simpson, flowering early Jan, Dunedin, CHR 48080 A.
- = *Hebe subulata* G.Simpson, *Trans. Roy. Soc. New Zealand* 79: 427 (1952)
- ≡ *Leonohebe subulata* (G.Simpson) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)
- ≡ *Hebe hectorii* subsp. *subulata* (G.Simpson) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 33 (1999)  
Lectotype (designated by Bayly & Kellow 2006): Old Man Range, Central Otago, Owen Fletcher, (cult), 10 Jan 1950, CHR 195571

**Etymology:** *Demissus* means low-lying or hanging, a reference to the habit.

**Vernacular name:** whipcord hebe

Leaves broader than long, mostly 1.5–2.5 mm long; apex apiculate to mucronate.



**Fig. 498:** *Veronica hectorii* subsp. *demissa* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury (south of Waitaki River only), Westland (east of the Main Divide), Otago, Southland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penialpine to alpine grassland and shrubland. Recorded elevations range from 615 to 1800 m.

**Recognition:** *V. hectorii* subsp. *demissa* plants have a short apiculus or mucro to the leaf, whereas leaves of subsp. *coarctata* and subsp. *hectorii* are sub-acute, obtuse, or rounded. The distinction is not clearcut in the southern South Island, and plants with a very short mucro can be difficult to place. The distributions of subsp. *demissa* and subsp. *hectorii* appear to overlap, but typically subsp. *demissa* has a more eastern range, whereas most populations of subsp. *hectorii* are in the west of the region. See Bayly & Kellow (2006) for details.

**Cytology:**  $2n = 40$  (Bayly & Kellow 2006, as *Hebe hectorii* subsp. *demissa*).

**Notes:** For comparison with subsp. *hectorii*, see notes under that subspecies.



**Fig. 499:** *Veronica hectorii* subsp. *demissa*.  
Habit. Garvie Mts, Otago.



**Fig. 500:** *Veronica hectorii* subsp. *demissa*. Sprig.  
Scale = 10 mm.



**Fig. 501:** *Veronica hectorii* subsp. *demissa*.  
Branchlet. Scale = 1 mm.



**Fig. 502:** *Veronica hectorii* subsp. *demissa*. Close-up of leaves with evident nodal joints.  
Scale = 1 mm.



**Fig. 503:** *Veronica hectorii* subsp. *demissa*.  
Terminal infructescence of opposite sessile capsules. Scale = 1 mm.

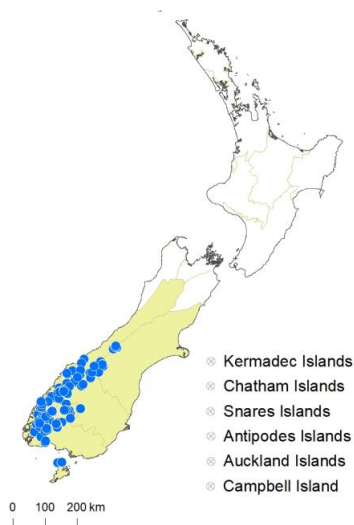
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## ***Veronica hectorii* Hook.f., *Handb. New Zealand Fl.* 212 (1864) subsp. *hectorii***

- ≡ *Hebe hectorii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 40 (1926) var. *hectorii*  
≡ *Hebe hectorii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 40 (1926) subsp. *hectorii*  
= *Veronica laingii* Cockayne, *Rep. Bot. Surv. Stewart Island* 44 (1909)  
≡ *Hebe laingii* (Cockayne) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
≡ *Leonohebe laingii* (Cockayne) Heads, *Bot. Soc. Otago Newsl.* 5: 8 (1987)  
≡ *Hebe hectorii* subsp. *laingii* (Cockayne) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 33 (1999)  
Lectotype (designated by Ashwin, in Allan 1961): near summit of Mt Anglem, Stewart Island,  
*L. Cockayne* 9157, CHR 333997. Isolectotypes: AK 107837, K, WELT 5305

**Vernacular name:** whipcord hebe

Leaves broader than long, mostly 1.7–3.1 mm, occasionally 1.2–1.7 mm long; apex obtuse to broadly rounded.



**Fig. 504:** *Veronica hectorii* subsp. *hectorii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland (south), Canterbury (in the west from Mt Cook southwards), Otago (west), Southland (west).

Stewart I. (Mt Anglem).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane to alpine grassland shrubland. Recorded elevations range from 330 to 1830 m.

**Recognition:** Leaves of *V. hectorii* subsp. *hectorii* are sub-acute, obtuse, or rounded, similar to those of the more northern subsp. *coarctata*, whereas *V. hectorii* subsp. *demissa* leaves have a short apiculus or mucro. The distinction is not clearcut in southern South Island, however, and plants with a very short mucro can be difficult to place. The distributions of subsp. *demissa* and subsp. *hectorii* appear to overlap, but typically subsp. *demissa* has a more eastern range, whereas most populations of subsp. *hectorii* are in the west of the region. See Bayly & Kellow (2006) for details.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe hectorii* subsp. *hectorii*).

**Notes:** In places, distinguishing subsp. *hectorii* from subsp. *demissa* is difficult because in some populations plants with apiculate leaves grow alongside plants with rounded leaf apices. Generally, subsp. *demissa* is eastern in the drier mountains of Otago and northern Southland, whereas subsp. *hectorii* occurs near and west of the main divide from about Aoraki / Mt Cook southwards.



**Fig. 505:** *Veronica hectorii* subsp. *hectorii*. Habit. Takitimu Mts, Southland.



**Fig. 506:** *Veronica hectorii* subsp. *hectorii*. Sprig. Scale = 10 mm.



**Fig. 507:** *Veronica hectorii* subsp. *hectorii*. Branchlet from Humboldt Mts, Otago. Scale = 1 mm.



**Fig. 508:** *Veronica hectorii* subsp. *hectorii*. Branchlet from Mt Anglem, Stewart I. Scale = 1 mm.



**Fig. 509:** *Veronica hectorii* subsp. *hectorii*. Close-up of leaves from Humboldt Mts, Otago, with evident nodal joints. Scale = 1 mm.



**Fig. 510:** *Veronica hectorii* subsp. *hectorii*. Close-up of leaves from Mt Anglem, Stewart I., with evident nodal joints. Scale = 1 mm.





**Fig. 511:** *Veronica hectorii* subsp. *hectorii*. Terminal inflorescence of opposite sessile flowers. Scale = 1 mm.



**Fig. 512:** *Veronica hectorii* subsp. *hectorii*. Terminal infructescence of opposite sessile capsules. Scale = 1 mm.

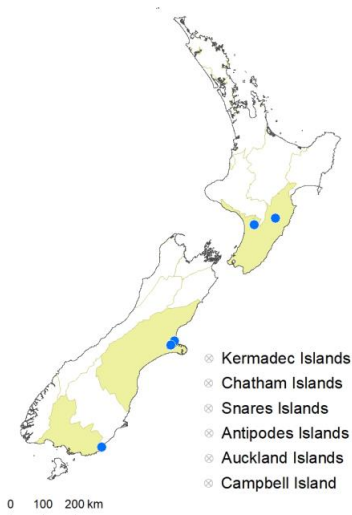
### ***Veronica hederifolia* L., Sp. Pl. 13 (1753)**

as "hederaefolia"

**Etymology:** The species epithet derives from the generic name of ivy, *Hedera*, and the Latin word for leaf, *folium*; it means ivy-leaved.

**Vernacular name:** ivy-leaved speedwell

Slender annual herb to 0.15 m tall. Stems trailing, decumbent, eglandular-pubescent; hairs bifarious. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to spreading; lamina thin, ovate to broadly ovate to more or less deltoid (lowest leaves elliptic), 8–18 mm long, 8–20 mm wide, dull green above, pale green to green beneath; veins 3–5 from base, depressed above, weakly prominent beneath; surfaces eglandular-hairy above and beneath; margin ciliate, bluntly lobed in 1–2 pairs; apex obtuse to rounded; base truncate to sub-cordate; petiole 2–10 mm long. Inflorescence a terminal raceme, sometimes resuming vegetative growth after flowering, 50–350 mm long; flowers distant, 5–20, all bisexual; bracts alternate, leaf-like; pedicels erect to sub-erect, 10–25 mm long, with mixed spreading and arcuate eglandular hairs in one row. Calyx lobes 4, acute 2.7–3.2 mm long at flowering, enlarging to 5 mm long at fruiting, sub-equal, eglandular-ciliate. Corolla 1.6–2.7 mm diameter; tube greenish-white, 0.5–0.6 mm long, < calyx, eglandular-hairy inside; lobes 4, pale blue with white base, sub-erect to erecto-patent, sub-equal, elliptic to broadly elliptic, 1.5–2.0 mm long, obtuse to rounded; nectar guides pale purple. Stamen filaments white, 0.5–0.6 mm long; anthers pale blue. Style glabrous, 0.4–0.6 mm long. Capsule angustiseptate, rounded, glabrous, 3.0–4.0 mm long, 3.0–4.5 mm at widest point. Seeds sub-orbicular, smooth with a small concave depression on funicle side, bluntly ribbed and convex on back, straw-yellow to pale brown, 2.0–2.5 mm long.



**Fig. 513:** *Veronica hederifolia* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Southern North Island (Takapau, Feilding).

South Island: Canterbury (Lincoln), Southland (Owaka).  
Indigenous to Europe.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Lawns, flower beds, arable crops, under deciduous trees, railway yards. Recorded elevations range from 10 to 200 m.

**First record:** Allan (1935, p. 8). Voucher CHR 1233, G. Reid, Owaka.

**Recognition:** *V. hederifolia* plants are soft and sprawling, with a similar growth form to *V. persica*, but plants of *V. persica* differ in their serrate leaves with teeth in 3–8 pairs, pedicels hairy all around, larger flowers 8–12 mm diameter that open widely, calyx lobes with short, antrorse hairs along margins, longer style 1.5–3.0 mm, didymous capsules wider than long, with ciliate diverging lobes, and smaller seeds. *V. hederifolia* plants have a very distinctive calyx, where the lobes are narrowly triangular with cordate bases and long, fringing hairs along the margins. The corolla is small and pale and overtopped by the calyx.

**Phenology:** Flowers: August–March; fruits: September–March.

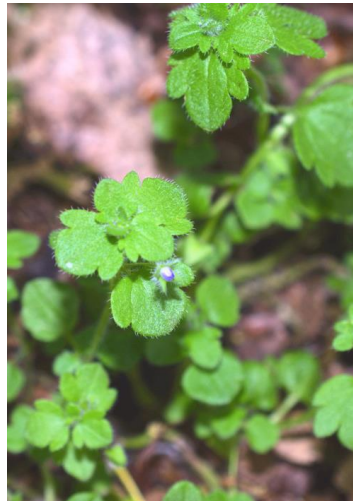
**Cytology:**  $2n = 54$  for European plants (Albach et al. 2008).

**Notes:** *Veronica hederifolia* is classified in *V.* subg. *Cochlidiosperma* (Albach et al. 2004a; Albach & Meudt 2010).

*V. hederifolia* is part of a species complex in Europe. Sykes (in Webb et al. 1988) compared New Zealand plants to both *V. hederifolia* and *V. sublobata* (as *V. hederifolia* subsp. *lucorum*). However, they are considered a good match to *V. hederifolia* s. str. (D.C. Albach, pers. comm., 2020).



**Fig. 514:** *Veronica hederifolia*. Habitat. Under oak trees in the Liffey Domain, Lincoln, Canterbury.



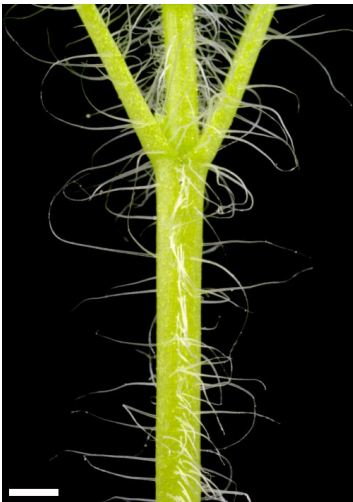
**Fig. 515:** *Veronica hederifolia*. Habit. Lincoln, Canterbury.



**Fig. 516:** *Veronica hederifolia*. Leafy branches and a flower.



**Fig. 517:** *Veronica hederifolia*. Leaf surfaces, adaxial (above) and abaxial (below). Scale = 10 mm.



**Fig. 518:** *Veronica hederifolia*. Part of stem showing arrangement of hairs. Scale = 1 mm.



**Fig. 519:** *Veronica hederifolia*. Flower. Scale = 1 mm.



**Fig. 520:** *Veronica hederifolia*. Capsule, calyx, and seeds. Scale = 1 mm.

## ***Veronica hookeri* (Buchanan) Garn.-Jones in Garnock-Jones et al., Taxon 56: 577 (2007)**

≡ *Mitrasacme hookeri* Buchanan, *Trans. & Proc. New Zealand Inst.* 14: 348 (1882)

Holotype: Herb. Buchanan, WELT [formerly housed at Otago Museum]. Isotype: Mt Alta, 5,000 ft, "given to me by Mr Buchanan as part of his type specimen of '*Mitrasacme hookeri*'", Herb. T. Kirk, WELT 13044

= *Logania ciliolata* Hook.f., *Handb. New Zealand Fl.* 737 (1867)

≡ *Veronica gilliesiana* Kirk, *Trans. New Zealand Inst.* 28: 519 (1896) nom. nov. pro *Logania ciliolata* Hook.f. 1867

≡ *Hebe ciliolata* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 39 (1926)

≡ *Hebe gilliesiana* (Kirk) J.T.Wall, *New Fl. & Silva* 11: 135 (1939)

≡ *Leonohebe ciliolata* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 5 (1987)

Lectotype (designated by Bayly & Kellow 2006): slopes above Browning's Pass, 4000-6000 ft, *Haast 95*, 1 April 1866 [assuming the date at the bottom of the label, 21 Nov 1866, is the date the specimen was received at K], K

**Etymology:** The epithet *hookeri* commemorates Joseph Dalton Hooker, author of two New Zealand Floras and director of Kew Gardens, London.

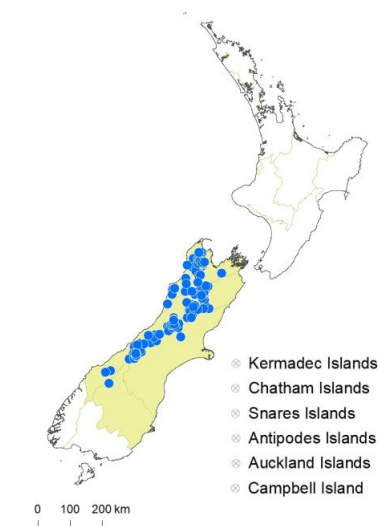
Semi-whipcord sub-shrub to 0.3 m tall. Stems decumbent, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed to erecto-patent, crowded and overlapping; lamina sub-coriaceous, narrow-oblong above a broad, triangular base, 2–6 mm long, 1–3 mm wide, dull green to dark green above and beneath; veins not evident; surfaces glabrous; margin ciliate except at apex, entire; apex swollen and rounded; bases broad; petiole absent. Inflorescence a lateral spike or raceme, 4–10 mm long; flowers crowded, 2–6, female or male on separate plants, ♂ > ♀; bracts opposite-decussate, connate, deltoid, > pedicels; pedicels erecto-patent, 0–1 mm long, glabrous or eglandular-hairy all around. Calyx lobes 4, obtuse, equal, 2.0–2.5 mm long, mixed glandular- and eglandular-ciliate, rarely eglandular-hairy on outside. Corolla 3.0–6.5 mm diameter; tube white, 1.2–2.0 (♀) or 1.6–2.3 (♂) long, ≤calyx, glabrous; lobes 4, white, sub-erect to recurved, sub-equal to unequal, broadly ovate, rhomboid, or obovate, 1.2–2.5 mm long, obtuse; nectar guides absent. Stamen filaments white, 1.5–2.5 mm long (staminodes in ♀ 0.4–1.0 mm long); anthers magenta to purple. Style glabrous, 1.5–2.7 mm long. Capsules angustiseptate, obtuse, glabrous, 3.0–4.3 mm long, 1.6–3.3 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, brown, 0.8–1.3 mm long.

**Distribution:** South Island: Western Nelson, Sounds Nelson (Richmond Range), Westland, Marlborough (western), Canterbury (western). A single record from Otago, Mt Alta, the type specimen of *Mitrasacme hookeri* Buchanan, should be treated with caution as discussed by Bayly and Kellow (2006, as *Leonohebe ciliolata*).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock outcrops and boulder-fields, often in exposed situations, in wetter mountain ranges mostly along and west of the main divide. Recorded elevations range from 793 to 2135 m.

**Recognition:** *V. hookeri* belongs to a well-supported clade of four species, the semi-whipcord hebes; the other species are *V. quadrifaria*, *V. tetrasticha*, and *V. tumida*. Semi-whipcord hebes are characterised by and distinguished from true whipcord hebes by very crowded, dull green, scale-like leaves that are long-persistent on old stems, dioecious sexual systems, and angustiseptate capsules.



**Fig. 521:** *Veronica hookeri* distribution map based on databased records at AK, CHR & WELT.

above a broad base, with a blunt, swollen tip that usually has a small, sunken hydathode. The longer leaves mean that branchlet width including the leaves is 3–8 mm, whereas in the other semi-whipcord hebes leafy branchlets are 1.3–3.5(–4.0) mm wide.

**Phenology:** Flowers: (October–)November–February(–July); fruits: January–March(–August).

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**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Leonohebe ciliolata*).

**Hybridisation:** *V. hookeri* appears to intergrade with *V. tumida* at some localities, possibly due to hybridism (Bayly & Kellow 2006).

There is also one record of *V. hookeri* × *pulvinaris* (Meudt & Bayly 2008).

**Notes:** *Veronica hookeri* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “semi-whipcord hebe” group (Albach & Meudt 2010). *V. hookeri* belongs to a well-supported clade of four species, the semi-whipcord hebes; the other species are *V. quadrifaria*, *V. tetrasticha*, and *V. tumida*. Relationships within this grouping are unclear.



**Fig. 522:** *Veronica hookeri*. Habit. Mt Arthur, Nelson.



**Fig. 523:** *Veronica hookeri*. Sprigs, male (above), female (below). Scale = 10 mm.



**Fig. 524:** *Veronica hookeri*. Apical bud (above), stem and leaves (below). Scale = 1 mm.



**Fig. 525:** *Veronica hookeri*. Male flowers. Scale = 1 mm.



**Fig. 526:** *Veronica hookeri*. Female flowers.  
Scale = 1 mm.



**Fig. 527:** *Veronica hookeri*. A stem tip with several infructescences. Scale = 1 mm.



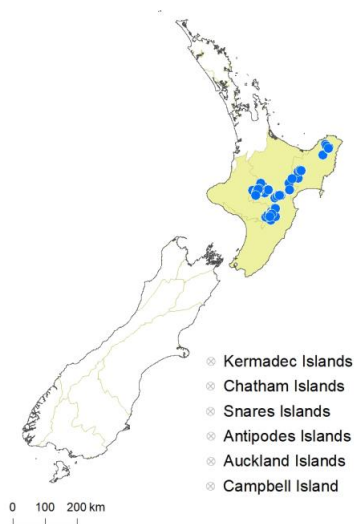
**Fig. 528:** *Veronica hookeri*. Capsule and seeds.  
Scale = 1 mm.

### ***Veronica hookeriana* Walp., *Repert. Bot. Syst. (Walpers)* 3, 341 (1844)**

- ≡ *Veronica nivea* Hook.f. in Hooker, *Icon. Pl.* 7, t. 640 (1844) nom. illeg., non *Veronica nivea* Lindl. 1842
- ≡ *Veronica nivalis* Benth. in de Candolle, *Prodr.* 10 477 (1846)
- ≡ *Hebe hookeriana* (Walp.) Allan, *Trans. Roy. Soc. New Zealand* 69: 276 (1939)
- ≡ *Parahebe hookeriana* (Walp.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)  
Holotype: K., *Bidwill*, Mt Tongariro
- = *Veronica compacta* Colenso, *Trans. & Proc. New Zealand Inst.* 20: 202 (1888)  
Holotype: WELT 5343, *Hill*, Ngauruhoe. Isotype K.
- = *Veronica olsenii* Colenso, *Trans. & Proc. New Zealand Inst.* 28: 607 (1896)
- ≡ *Hebe olsenii* (Colenso) A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 385 (1929)
- ≡ *Parahebe olsenii* (Colenso) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)
- ≡ *Parahebe hookeriana* var. *olsenii* (Colenso) Ashwin in Allan, *Fl. New Zealand* 1, 880 (1961)  
Neotype: WELT 42868, ex herbarium T. Kirk, "Veronica olsenii Col. Vol. XXVIII, p. 607"

**Etymology:** The epithet *hookeriana* commemorates Joseph Dalton Hooker, author of two New Zealand Floras and director of Kew Gardens, London.

Low sub-shrub to 0.2 m tall, sometimes a loose cushion or mat. Stems prostrate to ascending, usually eglandular-pubescent, rarely glandular as well; hairs bifarious to uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, sub-distichous on prostrate stems, erecto-patent to reflexed; lamina sub-coriaceous, ovate, elliptic, obovate, orbicular or rhomboid, rarely lanceolate or oblanceolate, 3–14 mm long, 2.5–10.0 mm wide, dull green, dark green or bronze-green above, pale beneath; midrib and rarely 2 lateral veins evident; surfaces glabrous or hairy above and sometimes also beneath with eglandular and sometimes also glandular hairs; margin glabrous or ciliate, bluntly serrate to crenate; teeth in 1–4 pairs; apex obtuse, rounded, or sub-acute; base cuneate or abruptly cuneate; petiole 1–3 mm long. Inflorescence a lateral raceme, 30–110 mm long; flowers distant, 3–15, all bisexual; bracts alternate, lanceolate to elliptic or deltoid, < pedicels; pedicels erect or erecto-patent, sometimes incurved at fruiting, 3–18 mm long, eglandular- to glandular-hairy all around. Calyx lobes 4, sub-acute to obtuse, 2–3 mm long, sub-equal, ciliate to pubescent with eglandular and often glandular hairs. Corolla 9–15 mm diameter; tube white and greenish-yellow, 1.0–1.5 mm long, < calyx, eglandular-hairy inside; lobes 4, purplish or pink, sub-erect to spreading, unequal, elliptic to obovate or orbicular, 4–7 mm long rounded or sometimes posterior lobe emarginate to divided; nectar guides magenta. Stamen filaments white or pink, 4–6 mm long; anthers purplish to pink or magenta. Style glabrous, 4.0–5.5 mm long. Capsules angustiseptate to turgid, truncate to emarginate, glabrous, 3–6 mm long, 3–5 mm at widest point. Seeds discoid to ellipsoid or obovoid, flattened, smooth, pale to dark brown, 0.8–1.5 mm long.



**Fig. 529:** *Veronica hookeriana* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Gisborne, Volcanic Plateau, Southern North Island (Raukūmara, Huiarau, Kaimanawa Mountains, Maungaharuru Range, and Ruahine Range, Maungataniwha Peak, mountains of the Volcanic Plateau), Taranaki (Ruahine Range only).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine to alpine open sites: screes, fell-fields, banks, rock outcrops. Recorded elevations range from 914 to 1750 m.

**Recognition:** Among the speedwell hebes (a group characterised by lax inflorescences, short corolla tubes, corolla nectar guides, attenuate stamen bases, turgid or weakly angustiseptate capsules and often plicate lateral corolla lobes), *V. hookeriana* plants are quite distinctive but at times can be confused with other species.

The distribution of *V. lanceolata* overlaps with that of *V. hookeriana* and the two sometimes grow together.

*V. lanceolata* plants are sometimes prostrate like *V. hookeriana*, but more often are sub-erect to erect, have corollas that are white with magenta nectar guides, sharper

teeth and apices on leaves, and usually fewer hairs on leaves and inflorescences. However, *V. hookeriana* plants with paler flowers and narrower leaves that are glabrous may be difficult to distinguish from small plants of *V. lanceolata* (e.g., on Hikurangi, Raukūmara Range).

North Island records of *V. lyallii* have been based on misidentifications of *V. hookeriana* or small plants of *V. lanceolata*. *V. lyallii* plants usually have smaller and glabrous leaves, inflorescences that have shorter, usually eglandular hairs, white flowers, and smaller seeds.

**Phenology:** Flowers: November–March; fruits: February–May, persisting all year.

**Cytology:**  $2n = 42, 84$  (Hair 1970), as *Parahebe hookeriana* var. *hookeriana* and var. *olsenii*; however, both voucher specimens are now considered to match var. *hookeriana* (Garnock-Jones & Lloyd 2004), and the Ruahine Range form named as *V. olsenii* by Colenso is still cytologically unknown.

**Hybridisation:** Plants of *V. lanceolata* in areas where it comes into contact with *V. hookeriana* are often more glandular and prostrate, with smaller leaves. This might be a result of introgression, or it could be an independent adaptation to alpine environments. In support of the latter interpretation, I note that alpine forms of *V. lanceolata* on the Tararua Range, where *V. hookeriana* is absent, also display this trend. Ashwin (in Allan 1961) noted that the population at Maungapohatu is extremely variable and suggested hybridisation with *V. lanceolata* (as *Parahebe catarractae*) is the reason.

**Notes:** *Veronica hookeriana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “speedwell hebe” group (Albach & Meudt 2010).

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There is considerable variation within the circumscription of *V. hookeriana*. Ashwin (in Allan 1961) described six regional races, as summarised in Table 9 and applied existing names to two of these, at varietal rank.

(See: Table 9)

Analyses of both nuclear and chloroplast DNA sequences place *V. hookeriana* firmly in the speedwell hebe clade but provide no well-supported hypotheses of its more immediate relationships.

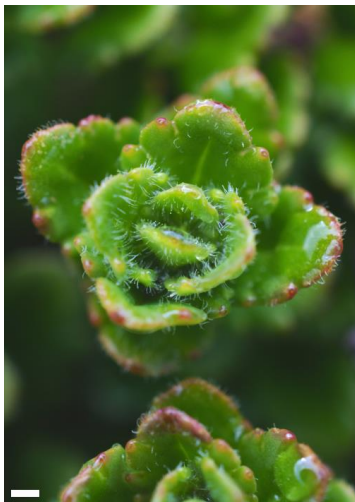
Seed dimensions of 1–3 mm long given by Garnock-Jones & Lloyd (2004) appear to be based on a measurement error.



**Fig. 530:** *Veronica hookeriana*. Habit. Red Crater, Mt Tongariro.



**Fig. 531:** *Veronica hookeriana*. Sprigs from a plant from Taraponui, Hawke's Bay, to show adaxial (above) and abaxial (below) leaf surfaces. Scale = 1 mm.



**Fig. 532:** *Veronica hookeriana*. Leaves and stem apex. Scale = 1 mm.



**Fig. 533:** *Veronica hookeriana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.





**Fig. 534:** *Veronica hookeriana*. Inflorescence to show dense glandular hairs on calyx and pedicels. Scale = 1 mm.



**Fig. 535:** *Veronica hookeriana*. Flower. Scale = 1 mm.



**Fig. 536:** *Veronica hookeriana*. Capsule. Scale = 1 mm.



**Fig. 537:** *Veronica hookeriana*. Dehiscent capsule. Scale = 1 mm.

***Veronica hulkeana* F.Muell., *Edinburgh New Philos. J.* 14: 157 (1861)**

≡ *Hebe hulkeana* (F.Muell.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 43 (1926)

≡ *Heliohebe hulkeana* (F.Muell.) Garn.-Jones, *New Zealand J. Bot.* 31: 328 (1993)

≡ *Parahebe hulkeana* (F.Muell.) Heads, *Bot. J. Linn. Soc.* 115: 82 (1994)

Lectotype (designated by Garnock-Jones 1993): MEL 1594290, *Veronica hulkei*, Melb. Bot. Gard. Jan 30th 1862

**Etymology:** Mueller named the species after Mr T.H. Hulke of New Plymouth.

Shrub to 0.7 m tall. Stems decumbent to ascending, glabrous or puberulent; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina coriaceous, lanceolate, ovate, or elliptic, 10–60 mm long, 5–35 mm wide, glossy green or dark green above, dull pale green to white or pinkish beneath; midrib evident, secondary veins weakly evident above; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous or rarely ciliolate towards apex, bluntly to sharply serrate; teeth or lobes in 5–20 pairs; apex obtuse to acute; base cuneate to truncate; petiole 5–25 mm long. Inflorescence a terminal compound raceme, 90–480 mm long; flowers crowded, 50–1500, all bisexual; bracts opposite below, becoming alternate above, ovate to deltoid, > pedicels; pedicels spreading, 0–1 mm long, glabrous or glandular- to eglandular-puberulent all around. Calyx lobes 4, obtuse to acuminate, equal, 1.5–3.0 mm long, glandular- to eglandular-ciliate. Corolla 6–10 mm diameter; tube purplish, rarely white, 1.0–1.5 mm

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long, < calyx, glabrous; lobes 4, pale purplish, rarely white, unequal, spreading, ovate to obovate, 3–5 mm long, obtuse; nectar guides absent. Stamen filaments white or pale purplish, 1.0–1.5 mm long; anthers yellow. Style glabrous or eglandular-hairy, 3.0–4.5 mm long. Capsules turgid, obtuse to emarginate, usually glabrous, sometimes eglandular-hairy, rarely glandular-hairy, 2.5–4.5 mm long, 2–3 mm at widest point. Seeds fusiform to irregular, weakly flattened, winged, smooth, or wrinkled on back, pale to dark brown, 1.0–2.4 mm long.

- 1 Young stems and petioles puberulent; smaller inflorescence branches densely puberulent or glandular-puberulent; calyx lobes usually obtuse, rarely sub-acute, closely eglandular-ciliate..... subsp. *hulkeana*  
Stems and petioles glabrous; inflorescence branches either glabrous or sparsely eglandular- or glandular-puberulent; calyx lobes acuminate or acute, distantly glandular-ciliolate or with mixed glandular and eglandular cilia..... subsp. *evestita*

**Distribution:** South Island: Marlborough (in the east from near Taylor Pass southwards), Canterbury (in the east from Mt Grey northwards).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops, cliffs, gorges, and sometimes in alluvial gravel. Recorded elevations range from 5 to 1281 m.

**Recognition:** *V. hulkeana* belongs to the distinctive sun hebe group, which is characterised by toothed or crenate leaves, terminal paniculate inflorescences, style very much > stamens, ciliate nectarial disc, and fusiform seeds. Among that informal grouping, plants of *V. hulkeana* can be distinguished by their large leaves with glossy adaxial surfaces and their very large and many-flowered panicles. *V. lavaudiana* plants have quite large leaves, but these are dull, and their inflorescences have glandular hairs.

Unidentified plants collected from the Omaka River and Black Birch Creek, Marlborough (e.g., CHR 470178) resemble *V. pentasepala* in their erect habit and narrow leaves, but are more like *V. hulkeana* in their pale lilac flowers and four free calyx lobes, and like *V. scrupea* in their four free calyx lobes and narrow leaves that are sometimes acute.

**Cytology:**  $2n = 42$  (Hair 1967, as *Hebe hulkeana*). The voucher for this record is identified as subsp. *hulkeana*.

**Notes:** *Veronica hulkeana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “sun hebe” group (Albach & Meudt 2010).

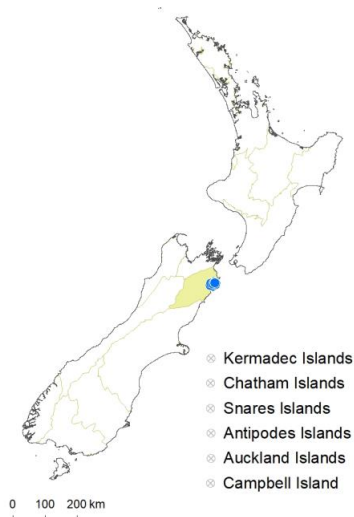
### ***Veronica hulkeana* subsp. *evestita* (Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)**

≡ *Heliohebe hulkeana* subsp. *evestita* Garn.-Jones, *New Zealand J. Bot.* 31: 331 (1993)

Holotype: Kekerengu R[iver], flowers lilac, *H. T[albot]*, 14. II. [19]64, CHR 270814 ex Talbot Herbarium

**Etymology:** The epithet *evestita* is derived from *e-*, without, and *vestita*, furnished with hairs, a reference to the sparse to absent hairs on stems compared with subsp. *hulkeana*.

Young stems glabrous or rarely sparsely glandular- and eglandular-puberulent, old stems glabrous. Leaf lamina lanceolate, rhomboid, or rarely elliptic; apex acute to apiculate, or rarely obtuse. Distal branches of inflorescence glandular-puberulent or sparsely puberulent. Pedicels glabrous or glandular-puberulent, 0–1 mm long. Calyx 2–3 mm long; lobes lanceolate, ovate, or deltoid, acuminate or acute, glandular-ciliolate or with mixed glandular and eglandular cilia. Corolla lobes glabrous.



**Fig. 538:** *Veronica hulkeana* subsp. *evestita* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (between Dunsandel Creek in the Waimā Valley and Boundary Stream near Kekerengu; inland at Whernside and Mt Ben More).

**Biostatus:** Indigenous (Endemic).

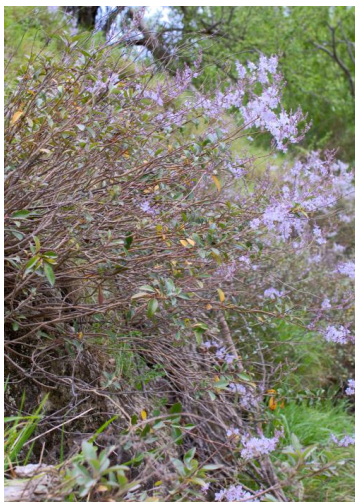
**Habitat:** River and stream gorges, cliffs and rock outcrops, mostly on limestone. Recorded elevations range from 20 to 792 m.

**Recognition:** Distinguished from subsp. *hulkeana* by sparsely puberulent or glabrous young stems and lower branches of the inflorescence. When hairs are present on inflorescence rachises they are sparse and often glandular, similarly at the base of the calyx. Calyx lobes are ovate to lanceolate to deltoid, acute to acuminate, with sparser marginal cilia that include some glandular hairs. The leaves tend to be more ovate or lanceolate, and the inflorescence is graceful, with flowers more distantly spaced than in subsp. *hulkeana*.

**Phenology:** Flowers: October–November; fruits: January–March.

**Cytology:** Chromosome number unknown.

**Notes:** *V. hulkeana* cv. Lena, with white flowers and yellow-green leaves, appears to belong to subsp. *evestita*.



**Fig. 539:** *Veronica hulkeana* subsp. *evestita*. Habit. Waima Valley, Marlborough.



**Fig. 540:** *Veronica hulkeana* subsp. *evestita*. Stem. Scale = 1 mm.



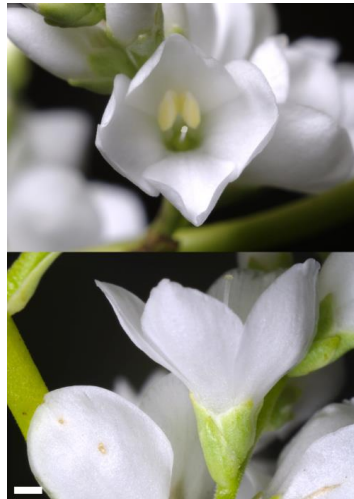
**Fig. 541:** *Veronica hulkeana* subsp. *evestita*. Leaves of a cultivated plant (cv. Lena), which has more yellowish leaves than most wild plants. Scale = 10 mm.



**Fig. 542:** *Veronica hulkeana* subsp. *evestita*. Calyx, with lobes laping to a blunt point. Scale = 1 mm.



**Fig. 543:** *Veronica hulkeana* subsp. *evestita*. Flowers, Waima Valley, Marlborough. Scale = 1 mm.



**Fig. 544:** *Veronica hulkeana* subsp. *evestita*. Flowers of a white cultivated form (cv. Lena). Scale = 1 mm.



**Fig. 545:** *Veronica hulkeana* subsp. *evestita*. Capsule. Scale = 1 mm.

***Veronica hulkeana* F.Muell., *Edinburgh New Philos. J.* 14: 157 (1861)  
subsp. *hulkeana***

≡ *Heliohebe hulkeana* (F.Muell.) Garn.-Jones, *New Zealand J. Bot.* 31: 328 (1993) subsp. *hulkeana*

= *Veronica hulkeana* var. *oblonga* Kirk, *Trans. New Zealand Inst.* 28: 518 (1896)

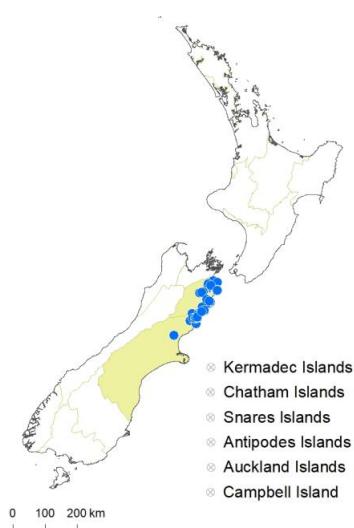
≡ *Hebe hulkeana* var. *oblonga* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 44 (1926)

Neotype: Kowhai Creek. Kaikoura, Dec 10. 1889, T. Kirk, right-hand piece, WELT 5333, ex herb. T. Kirk

= *Veronica lawtonii* Lawton, *J. Roy. Hort. Soc.* 51: 313 (1926)

Lectotype (designated by Garnock-Jones 1993): Lawton, loco cit. fig. 73

Young stems densely glandular- or eglandular-puberulent, old stems glabrous. Leaf lamina narrowly to broadly lanceolate, ovate, oblong, or elliptic; apex acute, sub-acute, obtuse, rounded, or truncate. Distal branches of inflorescence puberulent or glandular-puberulent. Pedicels eglandular-puberulent, 0–0.5 mm long. Calyx 1.5–2.5 mm long; lobes elliptic to broadly obovoid, sub-acute or obtuse, eglandular-ciliate or with mixed glandular and eglandular cilia. Corolla lobes glabrous or sparsely ciliate.



**Fig. 546:** *Veronica hulkeana* subsp. *hulkeana* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (from near Taylor Pass and Awatere Valley, Ward Beach, southwards to Seaward Kaikōura Range), Canterbury (Seaward Kaikōura Range, Oaro, Conway River, Leader River, Waiau River mouth, Mt Grey).

**Biostatus:** Indigenous (Endemic).

**Habitat:** River gorges, coastal cliffs, rock outcrops. Recorded elevations range from 5 to 1281 m.

**Recognition:** Distinguished from subsp. *evestita* by densely puberulent young stems and inflorescences and the broadly rounded eglandular-ciliate calyx lobes.

**Phenology:** Flowers: October–November; fruits: November–February.

**Cytology:**  $2n = 42$  (Hair 1967, as *Hebe hulkeana*).

**Hybridisation:** In cultivation, plants of *V. ×fairfieldii* (*V. hulkeana* × *lavaudiana*, a cultivated hybrid) are often misidentified as *V. hulkeana*; these have dull, not glossy, leaves, and larger flowers with glandular hairs on the inflorescence.



**Fig. 547:** *Veronica hulkeana* subsp. *hulkeana*. Habit. Awatere Valley, Marlborough.



**Fig. 548:** *Veronica hulkeana* subsp. *hulkeana*. Branches and terminal inflorescences. Oaro, Marlborough.



**Fig. 549:** *Veronica hulkeana* subsp. *hulkeana*. Stem. Scale = 1 mm.



**Fig. 550:** *Veronica hulkeana* subsp. *hulkeana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 551:** *Veronica hulkeana* subsp. *hulkeana*. Calyx, showing sessile flower and rounded ciliate apices of lobes. Scale = 1 mm.



**Fig. 552:** *Veronica hulkeana* subsp. *hulkeana*. Flowers. Scale = 1 mm.



**Fig. 553:** *Veronica hulkeana* subsp. *hulkeana*. Capsules. Scale = 1 mm.



**Fig. 554:** *Veronica hulkeana* subsp. *hulkeana*. Seeds. Scale = 1 mm.

***Veronica insularis* Cheeseman, *Trans. & Proc. New Zealand Inst.* 29: 392 (1897)**

≡ *Hebe insularis* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 25 (1926)

Lectotype (designated by Moore, in Allan 1961): Three Kings Islands, T. F. Cheeseman, Nov. 1889, AK 7888. Isolectotypes: AK 7890, 7889, K

**Etymology:** The epithet *insularis* means “pertaining to islands, insular” and refers to this species’ distribution on Manawatāwhi / Three Kings Is.

Low shrub to 1 m tall. Stems decumbent to erect, sometimes pendent on cliffs, eglandular-pubescent; hairs usually uniform, sometimes bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent or minute, oblong or acute. Leaves opposite-decussate, sometimes sub-distichous, erecto-patent to spreading or recurved; lamina fleshy to coriaceous, elliptic to slightly obovate, 7–33 mm long, 3–14 mm wide, dull, green to glaucous or glaucescent above, green beneath; midrib evident; surfaces usually glabrous or with scattered eglandular hairs along midrib beneath or on both sides, margin glabrous or sparsely eglandular-ciliolate to -ciliate, entire; apex acute to obtuse, weakly plicate-acuminate; base cuneate; petiole 1.0–1.5 mm long. Inflorescence a lateral ternate to compound raceme, 22–40 mm long, rarely to 90 mm; flowers crowded, 7–46, all bisexual; bracts opposite-decussate below, becoming alternate above, narrowly deltoid to ovate, usually <, sometimes ≥ pedicels; pedicels erecto-patent to spreading, 0.5–5.5 mm long, eglandular-hairy all around. Calyx lobes 4, free or anterior pair fused up to 2/3 way, usually acute, sometimes obtuse, 1.5–2.5 mm long, sub-equal, eglandular-ciliate, sometimes very sparsely, rarely with a few glandular cilia as well. Corolla 7–10 mm diameter; tube white, 3–4 mm long, > calyx, glabrous; lobes 4, white or pale purplish, erecto-patent to recurved, sub-equal, ovate to elliptic, 3.5–5.0 mm long, obtuse; nectar guides absent. Stamen filaments white, 4.8–6.5 mm long; anthers magenta. Style glabrous, 3.5–7.2 mm long. Capsules latiseptate, sub-acute or obtuse, glabrous, 2.5–4.5 mm long, 2.0–3.5 mm at widest point. Seeds ellipsoid, flattened, finely papillate, pale brown, 1.0–1.2 mm long.

**Distribution:** Manawatāwhi / Three Kings Is. (Great, West, South West, and North East Is.).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops and cliffs, especially near the coast. Recorded elevations range from 5 to 207 m.

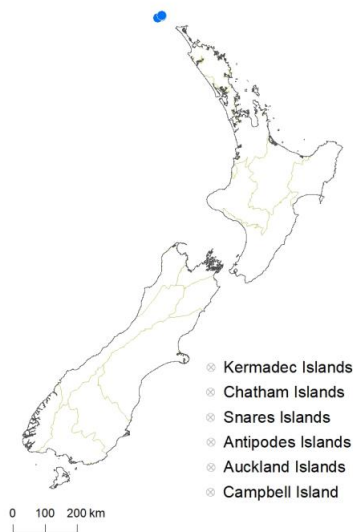
**Recognition:** *Veronica insularis* is a distinctive species, and it is the only *Veronica* indigenous to the Manawatāwhi / Three Kings Is. The very narrow or absent sinus is unique among species with branching inflorescences (Moore in Allan 1961), and other unusual characteristics include leathery, dull, elliptic, and often glaucous or glaucescent leaves; short, broad, ovate, acute, ciliate calyx lobes; branched inflorescences; slightly larger flowers than similar species; corolla lobes broad and rounded; and seeds finely papillate. Distinctive fine, tapering, stiff, eglandular hairs are dense on stems and inflorescences, but usually sparse on many leaves, especially on the margins and sometimes also the midribs, and on calyx lobe margins. The calyx lobes of *V. insularis* are almost entirely eglandular ciliate, sometimes sparsely so, but occasionally have a few glandular hairs mixed with the predominant eglandular ones, whereas in most hebes eglandular and glandular hairs are

equally mixed.

**Phenology:** Flowers: November–February; fruits: December–March (persisting to August).

**Cytology:** 2n = 40 (see Bayly & Kellow 2006, as *Hebe insularis*).

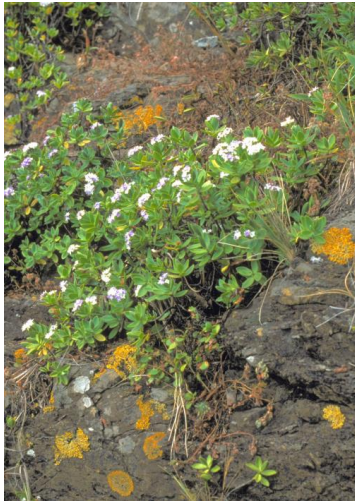
**Notes:** *Veronica insularis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). The pubescence and growth form are similar to some of the species on the Chatham Is., but ITS sequence data and inflorescence structure do not support a close relationship between them. Rather, *V. insularis* might belong to a grouping of species characterised by small, glaucous leaves, many of which also share leaf bud sinuses and compound racemes, such as *V. scopulorum* and *V. colensoi*.



**Fig. 555:** *Veronica insularis* distribution map based on databased records at AK, CHR & WELT.

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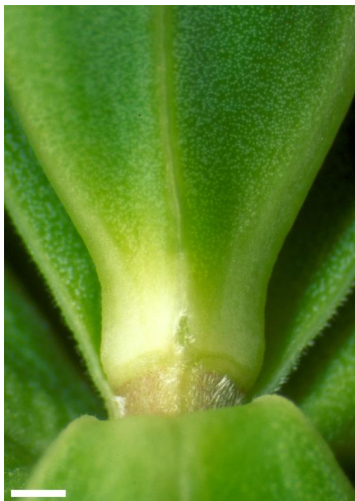
Hairiness is variable. Stems usually have uniform dense hairs, but occasionally they are bifarious; leaves are sometimes glabrous, but often have scattered, fine, eglandular cilia along the margins, the midrib beneath, and occasionally above.



**Fig. 556:** *Veronica insularis*. Habit. Manawatāwhi / Great I., Manawatāwhi / Three Kings Is.



**Fig. 557:** *Veronica insularis*. Sprig. Scale = 10 mm.



**Fig. 558:** *Veronica insularis*. Leaf bud with small sinus. Scale = 1 mm.



**Fig. 559:** *Veronica insularis*. Leaf bud with no sinus. Scale = 1 mm.





**Fig. 560:** *Veronica insularis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 561:** *Veronica insularis*. Shoots and inflorescences. Scale = 10 mm.



**Fig. 562:** *Veronica insularis*. Flowers. Scale = 1 mm.



**Fig. 563:** *Veronica insularis*. Infructescence. Scale = 1 mm.

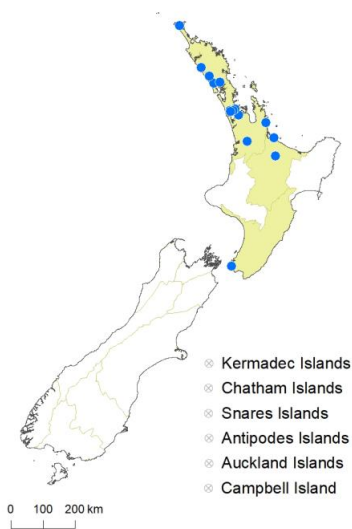


**Fig. 564:** *Veronica insularis*. Capsules. Scale = 1 mm.

## *Veronica javanica* Blume, *Bijdr. Fl. Ned. Ind.* 742 (1826)

**Etymology:** The epithet *javanica* means of Java, the locality of the type specimen.

Annual herb to 0.35 m tall. Stems decumbent to erect, eglandular-pubescent; hairs uniform or weakly bifarious. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, usually deltoid or sometimes ovate, 4–45 mm long, 3–35 mm wide, dull green above, pale green beneath; veins 3–5 from base; surfaces with scattered short, tapering hairs, more dense along veins beneath; margin ciliate, often sparsely, serrate to crenate-serrate; teeth in 4–16 pairs; apex acute or sub-acute, rarely obtuse; base truncate to sub-cordate; petiole 2–10 mm long, the upper shorter than the lower ones. Inflorescence a lateral raceme, but very short and appearing like a sessile flower or small cluster at flowering, elongating to 50–175 mm long at fruiting; flowers crowded, 5–20, all bisexual; bracts alternate, linear to oblanceolate, > pedicels; pedicels erect to erecto-patent, 0.5–1.0 mm long, eglandular-hairy all around. Calyx lobes 4, sub-acute to acute, 1.2–1.5 mm long at flowering, expanding to 2.5–3.5 mm long at fruiting, equal to sub-equal, eglandular-hairy. Corolla 1.3–1.5 mm diameter; tube white, 0.3–0.4 mm long, < calyx, glabrous; lobes 4, white to pale purplish or pink, erect and not opening, unequal, elliptic to ovate, 0.8–1.2 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 0.3–0.4 mm long; anthers white or cream. Style glabrous, 0.2–0.3 mm long. Capsules angustiseptate, broadly obcordate, eglandular-ciliate, 2.2–2.8 mm long, 3.0–4.5 mm at widest point. Seeds ellipsoid, flattened, smooth, straw-yellow, 0.6–0.7 mm long.



**Fig. 565:** *Veronica javanica* distribution map based on databased records at AK, CHR & WELT.

they are dull and more greyish-green, with blunter teeth, their flowers are large and blue, and open fully, inflorescences elongate before flowers open on pedicels that are longer than the bracts at flowering, and they have much longer stamen filaments and styles. In New Zealand, *V. chamaedrys* plants do not set fruit.

*V. arvensis* plants have small flowers, but these are deep blue, rarely white, and open fully, except in cold weather. *V. peregrina* plants have small, white flowers that often do not open, but all their parts are glabrous.

The leaves and growth form of small plants of *Stachys arvensis* can closely resemble *V. javanica* plants, but their flowers are larger, with a five-toothed tubular calyx, longer (6–7 mm) corolla tubes, and a two-lipped, five-lobed corolla limb. *Stachys* fruits are small nutlets, and the flowers are held in cymose axillary clusters.

**Phenology:** Flowers: all year; fruits: September–June, probably persisting all year.

**Cytology:**  $2n = 16$  based on overseas records (Albach et al. 2008).

**Notes:** The phylogenetic position of *V. javanica* is uncertain and so far it has not been assigned to a subgenus in the new classification of Albach et al. (2004a) and Albach & Meudt (2010).

*V. javanica* appears to have been introduced to New Zealand with tropical produce, perhaps either in pineapple imports or in imported materials used in potting mixes (Popay et al. 2008).

**Distribution:** North Island: Northland, Auckland (as far south as about Hamilton), Taranaki (Lake Mangamahoe), Wellington (Otari). Chatham Is. *V. javanica* is widespread in the tropics of Africa, Asia, and America. It is probably still expanding its range in New Zealand.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Gardens and waste land, often associated with revegetation and new plantings from plant nurseries. Recorded elevations range from 2 to 300 m.

**First record:** Wellington City Council (2007). Voucher WELT SP86054, P.J. Garnock-Jones 2621, Otari, Wellington.

**Recognition:** *Veronica javanica* is very distinctive. The plants have deltoid, toothed, bright green leaves, but their most diagnostic features are the tiny cleistogamous flowers, which look like small, pale scales among the apical leaves, and the way the lateral inflorescence is compact and clustered at flowering but elongates at fruiting. The broad capsules are obcordate with straight sides in the lower half and a distinctly notched apex with rounded ciliate lobes and a very short, persistent style. *V. chamaedrys* plants have similar leaves, but

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*V. javanica* capsules have thin walls and open quickly when wet (Pufal et al. 2010).



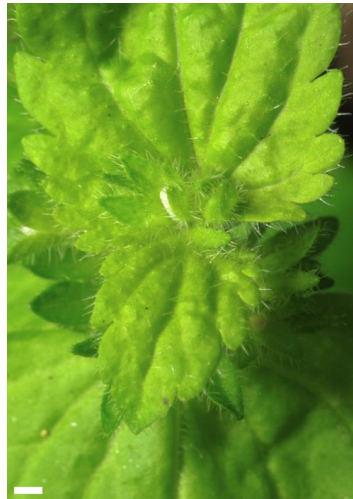
**Fig. 566:** *Veronica javanica*. Habit. Cultivated plant originally from Auckland.



**Fig. 567:** *Veronica javanica*. Sprig, showing how the inflorescence is compact at flowering and elongates at fruiting. Scale = 10 mm.



**Fig. 568:** *Veronica javanica*. Stem. Scale = 1 mm.



**Fig. 569:** *Veronica javanica*. Stem apex and cleistogamous flower. Scale = 1 mm.



**Fig. 570:** *Veronica javanica*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



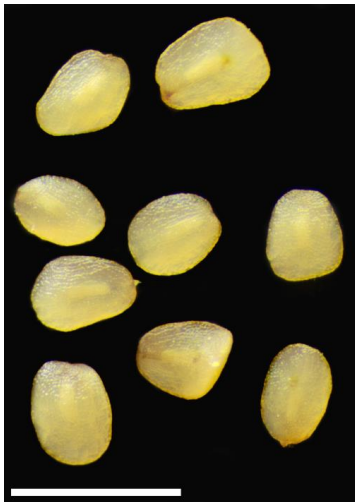
**Fig. 571:** *Veronica javanica*. Flowers, the upper one with bract visible as well. Scale = 1 mm.



**Fig. 572:** *Veronica javanica*. Infructescence, showing elongation of axis after flowering. Scale = 1 mm.



**Fig. 573:** *Veronica javanica*. Calyces and ripening capsules, the right-hand calyx with 2 lobes removed. Scale = 1 mm.



**Fig. 574:** *Veronica javanica*. Seeds. Scale = 1 mm.

***Veronica jovellanoides* Garn.-Jones & de Lange in Davidson et al.,  
*New Zealand J. Bot.* 47: 271 (2009)**

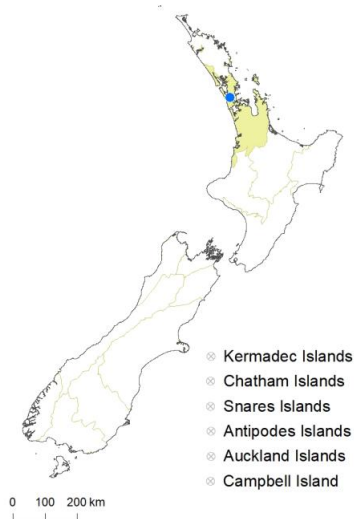
≡ *Parahebe jovellanoides* (Garn.-Jones & de Lange) de Lange in de Lange et al., *Threat. Pl. New Zealand* 439 (2010)

Holotype: New Zealand, North Island, Auckland Ecological Region, Rodney Ecological District, Waimauku, behind 215 Ararimu Valley Road (Westbrook Winery), Ernest Morgan Reserve. *P. J. de Lange 7534, G. R. Davidson, R. O. Gardner, & M. E. Young*, 9 Nov 2008, AK 304567. Isotypes: CHR 553825, WELT.

**Etymology:** The epithet *jovellanoides* refers to its similarity to *Jovellana repens* (Calceolariaceae).

Perennial herb to 0.05 m tall. Stems creeping to ascending at tips, eglandular-pubescent; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate but sub-distichous on prostrate stems, spreading; lamina thin, orbicular to deltoid or spatulate, 3.5–11.0 mm long, 4.5–12.0 mm wide, dull green above, pale green or pinkish beneath; veins several from base, weakly evident especially beneath; surfaces eglandular-hairy above and usually beneath, especially near veins; margin ciliate, deeply crenate or serrate; teeth in 3–5 pairs; apex obtuse to rounded; base truncate to sub-cordate; petiole 2–10 mm long. Inflorescence a lateral raceme, 40–80 mm long; flowers distant, 2–7, all bisexual; bracts alternate, linear to oblanceolate, < pedicels; pedicels spreading to ascending, 7–12 mm long, glandular- and eglandular-hairy all around. Calyx lobes 4,

sub-acute to acute, 3.0–5.5 mm long, equal, glandular- and eglandular-hairy on margins and abaxially. Corolla 10–12 mm diameter; tube white and yellow, c. 1 mm long, < calyx, glabrous; lobes 4, white, spreading, unequal, elliptic to orbicular, 4.5–5.5 mm long, rounded; nectar guides magenta. Stamen filaments white, 4.0–4.5 mm long; anthers pink. Style glabrous, 3.5–4.0 mm long. Capsules angustiseptate, emarginate, glabrous, 3.2–6.0 mm long, 3.5–5.5 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown, 1.2–1.8 mm long.



**Fig. 575:** *Veronica jovellanoides* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (known only from three wild plants at Ernest Morgan Reserve, Ararimu Valley Road, near Waimauku).

**Biostatus:** Indigenous (Endemic).

**Habitat:** The only known habitat is floor of riparian *Kunzea* forest (Davidson et al. 2009). The recorded elevation is 35 m.

**Recognition:** *Veronica jovellanoides* is very distinctive, although it shares character states with several other species. *V. jovellanoides* flowers have short corolla tubes and prominent nectar guides like many in the speedwell hebe group, but they lack the plicate lateral lobes characteristic of *V. lanceolata*, *V. hookeriana*, and many South Island species. Plants of *V. lilliputiana*, also in the speedwell hebe group, are also creeping herbs, but they have tiny entire leaves and solitary blue flowers. *V. linifolia* plants have similar flowers to *V. jovellanoides*, but their narrow, glossy green, glabrous, entire leaves are diagnostic. The crenately lobed or bluntly serrate petiolate hairy leaves of *V. jovellanoides* are similar to those of *V. spathulata*, but that species has opposite flowers with a longer corolla tube and no nectar guides; its antrorse eglandular inflorescence hairs and hairy capsules also

distinguish it.

The creeping herbaceous growth, coarsely toothed or crenate leaves, short-tubed corolla, and angustiseptate capsules are all features that make *V. jovellanoides* seem similar to a number of introduced species of *Veronica*, such as *V. filiformis*, *V. persica*, and *V. hederifolia*. Those species differ from *V. jovellanoides* in their blue flowers that are solitary in leaf axils.

Finally, *V. plebeia* and *V. calycina* plants share character states with *V. jovellanoides*, but differ most obviously in their blue flowers and only eglandular hairs on the inflorescences.

**Phenology:** Flowers: October–December; fruits: December–February.

**Cytology:**  $2n = 40$  (B.G. Murray in Davidson et al. 2009; Murray & de Lange 2013).

**Notes:** *Veronica jovellanoides* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* (Albach & Meudt 2010). Molecular phylogenetic research places *V. jovellanoides* in an unresolved position at the base of the speedwell hebe clade. This is consistent with its morphology.



**Fig. 576:** *Veronica jovellanoides*. Habit. Cultivated plant from near Waimauku, Auckland.



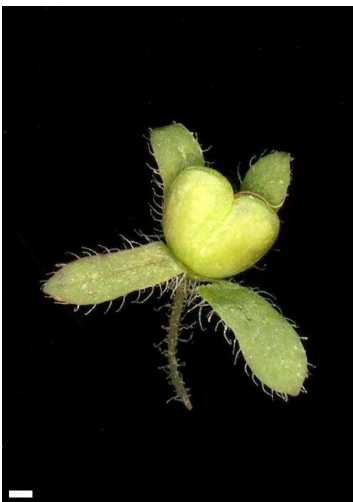
**Fig. 577:** *Veronica jovellanoides*. Sprig and inflorescence. Scale = 1 mm.



**Fig. 578:** *Veronica jovellanoides*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 579:** *Veronica jovellanoides*. Flower. Scale = 1 mm.



**Fig. 580:** *Veronica jovellanoides*. Capsule and calyx. Scale = 1 mm.



**Fig. 581:** *Veronica jovellanoides*. Seeds. Scale = 1 mm.

## *Veronica kellowiae* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)

nom. nov. pro *Hebe ramosissima* G.Simpson & J.S.Thomson 1942

≡ *Hebe ramosissima* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 72: 29 (1942)

≡ *Leonohebe ramosissima* (G.Simpson & J.S.Thomson) Heads, *Bot. Soc. Otago Newsl.* 5: 7 (1987)

Lectotype (designated by Moore, in Allan 1961): Mount Tapuaenuku, moist debris at 2150 m alt., G. Simpson, CHR 75691. Isolectotype: AK 107861

**Etymology:** The epithet *kellowiae* honours Alison Valerie Kellow, who revised the taxonomy of the “Connatae” to which the species belongs and was co-author of the 2006 revision of the shrubby hebes (Bayly & Kellow 2006).

Sub-shrub or spreading low shrub to 0.15 m tall. Stems decumbent, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, diverging. Leaves opposite-decussate to sub-distichous, connate in pairs and encircling stem, erecto-patent when young, becoming spreading to recurved; lamina coriaceous, narrowly obovate, sometimes elliptic to obovate to rhomboid, 3.3–9.5 mm long, 1.5–5.5 mm wide, dull to somewhat glossy, green to dark green above, green beneath; midrib obscure, slightly thickened beneath; surfaces glabrous; margin glabrous or sparsely glandular- and eglandular-ciliate, especially at base and petiole, entire; apex acute to rounded; base cuneate; petiole indistinct, 0.5–1.5 mm long. Inflorescence a terminal compound spike, 8–20 mm long; flowers crowded, 6–20 per inflorescence in terminal and 0–4 lateral spikes, female or bisexual on separate plants, ♀ > ♂; bracts opposite-decussate and connate or free below, the lowermost sometimes sterile, becoming alternate above, elliptic, ovate, or oblong, < calyx; pedicels absent. Calyx lobes 4, sub-acute to obtuse, 2.0–3.5 mm long, unequal, with mixed, very short eglandular and minute glandular cilia. Corolla 3–6 mm diameter; tube white, 2.8–3.5 mm long, < calyx, glabrous; lobes 4, white, sub-erect to recurved, sub-equal, ovate, orbicular, or rhomboid, 3–4 mm long, obtuse; nectar guides absent. Stamen filaments white, 0.5–1.0 mm long; anthers magenta. Style glabrous, 2–4 mm long. Capsules latiseptate, acute, glabrous, 3.7–4.0 mm long, 1.8–3.0 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown, 0.7–0.8 mm long.

**Distribution:** South Island: Marlborough (Inland Kaikōura Range); Canterbury (Seaward Kaikōura Range, Mt Terako).

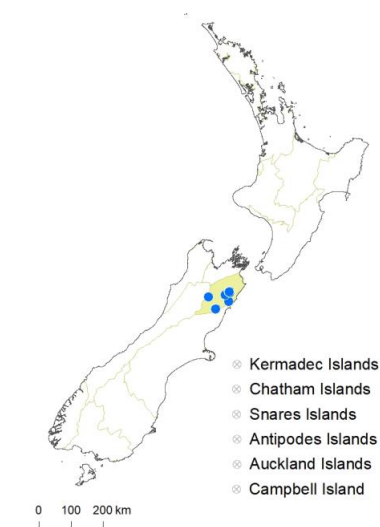
**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rocks and scree, often in moist places. Recorded elevations range from 1200 to 2652 m.

**Recognition:** *V. kellowiae* plants are most similar to *V. macrocalyx* in growth form, leaf shape and overall appearance, but *V. macrocalyx* plants differ in having usually more spikes (up to 12) per inflorescence, and usually a longer calyx that exceeds the corolla tube. The few-flowered inflorescences also distinguish *V. kellowiae* from other “Connatae”. *V. petriei* plants also seem similar in their growth form and long corolla tubes, but differ in having leaves minutely puberulent on the adaxial surface near the base, spiralled bracts, many of them sterile at the base of the inflorescence, stalked flowers, and a longer calyx and corolla.

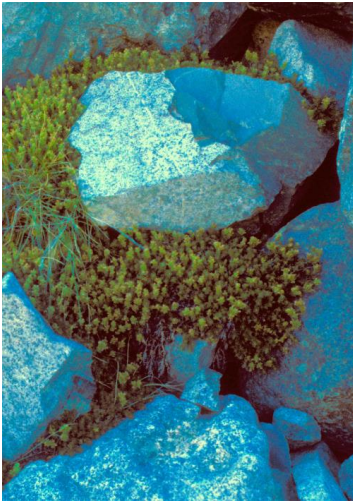
**Phenology:** Flowers: December–February; fruits: December–March.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe ramosissima*).



**Fig. 582:** *Veronica kellowiae* distribution map based on databased records at AK, CHR & WELT.

**Notes:** *Veronica kellowiae* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006), related to *V. epacridea*, *V. haastii*, and *V. macrocalyx*, according to phylogenetic analyses of ITS sequence data (Wagstaff et al. 2002).



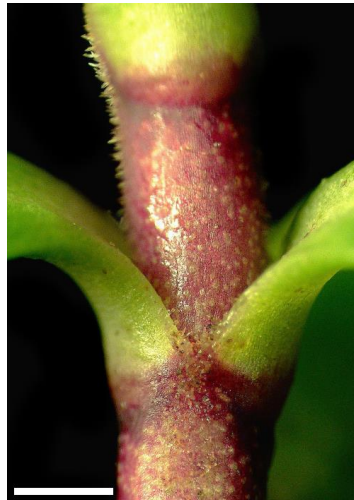
**Fig. 583:** *Veronica kellowiae*. Habit. Staircase Stream, Inland Kaikōura Range, Marlborough.



**Fig. 584:** *Veronica kellowiae*. Sprig. Scale = 10 mm.



**Fig. 585:** *Veronica kellowiae*. Top view of shoot apex showing indistinct leaf bud. Scale = 1 mm.



**Fig. 586:** *Veronica kellowiae*. Stem and very shortly connate leaf bases. Scale = 1 mm.



**Fig. 587:** *Veronica kellowiae*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 588:** *Veronica kellowiae*. Flowering shoot showing pedunculate inflorescences. Scale = 1 mm.

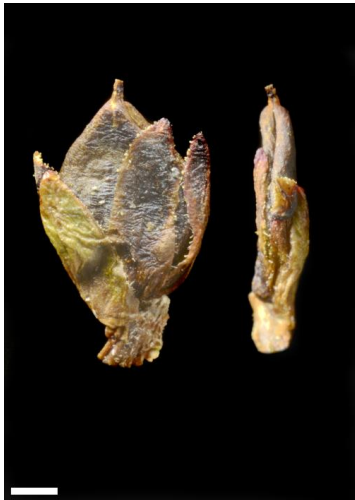




**Fig. 589:** *Veronica kellowiae*. Inflorescence showing sessile opposite flowers. Scale = 1 mm.



**Fig. 590:** *Veronica kellowiae*. Bisexual flowers. Scale = 1 mm.



**Fig. 591:** *Veronica kellowiae*. Capsule. Scale = 1 mm.

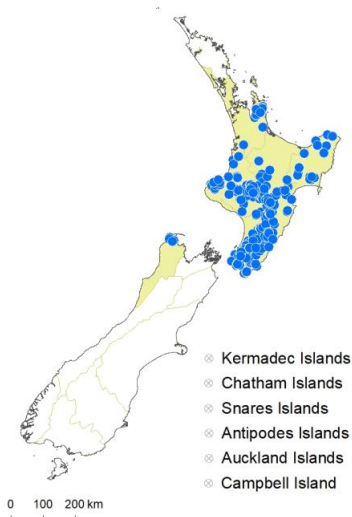
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***Veronica lanceolata* Benth. in de Candolle, *Prodr.* 10 462 (1846)**

- ≡ *Veronica catarractae* var. *lanceolata* (Benth.) Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I*, 195 (1853)
- ≡ *Parahebe catarractae* subsp. *lanceolata* (Benth.) Garn.-Jones in Garnock-Jones & Langer, *New Zealand J. Bot.* 18: 294 (1980)
- ≡ *Parahebe lanceolata* (Benth.) Garn.-Jones in Garnock-Jones & Lloyd, *New Zealand J. Bot.* 42: 203 (2004)  
Lectotype (designated by Garnock-Jones & Langer 1980): N. Zealand, Ms of the interior, *Dieffenbach*, K (sheet bearing two stems)
- = *Veronica diffusa* Hook.f. in Hooker, *Icon. Pl.* 7, t. 645 (1844) nom. illeg., non *Veronica diffusa* Raf. 1838
- ≡ *Veronica catarractae* var. *diffusa* Hook.f., *Handb. New Zealand Fl.* 216 (1864) nom. nov. pro *Veronica diffusa* Hook.f. 1844
- ≡ *Parahebe diffusa* (Hook.f.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)
- ≡ *Parahebe catarractae* subsp. *diffusa* (Hook.f.) Garn.-Jones, *New Zealand J. Bot.* 18: 292 (1980)  
Holotype: K, On Tongariro, Bidwill
- = *Veronica lanceolata* var. *angustifolia* Benth. in de Candolle, *Prodr.* 10 463 (1846)  
Lectotype (designated by Garnock-Jones & Langer 1980): New Zealand, Ms of the interior, *Dieffenbach*, the sheet bearing one small-leaved specimen, K
- = *Veronica irrigans* Kirk, *Trans. New Zealand Inst.* 2: 94 (1870)  
Lectotype (designated by Garnock-Jones & Langer 1980): Thames Gold Fields, *T. Kirk*, WELT 41535

**Etymology:** The epithet *lanceolata* is a reference to the leaf shape of the type specimen, which is a common leaf shape in this species.

Sub-shrub to 0.45 m tall. Stems prostrate to erect, eglandular-pubescent or glabrous; hairs bifarious, rarely uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, or sub-distichous on prostrate stems, erecto-patent to spreading or recurved; lamina sub-coriaceous or coriaceous, linear, lanceolate, ovate, elliptic, orbicular, rhomboid, or deltoid, rarely obovate or oblanceolate, 5–100 mm long, 1.5–25.0 mm wide, dull or glossy pale to dark green above, dull pale green or green or pinkish beneath; midrib and sometimes secondary veins evident; surfaces glabrous, sometimes with eglandular hairs along midrib above; margins glabrous, serrate; teeth in 1–15 pairs; apex sub-acute to acuminate, rarely obtuse; base cuneate, truncate, or sub-cordate; petiole 1–6 mm long. Inflorescence a lateral raceme, 30–350 mm long; flowers distant, 4–30, all bisexual; bracts alternate, linear, lanceolate, elliptic, ovate, or narrowly deltoid, < pedicels; pedicels erecto-patent, incurved at fruiting, 5–25 mm long, eglandular-hairy all around, rarely glabrous or glandular-hairy. Calyx lobes 4, obtuse to acuminate, 2–4 mm long, sub-equal, glandular- and/or eglandular-ciliate, occasionally pubescent on abaxial surfaces. Corolla 8–15 mm diameter; tube white and yellow, 0.5–1.5 mm long, < calyx, eglandular-hairy inside; lobes white, usually 4 or rarely 5 by division of posterior lobe, erecto-patent to spreading, unequal, narrowly oblong or elliptic to orbicular, 3.5–8.0 mm long, rounded, sometimes posterior emarginate; nectar guides magenta. Stamen filaments white, 2–4 mm long; anthers pink or magenta. Style glabrous, 3.5–7.0 mm long. Capsules angustiseptate to turgid, emarginate, glabrous, 2.5–4.5 mm long, 2.5–4.0 mm at widest point. Seeds discoid to obovoid, flattened, smooth, straw-yellow to brown, 0.5–1.1 mm long.



**Fig. 592:** *Veronica lanceolata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Coromandel Peninsula, Pirongia), Taranaki from Herangi Range to Kaitake Range), Gisborne, Volcanic Plateau, Southern North Island.

South Island: Western Nelson (Wakamarama Range only).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops, especially on stream and river banks, rooted in silt in crevices, also on cliffs, ledges, and screes. Recorded elevations range from 10 to 1708 m.

**Recognition:** *V. lanceolata* is a highly variable species, and some of the regional variants can be hard to distinguish from other species in the speedwell hebe group.

Large plants with coarsely toothed leaves may resemble *V. catarractae*, but that species is endemic to Fiordland and can be distinguished by its white leaf undersides and pedicel hairs in a single row.

Smaller low-growing plants with broader leaves can resemble *V. melanocaulon*, which is endemic to Marlborough and can be distinguished by usually obovate or oblanceolate leaves, usually glabrous or sometimes glandular inflorescences, and very dark purplish-black stems that contrast with the pale

green petioles.

Small plants with short, broad leaves may resemble *V. lyallii*, but *V. lyallii* plants have shorter inflorescences, more rounded leaf teeth, and markedly arcuate, antrorse stem hairs; sometimes their flowers lack nectar guides and their leaves can be bronze-green. *V. lyallii* is confined to the South Island.

**Phenology:** Flowers: November–March; fruits: January–May, and old fruits present year round.

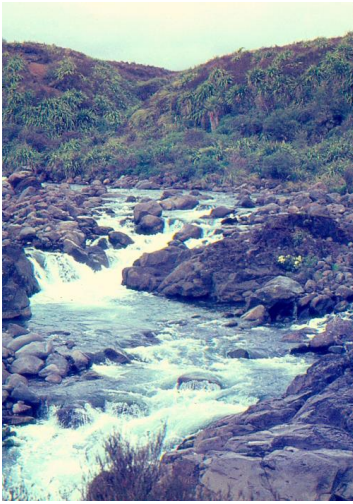
**Cytology:**  $2n = 42$  (Garnock-Jones & Langer 1980, as *Parahebe catarractae*). Hair reported the same number (as *Parahebe catarractae*) from a cultivated plant of unknown origin and a plant from Mt Ruapehu that I have identified as *V. hookeriana* × *lanceolata*.

**Hybridisation:** Garnock-Jones & Lloyd (2004) considered that plants with broad leaves and densely glandular inflorescences from mountains of the Volcanic Plateau might be the result of introgression with *V. hookeriana*. Similarly, plants on Mt Hikurangi and the Maungaharuru Range appear to intergrade with local forms of *V. hookeriana* to some extent.

**Notes:** *Veronica lanceolata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* (Albach & Meudt 2010). Molecular phylogenetics (Albach & Meudt 2010) placed *V. lanceolata* firmly within the speedwell hebe clade, along with other species of *Veronica* that are characterised by lax inflorescences, short corolla tubes, nectar guides, plicate lateral corolla lobes, attenuate stamen filament bases, and turgid capsules, but the internal relationships within that clade are not clearly established.

Garnock-Jones & Lloyd (2004) described nine regional races in detail. These were not treated formally as subspecies or varieties because they are not clear-cut, tend to vary within and among populations, and overlap with each other in their morphological features.

(See: Table 10)



**Fig. 593:** *Veronica lanceolata*. Habitat. Whakapapaitei Stream, central North Island.



**Fig. 594:** *Veronica lanceolata*. Habit. Upper Hutt, Wellington.



**Fig. 595:** *Veronica lanceolata*. Stem. Scale = 1 mm.



**Fig. 596:** *Veronica lanceolata*. Leaves, from Maungaharuru Range, Hawke's Bay, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 597:** *Veronica lanceolata*. Leaves, from Upper Hutt, Wellington, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 598:** *Veronica lanceolata*. Flowers, from Maungaharuru Range. Scale = 1mm.



**Fig. 599:** *Veronica lanceolata*. Capsules.  
Scale = 1 mm.

### ***Veronica lavaudiana* Raoul, *Choix Pl. Nouv.-Zél.* p. 16, t. 10 (1846)**

≡ *Hebe lavaudiana* (Raoul) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 44 (1926)

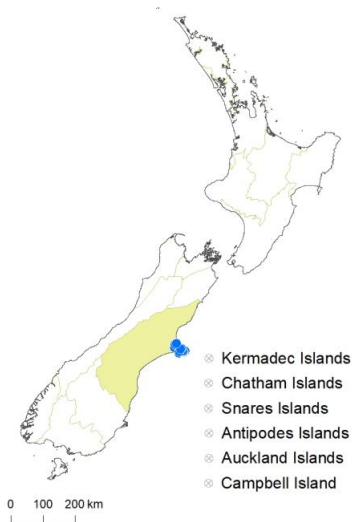
≡ *Parahebe lavaudiana* (Raoul) Heads, *Bot. J. Linn. Soc.* 115: 83 (1994)

≡ *Heliohebe lavaudiana* (Raoul) Garn.-Jones, *New Zealand J. Bot.* 34: 427 (1996)

Lectotype (designated by Garnock-Jones 1993): Nouvelle Zelande-Presqu'île de Banks, Raoul, 1843, top left-hand piece on the sheet, this piece is recognisable as the left-hand branch of the piece illustrated in the protologue, P. Isolectotypes: K, MEL 1595921

**Etymology:** "I have dedicated this pretty species to Monsieur Lavaud, Captain of the vessel, as a token of recognition for all the facilities and the friendly support which he has kindly consented to accord me in my scientific researches in New Zealand" (Raoul 1846, translated).

Low shrub to 0.3 m tall. Stems prostrate to ascending, eglandular-pubescent, or sometimes glandular as well; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, spreading to recurved, separating early, coriaceous, obovate to orbicular, 7–30 mm long, 6–17 mm wide, dull dark green to glaucescent above, paler beneath; midrib evident, glabrous; margin glabrous, or glandular- and eglandular-ciliate, crenate or crenate-serrate with 6–10 pairs of teeth; apex obtuse to truncate, sometimes apiculate; base cuneate; petiole 2–8 mm long. Inflorescence a terminal compound spike, 20–150 mm long; flowers crowded, 50–150 per inflorescence, all bisexual; bracts alternate, the lowest opposite, deltoid to narrowly deltoid, = calyx; pedicels absent. Calyx lobes 5, acuminate, equal, 4–5 mm long, sometimes the anterior pair fused  $\frac{2}{3}$  of length, glandular-ciliate. Corolla 11–13 mm diameter; tube white with greenish-yellow base, 1.5–2.0 mm long, < calyx, glabrous; lobes 4, white or pink (pink in bud) erect to spreading, unequal, elliptic to rhomboid or broadly rhomboid, 4.5–5.5 mm long, sub-acute; nectar guides absent. Stamen filaments white, 2.5 mm long; anthers yellow. Style glabrous, 6–7 mm long. Capsules broadly angustiseptate to turgid, emarginate, glabrous or glandular-hairy at apex, 3–4 mm long, 2.0–2.5 mm at widest point. Seeds obovoid or fusiform, weakly flattened, winged, weakly rugulose on back, pale brown, 1.7–2.7 mm long.



**Fig. 600:** *Veronica lavaudiana* distribution map based on databased records at AK, CHR & WELT.

*V. hulkeana* (= *V. ×fairfieldii* Hook.f., Garnock-Jones 2008).

**Notes:** *Veronica lavaudiana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “sun hebe” group (Albach & Meudt 2010). Monophyly of the sun hebe clade is firmly established (Albach & Meudt 2010), and this small clade is probably related to the speedwell hebe clade (formerly *Parahebe* p.p. and *V. macrantha*).

The leaves have dense stomata on both surfaces, but these are absent from the margins. The rounded teeth each have a sunken hydathode at the tip.

**Distribution:** South Island: Canterbury (Port Hills and Banks Peninsula only).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Basalt outcrops and cliffs, generally confined to places out of reach of browsing mammals. Recorded elevations range from 152 to 809 m.

**Recognition:** *V. lavaudiana* belongs to the distinctive sun hebe group, which is characterised by toothed or crenate leaves, terminal paniculate inflorescences, style very much > stamens, ciliate nectarial disc, and fusiform seeds. Within this grouping it is distinguished by its dull, crenate leaves, crowded white flowers with pink buds, acuminate calyx lobes, and glandular-hairy inflorescences. The leaves often have red margins.

**Phenology:** Flowers: October–January; fruits: January–March.

**Cytology:**  $2n = 42$  (Hair 1967, as *Hebe lavaudiana*).

**Hybridisation:** *V. lavaudiana* does not grow together with any closely related species, but hybridises in cultivation with



**Fig. 601:** *Veronica lavaudiana*. Habit. East of Akaroa, Canterbury.



**Fig. 602:** *Veronica lavaudiana*. Sprig. Scale = 10 mm.



**Fig. 603:** *Veronica laudiana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 604:** *Veronica laudiana*. Inflorescence glandular hairs. Scale = 1 mm.



**Fig. 605:** *Veronica laudiana*. Flowers. Scale = 1 mm.



**Fig. 606:** *Veronica laudiana*. Capsule. Scale = 1 mm.



**Fig. 607:** *Veronica laudiana*. Seeds. Scale = 1 mm.

## ***Veronica leiophylla* Cheeseman, Man. New Zealand Fl. 509 (1906)**

nom. nov. pro *Veronica parviflora* var. *phillyreaefolia* Hook.f. 1853

≡ *Hebe leiophylla* (Cheeseman) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

≡ *Veronica parviflora* var. *phillyreaefolia* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I*, 192 (1853)

Lectotype (designated by Bayly & Kellow 2004): Nelson, New Zealand, *Bidwill no.* 13, K

= *Veronica ligustrifolia* var. *gracillima* Kirk, *Trans. New Zealand Inst.* 28: 527 (1896)

≡ *Veronica gracillima* (Kirk) Cheeseman, *Man. New Zealand Fl.* 510 (1906)

≡ *Hebe gracillima* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 24 (1926) – as

*Hebe* × *gracillima*

Holotype: near Westport, *Dr Gaze*, Herb. T. Kirk, WELT 5337

**Etymology:** The epithet is derived from Greek *leios*, smooth, and *phyllon*, leaf: smooth-leaved.

Bushy shrub to 3 m tall. Stems erect, eglandular-puberulent; hairs uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute, often very small. Leaves opposite-decussate or sub-distichous, erecto-patent to recurved; lamina thin to sub-coriaceous, linear to linear-lanceolate to oblong-elliptic, 8–56 mm long, 2.0–10.5 mm wide, dull to glossy, green above, green to pale green beneath; midrib and often two lateral veins evident; surfaces with eglandular hairs along midrib above and sometimes beneath, sometimes also with minute glandular hairs when young; margin ciliolate, entire; apex acute to obtuse, often with a short, blunt, plicate-acuminate tip; base abruptly cuneate; petiole 0.5–3.0 mm long. Inflorescence a lateral raceme, 35–165 mm long; flowers crowded, 14–150, all bisexual; bracts alternate or sometimes loosely whorled, lanceolate to elliptic, < pedicels; pedicels erecto-patent, 0.9–3.0 mm long, pubescent all around, sometimes with very short glandular hairs as well. Calyx lobes 4, usually obtuse to sub-acute, rarely acute, 1.3–1.7 mm long, sub-equal, mixed glandular- and eglandular-ciliate to -ciliolate, sometimes hairy outside, especially near base. Corolla 4–8 mm diameter; tube white, 1.3–3.0 mm long, > to much > calyx, hairy inside and at throat; lobes 4, white or tinged pale purplish, sub-erect to erecto-patent, sub-equal, elliptic to ovate, 2.3–4.0 or rarely to 5.0 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 4.5–7.5 mm long; anthers pink to purplish. Style usually glabrous or very rarely hairy, 4.7–8.0 mm long. Capsules latiseptate, sub-acute to obtuse, usually glabrous or very rarely eglandular-hairy, 2.7–5.0 mm long, 1.8–3.5 mm at widest point. Seeds discoid, flattened, smooth, pale brown, 1.2–1.7 mm long.

**Distribution:** South Island: Western Nelson, Sounds Nelson, Marlborough, north Westland, North Canterbury.

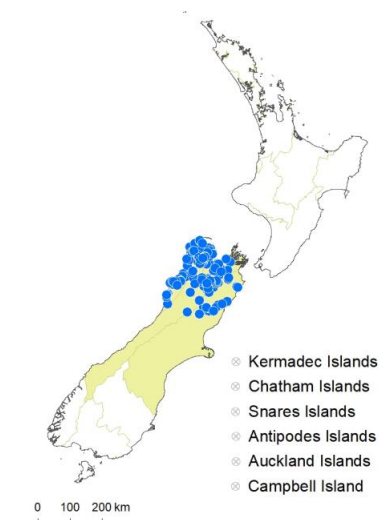
**Biostatus:** Indigenous (Endemic).

**Habitat:** In scrub and forest margins in a range of sites, sometimes swampy. Recorded elevations range from 0 to 1280 m.

**Recognition:** *Veronica leiophylla* is characterised by finely and very shortly puberulent stems, a small sinus in the vegetative buds, quite small leaves and long and slender inflorescences, a corolla with a long tube and often short, sub-erect lobes (similar to the corolla of *V. stricta* and similar species), and rather blunt and rounded capsules.

It is sometimes confused with *V. phormiiphila*, which is distinguished by longer, thinner, and more tapering leaves, shorter corolla tubes, and longer corolla lobes. Plants of *V. leiophylla* from the southern part of its range are not as distinct in these characteristics. This pattern and possible explanations for it were discussed by Bayly and Kellow (2006, under *Hebe paludosa* and *H. leiophylla*).

*V. leiophylla* plants have also sometimes been misidentified as *V. subfulvida*, which can be distinguished by shorter leaves, a more elongated sinus, branching inflorescences, and often bifarious stem hairs.



**Fig. 608:** *Veronica leiophylla* distribution map based on databased records at AK, CHR & WELT.

**Phenology:** Flowers: December–April (sometimes to June); fruits: January–June (persisting all year).

**Cytology:** 2n = 80 (see Bayly & Kellow 2006, as *Hebe leiophylla*).



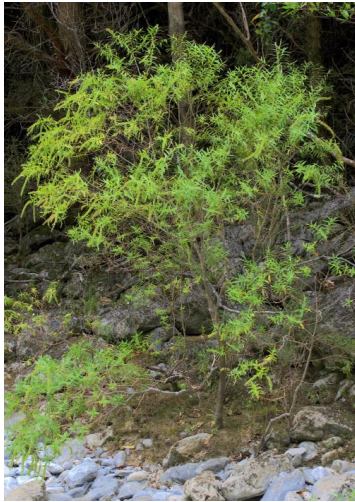
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**Hybridisation:** The similarities with *V. phormiiphila* where the two species distributions abut are discussed above, and there is evidence to suggest *V. phormiiphila* might have originated as a hybrid between *V. leiophylla* and *V. salicifolia* (Bayly & Kellow 2006).

**Notes:** *Veronica leiophylla* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. leiophylla* is quite variable in a number of characters, including leaf size and shape (Bayly & Kellow 2006, Appendix 4), inflorescence length and number of flowers, indumentum of pedicels and calyx, and corolla tube and lobe length.

Bayly & Kellow (2006) recorded *V. leiophylla* as being cosexual, but a collection from Enchanted Quarry, Leatham Valley, Marlborough, included some male-sterile plants (B.P.J. Molloy, CHR 470117).



**Fig. 609:** *Veronica leiophylla*. Habit. Gorge Creek, near Tākaka, Nelson.



**Fig. 610:** *Veronica leiophylla*. Sprig. Scale = 10 mm.



**Fig. 611:** *Veronica leiophylla*. Minutely pubescent branchlet. Scale = 1 mm.



**Fig. 612:** *Veronica leiophylla*. Leaf bud with sinus. Scale = 1 mm.



**Fig. 613:** *Veronica leiophylla*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 614:** *Veronica leiophylla*. Inflorescence. Scale = 1 mm.



**Fig. 615:** *Veronica leiophylla*. Young flowers. Scale = 1 mm.



**Fig. 616:** *Veronica leiophylla*. Old flowers. Scale = 1 mm.



**Fig. 617:** *Veronica leiophylla*. Young infructescences.



**Fig. 618:** *Veronica leiophylla*. Capsule. Scale = 1 mm.

## *Veronica ligustrifolia* A.Cunn. in Hooker, *Bot. Mag.* 63, sub-plate 3461 (1836)

≡ *Hebe ligustrifolia* A.Cunn.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 16 (1926)

Holotype: shady woods on the hills above the Kauakaua River, Bay of Islands, R.

C[unningham], 1833, K (mounted on sheet that includes a mixture of other collections)

**Etymology:** The epithet *ligustrifolia* is from the generic name of privet, *Ligustrum* (Oleaceae) and *folium*, a leaf. It means privet-leaved.

Open, bushy or spreading shrub to 2.5 m tall, rarely (near Te Paki only) small tree to 8 m. Stems spreading to erect, eglandular-puberulent; hairs uniform. Leaf bud distinct, its leaves appressed at margins until near fully grown; sinus absent. Leaves sub-distichous to opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, linear-lanceolate to elliptic to oblong-elliptic, 12–100 mm long, 4–20 mm wide, dull, pale to dark green above, often yellowing on midrib and base, pale green beneath; midrib and 2 or more secondary veins evident; surfaces glabrous, or eglandular-hairy along midrib, or minutely glandular-hairy beneath; margin ciliolate, becoming glabrous, usually entire or rarely with a few distant, very shallow teeth; apex sub-acute to obtuse; base abruptly cuneate to rounded; petiole indistinct, 1–2 mm long. Inflorescence a lateral raceme, 25–80 mm long; flowers crowded, 15–70, all bisexual; bracts alternate or loosely whorled, the lowest sometimes opposite, narrowly lanceolate to ovate, usually <, rarely ≥ pedicels; pedicels erecto-patent to spreading, 1.0–2.5 mm long, eglandular-puberulent all around. Calyx lobes 4, or rarely a small 5th lobe present, sub-acute to acute or acuminate, 1.7–3.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 4–7 mm diameter; tube white, 1–3 mm long, ≤ calyx, puberulent inside; lobes white or pale purplish, erecto-patent to spreading, sub-equal, lanceolate to elliptic to ovate, 2.5–4.5 mm long, usually acute, rarely rounded at apex; nectar guides absent. Stamen filaments white or pale purplish, 5.0–6.5 mm long; anthers purplish. Style glabrous, 4–6 mm or rarely to 11 mm long. Capsules latiseptate, acute or sub-acute, glabrous, 2.5–6.0 mm long, 1.7–3.7 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, straw-yellow to pale brown, 0.9–1.8 mm long.

**Distribution:** North Island: Northland (Kerr Point, Surville Cliffs, Spirits Bay, North Cape Peninsula, Kapowairua, Cape Reinga; east coast from the base of Karikari Peninsula to Bream and Busby Heads).

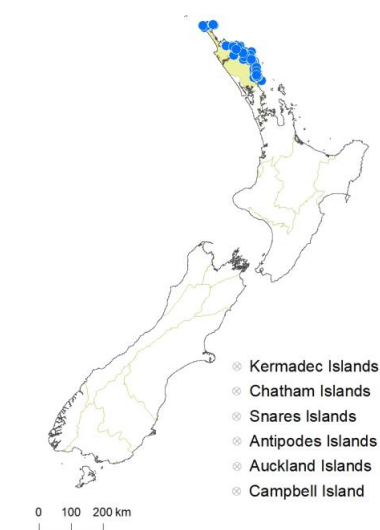
**Biostatus:** Indigenous (Endemic).

**Habitat:** Scrub, forest, cliffs, and slips, mostly coastal, rarely on sand. Recorded elevations range from 0 to 390 m, with one record at 600 m.

**Recognition:** *Veronica ligustrifolia* plants are similar to other hebes that grow in Northland. The dull green leaves often have a yellowish base to the midrib. They have a distinctive, very flat vegetative bud.

Plants of *V. flavida* are similar in many respects, especially the yellow base to the midrib, but generally have longer leaves and are usually much taller. They are found in western Northland, whereas plants of *V. ligustrifolia* are mostly in the east. The identity of some plants from Hokianga Harbour and Waipoua Forest is discussed by Bayly & Kellow (2006).

*V. rivalis* plants have narrower leaves, pedicel hairs 80–100 µm long (cf. < 50 µm long in *V. ligustrifolia*), and calyx



**Fig. 619:** *Veronica ligustrifolia* distribution map based on databased records at AK, CHR & WELT.

lobes hairy on outer faces.

*V. stricta* plants can be similar, but tend to have smaller flowers with elliptical and obtuse corolla lobes, longer corolla tubes in relation to the calyx, and in northern New Zealand they also have calyx lobes that are hairy on the outsides.

Plants of *V. adamsii* have thicker leaves and a sinus in the leaf bud.

**Phenology:** Flowers: January–December; fruits: January–December.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe ligustrifolia*).

**Notes:** *Veronica ligustrifolia* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

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The species' distribution is disjunct between North Cape and the east coast of Northland, from near Karikari Peninsula to Bream Head. There is considerable variation in several characters, including leaf size, calyx lobe length, corolla tube and lobe length, style length, and capsule size.



**Fig. 620:** *Veronica ligustrifolia*. Habit. Unuwhao, Northland.



**Fig. 621:** *Veronica ligustrifolia*. Sprig. Scale = 10 mm.



**Fig. 622:** *Veronica ligustrifolia*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 623:** *Veronica ligustrifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 624:** *Veronica ligustrifolia*. Inflorescence.  
Scale = 1 mm.



**Fig. 625:** *Veronica ligustrifolia*. Flowers.  
Scale = 1 mm.



**Fig. 626:** *Veronica ligustrifolia*. Capsules.  
Scale = 1 mm.

***Veronica lilliputiana* Stearn, *Gard. Chron.*, ser. 3, 129: 166, No. 3359 (1951)**

nom. nov. pro *Veronica canescens* Kirk 1877

≡ *Veronica canescens* Kirk, *Trans. & Proc. New Zealand Inst.* 9: 503, t. 19 (1877) nom. illeg., non *Veronica canescens* Schrad. 1803

≡ *Hebe canescens* A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 384 (1929) nom. nov. pro *Veronica canescens* Kirk 1877

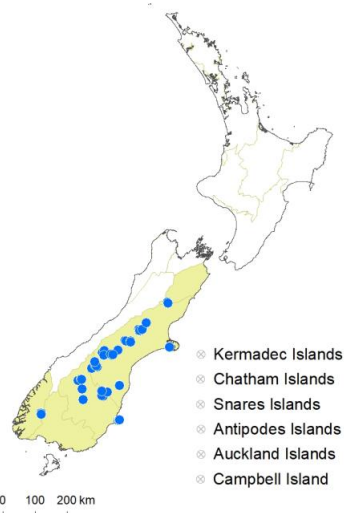
≡ *Parahebe canescens* (A.Wall) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 229 (1944)

Holotype: *T. Kirk*, Lake Lyndon, WELT 5112a&b

**Etymology:** The name derives from Lilliput, a fictional location in Jonathan Swift's satire *Gulliver's Travels*, where the people were small, a reference to the small size of the plants.

Short-lived, perennial herb, older stems sometimes slightly woody, to 0.01 m tall. Stems creeping, with short, sub-erect axillary shoots, eglandular-pubescent or rarely glabrous; hairs uniform. Leaf bud indistinct; leaves separating while very small, sub-distichous on prostrate shoots, spreading to recurved, thin, ovate, elliptic, obovate, or orbicular, 1–3 mm long, 1–2 mm wide, dull and glaucous above and beneath, veins not evident, surfaces eglandular-hairy; margins ciliate, entire; apex obtuse to rounded; base cuneate; petiole 0–0.5 mm long. Flowers solitary or rarely paired, on short, bibracteate peduncles in axils of opposite leaves, all bisexual; bracts opposite, elliptic to ovate, < pedicels; pedicels erect, 2–7 mm long, eglandular-hairy all around. Calyx lobes 4, rarely 5, sub-

acute to obtuse, equal, 2–3 mm long, eglandular-hairy. Corolla c. 10 mm diameter; tube white and yellow, c. 1 mm long, < calyx, eglandular-hairy inside; lobes 4, rarely 5 by division of posterior lobe, pale to purplish-blue, sub-erect, sub-equal, elliptic to narrow-elliptic, 3–6 mm long, obtuse; nectar guides dark blue. Stamen filaments white, 4–5 mm long; anthers purplish. Style glabrous, 4.0–4.5 mm long. Capsules angustiseptate, emarginate, 1.0–1.8 mm long, 1–2 mm at widest point. Seeds ellipsoid to obovoid, weakly flattened, finely reticulate, pale brown to brown, 0.4–0.6 mm long.



**Fig. 627:** *Veronica lilliputiana* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury, Otago, Fiordland (Lake Manapouri only). Mostly inland, but known also from a few coastal sites.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Seasonally wet (usually summer dry) margins of coastal to montane lakes, tarns, kettle-holes, ponds, and depressions in moraines, light soil among stones or in turf of other small plants such as *Leptinella maniototo* and *Galium perpusillum*. Recorded elevations range from 20 to 1441 m.

**Recognition:** *V. lilliputiana* is unlike any other New Zealand species of *Veronica*. Plants distinctively have a combination of creeping habit, tiny, entire glaucous and hairy leaves, and blue, usually solitary, bibracteate flowers.

*Tetrachondra hamiltonii* plants (Lamiaceae) have a similar size and growth form, but leaves are brighter green, glabrous or very minutely ciliolate, and gland-dotted; calyx and corolla five-lobed; corolla two-lipped; fruit four nutlets.

**Phenology:** Flowers: December–April; fruits: January–May.

**Cytology:**  $2n = 42$  (Hair 1970, as *Parahebe canescens*).

**Notes:** *Veronica lilliputiana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* (Albach & Meudt 2010). It appears to belong with *V. lyallii* and several other species in a clade (the speedwell hebes, Albach & Meudt 2010) that is characterised by short corolla tubes, nectar guides on the corolla, and rather lax inflorescences. Most also have plicate lateral corolla lobes, which enfold the stamens, but *V. lilliputiana* lacks these, along with *V. linifolia*, *V. colostylis*, and *V. jovellanoides*.

In *V. lilliputiana*, vegetative reproduction is possible because small, short branches detach easily and may be transported in water to other sites, where they can establish by adventitious roots. These reduced branches have 2(–3) pairs of close-set leaves. They may make it easy for *V. lilliputiana* to spread rapidly around the margins of lakes and tarns.



**Fig. 628:** *Veronica lilliputiana*. Habitat and habit, with *Leptinella maniototo* at Lake Lyndon, Canterbury.



**Fig. 629:** *Veronica lilliputiana*. Habit. Cultivated plant originally from Lake Lyndon, Canterbury.



**Fig. 630:** *Veronica lilliputiana*. Leaf surfaces, adaxial (left) and abaxial (right) and stems. Scale = 1 mm.



**Fig. 631:** *Veronica lilliputiana*. Flowers. Scale = 1 mm.



**Fig. 632:** *Veronica lilliputiana*. Capsule. Scale = 1 mm.

### ***Veronica linifolia* Hook.f., *Handb. New Zealand Fl.* 214 (1864)**

≡ *Hebe linifolia* (Hook.f.) Anderson, *Trans. New Zealand Inst.* 56: 693 (1926)

≡ *Parahebe linifolia* (Hook.f.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

Lectotype (designated by Garnock-Jones & Lloyd 2004): Prov. Canterbury, N. Zealand, *Sinclair & Haast*, 1860-1, K; top right hand piece

**Etymology:** The epithet *linifolia* is derived from *Linum*, linen flax, and *folium*, leaf, meaning leaves like those of *Linum*.

Sub-shrub to 0.3 m tall. Stems decumbent to ascending, eglandular-pubescent; hairs sparse, bifarious, at distal end of internodes. Leaf bud indistinct, leaves separating while very small, opposite-decussate, erect to reflexed, separating early; lamina sub-coriaceous, linear to narrowly oblong, 10–30 mm long, 1.5–3.5 mm wide, glossy green above, dull pale green beneath; midrib evident; surfaces glabrous; margin ciliate, especially towards the base, entire; apex rounded; base cuneate; petiole 1.4–4.0 mm long. Inflorescence a lateral raceme; flowers distant, 2–8 (rarely 1), all bisexual; bracts alternate, or the lower sub-opposite, linear to narrowly deltoid, < pedicels; pedicels sub-erect, incurved at fruiting, 8–40 mm long, glabrous. Calyx lobes 4, sub-acute to acute, sub-equal, 3–6 mm long, glabrous or eglandular-ciliate. Corolla 12–17 mm diameter; tube white and yellow, 0.5–1.5 mm long, < calyx, eglandular-hairy inside; lobes 4, white, sometimes blue, rarely pink, spreading to recurved, unequal, elliptic to orbicular or rhomboid, 5–9 mm long, obtuse, or posterior lobe

emarginate; nectar guides magenta to purple. Stamen filaments white, 4–8 mm long; anthers magenta, rarely pink. Style glabrous, 4–9 mm long. Capsules broadly angustiseptate, didymous, glabrous or rarely eglandular-hairy at apex, 3.0–4.5 mm long, 3.5–4.5 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, pale to dark brown, 0.7–1.2 mm long.

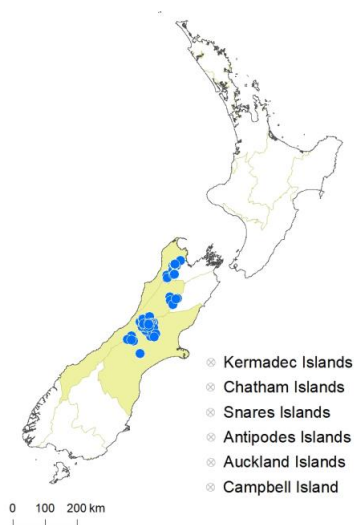
**Distribution:** South Island: Western Nelson, Canterbury from Rangitata River north, Westland from Mt Alexander north.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane to alpine cliffs, rock outcrops, river gravel, and river banks. Recorded elevations range from 731 to 1646 m.

**Recognition:** The glossy green entire narrow leaves of *V. linifolia* and *V. colostylis* are distinctive. Although vegetatively very similar to *V. linifolia*, *V. colostylis* plants differ in their smaller flowers with no or very faint nectar guides, stamens < 3 mm long, and style < 4 mm long, character states that have been shown to be associated with self-pollination (Garnock-Jones 1976a, 1976b, 1981).

Among the species of sect. *Hebe* that are characterised by nectar guides on the corolla, only *V. linifolia*, *V. jovellanoides*, and *V. lilliputiana* have flat (rather than longitudinally plicate) lateral corolla lobes. *V. jovellanoides* plants have similar flowers to *V. linifolia*, but they are prostrate plants with hairy inflorescences and toothed leaves. In *V. lilliputiana* the leaves are very small (< 3 mm long) and ovate to orbicular.



**Fig. 633:** *Veronica linifolia* distribution map based on databased records at AK, CHR & WELT.

(See: Table 5)

**Phenology:** Flowers: December–April; fruits: January–May, persisting to November.

**Cytology:**  $2n = 42$  (Hair 1970, as *Parahebe linifolia*).

**Notes:** *Veronica linifolia* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “speedwell hebe” group (Albach & Meudt 2010). It is likely to be sister species to *V. colostylis*, a hypothesis supported by ITS data (Wagstaff et al. 2002) and by their shared unusual morphology. *V. linifolia* appears to belong with *V. lyallii* and several other species in a clade (the speedwell hebes, Albach & Meudt 2010) that is characterised by short corolla tubes, nectar guides on the corolla, and rather lax inflorescences, although *V. spathulata* and usually *V. colostylis* lack nectar guides. Most also have plicate lateral corolla lobes, which enfold the stamens, but *V. linifolia*, *V. spathulata*, and *V. colostylis*, along with *V. lilliputiana* and *V. jovellanoides*, lack these. However, analysis of DNA sequence data places *V. linifolia* either as sister to the shrubby hebes (Albach & Meudt 2010, ITS and combined ITS/cpDNA data), to form a group characterised by entire leaves, or as sister to the speedwell hebes (Wagstaff et al. 2002, ITS data; Albach & Meudt 2010, cpDNA data).

*V. linifolia* flowers vary in corolla colour. In the Owen Range, Nelson, plants consistently have blue flowers. In other locations the flowers are white, with magenta nectar guides, except that individual plants sometimes have pink corollas (e.g., at Sudden Creek, Arthur’s Pass National Park).

#### Cultivars

Blue-flowered plants from the Owen Range, Nelson, have been brought into cultivation as cv. ‘Blue Skies’.





**Fig. 634:** *Veronica linifolia*. Habit. Arthur's Pass, Canterbury.



**Fig. 635:** *Veronica linifolia*. Habit. Arthur's Pass, Canterbury.



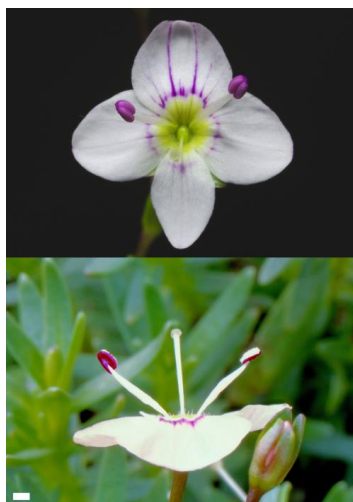
**Fig. 636:** *Veronica linifolia*. Sprig. Scale = 10 mm.



**Fig. 637:** *Veronica linifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 638:** *Veronica linifolia*. Bract, pedicel, and flower bud. Scale = 1 mm.



**Fig. 639:** *Veronica linifolia*. Flower. Scale = 1 mm.



**Fig. 640:** *Veronica linifolia*. Flower with calyx lobes and corolla removed to show ovary and style. Scale = 1 mm.



**Fig. 641:** *Veronica linifolia*. Capsule. Scale = 1 mm.

### ***Veronica lyallii* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I, 196 (1853)***

≡ *Hebe lyallii* (Hook.f.) A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 385 (1929)

≡ *Parahebe lyallii* (Hook.f.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

Holotype: Milford Sound, Lyall, K

= *Veronica lyallii* var. *suberecta* Cheeseman, *Man. New Zealand Fl.* 543 (1906)

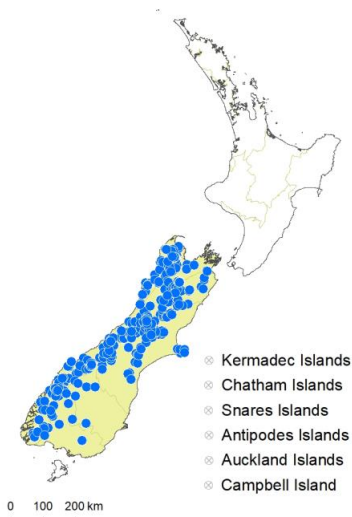
Lectotype (designated by Garnock-Jones & Lloyd 2004): Wangapeka River, Nelson, Jan 1882, Cheeseman, bottom right hand piece, AK 8383, Isolectotype: WELT 41498; a note on the lectotype reads "1646 Kew"

= *Veronica lyallii* var. *angustata* Petrie, *Trans. & Proc. New Zealand Inst.* 49: 53 (1917)

Holotype: Ngakawau River bed on band of rocks, 25 Feb 1913, Petrie, WELT 41511a,b

**Etymology:** The species epithet commemorates Dr David Lyall (1817–1895), assistant surgeon and naturalist on HMS *Terror*.

Sub-shrub to 0.3 m tall. Stems prostrate to erect, eglandular-pubescent; hairs bifarious or uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate to sub-distichous, erect to recurved; lamina sub-coriaceous, ovate, elliptic, orbicular, deltoid, or rhomboid, 3–15 mm long, 2–10 mm wide, dull to glossy green to dark green above, dull pale green to pinkish beneath; midrib evident; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous, crenate or rarely serrate, teeth or lobes in 1–4 pairs; apex rounded to obtuse; base cuneate to truncate; petiole 1–3 mm long. Inflorescence a lateral raceme, 50–200 mm long; flowers distant, 5–15, all bisexual; bracts alternate, linear to ovate or elliptic, < pedicels; pedicels erecto-patent, incurved at fruiting, 8–25 mm long, eglandular- or glandular-hairy all around or glabrous. Calyx lobes 4, sub-acute to acuminate, 2.0–4.5 mm long, eglandular- to glandular-ciliate. Corolla 8–15 mm diameter; tube white and yellow, 1.5–2.0 mm long, < calyx, eglandular-hairy inside; lobes 4, white, rarely pale purplish or pink, unequal, spreading, elliptical or orbicular, 3.5–7.0 mm long, obtuse, posterior occasionally emarginate; nectar guides magenta, purple, pink, or absent. Stamen filaments white, 2.5–4.0 mm long; anthers white or pink. Style glabrous, 3–5 mm long. Capsules angustiseptate, didymous, glabrous, 3–5 mm long, 3–4 mm at widest point. Seeds discoid to ellipsoid, strongly flattened, smooth, pale to dark brown, 0.6–1.0 mm long.



**Fig. 642:** *Veronica lyallii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: throughout.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Lowland to sub-alpine (rarely alpine) stream and river bank rock crevices and gravel, screes, slips, cliffs, seeps, stony sites. Recorded elevations range from 91 to 1554 m.

**Recognition:** *V. lyallii* is generally easy to distinguish among the speedwell hebes, but some plants can be confused with other species. The small, broad, rounded, often dull and bronze-green, crenate leaves are characteristic. Small-leaved and low-growing plants of *V. lanceolata* from the North Island, especially lowland Wairarapa, and plants of *V. hookeriana* with glabrous leaves, have sometimes been identified as *V. lyallii*. *V. lanceolata* leaves have serrate margins and tend to be sub-acute to acute, whereas *V. hookeriana* usually has coloured flowers, glandular inflorescences, and often hairy leaves. *V. lyallii* is absent from the North Island.

In the South Island *V. lyallii* is most likely to be confused with *V. decora*. *V. decora* plants differ in having strictly prostrate, usually blackish main stems, much smaller, glossy-green leaves with just one or two pairs of lobes at the base, tall stout peduncles, and the lowermost flowers usually forming a whorl of three. The two sometimes hybridise.

**Phenology:** Flowers: December–March, extending occasionally until June; fruits: January–June, persisting all year.

**Cytology:**  $2n = 42$  (Frankel & Hair 1937; Hair 1970 as *Parahebe lyallii*).

**Hybridisation:** Where *V. lyallii* grows with *V. decora*, hybrids (*V. ×bidwillii* Hook.) may occur. These are morphologically intermediate and sterile.

In Nelson, some large-leaved plants with toothed margins might reflect hybridisation with *V. lanceolata*.

In Fiordland, putative hybrids with *V. catarractae* are common. These have larger leaves with more prominent toothing. A range of plants intermediate between the two parent species are also found, suggesting backcrossing occurs.

**Notes:** *Veronica lyallii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* (Albach & Meudt 2010). *V. lyallii* belongs with *V. decora* and several other species in a clade (speedwell hebes, Albach & Meudt 2010) that is characterised by short corolla tubes, nectar guides on the corolla, and rather lax inflorescences. Most also have plicate lateral corolla lobes, which enfold the stamens, as does *V. lyallii*.

Some populations of *V. lyallii* in north-west Nelson are hard to place, especially plants with larger, sub-coriaceous, ovate leaves and coarse teeth from montane localities such as at Cobb Valley. Some of the larger, narrow-leaved forms (*V. lyallii* var. *angustata*), such as at Upper Tākaka, are particularly confusing. The similarities between plants at Kaituna River, near Bainham, and *V. lyallii* var. *angustata* are discussed below and under *V. lanceolata*.

*V. lyallii* is variable across its range, especially in Nelson. Some of the variation is attributable to plastic responses to the environment. Variability of indumentum, leaf shape, and leaf tooth shape seem to have a genetic basis, but the patterns are largely clinal.

In plants from Westland, Nelson, and in Canterbury northward from the Waimakariri River, stem pubescence is mostly bifarious (uniform further south). At low altitudes north of the Buller and Hurunui Rivers, leaves are usually slender, with length 1.5–2.0 × width. The narrowest leaves are in Buller and north-west Nelson (*V. lyallii* var. *angustata*). Many plants from Nelson have dense, transparent, glandular hairs on inflorescences. Some plants from Nelson and Buller have pale blue or purplish corollas, compared with mostly white corollas further south.

Nectar guides may be present or absent, and are magenta when the corolla is white, but tend towards mauve when corollas are blue. Plants on Banks Peninsula have bright green glossy leaves.



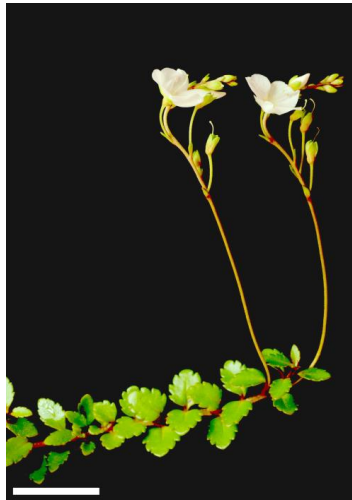
**Fig. 643:** *Veronica lyallii*. Habit. Halpin's Creek, Canterbury.



**Fig. 644:** *Veronica lyallii*. Habit. Sealy Range, Canterbury.



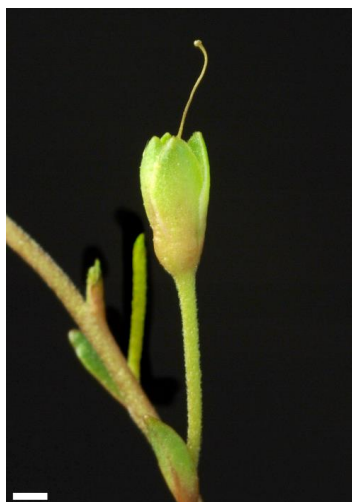
**Fig. 645:** *Veronica lyallii*. Habit. Ngakawau Gorge, Westland.



**Fig. 646:** *Veronica lyallii*. Sprig. Scale = 1 mm.



**Fig. 647:** *Veronica lyallii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 648:** *Veronica lyallii*. Style, calyx, pedicel, and bract. Scale = 1 mm.



**Fig. 649:** *Veronica lyallii*. Inflorescence and flowers. Scale = 10 mm.



**Fig. 650:** *Veronica lyallii*. A flower with nectar guides and narrow corolla lobes. Scale = 1 mm.



**Fig. 651:** *Veronica lyallii*. A flower with broad corolla lobes and without nectar guides. Scale = 1 mm.



**Fig. 652:** *Veronica lyallii*. Capsule. Scale = 1 mm.



**Fig. 653:** *Veronica lyallii*. Seeds. Scale = 1 mm.

## ***Veronica lycopodioides* Hook.f., *Handb. New Zealand Fl.* 211 (1864)**

≡ *Hebe lycopodioides* (Hook.f.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

≡ *Leonohebe lycopodioides* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)

Lectotype (designated by Bayly & Kellow 2004): Wairau Gorge, 4-5000 ft, *Travers* 27, Herb. Hookerianum, K, three flowering pieces on upper left of sheet (which also includes material collected by Hector (Clarence Valley, 4000 ft), and Sinclair)

= *Hebe lycopodioides* var. *patula* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 73: 164 (1943)

≡ *Leonohebe lycopodioides* var. *patula* (G.Simpson & J.S.Thomson) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)

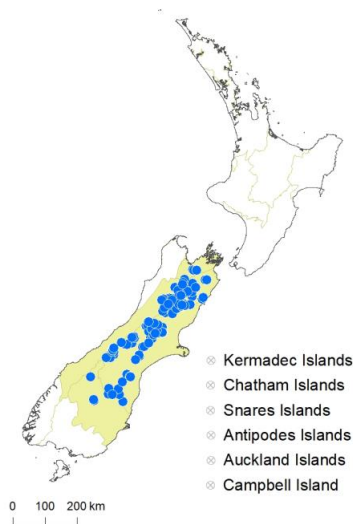
≡ *Hebe lycopodioides* subsp. *patula* (G.Simpson & J.S.Thomson) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 34 (1999)

Holotype: upper slopes of Mount Technical, Lewis Pass, grassland at 1200-1600 m, G. Simpson & J. S. Thomson, CHR 76005

**Etymology:** The epithet *lycopodioides* refers to its resemblance to *Lycopodium*, a club moss.

**Vernacular name:** whipcord hebe

Whipcord shrub to 1 m tall. Stems decumbent to erect, glabrous except for caducous long, sinuate hairs at connate leaf bases. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed and usually covering the well-marked node above, crowded and overlapping, scale-like; lamina coriaceous, broadly ovate to deltoid, 1.5–2.5 mm long, 2.0–2.5 mm wide, dull to glossy olive-green or yellowish-green, prominently longitudinally ribbed especially when dry; surfaces glabrous or with an adaxial tuft of tangled hairs at apex; margin glabrous or eglandular-ciliate, entire; apex mucronate, sometimes sub-acute to acute; base broad; petiole absent. Inflorescence a terminal spike, 3.5–20.0 mm long; flowers crowded, 4–20, all bisexual; bracts opposite-decussate, connate, deltoid; pedicels absent. Calyx lobes 4–5 (5th lobe small, posterior), obtuse to acute, sub-equal, 2–3 mm long, ciliolate with mixed glandular and eglandular hairs. Corolla 5–8 mm diameter; tube white, 2.5–4.0 mm long, eglandular-hairy inside; lobes 4, white, sub-erect to spreading, sub-equal, elliptic or obovate, 3.5–5.0 mm long, obtuse to rounded, posterior lobe sometimes emarginate; nectar guides absent. Stamen filaments white, 2.5–4.5 mm long; anthers magenta. Style glabrous, 4–7 mm long. Capsules latiseptate, sub-acute, 2.0–3.4 mm long, 1.3–2.4 mm at widest point. Seeds ellipsoid, flattened, finely papillate, pale brown, 0.9–1.5 mm long.



**Fig. 654:** *Veronica lycopodioides* distribution map based on databased records at AK, CHR & WELT.

Near Lewis Pass, plants of *V. lycopodioides* may have acute or very shortly apiculate leaves, slender branchlets, and low-growing habit. These have been called *Hebe lycopodioides* var. *patula*, but there is no sharp distinction. Some plants from northern localities lack the leaf ribbing or their leaves are only weakly ribbed near the margins, but these can be distinguished from local forms of *V. hectorii* by their sub-acute to acute apices (not rounded) and more strongly keeled leaves. In Otago, *V. hectorii* subsp. *demissa* plants have apiculate to mucronate leaves like those of *V. lycopodioides*, but these are not ribbed.

**Distribution:** South Island: Sounds Nelson, Marlborough, Canterbury, Westland (near the Main Divide), Otago, Southland (northern). A specimen of *V. lycopodioides* from Mt Dick, Eyre Mountains (AK 107864), included on the distribution map, is outside the normally accepted distribution range of *V. lycopodioides* and within the distribution of *V. poppelwellii* and its status remains uncertain. AK 8215–6 from Greenstone Valley has not been mapped, because the location is far west of the known distribution.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penalpine to alpine grassland and shrubland. Recorded elevations range from 758 to 1830 m.

**Recognition:** *Veronica lycopodioides* is a distinctive species. Among the whipcord group, only *V. poppelwellii* and *V. lycopodioides* plants have ribbed leaves, but *V. poppelwellii* plants differ by their obtuse or sometimes sub-apiculate leaf apex.

Near Lewis Pass, plants of *V. lycopodioides* may have acute or very shortly apiculate leaves, slender branchlets, and low-growing habit. These have been called *Hebe lycopodioides* var. *patula*, but there is no sharp distinction. Some plants from northern localities lack the leaf ribbing or their leaves are only weakly ribbed near the margins, but these can be distinguished from local forms of *V. hectorii* by their sub-acute to acute apices (not rounded) and more strongly keeled leaves. In Otago, *V. hectorii* subsp. *demissa* plants have apiculate to mucronate leaves like those of *V. lycopodioides*, but these are not ribbed.

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In *V. lycopodioides* and *V. poppelwellii* the thick leaf veins are close to the abaxial surface and join at their apices to form a marginal vein. In *V. tetragona* and *V. hectorii* the veins are also thick, but closer to the adaxial surface and do not join to form a common marginal vein. In *V. tetragona* and *V. hectorii* the bracts, but not the leaves, may be ribbed, and then they resemble the leaves of *V. lycopodioides*, except for being thinner.

**Phenology:** Flowers: December–February (sometimes November–April); fruits: January– April, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe lycopodioides*).

**Notes:** *Veronica lycopodioides* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). The strongly ribbed leaves are seen otherwise in only *V. poppelwellii*, which probably indicates these are sister species, and this is supported by ITS and cpDNA sequence data (E.M. Low, unpublished data).



**Fig. 655:** *Veronica lycopodioides*. Habit. Lake Tennyson, Canterbury.



**Fig. 656:** *Veronica lycopodioides*. Habit. Mt Nimrod, Canterbury.



**Fig. 657:** *Veronica lycopodioides*. Sprig. Scale = 10 mm.



**Fig. 658:** *Veronica lycopodioides*. Branchlets, from Four Peaks Range (left) and cultivated plant originally from Craigieburn Range (right), Canterbury. Scale = 1 mm.



**Fig. 659:** *Veronica lycopodioides*. Close-up of leaves with prominent nodal joints, from cultivated plants originally from Craigieburn Range (left) and Lewis Pass (right), Canterbury. Scale = 1 mm.



**Fig. 660:** *Veronica lycopodioides*. Terminal inflorescence. Scale = 1 mm.



**Fig. 661:** *Veronica lycopodioides*. Infructescence. Scale = 1 mm.

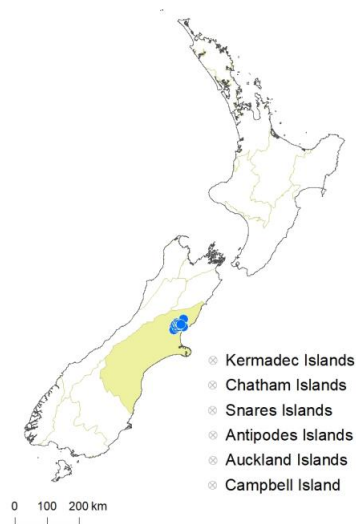
### ***Veronica maccaskillii* (Allan) Heenan, *New Zealand J. Bot.* 50: 88 (2012)**

- ≡ *Hebe raoulii* var. *maccaskillii* Allan, *Trans. & Proc. Roy. Soc. New Zealand* 69: 273 (1940)
  - ≡ *Heliohebe raoulii* subsp. *maccaskillii* (Allan) Garn.-Jones, *New Zealand J. Bot.* 31: 335-336 (1993)
  - ≡ *Parahebe raoulii* subsp. *maccaskillii* (Allan) Heads, *Bot. J. Linn. Soc.* 115: 82 (1994)
  - ≡ *Veronica raoulii* subsp. *maccaskillii* (Allan) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)
  - ≡ *Heliohebe maccaskillii* (Allan) D.A.Norton & Molloy, *New Zealand J. Bot.* 47: 406 (2009)
- Lectotype (designated by Moore in Allan 1961): Weka Pass, L. W. McCaskill, Oct 1937, CHR 56575 A. Two syntypes were cited in the protologue, the other collected by R. M. Laing on limestone rocks at Whiterock (May 1913, CHR 10738). Both match the protologue equally well, but Allan specifically mentioned the "large suite of specimens" collected by McCaskill.

**Etymology:** Named after Lancelot William McCaskill (1900–1985), soil conservationist and teacher at Lincoln College, Canterbury.



Sub-shrub or low shrub to 0.3 m tall. Stems prostrate to decumbent, almost divaricating, eglandular-pubescent; hairs uniform, short, reflexed, appressed. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading, separating early; lamina coriaceous, obovate to spatulate, 4–15 mm long, 2–7 mm wide, dull green to bronze-green above, dull bronze-green to yellowish-green beneath; midrib weakly evident; surfaces glabrous; margin glabrous, entire to shallowly crenate, teeth in 0–3 pairs; apex rounded or rarely obtuse; base cuneate; petiole 1–3 mm long. Inflorescence a terminal compound raceme, 15–30 mm long; flowers crowded, 10–60, all bisexual; bracts opposite, becoming alternate above, deltoid, > pedicels; pedicels erecto-patent, 0–0.5 mm long, densely eglandular-hairy all around. Calyx lobes usually 5, sometimes 4, the anterior pair fused about  $\frac{2}{3}$ -way to apex or sometimes less, rounded to obtuse, 2–3 mm long, posterior 5th lobe about  $\frac{1}{2}$ – $\frac{2}{3}$  as long as the others, eglandular-ciliate, or mixed eglandular- and glandular-ciliate. Corolla 5.0–9.5 mm diameter; tube white or pale purplish, 2–3 mm long,  $\leq$  calyx, glabrous; lobes 4, white or pale purplish, erect to spreading, sub-equal, elliptic to narrowly rhomboid, 3.0–4.5 mm long, sub-acute to rounded; nectar guides absent. Stamen filaments white, 2.0–3.5 mm long; anthers pale yellow. Style glabrous or with a few hairs at base, 4–7 mm long. Capsules turgid or broadly angustiseptate, emarginate, glabrous or hairy at apex, 2.5–3.5 mm long, 2–3 mm at widest point. Seeds fusiform or irregular, weakly flattened, winged, smooth, straw-yellow to brown, 1.2–1.6 mm long.



**Fig. 662:** *Veronica maccaskillii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury (confined to a small area near Waipara and Rangiora, including Pyramid Valley, Waipara Gorge and nearby hills, Weka Pass, Whiterock, and Mt Cass).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Limestone gorges and ridges, rock outcrops. Recorded elevations range from 91 to 500 m.

**Recognition:** Among the species of the sun hebe group, plants of *V. hulkeana* and *V. lavaudiana* can be distinguished by their larger leaves. *V. raoulii* plants are very similar in having the anterior calyx lobes fused, but distinguished by their more open and ascending to erect habit, with at least some longer internodes 5–8 mm (consistently < 5 mm in *V. maccaskillii*), larger, obovate to spatulate and more acute to acuminate leaves with more and deeper teeth, and only four calyx lobes. These differences are mostly quantitative, the only qualitative one being the fifth calyx lobe often seen in *V. maccaskillii*. Norton & Molloy (2009) report both species grow together on Mt Cass, North Canterbury, without obvious hybrids, and this sympatric occurrence was the reason they promoted *V. raoulii* subsp. *maccaskillii* to species rank (as

*Heliohebe maccaskillii*).

*V. scrupea* plants differ in having four calyx lobes, and their leaves are narrower, more toothed, and more acute, their flowers are smaller with shorter stamens, and their anterior calyx lobes are free.

*V. pentasepala* plants are taller and more erect, but similar in having five calyx lobes.

**Phenology:** Flowers: October–November; fruits: December–January.

**Cytology:**  $2n = 42$  (Hair 1967, as *Hebe raoulii* var. *maccaskillii*).

**Notes:** *Veronica maccaskillii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “sun hebe” group (Albach & Meudt 2010). The morphology-based cladogram of Garnock-Jones (1993a) suggests a close relationship with *V. raoulii*. DNA sequence data have not been studied.

*V. maccaskillii* was reported to grow with *V. raoulii* at Mt Cass, Canterbury, where hybrids between them were not seen (Norton & Molloy 2009, as *Heliohebe*). However, all calyces examined from Mt Cass specimens had free anterior lobes, so those specimens would not key out to either species in most keys. Sharing of this feature might indicate gene flow among all the plants at this locality.



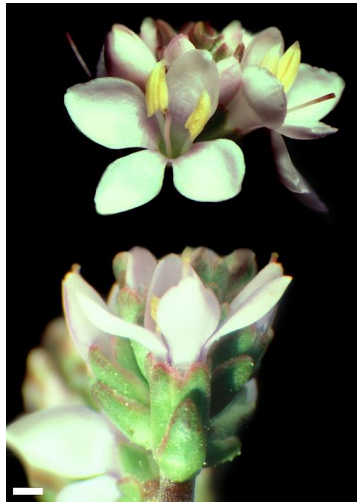
**Fig. 663:** *Veronica maccaskillii*. Habitat. Weka Pass, Canterbury.



**Fig. 664:** *Veronica maccaskillii*. Habit. Weka Pass, Canterbury.



**Fig. 665:** *Veronica maccaskillii*. Sprig. Scale = 10 mm.



**Fig. 666:** *Veronica maccaskillii*. Flowers. Scale = 1 mm.



**Fig. 667:** *Veronica maccaskillii*. Capsule. Scale = 1 mm.

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## ***Veronica macrantha* Hook.f., *Handb. New Zealand Fl.* 213 (1864)**

≡ *Hebe macrantha* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 43 (1926)

≡ *Parahebe macrantha* (Hook.f.) Heads, *Bot. J. Linn. Soc.* 115: 79 (1994)

Lectotype (designated by Moore, in Allan 1961): Canterbury, New Zealand, *Haast 562*, 1862, Herb. Hookerianum, K (information from records of received specimens in the library at K indicates that this collection was made on a journey to the sources of the river Waitaki).

**Etymology:** The epithet *macrantha* refers to the large flowers.

**Vernacular name:** large-flowered hebe

Shrub to 0.5 m tall. Branches decumbent to erect, glabrous, or young branches eglandular-puberulent; hairs uniform or bifarious. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina coriaceous, oblanceolate or elliptic to obovate or sub-orbicular, 5.5–30.0 mm long, 2.5–13.0 mm wide, dull green above and beneath; midrib evident; surfaces glabrous; margins glabrous or sparsely ciliate, serrate with 1–7 (rarely to 11) pairs of teeth or rarely entire; apex sub-acute to obtuse; base cuneate; petiole 0.5–5.5 mm long. Inflorescence a lateral raceme, 8–57 mm long; flowers crowded, 2–7, all bisexual; bracts opposite below, becoming alternate above, narrowly deltoid to linear, > pedicels; pedicels erect to sub-erect, 5–15 mm long, puberulent all around or rarely glabrous. Calyx lobes 4, acuminate, 5–10 mm long, unequal, puberulent inside, mixed eglandular- and glandular-ciliate. Corolla 16–23 mm diameter; tube white and greenish-yellow, 4.5–5.5 mm long, < calyx, glabrous; lobes 4, white, sub-erect to spreading, sub-equal, narrowly elliptical to elliptical or ovate, 8–10 mm long, obtuse; nectar guides absent. Stamen filaments white, 8.0–9.5 mm long; anthers creamy white to yellowish. Style glabrous, 5.5–9.3 mm long. Capsules angustiseptate, acute to attenuate, glabrous, 6.0–12.5 mm long, 4.5–6.5 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, pale brown, 1.5–2.7 mm long.

- 1 Lamina elliptic to broadly elliptic; marginal teeth in 1–5 pairs; lowermost inflorescence bracts 2–4 (rarely –8) mm long..... var. *brachyphylla*  
Lamina mostly oblanceolate, rarely lanceolate to elliptic; marginal teeth in 2–12 pairs; lowermost inflorescence bracts 4–9 mm long..... var. *macrantha*

**Distribution:** South Island: Western Nelson, Sounds Nelson, west and south-west Marlborough, Westland, Canterbury (in the west), Otago (north-west), northern Fiordland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penalpine grassland and low shrubland mostly in the wetter mountains near the main divide. Recorded elevations range from 760 to 1910 m.

**Recognition:** *Veronica macrantha* is easily recognised. Plants have coriaceous toothed leaves that are similar in shape to those of the speedwell hebes and the sun hebes. However, their few-flowered inflorescences, large flowers, and acute capsules are points of difference from those groups (although the inflorescences are similar to those of *V. linifolia* and *V. colostylis*, distinguished by their linear entire leaves). Most speedwell hebes (e.g., *V. decora*) have coloured nectar guides on the corolla and lax, simple racemes, whereas sun hebes (e.g. *V. hulkeana*) have sessile or sub-sessile flowers in terminal compound racemes or spikes.

**Phenology:** Flowers: November–April; fruits: December–May, persisting all year.

**Cytology:** 2n = 42 (see Bayly & Kellow 2006, as *Hebe macrantha*).

**Notes:** *Veronica macrantha* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Grandiflorae” (Albach & Meudt 2010; Bayly & Kellow 2006). Chromosome number and molecular systematics both provide strong evidence that *V. macrantha* is, or is part of, an early-diverged lineage within the New Zealand clade (*V.* sect. *Hebe*), although beyond that its relationships are not clear and differ according to the DNA sequence being analysed (Albach & Meudt 2010). ITS alone places it near the shrubby hebes and *V. linifolia*, but the short branch lengths and weak support values indicate caution is warranted. Chloroplast DNA alone places it close to the semi-whipcord hebes (*V. hookeri* and relatives). Using combined nuclear (ITS) and chloroplast (cpDNA) sequences, *V. macrantha* seems more closely related to the sun hebes and speedwell hebes than to the shrubby hebes.

Variation in morphology and flavonoid chemistry was described by Bayly et al. 2004.

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***Veronica macrantha* var. *brachyphylla* Cheeseman, *Man. New Zealand Fl.* 537 (1906)**

≡ *Hebe macrantha* var. *brachyphylla* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 43 (1926)

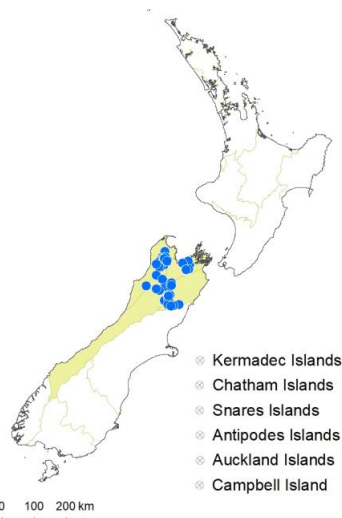
≡ *Parahebe macrantha* var. *brachyphylla* (Cheeseman) Heads, *Bot. J. Linn. Soc.* 115: 79 (1994)

Lectotype (designated by Moore, in Allan 1961): Mt Arthur, Nelson, 5000 ft, T. F.

C[heeseman], Jan 1886, 1663 to Kew, AK 58896. Isolectotype: K. Possible Isolectotypes: WELT 13114, 13122

**Etymology:** The epithet *brachyphylla* refers to the shorter leaves in this variety.

Lamina elliptic to broadly elliptic, 7–15 (rarely 6–18) mm long, 5–10 (rarely 4–12) mm wide, widest point about halfway; teeth in 1–5 pairs; petiole 1–4 mm long. Peduncle 1.5–10.0 (rarely –13.0) mm long; lowermost bracts 2–4 (rarely –8) mm long; pedicels 0.5–3.0 mm long. Calyx lobes 5–8 mm long.



**Fig. 668:** *Veronica macrantha* var. *brachyphylla* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Sounds Nelson, north Westland, Canterbury (north of about Lake Tennyson), west and south-west Marlborough.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penalpine grassland and low shrubland. Recorded elevations range from 760 to 1646 m.

**Recognition:** Plants of *V. macrantha* var. *macrantha* are distinguished from var. *brachyphylla* by narrower leaves that are mostly oblanceolate in shape and have more marginal teeth, and by their generally longer petioles, peduncles, lowermost inflorescence bracts, and calyx lobes. Identification is most likely to be difficult where the two varieties meet near Lake Tennyson. See Bayly et al. (2004) and Bayly & Kellow (2006) for more detailed information.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe macrantha* var. *brachyphylla*).



**Fig. 669:** *Veronica macrantha* var. *brachyphylla*. Habit. Cobb Valley, Nelson.



**Fig. 670:** *Veronica macrantha* var. *brachyphylla*. Leaf surfaces, adaxial (left) and abaxial (right), of a northern plant. Scale = 1 mm.

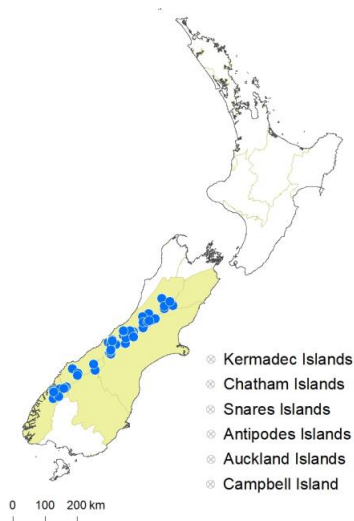


**Fig. 671:** *Veronica macrantha* var. *brachyphylla*.  
Flowers. Scale = 1 mm.

***Veronica macrantha* Hook.f., *Handb. New Zealand Fl.* 213 (1864) var. *macrantha***

≡ *Parahebe macrantha* (Hook.f.) Heads, *Bot. J. Linn. Soc.* 115: 79 (1994) var. *macrantha*  
 ≡ *Hebe macrantha* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 43 (1926) var. *macrantha*

Lamina oblanceolate or rarely lanceolate to elliptic, 12–22 (rarely 8–30) mm long, 6–12 (rarely 4–13) mm wide, widest point usually beyond halfway; teeth in 2–11 pairs; petiole 1.5–7.5 mm long. Peduncle 6.0–30.7 mm long; lowermost bracts 4–9.1 mm long; pedicels 1–10 (rarely –15) mm long. Calyx lobes (rarely 5–) 7–10 mm long.



**Fig. 672:** *Veronica macrantha* var. *macrantha* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: western Marlborough, western Canterbury, north-west Otago, Westland, northern Fiordland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penialpine grassland and low shrubland. Recorded elevations range from 900 to 1910 m.

**Recognition:** Plants of *V. macrantha* var. *brachyphylla* are distinguished from var. *macrantha* by shorter leaves that are mostly elliptic to broadly elliptic in shape and have fewer marginal teeth, and by their generally shorter petioles, peduncles, lowermost inflorescence bracts, and calyx lobes. *V. macrantha* var. *macrantha* shows more geographical variation, tending to have larger leaves in the southern part of its range, and identification is most likely to be difficult where the two varieties meet near Lake Tennyson. See Bayly et al. (2004) and Bayly & Kellow (2006) for more information.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe macrantha* var. *macrantha*).



**Fig. 673:** *Veronica macrantha* var. *macrantha*. Habit. Mt Wilberg, Westland.



**Fig. 674:** *Veronica macrantha* var. *macrantha*. Leaf surfaces, adaxial (left) and abaxial (right), of a southern plant. Scale = 1 mm.



**Fig. 675:** *Veronica macrantha* var. *macrantha*. Inflorescence and flowers. Scale = 1 mm.

## ***Veronica macrocalyx* J.B.Armstr., *Trans. New Zealand Inst.* 13: 353 (1881)**

≡ *Hebe macrocalyx* (J.B.Armstr.) G.Simpson, *Trans. Roy. Soc. New Zealand* 79: 427 (1952)  
Lectotype (designated by Moore, in Allan 1961): Black Range and Mt Armstrong, 6000 ft.,  
*J. B. A[rmstrong]*, 1867, CHR 635760

**Etymology:** The epithet *macrocalyx* refers to the long calyx, which is often equal to or slightly longer than the corolla tube.

Spreading low shrub to 0.2 m tall. Stems prostrate to decumbent, eglandular-puberulent or glabrous; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, diverging. Leaves opposite-decussate to sub-distichous, connate in pairs and encircling stem, erecto-patent to spreading; lamina coriaceous or fleshy, obovate to spatulate or ovate, elliptic, or rhomboid, 4–16 mm long, 2–9 mm wide, dull to glossy green above and beneath, midrib faint; surfaces glabrous; margins glabrous or glandular-ciliolate to minutely papillate or erose, entire or rarely with a few shallow teeth; apex obtuse or rounded or retuse; base cuneate; petiole indistinct, 1–5 mm long. Inflorescence a terminal very compact compound spike, 5–43 mm long; flowers crowded, 2–12 in each of terminal and 2–12 lateral spikes, female or bisexual on separate plants, ♀ > ♂; bracts opposite below, becoming alternate, linear to lanceolate or deltoid, ≤ calyx; pedicels absent. Calyx lobes 4–5 (5th lobe small, posterior), obtuse to sub-acute or occasionally acute, 4.0–8.5 mm long, unequal, glabrous or minutely mixed

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glandular and eglandular ciliolate. Corolla 3.5–8.0 mm diameter; tube white, 2.5–6.5 mm long, < to > calyx, glabrous. Corolla lobes 4, white, spreading to recurved, sub-equal to unequal, elliptic to orbicular or rhomboid, 2–3 mm long, sub-acute to obtuse; nectar guides absent. Stamen filaments white, 0.5–1.3 mm long, pink or magenta. Style glabrous, 3–8 mm long. Capsules latisepate, acute to sub-acute, glabrous, 3.5–5.5 mm long, 2.0–3.5 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow, 0.7–1.0 mm long.

- 1 Keel of lamina extending to apex; margin papillate and/or erose, reddish; calyx lobes red-tipped..... var. *humilis*  
Keel of lamina terminating short of apex; margins smooth or sometimes weakly erose towards apex, green or translucent; calyx lobes green-tipped..... var. *macrocalyx*

**Distribution:** South Island: Western Nelson, Sounds Nelson, western Marlborough, Westland, Canterbury (north of Mt Harman).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine herb-fields in rock debris and scree. Recorded elevations range from 1080 to 1908 m.

**Recognition:** *V. macrocalyx* is most similar to *V. haastii* and *V. kellowiae*. *V. haastii* plants differ by their broad, sessile, and often toothed leaves, broader and shorter calyx lobes and broader capsules. *V. kellowiae* plants differ by their simpler inflorescences with fewer lateral branches, and the terminal and lateral branches slightly stalked; they are generally much smaller. *V. macrocalyx* plants often grow with or near plants of *V. epacridea*, which have strongly keeled rigid and persistent leaves, thickened leaf margins, and long, fringing marginal hairs on bracts and calyx lobes.

Plants of two species from Southland and Otago, *V. murrellii* and *V. petriei*, have similar growth forms, but differ in their simple terminal spikes of always alternate flowers. Also, *V. murrellii* plants have short corolla tubes and far-exserted anthers, and *V. petriei* plants have sterile bracts at the base of the inflorescence.

**Phenology:** Flowers: September–March; fruits: November–April, persisting all year.

**Cytology:** 2n = 42 (see Bayly & Kellow 2006, as *Hebe macrocalyx*).

**Notes:** *Veronica macrocalyx* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Along with *V. haastii*, *V. epacridea*, and *V. kellowiae*, *V. macrocalyx* is one of a small clade that is sister to *V. odora* and *V. pauciramosa*, based on ITS sequence data (E.M. Low, unpublished).

### ***Veronica macrocalyx* var. *humilis* (G.Simpson) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)**

≡ *Hebe macrocalyx* var. *humilis* G.Simpson, *Trans. Roy. Soc. New Zealand* 79: 428 (1952)

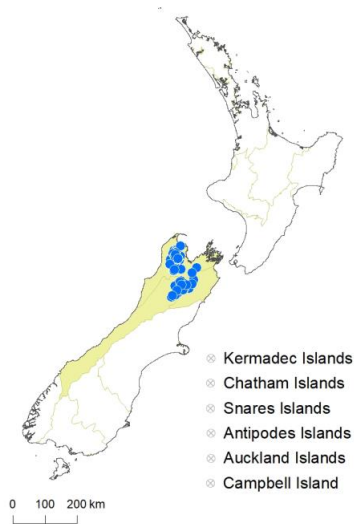
≡ *Hebe haastii* var. *humilis* (G.Simpson) L.B.Moore in Allan, *Fl. New Zealand* 1, 940 (1961)

≡ *Leonohebe haastii* var. *humilis* (G.Simpson) Heads, *Bot. Soc. Otago Newsl.* 5: 6 (1987)

Lectotype (designated by Moore, in Allan 1961): from a plant in cultivation at Geo Simpson’s garden Dunedin, collected from slopes of Mt French at 1525 m altitude, G. Simpson & J. S. Thomson, Feb 1932, CHR 76135

**Etymology:** The epithet *humilis* refers to the low-growing growth form of this variety.

Leaves mostly 4–11 mm long, rarely shorter; lamina weakly keeled; keel extending to apex; margins reddish and not translucent, either papillose or erose (sometimes both on the same leaf), sometimes minutely glandular-hairy, especially when young. Calyx lobes red-tipped.



**Fig. 676:** *Veronica macrocalyx* var. *humilis* distribution map based on databased records at AK, CHR & WELT.



**Fig. 677:** *Veronica macrocalyx*. Leaf surfaces, adaxial (left) and abaxial (right); *V. macrocalyx* var. *macrocalyx* (above) and var. *humilis* (below). Scale = 1 mm.

***Veronica macrocalyx* J.B.Armstr., *Trans. New Zealand Inst.* 13: 353 (1881) var. *macrocalyx***

≡ *Veronica haastii* var. *macrocalyx* (J.B.Armstr.) Cheeseman, *Man. New Zealand Fl.* 534 (1906)

≡ *Hebe haastii* var. *macrocalyx* (J.B.Armstr.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 42 (1926)

≡ *Hebe macrocalyx* (J.B.Armstr.) G.Simpson, *Trans. Roy. Soc. New Zealand* 79: 427 (1952) var. *macrocalyx*

≡ *Leonohebe haastii* var. *macrocalyx* (J.B.Armstr.) Heads, *Bot. Soc. Otago Newsl.* 5: 6 (1987)

Leaves mostly 7–13 mm long, rarely shorter; lamina very weakly keeled; keel terminating short of apex; margins greenish or translucent, smooth or weakly erose toward apex, glabrous. Calyx lobes green-tipped.

**Distribution:** South Island: Nelson, Sounds Nelson (Mt Richmond), western Marlborough, and Westland north of about Lewis Pass.

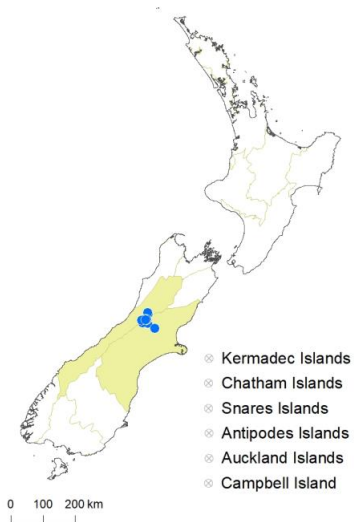
**Biostatus:** Indigenous (Endemic).

**Habitat:** Rocky alpine herb-fields, debris, and scree. Recorded elevations range from 1100 to 1908 m.

**Recognition:** Specimens from shaded sites in Nelson and Marlborough, such as in sink-holes, tend to have a more lax and sprawling habit, with longer internodes, darker green, spatulate to orbicular and sometimes sparingly toothed leaves, although toothed leaves also occur rarely on plants from sunny sites.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe macrocalyx* var. *humilis*).





**Fig. 678:** *Veronica macrocalyx* var. *macrocalyx* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury, Westland (from Mt Alexander to Mt Harman, near Brownings Pass). A specimen of var. *macrocalyx* from the ridge above Avoca, Canterbury (CHR 76141), is from much further east than all others, but the record is accepted because other species characteristic of the main divide (e.g., *V. linifolia*) also reach the Torlesse Range.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock debris and scree. Recorded elevations range from 1080 to 1900 m.

**Recognition:** Bayly & Kellow (2006) note that plants at Mt Rolleston may be hard to place in either variety.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe macrocalyx* var. *macrocalyx*).



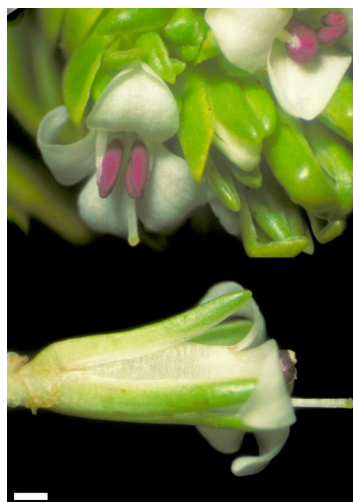
**Fig. 679:** *Veronica macrocalyx* var. *macrocalyx*. Habit. Upper Bealey Valley, Canterbury.



**Fig. 680:** *Veronica macrocalyx* var. *macrocalyx*. Sprig. Scale = 10 mm.



**Fig. 681:** *Veronica macrocalyx* var. *macrocalyx*. Connate leaf bases. Scale = 1 mm



**Fig. 682:** *Veronica macrocalyx* var. *macrocalyx*. Bisexual flowers. Scale = 1 mm.



**Fig. 683:** *Veronica macrocalyx* var. *macrocalyx*. Female flowers. Scale = 1 mm.



**Fig. 684:** *Veronica macrocalyx* var. *macrocalyx*. Capsules. Scale = 1 mm.

### ***Veronica macrocarpa* Vahl, *Symb. Bot. (Vahl)* 3, 4 (1794)**

≡ *Panoxis macrocarpa* (Vahl.) Raf., *Med. Fl.* 109 (1830) nom. illeg.

≡ *Hebe macrocarpa* (Vahl) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 20 (1926)

Holotype: nova zelandia [written on back of sheet], Hb. Vahlia [IDC microfiche foto Vahl. 78III, 2-3], C

= *Veronica latisepala* Kirk, *Trans. New Zealand Inst.* 28: 530 (1896)

≡ *Veronica macrocarpa* var. *latisepala* (Kirk) Cheeseman, *Man. New Zealand Fl.* 505 (1906)

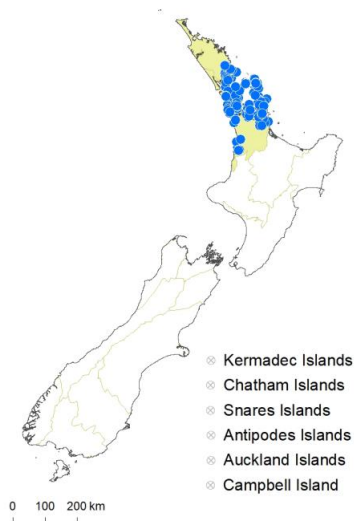
≡ *Hebe macrocarpa* var. *latisepala* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 20 (1926)

Lectotype (designated by Moore, in Allan 1961): cultd plant from Port Fitzroy, T. Kirk, WELT 5320. Possible isoelectotype: K (*Kirk no.* 1428)

**Etymology:** The epithet *macrocarpa* refers to the large capsules.

**Vernacular names:** koromiko; kōkōmuka

Shrub to 3 m tall. Stems erect, eglandular-pubescent; hairs uniform to bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown, sinus absent. Leaves opposite-decussate, erecto-patent to recurved; lamina coriaceous, linear to elliptic to oblong to oblanceolate, 45–110 (rarely 23–163) mm long, 9–22 (rarely 5–32) mm wide, glossy green or dark green above, dull pale green or green beneath; midrib and secondary veins evident; surfaces glabrous except sometimes for eglandular hairs along midrib above; margin glabrous or ciliate, entire, narrowly cartilaginous; apex obtuse to acute or sometimes apiculate or acuminate; base cuneate to truncate; petiole absent or indistinct, 1–2 mm long. Inflorescence a lateral raceme, 30–132 mm long; flowers crowded to distant, 13–85, all bisexual; bracts alternate or sometimes lowermost pair opposite, lanceolate to deltoid to oblong, < pedicels; pedicels spreading to recurved, 1.0–5.5 mm long, puberulent all round. Calyx lobes 4, acute to obtuse, 2–4 mm long, equal, glabrous or rarely hairy outside, mixed glandular- and eglandular-ciliolate. Corolla 5–9 mm diameter; tube white or purplish to pinkish, 2.2–5.5 mm long, > calyx, eglandular-hairy inside; lobes 4, white or purplish, sometimes pinkish, erect to sub-erect, or posterior lobe spreading, unequal, elliptic to ovate, to deltoid and narrowed at base, 3–6 mm long, obtuse; nectar guides absent. Stamen filaments white to pale purplish, 5.5–12.2 mm long; anthers pink, purplish, or yellow. Style glabrous, 5.0–11.5 mm (rarely to 17 mm) long. Capsules latiseptate, acute or sub-acute, glabrous, 3.8–10.0 mm long, 3.0–6.5 mm at widest point. Seeds discoid or broadly ellipsoid, flattened, smooth, pale brown to brown, 1.0–2.5 mm (sometimes to 3.2 mm) long.



**Fig. 685:** *Veronica macrocarpa* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Northland, Auckland (from Whangārei south to Kawhia, Hauraki Gulf islands, Mercury Is.), Volcanic Plateau (southern Kaimai Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Scrub, forest margins, open places in forests, rock outcrops and cliffs. Recorded elevations range from 0 to 1275 m.

**Recognition:** *V. macrocarpa* and *V. corriganii* plants are very similar. Plants of *V. corriganii* can be distinguished by having a small and squarish leaf bud sinus and a longer (2.5–3.2 mm) petiole, more flowers (100–120) per inflorescence, and shorter (4.5–5.0 mm) stamen filaments. At least in the south of its range, *V. corriganii* flowers and fruits are smaller and more crowded than those of *V. macrocarpa*.

*Veronica punicea* plants have similar leaves, large, long-tubed corollas, large fruits, and large seeds. They may be distinguished by their magenta corollas and very short, puberulent indumentum.

(See: Table 2).

**Phenology:** Flowers: April–November (rarely to January); fruits: January–December.

**Cytology:**  $2n = 80, 120$  (see Bayly & Kellow 2006, as *Hebe macrocarpa*).

**Hybridisation:** *V. macrocarpa* commonly hybridises with *V. stricta*, a hybrid that has been called *V. ×affinis* (Cheeseman) Garn.-Jones.

**Notes:** *Veronica macrocarpa* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

The relationships of *V. macrocarpa* are unclear, but similar flowers and fruits are found in several other northern species, such as *V. corriganii*, *V. punicea*, *V. adamsii*, *V. speciosa*, and *V. perbella*. Molecular systematics indicates these species might all belong in a large clade with a number of other species.

This treatment follows the circumscription of this species in Bayly & Kellow 2006; i.e., it includes *V. latisepala* (*V. macrocarpa* var. *latisepala*), and excludes var. *brevifolia* (*Veronica punicea*) and *V. corriganii*.

There is considerable variation within *V. macrocarpa*. In general, plants from Great Barrier I. (Aotea I.), Te Hauturu-o-Toi / Little Barrier I., and some localities at Whangārei and Coromandel can be distinguished as *V. macrocarpa* var. *latisepala*. These have narrower leaves, compact and secund inflorescences of recurved violet flowers that have brownish and often obtuse calyx lobes, and very long corolla tubes, stamen filaments, and styles. These also have  $2n = 120$ . However, some plants with  $2n = 120$  have white flowers (see Bayly & Kellow 2006 for a fuller discussion of the difficulties of consistently recognising two varieties).

In addition, flower and capsule sizes vary within *V. macrocarpa*, especially in plants from mainland populations.



**Fig. 686:** *Veronica macrocarpa*. Habit. Windy Canyon, Great Barrier I (Aotea I.). This plant matches material identified as var. *latisepala*.



**Fig. 687:** *Veronica macrocarpa*. Sprig. Scale = 10 mm. This plant matches material identified as var. *latisepala*.



**Fig. 688:** *Veronica macrocarpa*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm. This plant matches material identified as var. *latisepala*.



**Fig. 689:** *Veronica macrocarpa*. Flowers. Scale = 1 mm. This plant matches material identified as var. *latisepala*.



**Fig. 690:** *Veronica macrocarpa*. Habit. Shakespeare Cliff, Coromandel Peninsula. This plant matches material identified as var. *macrocarpa*.



**Fig. 691:** *Veronica macrocarpa*. Sprig. Scale = 10 mm. This plant matches material identified as var. *macrocarpa*.



**Fig. 692:** *Veronica macrocarpa*. Leaf bud with no sinus. Scale = 1 mm. This plant matches material identified as var. *macrocarpa*.



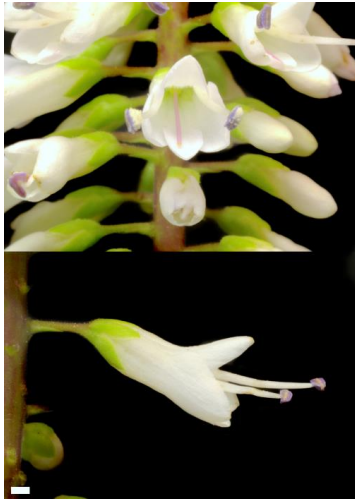
**Fig. 693:** *Veronica macrocarpa*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm. This plant matches material identified as var. *macrocarpa*.



**Fig. 694:** *Veronica macrocarpa*. Inflorescence (left), immature infructescence (centre), and mature infructescence (right). Scale = 10 mm. This plant matches material identified as var. *macrocarpa*.



**Fig. 695:** *Veronica macrocarpa*. Inflorescence. This plant matches material identified as var. *macrocarpa*.



**Fig. 696:** *Veronica macrocarpa*. Flowers. Scale = 1 mm. This plant matches material identified as var. *macrocarpa*.



**Fig. 697:** *Veronica macrocarpa*. Capsules. Scale = 1 mm. This plant matches material identified as var. *macrocarpa*.

### ***Veronica masoniae* (L.B.Moore) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

≡ *Hebe pauciramosa* var. *masoniae* L.B.Moore in Allan, *Fl. New Zealand* 1, 926 (1961) – as *masonae*

≡ *Leonohebe masoniae* (L.B.Moore) Heads, *Bot. Soc. Otago Newsl.* 5: 10 (1987)

≡ *Hebe masoniae* (L.B.Moore) Garn.-Jones, *Austral. Syst. Bot.* 6: 478 (1993)

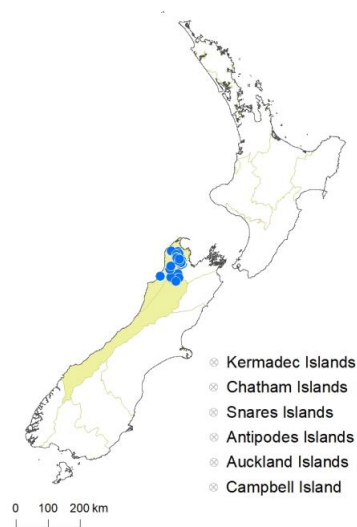
Holotype: Head of Cobb Valley, Nelson, *R. Mason*, 23 Feb 1946, CHR 54435

= *Leonohebe masoniae* var. *rotundata* Heads, *Bot. Soc. Otago Newsl.* 5: 11 (1987)

Holotype: mineral belt north of Cobb Reservoir, tussockland, 3500 ft, *A. P. Druce*, Nov 1980, CHR 389212

**Etymology:** Named after Ruth Mason (1913–1990), botanist, who collected the type material and noted some distinct features of the plants.

Shrub to 0.5 m tall. Stems decumbent or ascending to erect, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus broadly shield-shaped. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, rigid, oblong to broadly oblong, to elliptic to sub-orbicular, 3–10 mm long, 4–8 mm wide, glossy green to dark green above and beneath, sometimes yellowish, especially on margins; midrib beneath and occasionally two faint lateral veins evident; surfaces glabrous; margin smooth or minutely papillate distally, ciliolate when young, entire; apex obtuse and slightly apiculate; base truncate to sub-cordate; petiole 1–2 mm long. Inflorescence a simple or compound terminal spike, 8–18 mm long; flowers crowded, 2–14, all bisexual; bracts opposite-decussate and connate, elliptic to sub-orbicular or rhomboid,  $\geq$  calyx; pedicels absent. Calyx lobes 4, obtuse to sub-acute, 5.0–6.5 mm long, unequal, eglandular-ciliate, rarely with a few glandular hairs as well. Corolla 10–15 mm diameter; tube white, 4.5–6.0 mm long, = or slightly > calyx, eglandular-hairy in tube, with small glandular hairs at throat; lobes 4, white, sometimes purplish or pink, erecto-patent to recurved, sub-equal, elliptic to broadly obovate or sub-orbicular, 5–7 mm long, rounded; nectar guides absent. Stamen filaments white 5–8 mm long; anthers magenta. Style glabrous, 7–9 mm long. Capsules latisepate, sub-acute to obtuse, glabrous, 4–5 mm long, 3.5–4.0 mm at widest point. Seeds ellipsoid to circular, flattened, smooth, pale brown, 1.5–2.1 mm long.



**Fig. 698:** *Veronica masoniae* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Westland (from Boulder Lake to the Braeburn Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine to penalpine tussock grassland, carpet grass (*Chionochloa australis*) and low scrub, sometimes in wet sites. Recorded elevations range from 769 to 1553 m.

**Recognition:** Plants of *Veronica masoniae* and *V. pauciramosa* are similar; they have small, rounded leaves with stomata on both surfaces, rounded leaf margins, and red stigmas. However, *V. pauciramosa* plants differ in the distinctive flattening of the leaf keel just before the apex, lateral inflorescences, acutely deltoid bracts that are < calyx, calyx lobes 3–4 mm long, the anterior fused at least  $\frac{2}{3}$ -way to the apex, long-exserted corolla tubes, and broad corolla lobes. *V. mooreae* plants have similar broad corolla lobes, but differ in their bevelled leaf margins, which are minutely crenulate, stomata usually on only the abaxial leaf surface, lateral inflorescences, and shorter bracts.

(See: Table 11)

**Phenology:** Flowers: October–April; fruits: January–May (sometimes persisting until November).

**Cytology:**  $2n = 118$  (see Bayly & Kellow 2006, as *Hebe masoniae*).

**Notes:** *Veronica masoniae* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Buxifoliatae” (Albach & Meudt 2010; Bayly & Kellow 2006). Although *V. masoniae* resembles *V. pauciramosa* (with which it was included until 1987) and *V. odora*, analysis of ITS sequence data (E.M. Low, unpublished) places it among a large and poorly resolved clade of shrubby hebes that mostly have  $2n = 40, 80, 120$ . Further research to clarify its position and origins is needed.

Flowers of both *V. masoniae* and *V. pauciramosa* have characteristic dark red stigmas.



**Fig. 699:** *Veronica masoniae*. Habit. Peel Range, North-west Nelson.



**Fig. 700:** *Veronica masoniae*. Habit. Cobb Valley, North-west Nelson.



**Fig. 701:** *Veronica masoniae*. Sprig. Scale = 10 mm.



**Fig. 702:** *Veronica masoniae*. Sprig. Scale = 10 mm.



**Fig. 703:** *Veronica masoniae*. Branchlet from which old leaves have fallen, leaving yellowish portions of the petioles attached. Scale = 1 mm.

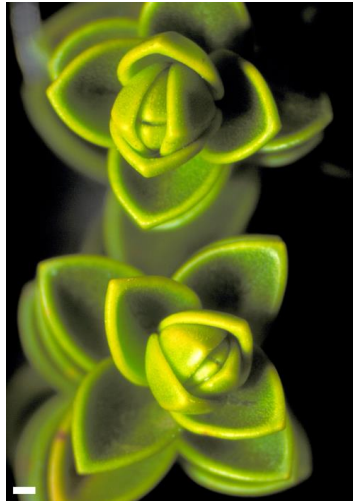


**Fig. 704:** *Veronica masoniae*. Leaf bud with shield-shaped sinus. Scale = 1 mm.





**Fig. 705:** *Veronica masoniae*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 706:** *Veronica masoniae*. Apical view of leaf buds surrounded by several imbricate leaf pairs. Scale = 1 mm.



**Fig. 707:** *Veronica masoniae*. Inflorescence bracts obscuring the calyces. Scale = 1 mm.



**Fig. 708:** *Veronica masoniae*. Flowers. Scale = 1 mm.



**Fig. 709:** *Veronica masoniae*. Portion of an infructescence. Scale = 1 mm.



**Fig. 710:** *Veronica masoniae*. Capsules. Scale = 1 mm.



**Fig. 711:** *Veronica masoniae*. Seeds.  
Scale = 1 mm.

***Veronica melanocaulon* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

nom. nov. pro *Parahebe catarractae* subsp. *martinii* Garn.-Jones 1980

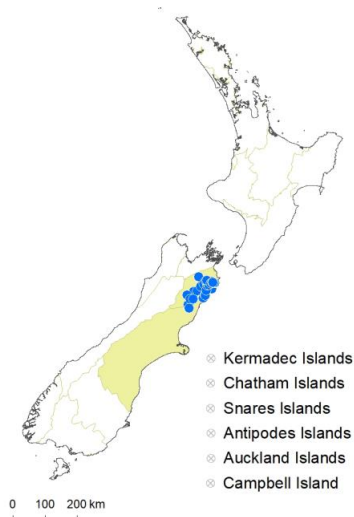
≡ *Parahebe catarractae* subsp. *martinii* Garn.-Jones in Garnock-Jones & Langer, *New Zealand J. Bot.* 18: 295 (1980)

≡ *Parahebe martinii* (Garn.-Jones) Garn.-Jones in Garnock-Jones & Lloyd, *New Zealand J. Bot.* 42: 217 (2004)

Holotype: Brian Boru Stream N.E. of Chalk Range. Marlborough. c. 1000 ft. A. P. Druce, 8.12.1975, CHR 279134 A

**Etymology:** The epithet *melanocaulon* refers to the dark stems, which are almost black (sometimes dark reddish or purplish).

Sprawling sub-shrub to 0.25 m tall. Stems prostrate to decumbent, eglandular-pubescent or glabrous; hairs bifarious. Leaf bud indistinct; leaves separating while very small, sub-distichous, spreading to reflexed; lamina sub-coriaceous, oblanceolate or obovate, sometimes elliptic, 5–35 mm long, 2–15 mm wide, glossy to somewhat dull green above, dull pale green beneath; midrib evident at least near base; surfaces with eglandular hairs along midrib above; margin glabrous, serrate; teeth in 3–5 (rarely 1–2) pairs; apex sub-acute, obtuse, or rounded; base cuneate; petiole 1–4 mm long. Inflorescence a lateral raceme, 70–120 mm long; flowers distant, 6–30, all bisexual; bracts alternate, linear to lanceolate, < pedicels; pedicels erecto-patent, incurved at fruiting, 6–17 mm long, glabrous or eglandular- rarely glandular-hairy all around. Calyx lobes usually 4, rarely 5, sub-acute to acuminate, 3–4 mm long, sub-equal, glabrous or glandular-ciliate. Corolla 7–13 mm diameter; tube white and yellow, 1.0–1.5 mm long, < calyx, eglandular-hairy inside; lobes 4, white or tinged pale purple, spreading, unequal, elliptic to obovate to orbicular, 3–6 mm long, rounded; nectar guides magenta or pink. Stamen filaments white, 3.5–4.0 mm long; anthers pink or purplish. Style glabrous, 3–5 mm long. Capsules angustiseptate, emarginate to didymous, glabrous, 3.0–4.3 mm long, 3–4 mm at widest point. Seeds ellipsoid or discoid, flattened, smooth, pale to dark brown, 0.7–1.2 mm long.



**Fig. 712:** *Veronica melanocaulon* distribution map based on databased records at AK, CHR & WELT.

*Parahebe catarractae* subsp. *martinii*).

**Notes:** *Veronica melanocaulon* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* (Albach & Meudt 2010). Molecular studies (Albach & Meudt 2010) and morphology place *V. melanocaulon* firmly among the “speedwell hebes”, such as *V. lanceolata*, *V. catarractae*, and *V. lyallii*.

**Distribution:** South Island: Marlborough, Canterbury (Seaward Kaikōura Mountains from Waimā River to Mt Terako and Mason River; Inland Kaikōura Mountains; Wairau Mountains at Spray River).

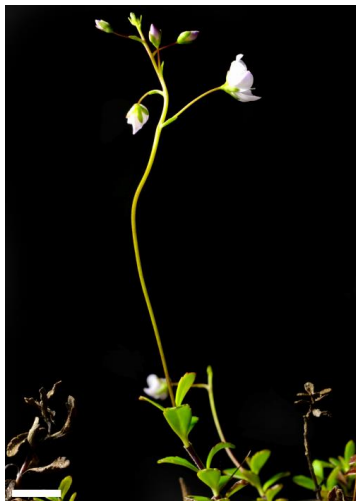
**Biostatus:** Indigenous (Endemic).

**Habitat:** Gorges and rocky river and stream banks and cliffs on limestone and greywacke, usually shaded. Recorded elevations range from 100 to 930 m.

**Recognition:** The sprawling habit, dark purplish- or reddish-black stems contrasting with the green petioles, narrow anterior corolla lobes, and glabrous or glandular inflorescences distinguish plants of *V. melanocaulon* from other speedwell hebes that have plicate corolla lobes and nectar guides. In this group, *V. melanocaulon* plants are most similar to some prostrate forms of *V. lanceolata*, which, however, are found in the North Island.

**Phenology:** Flowers: November–April; fruits: December–April, probably persisting later.

**Cytology:**  $2n = 42$  (Garnock-Jones & Langer 1980, as



**Fig. 713:** *Veronica melanocaulon*. Sprig. Scale = 10 mm.



**Fig. 714:** *Veronica melanocaulon*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 715:** *Veronica melanoaulon*. Flowers.  
Scale = 1mm.



**Fig. 716:** *Veronica melanoaulon*. Capsules.  
Scale = 1 mm.



**Fig. 717:** *Veronica melanoaulon*. Capsules.  
Scale = 1 mm.



**Fig. 718:** *Veronica melanoaulon*. Seeds.  
Scale = 1 mm.

### ***Veronica mooreae* (Heads) Garn.-Jones in Garnock-Jones et al., Taxon 56: 578 (2007)**

≡ *Leonohebe mooreae* Heads, *Bot. Soc. Otago Newsl.* 5: 10 (1987)

≡ *Hebe mooreae* (Heads) Garn.-Jones, *Austral. Syst. Bot.* 6: 479 (1993)

Holotype: Douglas Range, South Westland, 4100', in low scrub on a steep gully side,  
*P. Wardle*, 16 Dec 1978, CHR 321236

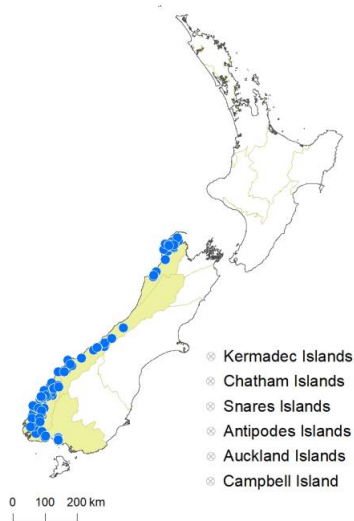
= *Leonohebe mooreae* var. *telmata* Heads, *Bot. Soc. Otago Newsl.* 5: 10 (1987)

Holotype: Douglas Range, South Westland, 3500', abundant in *Chionochloa* grassland on  
rolling country, *P. Wardle*, 16 Dec 1978, CHR 231327

**Etymology:** Named after prominent New Zealand botanist Lucy Beatrice Moore (1906–1987), who prepared the treatment of *Hebe* (except the whipcord spp.) for *Flora of New Zealand* Vol. 1 (Allan 1961).

Shrub to 1.2 m tall or rarely to 2.0 m. Stems erect, eglandular-pubescent, hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus shield-shaped to rhomboid, or sometimes narrow and acute. Leaves opposite-decussate, erecto-patent; lamina coriaceous, rigid, oblong, oblong-elliptic, oblong-lanceolate, or linear-oblong, 7–28 mm long, 3–8 mm wide, glossy dark green above, somewhat glossy green to dark green beneath; midrib and two lateral veins evident; surfaces glabrous; margin glabrous, entire but minutely crenulate; apex acute or sub-acute; base steeply cuneate to truncate; petiole 1–3 mm long. Inflorescence a lateral spike or raceme, 8–30 mm

long; flowers crowded, 3–13, all bisexual; bracts opposite-decussate, connate, ovate or deltoid, > pedicels; pedicels erect, 0–1 mm long, sparsely eglandular-pubescent all around. Calyx lobes 4, anterior pair sometimes fused in lower 1/3, obtuse to sub-acute, 3–4 mm long, sub-equal, eglandular-ciliolate or mixed glandular- and eglandular-ciliolate. Corolla 10–12 mm diameter; tube white, 4–5 mm long, ≥ calyx; glabrous or with mixed eglandular and glandular hairs inside; lobes 4, white, erecto-patent to recurved, sub-equal, elliptic to broadly elliptic, 5–6 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 3–4 mm long; anthers pink or pale pink. Style glabrous, 5.5–8.5 mm long. Capsules latiseptate, acute or sub-acute, glabrous, 3.5–4.5 mm long, 2.0–2.8 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, pale brown, 1.2–1.8 mm long.



**Fig. 719:** *Veronica mooreae* distribution map based on databased records at AK, CHR & WELT.

although this feature varies and is present in some plants of *V. odora*.

(See: Table 11)

**Phenology:** Flowers: November–February, sometimes to June); fruits: January–June (sometimes persisting to be present all year).

**Cytology:**  $2n = 126$  (see Bayly & Kellow 2006, as *Hebe mooreae*).

**Notes:** *Veronica mooreae* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “*Buxifoliatae*” (Albach & Meudt 2010; Bayly & Kellow 2006). The phylogenetic relationships of *V. mooreae* are not well resolved. On the basis of ITS sequence data, it falls within a large, unresolved grouping of shrubby hebes that have  $2n = 40, 80, 120$ , not close to *V. odora* ( $2n = 42, 84$ ), with which it was previously confused. Its unusual chromosome number ( $2n = 126$ ) suggests it might have a hybrid origin, and it is possible that one of its parent species is *V. odora*.

The thickened leaf margins are usually bevelled at about 90° to the surfaces, and their minute crenulations are visible with a lens or can be felt by rubbing a fingernail along the margin.

Plants from Goulard Downs have long internodes and slender leaves that are almost linear-elliptic.

**Distribution:** South Island: Western Nelson (western mountains, Goulard Downs), Westland (Denniston Plateau and south of Mt Wilberg), Fiordland, Southland (Hump Ridge and Longwood Range).

Records from Canterbury (Wild Mans Brother Range, Cameron River, *Laing*, WELT17242) and Otago (East Dome, CHR 4138; regarded as anomalous by Bayly & Kellow 2006) are not mapped here.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penalpine grassland and montane to sub-alpine scrub. Recorded elevations range from 500 to 1385 m.

**Recognition:** Plants now recognised as *Veronica mooreae* were for many years included in *V. odora*, which they resemble in habit and leaves that have bevelled margins and mostly have stomata on the abaxial surface only (plants from Caswell Sound and Denniston have stomata on the adaxial surface as well). They can be distinguished from *V. odora* plants by their strictly lateral inflorescences and larger flowers with broader corolla lobes. Also, they usually have crenulate leaf margins (which feel rough to a fingernail rubbed along the margin),



**Fig. 720:** *Veronica mooreae*. Habit. Hump Ridge, Southland.



**Fig. 721:** *Veronica mooreae*. Sprig. Scale = 10 mm.



**Fig. 722:** *Veronica mooreae*. Leaf bud with shield-shaped sinus. Scale = 1 mm.



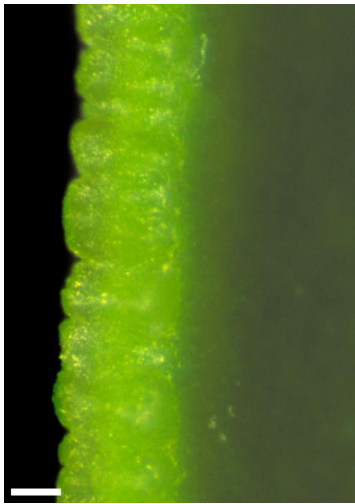
**Fig. 723:** *Veronica mooreae*. Branchlet from which old leaves have fallen, leaving yellowish portions of the petioles attached. Scale = 1 mm.



**Fig. 724:** *Veronica mooreae*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 725:** *Veronica mooreae*. A leaf with stomata on the adaxial surface, a feature common only near Denniston and Caswell Sound. Scale = 1 mm.



**Fig. 726:** *Veronica moorea*. Leaf margin. Scale = 0.1 mm.



**Fig. 727:** *Veronica moorea*. Flowers. Scale = 1 mm.



**Fig. 728:** *Veronica moorea*. Immature infructescence. Scale = 1 mm.



**Fig. 729:** *Veronica moorea*. Mature infructescence. Scale = 1 mm.



**Fig. 730:** *Veronica moorea*. Capsules. Scale = 1 mm.

## *Veronica murrellii* (G.Simpson & J.S.Thomson) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)

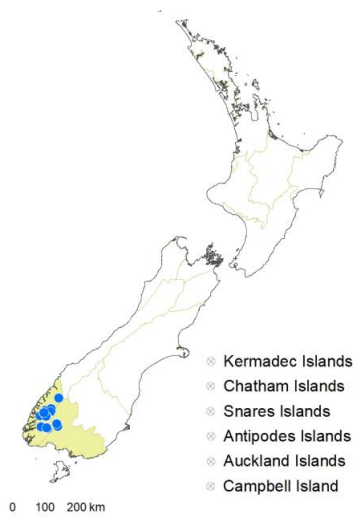
≡ *Hebe murrellii* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 73: 165 (1943)  
≡ *Hebe petriei* var. *murrellii* (G.Simpson & J.S.Thomson) L.B.Moore in Allan, *Fl. New Zealand* 1, 938 (1961)

≡ *Leonohebe petriei* var. *murrellii* (G.Simpson & J.S.Thomson) Heads, *Bot. Soc. Otago Newsl.* 5: 6 (1987)

Holotype: Kepler Range at sources of the Freeman River, moist shaded openings amongst rocks G. Simpson and J. S. Thomson, March 1942 (note written on sheet in pencil, under label, states "Fowler Pass...leg. et ident. G. Simpson"), CHR 75695. Probable isotype: AK 22904

**Etymology:** The epithet honours the Murrell family of Manapouri, well-known explorers, guides, and botanists in Fiordland, most likely especially Leslie Murrell (1893–1953).

Low sub-shrub to 0.2 m tall. Stems decumbent to erect, glabrous or sometimes puberulent; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, diverging. Leaves opposite-decussate to sub-distichous, shortly connate in pairs and encircling stem, erecto-patent to spreading; lamina sub-coriaceous, elliptic to obovate, 3.5–9.0 mm long, 2–5 mm wide, somewhat glossy yellowish-green above and beneath; midrib evident; surfaces with sparse eglandular hairs along midrib above and beneath; margin minutely ciliolate or glabrous, entire; apex broadly rounded to slightly retuse; base cuneate; petiole 1–2 mm long. Inflorescence a terminal raceme, 7–35 mm long; flowers crowded, 12–20, female or bisexual on separate plants, ♀ > ♂; bracts alternate or rarely the lowest opposite, ovate to elliptic, > pedicels; pedicels erect to erecto-patent, 0.5–2.0 mm long, glandular-, eglandular-, or mixed puberulent. Calyx lobes 4, sub-acute to obtuse, 2.5–4.0 mm long, unequal, minutely mixed glandular- and eglandular-ciliolate. Corolla 5–7 mm diameter; tube white, 1.5–2.0 mm long, < calyx, glabrous; lobes 4, white, recurved, sub-equal, elliptic to obovate or orbicular, 2.5–5.0 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 1–2 mm long; anthers purple. Style glabrous, 3–6 mm long. Capsules latiseptate, acute or sub-acute, glabrous, 3–5 mm long, 2–3 mm at widest point. Seeds discoid to ellipsoid; plano-convex, smooth, straw-yellow or pale brown, 0.9–1.1 mm long.



**Fig. 731:** *Veronica murrellii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Fiordland (on and east of the main divide from Earl Mountains to Mt Burns), Southland (Takitimu Mountains).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock outcrops, boulder fields, talus, and scree. Recorded elevations range from 1100 to 1500 m.

**Recognition:** *Veronica murrellii* and *V. petriei* plants are similar and the species' distributions overlap on the Takitimu Ranges, where they grow together between Tower Peak and Excelsior Peak (Garnock-Jones & Clarkson 1994). They both differ from other members of "Connatae" by their simple racemose inflorescences and alternate flowers and bracts (rarely the lowest flowers opposite). Both have sweet-scented flowers (other "Connatae" are stale-scented).

*V. petriei* plants can be distinguished from *V. murrellii* plants by their lax habit, stems barely pubescent and only at the leaf bases, darker green leaves that are more distinctly connate, longer, narrower calyx lobes, a long and narrow corolla tube, narrow and sub-erect to spreading corolla lobes, and magenta anthers presented at the corolla throat.

*V. notialis* plants have a similar habit to plants of *V. murrellii* and *V. petriei*, but differ in their rigid, highly glossy leaves, which usually have a densely hairy margin of branched and tangled hairs, lateral two- to four-flowered inflorescences, broader corolla lobes, and angustiseptate truncate to didymous capsules.



**Table 6:** Comparison of *Veronica murrellii* and *V. petriei*. (Based on Garnock-Jones & Clarkson 1994)

	<i>murrellii</i>	<i>petriei</i>
Stem	glabrous or broadly bifariously puberulent	glabrous or puberulent at connate leaf bases
Leaf bases	barely connate for 0.2–0.5 mm	connate for c. 0.5 mm
Floral bracts	3.5–5 × 1.7–2 mm, ovate to elliptic, usually all subtending flowers	5–7 × 1–1.5 mm, linear to lanceolate, usually numerous sterile ones at base of inflorescence
Calyx lobes	4; 2.5–4 mm long, linear, lanceolate or narrowly elliptic, subacute to obtuse	4–5, 3.5–6 mm long, linear to narrowly ovate, acute to acuminate
Corolla tube	1.5–2 mm long, funnellform	3–6 mm long, cylindric
Corolla lobes	elliptic to orbicular	linear to narrowly elliptic, posterior sometimes suborbicular
Anthers	exserted, purple	presented at corolla throat, magenta

**Phenology:** Flowers: December–March; fruits: January–April.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe murrellii*).

**Notes:** *Veronica murrellii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006). The connate leaf bases that are characteristic of the “Connatae” are only barely so in *V. murrellii*.

*V. murrellii* is an early-diverging single lineage in the hebe clade of New Zealand *Veronica*, according to analysis of ITS sequence data by E.M. Low. The similar *V. petriei* is a separate early lineage in the same part of the tree.



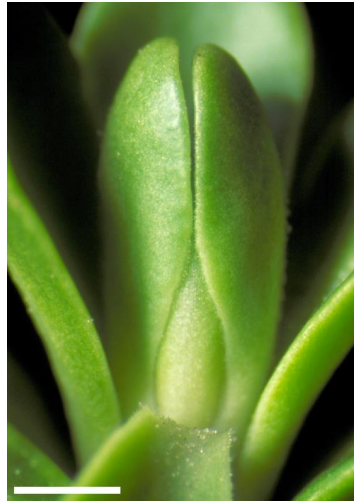
**Fig. 732:** *Veronica murrellii*. Habit. Takitimu Mts, Southland.



**Fig. 733:** *Veronica murrellii*. Sprig. Scale = 10 mm.



**Fig. 734:** *Veronica murrellii*. Shortly connate leaf bases. Scale = 1 mm.



**Fig. 735:** *Veronica murrellii*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 736:** *Veronica murrellii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 737:** *Veronica murrellii*. Inflorescence. Scale = 10 mm.



**Fig. 738:** *Veronica murrellii*. Female flowers, with short stamens and small anthers. Scale = 1 mm.



**Fig. 739:** *Veronica murrellii*. Male flowers, with exserted anthers. Scale = 1 mm.



**Fig. 740:** *Veronica murrellii*. Capsules.  
Scale = 1 mm.

### ***Veronica notialis* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

nom. nov. pro *Hebe pauciflora* G.Simpson & J.S.Thomson 1943

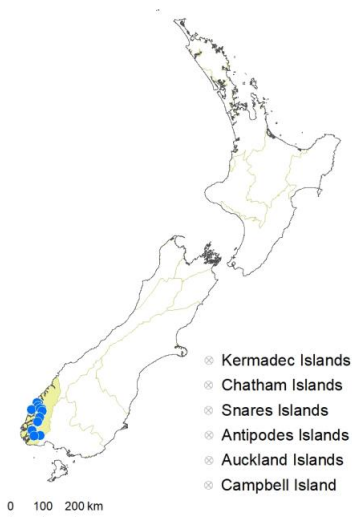
≡ *Hebe pauciflora* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 73: 166 (1943)

≡ *Leonohebe pauciflora* (G.Simpson & J.S.Thomson) Heads, *Bot. Soc. Otago Newsl.* 5: 10 (1987)

Holotype: Kepler Range, near Fowler Pass, grassland in open situations, G. Simpson, Mar 1942, CHR 75689. Probable isotypes: CHR 97607, K, and AK 22903

**Etymology:** *Notialis*: southern. This species is endemic to western Fiordland, making it one of the world's southernmost veronicas.

Spreading low shrub to 0.2 m tall. Stems decumbent to erect, eglandular-pubescent or glabrous; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, diverging but leaving a broad, acute sinus at the base. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, rigid, ovate to rhomboid or spatulate or orbicular, 2–6 mm long, 2–6 mm wide, glossy pale green or yellowish to dark green above and beneath, weakly keeled but veins not evident; surfaces glabrous; margins eglandular-pubescent with long, tangled and often branching hairs, sometimes glabrous or finely papillate, entire, translucent, cartilaginous; apex obtuse to sub-acute or bluntly sub-apiculate; base cuneate; petiole broad, 1–2 mm long. Inflorescence a lateral spike or raceme, 6–14 mm long; flowers crowded, 2–4 or sometimes solitary, all bisexual; bracts opposite-decussate, connate, lanceolate to deltoid, > pedicels; pedicels erecto-patent, 0–1 mm long, glabrous or eglandular-hairy all around. Calyx lobes 4, acute, 4–6 mm long, sub-equal, eglandular-ciliate with tangled branching hairs. Corolla 6–9 mm diameter; tube white, 3–4 mm long, ≥ calyx, glabrous; lobes 4, white, spreading to recurved, sub-equal, elliptic to orbicular, 3.0–4.5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 1.5–2.0 mm long; anthers pink, magenta, or purplish. Style 1.8–3.0 mm long. Capsule angustiseptate, truncate to didymous, glabrous, 4.5–5.0 mm long, 4 mm at widest point. Seeds ellipsoid, weakly flattened, smooth, pale brown, 1.0–1.5 mm long.



**Fig. 741:** *Veronica notialis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Fiordland (mostly near and west of the main divide south of Caswell Sound).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine grassland. Recorded elevations range from 1100 to 1500 m.

**Recognition:** *Veronica notialis* is a very distinctive species. In habit the plants resemble plants of the *V. odora* group and “Connatae”, but the angustiseptate capsules distinguish *V. notialis*. No other species is characterised by sinuous branching hairs on the leaf margins, although some whipcord hebes have very similar sinuate but unbranched hairs. The thick, translucent, cartilaginous cuticle on the leaves is also distinctive; through the dissecting microscope the leaf appears as if embedded in amber, especially at the margins.

Plants of *V. murrellii* and *V. petriei* have a similar habit to *V. notialis* plants, but differ in their softer dull or only slightly glossy leaves, which have a glabrous or minutely ciliolate margin, terminal, many-flowered inflorescences, narrower corolla lobes, and latiseptate acute to acuminate capsules.

**Phenology:** Flowers: December–March; fruits:

January–March.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe pauciflora*).

**Notes:** *Veronica notialis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Pauciflorae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Chromosome number, broad, rounded corolla lobes, and angustiseptate capsules suggest *V. notialis* may be a lineage attached at a basal node within the New Zealand clade, and this is borne out by unpublished DNA sequence data collected by E.M. Low, which place it as sister to the rest of the shrubby hebe clade, close to the attachment of two other southern species with a similar overall appearance, *V. petriei* and *V. murrellii*.



**Fig. 742:** *Veronica notialis*. Habit. Centre Pass, Fiordland.



**Fig. 743:** *Veronica notialis*. Sprig. Scale = 10 mm.



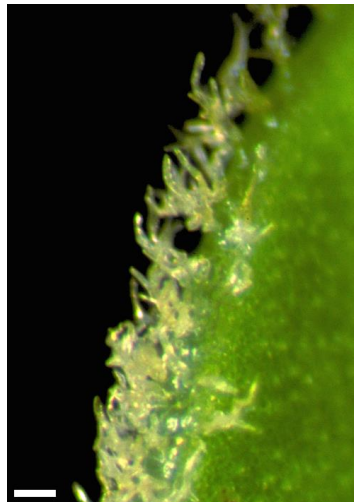
**Fig. 744:** *Veronica notialis*. Leaf bud that is not tightly closed, but has a sinus between petioles of a leaf pair. Scale = 1 mm.



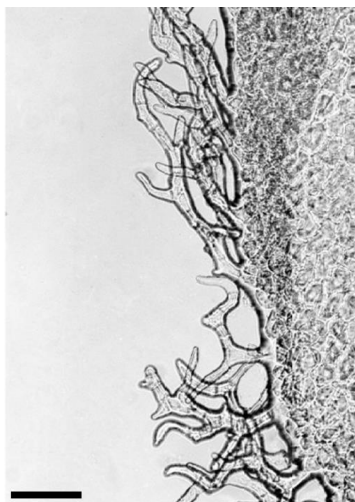
**Fig. 745:** *Veronica notialis*. Apical view of leaf bud. Scale = 1 mm.



**Fig. 746:** *Veronica notialis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 747:** *Veronica notialis*. Leaf margin showing white tangled hairs and stomata on adaxial surface. Scale = 0.1 mm.



**Fig. 748:** *Veronica notialis*. Branched hairs on a leaf margin. Scale = 0.1 mm.



**Fig. 749:** *Veronica notialis*. Flowers. Scale = 1 mm.



**Fig. 750:** *Veronica notialis*. Capsules.  
Scale = 1 mm.

***Veronica obtusata* Cheeseman, *Trans. & Proc. Roy. Soc. New Zealand* 48: 213 (1916)**

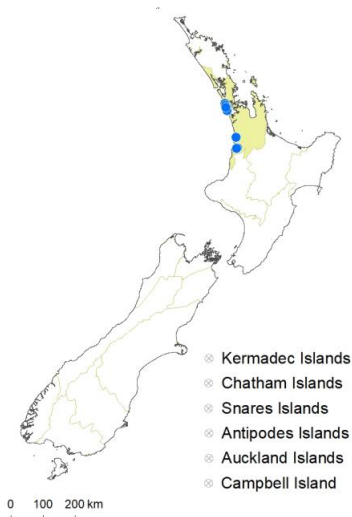
≡ *Veronica macroura* var. *dubia* Cheeseman, *Man. New Zealand Fl.* 501 (1906)

≡ *Hebe obtusata* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 15 (1926)

Lectotype (designated by Bayly & Kellow 2004): Muriwai cliffs near Motutara, T. F. Cheeseman, March 1884, AK 7671. Isolectotype: AK 7672

**Etymology:** The epithet *obtusata* refers to the shape of the leaf apex.

Spreading low shrub to 0.5 m tall. Stems prostrate to decumbent, eglandular-puberulent; hairs uniform to bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate to sub-distichous, erecto-patent to spreading; lamina coriaceous, usually obovate, sometimes elliptic or oblong to sub-orbicular, 13–55 mm long, 7.0–28.5 mm wide, glossy green to dark green above, dull pale green to green beneath; midrib evident; surfaces usually hairy along midrib, sometimes glabrous above, sometimes minutely glandular-hairy beneath when young; margin ciliate, entire; apex obtuse to rounded or rarely retuse, slightly and bluntly plicate-acuminate; base cuneate; petiole 0.5–1.5 mm long. Inflorescence a lateral raceme, 38–126 mm long; flowers crowded, 34–88, all bisexual; bracts alternate or loosely whorled, lanceolate to narrowly oblong, < to > pedicels; pedicels spreading, sometimes recurved at fruiting, 1.0–3.3 mm long, shortly eglandular-hairy all around. Calyx lobes 4, bluntly obtuse to acute, 1.5–2.2 mm long, equal, eglandular-ciliate, usually with a few shorter glandular cilia, sometimes sparsely eglandular-hairy on outer surfaces. Corolla 5–6 mm diameter; tube white, 2.3–4.0 mm long, ≥ calyx, eglandular-hairy inside and sometimes outside; lobes 4, pale purplish or rarely white, erect or erecto-patent, sub-equal, lanceolate, elliptic, or ovate, 2.3–3.8 mm long, sub-acute to obtuse; nectar guides absent. Stamen filaments white or pale purplish, 4.7–7.5 mm long; anthers purplish or buff. Style glabrous, or rarely with a few eglandular hairs, 5–7 mm long. Capsules latiseptate, acute to sub-acute, glabrous, 3.7–4.5 mm long, 2.0–2.3 mm at widest point. Seeds discoid to elliptic, flattened, smooth, straw-yellow to pale brown, 0.9–1.3 mm long.



**Fig. 751:** *Veronica obtusata* distribution map based on databased records at AK, CHR & WELT.

more rounded at the apex, capsule and style sometimes hairy, and smaller seeds.

**Phenology:** Flowers: mostly January–August but may flower as early as November; fruits: mostly January–September, but may fruit as early as November.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe obtusata*).

**Notes:** *Veronica obtusata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 752:** *Veronica obtusata*. Habit. Takatū Head, Auckland.



**Fig. 753:** *Veronica obtusata*. Sprig. Scale = 10 mm.

**Distribution:** North Island: Auckland (west coast from Muriwai to Kawhia).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal and semi-coastal slopes, cliffs, and rock outcrops. Recorded elevations range from 0 to 360 m.

**Recognition:** *V. obtusata* plants have a distinctive low-spreading habit and broad, dark green leaves that are often red on the margins. The small flowers are densely presented on the inflorescences and the corolla is pale purplish. In their leaf shape with red margins they somewhat resemble plants of *V. speciosa*, but flowers of that species are large, robust, and magenta.

Plants of *V. obtusata* and *V. bishopiana* grow together in places, and the two are quite similar, especially in the red pigmentation of young stems and leaves. Plants of *V. bishopiana* may be distinguished from *V. obtusata* by their shorter leaf margin hairs, narrower and thinner leaves that taper to an acute or acuminate apex, and are usually distinctively red beneath (especially when young), calyx lobes narrower and hairier on the outside, corolla lobes narrow and more rounded at the apex, capsule and style sometimes hairy, and smaller seeds.



**Fig. 754:** *Veronica obtusata*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 755:** *Veronica obtusata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 756:** *Veronica obtusata*. Leaf margin hairs. Scale = 0.1 mm.



**Fig. 757:** *Veronica obtusata*. Flowers. Scale = 1 mm.



**Fig. 758:** *Veronica obtusata*. Calyx and corolla tube, with hairs on outer surface of calyx lobes circled. Scale = 1 mm.



**Fig. 759:** *Veronica obtusata*. Capsules. Scale = 1 mm.





**Fig. 760:** *Veronica obtusata*. Seeds.  
Scale = 1 mm.

***Veronica ochracea* (Ashwin) Garn.-Jones in Garnock-Jones et al.,  
Taxon 56: 578 (2007)**

≡ *Hebe ochracea* Ashwin in Allan, *Fl. New Zealand* 1, 936 (1961)

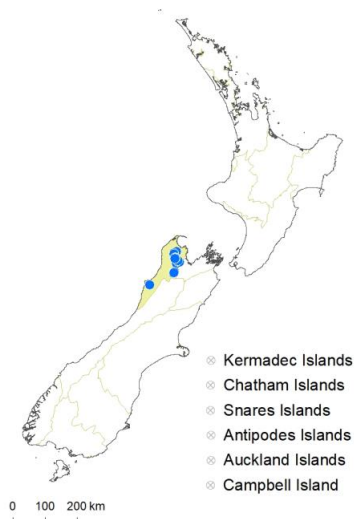
≡ *Leonohebe ochracea* (Ashwin) Heads, *Bot. Soc. Otago Newsl.* 5: 7 (1987)

Holotype: Cobb Valley, N. W. Nelson, *F. G. Gibbs*, CHR 97077. Isotype: AK 8243 [according to Ashwin (in Allan 1961), although details on labels differ slightly]

**Etymology:** The epithet *ochracea* is a reference to the yellowish to brownish colour of the leafy stems.

**Vernacular name:** whipcord hebe

Spreading low or bushy whipcord shrub to 0.45 m tall. Stems ascending or spreading, with short, erect secondary branches increasing in length away from main stem apex, eglandular-pubescent; hairs bifarious above leaf axils and usually in the deep groove between the connate leaf bases. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, appressed but not usually covering the obscure node above, crowded and overlapping, coriaceous, broadly ovate to rhomboid, 1.0–1.5 mm long, 1.5–3.0 mm wide, glossy yellow- to bronze-green above and beneath; veins not evident; surfaces glabrous; margin shortly ciliate or ciliolate, entire; apex obtuse; base broad, connate in pairs and encircling stem; petiole absent. Inflorescence a terminal spike, 2.0–8.5 mm long; flowers crowded, 4–8, all bisexual; bracts opposite-decussate and connate, broadly ovate; pedicels absent. Calyx lobes 4, seemingly 3 because anterior pair fused to apex, obtuse to sub-acute, 1.5–2.3 mm long, unequal, eglandular-ciliate with a few short glandular hairs as well. Corolla 4.5–7.5 mm diameter; tube white, 1.0–1.5 mm long, ≤ calyx, eglandular-hairy inside; lobes 4, white, sub-erect to spreading, unequal, elliptic to oblong, 3–4 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 3.5–4.5 mm long; anthers pink or yellowish-pink. Style glabrous or a few bristles at base, 3–4 mm long. Capsules latiseptate, obtuse, glabrous or a few bristles especially along suture and at apex, 2.2–3.3 mm long, 1.7–2.2 mm at widest point. Seeds ellipsoid to obovoid, flattened, smooth, pale brown, 1.2–1.5 mm long.



**Fig. 761:** *Veronica ochracea* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson (Anatoki Range, Cobb Valley and Peel Range, Mt Arthur Range, Owen Range), Mt Buckland, Paparoa Range.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine grassland and scrub, usually on calcareous substrates. Recorded elevations range from 915 to 1800 m.

**Recognition:** Plants of *V. ochracea* and three other whipcord hebes, *V. annulata*, *V. armstrongii*, and *V. salicornioides*, all share fused anterior calyx lobes and exposed but generally obscure nodal joint. They all have allopatric distributions, with *V. ochracea* being confined to north-west Nelson and northern Westland. *V. ochracea* differs from all of them in its unusual chromosome number. Distinguishing morphological characters are relatively indistinct and subjective, the best being the yellowish- to bronze-green of the foliage in *V. ochracea*. The leaves are not as closely appressed as those of *V. salicornioides* and internodes are generally a little shorter. In dried specimens the leaves spread a little from the stem, but not as much as in plants of *V. annulata* and *V. armstrongii*.

**Phenology:** Flowers: November–February; fruits: February–April, persisting longer.

**Cytology:**  $2n = 124$  (see Bayly & Kellow 2006, as *Hebe ochracea*).

**Notes:** *Veronica ochracea* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006).

The sexual system needs to be checked in wild populations of *V. ochracea*. Some herbarium specimens (e.g., WELT 17567, 17481, 17563) seem to have small flowers and pollen was not seen in their dehisced anthers. Others have large flowers with copious pollen (e.g., WELT 82795).

Bayly and Kellow did not record seed characters, and the seed description above is based on only one specimen (WELT SP090750, Lake Peel, *Sneddon*). Seeds might be more variable than suggested here.

Morphology and chromosome numbers indicate a relationship with *V. annulata*, *V. armstrongii*, and *V. salicornioides*. Its unusual and high chromosome number suggests the possibility of a hybrid origin involving a species with  $2n = 40$ , such as *V. hectorii*, and one with  $2n = 84$ , such as *V. armstrongii*. However, *V. armstrongii* and *V. ochracea* are geographically separated.

### Cultivars

*V. ochracea* is common in cultivation as hebe ‘James Stirling’. The cv is said to be a dwarf form but otherwise no different from wild plants.



**Fig. 762:** *Veronica ochracea*. Habit. Mt Arthur, Nelson.



**Fig. 763:** *Veronica ochracea*. Sprig. Scale = 10 mm.



**Fig. 764:** *Veronica ochracea*. Branchlet. Scale = 1 mm.



**Fig. 765:** *Veronica ochracea*. Close-up of branchlet showing arrangement of lateral shoots. Scale = 1 mm.



**Fig. 766:** *Veronica ochracea*. Close-up of leaves showing obscure nodal joint. Scale = 1 mm.



**Fig. 767:** *Veronica ochracea*. Inflorescence and flowers; note fused anterior calyx lobes. Scale = 1 mm.



**Fig. 768:** *Veronica ochracea*. Infructescence, showing bract, calyx, and capsule. Scale = 1 mm.



**Fig. 769:** *Veronica ochracea*. Seeds. Scale = 1 mm.

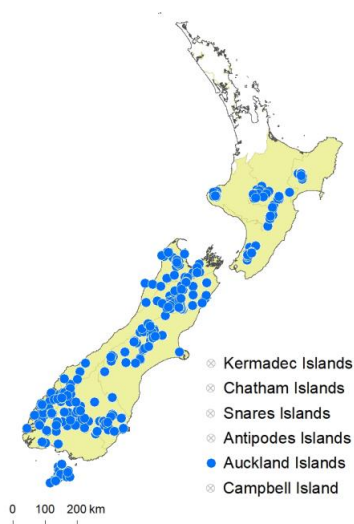
### ***Veronica odora* Hook.f., *Bot. Antarct. Voy. I. (Fl. Antarct.) Part I, 62, Plate 41 (1844)***

- ≡ *Veronica buxifolia* var. *odora* (Hook.f.) Kirk, *Trans. New Zealand Inst.* 28: 523 (1896)
- ≡ *Veronica elliptica* var. *odora* (Hook.f.) Cheeseman, *Man. New Zealand Fl.* 516 (1906)
- ≡ *Hebe buxifolia* var. *odora* (Hook.f.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)
- ≡ *Hebe odora* (Hook.f.) Cockayne, *Trans. New Zealand Inst.* 60: 472 (1929)
- ≡ *Leonohebe odora* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 10 (1987)  
 Holotype: among the woods in LD Auckland's Islands, [J. D. Hooker] 1460, Nov 1840, Herb. Hookerianum, K
- = *Veronica buxifolia* Benth. in de Candolle, *Prodr.* 10 462 (1846)
- ≡ *Hebe buxifolia* (Benth.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
 Holotype: Mounts of Intr., N. Island, N. Zealand, *Dieffenbach*, Herb Hookerianum, K (upper pieces on a sheet that also includes material collected by Colenso)
- = *Veronica anomala* Armstr., *Trans. New Zealand Inst.* 4: 291 (1872)
- ≡ *Hebe anomala* (Armstr.) Cockayne, *Trans. New Zealand Inst.* 60: 468 (1929)  
 Lectotype (designated by Moore, in Allan 1961): Upper Rakaia, J. F. Armstrong, 1865, CHR 635753
- = *Veronica haustrata* J.B.Armstr., *N.Z. Ctry. J.* 3: 58 (1879)
- ≡ *Hebe haustrata* (J.B.Armstr.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
 Lectotype (designated by Moore, in Allan 1961): Upper Rangitata, 4000 ft, J. F. Armstrong], 1869, CHR 635758
- = *Veronica buxifolia* var. *patens* Cheeseman, *Man. New Zealand Fl.* 523 (1906)  
 Lectotype (designated in part by Moore, in Allan 1961; designated more precisely by Bayly & Kellow 2004): Mt. Arthur Plateau, Nelson, alt. 4000 ft, T. F. Cheeseman, AK 8076, two uppermost pieces only. Isolectotype: WELT 5359
- = *Veronica buxifolia* var. *prostrata* Cockayne, *Rep. Bot. Surv. Stewart Island* 44 (1909)
- ≡ *Hebe buxifolia* var. *prostrata* (Cockayne) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
 Type: None designated. No Cockayne specimens labelled var. *prostrata* have been found. Prostrate plants of *H. odora* are common on parts of Stewart Island

**Etymology:** The epithet *odora* is a reference to scent; Hooker (1844) originally referred to the “delicious fragrance of the flowers”, but this has not been noted by other workers.

Usually rounded (sometimes mat-forming) shrub to 1.7 m tall, usually shorter. Stems usually ascending to erect, rarely prostrate to decumbent, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus broad and shield-shaped. Leaves opposite-decussate, erect to spreading; lamina coriaceous, rigid, lanceolate, ovate, elliptic, obovate, oblanceolate, or sub-orbicular, 3.6–11.5 mm long, 2.3–5.4 mm wide, glossy green above, dull green

beneath; midrib and sometimes 2 lateral veins evident; surfaces glabrous; margin glabrous, entire or rarely minutely crenulate; apex sub-acute to apiculate; base truncate; petiole 0.5–2.2 mm long. Inflorescence terminal and usually also lateral, spicate, 0.6–2.8 mm long; flowers crowded, 4–12, all bisexual, or female and bisexual on separate plants in some populations, ♀ > ♂; bracts opposite-decussate and free, ovate; pedicels absent. Calyx lobes 4, sub-acute to obtuse, sub-equal, 3.0–4.5 mm long, ciliolate. Corolla 10–13 mm diameter; tube white, 3.0–3.5 mm long, ≥ calyx, eglandular-hairy inside; lobes 4, white or rarely pinkish, spreading to recurved, sub-equal, narrowly elliptic, 5–6 mm long, obtuse; nectar guides absent. Stamen filaments white, 2.0–3.2 mm long; anthers pink. Style glabrous, 5.5–7.0 mm long. Capsules latiseptate, sub-acute or obtuse, glabrous, 3.9–4.5 mm long, 3.4–3.6 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow to pale brown, 1.2–1.8 mm long.



**Fig. 770:** *Veronica odora* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Gisborne (Huiarau Range southwards), Volcanic Plateau (south of Lake Taupō), Taranaki (Taranaki National Park and Ruahine Range), southern North Island.

South Island: throughout.

Stewart I., Auckland Is.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Montane to penialpine grassland and scrub, often in damp to wet sites, extending to low altitudes in the south. Recorded elevations range from 0 to 1672 m.

**Recognition:** *V. odora* is distinctive but superficially easy to confuse with several other hebes. The leaves have many dense stomata, visible as pale dots, on the abaxial and rarely also (e.g., at Arthur's Pass) the adaxial surface. The margins are bevelled. The flowering stem is terminated by an inflorescence, and lateral inflorescences occur below it to give the appearance of a compound raceme. However, such lateral spikes are subtended by normal leaves (shouldered at the base to a short petiole, glabrous), whereas the flowers are subtended by opposite leaf-like bracts that differ from leaves

by being deltoid, sessile, and ciliolate. The flowers are sessile with narrowly elliptic corolla lobes.

Most commonly plants of *V. odora* are mistaken for *V. venustula* or *V. brachysiphon*, which are superficially similar in their leaf size and densely rounded shrub habit. *V. brachysiphon* and *V. venustula* plants differ from *V. odora* in their narrower and acute sinus, cuneate leaf bases, and particularly in the always lateral inflorescences of at least shortly pedicellate flowers, small bracts, and broader corolla lobes.

Plants of three other species have broad, shield-shaped sinuses and leaf bases that narrow abruptly to the petiole. Of these, plants of *V. mooreae* and *V. pauciramosa* can be distinguished from *V. odora* plants by their lateral inflorescences, and often their anterior calyx lobes are fused in the basal portion or up to 2/3 of the way. *V. masoniae* plants also have terminal inflorescences and free anterior calyx lobes, but they differ in having conspicuous stomata on both leaf surfaces (however, note these are also present in *V. odora* at Arthur's Pass), rounded leaf margin (bevelled in *V. odora*), and broad corolla lobes. Flowers of *V. masoniae* and *V. pauciramosa* have red stigmas.

(See: Table 11)

**Phenology:** Flowering: November–January (sometimes to March); fruits: December–April, sometimes persisting until November.

**Cytology:** 2n = 42 in North Island, South Island north of about Hanmer Springs, Auckland Is.; 2n = 84, South Island from about Hanmer Springs southwards, Stewart I. (see Bayly & Kellow 2006, as *Hebe odora*).

**Hybridisation:** *V. odora* commonly hybridises with whipcord hebes throughout its range (e.g., *V. odora* × *tetragona* in the North Island, *V. hectorii* × *odora* in the South Island, and perhaps other combinations as well). Such hybrids are cultivated under various names, especially *V. ×cassinoides* and *V. 'Christensenii'*. *V. armstrongii* × *odora* has been given the cv name hebe 'Karo Golden Esk'.

**Notes:** *Veronica odora* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group "Buxifoliatae" (Albach & Meudt 2010; Bayly & Kellow 2006).

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*V. odora* consistently emerges as sister species to *V. pauciramosa* in phylogenetic trees (e.g., Wagstaff et al. 2002). This sister species pair is sister to a cluster of *V. epacridea* and *V. kellowiae* (Wagstaff et al. 2002), and also *V. haastii* and *V. macrocalyx* (E.M. Low, unpublished), which all have similar inflorescences.

### Cultivars

The cultivar hebe 'Anomala' has reddish stems, narrow, red-tinged leaves, and flowers that usually have only three corolla lobes. It is probably not the same as *Veronica anomala* Armstr.



**Fig. 771:** *Veronica odora*. Habit. Garvie Mts, Southland.



**Fig. 772:** *Veronica odora*. Habit. Takitimu Mts, Southland.



**Fig. 773:** *Veronica odora* × *tetragona* subsp. *tetragona*. Habit, Rangipo Desert.



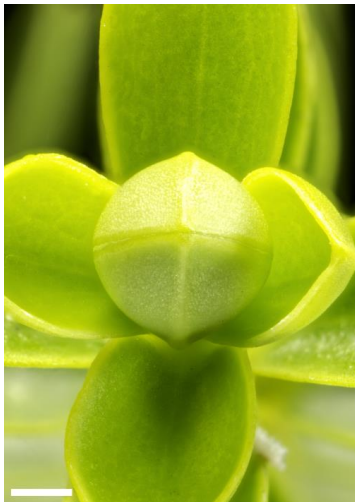
**Fig. 774:** *Veronica odora*. Sprig. Scale = 10 mm.



**Fig. 775:** *Veronica odora*. Branchlet from which leaves have been shed showing persistent yellowish portion of petioles. Scale = 1 mm.



**Fig. 776:** *Veronica odora*. Leaf bud with shield-shaped sinus. Scale = 1 mm.



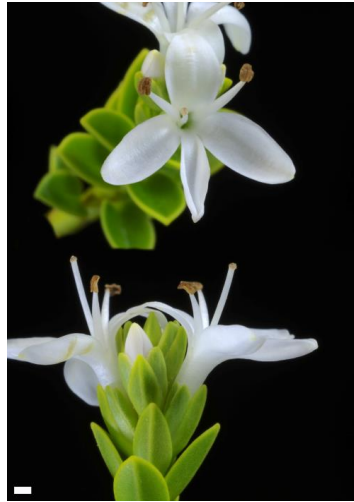
**Fig. 777:** *Veronica odora*. Apical view of leaf bud, showing that it is not closely surrounded by imbricate leaf pairs. Scale = 1 mm.



**Fig. 778:** *Veronica odora*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 779:** *Veronica odora*. Flowering shoot with terminal inflorescence and lateral inflorescences in the leaf axils immediately below it. Scale = 1 mm.



**Fig. 780:** *Veronica odora*. Flowers. Scale = 1 mm.



**Fig. 781:** *Veronica odora*. Immature infructescence. Scale = 1 mm.



**Fig. 782:** *Veronica odora*. Mature infructescence. Scale = 1 mm.



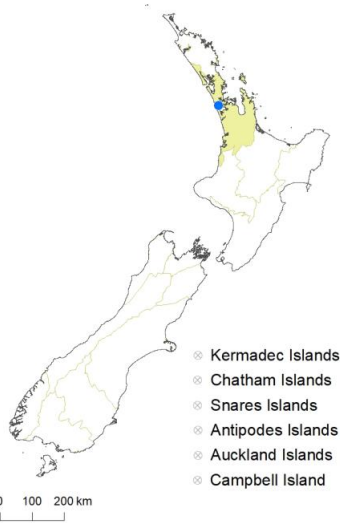
**Fig. 783:** *Veronica odora*. Capsule. Scale = 1 mm.



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## *Veronica officinalis* L., Sp. Pl. 11 (1753)

**Etymology:** The epithet *officinalis* refers to medicinal use.



**Fig. 784:** *Veronica officinalis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland.

Known from a single early collection at Nihotupu Track, Waitakere Ranges (CHR 8146, 8147, Hodgkins) and an unvouchered published record (see First Record).

**Biostatus:** Exotic; casual.

**Habitat:** Forest.

**First record:** Kirk in Hooker (1854–1855, p. 322). Voucher not found.

**Recognition:** Distinguished by its creeping to ascending, densely hairy stems, finely toothed, hairy, petiolate leaves with cuneate bases, erect, densely glandular-hairy lateral racemes, and very shortly pedicellate pale flowers.

## *Veronica pareora* (Garn.-Jones & Molloy) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)

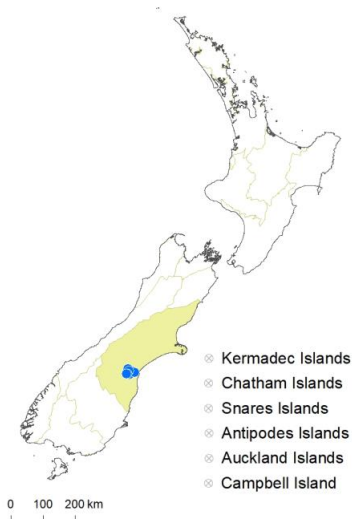
≡ *Hebe pareora* Garn.-Jones & Molloy, *New Zealand J. Bot.* 20: 398 (1983)

Holotype: Upper Pareora Gorge, South Canterbury, on cliffs overhanging river,

*P. J. Garnock-Jones 1512, Molloy & Anderson*, 4 Feb 1981, CHR 363050. Isotypes: AK 179708, WELT 78753

**Etymology:** The epithet *pareora* refers to the Pareora River, which is the type locality and centre of the narrow distribution of this species.

Few-branched shrub to 0.5 m tall, but trailing branches up to 3 m long. Stems trailing, erect at apex and when young, glabrous. Leaf bud distinct, its leaves appressed until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to reflexed; lamina coriaceous, ovate, elliptic, oblong, or obovate, 15–30 mm long, 10–18 mm wide, dull and glaucous above and beneath; midrib and 2–4 lateral veins evident especially when dry; surfaces glabrous; margins glabrous, entire; apex sub-acute to rounded; base sub-cordate and amplexicaul; petiole absent. Inflorescence a lateral raceme, 30–70 mm long; flowers crowded, 12–60, all bisexual; bracts alternate, sometimes the lowest in a whorl of 3, linear to narrowly deltoid, about = or > pedicels; pedicels erecto-patent to spreading, 1.0–4.5 mm long, glabrous or very sparsely eglandular-hairy all around. Calyx lobes 4, sub-acute to acute, 2.0–2.5 mm long, sub-equal, glabrous or very sparsely eglandular-ciliate. Corolla 8–10 mm diameter; tube white, 3–4 mm long, > calyx, glabrous; lobes 4, white, erecto-patent to spreading, unequal, elliptic to lanceolate, 4–5 mm long, acute to rounded; nectar guides absent. Stamen filaments white, 4.0–5.5 mm long; anthers magenta. Style glabrous, 6.7–10.0 mm long. Capsules broadly angustiseptate to narrowly latiseptate, emarginate to didymous, glabrous, 3–5 mm long, 2.5–3.5 mm at widest point. Seeds ellipsoid to obovoid, weakly flattened, smooth, straw-yellow to pale brown, 1.3–1.5 mm long.



**Fig. 785:** *Veronica pareora* distribution map based on databased records at AK, CHR & WELT.

shorter with densely hairy peduncles, flowers sessile, bracts about equalling the calyx, smaller and narrower corolla lobes, and capsules that are more strongly latiseptate and often hairy.

*V. pinguifolia* plants also have glaucous leaves, but these are not amplexicaul; they also differ in their bifarious stem hairs, sessile flowers, and latiseptate hairy capsules.

**Phenology:** Flowers: November–January; fruits: January–February (persisting longer).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe pareora*).

**Notes:** *Veronica pareora* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Subcarnosae” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. pareora* shares amplexicaul glaucous leaves with *V. amplexicaulis*, which grows nearby and might be related to it. DNA sequence data do not refute that suggestion, but a close relationship has not been demonstrated.



**Fig. 786:** *Veronica pareora*. Habit. Mt Nimrod Scenic Reserve, South Canterbury.



**Fig. 787:** *Veronica pareora*. Sprig. Scale = 10 mm.

**Distribution:** South Island: Canterbury (north-eastern slope of the Hunter’s Hills: Rocky Gully, upper Pareora River, White Rock River, Nimrod Stream). There are unvouchered records from Ōpihi Gorge and Blue Duck Stream.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops and cliffs in river and stream gorges. Recorded elevations range from 360 to 761 m.

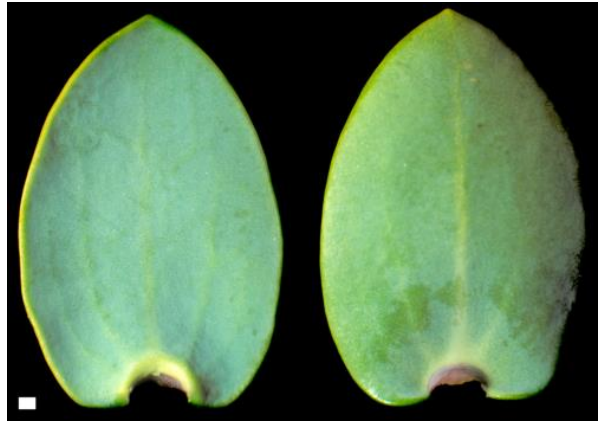
**Recognition:** Most of the hebes with glaucous leaves have smaller leaves than *V. pareora*. *V. pareora* stems often hang down from riverside rocks and cliffs and are long and leafless with a cluster of leaves near the apex.

Plants of *V. albicans* from Nelson can approach similar leaf sizes, but their stems are weakly hairy, leaves at most weakly amplexicaul, corolla lobes smaller and rounder, and capsules latiseptate.

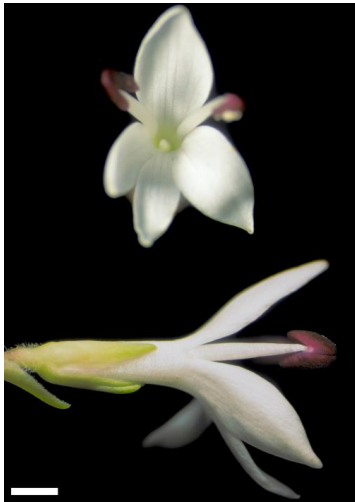
*V. amplexicaulis* plants are found in South Canterbury, near to *V. pareora*. They have similar amplexicaul leaves, but differ in their usually hairy stems (occasionally glabrous or sometimes just a few hairs near leaf bases), leaves usually red at the margins, smaller, and without evident veins, inflorescences



**Fig. 788:** *Veronica pareora*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 789:** *Veronica pareora*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 790:** *Veronica pareora*. Flowers. Scale = 1 mm.



**Fig. 791:** *Veronica pareora*. Apical view of an inflorescence. Scale = 1 mm.



**Fig. 792:** *Veronica pareora*. Inflorescences, immature (left) and mature (right). Scale = 10 mm.



**Fig. 793:** *Veronica pareora*. Capsules. Scale = 1 mm.

## *Veronica parviflora* Vahl, *Symb. Bot. (Vahl)* 3, 4 (1794)

≡ *Hebe parviflora* (Vahl) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

Lectotype (designated by Bayly et al. 2000): Nova Zeland, mis: Dr Montin, Hb. Vahl, C

= *Veronica arborea* Buchanan, *Trans. New Zealand Inst.* 6: 242 (1874)

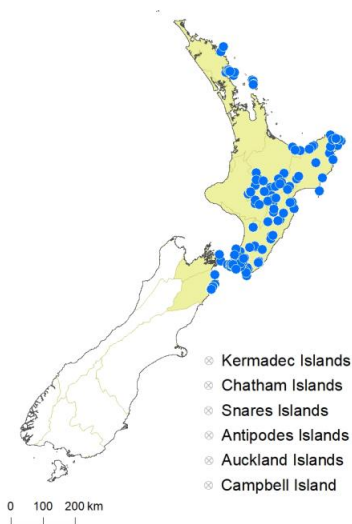
≡ *Veronica parviflora* var. *arborea* (Buchanan) Kirk, *Trans. New Zealand Inst.* 28: 527 (1896)

≡ *Hebe parviflora* var. *arborea* (Buchanan) L.B.Moore in Allan, *Fl. New Zealand* 1, 913 (1961)

Holotype: "*Veronica arborea* Buch.:", Herb. Buchanan Vol. VII., WELT

**Etymology:** The epithet *parviflora* is derived from Latin, *parvus* = little, and *flos*, a flower. Vahl was probably comparing it to *V. macrocarpa*, which he described at the same time, and also to *Veronica* from the northern hemisphere.

Rounded, bushy, large shrub or small tree to 12 m tall. Stems erect, eglandular-pubescent or rarely glabrous; hairs usually bifarious, sometimes uniform. Leaf bud distinct, its leaves appressed until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to reflexed; lamina sub-coriaceous, linear to linear-lanceolate to narrowly oblong, 8–76 mm long, 1.5–7.0 mm wide, smaller and narrower in juvenile plants, dull pale green or green above, pale green beneath, midrib and sometimes two lateral veins evident; surfaces with eglandular hairs along midrib above and often minute glandular hairs beneath; margin minutely papillate or with short, tapering, antrorse hairs, entire; apex acute or plicate-acuminate, base cuneate; petiole indistinct, broadly winged, 1–3 mm long. Inflorescence a lateral raceme, 20–120 mm long; flowers crowded, 20–130, female or bisexual on separate plants, ♂ ≥ ♀; bracts alternate, ovate to deltoid to oblong, < pedicels; pedicels erecto-patent to spreading, sometimes recurved in fruit, 0.3–4.0 mm long, glabrous or eglandular-hairy all around. Calyx lobes 4, obtuse to acute, 1.0–1.5 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 4–6 mm diameter; tube white, 2.0–3.8 mm long, > calyx, eglandular-hairy inside or with glandular hairs as well; lobes 4, white or tinged mauve or pink, spreading to recurved, unequal, elliptic to obovate to sub-orbicular, 2.5–3.0 mm long, obtuse or rounded; nectar guides absent. Stamen filaments white, 2.5–5.0 mm long; anthers magenta or purplish. Style glabrous, 3.5–6.0 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 2.5–3.5 mm long, 1.4–2.5 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow to brown, 0.9–1.8 mm long.



**Fig. 794:** *Veronica parviflora* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Northland (Russell, Whangārei, Hen & Chickens Is.), Auckland (Great Barrier I. [Aotea I.]), Volcanic Plateau (in the east and south), Gisborne, southern North Island.

South Island: Marlborough (coasts from Arapaoa I. south to Kekerengu).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Scrub, hillsides, streams and forest margins, frost hollows and flats, from near the coast to montane habitats, occasionally forming a canopy and dominating low forest or tall scrub. Recorded elevations range from 0 to 1067 m.

**Recognition:** *Veronica parviflora* is one of several very similar species that are characterised by narrow-linear to narrow-oblong leaves (Bayly et al. 2000).

Plants of *V. parviflora* and *V. stenophylla* differ from those of *V. strictissima* and *V. traversii* by their shorter capsules that are about twice the calyx. *V. parviflora* plants are often small trees (to 12 m tall), whereas plants of the other three species are shrubs, although sometimes up to 2.5 m tall.

*V. stenophylla* plants differ from *V. parviflora* by having glabrous leaf margins, minute pits on the upper leaf surfaces, no or very few glandular hairs on the calyx lobe margins (and these usually with one terminal cell), and the corolla tube often longer than twice the calyx and usually glabrous inside. In *V. stenophylla* plants the leaves often curve backwards (i.e., away from the stem apex).

**Table 7:** Identification table of *V. parviflora*, *V. stenophylla*, *V. strictissima*, and *V. traversii*.

	<i>parviflora</i>	<i>stenophylla</i>	<i>strictissima</i>	<i>traversii</i>
Habit	shrub or small tree up to 12 m tall	shrub to 2 m tall, sometimes sprawling	rounded shrub to 2 m tall	shrub to 2.5 m tall
Leaf length (mm)	8–76	16–87	9–49	16–44
Leaf width (mm)	1.5–7.0	2.5–10.0	3.0–8.0	2.5–9.0
Leaf margin	minutely hairy	glabrous, or occasionally pubescent	glabrous, papillate, or with very short, antrorse, tapered, eglandular hairs	scabrous, ciliate or pubescent
Leaf adaxial (upper) surface	smooth	minutely pitted, especially near margins; each pit with a minute glandular hair	smooth	smooth
Calyx lobes	mixed eglandular- and glandular-ciliate; the glandular hairs with 2 terminal cells	usually eglandular-ciliate; if also glandular, the glandular hairs mostly with 1 terminal cell; hairs with 2 terminal cells rare	mixed eglandular- and glandular-ciliate, sometimes sparsely so; the glandular hairs with 2 terminal cells	eglandular-ciliate or mixed eglandular- and glandular-ciliate; glandular hairs with 2 terminal cells
Corolla tube	up to 2 × calyx; > corolla lobes	2–4 × calyx; > corolla lobes	= or slightly > calyx; < corolla lobes	3–4 × calyx; > corolla lobes
Corolla tube	hairy inside	usually glabrous; sometimes hairy (especially var. <i>hesperia</i> from NW Nelson)	hairy inside	hairy inside
Capsule	c. 2 × calyx	c. 2 × calyx	c. 3 × calyx	3–4 × calyx
Distribution	North Island, mostly in the east; South Island (coastal Marlborough only)	central and east North Island and outliers near Hamilton; South Island north of a line from Westport to Cape Campbell	South Island (Banks Peninsula only)	South Island (Marlborough, Canterbury south to Four Peaks Range (absent from Banks Peninsula)

**Phenology:** Flowers: September–March, occasional throughout the year; fruits: January–June, persisting until November.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe parviflora*).

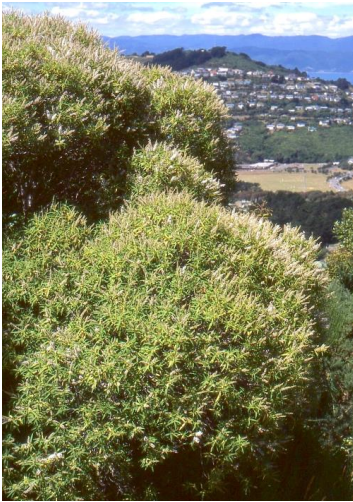
**Hybridisation:** *V. corriganii* × *parviflora* is known from the central North Island.

**Notes:** *Veronica parviflora* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

*V. parviflora* is variable with respect to habit and leaf size. In Northland, the central North Island, and East Cape, plants are often large, rounded shrubs with leaves 40–70 mm long, whereas in Wellington and Marlborough they are more often trees, with leaves 25–40 mm long.

Young plants up to 1 m tall may be soft-branched shrubs, with small, linear leaves < 25 mm long, and slender branches. Only later does one stem become dominant and form a trunk, which can be up to 250 mm diameter or more.

Beever (1991) recorded koromiko tāraŋga and kōkōmuka tāraŋga as names in Māori for *V. parviflora*, but that species has since been revised (Bayly et al. 2000), and now it is unclear whether the name applies to *V. parviflora*, *V. stenophylla*, or both.



**Fig. 795:** *Veronica parviflora*. Habit. Karori, Wellington.



**Fig. 796:** *Veronica parviflora* forming a low forest canopy. Rimutaka Range, Wairarapa.



**Fig. 797:** *Veronica parviflora*. Sprig. Scale = 10 mm.



**Fig. 798:** *Veronica parviflora*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 799:** *Veronica parviflora*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 800:** *Veronica parviflora*. Leaf margin enlarged showing marginal hairs. Scale = 100  $\mu$ m.



**Fig. 801:** *Veronica parviflora*. Inflorescence.  
Scale = 1 mm.



**Fig. 802:** *Veronica parviflora*. Flowers.  
Scale = 1 mm.



**Fig. 803:** *Veronica parviflora*. Capsules.  
Scale = 1 mm.

### ***Veronica pauciramosa* (Cockayne & Allan) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

≡ *Hebe buxifolia* var. *pauciramosa* Cockayne & Allan, *Trans. & Proc. New Zealand Inst.* 56: 27 (1926)

≡ *Hebe pauciramosa* (Cockayne & Allan) L.B.Moore in Allan, *Fl. New Zealand* 1, 925 (1961)

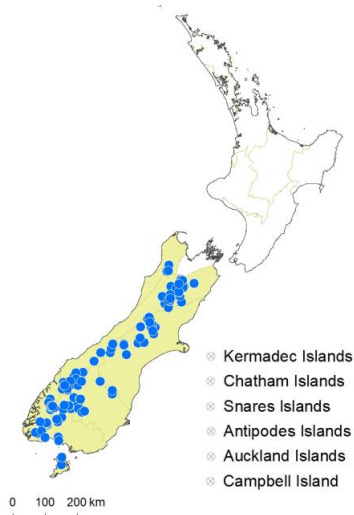
≡ *Leonohebe pauciramosa* (Cockayne & Allan) Heads, *Bot. Soc. Otago Newsl.* 5: 10 (1987)

Lectotype (designated by Moore, in Allan 1961): wet ground up to Lake Harris, 4000 ft. or less, *L. Cockayne* No. 8129, 7 May 1921, WELT 5354. Isolectotypes: AK 107674, K

**Etymology:** The epithet *pauciramosa* means few-branched, a reference to the growth form of the plants.

Compact or straggling shrub to 0.5 m or rarely to 1.0 m tall. Stems ascending to stiffly erect, sparingly branched, eglandular-pubescent, hairs bifarious. Leaf bud distinct, its leaves appressed until fully grown; sinus broad, shield-shaped. Leaves opposite-decussate, erecto-patent, rarely sub-erect or spreading; lamina coriaceous, rigid, broadly oblong or elliptic to sub-orbicular, 3–9 mm long, 2.2–8.0 mm wide, glossy dark green above and beneath; midrib evident and characteristically flattened in a patch just short of the apex; surfaces glabrous; margin glabrous or minutely ciliolate, entire; apex obtuse to bluntly apiculate; base truncate to cordate; petiole 0.5–3.0 mm long. Inflorescence a lateral spike, 7–20 mm long; flowers crowded, 2–12, all bisexual; bracts elliptic to deltoid, > pedicels but not overtopping calyx; pedicels erect, 0–0.5 mm long, glabrous or with a few scattered eglandular hairs. Calyx lobes 4, the anterior pair fused  $\frac{2}{3}$ -way to apex or more, obtuse, 3–4

mm long, sub-equal, minutely eglandular-ciliolate. Corolla 10–14 mm diameter; tube white, 3.7–5.0 mm long, > calyx, glabrous or eglandular-hairy inside; lobes 4, white, spreading to recurved, sub-equal, narrowly elliptic to elliptic, 5.0–6.5 mm long, obtuse, rounded, or sometimes the posterior lobe emarginate; nectar guides absent. Stamen filaments white, 3.7–5.5 mm long; anthers magenta. Style glabrous, 3.8–8.0 mm long. Capsules latiseptate, obtuse, glabrous, 4.0–5.5 mm long, 2.5–3.5 mm at widest point. Seeds ellipsoid or broadly ellipsoid, flattened, smooth, pale brown, 1.1–1.8 mm long.



**Fig. 804:** *Veronica pauciramosa* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Marlborough, Westland, Canterbury, Otago, Fiordland, Southland. Stewart I. (Mt Anglem / Hananui, Mt Rakeahua).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Bogs, seepages, and moist sites in sub-alpine to alpine tussock grassland. Recorded elevations range from 609 to 1718 m.

**Recognition:** *V. pauciramosa* plants have a unique feature on the underside of the leaves: the midrib is keeled, but just short of the apex there is a small flattening of the keel. The long, erect or ascending branches are sparingly branched.

*V. pauciramosa* plants are similar to *V. odora* plants. Plants of both have small, glossy, dark green leaves, a broad, shield-shaped sinus where the leaf margin narrows abruptly to the petiole, and narrow corolla lobes. *V. odora* plants differ in having dense stomata on the abaxial leaf surface only (but also abaxial at Arthur's Pass), whereas in *V. pauciramosa* there are obvious stomata on both surfaces. Also, in

*V. odora* the midrib is keeled throughout its length beneath, the leaf margin is sharply bevelled and glabrous (rounded and glabrous or ciliolate or denticulate in *V. pauciramosa*), inflorescences are usually terminal as well as lateral, forming a conical cluster at the stem apex, and the anterior calyx lobes are free.

*V. masoniae* plants may be similar, but can be distinguished by their terminal inflorescences, leaves being keeled throughout their length, free anterior calyx lobes, and much broader corolla lobes.

In *V. pauciramosa* and *V. masoniae* the stigmas are red.

(See: Table 11)

**Phenology:** Flowers: November–January (sometimes to March); fruits: January–May (sometimes persisting to November).

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe pauciramosa*).

**Notes:** *Veronica pauciramosa* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Buxifoliatae” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. pauciramosa* consistently emerges as sister species to *V. odora* in nuclear ITS trees (e.g., Wagstaff et al. 2002). This sister species pair is sister to a cluster of *V. epacridea* and *V. kellowiae* (Wagstaff et al. 2002), and also *V. haastii* and *V. macrocalyx* (E.M. Low, unpublished), which all have similar inflorescences.





**Fig. 805:** *Veronica pauciramosa*. Habit. Lake Tennyson, Canterbury.



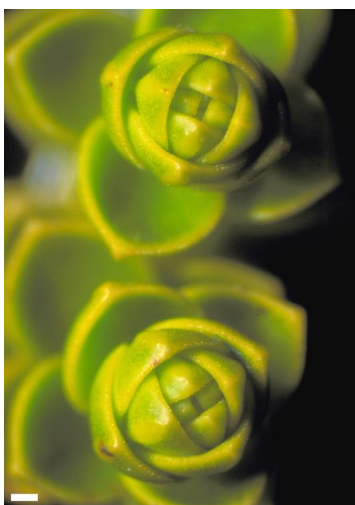
**Fig. 806:** *Veronica pauciramosa*. Sprig. Scale = 10 mm.



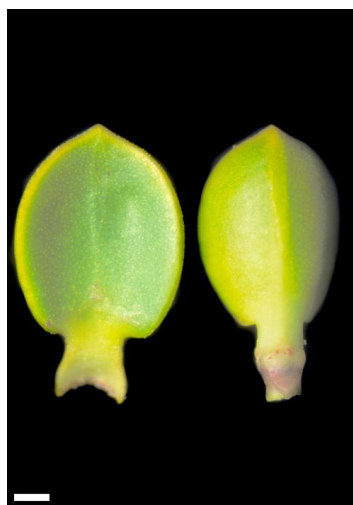
**Fig. 807:** *Veronica pauciramosa*. Leaf bud with shield-shaped sinus. Scale = 1 mm.



**Fig. 808:** *Veronica pauciramosa*. Branchlet from which leaves have been shed, leaving yellowish portion of petiole attached. Scale = 1 mm.



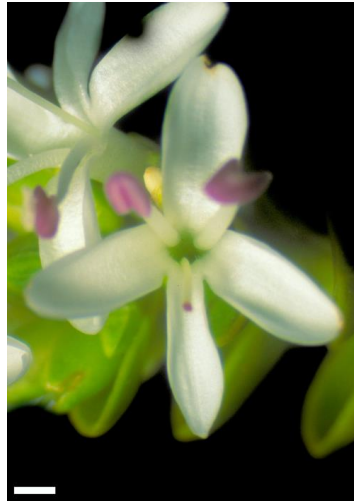
**Fig. 809:** *Veronica pauciramosa*. Apical view of leaf buds, showing that they are closely surrounded by several imbricate leaf pairs. Scale = 1 mm.



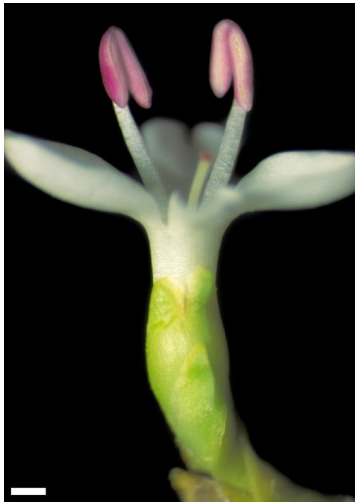
**Fig. 810:** *Veronica pauciramosa*. Leaf surfaces, adaxial with stomata (left) and abaxial with characteristic flattening of keel (right). Scale = 1 mm.



**Fig. 811:** *Veronica pauciramosa*. Flowering shoot tip. Scale = 1 mm.



**Fig. 812:** *Veronica pauciramosa*. Flower. Scale = 1 mm.



**Fig. 813:** *Veronica pauciramosa*. Flower in lateral view, showing corolla tube, size of the bract relative to the calyx, and partial fusion of anterior calyx lobes. Scale = 1 mm.



**Fig. 814:** *Veronica pauciramosa*. Immature infructescence. Scale = 1 mm.



**Fig. 815:** *Veronica pauciramosa*. Capsule (and seed inset to same scale). Scale = 1 mm.

## *Veronica pentasepala* (L.B.Moore) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)

≡ *Hebe raoulii* var. *pentasepala* L.B.Moore in Allan, *Fl. New Zealand* 1, 942 & 972 (1961)

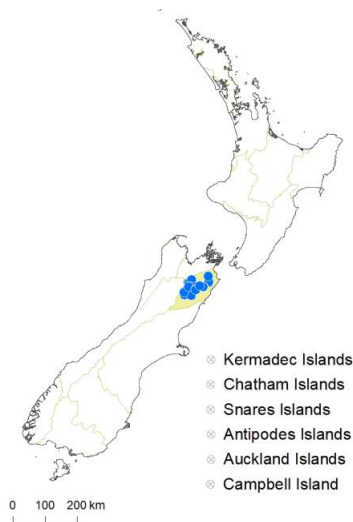
≡ *Heliohebe pentasepala* (L.B.Moore) Garn.-Jones, *New Zealand J. Bot.* 31: 332-333 (1993)

≡ *Parahebe raoulii* subsp. *pentasepala* (L.B.Moore) Heads, *Bot. J. Linn. Soc.* 115: 82 (1994)

Holotype: Gooseberry Gully, Molesworth Station, *H. H. Allan*, March 1949, CHR 76134

**Etymology:** The epithet *pentasepala* is a reference to the fifth calyx lobe characteristic of this species.

Perennial sub-shrub or low shrub to 0.45 m tall. Stems erect, or sometimes ascending, eglandular-pubescent; hairs uniform, short, reflexed to spreading. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina coriaceous, oblanceolate to narrowly elliptic, 7–30 mm long, 3–8 mm wide, glossy green to bronze-green above, dull green to pale green beneath; midrib evident; surfaces glabrous; margin glabrous, red, serrate or rarely entire, teeth in 0–7 pairs; apex sub-acute to acute or obtuse; base cuneate; petiole 2–8 mm long. Inflorescence a terminal compound raceme, 10–70 mm long; flowers crowded, 20–200, all bisexual; bracts opposite-decussate below, becoming alternate above, deltoid, > pedicels; pedicels erect-patent, 0–1 mm long, eglandular-hairy all around. Calyx lobes 5, sub-acute, 2.5–3.5 mm long, unequal, eglandular-ciliate. Corolla 6–8 mm diameter; tube pink with greenish base, 2.0–2.5 mm long, ≤ calyx, glabrous; lobes 4, white or pink, erect to spreading, sub-equal, elliptic to orbicular, 2.5–3.5 mm long, sub-acute to acute; nectar guides absent. Stamen filaments white, 2.0–2.5 mm long; anthers pale yellow. Style glabrous, 5–7 mm long. Capsules broadly angustiseptate to turgid, truncate to emarginate, glabrous, 3.5–4.0 mm long, 2.5 mm at widest point. Seeds fusiform to obovoid or irregular, weakly flattened, winged, smooth or weakly rugulose on back, pale to reddish-brown, 1.0–2.5 mm long.



**Fig. 816:** *Veronica pentasepala* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (Awatere, Clarence, Hodder, Leatham, Acheron valleys, Tardale area).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Cliffs, rocks, rocky slopes, steep grassland, often on limestone. Recorded elevations range from 650 to 1740 m.

**Recognition:** *Veronica pentasepala* plants are similar to plants of another sun hebe, *V. raoulii*. However, *V. pentasepala* is characterised by a taller, more erect habit, often narrower and more widely spreading leaves, and five free calyx lobes, the posterior one usually only slightly smaller than the others. In *V. raoulii* plants there are four calyx lobes and the anterior pair are united for most of their length. Also, the nectarial disc of *V. pentasepala* is often glandular ciliate (hairs c. 0.1 mm), sometimes eglandular, whereas in *V. raoulii* it is usually eglandular and shortly ciliolate (hairs c. 0.02 mm), rarely glandular-ciliate.

**Phenology:** Flowers: September–November; fruits: December–February.

**Cytology:**  $2n = 42$  (Hair 1967, as *Hebe raoulii* var. *pentasepala*).

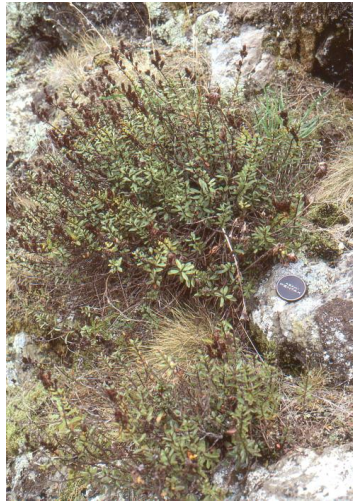
**Notes:** *Veronica pentasepala* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “sun hebe” group, formerly *Heliohebe*, *Hebe* “Paniculatae” (Albach & Meudt 2010), strongly supported by both molecular characters and morphology. ITS sequence data strongly suggest a relationship with *V. raoulii*, whereas cpDNA data suggest a relationship with *V. scrupea* (Albach & Meudt 2010).

Unidentified plants collected from the Omaka River and Black Birch Creek, Marlborough (e.g., CHR 470178), resemble *V. pentasepala* in their erect habit and narrow leaves, but are more like *V. hulkeana* in their pale lilac flowers and four free calyx lobes, and like *V. scrupea* in their four free calyx lobes and narrow leaves that are sometimes acute.

Cultivated plants occasionally have a few glandular hairs between the leaf bases at nodes, and their leaves sometimes have eglandular hairs along the midrib beneath.



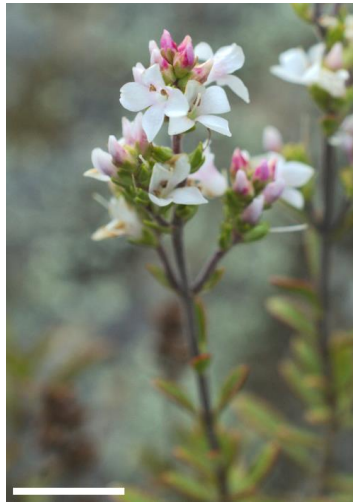
**Fig. 817:** *Veronica pentasepala*. Habit of a flowering plant. Upcot Saddle, Marlborough.



**Fig. 818:** *Veronica pentasepala*. Habit of a fruiting plant. Molesworth Station, Marlborough.



**Fig. 819:** *Veronica pentasepala*. Stem apex showing leaves and leaf bud. Scale = 10 mm.



**Fig. 820:** *Veronica pentasepala*. Terminal inflorescence. Scale = 10 mm.



**Fig. 821:** *Veronica pentasepala*. Flower. Scale = 1 mm.



**Fig. 822:** *Veronica pentasepala*. Capsule in anterior view (top left), lateral view (top right), and posterior view to show small fifth calyx lobe (below). Scale = 1 mm.

## *Veronica perbella* (de Lange) Garn.-Jones in Garnock-Jones et al., **Taxon 56: 578 (2007)**

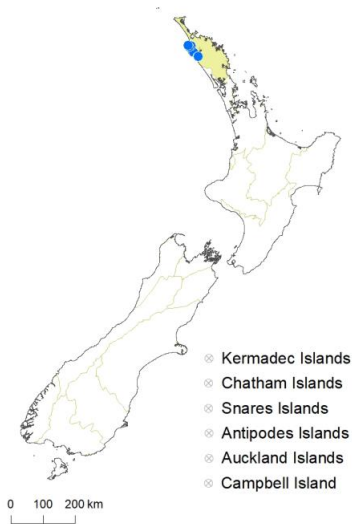
≡ *Hebe perbella* de Lange, *New Zealand J. Bot.* 36: 399 (1998)

Holotype: New Zealand, Northland, Tutamoe Ecological District, Waima Forest, Hauturu High Point Track, *P. J. de Lange 3169 & I. McFadden*, 7 Nov 1996, AK 230119. Isotypes: CHR 487605, K, WELT 79994

**Etymology:** The epithet *perbella* means very beautiful, referring to the elegant and colourful flowers.

**Vernacular name:** Bartlett's hebe

Bushy shrub to 1.8 m tall. Stems erect, glabrous. Leaf bud distinct, its leaves appressed until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, elliptic or narrowly oblanceolate, 35–110 mm long, 7–23 mm wide, glossy dark green above, dull pinkish-green beneath; midrib and faint pinnate secondary veins evident; surfaces glabrous except for minute glandular and eglandular hairs along midrib above; margin glabrous, entire; apex acute to obtuse; base cuneate; petiole absent or indistinct, 1–2 mm long. Inflorescence a lateral raceme, 60–150 mm long; flowers more or less crowded, 15–80, all bisexual; bracts alternate to loosely whorled, lanceolate, < pedicels; pedicels spreading, 2–5 mm long, minutely puberulent all around. Calyx lobes 4 or occasionally small posterior 5th lobe present, narrowly acute to acuminate, 2.2–3.8 mm long, equal, with sparse, minute, sessile glandular hairs on face, mixed glandular- and eglandular-ciliolate. Corolla 5–9 mm diameter; tube white, 1.8–2.2 mm long, ≤ calyx, eglandular-puberulent inside; lobes 4, purplish, sometimes pink, red, or carmine, fading to whitish, erect or sub-erect, reflexed with age, unequal, lanceolate to narrowly ovate, 4.8–6.5 mm long, acute; nectar guides absent. Stamen filaments purplish, 7–10 mm long; anthers blue to purple. Style glabrous, 8–10 mm long. Capsules latiseptate, acute, glabrous except for a few short eglandular hairs in septal groove, 7–8 mm long, 5–6 mm at widest point. Seeds ovate, flattened, weakly papillate, pale brown, 1.8–2.0 mm long.



**Fig. 823:** *Veronica perbella* distribution map based on databased records at AK, CHR & WELT.

extremely short (about 50  $\mu\text{m}$ ), mostly glandular hairs along the lobe margins; in *V. saxicola* plants the calyx lobes are greenish with pink margins, and the mixed eglandular and glandular hairs are more distant and a little longer (about 75  $\mu\text{m}$ ).

(See: Table 2).

**Phenology:** Flowers: March–December; fruits: May–March.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe perbella*).

**Notes:** *Veronica perbella* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

**Distribution:** North Island: Northland (Ahipara, Herekino Forest, Warawara Forest, Waimā Forest). Formerly present also at Kaitaia (de Lange & Rolfe 2008).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops and shallow soils in cloud forest, also in kauri forest and gum-land scrub. Recorded elevations range from 100 to 690 m.

**Recognition:** *V. perbella*, *V. adamsii*, and *V. saxicola* are similar enough to be confused. *V. adamsii* plants differ in having a sinus in the leaf bud, but are otherwise very similar; they have paler flowers with often a longer corolla tube, which is about equal to the calyx and to the corolla lobes; also they have a different chromosome number ( $2n = 80$ ).

*V. saxicola* plants are also very similar and were included under *V. perbella* by Bayly & Kellow (2006). They differ in the mostly glabrous corolla tube, more elliptic to obovate leaves, greener inflorescence rachis, pedicels, and calyx lobes, and slightly longer hairs on the inflorescence (these are about 75  $\mu\text{m}$  long, compared to about 50  $\mu\text{m}$  in *V. perbella*).

In *V. perbella* plants the calyx is usually red and has dense and



**Fig. 824:** *Veronica perbella*. Habit. Hauturu Trig, Northland.



**Fig. 825:** *Veronica perbella*. Sprig. Scale = 10 mm.



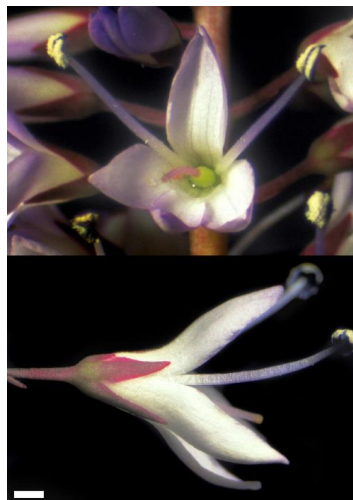
**Fig. 826:** *Veronica perbella*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 827:** *Veronica perbella*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 828:** *Veronica perbella*. Inflorescences (left and centre) and infructescence (right). Scale = 10 mm.



**Fig. 829:** *Veronica perbella*. Flowers. Scale = 1 mm.



**Fig. 830:** *Veronica perbella*. Capsules.  
Scale = 1 mm.

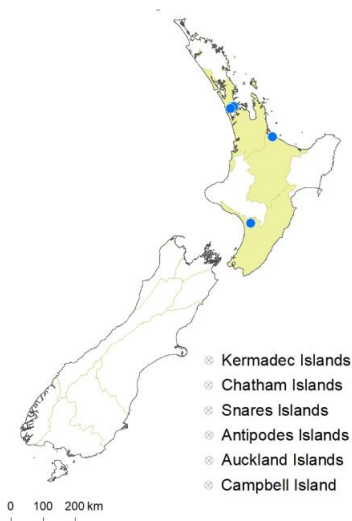
### ***Veronica peregrina* L., Sp. Pl. 14 (1753)**

**Etymology:** The epithet *peregrina* means travelling, foreign, or exotic, presumably Linnaeus's perspective when he described this American species.

**Biostatus:** Exotic; fully naturalised.

### ***Veronica peregrina* L., Sp. Pl. 14 (1753) var. *peregrina***

Annual herb to 0.2 m tall. Stems ascending to erect, glabrous. Leaf bud indistinct; leaves separating while very small, few, short-lived, opposite-decussate, erecto-patent to reflexed; lamina thin to sub-coriaceous, elliptic to oblanceolate below, becoming narrowly oblong to linear-oblanceolate above, 6–20 mm long, 1.5–7.0 mm wide, slightly glossy green or reddish above, dull pale green or green beneath; midrib and lateral veins obscure; surfaces glabrous; margin glabrous, bluntly shallowly serrate to crenate below, becoming entire above; teeth in 0–4 pairs; apex rounded to bluntly acute; base cuneate; petiole 4–6 mm long in lowest leaves, becoming absent above. Inflorescence a terminal raceme, 30–150 mm long; flowers crowded at first, becoming more distant at fruiting, 8–35, all bisexual; bracts alternate, linear to linear-oblanceolate, > pedicels; pedicels erecto-patent, 0.2–0.5 mm long, glabrous. Calyx lobes 4, obtuse to bluntly acute or acuminate, 1.5–2.5 mm long, unequal, enlarging to 2–4 mm long at fruiting, glabrous. Corolla 1.5–2.5 mm diameter; tube white, c. 0.5 mm long, < calyx, glabrous; lobes 4, white, erect or sub-erect, equal to sub-equal, broadly oblong to broadly elliptic, 1.5–2.0 mm long, rounded; nectar guides absent. Stamen filaments white, c. 0.5 mm long; anthers cream to buff. Style glabrous, 0.1–0.2 mm long. Capsules angustiseptate, shallowly emarginate to obcordate, glabrous, 2.5–3.0 mm long, 3.5–4.5 mm at widest point. Seeds ellipsoid to oblong, flattened with a rounded ridge  $\frac{3}{4}$  of length on back, smooth, pale brown, 0.6–0.8 mm long.



**Fig. 831:** *Veronica peregrina* var. *peregrina* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Western Springs, Oratia); Volcanic Plateau (Tauranga); Southern North Island (Kākāriki).

**Biostatus:** Exotic; fully naturalised.

Indigenous to America and naturalised in Europe.

**Habitat:** Footpath cracks and between pavers (Western Springs), a nursery weed (Oratia), and seasonally wet hollows in gravel and silty soil (Tauranga, Kākāriki). Recorded elevations range from 10 to 85 m.

**First record:** Heenan et al. 2004(p. 809). Voucher CHR 568457, C. C. Ogle 4411, Kākāriki.

**Recognition:** The combination of very small, white flowers, with corolla included in the calyx, and completely glabrous in all its parts is distinctive for identifying plants of *V. peregrina*. At fruiting, the capsules are distinctive in being glabrous, broader than long, shallowly emarginate or obcordate, and having very short styles.

**Phenology:** Flowers: September–November (and probably earlier); fruits: September–December.

**Cytology:**  $2n = 52$  (–54?) (New Zealand plants not counted; see Albach et al. 2008).

**Notes:** *Veronica peregrina* is classified in *V.* subg. *Beccabunga* (Albach et al. 2004a; Albach & Meudt 2010) along with *V. americana*, *V. anagallis-aquatica*, *V. catenata*, and *V. serpyllifolia*.

*V. peregrina* plants are short-lived annuals that probably mostly die by early summer when their habitat dries up. In cultivation, new seedlings appeared again in March, which suggests autumn plants might also occur in the wild. Self-sown plants in pots in a Wellington garden flowered in June.

The flowers are mostly cleistogamous and open only on warm, sunny days for an hour or two about midday. Otherwise they self-pollinate without opening, as the anthers are held against the stigma. Fruits mature and dehisce very quickly.

Plants in New Zealand are glabrous, thus matching *V. peregrina* var. *peregrina*.



**Fig. 832:** *Veronica peregrina* var. *peregrina*. Habitat. Tauranga.



**Fig. 833:** *Veronica peregrina* var. *peregrina*. Habit. Tauranga.





**Fig. 834:** *Veronica peregrina* var. *peregrina*. Sprig. Scale = 10 mm.



**Fig. 835:** *Veronica peregrina* var. *peregrina*. A cultivated seedling.



**Fig. 836:** *Veronica peregrina* var. *peregrina*. Leaf transition from basal (left) to cauline (right), adaxial (upper row) and abaxial (lower row). Scale = 10 mm.



**Fig. 837:** *Veronica peregrina* var. *peregrina*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 838:** *Veronica peregrina* var. *peregrina*. Inflorescence. Scale = 1 mm.



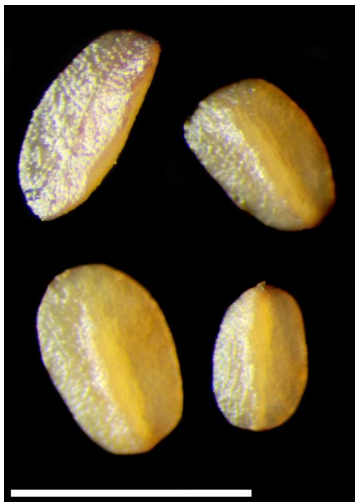
**Fig. 839:** *Veronica peregrina* var. *peregrina*. Flowers. Scale = 1 mm.



**Fig. 840:** *Veronica peregrina* var. *peregrina*. Immature capsule. Scale = 1 mm.



**Fig. 841:** *Veronica peregrina* var. *peregrina*. Dehiscing capsule. Scale = 1 mm.



**Fig. 842:** *Veronica peregrina* var. *peregrina*. Seeds. Scale = 1 mm.

### ***Veronica persica* Poir., *Encycl.* 542 (1808)**

≡ *Veronica tournefortii* C.C.Gmel., *Fl. Bad.* 1, 39 (1805) nom. illeg., non *Veronica tournefortii* Vill.

= *Veronica buxbaumii* Ten., *Fl. Napol.* 1, 7, t. 1 (1811) nom. illeg., non *Veronica buxbaumii* F.W.Schmidt 1791

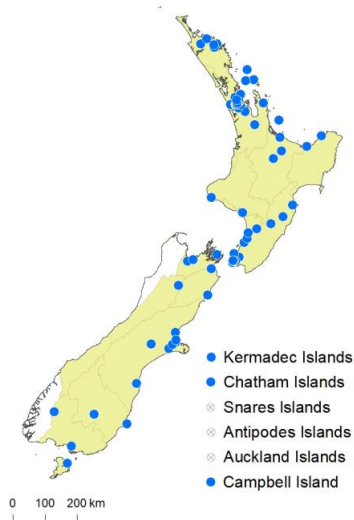
= *Veronica areolata* Colenso, *Trans. & Proc. New Zealand Inst.* 24: 392 (1892)  
Holotype: open land south of Dannevirke. WELT SP23572

**Etymology:** The epithet *persica* means of Persia (now Iran).

**Vernacular name:** scrambling speedwell

Annual herb to 0.1 m tall. Stems prostrate to decumbent and rooting at nodes, eglandular-pubescent; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, ovate to broad ovate, sometimes deltoid, 6–35 mm long, 5–30 mm wide, dull green above, paler beneath, midrib and palmate secondary veins evident; surfaces eglandular-hairy; margin pubescent, serrate; teeth in 3–8 pairs; apex rounded to sub-acute; base truncate; petiole 0.5–7.0 mm long. Inflorescence a terminal raceme, 200–500 mm long; flowers distant, 12–50, all bisexual; bracts alternate, leaf-like; pedicels spreading, 5–15 mm long, up to 40 mm long and incurved at fruiting, with short, antrorse, eglandular hairs and scattered longer eglandular or occasionally glandular hairs. Calyx lobes 4, tapered to narrow obtuse apex, sub-equal, 5–7 mm long, with short, antrorse hairs on margins and a few longer ones on calyx tube. Corolla 8–12 mm diameter;

tube white and yellow, c. 1 mm long, much < calyx, eglandular-hairy inside; lobes 4, usually sky-blue, rarely white, erecto-patent to spreading, unequal, orbicular to broadly elliptical, 5–8 mm long, rounded; nectar guides dark blue or purple, rarely absent. Stamen filaments white or pale blue, 2–3 mm long; anthers dark blue. Style glabrous, 1.5–3.0 mm long. Capsules angustiseptate, didymous with prominent veins, diverging obtuse lobes and broad sinus between, eglandular- and glandular-hairy in distal half, 3.5–4.0 mm long, 6–7 mm at widest point. Seeds ellipsoid, smooth and concave on funicle side, wrinkled and convex on back, straw-yellow to brown, 1.5–1.8 mm long.



**Fig. 843:** *Veronica persica* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: widespread in all districts.

South Island: widespread but not yet recorded in Western Nelson and Fiordland.

Kermadec Is., Chatham Is., Stewart I., Campbell I., local.

**Biostatus:** Exotic; fully naturalised.

Native to central and southern Europe and west Asia.

**Habitat:** A very common weed of open, disturbed sites, in arable land, waste ground, roadsides, dry riverbeds, and pastures. Recorded elevations range from 0 to 1525 m.

**First record:** Kirk in Hooker (1867, p. 761, as *V. buxbaumii*). Voucher: likely to be AK 94004, WELT SP63076–8, T. Kirk, 1863–73.

**Recognition:** *Veronica persica* is distinctive among the common weedy speedwells in New Zealand. Plants can be identified by their coarsely toothed leaves, lax terminal inflorescences of alternate leaf-like bracts and pedicellate blue flowers, and distinctive capsules, which are broader than long, with widely spreading lobes, shallow sinus, and ciliate margins. The anterior corolla lobe is usually, but not always,

paler than the other three lobes, and the short stamens are curved and more or less erect alongside the style.

Plants of *V. persica* have been misidentified in New Zealand as the much rarer *V. agrestis* in the past, but *V. agrestis* plants have smaller and paler flowers, the capsule lobes are erect and are rounded, with a narrow sinus between them; also they have glandular hairs on calyx margins and pedicels, and the leaves are narrower, 5–10 mm long and 2.2–8.0 mm wide. *V. polita* plants are similar in growth form, terminal inflorescences with alternate leaf-like bracts, and cup-shaped seeds, differing chiefly in their dull, grey-green, hairy leaves, smaller, bright blue flowers, rounded capsules covered in short eglandular hairs, and with a few glandular hairs on the margins.

*Veronica hederifolia* plants have a similar habit, but they differ in their bluntly three- to five-lobed leaves, pedicel hairs distinctly in one row, smaller and paler flowers 1.5–2.5 mm diameter, calyx lobes plicate at first and cordate at the base with very long, straight, spreading marginal hairs, shorter styles 0.4–0.5 mm long, rounded fruits that are not wider than long, and fewer and larger (c. 2.5 mm) seeds.

**Phenology:** Flowers: all year; fruits: all year.

**Cytology:**  $2n = 28$  based on overseas counts (Albach et al. 2008).

**Notes:** *Veronica persica* is classified in *V.* subg. *Pocilla* (Albach et al. 2004a; Albach & Meudt 2010).



**Fig. 844:** *Veronica persica*. Habit. Kelburn, Wellington.



**Fig. 845:** *Veronica persica*. Sprig. Scale = 10 mm.



**Fig. 846:** *Veronica persica*. Stem and pedicel. Scale = 10 mm.



**Fig. 847:** *Veronica persica*. Leaf surfaces, adaxial (above) and abaxial (below). Scale = 1 mm.



**Fig. 848:** *Veronica persica*. Flower. Scale = 1 mm.



**Fig. 849:** *Veronica persica*. Flower of white form. Scale = 1 mm.



**Fig. 850:** *Veronica persica*. Calyx.  
Scale = 1 mm.



**Fig. 851:** *Veronica persica*. Capsule.  
Scale = 1 mm.



**Fig. 852:** *Veronica persica*. Seeds.  
Scale = 1 mm.

### ***Veronica petriei* (Buchanan) Kirk, *Trans. New Zealand Inst.* 28: 517 (1896)**

≡ *Mitrasacme petriei* Buchanan, *Trans. & Proc. New Zealand Inst.* 14: 349 (1882)

≡ *Hebe petriei* (Buchanan) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 42 (1926)

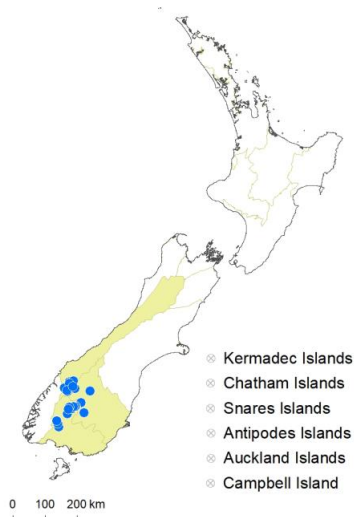
≡ *Leonohebe petriei* (Buchanan) Heads, *Bot. Soc. Otago Newsl.* 5: 6 (1987)

Lectotype (designated by Moore, in Allan 1961): WELT in Herb. Buchanan, *Petrie* 1881 [cited by Moore as being in OTM, where Herb. Buchanan resided at the time]. Probable isolectotypes: WELT 5118, WELT 5119, AK 8283

**Etymology:** The epithet *petriei* honours Donald Petrie, teacher, school inspector, and botanist.

Sub-shrub or spreading low shrub to 0.3 m tall. Stems decumbent, glabrous or eglandular-puberulent; hairs bifarious. Leaf bud distinct, its outer leaves fully grown, diverging but leaving a narrow, acute sinus at the base. Leaves opposite-decussate to sub-distichous, shortly connate in pairs and encircling stem, erecto-patent to recurved; lamina sub-coriaceous, obovate, oblong, elliptic, or narrow elliptic, 4–12 mm long, 2.0–5.5 mm wide, dull or slightly glossy green above and beneath; midrib weak; surfaces glabrous or eglandular-hairy near base above; margin glabrous or minutely ciliolate especially towards base, entire, sometimes reddish; apex obtuse to rounded; base cuneate; petiole indistinct, 0.5–3.0 mm long. Inflorescence a terminal raceme, 8–60 mm long; flowers crowded, 18–62 per inflorescence, female or bisexual on separate plants, ♀ > ♂; bracts alternate, the lower sterile, linear to lanceolate, > pedicels; pedicels erect to erecto-patent, 0.5–2.5 mm long, mixed eglandular-

and glandular-puberulent all around. Calyx lobes 4–5, acute to acuminate, 3.5–6.0 mm long, sub-equal to unequal, ciliate with glandular or eglandular or mixed hairs. Corolla 5–8 mm diameter; tube white, 2.5–7.0 mm long,  $\geq$  calyx, glabrous; lobes 4, white, sub-erect to recurved, sub-equal or unequal, linear to narrowly elliptic, posterior sometimes sub-orbicular, 2.5–4.0 mm long, sub-acute to obtuse, posterior sometimes emarginate; nectar guides absent. Stamen filaments white, 1.3–1.7 mm long; anthers magenta. Style glabrous, 3–6 mm long. Capsules latiseptate, acute or acuminate, glabrous, 4.0–4.5 mm long, 1.7–2.5 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, pale brown or brown, 0.7–1.1 mm long.



**Fig. 853:** *Veronica petriei* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland (east of the Main Divide in the far south only), Otago, Southland, from catchments at the head of Lake Wakatipu to the Pisa, Livingston, Eyre, Garvie, and Takitimu Mountains.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rocks and scree. Recorded elevations range from 1040 to 1846 m.

**Recognition:** *V. petriei* has been classified with a group of species informally known as “Connatae” (Bayly & Kellow 2006), which are characterised by similar habit and connate leaf bases. Of these, only *V. petriei* and *V. murrellii* plants have alternate (spiralled) shortly pedicellate and sweet-scented flowers.

A number of features distinguish plants of *V. murrellii* from *V. petriei*. *V. murrellii* plants differ in their more compact habit, bifarious stem pubescence, paler leaves, which are only very shortly connate, shorter and broader calyx lobes, shorter and broader corolla tube, and broader corolla lobes, and exerted anthers.

*V. notialis* plants have a similar habit to plants of *V. murrellii* and *V. petriei*, but differ in their rigid, highly glossy leaves, which usually have a densely hairy margin of often branched and tangled hairs, lateral two- to four-flowered inflorescences, broader corolla lobes, and angustiseptate truncate to didymous capsules.

(See: Table 6)

**Phenology:** Flowers: October–March (mostly December–February); fruits: November–March.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe petriei*).

**Notes:** *Veronica petriei* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Connatae” (Albach & Meudt 2010; Bayly & Kellow 2006). However, ITS sequence data indicate that *V. petriei* is an early lineage that diverges near the base of the shrubby hebe clade (Wagstaff et al. 2002; Meudt et al. 2015). It and *V. murrellii* appear not to be closely related to other “Connatae”.

The inflorescence indumentum is variable, especially on the bracts, which can be densely glandular-puberulent at the base or glabrous.



**Fig. 854:** *Veronica petriei*. Habit. Takitimu Mts, Southland.



**Fig. 855:** *Veronica petriei*. Sprig. Scale = 10 mm.



**Fig. 856:** *Veronica petriei*. Leaf bud with narrow, acute sinus. Scale = 1 mm.



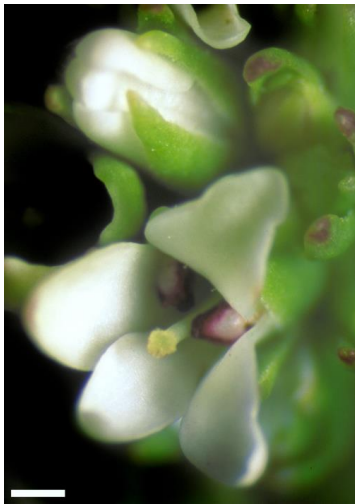
**Fig. 857:** *Veronica petriei*. Connate leaf bases. Scale = 1 mm.



**Fig. 858:** *Veronica petriei*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 859:** *Veronica petriei*. Inflorescence with sterile bracts at the base. Scale = 1 mm.



**Fig. 860:** *Veronica petriei*. Female flower. Scale = 1 mm.



**Fig. 861:** *Veronica petriei*. Bisexual flower. Scale = 1 mm.



**Fig. 862:** *Veronica petriei*. Capsule. Scale = 1 mm.



**Fig. 863:** *Veronica petriei*. Seeds. Scale = 1 mm.

## ***Veronica phormiiphila* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

nom. nov. pro *Veronica salicifolia* var. *paludosa* Cockayne 1916 (non *Veronica paludosa* Lej. 1812)

≡ *Veronica salicifolia* var. *paludosa* Cockayne, *Trans. New Zealand Inst.* 48: 202 (1916)

≡ *Hebe salicifolia* var. *paludosa* (Cockayne) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 18 (1926)

≡ *Hebe paludosa* (Cockayne) D.A.Norton & de Lange, *New Zealand J. Bot.* 36: 532 (1998)

Lectotype (designated by Moore, in Allan 1961): swamp, Lake lanthe, Westland, L. Cockayne 8118, AK 7776. Isolectotype: WELT 16439

**Etymology:** The epithet means *Phormium*-loving, referring to the habitat of this species in wet sites often associated with harakeke, *Phormium tenax*.

**Vernacular names:** koromiko; kōkōmuka

Bushy shrub to 5 m tall. Stems erect, eglandular-puberulent; hairs usually uniform, sometimes bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus rounded to elliptic-oblong. Leaves opposite-decussate, erecto-patent, spreading with age; lamina sub-coriaceous, linear-lanceolate to -elliptic, 30–86 mm long, 5.5–14.0 mm wide, glossy green above, pale green beneath; midrib evident, secondary veins evident when fresh; surfaces with eglandular hairs along midrib above and often beneath, sometimes also with minute glandular hairs; margin ciliolate, cartilaginous, entire



or with distant minute teeth in 1–4 pairs; apex acuminate; base abruptly cuneate to truncate; petiole 1–4 mm long. Inflorescence a lateral raceme, 93–190 mm long; flowers crowded, 100–150, all bisexual; bracts alternate or loosely whorled, linear to narrowly deltoid,  $\leq$  pedicels; pedicels spreading, sometimes recurved at fruiting, 1–5 mm long, puberulent all around. Calyx lobes 4, sub-acute to acuminate, 1.5–2.5 mm long, equal, mixed eglandular- and glandular-ciliolate; tube sometimes hairy. Corolla 4–6 mm diameter; tube white, 2.3–3.5 mm long,  $\geq$  calyx, eglandular-hairy inside and sometimes outside; lobes 4, white or tinged pale purplish, erect or erecto-patent, sub-equal, narrowly linear to elliptic, 3.0–4.8 mm long, obtuse to sub-acute; nectar guides absent. Stamen filaments white, 6.5–8.5 mm long; anthers purple or blue. Style glabrous or sometimes sparsely hairy, 7.0–7.3 mm long. Capsules latiseptate, sub-acute to truncate, glabrous, 3–4 mm long, 2.0–2.5 mm at widest point. Seeds broadly ellipsoid to discoid, flattened, smooth, straw-yellow to pale brown, 0.8–1.5 mm long.

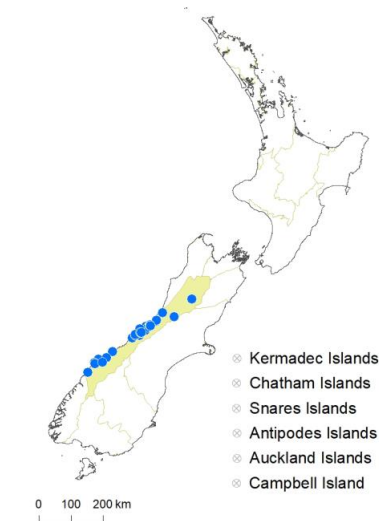
**Distribution:** South Island: Westland (between Grey Valley and Big Bay).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Lowland wetlands, edges of lakes and lagoons, especially in the transition zone to *Dacrycarpus* forest, often with *Phormium tenax* (Norton & de Lange 1998). Recorded elevations range from 0 to 500 m.

**Recognition:** *V. phormiiphila* plants are similar to both *V. salicifolia* and *V. leiophylla*. Plants of *V. salicifolia* can be distinguished by their broader, less evenly tapered leaves, and their branchlets are sometimes glabrous (though often puberulent, like those of *V. phormiiphila*). Although these distinctions are minor and qualitative, plants of *V. phormiiphila* have  $2n = 80$  and occur in wetlands, often in standing water.

*V. phormiiphila* plants are also difficult to distinguish from *V. leiophylla*, but the latter have shorter and less-tapered leaves than many plants of *V. phormiiphila*. Again, its wetland habitat is supportive of a separate status for *V. phormiiphila*, although *V. leiophylla* also has  $2n = 80$ , but the distinction between the two species is especially difficult where their distributions meet.



**Fig. 864:** *Veronica phormiiphila* distribution map based on databased records at AK, CHR & WELT.

Norton and de Lange (1998) drew attention to the distinctive features of *V. phormiiphila* (as *Hebe paludosa*) as “distinctive diffusely branching habit, brittle branchlets, yellow-green faintly glaucous-tinged leaves, conspicuous decurved and twisted acumen, and the flowers, which have a longer corolla tube and acute corolla lobes which usually project forward”.

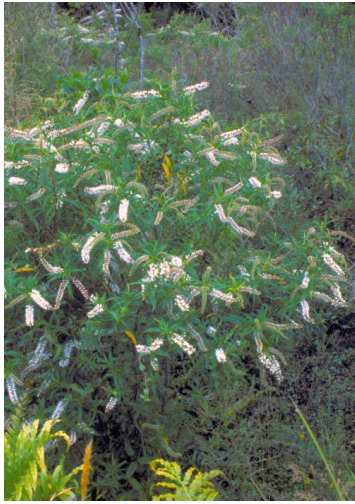
**Phenology:** Flowers: January–March; fruits: March–May.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe paludosa*).

**Hybridisation:** Bayly and Kellow (2006) noted difficulties distinguishing *V. phormiiphila* in the northern part of its range from *V. leiophylla*. Norton and de Lange (1998) did not think hybridism occurs between *V. phormiiphila* and either *V. salicifolia* or *V. leiophylla*. Bayly and Kellow (2006) suggested hybridisation might have been involved in its origin.

**Notes:** *Veronica phormiiphila* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

The Māori names koromiko, kōkōmuka, and variants, applied to *V. stricta* and *V. salicifolia*, might be applied also to similar large-leaved hebes, such as *V. phormiiphila*.



**Fig. 865:** *Veronica phormiiphila*. Habit. Lake Wahapo, Westland.



**Fig. 866:** *Veronica phormiiphila*. Sprig. Scale = 10 mm.



**Fig. 867:** *Veronica phormiiphila*. Branchlet, showing minute hairs. Scale = 1 mm.



**Fig. 868:** *Veronica phormiiphila*. Leaf bud with small sinus. Scale = 1 mm.



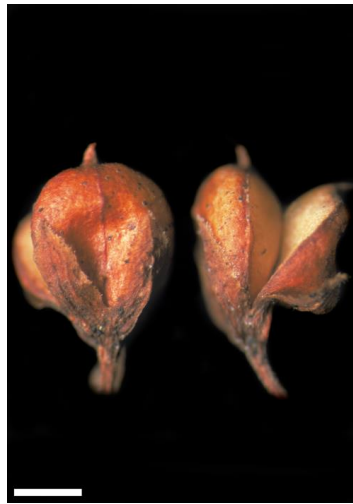
**Fig. 869:** *Veronica phormiiphila*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm. Inset: margin magnified to show minute hairs.



**Fig. 870:** *Veronica phormiiphila*. Inflorescence (left) and infructescence (right). Scale = 10 mm.



**Fig. 871:** *Veronica phormiiphila*. Flowers.  
Scale = 1 mm.



**Fig. 872:** *Veronica phormiiphila*. Capsules.  
Scale = 1 mm.

***Veronica pimeleoides* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I, 195 (1853)***

≡ *Hebe pimeleoides* var. *rupestris* Cockayne & Allan, *Trans. New Zealand Inst.* 57: 39 (1926) nom. illeg.

≡ *Hebe pimeleoides* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 38 (1926)  
Holotype: Port Cooper, New Zealand, Lyall, K [sprigs mounted in the upper right hand corner of a sheet that includes several other collections. As noted by Cockayne & Allan (1926), and Moore (in Allan 1961), *Hebe pimeleoides* is not known from the type locality (Port Cooper, a name formerly used for Lyttelton), as given on the Lyall specimen (the holotype) cited by Hooker (1853). Cockayne & Allan (1926) noted that Lyall and others made an excursion inland to near what is now Culverden, and suggested that the specimen may have been collected at that time]

= *Veronica glauca-caerulea* J.B.Armstr., *N.Z. Ctry. J.* 3: 57 (1879)

≡ *Veronica pimeleoides* var. *glauca-caerulea* (J.B.Armstr.) Cheeseman, *Man. New Zealand Fl.* 527 (1906)

≡ *Hebe pimeleoides* var. *glauco-caerulea* (J.B.Armstr.) Cockayne et Allan, *Trans. New Zealand Inst.* 57: 38 (1926)

≡ *Hebe glauca-caerulea* (J.B.Armstr.) Cockayne, *Trans. New Zealand Inst.* 60: 471 (1929)  
Lectotype (designated by Kellow et al. 2003): Clyde and Rangitata Vallies [sic],  
*J. F. Armstrong, 1869, CHR 635823*

**Etymology:** The epithet *pimeleoides* refers to the similarity to plants of *Pimelea* (Thymelaeaceae). *V. pimeleoides* plants resemble *P. prostrata* and similar species.

Low sub-shrub or small, bushy shrub to 0.9 m tall. Stems prostrate to erect, eglandular-pubescent or glabrous; hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent or small, narrow, and acute. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous to coriaceous, linear-elliptic to lanceolate to ovate or elliptic to sub-orbicular, 2.0–15.5 mm long, 0.7–8.7 mm long, dull, glaucous above and beneath, sometimes red-mottled; veins not evident or midrib slightly raised beneath; surfaces glabrous or sometimes one or both pubescent; margin glabrous or rarely minutely ciliate, entire; apex acute to sub-acute or rarely obtuse; base cuneate; petiole absent or indistinct, 0–1 mm long. Inflorescence a lateral spike or raceme, 8–70 mm long; flowers crowded, 4–24, all bisexual; bracts opposite-decussate, sometimes becoming alternate above, linear to ovate or elliptic, > pedicels; pedicels absent or < 1 mm long, rarely to 4.5 mm, eglandular-hairy all around. Calyx lobes 4, acute to acuminate, 2–5 mm long, sub-equal, eglandular-ciliate or -ciliate, rarely eglandular-hairy. Corolla 6–10 mm diameter; tube white to purplish, 1.0–2.5 mm long, < calyx, glabrous; lobes 4, purplish to blue, fading to pink or white, erecto-patent to recurved, unequal to sub-equal, lanceolate, ovate, elliptic, or obovate, 2.5–5.0 mm long, acute to sub-acute, rarely rounded; nectar guides absent. Stamen filaments pale purple fading white, 3–4 mm long; anthers pink, purplish, or magenta. Style glabrous or eglandular-hairy, 2.0–4.5 mm long. Capsules

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latiseptate, usually sub-acute or sometimes acute or obtuse, glabrous or eglandular-pubescent, 3.5–5.0 mm long, 2.2–3.2 mm at widest point. Seeds ellipsoid or broadly ellipsoid, flattened, smooth, pale brown, 0.8–1.3 mm.

- 1       Stems mat-forming or creeping to decumbent, to 0.3 m tall; leaves  
          2.0–12.1 × 0.7–5.2 mm; flowers mauve, blue, or violet, 6–8 mm diameter  
          ..... subsp. *pimeleoides*  
          Stems ascending to erect, to 0.9 m tall; leaves 7.5–15.5 × 1.8–8.7 mm;  
          flowers mauve, fading white, 8–10 mm diameter..... subsp. *faucicola*

**Distribution:** South Island: Marlborough, Canterbury, Otago; mostly in the west.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Grasslands, terraces, lake shores, rock outcrops.

**Recognition:** *Veronica pimeleoides* plants can be distinguished from other glaucous-leaved hebes by their small, often narrow leaves (although they may be sub-orbicular), usually coloured flowers, and often acute to acuminate calyx and corolla lobes. The contrast between the glaucous leaves and the dark stems is also distinctive.

*V. biggarii* plants are similar, with small, glaucous leaves, but usually sparsely puberulent stems and inflorescences, leaves are thicker, often reddish, and blunt at the apex, bracts are alternate throughout, pedicels 1–3 mm long, and the flowers have white corollas.

**Phenology:** Flowers: December–March; fruits: January–May (persisting all year).

**Cytology:** 2n = 40, 80 (See Bayly & Kellow 2006, as *Hebe pimeleoides*).

**Notes:** *Veronica pimeleoides* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Subcarnosae” (Albach & Meudt 2010; Bayly & Kellow 2006).

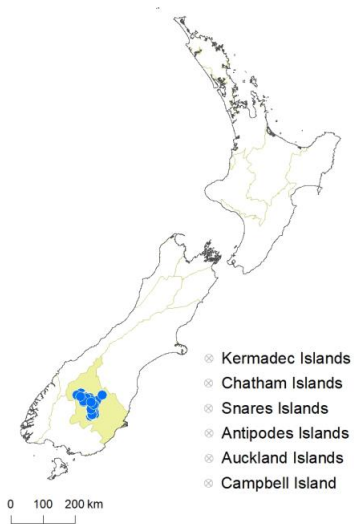
### ***Veronica pimeleoides* subsp. *faucicola* (Kellow & Bayly) Garn.- Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

≡ *Hebe pimeleoides* subsp. *faucicola* Kellow & Bayly in Kellow et al., *New Zealand J. Bot.* 41: 242 (2003)

Holotype: Otago, Clyde Dam lookout point, c. 300m NE of dam wall,  
*M. J. Bayly 1492 & A. V. Kellow*, 21 Jan 2001, WELT 82445

**Etymology:** The epithet *faucicola* means gorge dweller (Bayly & Kellow 2006), a reference to the habitat of this subspecies.

Small, bushy shrub to 0.9 m tall. Stems ascending to erect. Leaves lanceolate to elliptic or sub-orbicular, 7.5–15.5 mm long, 1.8–8.7 mm wide. Surfaces of leaves, bracts and calyx glabrous. Flowers 4–24 per inflorescence; corolla pale purplish, fading pink or white.



**Fig. 873:** *Veronica pimeleoides* subsp. *faucicola* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Otago (Manuherikia, Clutha, and Kawarau Valleys).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops and cliff faces on steep hillsides and in gorges. Recorded elevations range from 200 to 700 m.

**Recognition:** *V. pimeleoides* subsp. *faucicola* plants are often larger than plants of subsp. *pimeleoides* and have larger leaves and flowers (8–10 mm diameter), with paler corollas.

**Phenology:** Flowers: December–March; fruits: January–May, persisting until October.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe pimeleoides* subsp. *faucicola*).

**Notes:** Variation patterns in both morphological and chemical characters were described, discussed, and related to infraspecific taxonomy by Kellow et al. (2003).



**Fig. 874:** *Veronica pimeleoides* subsp. *faucicola*. Habit. Near Lake Dunstan, Otago.



**Fig. 875:** *Veronica pimeleoides* subsp. *faucicola*. Sprig. Scale = 10 mm.



**Fig. 876:** *Veronica pimeleoides* subsp. *fauvicola*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 877:** *Veronica pimeleoides* subsp. *fauvicola*. Flowers. Scale = 1 mm.



**Fig. 878:** *Veronica pimeleoides* subsp. *fauvicola*. Capsules. Scale = 1 mm.

***Veronica pimeleoides* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I, 195 (1853) subsp. pimeleoides***

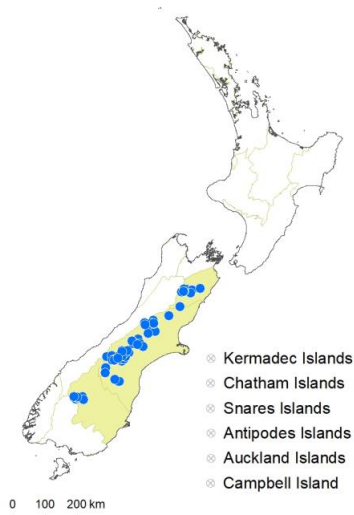
≡ *Hebe pimeleoides* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 38 (1926) subsp. *pimeleoides*

= *Veronica pimeleoides* var. *minor* Hook.f., *Handb. New Zealand Fl.* 738 (1867)

≡ *Hebe pimeleoides* var. *minor* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 38 (1926)

Holotype: Shingle beds of River Cameron, near Lake Heron, von Haast, 27 Oct 1864, K! [sprigs mounted in the lower right corner of a sheet that also includes material, collected after the species was described, from Clarence Valley, *T. F. Cheeseman*]. Probable isotype: CHR 22697 [probably a piece removed from holotype]

Mat or low-sprawling shrub or sub-shrub to 0.3 m tall. Stems prostrate to decumbent. Leaves narrow-elliptic to ovate, 2.0–12.1 mm long, 0.7–5.2 mm wide. Surfaces of leaves, bracts and calyx glabrous or sometimes with short eglandular hairs on one or both surfaces. Flowers 4–12 per inflorescence; corolla purplish or blue, fading paler.



**Fig. 879:** *Veronica pimeleoides* subsp. *pimeleoides* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough, Canterbury, Otago.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Terraces, slopes, and embankments, stony sites on sunny faces and in tussock grassland, often near lakes and rivers; stony ridge crests at higher altitudes. Recorded elevations range from 335 to 1616 m.

**Recognition:** *V. pimeleoides* subsp. *pimeleoides* plants are mostly smaller than subsp. *faucicola* plants and have smaller leaves and smaller flowers (6–8 mm diameter) with more intensely coloured corollas. The smallest plants are found on lake shores in Canterbury and Marlborough (e.g., Lake Sedgemere).

**Phenology:** Flowers: December–February; fruits: January–April, persisting until September.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe pimeleoides* subsp. *pimeleoides*).

**Hybridisation:** *V. pimeleoides* subsp. *pimeleoides* is probably a parent of a number of garden hybrids that have small leaves and purple flowers, such as *V. ×youngii* (*V. elliptica* × *pimeleoides*) and *V. 'Autumn Glory'*.

**Notes:** Variation patterns in both morphological and chemical characters were described, discussed, and related to infraspecific taxonomy by Kellow et al. (2003).



**Fig. 880:** *Veronica pimeleoides* subsp. *pimeleoides*. Habit. Lake Sedgemere, Marlborough.



**Fig. 881:** *Veronica pimeleoides* subsp. *pimeleoides*. Sprigs. Scale = 10 mm.



**Fig. 882:** *Veronica pimeleoides* subsp. *pimeleoides*. Leaf buds, with very obscure sinus (left) and obvious sinus (right). Scale = 1 mm.



**Fig. 883:** *Veronica pimeleoides* subsp. *pimeleoides*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 884:** *Veronica pimeleoides* subsp. *pimeleoides*. Flowers. Scale = 1 mm.



**Fig. 885:** *Veronica pimeleoides* subsp. *pimeleoides*. Seeds. Scale = 1 mm.

### ***Veronica pinguifolia* Hook.f., *Handb. New Zealand Fl.* 210 (1864)**

≡ *Hebe pinguifolia* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 36 (1926)

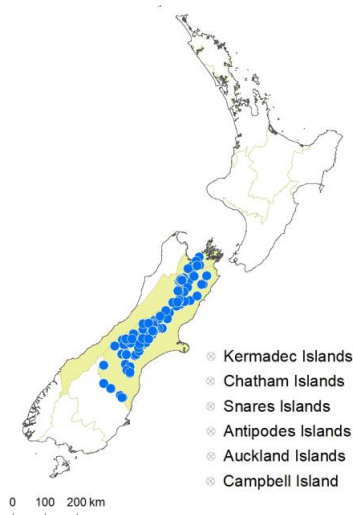
Lectotype (designated by Bayly & Kellow 2004): Canterbury, New Zealand, *Haast 574*, Herb. Hookerianum, K (piece mounted on bottom left of a sheet that also includes two other collections)

**Etymology:** The epithet probably describes the thick, fleshy leaves (Latin: *pinguis* fat; *folium* a leaf).

Spreading low shrub to 0.8 m tall, usually less. Stems decumbent to erect, eglandular-pubescent; hairs bifarious, sometimes sparse. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus usually absent, rarely very small, acute to rounded. Leaves opposite-decussate, sometimes sub-distichous on spreading branches, erecto-patent to spreading; lamina coriaceous, lanceolate (usually broadly), ovate, elliptic, or obovate, 7–22 mm long, 4–12 mm wide, dull glaucous or glaucescent above and beneath; midrib obscure, slightly raised beneath; surfaces glabrous; margin glabrous, entire, often minutely papillate; apex sub-acute to rounded; base cuneate or abruptly cuneate; petiole absent. Inflorescence a lateral spike or raceme, 10–34 mm long; flowers crowded, 12–22 (rarely as few as 4), female or bisexual on separate plants, ♀ > ♂; bracts opposite-decussate, often becoming alternate above, narrowly ovate to deltoid, = or slightly < calyx; pedicels absent or 0–8 mm long, eglandular-hairy all around. Calyx lobes 4, sub-acute to obtuse, 2.5–3.0 mm long, sub-equal or equal, mixed glandular- and eglandular-ciliolate. Corolla 5–10 mm diameter; tube white, 2–3 mm long, = or



slightly > calyx, glabrous; lobes 4, white, erecto-patent to recurved, sub-equal, elliptic to broadly ovate, 3–5 mm long, sub-acute to rounded; nectar guides absent. Stamen filaments white, 4–5 mm long; anthers pink to magenta; staminodes of ♀ flowers 2.8–3.5 mm long. Style eglandular-hairy at base, 5–8 mm long. Capsules latiseptate, obtuse to rounded, eglandular-hairy, 3.0–4.5 mm long, 2.5–3.2 mm at widest point. Seeds ellipsoid to oblong, flattened, finely wrinkled, pale brown or brown, 0.9–1.9 mm long.



**Fig. 886:** *Veronica pinguifolia* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Bryant Range, Richmond Range), Marlborough, Canterbury, Westland (Nelson Lakes National Park only), Otago (Hawkdun Range, Kakanui Mountains).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine, open rocky and scree sites, east of the Main Divide, usually on greywacke, sometimes in grassland. Recorded elevations range from 549 to 2135 m.

**Recognition:** Characteristic features of *Veronica pinguifolia* include the dark, reddish-black stems (grey when older), which contrast with the dull, bluish, glaucous and waxy leaves, often with red, sometimes yellow, margins. The stem pubescence is bifarious and the hairs are short (becoming glabrous on older stems). The capsule and base of the style are hairy.

Several other species characterised by glaucous leaves and short inflorescences of sessile flowers where the peduncle is about = the rachis might be confused with *V. pinguifolia*.

*V. amplexicaulis* plants differ by their broader, stem-clasping leaf bases, longer, shaggy hairs (0.3–0.5 mm long), and often glabrous stems except sometimes for a few long hairs

adjacent to the leaf margins.

*V. pareora* plants have larger stature, strictly glabrous stems and peduncles, amplexicaul leaf bases, shortly pedicellate flowers, and glabrous capsules.

*V. buchananii* plants are very similar in many respects and sometimes hard to distinguish from *V. pinguifolia*, but generally they are smaller, often mat-forming, have smaller leaves that are keeled and glaucescent rather than glaucous, thick, corky stems, and longer cilia on bracts and calyx. Plants on the Black Birch Range (Marlborough) very closely resemble *V. buchananii*, but are included here in *V. pinguifolia* on the basis of short cilia on the margins of bracts and calyx and the distributions the two species otherwise exhibit (Bayly & Kellow 2006).

In the northern part of its range (east Nelson and north Marlborough), plants of *V. pinguifolia* sometimes have a small sinus in the leaf bud. These plants might be confused with *V. baylyi*, but *V. baylyi* plants are usually more erect, have glaucescent rather than glaucous leaves with a longer and tapering sinus in the bud, and glabrous capsules.

**Phenology:** Flowers: December–February (rarely to April); fruits: January–April.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe pinguifolia*). Most plants studied had  $2n = 80$ . Some plants matching *V. pinguifolia* from higher altitudes in South Canterbury (especially Mt Peel, Four Peaks Range, Mt Winterslow, Mt Somers) had  $2n = 40$  (see Bayly & Kellow 2006 for details).

**Notes:** *Veronica pinguifolia* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Subcarnosae” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. pinguifolia* is one of many species whose relationships are not well resolved in recent DNA-based phylogenetic studies (e.g., Wagstaff et al. 2002). It is likely to be related to other species with small, glaucous leaves and short inflorescences of sessile flowers (e.g., *V. buchananii*, *V. amplexicaulis*).



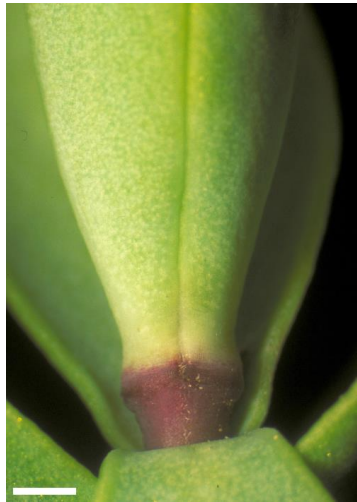
**Fig. 887:** *Veronica pinguifolia*. Habit. Mt Hutt, Canterbury.



**Fig. 888:** *Veronica pinguifolia*. Habit. Mt Misery, Canterbury.



**Fig. 889:** *Veronica pinguifolia*. Sprig. Scale = 10 mm.



**Fig. 890:** *Veronica pinguifolia*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 891:** *Veronica pinguifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 892:** *Veronica pinguifolia*. Female flowers. Scale = 1 mm.



**Fig. 893:** *Veronica pinguifolia*. Bisexual flowers. Scale = 1 mm.



**Fig. 894:** *Veronica pinguifolia*. Immature infructescence showing opposite decussate arrangement of bracts. Scale = 1 mm.



**Fig. 895:** *Veronica pinguifolia*. Capsule. Scale = 1 mm.



**Fig. 896:** *Veronica pinguifolia*. Seeds. Scale = 1 mm.

***Veronica planopetiolata* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 72: 31 (1942)**

as "*plano-petiolata*"

≡ *Parahebe planopetiolata* (G.Simpson & J.S.Thomson) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 229 (1944)  
– as *plano-petiolata*

Holotype: debris slopes and fans on Mt McPherson, head of the Homer Valley, at 1400–1700 m alt., Fletcher, CHR 76006

= *Veronica muelleri* Buchanan, *Trans. & Proc. New Zealand Inst.* 14: 351 (1882) nom. illeg., non *Veronica muelleri* Vest ex Schrank 1824 – as *müelleri*

≡ *Parahebe muelleri* W.R.B.Oliv., *Rec. Domin. Mus.* 1: 229 (1944) nom. nov. pro *Veronica muelleri* Buchanan 1882

Holotype: Hector's Col, Buchanan, WELT (Buchanan Collection). There are two fragments on the type sheet and tapes where a third has been removed, this third piece might be AK 8424. Isotypes: AK 8423, WELT 41436; AK 8424 might also be isotype material—it is a small scrap collected by Buchanan and labelled "Tararua Mountains", a mistake that might have arisen from confusion between Mt Hector and Hector's Col.

**Etymology:** The epithet *planopetiolata* means flat-petioled.

Mat-forming sub-shrub to 0.05 m tall. Stems prostrate, sometimes rhizomatous, eglandular-pubescent or glabrous; hairs bifarious to uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, elliptic, oblong, oblanceolate, narrowly rhomboid, deltoid, or orbicular (rarely), 2–10 mm long, 1–6 mm (rarely to 10 mm) wide, glossy green above, dull pale green or purplish beneath, veins not evident or midrib faint; surfaces glabrous; margin glabrous or ciliate on petiole only; shallowly crenate or sometimes entire, teeth in 0–3 pairs; apex obtuse to rounded; base cuneate (rarely truncate); petiole 1–5 mm long. Inflorescence lateral, usually a pair of flowers or sometimes a solitary bibracteate flower, 5–8 mm long; peduncle 1–2 mm long, all bisexual; bracts opposite, spatulate to obovate, > pedicels; pedicels erecto-patent, sometimes incurved at fruiting, 1–7 mm long, glabrous. Calyx lobes 4, or sometimes small 5th lobe present, obtuse, sub-equal, 3.5–7.0 mm long, glabrous. Corolla 7–9 mm diameter; tube white and greenish, 2–4 mm long, < calyx, glabrous; lobes 4 or 5 by division of posterior lobe, white, rarely pink or purplish, erecto-patent, sub-equal, elliptic to obovate, oblong, orbicular, or rhomboid, 2.5–5.5 mm long, rounded; nectar guides absent or very faint, pink. Stamen filaments white, 1.5–2.5 mm long; anthers pink to magenta. Style glabrous, 2.5–3.5 mm long. Capsules angustiseptate, emarginate or didymous, glabrous, 3–4 mm long, 4–5 mm at widest point. Seeds ellipsoid or obovoid, flattened, smooth, pale brown, 0.8–1.1 mm long.

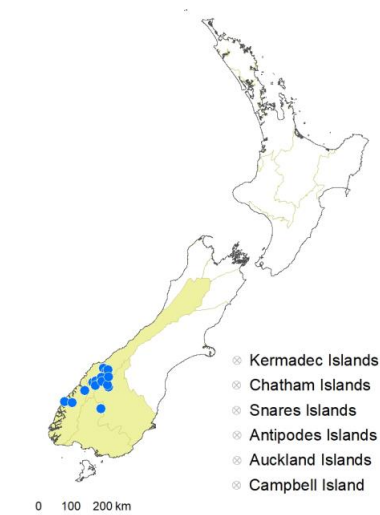
**Distribution:** South Island: Westland (in the south, mostly east of the main divide), Otago (western parts), Southland (Eyre Mountains), Fiordland (Mt McPherson, Lake Wapiti).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine scree, moraine, fell-field, and cliffs. Recorded elevations range from 1220 to 1769 m.

**Recognition:** *V. planopetiolata* plants are usually placed in the snow hebe group. They might be confused with *V. zygantha* and *V. colostylis*. *V. zygantha* plants are more lax-growing, softly woody sub-shrubs with broader, more rounded and shallowly toothed leaves; their stems and inflorescences usually have short antrorse hairs. *V. colostylis* plants are lax or sometimes compact sub-shrubs; their narrower leaves have entire margins, and they have more flowers per inflorescence and longer peduncles and pedicels, their capsules are less strongly flattened, and the seeds are smaller (0.5–0.8 mm long).

**Phenology:** Flowers: January–March; fruits: January–April, persisting longer.



**Fig. 897:** *Veronica planopetiolata* distribution map based on databased records at AK, CHR & WELT.

**Cytology:**  $2n = 84$  (Hair 1970, as *Parahebe planopetiolata* var. *planopetiolata*).

**Notes:** *Veronica planopetiolata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* but not currently assigned to any informal group (Albach & Meudt 2010). In molecular studies, *Veronica planopetiolata*

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did not cluster clearly with either the speedwell hebes or the snow hebes (Albach & Meudt 2010). Its tetraploid chromosome number suggests an allopolyploid origin, which might explain the lack of resolution in its phylogenetic position.

Plants collected from Minaret Burn headwaters (Barkla s.n., WELT SP093503) west of Lake Wānaka, are different from others in having broadly deltoid to orbicular lamina, truncate at the base, and the margin crenate with usually one pair of incisions.



**Fig. 898:** *Veronica planopetiolata*. Habit. Shotover Saddle, Otago.



**Fig. 899:** *Veronica planopetiolata*. Sprig. Scale = 1 mm.



**Fig. 900:** *Veronica planopetiolata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 901:** *Veronica planopetiolata*. Bract, pedicel, and flower. Scale = 1 mm.



**Fig. 902:** *Veronica planopetiolata*. Flower. Scale = 1 mm.



**Fig. 903:** *Veronica planopetiolata*. Immature capsules. Scale = 1 mm.



**Fig. 904:** *Veronica planopetiolata*. Dehiscent capsule. Scale = 1 mm.



**Fig. 905:** *Veronica planopetiolata*. Capsule. Scale = 1 mm.

### ***Veronica plebeia* R.Br., *Prodr. Fl. Nov. Holland.* 435 (1810)**

Holotype: [New South Wales] in humidis prope Sydney, *R. Brown*, May 1802, BM

= *Veronica elongata* Benth. in de Candolle, *Prodr.* 10 478 (1846)

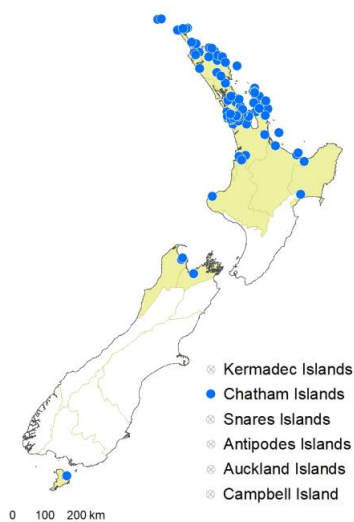
Type: K001070688, *R. Cunningham* 382, New Zealand

**Etymology:** The epithet *plebeia* is derived from Latin *plebeius*, of the people, or common.

**Vernacular name:** Australian speedwell

Perennial herb, sometimes softly woody at base, to 0.15 m tall. Stems prostrate, stoloniferous, to ascending, eglandular-puberulent or sometimes almost glabrous; hairs bifarious to uniform, mostly very short (0.2–0.4 mm long), with a few long bristles at nodes. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, deltoid or rarely broadly ovate, 5–28 mm long, 5–30 mm wide, dull dark green above, paler and often pink or purplish beneath; veins palmate, 3–5 from base; surfaces with scattered tapering eglandular hairs above and along veins beneath and very short tapering hairs dense near margins above and along petiole; margin minutely ciliolate, sharply dentate to somewhat bi-dentate; teeth in 3–12 pairs; apex usually acute, sometimes sub-acute or slightly acuminate; base truncate to weakly sub-cordate; petiole 5–15 mm long. Inflorescence a lateral raceme, 3–8 mm long; flowers distant, 2–8, all bisexual; bracts alternate, oblanceolate to spatulate, < pedicels; pedicels erect at flowering, spreading to reflexed at fruiting, 5–8 mm (rarely to 13 mm) long, very shortly puberulent all around. Calyx lobes 4 (rarely a narrow posterior 5th lobe present), sub-acute and apiculate, 2–3 mm long at flowering, 5–6 mm long at

fruiting, equal to sub-equal, glabrous to pubescent on faces, ciliolate on margins with short and very short hairs. Corolla 4–6 mm diameter; tube white and greenish-yellow, 1 mm long, < calyx, glabrous; lobes 4, pale purplish blue, erecto-patent to spreading, unequal, orbicular or elliptic, 2.0–2.5 mm long, rounded; nectar guides purple. Stamen filaments white, 1.5–2.0 mm long, anthers purplish. Style glabrous or sparsely bristly, 0.8–1.5 mm long. Capsules angustiseptate, truncate to very weakly emarginate, usually with scattered very short hairs on faces and margins or sometimes glabrous, 2.5–4.0 mm long, 2.5–4.5 mm at widest point. Seeds ellipsoid, flattened, smooth, straw-yellow to pale brown, 0.9–1.2 mm long.



**Fig. 906:** *Veronica plebeia* distribution map based on databased records at AK, CHR & WELT.

Voucher: K001070688, R. Cunningham 382, New Zealand. (<http://specimens.kew.org/herbarium/K001070688>).

**Recognition:** *V. plebeia* plants are similar to plants of several other herbaceous *Veronica*.

The uncommon and local *V. calycina* is also native to Australia and related to *V. plebeia*. Plants have a similar creeping habit, but differ from *V. plebeia* plants in having longer hairs (at least 1 mm) on stems, leaves, pedicels (in a single row), calyx margins and capsule margins, calyx lobes that are usually elliptic or rarely slightly oblanceolate, larger flowers 7–10 mm diameter, a glabrous style 1.8–2.2 mm long, and larger capsules and seeds. The most distinctive feature to distinguish them when not in flower or fruit is the very short hairs on stems and leaf margins of *V. plebeia*, even though longer hairs are also present on the leaves. *V. calycina* plants lack the very short hairs seen on *V. plebeia* plants.

*V. chamaedrys* plants also have lateral racemes of much larger blue flowers (10–13 mm diameter), but with much longer peduncles. The lamina is ovate to elliptic with an obtuse apex and crenate or crenate-serrate margins.

Plants of the native *V. jovellanoides*, known from only one locality, have a similar creeping habit, but differ in their longer hairs on stems, leaves, and inflorescences, glandular (among the eglandular) hairs on the inflorescence, larger white corolla with magenta nectar guides, longer stamens (4–4.5 mm) and style (3.5–4 mm), larger and emarginate capsules, and longer seeds.

Of other similar introduced species, *V. persica* and *V. hederifolia* plants differ by their terminal inflorescences, with leaf-like bracts and wrinkled seeds that are convex on one face.

The stigma of *V. plebeia* flowers is purplish-red, compared with white in any species it is likely to be confused with.

(See: Table 4)

**Phenology:** Flowers: October–May, extending to September; fruits: November–August, persisting through October.

**Cytology:** Australian material has  $2n = 34$  (Briggs & Ehrendorfer 2006).

**Notes:** *Veronica plebeia* is classified in *V.* subg. *Pseudoveronica* sect. *Labiatooides* (Albach et al. 2004a; Albach & Meudt 2010). Albach & Briggs (2012) used nuclear and chloroplast DNA markers to place *V. plebeia* in the *V. calycina* clade along with seven other species, and it appears to be sister

**Distribution:** North Island: Northland, Auckland, Volcanic Plateau (near the coast), Gisborne (near Wairoa).

South Island: Western Nelson (near Tākaka).

Manawatāwhi / Three Kings Is., Chatham Is.

**Biostatus:** Origin uncertain; present in wild.

The biostatus of *V. plebeia* has often been discussed, most recently by Davidson et al. (2009), who argued that it is indigenous and summarised the views of previous authors on the question. However, *V. plebeia* appears to have weedy tendencies, being naturalised in Hawaii and Costa Rica (Vincent 1989). *V. plebeia* is indigenous to eastern Queensland and New South Wales, Victoria, south-eastern South Australia, south-western Western Australia, and northern Tasmania.

**Habitat:** Coastal low forest and shrubland, occasionally inland in forest and shrubland especially on calcareous substrates, rarely in montane and sub-alpine forest; also found in waste places. Recorded elevations range from 0 to 700 m.

**First record:** Cunningham (1836, t. 3461, as *V. calycina*)

species to *V. grosseserrata*. Thus if it is indigenous to New Zealand, its arrival should be considered a separate event from that of the ancestor of *V.* sect. *Hebe*.

The hairs of *V. plebeia* plants are distinctive, especially the extremely short ones that are found in two stripes on the stems. These range in length from 0.2 to 0.4 mm. Hairs along the edges of leaves, petioles, calyx lobes, and capsules are even shorter (c. 0.05 mm). They are dense on leaf and calyx margins and on petioles, but often sparse and hard to see on capsules. Longer hairs are also found, especially on leaf veins beneath and on the calyx; these taper and their cells collapse, each orthogonally to its neighbours, when dry. The longest hairs occur at the bases of petioles, where a narrow wing joins the two petioles of a leaf pair.

The inflorescence is unusual. The lowest flower is often, but not always, right at the base of the inflorescence so that the peduncle is no more than 0.5 mm long, but the next internode is long. Thus the inflorescence looks like a regular pedunculate raceme with an additional axillary flower at its base.

The flowers do not open in cool weather and are then likely to be cleistogamous. It seems a temperature over ~20°C is necessary for corolla opening.

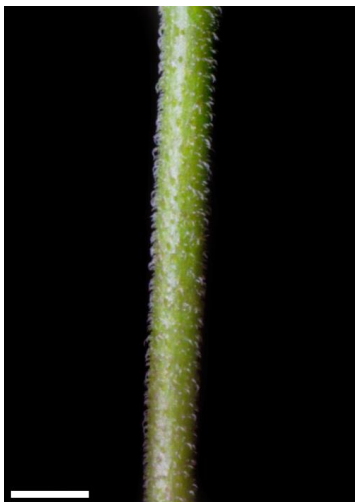
The seeds are mucilaginous when wet.



**Fig. 907:** *Veronica plebeia*. Habit. A cultivated plant from Auckland.



**Fig. 908:** *Veronica plebeia*. Sprig and inflorescence. Scale = 10 mm.



**Fig. 909:** *Veronica plebeia*. Stem. Scale = 1 mm.



**Fig. 910:** *Veronica plebeia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.





**Fig. 911:** *Veronica plebeia*. Leaf margin. Scale = 0.1 mm.



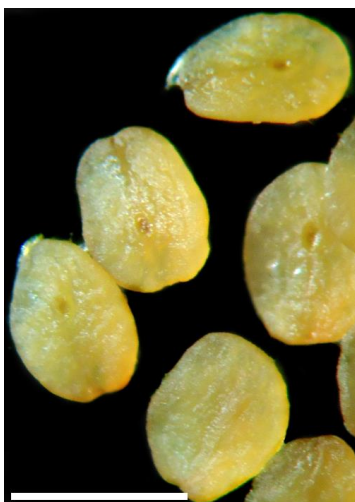
**Fig. 912:** *Veronica plebeia*. Flower. Scale = 1 mm.



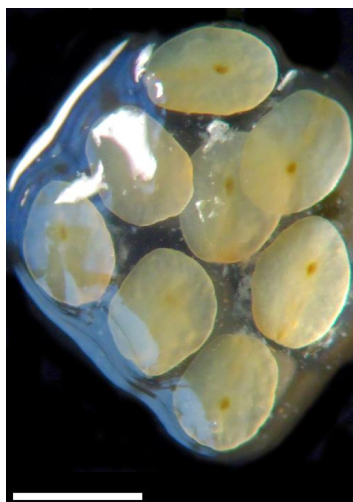
**Fig. 913:** *Veronica plebeia*. Pedicel, calyx, and immature capsule. Scale = 1 mm.



**Fig. 914:** *Veronica plebeia*. Capsule. Scale = 1 mm.



**Fig. 915:** *Veronica plebeia*. Seeds. Scale = 1 mm.



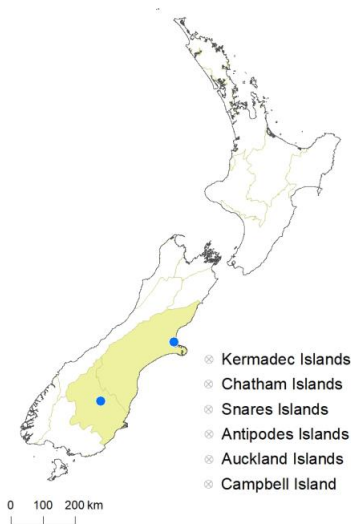
**Fig. 916:** *Veronica plebeia*. Wetted seeds in mucilage. Scale = 1 mm.

## *Veronica polita* Fr., Novit. Fl. Svec. 63 (1819)

**Etymology:** The epithet *polita* is from Latin and means smooth or polished. It is not clear how this name applies to *V. polita* because the leaves are dull and grey-green.

**Vernacular name:** grey speedwell

Annual herb to 0.1 m tall. Stems decumbent; hairs eglandular, uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, lanceolate to broadly ovate, sometimes elliptic or deltoid, 4–9 mm long, 4.0–9.5 mm wide, dull to greyish-green above, paler beneath; midrib and palmate secondary veins evident; surfaces eglandular-hairy, denser beneath; margin pubescent, bluntly serrate to serrate-crenate; teeth in 2–5 pairs; apex obtuse; base abruptly cuneate to truncate; petiole 2–5 mm long. Inflorescence a terminal raceme, 50–100 mm long; flowers distant, 5–25, all bisexual; bracts alternate, leaf-like; pedicels erecto-patent to spreading, recurved beneath branches at fruiting, 3.5–10.0 mm long, shortly antrorse eglandular-hairy all around. Calyx lobes 4, acute, 1.5–3.0 mm long at flowering, 4.0–4.5 mm long at fruiting, sub-equal, shortly eglandular-hairy on and near margins and tube. Corolla 4–6 mm diameter; tube greenish-white, 0.3–0.5 mm long, < calyx, sparsely eglandular puberulent inside; lobes 4, bright blue with white base, sub-erect to spreading, sub-equal, elliptic, 1.0–1.5 mm long, rounded; nectar guides faint dark blue. Stamen filaments white, 0.7–0.8 mm long; anthers dark blue. Style glabrous, 1.0–1.5 mm long. Capsules weakly angustiseptate, emarginate, covered in short, antrorse, eglandular hairs and with straight glandular hairs along margins, 2.7–4.0 mm long, 3.5–4.0 mm at widest point. Seeds ellipsoid, smooth and deeply concave on funicle side, bluntly wrinkled and convex on back, pale brown to brown, 1.2–1.4 mm long.



**Fig. 917:** *Veronica polita* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Auckland City: old specimens only).

South Island: Canterbury (Christchurch, especially Riccarton), Otago (Poolburn only).

**Biostatus:** Exotic; fully naturalised.

Indigenous to Europe and North Africa.

**Habitat:** A weed of gardens and arable crops. Recorded elevations range from 20 to 830 m.

**First record:** Allan (1940a, p. 303). Voucher: not found. There are no specimens dated before 1954 in CHR.

**Recognition:** *V. polita* plants are similar in overall appearance, growth form, and distinctive cup-shaped seeds to plants of the common *V. persica* and the rare *V. agrestis*. Plants of all three are soft, sprawling to decumbent herbs with lax terminal inflorescences and alternate leaf-like bracts. They are best distinguished by their capsules.

Capsules of *V. persica* are large (3.5–4.0 × 6–7 mm) with diverging lobes and a broad, v-shaped sinus between them, their faces are strongly veined when dry, their margins are

strongly keeled, and they have long eglandular and a few glandular hairs in the distal half or near the margins.

Capsules of *V. agrestis* are similar to those of *V. polita*. Both have erect lobes and a narrow sinus between them, but *V. agrestis* capsules have a deeper sinus and are 5.5–7.0 mm wide.

*V. agrestis* plants also differ from *V. polita* plants in their glandular hairs on the calyx lobe margins and a few long glandular hairs, along with the dense, short, eglandular hairs on the pedicels.

In addition, the flowers of *V. polita* are smaller with a bright blue corolla, whereas those of *V. agrestis* have a pale blue or whitish corolla, and those of *V. persica* are larger (8–12 mm diameter) with a blue corolla, the anterior lobe often paler.

**Phenology:** Flowers: July–March; fruits: September–April.

**Cytology:** 2n = 14, from overseas counts (Albach et al. 2008).

**Notes:** *Veronica polita* is classified in *V.* subg. *Pocilla* (Albach et al. 2004a; Albach & Meudt 2010).

One additional specimen is identified as *V.* aff. *polita*. It matches *V. polita*, except the capsule is glabrous and the leaves only sparsely hairy (CHR 83295, Upper Riccarton, *Healy*, 15 Nov 1954).



**Fig. 918:** *Veronica polita*. Habit. Mona Vale, Christchurch.



**Fig. 919:** *Veronica polita*. Habit. Cultivated, originally from Mona Vale, Christchurch.



**Fig. 920:** *Veronica polita*. Sprig. Scale = 10 mm.



**Fig. 921:** *Veronica polita*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 922:** *Veronica polita*. Pedicel and calyx. Scale = 1 mm.



**Fig. 923:** *Veronica polita*. Flowers. Scale = 1 mm.



**Fig. 924:** *Veronica polita*. Immature capsules (above), mature capsules (below). Scale = 1 mm.



**Fig. 925:** *Veronica polita*. Seeds. Scale = 1 mm.

### ***Veronica poppelwellii* Cockayne, *Trans. New Zealand Inst.* 48: 200 (1916)**

- ≡ *Hebe poppelwellii* (Cockayne) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 41 (1926)
- ≡ *Leonohebe poppelwellii* (Cockayne) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)
- ≡ *Hebe imbricata* subsp. *poppelwellii* (Cockayne) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 33 (1999)

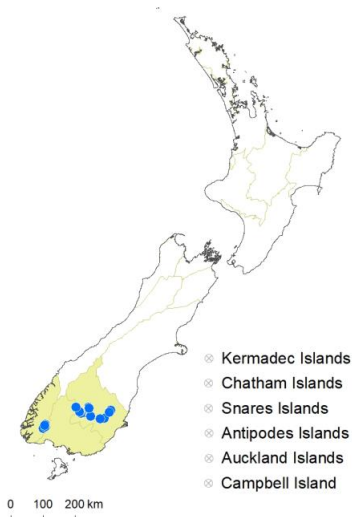
Lectotype (designated by Ashwin, in Allan 1961): cultivated plant originally from Garvie Mts, *L. Cockayne No. 8116*, WELT 5306. Possible isoelectotype (but without *Cockayne* number): CHR 331861 (ex CANTY).

- = *Veronica hectorii* var. *gracilior* Petrie ex Poppelw. in Poppelwell, *Trans. New Zealand Inst.* 47: 140 (1915) nom. nud.
- = *Veronica imbricata* Petrie, *Trans. & Proc. New Zealand Inst.* 48: 189 (1916) nom. illeg., non *Veronica imbricata* Woerl. 1882
- ≡ *Hebe imbricata* Cockayne & Allan, *Trans. New Zealand Inst.* 57: 42 (1926)  
Lectotype (designated by Ashwin, in Allan 1961): Mt Cleughearn, *J. Crosby Smith*, WELT 5345
- = *Leonohebe imbricata* (Petrie) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)

**Etymology:** The epithet honours Dugald Louis Poppelwell (1863–1939), Southland lawyer, local politician, botanical explorer, and conservationist.

**Vernacular name:** whipcord hebe

Whipcord shrub to 0.8 m tall. Stems ascending to erect, glabrous except for a tuft of eglandular hairs at connate leaf bases. Leaf bud indistinct, its outer leaves fully grown, diverging, opposite-decussate, connate in pairs and encircling stem, appressed and covering the well-marked node above, scale-like; lamina coriaceous, ovate to deltoid, 1–2 mm long, 1.6–3.0 mm wide, dull or slightly glossy green or yellowish-green above and beneath, prominently longitudinally ribbed, especially when dry; surfaces glabrous; margin shortly ciliate or ciliolate, entire, or incised on juvenile/reversion leaves; apex obtuse or sub-apiculate; base broad; petiole absent. Inflorescence a terminal spike, 3–13 mm long; flowers crowded, 6–18, all bisexual; bracts opposite-decussate and connate, ovate to deltoid; pedicels absent. Calyx lobes 4–5 (5th lobe small, posterior), obtuse to sub-acute, 2–3 mm long, sub-equal, eglandular-ciliate with long, deflexed, sinuous hairs and rare, short glandular hairs. Corolla 5–6 mm diameter; tube white, 1.7–2.5 mm long, ≤ calyx, eglandular-hairy inside; lobes 4, white, sub-erect to spreading, unequal, elliptic to orbicular, 2.3–2.8 mm long, obtuse or sometimes posterior lobe emarginate; nectar guides absent. Stamen filaments white, 2.5–4.5 mm long; anthers magenta. Style glabrous, 3.6–5.0 mm long. Capsules latisepate, obtuse, glabrous, 2.5–3.0 mm long, 1.8–2.5 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown, 0.9–1.1 mm long.



**Fig. 926:** *Veronica poppelwellii* distribution map based on databased records at AK, CHR & WELT.

*imbricata*).

**Notes:** *Veronica poppelwellii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). It is likely to be most closely related to *V. lycopodioides*, since both have pronounced longitudinal ribbing of the leaves, not seen in any other whipcord hebe.

The circumscription adopted here includes plants formerly known as *Hebe imbricata* from mountains between lakes Manapouri and Monowai, which differ slightly in their greener, longer, less-keeled leaves and stouter branchlets. For this circumscription, the epithet *imbricata* has priority under the genus *Hebe* (see Bayly & Kellow 2006), but the combination *Veronica imbricata* belongs to a northern hemisphere species and cannot be used for this one.



**Fig. 927:** *Veronica poppelwellii*. Habit. Mt Cuthbert, Fiordland.



**Fig. 928:** *Veronica poppelwellii*. Sprig. Scale = 10 mm.

**Distribution:** South Island: Otago (Garvie Mountains, Old Man Range, Lammermoor and Lammerlaw Ranges, Mt Bengier), Southland (Eyre Mountains, Hunter Mountains).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penialpine grassland and low shrubland. Recorded elevations range from 915 to 1700 m.

**Recognition:** *Veronica poppelwellii* plants closely resemble other whipcord hebes, in particular *V. lycopodioides*. *V. poppelwellii* and *V. lycopodioides* are characterised by close parallel ribbing of the leaves, prominently visible especially when dry. *V. lycopodioides* plants can be distinguished by their acute to apiculate leaves.

On some specimens the longitudinal ribbing on the leaves is obscure but usually still visible. The veins also differ from those of similar forms of *V. hectorii* in being closer to the abaxial surface and joining together to form a marginal vein.

**Phenology:** Flowers: December–March; fruits: February–May, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe*



**Fig. 929:** *Veronica poppelwellii*. Branchlets, from Mt Burns, Fiordland (left) and Old Man Range, Otago (right). Scale = 1 mm.



**Fig. 930:** *Veronica poppelwellii*. Close-up of leaves, showing prominent nodal joint on the lowest. Scale = 1 mm.



**Fig. 931:** *Veronica poppelwellii*. Terminal inflorescence, showing anterior calyx lobes free for most of their length. Scale = 1 mm.



**Fig. 932:** *Veronica poppelwellii*. Infructescence. Scale = 1 mm.



**Fig. 933:** *Veronica poppelwellii*. Capsule. Scale = 1 mm.

## *Veronica propinqua* Cheeseman, *Man. New Zealand Fl.* 533 (1906)

≡ *Hebe propinqua* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 41 (1926)

≡ *Leonohebe propinqua* (Cheeseman) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)

Lectotype (designated by Ashwin, in Allan 1961): Mt Maungatua, near Dunedin, 2900 ft, *D. Petrie*, AK 8258

= *Veronica cupressoides* var. *variabilis* N.E.Br., *Gard. Chron. ser.3*, 3: 20, Fig. 5 (1888)

Lectotype (designated by Bayly & Kellow 2004): Edinburgh [sic] Botanic Gardens, Sept. 1887, K, single piece with mature leaves, in upper left corner of sheet (which also includes material from Kew Gardens and Hay Lodge, as well as additional Edinburgh specimens collected in 1893)

= *Veronica propinqua* var. *major* Cockayne, *Man. New Zealand Fl.*, ed. 2, 820 (1925)

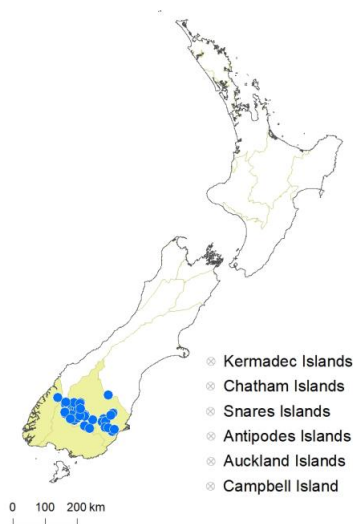
≡ *Hebe propinqua* var. *major* (Cockayne ex Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 41 (1926)

Holotype: Mt Dick, *L. C[ockayne]* 8133, Herb. Cheeseman, AK 50973. Isotype: AK 107836

**Etymology:** The epithet *propinqua* means near or close to, probably referring to either relationship or similarity. Cheeseman (1906) did not specify which species he had in mind when applying the name, but he discussed how *V. propinqua* had been confused with *V. salicornioides* and *V. cupressoides* in the past, and added his view that its nearest affinity is with *V. armstrongii*.

**Vernacular name:** whipcord hebe

Spreading low or rounded bushy whipcord shrub to 1 m tall. Stems ascending to erect, eglandular-pubescent; hairs bifarious above leaf axils and in deep grooves between connate leaf bases. Leaf bud indistinct, its outer leaves fully grown, diverging, opposite-decussate, appressed but not covering the usually well-marked node above, coriaceous, broadly ovate to deltoid, 0.7–1.8 mm long, 1.4–3.2 mm wide, dull to more or less glossy green above and beneath; veins not evident; surfaces glabrous; margin shortly ciliate or ciliolate, entire; apex obtuse; base broad, connate in pairs and encircling stem; petiole absent. Inflorescence a terminal spike, 3–9 mm long; flowers crowded, 4–10 per inflorescence, all bisexual; bracts opposite-decussate and connate, deltoid; pedicels absent. Calyx lobes 4, the anterior connate at the base or to about 1/5-way, sub-acute to acute, or acuminate by inrolling of margins, 2.0–2.5 mm long, sub-equal, eglandular-ciliate with a few short glandular hairs as well. Corolla 4.5–6.0 mm diameter; tube white, 1.5–2.1 mm long, = calyx, eglandular-hairy inside; lobes 4, white, sub-erect to recurved, unequal, elliptic to oblong, 2–3 mm long, sub-acute to rounded; nectar guides absent. Stamen filaments white, 3.5–4.5 mm long; anthers magenta. Style glabrous, 2.7–5.8 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 1.5–3.0 mm long, 1.4–2.1 mm at widest point. Seeds ellipsoid, flattened, slightly wrinkled, pale brown, 0.6–1 mm long.



**Fig. 934:** *Veronica propinqua* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Fiordland, Otago, Southland (Livingstone Mountains, Thomson Mountains, Eyre Mountains, The Remarkables, Hector Mountains, Garvie Mountains, Slate Range, Mt Bengier, Mid Dome, Umbrella Mountains, Lammermoor Range, Rock & Pillar Range, Mt Ida, Mt Maungatua).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penialpine grassland and sub-alpine scrub. Recorded elevations range from 580 to 1500 m.

**Recognition:** Among whipcord hebes, *V. propinqua* is distinguished by a combination of characters. The plants have calyx lobes that are free for most of their length, leaves that do not overlap so that the well-marked nodal joints are exposed, and leaves that are not longitudinally ribbed.

Plants of *V. annulata*, *V. armstrongii*, *V. ochracea*, and *V. salicornioides* all differ in having anterior calyx lobes that are usually fused to their apex, and their nodal joints, although exposed, are generally obscure.

Plants of *V. hectorii* and *V. tetragona* have shorter internodes, which means their leaves overlap and obscure the well-

marked nodal joints.

Finally, *V. lycopodioides* and *V. poppelwellii* have distinctive ribbed, longitudinal veins on their leaves.

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**Phenology:** Flowers: October–February; fruits: December–March, persisting longer.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe propinqua*).

**Notes:** *Veronica propinqua* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. propinqua* is probably related to the other whipcord hebes, especially those that share its chromosome number,  $2n = 40$  (i.e., *V. hectorii*, *V. tetragona*).



**Fig. 935:** *Veronica propinqua*. Habit. Wye Creek, Otago.



**Fig. 936:** *Veronica propinqua*. Habit. Rock and Pillar Range, Otago.



**Fig. 937:** *Veronica propinqua*. Sprig. Scale = 10 mm.



**Fig. 938:** *Veronica propinqua*. Branchlet. Scale = 1 mm.





**Fig. 939:** *Veronica propinqua*. Branchlet, showing prominent nodal joints. Scale = 1 mm.



**Fig. 940:** *Veronica propinqua*. Terminal inflorescence, showing anterior calyx lobes free for most of their length. Scale = 1 mm.



**Fig. 941:** *Veronica propinqua*. Infructescence. Scale = 1 mm.



**Fig. 942:** *Veronica propinqua*. Capsule. Scale = 1 mm.

### ***Veronica pubescens* Benth. in de Candolle, *Prodr.* 10 460 (1846)**

≡ *Hebe pubescens* (Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 17 (1926)

Holotype: "Prope Opuragi" [Mercury Bay], Nova Zealandia, *J. Banks and D. Solander*, 1769, BM 603447

**Etymology:** The epithet *pubescens* means becoming hairy, which might apply to leaves, calyces, and/or corollas.

Bushy shrub to 2 m tall. Stems usually erect, sometimes sub-erect to spreading, eglandular-puberulent to -pubescent; hairs uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus small, square, oblong, rounded or acute. Leaves opposite-decussate, erecto-patent to recurved; lamina sub-coriaceous or coriaceous, linear, lanceolate, ovate, elliptic, oblong, or oblanceolate, 15–125 mm long, 3.5–31.0 mm wide, dull to glossy dark to yellowish-green above, dull pale green to green beneath; midrib evident, secondary veins sometimes evident when fresh; surfaces with eglandular hairs along and near midrib above and often beneath, sometimes hairy all over or glabrous beneath; margin sparsely to densely ciliate to sometimes puberulent to pubescent, entire; apex sub-acute to obtuse; base cuneate to truncate; petiole 0.5–4.0 mm long. Inflorescence a lateral raceme, 20–200 mm long; flowers crowded, 20–190, all bisexual, or female or bisexual on separate plants in some populations, ♀ > ♂; bracts alternate, narrowly deltoid to lanceolate, usually < to sometimes = or slightly > pedicels; pedicels erecto-patent to spreading, sometimes recurved at

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fruiting, 0.8–5.0 mm long, eglandular-puberulent or -pubescent all around. Calyx lobes 4, sub-acute to acuminate, 1.8–3.0 mm long, equal to sub-equal, glabrous or eglandular-hairy on surfaces, mixed eglandular- and glandular-ciliolate on margins. Corolla 4–11 mm diameter; tube white, 1.9–5.5 mm long, ≤ to slightly > calyx, eglandular-hairy inside and often outside; lobes 4, white or pale purplish, sub-erect to spreading, unequal, lanceolate, elliptic, ovate, or narrowly oblong, 2–6 mm long; nectar guides absent. Stamen filaments white, 4.5–6.0 mm long; anthers magenta to purple. Style glabrous or eglandular hairy, 3.5–10.5 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous or eglandular-hairy, 3–6 mm long, 2.0–3.4 mm at widest point. Seeds ellipsoid, flattened, smooth, straw-yellow to pale brown, 1.0–2.5 mm long.

- 1 Leaf hairs long (>0.2 mm) and fringing on margins and midribs beneath, often also on lower leaf surface (Coromandel Peninsula and nearby islands).....subsp. *pubescens*  
Leaf hairs short (<0.2 mm) and ciliolate on margins and puberulent or glabrous on midribs beneath.....2
- 2 Leaves mostly broadest below midpoint, lanceolate or linear-lanceolate (Great Barrier I. [Aotea I.] and nearby islands).....subsp. *rehuarum*  
Leaves mostly broadest above midpoint, oblanceolate to obovate (Te Hauturu-o-Toi / Little Barrier I., Mokohinau Is.).....subsp. *sejuncta*

**Distribution:** North Island: Auckland (in the east, mostly Coromandel Peninsula and eastern islands).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Often coastal in open forest and scrub, rock outcrops and cliffs, sometimes in forest; inland on disturbed and regenerating sites.

**Recognition:** The presence of a small sinus distinguishes *V. pubescens* plants from similar species, and the presence of long hairs on petioles, lamina beneath, and midribs and margins distinguishes mainland plants (subsp. *pubescens*) from species such as *V. stricta* and *V. macrocarpa*, which grow in the same area. Recognition of the subspecies and their differences from similar species are discussed under those entries.

The corolla is often sparsely pubescent on the outer faces of the lobes, but may also be glabrous.

**Phenology:** Flowers: January–December; fruits: January–December.

**Cytology:** 2n = 40 (see Bayly & Kellow 2006, as *Hebe pubescens*).

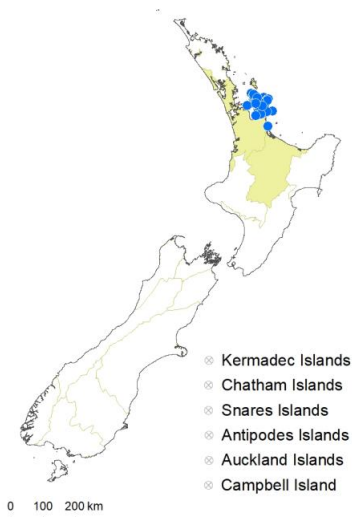
**Notes:** *Veronica pubescens* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

The frequency of female plants and the populations they occur in are not known (Bayly & Kellow 2006), and it is likely that most populations are cosexual.

## ***Veronica pubescens* Benth. in de Candolle, *Prodr.* 10 460 (1846) subsp. *pubescens***

≡ *Hebe pubescens* (Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 17 (1926) subsp. *pubescens*

Shrub to 2 m tall, usually erect. Branchlets uniformly hairy; hairs of varying length from quite short to long and woolly. Leaf bud sinus small, rounded to square or oblong, often filled with hairs. Leaves lanceolate, oblong, elliptic, or linear, sub-coriaceous to coriaceous, 15–87 mm long, 3.5–18.0 mm wide, dark to yellowish-green above; midrib beneath and usually surface beneath eglandular-hairy with hairs >0.2 mm long; margins pubescent. Inflorescence 20–200 mm long. Calyx lobes hairy on outer surfaces. Corolla tube 1.9–3.9 mm long; lobes eglandular-hairy on outer faces. Ovary and capsules usually hairy, sometimes glabrous; capsules 3–4 mm long.



**Fig. 943:** *Veronica pubescens* subsp. *pubescens* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Coromandel Peninsula, Motukawao Group, Ngamotukaraka Is. / Three Kings Is., Waimate, Motuoruhi and Motukaramea I. / Kaikai I., Mercury Is.). Some specimens from islands in the western Firth of Thames are also included in the distribution mapped here, discussed under 'Recognition'.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal sites under pōhutukawa forest, cliffs, rock-strewn ground, slip scars, coastal rocks; inland on disturbed sites in open seral vegetation. Recorded elevations range from 5 to 609 m.

**Recognition:** *V. pubescens* subsp. *pubescens* plants can be distinguished by the long hairs on the midribs, margins, and especially undersides of the leaf lamina, although at some localities (e.g., Kauaeranga Valley, Lonely Bay, and some islands near Coromandel Peninsula) leaves may be less hairy. I have included in the circumscription some plants from islands on the western side of the Firth of Thames because their leaf buds have small sinuses, but these have quite short hairs and should be closely compared with *V. stricta* with respect to other characters.

Three other hebes, *V. corriganii*, *V. macrocarpa*, and *V. stricta*, grow on Coromandel Peninsula.

Plants of *V. corriganii* are found south of the distribution of *V. pubescens* and differ in being less hairy and having shorter hairs, rounded corolla lobes, and larger capsules.

Plants of *V. macrocarpa* lack a leaf bud sinus, are less hairy and with shorter hairs, have larger and more robust flowers with rounded corolla lobes, and larger fruits.

Plants of *V. stricta* in northern New Zealand can be quite hairy, but can be distinguished from *V. pubescens* subsp. *pubescens* by their generally shorter hairs, glabrous leaves beneath, and the absence of a sinus in the leaf bud. In *V. stricta* the corolla lobes are generally shorter and narrower, glabrous on the outer faces, and do not open so widely.

**Phenology:** Flowers: August–May; fruits: August–May, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe pubescens* subsp. *pubescens*).



**Fig. 944:** *Veronica pubescens* subsp. *pubescens*. Habit. Cook's Beach, Coromandel.



**Fig. 945:** *Veronica pubescens* subsp. *pubescens*. Sprig. Scale = 10 mm.



**Fig. 946:** *Veronica pubescens* subsp. *pubescens*. Leaf bud with small, round sinus. Scale = 1 mm.



**Fig. 947:** *Veronica pubescens* subsp. *pubescens*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 948:** *Veronica pubescens* subsp. *pubescens*. Flowers, showing hairy calyx lobes. Scale = 1 mm.

***Veronica pubescens* subsp. *rehuarum* (Bayly & de Lange) Garn.-  
Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

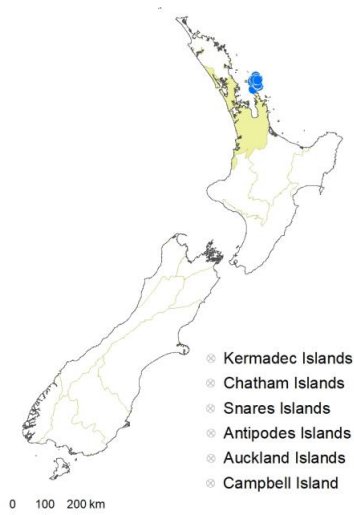
≡ *Hebe pubescens* subsp. *rehuarum* Bayly & de Lange in Bayly et al., *New Zealand J. Bot.* 41: 40 (2003)

Holotype: New Zealand, North Auckland, Great Barrier (Aotea) Island, Port Fitzroy, Rarohara Bay, Old Lady Track, Lookout Rock, *P. J. de Lange* 5192, 29 Mar 2001, WELT 82548.

Isotypes: AK, CHR, K, MEL, WAIK, BM

**Etymology:** The epithet *rehuarum* honours Ngāti Rehua, the iwi who exercise mana whenua over Great Barrier I. (Aotea I.), where the subspecies grows.

Low and spreading to erect shrubs to c. 1.5 m tall. Branchlets uniformly puberulent or glabrous; hairs very short. Leaf bud sinus small, rounded. Leaves lanceolate, narrowly elliptic, or linear-lanceolate, sub-coriaceous to coriaceous, 25–65 mm long, 7–19 mm wide, dark to yellowish-green above; midrib glabrous or sometimes puberulent to pubescent; surface beneath glabrous; margins puberulent to pubescent, sometimes glabrous towards apex. Inflorescence 55–100 mm long. Calyx lobes usually glabrous on outer surfaces, or sometimes hairy. Corolla tube 2.7–3.9 mm long; lobes often glabrous outside or sometimes hairy. Ovary and capsules glabrous to sparsely hairy, especially along septal grooves; capsules 3.0–4.5 mm long.



**Fig. 949:** *Veronica pubescens* subsp. *rehuarum* distribution map based on databased records at AK, CHR & WELT.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe pubescens* subsp. *rehuarum*).

**Distribution:** North Island: Great Barrier I. (Aotea I.) and nearby small islands.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal sites and inland in rocky places. Recorded elevations range from 0 to 400 m.

**Recognition:** Three other hebes, *V. parviflora*, *V. macrocarpa*, and *V. stricta*, occur on Great Barrier I. (Aotea I.).

Plants of *V. parviflora* differ in their leaf bud lacking a sinus, and shorter and narrower leaves, usually no more than 7 mm wide. Their flowers have a long corolla tube with short, rounded, spreading to recurved corolla lobes.

Plants of *V. macrocarpa* lack a leaf bud sinus, and have larger and more robust flowers with rounded corolla lobes, and larger fruits; on Great Barrier I. (Aotea I.) most have purple corollas and calyx lobes that are rounded and brownish.

Plants of *V. stricta* lack a leaf bud sinus and tend to have shorter, narrower, and more erect corolla lobes.

**Phenology:** Flowers: August–April; fruits: September–May, persisting all year.



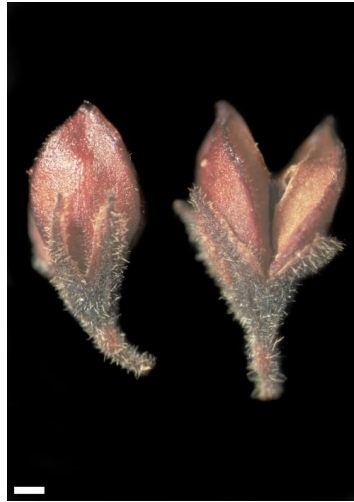
**Fig. 950:** *Veronica pubescens* subsp. *rehuarum*. Leaf bud with small, round sinus. Scale = 1 mm.



**Fig. 951:** *Veronica pubescens* subsp. *rehuarum*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 952:** *Veronica pubescens* subsp. *rehuarum*. Flowers. Scale = 1 mm.



**Fig. 953:** *Veronica pubescens* subsp. *rehuarum*. Capsules. Scale = 1 mm.

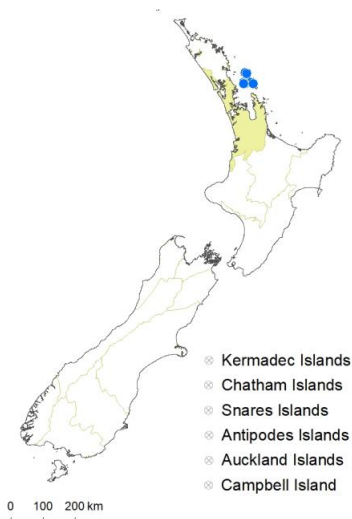
***Veronica pubescens* subsp. *sejuncta* (Bayly & de Lange) Garn.-  
Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)**

≡ *Hebe pubescens* subsp. *sejuncta* Bayly & de Lange in Bayly et al., *New Zealand J. Bot.* 41: 42 (2003)

Holotype: New Zealand, North Auckland, Little Barrier (Hauturu) Island, Tirikakawa Stream, near trackside, *P. J. de Lange* 5187, 17 Mar 2001, WELT 82549. Isotypes: AK, CHR, K, BM, MEL, WAIK, OTA

**Etymology:** The epithet *sejuncta* is from the Latin word for isolated and refers to aspects of the distribution of the subspecies.

Bushy shrub, often heavily branched, to c. 1.6 m tall. Branchlets glabrous or uniformly minutely puberulent. Leaf bud sinus usually conspicuous, sometimes (Mokohinau Is.) very small, rounded to sub-acute. Leaves obovate, oblanceolate, or narrowly elliptic, sub-coriaceous to firmly coriaceous, 30–125 mm long, 7–31 mm wide, dark to very dark green above; midrib beneath glabrous or pubescent with hairs <0.2 mm long; surface beneath glabrous; margins sparsely ciliate to pubescent or sometimes glabrous. Inflorescence 55–145 mm long. Calyx lobes glabrous or hairy on outer surfaces. Corolla tube 2.5–5.5 mm long; lobes glabrous, ciliate, or hairy on outer faces. Ovary and capsules sparsely hairy, especially along septal grooves, or glabrous; capsules 4–6 mm long.



**Fig. 954:** *Veronica pubescens* subsp. *sejuncta* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Te Hauturu-o-Toi / Little Barrier I., Mokohinau Is., and a single collection from Great Barrier I./Aotea I., identified as this subspecies by Bayly et al. 2003).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal scrub and *Phormium* herb-field, cliff faces, rock outcrops, rarely in open disturbed sites within *Metrosideros excelsa* / *Nestegis apetala* forest. Recorded elevations range from 0 to 280 m.

**Recognition:** Two other hebes, *V. macrocarpa* and *V. stricta*, occur on Te Hauturu-o-Toi / Little Barrier I. and the Mokohinau Is. *V. bollonsii* occurs nearby on the Hen and Chickens Is.

Plants of *V. macrocarpa* lack a leaf bud sinus and their flowers have rounded corolla lobes. In these localities they have narrower leaves than plants of *V. pubescens* subsp. *sejuncta*, their calyx lobes are brownish and rounded, their corollas are violet with rounded lobes, and the stamens are long-exserted.

Plants of *V. stricta* lack a leaf bud sinus and tend to have smaller flowers with shorter, narrower, and more erect corolla lobes. The leaves of *V. stricta* are much thinner and softer than

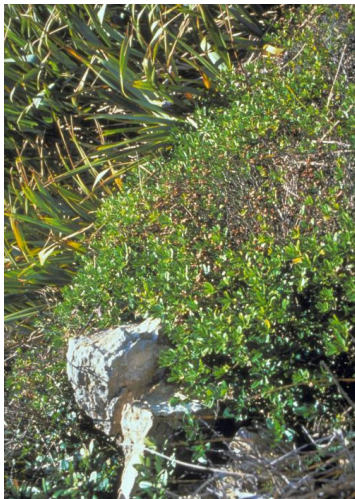
those of *V. pubescens* subsp. *sejuncta*.

*V. bollonsii* is quite similar to *V. pubescens* subsp. *sejuncta* in its leathery, obovate leaves and its flowers, but it differs in its lack of a sinus in the leaf bud. In spite of this similarity, subsp. *sejuncta* has a very similar flavonoid profile to other populations of *V. pubescens* and this supports its placement here (Bayly et al. 2003; Bayly & Kellow 2006).

**Phenology:** Flowers: all year; fruits: all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe pubescens* subsp. *sejuncta*).

**Notes:** Specimens from Te Hauturu-o-Toi / Little Barrier I. have corolla tubes 2.5–4.0 mm long, lobes 2.3–5.5 mm long, and capsules 3–5 mm long. Specimens from Mokohinau Is. have corolla tubes 3.0–4.5 mm long, lobes 3.5–5.5 mm long, and capsules 4.3–6.0 mm long.



**Fig. 955:** *Veronica pubescens* subsp. *sejuncta*. Habit. Hokoromea I., Mokohinau Is.



**Fig. 956:** *Veronica pubescens* subsp. *sejuncta*. Sprig. Scale = 10 mm.



**Fig. 957:** *Veronica pubescens* subsp. *sejuncta*.  
Leaf bud with small, round sinus. Scale = 1 mm.



**Fig. 958:** *Veronica pubescens* subsp. *sejuncta*.  
Leaf surfaces, adaxial (left) and abaxial (right). Te Hauturu-o-Toi / Little Barrier I. Scale = 10 mm.



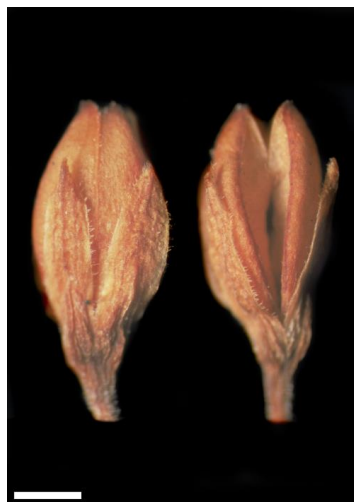
**Fig. 959:** *Veronica pubescens* subsp. *sejuncta*.  
Leaf surfaces, adaxial (left) and abaxial (right).  
Motukino (Fanal) I. Scale = 10 mm.



**Fig. 960:** *Veronica pubescens* subsp. *sejuncta*.  
Flowers. Te Hauturu-o-Toi / Little Barrier I.  
Scale = 1 mm.



**Fig. 961:** *Veronica pubescens* subsp. *sejuncta*.  
Flowers. Motukino (Fanal) I. Scale = 1 mm.



**Fig. 962:** *Veronica pubescens* subsp. *sejuncta*.  
Capsules. Scale = 1 mm.





**Fig. 963:** *Veronica pubescens* subsp. *sejuncta*.  
Seeds. Scale = 1 mm.

### ***Veronica pulvinaris* (Hook.f.) Cheeseman, *Man. New Zealand Fl.* 540 (1906)**

≡ *Pygmea pulvinaris* Hook.f., *Handb. New Zealand Fl.* 217 (1864)

≡ *Chionohebe pulvinaris* (Hook.f.) B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 2 (1976)

Holotype: Prov. Canterbury, summit of Mt Torlesse, *Haast s.n.*, 1860–1, No. 452, K

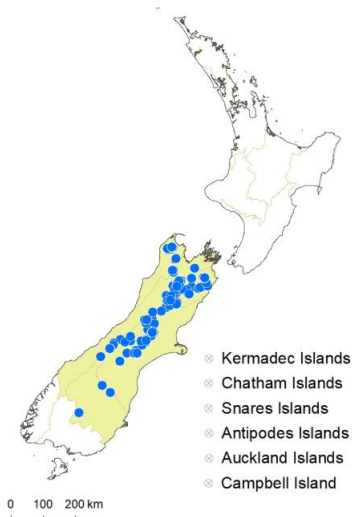
= *Pygmea ciliolata* var. *pumila* Ashwin in Allan, *Fl. New Zealand* 1, 874 & 975 (1961)

≡ *Veronica ciliolata* var. *pumila* (Ashwin) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 577 (2007)

Lectotype (designated by Meudt 2008): Discovery Peaks, Nelson, New Zealand, 5500 ft., *Travers s.n.*, 1860, K (specimen labelled 'A')

**Etymology:** The epithet *pulvinaris*, from Latin *pulvinus* (a cushion), is a reference to its habit.

Dense cushion plant to 0.1 m tall. Stems erect, densely crowded, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging, sub-decussate, sub-erect to appressed, separating early; lamina thin, oblanceolate to narrowly obovate or spatulate, rarely lanceolate to narrowly ovate, 1.8–4.8 mm long, 0.5–2.0 mm wide, dull, pale green above and beneath in distal half, often brownish or yellowish at margins, pale green, white, or purplish at base; veins not evident; hairs stiff, eglandular: on adaxial surface isolated, scattered or in a central patch or covering upper half, rarely absent; on abaxial surface absent or scattered in upper half; margin ciliate, mostly distally, entire; apex obtuse, rarely sub-acute; base slightly narrowed; petiole absent. Inflorescence a solitary axillary bibracteate flower, female or male on separate plants, ♂ > ♀; bracts 2, opposite, very narrowly elliptic to narrowly oblanceolate, equalling and investing calyx; pedicel absent. Calyx lobes 5, obtuse to sub-acute, 1.6–3.3 mm long, equal, glabrous or sparsely eglandular-hairy outside and eglandular-ciliate. Corolla 2.5–5.0 (♀) or 4.0–7.0 (♂) mm diameter; tube white, 1.6–5.8 mm long, ≥ calyx, glabrous inside; lobes 5, white, spreading, equal, narrowly to very broadly elliptic or obovate, 1.0–2.5 mm long, obtuse to sub-acute, sometimes sparsely hairy near apex abaxially; nectar guides absent. Stamen filaments white, 0.2–0.8 mm long, anthers magenta or purple. Style glabrous, 2.3–7.0 mm long. Capsules angustiseptate, emarginate, eglandular-hairy especially at apex, 1–3 mm long, 1.2–2.7 mm at widest point. Seeds discoid to ellipsoid, weakly flattened, smooth, pale to dark brown, 0.6–0.9 mm long.



**Fig. 964:** *Veronica pulvinaris* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Sounds Nelson (Mt Richmond only), Marlborough, Westland (near the Main Divide), Canterbury, Otago (Mt Ida, Mt St Bathans, Garvie Mountains).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine cushion herb-field, fell-field, tussock grassland, on exposed ridges, outcrops, and cliffs, in rocky or stony sites and screes. Recorded elevations range from 762 to 2257 m.

**Recognition:** *V. pulvinaris* plants can be distinguished among the four cushion-forming snow hebes, which are characterised by a cushion growth form and entire leaves, and by the combination of leaf hair distribution and the hairy apex to the ovary and capsules. In *V. pulvinaris* the leaves usually have hairs evenly scattered (often sparsely) over the distal half of both surfaces and around the margins especially distally, rather than mostly on margins only (*V. ciliolata*), in a central band or patch and on margins (*V. thomsonii*), or glabrous to very sparsely ciliate (*V. chionohebe*). In *V. thomsonii* and in *V. ciliolata* subsp. *fiordensis* the ovary and capsule may be hairy, but *V. pulvinaris* may be distinguished from them by the

characteristic distribution of leaf hairs. Also, *V. thomsonii* and *V. ciliolata* subsp. *fiordensis* have more southerly distributions (but see notes under *V. ciliolata* for one anomalous collection from Mt Hutt).

(See: Table 8)

**Phenology:** Flowers: December–March (sometimes November); fruits: January–March (rarely November and December).

**Cytology:**  $2n = 42$  (Hair 1970, as *Pygmea pulvinaris*).

**Hybridisation:** Meudt & Bayly (2008) refer to plants at Mt Cook that appear intermediate between *V. pulvinaris* and both *V. ciliolata* and *V. thomsonii*. A hybrid between *V. pulvinaris* and the semi-whipcord hebe *V. hookeri* has also been recorded (Garnock-Jones & Lloyd 2004; Meudt & Bayly 2008).

**Notes:** *Veronica pulvinaris* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010). The cushion-forming snow hebes are probably very closely related. Their sessile, bibracteate, 5-merous flowers, almost actinomorphic corollas, and densely crowded, appressed leaves all support this hypothesis of relationship, which is weakly supported by DNA data. Their wider relationships are with a group of alpine sub-shrubs: *V. birleyi*, *V. densifolia*, *V. spectabilis*, and *V. trifida*.

The range of sizes of flowers and their parts is large, reflecting the differences between male and female flowers. Flowers on male plants are generally at the large end of the range of measurements given. They have well-formed, coloured anthers and broader corollas with longer tubes. Flowers on female plants are smaller in all their parts. Their anthers are very small and pale and contain no pollen.

It is unclear whether male plants set seed (gynodioecy) or not (dioecy). In recent field work at Mt Potts and Broken River ski field no female plants were observed, which could indicate that those populations are made up of hermaphrodite individuals.



**Fig. 965:** *Veronica pulvinaris*. Habit, male plant. Mt St Patrick, Canterbury.



**Fig. 966:** *Veronica pulvinaris*. Cushion surface with flowers. Scale = 1 mm.



**Fig. 967:** *Veronica pulvinaris*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 968:** *Veronica pulvinaris*. Male flowers. Scale = 1 mm.



**Fig. 969:** *Veronica pulvinaris*. Female flowers. Scale = 1 mm.



**Fig. 970:** *Veronica pulvinaris*. Capsule. Scale = 1 mm.

## *Veronica punicea* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)

nom. nov. pro *Veronica speciosa* var. *brevifolia* Cheeseman 1906

≡ *Veronica speciosa* var. *brevifolia* Cheeseman, *Man. New Zealand Fl.* 500 (1906)

≡ *Hebe macrocarpa* var. *brevifolia* (Cheeseman) L.B.Moore in Allan, *Fl. New Zealand* 1, 908 (1961)

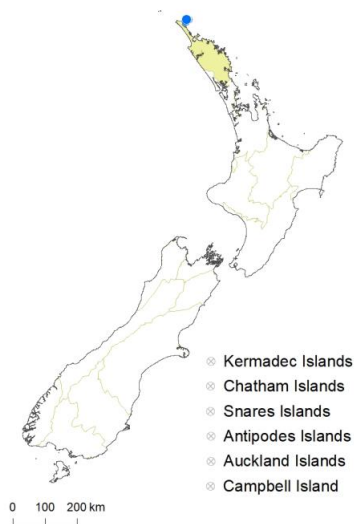
≡ *Hebe brevifolia* (Cheeseman) de Lange, *New Zealand J. Bot.* 35: 1 (1997)

Lectotype (designated by Moore, in Allan 1961): North Cape, *T. F. C[heeseman]*, Jan 1896, AK 7653 [1535 to Kew]. Isolectotypes: *T. F. C[heeseman]* 1535, K; WELT 16641 (undated), 16642, 16643

**Etymology:** The epithet *punicea* is a reference to the unusual purplish-red corolla, in New Zealand otherwise seen only in *V. speciosa*.

**Vernacular name:** koromiko kitea tahi

Spreading, low shrub to 0.7 m tall. Stems decumbent to erect, eglandular-puberulent; hairs uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, lanceolate to narrowly to broadly elliptic or obovate, 16–75 mm long, 6–25 mm wide, glossy green to dark green above, dull light green to green beneath; midrib evident; surfaces with eglandular hairs along midrib, or sometimes glabrous above, glabrous or sometimes minutely eglandular-hairy beneath; margins minutely ciliolate, becoming glabrous, entire; apex obtuse to sub-acute, sometimes very weakly plicate-acuminate; base cuneate; petiole absent. Inflorescence a lateral raceme, 20–96 mm long; flowers crowded, 16–57, all bisexual; bracts alternate or loosely whorled, or two lowest sub-opposite, obovate, elliptic, or deltoid, < pedicels; pedicels spreading, 1–7 mm long, eglandular-puberulent all around. Calyx lobes 4, obtuse to broadly rounded, or sometimes sub-acute, 1.5–2.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 6–8 mm diameter; tube magenta to deep rose-pink, 3.0–5.5 mm long, > calyx, glabrous or eglandular-hairy inside; lobes 4, magenta to deep rose-pink, sub-erect to spreading, sub-equal, elliptic to ovate, 3.0–3.5 mm long, obtuse to rounded; nectar guides absent. Stamen filaments magenta to purplish, 5.0–10.5 mm long; anthers red-purple. Style glabrous, 7.5–11.8 mm long. Capsules latisepate, sub-acute to acuminate, glabrous, 4.5–7.5 mm long, 4–5 mm at widest point. Seeds discoid to ellipsoid, flattened, finely papillate, pale to dark brown, 1.7–2.4 mm long.



**Fig. 971:** *Veronica punicea* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Northland (Surville Cliffs and nearby surrounding plateau).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Low shrubland on ultramafic rocks and soils. Recorded elevations range from 152 to 182 m.

**Recognition:** *V. punicea* is distinctive because only it and *V. speciosa* are characterised by dark magenta corollas. *V. speciosa* plants differ in their broader leaves that are rounded at the apex, leaf bud with a sinus, glabrous stems, longer inflorescences with usually more flowers, longer pedicel hairs, shorter corolla tubes (< twice the calyx), ciliolate corolla lobes, and often smaller seeds.

*V. punicea* was treated by Moore (in Allan 1961) as a part of the *V. macrocarpa* complex (as *Hebe macrocarpa* var. *brevifolia*). Plants of some forms of *V. macrocarpa* have similar broad and rounded calyx lobes, short inflorescences, and large capsules and seeds, but they differ in their white or purplish corollas and longer hairs on stems and inflorescences.

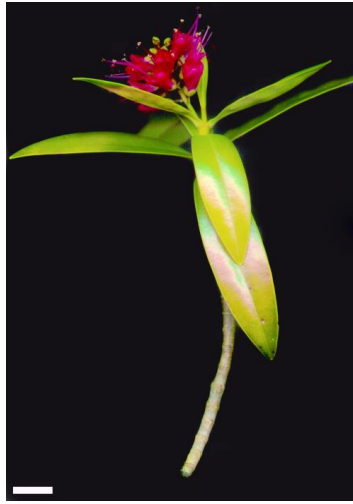
**Phenology:** Flowers: October–May (extending to August); fruits: January–May (persisting all year).

**Cytology:**  $2n = 118$  (see Bayly & Kellow 2006, as *Hebe brevifolia*).

**Notes:** *Veronica punicea* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 972:** *Veronica punicea*. Habit. Surville Cliffs, Northland.



**Fig. 973:** *Veronica punicea*. Sprig. Scale = 10 mm.



**Fig. 974:** *Veronica punicea*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 975:** *Veronica punicea*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 976:** *Veronica punicea*. Inflorescence (top left), immature infructescence (bottom left), and mature infructescence (right). Scale = 10 mm.



**Fig. 977:** *Veronica punicea*. Flowers. Scale = 1 mm.



**Fig. 978:** *Veronica punicea*. Capsules.  
Scale = 1 mm.

### ***Veronica quadrifaria* Kirk, *Trans. New Zealand Inst.* 28: 521 (1896)**

nom. nov. pro *Mitrasacme cheesemanii* Buchanan 1882

≡ *Mitrasacme cheesemanii* Buchanan, *Trans. & Proc. New Zealand Inst.* 14: 348 (1882)

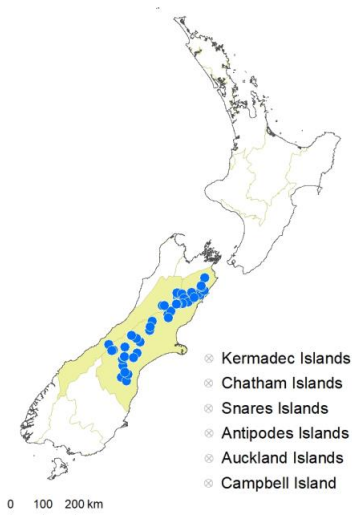
≡ *Hebe cheesemanii* (Buchanan) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 39 (1926)

≡ *Leonohebe cheesemanii* (Buchanan) Heads, *Bot. Soc. Otago Newsl.* 5: 5 (1987)

Lectotype (designated by Moore, in Allan 1961): WELT in Herb. Buchanan [the bottom sprig on this page matches the illustration in the protologue, and is presumably the specimen (formerly held by the Otago Museum) to which Moore (in Allan 1961) referred, even though it is not furnished with collecting information]. Isolectotype: AK 8174

**Etymology:** The epithet *quadrifaria* is from Latin and means in four rows, a reference to the strictly four-ranked opposite-decussate leaves.

Semi-whipcord shrub, to 0.3 m tall. Stems decumbent or ascending, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, erecto-patent, densely crowded and overlapping, separating early; lamina sub-coriaceous, deltoid to broadly deltoid, 0.8–1.7 mm long, 1.5–3.0 mm wide, dull pale to dark green above and beneath; veins not evident; surfaces glabrous; margins ciliate except at apex, entire; apex obtuse to acute; bases broad; petiole absent. Inflorescence a lateral spike or raceme, 3.0–7.5 mm long; flowers crowded, 2–6, female or male on separate plants, ♂ > ♀; bracts opposite-decussate or the upper sometimes alternate, free or barely connate, deltoid, the lower often keeled, > pedicels; pedicels erecto-patent, 0–0.5 mm long, eglandular-hairy all around. Calyx lobes 4, obtuse, equal, 1.5–2.0 mm long, mixed glandular- and eglandular-ciliate. Corolla 3.0–4.5 mm (♀) or 4.0–5.5 mm (♂) diameter; tube white, 1–2 mm long, < calyx, glabrous; lobes 4, white or occasionally flushed pink, erecto-patent to recurved, sub-equal, elliptical to ovate to rhomboid, 2.0–2.5 mm long, obtuse; nectar guides absent. Stamen filaments white, 2 mm long; anthers magenta. Style glabrous, 1–2 mm long. Capsule angustiseptate, obtuse, glabrous, 1.6–2.5 mm long, 1.3–2.5 mm at widest point. Seeds ellipsoid, weakly flattened, smooth, brown, 1.0–1.2 mm long.



**Fig. 979:** *Veronica quadrifaria* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough from Black Birch Range southwards; Westland (a few localities near the Main Divide), Canterbury (mostly in the western mountains to the Kirkliston Range).

The locality for the lectotype of *Mitrasacme cheesemanii*, Mt Alta, Otago, is not mapped here because it has not been supported by recent collections and is outside the otherwise known range, following Bayly & Kellow (2006). Moore (in Allan 1961) noted, “Not recently recorded as far south as the type locality.”

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock outcrops and scree. Recorded elevations range from 765 to 1900 m.

**Recognition:** *V. quadrifaria* belongs to a well-supported clade of four species, the semi-whipcord hebes; the other species are *V. hookeri*, *V. tetrasticha*, and *V. tumida*. Relationships within this grouping are unclear.

Semi-whipcord hebes are characterised by and distinguished from true whipcord hebes by very crowded, dull green, scale-like leaves that are long-persistent on old stems, dioecious

sexual systems, and angustiseptate capsules.

The most distinctive feature for recognition of *V. quadrifaria* plants is the four very flat faces of the leafy stem.

*V. hookeri* plants have longer leaves that taper to an elongated apex; the leafy stem is cruciform in section.

In plants of *V. tetrasticha*, at least in herbarium (dried) specimens, the leaf margins are inrolled in the middle portion to make the leafy stem appear grooved between the four ridges.

In *V. tumida* plants the backs of the leaves are swollen and rounded to give a knobby appearance to the ridges of the leafy stem.

Some collections are difficult to distinguish from *V. tumida* (e.g. from Black Birch Range and Mt Harkness, Awatere Valley) and *V. tetrasticha* (e.g., some locations near Hanmer Springs).

**Phenology:** Flowers: December–January; fruits: December–February.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Leonohebe cheesemanii*).

**Notes:** *Veronica quadrifaria* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “semi-whipcord hebe” group (Albach & Meudt 2010). The semiwhipcord hebe clade is well supported in all molecular studies. *V. quadrifaria* was placed as sister to *V. tetrasticha* based on ITS sequence data and sister to *V. cupressoides* based on cpDNA sequence data (Albach & Meudt 2010).



**Fig. 980:** *Veronica quadrifaria*. Habit. Four Peaks Range, Canterbury.



**Fig. 981:** *Veronica quadrifaria*. Sprig. Scale = 10 mm.



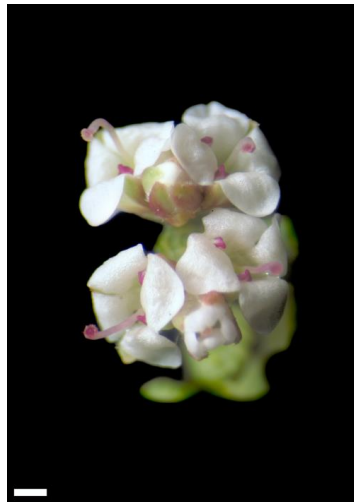
**Fig. 982:** *Veronica quadrifaria*. Branchlets from two different plants. Scale = 1 mm.



**Fig. 983:** *Veronica quadrifaria*. Apical view of shoot apex, showing the branchlet is square in cross section. Scale = 1 mm.



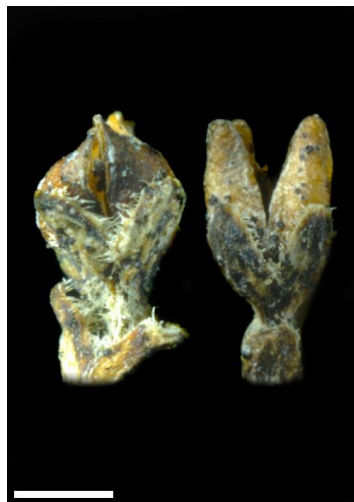
**Fig. 984:** *Veronica quadrifaria*. Male flowers. Scale = 1 mm.



**Fig. 985:** *Veronica quadrifaria*. Female flowers. Scale = 1 mm.



**Fig. 986:** *Veronica quadrifaria*. Infructescence. Scale = 1 mm.



**Fig. 987:** *Veronica quadrifaria*. Capsule. Scale = 1 mm.



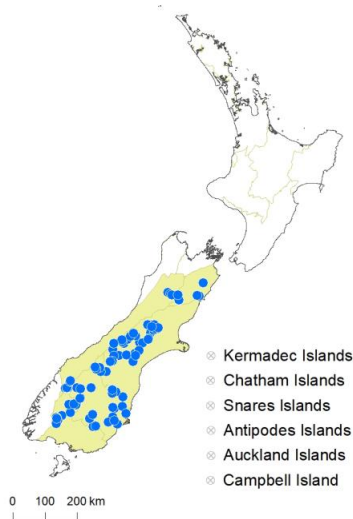
***Veronica rakaiensis* J.B.Armstr., *Trans. New Zealand Inst.* 13: 356 (1881)**

≡ *Hebe rakaiensis* (J.B.Armstr.) Cockayne, *Trans. New Zealand Inst.* 60: 472 (1929)  
Lectotype (designated by Moore, in Allan 1961): Rakaia Valley, CHR 635762

= *Hebe scott-thomsonii* Allan, *Trans. Roy. Soc. New Zealand* 69: 274 (1939)  
Lectotype (designated by Moore, in Allan 1961): Deep Stream, rocks by river at bridge,  
*H. H. Allan*, 15 Aug 1937, CHR 18230

**Etymology:** The epithet means from Rakaia; the Rakaia Valley is the type locality (Moore, in Allan 1961).

Bushy, often rounded shrub to 2 m tall. Stems erect, eglandular-puberulent to -pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, oblanceolate to obovate or elliptic, 6–20 mm (rarely to 30) long, 3–9 (rarely to 12) mm wide, glossy, pale to dark green above, pale green beneath, midrib evident; surfaces glabrous or usually with eglandular hairs along midrib above and rarely beneath; margin minutely ciliolate to minutely papillate, especially towards apex and when young, entire; apex sub-acute, obtuse, weakly plicate-acuminate; base cuneate; petiole indistinct, 1–3 mm long. Inflorescence a lateral raceme, 17–45 mm long; flowers crowded to somewhat distant, 12–48, female or bisexual on separate plants, ♀ ≥ ♂; bracts alternate, ovate to elliptic, ≤ pedicels; pedicels erecto-patent to spreading, 0.5–4.5 mm long, eglandular-puberulent (rarely -pubescent) all around. Calyx lobes 4, obtuse to sub-acute, 1.0–1.8 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 3–6 mm diameter; tube white, 0.4–1.4 mm long, ≤ calyx, eglandular-hairy inside, sometimes with a few glandular hairs as well; lobes 4, white, erecto-patent to spreading or slightly recurved, unequal, obovate or elliptic, 2.5–3.0 mm long, obtuse to rounded or posterior sometimes emarginate; nectar guides absent. Stamen filaments white, 3–4 mm long; anthers pink to purplish. Style eglandular-hairy, sometimes sparsely, rarely glabrous, 2–4 mm long. Capsules latiseptate, obtuse to sub-acute, eglandular-puberulent, rarely -pubescent, 3.0–3.8 mm long, 1.9–2.1 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, brown, 0.8–1.6 mm long.



**Fig. 988:** *Veronica rakaiensis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough, Westland (Nelson Lakes National Park and in the far south-east), Canterbury, Otago, Southland (on ranges and foothills east of the Main Divide). The northern limit (Hodder Valley) was accepted with some uncertainty by Bayly & Kellow (2006); the southern limits are at the Takitimu Mountains and Blue Mountains. It is absent from the Canterbury plains and has not been collected between the Waimakariri River and the Hanmer Springs region.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine and montane shrubland or scrub, and rock outcrops in gorges. Recorded elevations range from 525 to 1500 m.

**Recognition:** *V. rakaiensis* plants are similar to those of several other species that are characterised by glossy green leaves, no bud sinus, and small, short-tubed flowers with rounded corolla lobes. The hairy ovaries and capsules distinguish it from most of these, except *V. calcicola*, which has leaves mostly > 20 mm long and glabrous corolla lobe margins. The corolla lobes of *V. rakaiensis* plants often have short to long hairs on the margins, a feature that is not seen in

many other species.

*V. subalpina* plants have glabrous leaf margins, often fleshier leaves, and glabrous margins to the corolla lobes, corolla tube usually ≥ the calyx, often longer filaments and styles, and larger and glabrous capsules.

*V. treadwellii* plants differ in their glabrous leaf margins, larger flowers with longer corolla tube and lobes, longer styles, and larger, glabrous capsules.

*V. traversii* plants sometimes can look similar, but usually have narrower, paler leaves; their long corolla tubes, glabrous corolla lobes, and glabrous capsules distinguish them.

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*V. glaucophylla* shares several character states with *V. rakaiensis*, but the plants differ in having glaucous leaves.

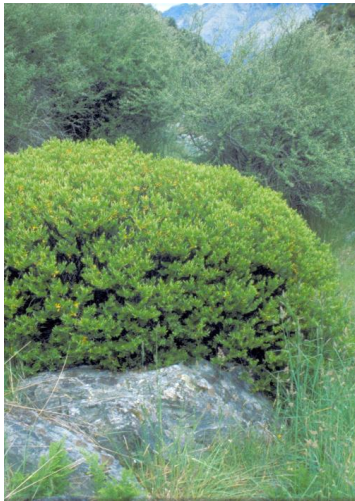
**Phenology:** Flowers: November–March; fruits: January–May (persisting until November).

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe rakaiensis*).

**Hybridisation:** There are records that might be hybrids with *V. subalpina*, discussed by Bayly & Kellow (2006).

**Notes:** *Veronica rakaiensis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006). ITS sequence data suggest a possible relationship with *V. glaucophylla* and *V. pinguifolia*, and its morphological similarities are with *V. glaucophylla*, *V. subalpina*, and *V. treadwellii*.

Leaf shape and size vary, with a geographical component (Bayly et al. 2001). Narrower, longer leaves are found in Otago and Southland. Some plants in Southland and South Otago have longer peduncles and longer hairs on the capsules.



**Fig. 989:** *Veronica rakaiensis*. Habit. Wye Creek, Otago.



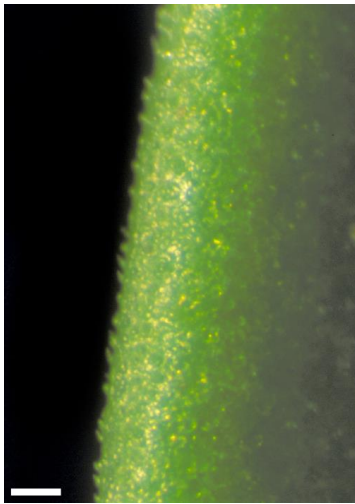
**Fig. 990:** *Veronica rakaiensis*. Sprig. Scale = 10 mm.



**Fig. 991:** *Veronica rakaiensis*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 992:** *Veronica rakaiensis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 993:** *Veronica rakaiensis*. Leaf margin showing minute hairs. Scale = 0.1 mm.



**Fig. 994:** *Veronica rakaiensis*. Flowers. Scale = 1 mm.



**Fig. 995:** *Veronica rakaiensis*. Capsules. Scale = 1 mm.

### ***Veronica raoulii* Hook.f., *Handb. New Zealand Fl.* 214 (1864)**

≡ *Hebe raoulii* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 44 (1926)

≡ *Heliohebe raoulii* (Hook.f.) Garn.-Jones, *New Zealand J. Bot.* 31: 333 (1993)

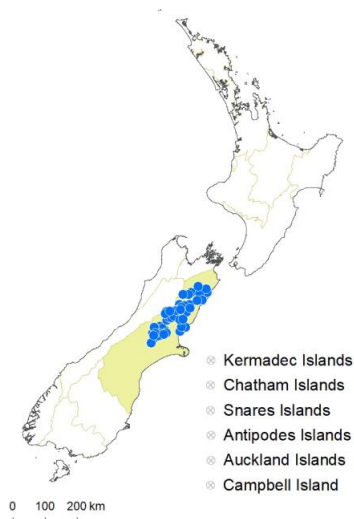
≡ *Parahebe raoulii* (Hook.f.) Heads, *Bot. J. Linn. Soc.* 115: 81 (1994)

Lectotype (designated by Garnock-Jones 1993): Akaroa, New Zealand, *Raoul*. The specimen so labelled was probably collected in Canterbury by Dr Lyall, K

**Etymology:** Named after Étienne F. L. Raoul, surgeon and botanist on the French corvette *L'Aube*, author of *Choix de plantes de la Nouvelle Zélande*.

Sub-shrub or low shrub to 0.3 m tall. Stems ascending to erect, eglandular-pubescent; hairs uniform, short, reflexed, appressed; minute glandular hairs sometimes also present. Leaf bud indistinct, leaves separating while very small, opposite-decussate, erecto-patent to spreading or recurved, separating early; lamina coriaceous, usually oblanceolate to obovate or spatulate, sometimes linear-oblanceolate, 7–25 mm long, 2–9 mm wide, glossy green bronze-green or yellowish-green above, dull pale green to yellowish-green beneath; midrib evident; surfaces glabrous; margin glabrous or eglandular- and glandular-ciliate towards base, serrate or bluntly serrate, teeth in 2–6, rarely 0–1, sometimes up to 8, pairs; apex acute or sub-acute and usually sub-apiculate; base cuneate; petiole 2–5 mm long. Inflorescence a terminal compound spike or raceme, 20–55 mm long; flowers crowded, 16–100 per inflorescence, all bisexual; bracts opposite, becoming alternate, deltoid, > pedicels; pedicels erecto-patent, 0–0.5 mm long, eglandular-hairy all around. Calyx lobes 4, the anterior pair

usually fused at least  $\frac{2}{3}$ -way to apex, rarely less or almost free, obtuse, 2–4 mm long, unequal, eglandular-ciliate, or mixed eglandular- and glandular-ciliate. Corolla 6–8 mm diameter; tube pink, purplish or white, 2.0–3.5 mm long, about = calyx, glabrous; lobes 4, pink, purplish, or white, erect to spreading, sub-equal, lanceolate, elliptic, oblong or rhomboid, 2.5–3.5 mm long, sub-acute to obtuse; nectar guides absent. Stamen filaments white, 1.5–2.0 mm long; anthers yellow. Style glabrous, 4–6 mm long. Capsules turgid or weakly latiseptate, truncate, glabrous, 3–4 mm long, 1.8–3.0 mm at widest point. Seeds fusiform or irregular, flattened or weakly flattened, winged, smooth, straw-yellow to pale brown, 1.2–2.2 mm long.



**Fig. 996:** *Veronica raoulii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (Seaward Kaikōura Range, Tarndale); Canterbury (Seaward Kaikōura Range, Mt Terako, Hanmer Springs region, Hurunui and Waiau Valleys, and along the foothills of the southern alps to Rakaia Gorge). I have accepted and mapped Norton and Molloy's (2009) record from Mt Cass; those plants have broader leaves, and often the anterior calyx lobes there are free.

Two collections said to be from Banks Peninsula are regarded as doubtful and not accepted here.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops in scrub and grassland, occasionally on talus or scree. Recorded elevations range from 350 to 1282 m.

**Recognition:** Among the species of the sun hebe group, plants of *V. hulkeana* and *V. lavaudiana* can be distinguished from *V. raoulii* plants by their larger leaves.

*V. maccaskillii* plants are similar in usually having the anterior calyx lobes fused, but are distinguished by their almost divaricating and compact habit, shorter, more rounded leaves with fewer teeth, and usually a small fifth 5-calyx lobe.

*V. scrupea* plants are similar in having four calyx lobes, but their leaves are narrower, more toothed, and more acute, flowers are smaller with shorter stamens, and the anterior calyx lobes are free.

*V. pentasepala* plants may be similar in size and overall appearance, but are usually taller and more stiffly erect, and distinguished by having five calyx lobes that are all separate.

**Phenology:** Flowers: September–December; fruits: December–February.

**Cytology:**  $2n = 42$  (Hair 1967, as *Hebe raoulii* var. *raoulii*).

**Hybridisation:** Although the distribution of *V. raoulii* overlaps those of *V. scrupea*, *V. hulkeana*, *V. maccaskillii*, and *V. pentasepala*, wild hybrids have not been noted. *Veronica* 'Hagley Park' is the hybrid *V. hulkeana* × *raoulii*, which arose in cultivation (Metcalf 2001).

**Notes:** *Veronica raoulii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the "sun hebe" group (Albach & Meudt 2010). Chloroplast DNA sequence data place *V. raoulii* close to *V. hulkeana* and *V. lavaudiana*; ITS sequence data indicate a relationship with *V. pentasepala* (Albach & Meudt 2010). A morphology-based cladogram (Garnock-Jones 1993a) suggests a close relationship with *V. maccaskillii*.

### Cultivars

*Veronica* 'Hagley Park' is the cultivated hybrid between *V. hulkeana* and *V. raoulii*.



**Fig. 997:** *Veronica raoulii*. Habit. Porter's Pass, Canterbury.



**Fig. 998:** *Veronica raoulii*. Sprig. Scale = 10 mm.



**Fig. 999:** *Veronica raoulii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1000:** *Veronica raoulii*. Flower bud showing anterior calyx lobes partly fused and the protruding stigma. Scale = 1 mm.



**Fig. 1001:** *Veronica raoulii*. Calyx, showing fusion of anterior lobes. Scale = 1 mm.



**Fig. 1002:** *Veronica raoulii*. Flowers. Scale = 1 mm.



**Fig. 1003:** *Veronica raoulii*. Inflorescence. Scale = 1 mm.



**Fig. 1004:** *Veronica raoulii*. Capsules. Scale = 1 mm.

### ***Veronica rigidula* Cheeseman, *Man. New Zealand Fl.* 514 (1906)**

≡ *Hebe rigidula* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 56: 20 (1926)

Lectotype (designated by Moore, in Allan 1961): Pelorus River, Marlborough, J. H. McMahon, AK 7919

**Etymology:** In the protologue Cheeseman referred to the leaves as being rigid. Stearn (2004) translates *rigidulus* as “somewhat rigid”, and Bayly and Kellow (2006) relate this to the leaves.

Low, open-branched shrub to 0.6 m tall. Stems ascending to erect, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous to coriaceous, lanceolate to narrowly or broadly elliptic to oblong to oblanceolate, 7–25 mm long, 2–9 mm wide, dull to slightly glossy green or yellowish-green above, dull glaucous to glaucescent beneath; midrib evident; surfaces glabrous or sometimes eglandular hairs along midrib above; margin glabrous, minutely papillate, entire; apex sub-acute to acute, acuminate to weakly plicate-acuminate; base cuneate; petiole 2.0–3.2 mm long. Inflorescence a lateral, usually tripartite, but sometimes simple or compound, raceme, 14–32 mm long; flowers crowded, 10–40, all bisexual; bracts opposite-decussate, sometimes becoming alternate above, ovate to deltoid, > pedicels; pedicels erecto-patent, 0.1–2.0 mm long, eglandular-hairy all around, or rarely absent. Calyx lobes 4, sub-acute to obtuse, 1.5–2.6 mm long, sub-equal, eglandular-ciliate or mixed glandular- and eglandular-ciliate. Corolla 5–7 mm diameter; tube white, 2.5–5.0 mm long, > calyx, glabrous; lobes 4, white, erecto-patent to spreading, becoming recurved, sub-equal, elliptic to ovate or rhomboid, 2–3 mm long, obtuse or sometimes posterior emarginate; nectar guides absent. Stamen filaments white, 3–4 mm long; anthers buff to pink. Style glabrous, 5–7 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 2.4–4.0 mm long, 1.8–2.5 mm at widest point. Seeds ellipsoid to discoid or irregular, flattened, smooth, pale brown to brown, 0.8–1.6 mm long.

- 1** Lamina concave when viewed from above, usually narrowly elliptic or sometimes elliptic or oblanceolate, mostly 3.6–4.4 times as long as broad; pedicels 0.1–0.8 mm long..... *var. rigidula*  
 Lamina longitudinally folded and each half convex when viewed from above, elliptic to broadly elliptic, mostly 2.8–3.3 times as long as broad; pedicels 0.3–2.0 mm long..... *var. sulcata*

**Distribution:** South Island: Sounds Nelson.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Open rocky habitats, sparse scrub, outcrops, boulder falls, cliffs, and gorges. Recorded elevations range from 21 to 1524 m.

**Recognition:** *Veronica rigidula* is one of a few species characterised by discoloured leaves and usually tripartite inflorescences. *V. rupicola* plants are similar but differ in brighter green leaves, large

bracts that almost completely obscure the larger calyx, sessile or sub-sessile flowers, and acuminate corolla lobes; its distribution is in eastern Marlborough. Plants of *V. scopulorum*, which grow near Raglan in the North Island, are also similar, and differ in the strongly tetragonous leaf buds with concave faces, and generally longer leaves and pedicels.

*V. rigidula* specimens have been confused in collections with *V. subfulvid*. *V. subfulvida* plants are similar because they also have a sinus, compound racemes and somewhat discoloured leaves, but they differ in their larger stature, leaves never glaucous (green to dark green above, paler beneath), and hairs inside the corolla tube.

**Phenology:** Flowers: November–February; fruits: December–March (persisting until October).

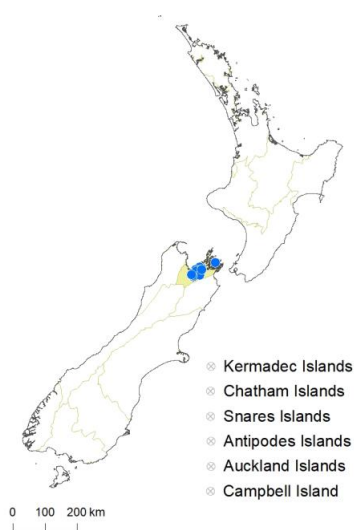
**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe rigidula* var. *rigidula* and var. *sulcata*).

**Notes:** *Veronica rigidula* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). The phylogenetic position of *Veronica rigidula* is unclear. Similar species among the many that appear to be related to it on the basis of ITS sequence data (E.M. Low, unpublished) include *V. rupicola* and *V. subfulvida*.

### ***Veronica rigidula* Cheeseman, *Man. New Zealand Fl.* 514 (1906) var. *rigidula***

≡ *Hebe rigidula* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 56: 20 (1926) var. *rigidula*

Leaves usually narrowly elliptic or sometimes elliptic or oblanceolate, 7.7–31.4 mm long, 2.1–7.4 mm wide, mostly 3.6–4.4 times as long as broad, concave when viewed from above. Pedicels 0.1–0.8 mm long.



**Fig. 1005:** *Veronica rigidula* var. *rigidula* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Pelorus Valley, Bryant Range, Richmond Range). Specimens from Mt Duppa were also placed under var. *rigidula* by Bayly and Kellow (2006), who discussed their similarities to both varieties.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Open, rocky habitats, sparse scrub, outcrops, boulder falls, cliffs, and gorges, on both greywacke and ultramafic rocks. Recorded elevations range from 21 to 1524 m.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe rigidula* var. *rigidula*)



**Fig. 1006:** *Veronica rigidula* var. *rigidula*. Habit. Pelorus Bridge, Nelson.



**Fig. 1007:** *Veronica rigidula* var. *rigidula*. Fruiting sprig. Scale = 10 mm.



**Fig. 1008:** *Veronica rigidula* var. *rigidula*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1009:** *Veronica rigidula* var. *rigidula*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1010:** *Veronica rigidula* var. *rigidula*. Flowers. Scale = 1 mm.



**Fig. 1011:** *Veronica rigidula* var. *rigidula*. Inflorescence (above) and infructescence (below). Scale = 10 mm.





**Fig. 1012:** *Veronica rigidula* var. *rigidula*. Capsules. Scale = 1 mm.

### ***Veronica rigidula* var. *sulcata* (Bayly & Kellow) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe rigidula* var. *sulcata* Bayly & Kellow in Bayly et al., *New Zealand J. Bot.* 40: 585 (2002 [2001])  
 Holotype: New Zealand, D'Urville Island (Rangitoto ke te Tonga), eastern side of Attempt Hill near road, *P. J. de Lange* 5043 & *G. M. Crowcroft*, 19 Jan 2001, AK 252335. Isotypes: WELT 82582, CHR 549399

**Etymology:** The epithet *sulcata* refers to the longitudinal folding of the leaves characteristic of this variety.

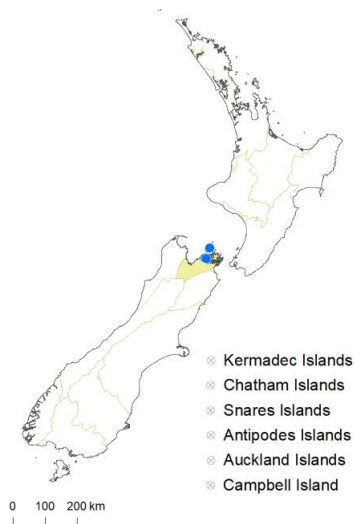
Leaves elliptic to broadly elliptic, 9.4–28.2 mm long, 3.2–8.7 mm wide, mostly 2.8–3.3 times as long as broad, longitudinally folded at the midrib and each half convex from above so that the lamina is m-shaped in cross section. Pedicels 0.3–2.0 mm long.

**Distribution:** South Island: Sounds Nelson (D'Urville I., Mt Stokes, Editor Hill, Lookout Peak).

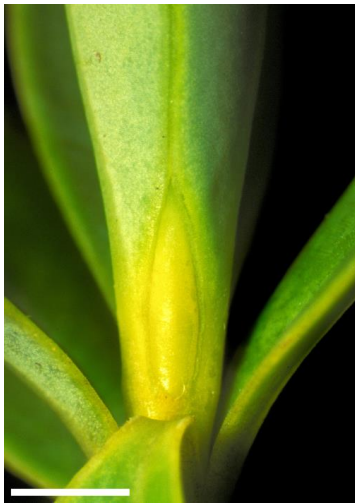
**Biostatus:** Indigenous (Endemic).

**Habitat:** Open rocky habitats and short scrub, on ultramafic rocks. Recorded elevations range from 518 to 900 m.

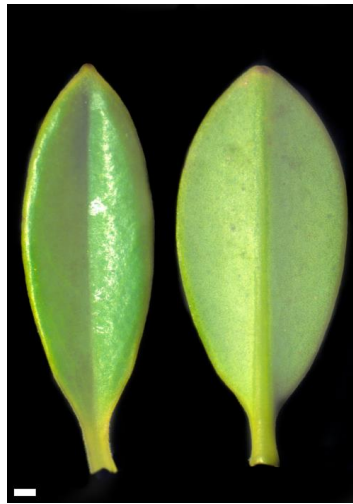
**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe rigidula* var. *sulcata*).



**Fig. 1013:** *Veronica rigidula* var. *sulcata* distribution map based on databased records at AK, CHR & WELT.



**Fig. 1014:** *Veronica rigidula* var. *sulcata*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1015:** *Veronica rigidula* var. *sulcata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.

## ***Veronica rivalis* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

nom. nov. pro *Veronica acutiflora* Benth. 1846

= *Veronica acutiflora* Benth. in de Candolle, *Prodr.* 10 460 (1846) nom. illeg., non *Veronica acutiflora* Lapeyr. ex Roem & Schult. 1817

≡ *Veronica ligustrifolia* var. *acutiflora* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I*, 192 (1853)

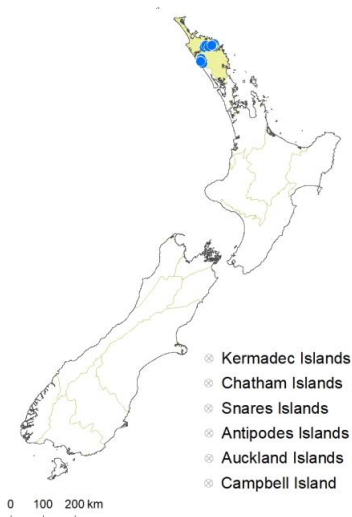
≡ *Hebe acutiflora* (Hook.f.) Cockayne, *Trans. New Zealand Inst.* 60: 468 (1929)

Holotype: Northn Isld, New Zealand, A. Cunningham 377, 1838, Herb. Hookerianum, K.

Isotypes: K, WELT 79332

**Etymology:** *Rivalis*, Latin for a neighbour sharing a river or brook (Brown 1956), a reference to its habitat and narrow distribution.

Open, bushy shrub to 1.5 m tall. Stems sub-erect to erect, eglandular-puberulent; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina thin, linear to linear-lanceolate, 15–118 mm long, 3–12 mm wide, dull, green to dark green above, pale green beneath; midrib and faint secondary veins evident; surfaces with eglandular hairs along midrib above and often beneath, and sometimes minute glandular hairs; margin ciliolate, entire or with a few distant, minute, protruding hydathodes; apex acute to obtuse; base cuneate; petiole absent or indistinct, 1–2 mm long. Inflorescence a lateral raceme, 27–136 mm long; flowers crowded, 13–81, all bisexual; bracts alternate to loosely whorled, lanceolate to narrowly deltoid, < pedicels; pedicels erecto-patent to spreading, 2–5 mm long, eglandular-pubescent all around. Calyx lobes 4, acute to acuminate, 1.8–2.5 mm long, equal, eglandular-pubescent on faces, eglandular-ciliate to mixed glandular- and eglandular-ciliate. Corolla 5–7 mm diameter; tube white, 1.3–2.8 mm long, ≤ or rarely slightly > calyx, eglandular-hairy inside; lobes 4, pale purplish to white, erecto-patent to spreading, lanceolate to narrowly ovate, 2.5–4.0 mm long, sub-acute to acute; nectar guides absent. Stamen filaments white, 4.2–6.5 mm long; anthers purplish, sometimes pale. Style glabrous, 3.5–5.5 mm long. Capsules latiseptate, sub-acute to obtuse, usually glabrous, sometimes puberulent on margins and towards apex, 2.0–3.5 mm long, 1.6–3.0 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow, 0.9–1.4 mm long.



**Fig. 1016:** *Veronica rivalis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Northland (Kerikeri River, Puketotara Stream, Waipapa River and Waipoua River).

**Biostatus:** Indigenous (Endemic).

**Habitat:** River banks, usually in the flood zone. Recorded elevations range from 10 to 300 m.

**Recognition:** *V. rivalis* is similar to several other hebes in Northland in the plants having broad, acute corolla lobes and corolla tubes that are about equal to the calyx.

*V. flavida* plants differ by usually being small trees with mostly broader leaves (30–135 × 6–29 mm) with a distinctive yellow midrib and lamina base, longer inflorescences with more flowers, pedicels that are usually puberulent but may be pubescent, and longer corolla lobes (4.0–5.5 mm).

*V. ligustrifolia* plants have broader leaves that sometimes may be elliptic or obovate, pedicels puberulent (hairs <50 µm long, cf. 80–100 µm in *V. rivalis*), and calyx mostly glabrous on outer faces.

Plants of *V. stricta* have similar hairy calyx lobes, but they have longer corolla tubes and shorter, narrower, and smaller corollas. They usually have broader leaves, mostly in the

range 15–30 mm wide in Northland, where *V. stricta* overlaps with *V. rivalis*.

Similar narrow leaves are seen in plants of *V. angustissima*, but that species does not occur in Northland. It differs in puberulent pedicels, often glabrous faces of the calyx lobes, and slightly longer corolla tubes, which narrow somewhat at the throat compared to broadly flaring in *V. rivalis*.

**Phenology:** Flowers: January–June; fruits: January–June, persisting all year.

**Cytology:** 2n = 40 (see Bayly & Kellow 2006, as *Hebe acutiflora*).

**Notes:** *Veronica rivalis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

In addition to the localities listed above (see Distribution), there are similar plants from Trounson Kauri Park that differ chemically (discussed by Bayly and Kellow [2006]) and a possible record from Herekino (not mapped here).



**Fig. 1017:** *Veronica rivalis*. Habit. Near Rainbow Falls, Kerikeri, Northland.



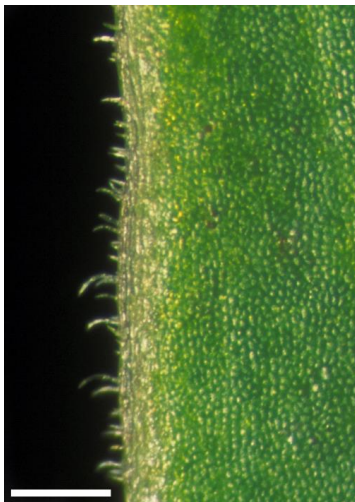
**Fig. 1018:** *Veronica rivalis*. Sprig. Scale = 10 mm.



**Fig. 1019:** *Veronica rivalis*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1020:** *Veronica rivalis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1021:** *Veronica rivalis*. Leaf margin showing hairs. Scale = 1 mm.



**Fig. 1022:** *Veronica rivalis*. Inflorescence (left) and immature infructescence (right). Scale = 10 mm.



**Fig. 1023:** *Veronica rivalis*. Flowers. Scale = 1 mm.



**Fig. 1024:** *Veronica rivalis*. Capsules. Scale = 1 mm.

## *Veronica rupicola* Cheeseman, *Man. New Zealand Fl.* 514 (1906)

≡ *Hebe rupicola* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 26 (1926)

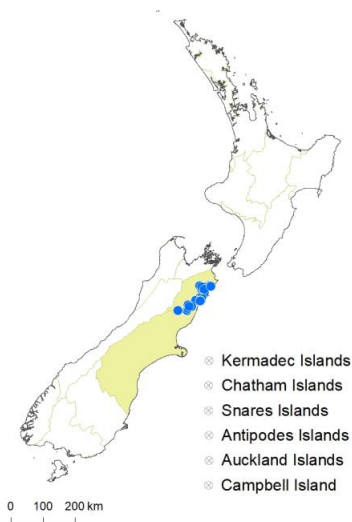
Lectotype (designated by Moore, in Allan 1961): gorge of the Conway River, Marlborough, L. Cockayne 8000, Herb. T. F. Cheeseman (1570 to Kew), AK 7926. Probable isolecotype (but lacking Cockayne number): WELT 78119 [ex Herb. Cheeseman]

= *Hebe lapidosa* G. Simpson & J.S. Thomson, *Trans. Roy. Soc. New Zealand* 70: 31 (1940)

Holotype: Dee River Gorge, Clarence Basin, Marlborough, rock debris on rock benches and flood-beds, G. Simpson, CHR 56636 (mounted on two sheets, labelled, 56636A and 56636B). Isotype: AK 22163

**Etymology:** The epithet *rupicola* means rock-loving, a reference to the characteristic habitat of the species.

Bushy shrub, usually to 0.8 m tall, sometimes to 1.5 m. Stems decumbent to erect, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, elliptic to oblanceolate, 4–24 mm long, 2–9 mm wide, dull or slightly glossy pale to yellowish-green above, dull and glaucescent to glaucous beneath; midrib evident; surfaces glabrous or eglandular hairs along midrib above; margin usually minutely papillate, sometimes eglandular- or glandular-ciliate, entire; apex acute to obtuse or shortly plicate-acuminate; base cuneate; petiole 1–5 mm long. Inflorescence a lateral spike, simple or tripartite, 13–47 mm long; flowers crowded, 5–37; peduncle 3–20 mm long, female or bisexual on separate plants, ♀ ≥ ♂; bracts opposite-decussate, sometimes shortly connate, lanceolate to ovate, overtopping and obscuring calyx; pedicels absent or erecto-patent, 0–1 mm long, sparsely eglandular-hairy all around. Calyx lobes 4, free or anterior united up to 2/3-way, obtuse to acute, 3–4 mm long, sub-equal, mixed glandular- to eglandular-ciliolate to -ciliate. Corolla 6–9 mm diameter; tube white, 3.0–4.9 mm long, ≥ calyx, glabrous; lobes 4, white, spreading to recurved, unequal, lanceolate to ovate, 2.5–5.0 mm long, sub-acute to acuminate; nectar guides absent. Stamen filaments white, 3.3–4.2 mm long; anthers white, buff, pink, or purplish. Style glabrous, 5.5–8.3 mm long. Capsules latiseptate, obtuse, glabrous, 4–5 mm long, 2.3–3.2 mm at widest point. Seeds ovoid to oblong, flattened, smooth, straw-yellow to pale brown, 1.4–2.2 mm long.



**Fig. 1025:** *Veronica rupicola* distribution map based on databased records at AK, CHR & WELT.

flowers, long corolla tube, and pale anthers, and also grows in Marlborough, but north of the Wairau River. *V. rigidula* plants can be distinguished by their smaller bracts and calyces, more rounded corolla lobes, smaller capsules and seeds, and usually more strongly glaucous leaves.

**Phenology:** Flowers: December–March; fruits: January–May (persisting to October).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe rupicola*).

**Notes:** *Veronica rupicola* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

**Distribution:** South Island: Marlborough, North Canterbury (Awatere Valley, Chalk Range, Kaikōura Ranges and coastal hills, south to Mason River).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops, cliffs, sometimes in river bed shingle. Recorded elevations range from 198 to 1159 m.

**Recognition:** *Veronica rupicola* is distinctive. Plants can be recognised by the opposite-decussate sessile flowers with large bracts that overtop and obscure the calyx; acute to acuminate corolla lobes; large capsules, large seeds, and the leaves being pale or yellowish-green above and duller and glaucescent to glaucous beneath. Their pale leaves and petioles contrast with the darker brown or brownish stem. The narrow and acute to acuminate corolla lobes are similar to those of *V. colensoi*, but plants of that species are distinguished by their very glaucous leaves, which are sometimes shallowly toothed, shorter corolla tube, smaller capsules and fruits, and glabrous bracts and calyx.

*V. rupicola* plants are sometimes confused with *V. rigidula*, which is also characterised by a narrow, acute sinus, sessile



**Fig. 1026:** *Veronica rupicola*. Habit. George Stream, Marlborough.



**Fig. 1027:** *Veronica rupicola*. Sprig. Scale = 10 mm.



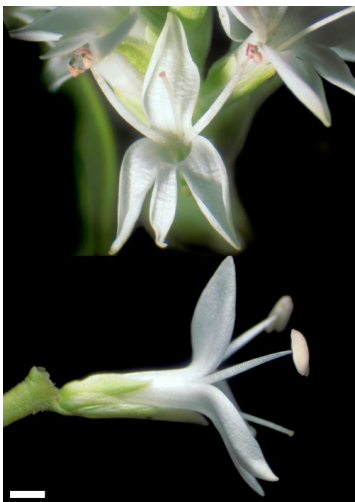
**Fig. 1028:** *Veronica rupicola*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1029:** *Veronica rupicola*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1030:** *Veronica rupicola*. Shoot apex with inflorescences. Scale = 10 mm.



**Fig. 1031:** *Veronica rupicola*. Flowers. Scale = 1 mm.



**Fig. 1032:** *Veronica rupicola*. Side view of flower with large bract folded back to show its length relative to the calyx. Scale = 1 mm.



**Fig. 1033:** *Veronica rupicola*. Capsules. Scale = 1 mm.

### ***Veronica salicifolia* G.Forst., *Fl. Ins. Austr.* 3 (1786)**

≡ *Panoxis salicifolia* (G.Forst.) Raf., *Med. Fl.* 109 (1830) nom. illeg.

≡ *Hebe salicifolia* (G.Forst.) Pennell, *Rhodora* 23: 39 (1921)

Lectotype (designated by Bayly & Kellow 2004): habitat in Nova Zeeland, [Forster], the Forster Herbarium, presented by the corporation of Liverpool, August 1885, K

= *Veronica fonkii* Phil., *Linnaea* 29: 110 (1857)

≡ *Hebe fonkii* (Phil.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 21 (1926)

Type(s): En las playas y barrancas de Chonos [on the beaches and slopes of Chonos], Dr. Fonk, SGO 56269, 43153 (n.v.)

= *Veronica salicifolia* var. *communis* Cockayne, *Trans. New Zealand Inst.* 48: 201 (1916)

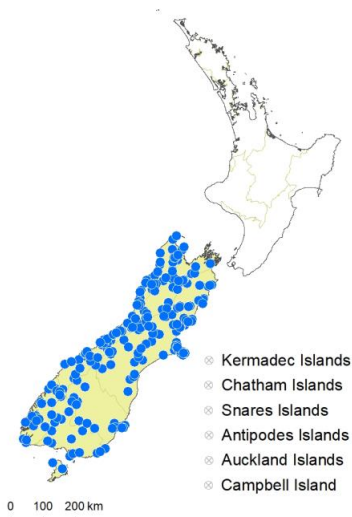
≡ *Hebe salicifolia* var. *communis* (Cockayne) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 17 (1926)

Lectotype (designated by Moore, in Allan 1961): scrub on bank of R. Kowai, Canterbury, L. Cockayne 8041, 16 Feb 1902, CHR 328786 (ex CANTY). Isolectotypes: AK 7739, CHR 328785

**Etymology:** The epithet *salicifolia* means willow-leaved, from the genus *Salix* and the Latin word for a leaf, *folium*.

**Vernacular names:** korohiko; korokio; koromiko; koromuka; kōkoromiko; kōkoromuka; kōkōmuka

Tall, bushy or open shrub to 2.5 m tall. Stems erect, eglandular-puberulent or glabrous; hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus broadly ovate to broadly elliptic. Leaves opposite-decussate, erecto-patent; lamina sub-coriaceous, narrowly lanceolate to narrowly oblanceolate, 35–130 mm long, 6–28 mm wide, somewhat glossy green above, dull pale green beneath; midrib and secondary veins evident; surfaces with eglandular hairs along midrib above and often beneath, sometimes also with minute glandular hairs; margin ciliolate, cartilaginous, entire or with up to 12 pairs of distant, minute teeth; apex acuminate; base truncate; petiole 1–5 mm long. Inflorescence a lateral raceme, 50–230 mm long; flowers crowded, 100–250, all bisexual; bracts alternate or loosely whorled, linear to lanceolate, < pedicels; pedicels spreading, sometimes recurved at fruiting, 0.7–4.7 mm long, puberulent all around. Calyx lobes 4, sub-acute to acuminate, 1.5–3.0 mm long, equal, mixed eglandular- and glandular-ciliolate. Corolla 3–5 mm diameter; tube white, 2.5–3.2 mm long, > calyx, eglandular-hairy within; lobes 4, white or pale purplish, sub-equal, erect or erecto-patent, lanceolate, 3–5 mm long, acute to rounded; nectar guides absent. Stamen filaments white, 5.0–8.5 mm long; anthers magenta or purplish. Style glabrous, 4–7 mm long. Capsules latiseptate, sub-acute or obtuse, glabrous, 2.5–3.5 mm long, 2.5–3.0 mm at widest point. Seeds broadly ellipsoid to discoid, flattened, smooth, straw-yellow, 0.6–1.1 mm long.



**Fig. 1034:** *Veronica salicifolia* distribution map based on databased records at AK, CHR & WELT.

puberulent. *V. phormiiphila* plants are found in wetlands, often in standing water, whereas *V. salicifolia* plants are mostly found on better-drained sites.

In the north of the South Island, *V. stricta* plants may be readily distinguished by lacking a sinus in the bud. The two species appear to overlap in distribution along the east coast of Marlborough and North Canterbury.

**Phenology:** Flowers: December–June, or occasionally in October, November, and July; fruits: January–June, or occasionally November and July.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe salicifolia*).

**Hybridisation:** (see Garnock-Jones 2008).

Hybridises extensively with *V. elliptica* where they co-exist (see *V. ×lewisii*). Synonyms for this cross include *V. ×amabilis*, *V. ×blanda*, *V. salicifolia* var. *gracilis*, and *V. ×ellipsala*.

*V. salicifolia* × *calcicola* (Bayly et al. 2001)

*V. salicifolia* × *albicans* (Bayly & Kellow 2006)

*V. salicifolia* × *strictissima* (Bayly & Kellow 2006, Wilson, WELT SP101295)

*V. ×erecta* is thought to be a garden hybrid between *V. salicifolia* and *V. pimeleoides*. *V. dartonii* is a wild collection thought to be of the same origin.

*V. ×kirkii* is probably a hybrid between *V. salicifolia* and a small-leaved species, probably *V. rakaiensis*.

*V. ×leiosala* is thought to be the hybrid of *V. salicifolia* and *V. leiophylla*.

**Notes:** *Veronica salicifolia* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

The leaf teeth in *V. salicifolia* and similar plants are distant, minute, thickened hydathodes along the leaf margin. Larger teeth, similar to those found in speedwell hebes like *V. lanceolata*, are seen in seedlings and juvenile plants.

**Distribution:** South Island: throughout except Marlborough Sounds and areas of inland South Canterbury and Otago.

Stewart I. (west coast), Auckland I. (the single record is considered to be a recent introduction: WELT SP098720, Johnson & Campbell 1975; see Bayly & Kellow 2006).

**Biostatus:** Indigenous (Non-endemic).

Also indigenous to southern Chile; naturalised in coastal sites in W. Europe (Walters & Webb, in Tutin et al. 1972).

**Habitat:** Open sites, scrub, and in forest, especially forest margins. Recorded elevations range from 0 to 1067 m.

**Recognition:** *Veronica salicifolia* is common throughout the South Island (except Marlborough Sounds and inland South Canterbury and Otago) and Stewart I. Over most of that range there is no species it might be confused with.

In lowland Westland, *V. phormiiphila* plants are very similar to *V. salicifolia* and they may grow in close proximity. Plants of *V. phormiiphila* differ in their narrower and more evenly tapered leaves. *V. phormiiphila* plants have puberulent stems, whereas stems of *V. salicifolia* plants may be glabrous or





**Fig. 1035:** *Veronica salicifolia*. Habit. Moke Creek., Otago.



**Fig. 1036:** *Veronica salicifolia*. Sprig. Scale = 10 mm.



**Fig. 1037:** *Veronica salicifolia*. Portion of stem showing absence of hairs. Scale = 1 mm.



**Fig. 1038:** *Veronica salicifolia*. Leaf bud with small sinus. Scale = 1 mm.



**Fig. 1039:** *Veronica salicifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1040:** *Veronica salicifolia*. Leaf margin, showing very short hairs and very obscure, distant teeth. Scale = 1 mm.



**Fig. 1041:** *Veronica salicifolia*. Inflorescence. Scale = 10 mm.



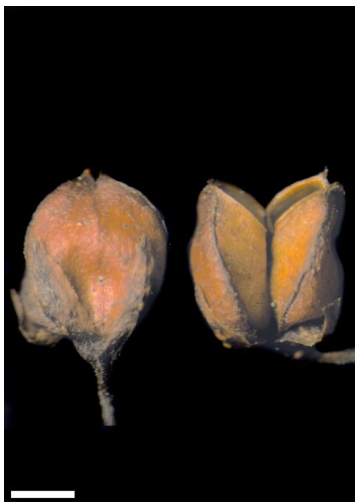
**Fig. 1042:** *Veronica salicifolia*. Flowers. Scale = 1 mm.



**Fig. 1043:** *Veronica salicifolia*. Posterior view of flower showing calyx and corolla tube. Scale = 1 mm.



**Fig. 1044:** *Veronica salicifolia*. Shoots and infructescences. Scale = 10 mm.



**Fig. 1045:** *Veronica salicifolia*. Capsules. Scale = 1 mm.

## ***Veronica salicornioides* Hook.f., *Handb. New Zealand Fl.* 212 (1864)**

≡ *Hebe salicornioides* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 40 (1926)

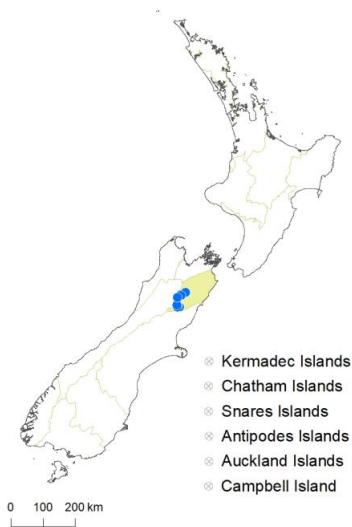
≡ *Leonohebe salicornioides* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 7 (1987)

Lectotype (designated by Ashwin, in Allan 1961): Nelson Mts, *Rough*, 1859, Herb. Hookerianum, K (piece on right side of a sheet that also includes two pieces of *H. armstrongii* collected by Sinclair and Haast)

**Etymology:** The epithet *salicornioides* refers to the plant's similarity to the stems of glasswort, *Salicornia* (Amaranthaceae).

**Vernacular name:** whipcord hebe

Spreading low or bushy whipcord shrub to 1 m tall. Stems ascending to erect, glabrous except for a narrow line of eglandular hairs at the connate leaf bases, or sometimes with mostly bifarious or uniform hairs at base of internodes. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed but not usually covering the obscure node above, scale-like, coriaceous, broadly deltoid, 0.8–1.5 mm long, 2–4 mm wide, dull or slightly glossy pale to dark green above and beneath; veins not evident, surfaces glabrous; margin shortly ciliate to ciliate, entire; apex obtuse to rounded; base broad; petiole absent. Inflorescence a terminal spike, 4–16 mm long; flowers crowded, 2–10, all bisexual; bracts opposite-decussate, connate, broadly elliptic to semi-circular; pedicels absent or rarely the lowest to 0.5 mm long, eglandular-hairy all around. Calyx lobes 4–5 (the 5th small, posterior, the anterior pair free or partly to completely fused, obtuse to rounded, 1.5–2.5 mm long, sub-equal, eglandular-ciliate. Corolla 4.0–6.5 mm diameter; tube white, 1.3–1.7 mm long, about = calyx, eglandular-hairy inside; lobes 4, white, erect to recurved, sub-equal, elliptic, 1.8–3.0 mm long, obtuse; nectar guides absent. Stamen filaments white, 2.1–3.8 mm long; anthers white, pink, magenta, or purplish. Style glabrous, 3.2–5.0 mm long. Capsules latiseptate, tapered to acute or narrowly obtuse apex, glabrous, 2.5–4.3 mm long, 1.5–3.0 mm at widest point. Seeds elliptic to oblong, flattened, smooth, pale brown, 0.8–1.2 mm long.



**Fig. 1046:** *Veronica salicornioides* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (in the west from Mt Severn and Tarndale to Lake Tennyson, Mt St Patrick, Mt Charon, and Jack's Pass).

Material said to be from Otago (Lake Harris, WELT17479, AK 8250; Humboldt Mountains, WELT 17477) has not been included in the distribution (see Bayly & Kellow 2006).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Red tussock grassland, flushes, and slightly boggy sites. Recorded elevations range from 1100 to 1550 m.

**Recognition:** Plants of *Veronica salicornioides* are similar to *V. annulata* and *V. armstrongii* plants, which differ in their shorter internodes and longer leaves. When fresh, *V. salicornioides* leaves are appressed and give the leafy stems a smooth appearance; however, the leaves separate from the stem a little when the plants are dried.

**Phenology:** Flowers: November–January; fruits: January–February, persisting longer.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe salicornioides*).

**Notes:** *Veronica salicornioides* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). Four whipcord hebes characterised by fused anterior calyx lobes and exposed but obscure leaf nodes are probably all closely related: *V. annulata*, *V. armstrongii*, *V. ochracea*, and *V. salicornioides*. These species also differ from the other whipcord hebes in having  $2n = 42, 84$ , or in the case of *V. ochracea*,  $2n = 124$ .



**Fig. 1047:** *Veronica salicornioides*. Habit. Mt St Patrick, Canterbury.



**Fig. 1048:** *Veronica salicornioides*. Sprig. Scale = 10 mm.



**Fig. 1049:** *Veronica salicornioides*. Branchlet. Scale = 1 mm.



**Fig. 1050:** *Veronica salicornioides*. Close-up of leaves showing obscure nodal joint. Scale = 1 mm.



**Fig. 1051:** *Veronica salicornioides*. Calyx, showing fused anterior lobes. Scale = 1 mm.



**Fig. 1052:** *Veronica salicornioides*. Flowers. Scale = 1 mm.



**Fig. 1053:** *Veronica salicornioides*. Shoot apex with terminal infructescence. Scale = 1 mm.



**Fig. 1054:** *Veronica salicornioides*. Capsule, from a herbarium specimen. Scale = 1 mm.

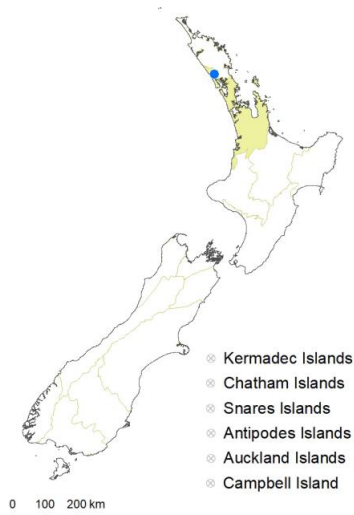
### ***Veronica saxicola* (de Lange) Heenan, *New Zealand J. Bot.* 50: 88 (2012)**

≡ *Hebe saxicola* de Lange in de Lange & Rolfe, *New Zealand J. Bot.* 46: 534 (2008)

Holotype: New Zealand, North Island, Kaipara Ecological Region and District, Maunga-raho Rock, P. J. de Lange 3167 & I. McFadden, 7 Nov 1996, AK 230137. Isotype: WELT SP82009

**Etymology:** The epithet refers to the rock outcrop habitat where the plants are found (de Lange & Rolfe 2008), and is derived from Latin *saxosis* (stony places, Stearn 2004).

Compact shrub to 1 m tall. Stems erect, usually glabrous, rarely bifarious-puberulent. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, lanceolate to elliptic or broadly elliptic to oblanceolate, 25–80 mm long, 8–24 mm wide, dull, olive-green or dark green above, pale green beneath; midrib and (rarely) faint secondary veins evident; surfaces glabrous except for minute eglandular hairs near base above; margin glabrous, entire; apex acute; base cuneate; petiole indistinct, winged, 2–4 mm long. Inflorescence a lateral raceme, 20–120 mm long; flowers crowded, 20–130, all bisexual; bracts alternate, linear-lanceolate to lanceolate, < pedicels; pedicels erecto-patent to spreading, 2–5, rarely to 8 mm long, minutely puberulent all around. Calyx lobes 4, acute, 2.3–3.5 mm long, sub-equal, glabrous or minutely glandular-hairy on faces, mixed glandular- and eglandular ciliolate. Corolla 5–8 mm diameter; tube white, 1.0–1.5 mm long, < calyx, usually glabrous inside, rarely a few hairs near the base; lobes 4, pale purplish, fading white, erect to sub-erect, sub-equal, broadly lanceolate to ovate, 4.2–6.3 mm long, sub-acute or bluntly acute; nectar guides absent. Stamen filaments 8–14 mm long; anthers pale purplish. Style glabrous, 8–12 mm long. Capsules latiseptate, acute to obtuse, glabrous, 3.5–4.3 mm long, 3.2–3.9 mm at widest point. Seeds ovate to discoid, flattened, slightly papillate, pale brown, 1.4–1.8 mm long.



**Fig. 1055:** *Veronica saxicola* distribution map based on databased records at AK, CHR & WELT.

*V. saxicola* the calyx lobes are greenish with pink margins and the mixed eglandular and glandular hairs are more distant and a little longer (about 75  $\mu$ m).

(See: Table 2).

**Phenology:** Flowers: September–November; fruits: December–February.

**Cytology:**  $2n = 40$  (see de Lange & Rolfe 2008, as *Hebe saxicola*).

**Notes:** *Veronica saxicola* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006). It was included under *V. perbella* by Bayly and Kellow (2006, as *Hebe perbella*).

**Distribution:** North Island: Auckland (Maungaraho Rock only, about 14 km south-east of Dargaville, only).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Open surfaces on rock outcrops: cliffs, ledges, crevices, sometimes in fringes of scrub and often with large plants of *Astelia solandri*, *Collospermum hastatum*, *Dianella nigra*, and grasses. Recorded elevations range from 120 to 221 m.

**Recognition:** *V. saxicola* plants are most similar to plants of *V. perbella* and *V. adamsii*. *V. adamsii* plants differ in having a small sinus in the terminal leaf bud, a longer corolla tube, which is about as long as the calyx and corolla lobes, and  $2n = 80$  chromosomes.

*V. perbella* plants differ in their puberulent corolla tube inside, more lanceolate to oblanceolate leaves, often red inflorescence rachis, pedicels and calyx lobes, and shorter hairs on the inflorescence (these are about 50  $\mu$ m long, compared to about 75  $\mu$ m in *V. saxicola*). In *V. perbella* the calyx is usually red and has dense and extremely short (about 50  $\mu$ m) mostly glandular hairs along the lobe margins; in



**Fig. 1056:** *Veronica saxicola*. Habitat. Maungaraho Rock, Northland.



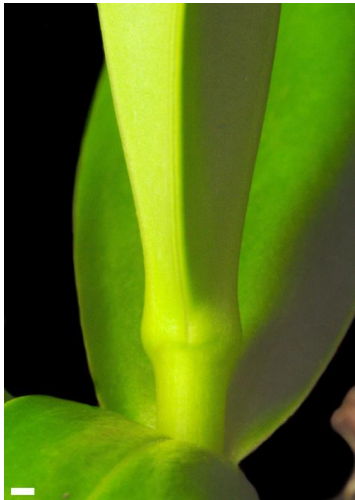
**Fig. 1057:** *Veronica saxicola*. Habit. Maungaraho Rock, Northland.



**Fig. 1058:** *Veronica saxicola*. Flowering sprig. Scale = 10 mm.



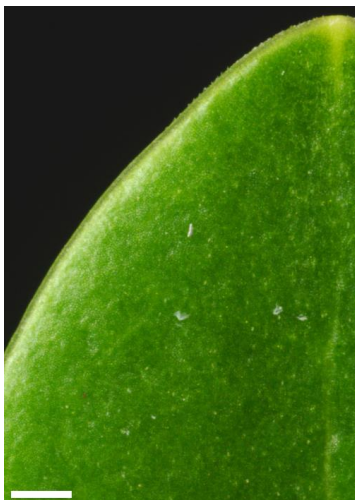
**Fig. 1059:** *Veronica saxicola*. Fruiting sprig. Scale = 10 mm.



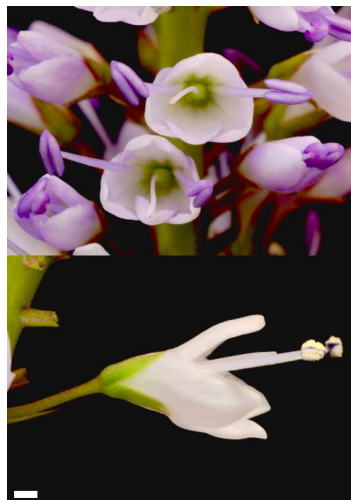
**Fig. 1060:** *Veronica saxicola*. Leaf bud with no sinus. Scale = 1 mm.



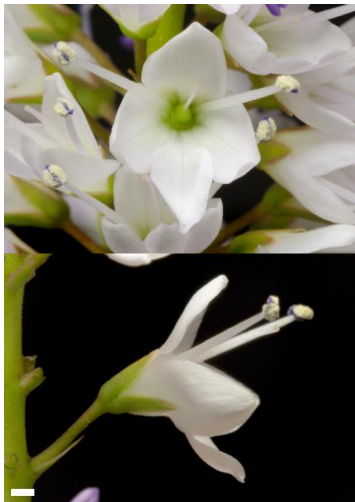
**Fig. 1061:** *Veronica saxicola*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1062:** *Veronica saxicola*. Leaf margin, showing minute hairs. Scale = 1 mm.



**Fig. 1063:** *Veronica saxicola*. Newly opened flowers. Scale = 1 mm.



**Fig. 1064:** *Veronica saxicola*. Mature flowers. Scale = 1 mm.



**Fig. 1065:** *Veronica saxicola*. Capsules. Scale = 1 mm.

### ***Veronica scopulorum* (Bayly, de Lange & Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe scopulorum* Bayly, de Lange & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 40: 586 (2002)

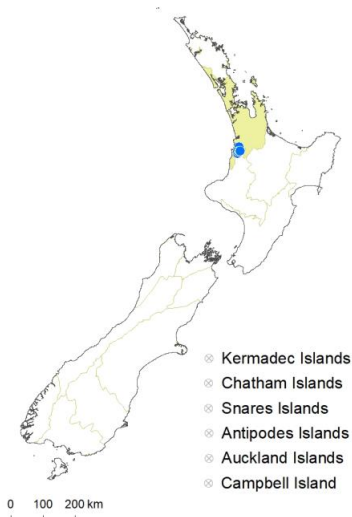
Holotype: New Zealand, North Island, South Auckland, Kawhia region, Rock Peak, 520 m, limestone bluffs around summit, *M. J. Bayly 1444, P. J. Garnock-Jones & P. J. de Lange*, 10 Oct 2000, WELT 82488/A. Isolectotypes: AK, CHR 549429

**Etymology:** The epithet *scopulorum* means of the crags, a reference to the distinctive habitat characteristic of this species.

**Vernacular name:** Awaroa koromiko

Small, bushy shrub to 0.7 m tall. Stems erect to ascending, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate to sub-distichous, erecto-patent to spreading; lamina sub-coriaceous, linear-elliptic to narrowly oblanceolate, 14–55 mm long, 4–16 mm wide, glossy green to dark green above, dull glaucous beneath, midrib evident; surfaces glabrous except for eglandular hairs along midrib above; margin glabrous except for eglandular hairs on petiole, minutely papillate, entire; apex acute to obtuse and plicate-mucronate, sometimes weakly; base cuneate; petiole 2–5 mm long. Inflorescence a lateral raceme, usually tripartite or sometimes simple or compound, 15–46 mm long; flowers crowded, 7–40, all bisexual; bracts opposite-decussate below, becoming alternate above, linear to lanceolate or rarely ovate, slightly < to slightly > pedicels; pedicels erecto-patent, 0.5–4.0 mm long, eglandular-hairy all around. Calyx lobes 4, sometimes the anterior pair fused in lower  $\frac{1}{3}$ , acute, 1.5–2.3 mm, sub-equal, eglandular-ciliolate or mixed glandular- and eglandular-ciliolate. Corolla 6–8 mm diameter; tube white, 3.0–4.2 mm long, > calyx, glabrous; lobes 4, pale purplish or white, sub-erect to spreading, sub-equal, lanceolate to elliptic to oblong, 2.5–3.5 mm long, sub-acute; nectar guides absent. Stamen filaments white, 3–5 mm long; anthers pale purplish or white. Style glabrous, 6–9 mm long. Capsules latiseptate, acute, glabrous, 3.2–4.5 mm long, 2–3 mm at widest point. Seeds ellipsoid to ovoid or oblong, flattened, smooth, pale brown, 1.1–1.4 mm long.





**Fig. 1066:** *Veronica scopulorum* distribution map based on databased records at AK, CHR & WELT.

transversely wrinkled.

**Phenology:** Flowers: September–November; fruits: September–April.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe scopulorum*).

**Notes:** *Veronica scopulorum* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). ITS sequence data suggest *V. scopulorum* and *V. colensoi* are sister species; this is supported by their close similarity and North Island distributions. Beyond that, their relationships are likely to be with other species that are characterised by glaucous leaves, all of which occur in the South Island, such as *V. rigidula*.

**Distribution:** North Island: Auckland (West Waikato near Kawhia, on outcrops along the ridges east and west of Awaroa Valley).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Outcrops and cliffs of limestone on ridges in forest. Recorded elevations range from 335 to 525 m.

**Recognition:** *Veronica scopulorum* is one of only two North Island species of *Veronica* that are characterised by glaucous leaves; the other is *V. colensoi*. *V. colensoi* plants differ in having leaves that are glaucous on both surfaces, corolla tubes about equalling the calyx, and glabrous calyx margins.

*V. scopulorum* leaves are deeply folded along the midrib to give a very deep groove above and a very prominent midrib beneath, and each edge of the lamina is curved to make the leaf m-shaped in cross-section. For this reason, the leaf bud is tetragonous with concave faces in section, and this contrasts with the similar *V. rigidula* of Nelson, which has buds that are also tetragonous but with convex faces.

The bark of older stems of *V. scopulorum* plants is thick and corky, and on young stems the swelling below the leaf is



**Fig. 1067:** *Veronica scopulorum*. Habit. Rock Peak, Awaroa Valley, Waikato.



**Fig. 1068:** *Veronica scopulorum*. Sprig. Scale = 10 mm.



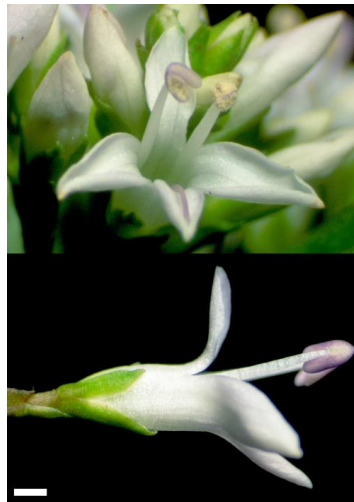
**Fig. 1069:** *Veronica scopulorum*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1070:** *Veronica scopulorum*. Apical view of leaf bud, strongly tetragonous with incurved sides. Scale = 1 mm.



**Fig. 1071:** *Veronica scopulorum*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1072:** *Veronica scopulorum*. Flowers. Scale = 1 mm.



**Fig. 1073:** *Veronica scopulorum*. Capsules. Scale = 1 mm.

## *Veronica scrupea* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)

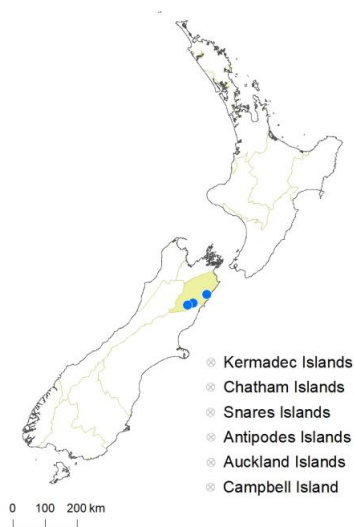
nom. nov. pro *Heliohebe acuta* Garn.-Jones 1993

≡ *Heliohebe acuta* Garn.-Jones, *New Zealand J. Bot.* 31: 326 (1993)

Holotype: New Zealand, Marlborough, Clarence Valley, George Stream, bare eroding ribs of shattered greywacke above steep talus slopes, 822 m,  
*P. I. Garnock-Jones 2000 & P. B. Heenan*, 31 Oct 1990, CHR 470044, Isotypes: WELT, K

**Etymology:** The epithet *scrupea* means of sharp stones, a reference to the shattered argillite cliffs and rock outcrops where the plants grow.

Sub-shrub or low shrub to 0.2 m tall. Stems ascending to erect eglandular-pubescent; hairs bifarious or uniform, short, recurved. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent; lamina coriaceous and rigid, lanceolate to oblanceolate, 5–15 mm long, 2–6 mm wide, dull green to bronze-green above, pale green beneath; midrib evident; surfaces glabrous except for minute glandular hairs along midrib above; margin glabrous, serrate; teeth in 3–8 pairs; apex acute; base cuneate; petiole 1–5 mm long. Inflorescence a terminal, compound raceme or spike, 10–20 mm long; flowers crowded, 30–70, all bisexual; bracts opposite-decussate, deltoid, > pedicels; pedicels erecto-patent, 0–0.2 mm long, eglandular-hairy all around. Calyx lobes 4, sub-acute to obtuse, 2.0–2.5 mm long, unequal, glandular- and eglandular-ciliate. Corolla 4–5 mm diameter; tube pink and greenish, 1.8–2.0 mm long, < calyx, glabrous; lobes 4, pink, sometimes dark or purplish-pink, erect (posterior) or spreading to recurved (lateral and anterior), sub-equal, elliptic to ovate, 2.0–2.5 mm long, sub-acute to obtuse; nectar guides absent. Stamen filaments pink to purplish, 1.0–1.2 mm long; anthers pale yellow. Style glabrous, 3.0–3.8 mm long. Capsules turgid, truncate to emarginate, glabrous, 2.0–2.5 mm long, 1.5 mm at widest point. Seeds narrowly obovoid, barely flattened, smooth, brown, 0.7–1.2 mm long.



**Fig. 1074:** *Veronica scrupea* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Marlborough (Seaward Kaikōura Range, particularly in the Clarence River catchment at George Stream, Palmer Stream, Hossack Station). There are reliable but unvouchered reports from Alfred Stream, Gore Stream, and The Fell, and a photographic record from the shearwater colony high on the Seaward Kaikōura Range.

**Biostatus:** Indigenous (Endemic).

**Habitat:** *V. scrupea* grows on cliffs and outcrops of shattered argillite, a habitat that is extensive in the area but inaccessible for botanical survey. Recorded elevations range from 338 to 822 m, but there is a photographic record at higher elevation.

**Recognition:** *V. scrupea* plants are similar to plants of *V. raoulii*, also in the sun hebe group, but differ by their accumulation of corky bark, narrow acute leaves somewhat longitudinally folded along the midrib, stem hairs recurved but not appressed, smaller and bright pink to purplish flowers with four free calyx lobes, and coloured, shorter stamen filaments and styles with the stigma not or barely peeping from the bud before opening.

Unidentified plants collected from the Omaka River and Black Birch Creek, Marlborough (e.g., CHR 470178) resemble *V. pentasepala* in their erect habit and narrow leaves, but are more like *V. hulkeana* in their pale lilac flowers and four free calyx lobes, and like *V. scrupea* in their four free calyx lobes and narrow leaves that are sometimes acute.

**Phenology:** Flowers: October–November; fruits: January (persisting longer).

**Cytology:**  $2n = 42$  (M.I. Dawson in Garnock-Jones 1993a; Dawson & Beuzenberg 2000, *New Zealand Journal of Botany* 38: 8) as *Heliohebe acuta*.

**Hybridisation:** *V. scrupea* grows together with *V. raoulii* and *V. hulkeana*, but no hybrids have been observed.

**Notes:** *Veronica scrupea* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “sun hebe” group (Albach & Meudt 2010). DNA sequences suggest a relationship to *V. hulkeana* (ITS data) and *V. pentasepala* (cpDNA data).



**Fig. 1075:** *Veronica scrupea*. Habit. George Stream, Marlborough.



**Fig. 1076:** *Veronica scrupea*. Sprig. Scale = 10 mm.



**Fig. 1077:** *Veronica scrupea*. Flowers. Scale = 1 mm.



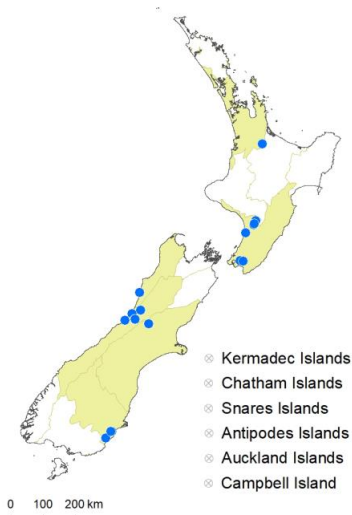
**Fig. 1078:** *Veronica scrupea*. Capsule. Scale = 1 mm.

## ***Veronica scutellata* L., Sp. Pl. 12 (1753)**

**Etymology:** The epithet *scutellata* means resembling a little rounded shield or buckler, perhaps a reference to the rounded, flattened capsule, or to the seed.

**Vernacular name:** marsh speedwell

Slender, scrambling annual or perennial herb to 0.6 m tall. Stems decumbent to ascending, glabrous. Leaf bud indistinct; leaves separating while very small, opposite-decussate, spreading; lamina thin, linear to very narrow-lanceolate, 20–60 mm long, 1–6 mm wide, sometimes to 12 mm wide, dull pale green to green above, pale green or sometimes reddish-tinged beneath; midrib evident; surfaces glabrous; margin glabrous, entire or minutely toothed; teeth in 5–10 distant pairs; apex narrowly acute to acuminate; base narrowly cuneate, becoming rounded or truncate; petiole absent. Inflorescence a lateral raceme (nearly always 1 per leaf pair), 60–150 mm long; flowers distant, 10–20, all bisexual; bracts alternate, linear, < pedicels; pedicels spreading to reflexed, recurved at apex at fruiting, 5–13 mm long, glabrous. Calyx lobes 4, sub-acute, rounded at very tip, 1.8–2.0 mm long, equal, glabrous. Corolla 5–6 mm diameter; tube greenish and white, c. 1 mm long, < calyx, glabrous inside; lobes 4, pale bluish pink, spreading, sub-equal, orbicular, 2.6–3.0 mm long, rounded; nectar guides short, pale purplish. Stamen filaments white, 1.9–2.3 mm long; anthers white. Style glabrous, 1.8–2.0 mm long. Capsules angustiseptate, deeply emarginate or didymous, glabrous or with a few glandular marginal cilia, 3–4 mm long, 3.5–5.0 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown, 1.2–1.4 mm long.



**Fig. 1079:** *Veronica scutellata* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (Tirau), southern North Island (Feilding, near Foxton, Lake Wairarapa).

South Island: Western Nelson (Razorback Point, near Punakaiki, only), Canterbury (upper Waimakariri River), Westland, Otago (Lake Waiholo, Lake Tuakitoto).

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Wet or marshy places such as ditches and drains, often straggling through taller plants. Recorded elevations range from 5 to 30 m.

**First record:** Allan (1924, p. 313). Voucher: CHR 3364, H.H. Allan, 12 Mar 1923.

**Recognition:** *V. scutellata* plants are easily distinguished from other wetland herbaceous speedwells by their slender, weak, scrambling stems, very narrow leaves, alternating filiform inflorescences, filiform spreading to reflexed pedicels, small pale flowers with rounded corolla lobes, strongly flattened, deeply emarginate to didymous, broadly rounded capsules, and central chalaza on the seeds.

**Phenology:** Flowers: December–April; fruits: December–April.

**Cytology:**  $2n = 18$  from overseas material (Albach et al. 2008).

**Notes:** *Veronica scutellata* is classified in *V.* subg. *Veronica* (Albach et al. 2004a; Albach & Meudt 2010).

*Veronica scutellata* stems are only 1–2 mm thick with a very narrow, hollow core. The leaf teeth are small, and appear to face backwards towards the petiole, an impression enhanced by the prominent hydathode associated with each. The inflorescences almost always arise from just one of the two leaves of a pair (distinguishing it from other aquatic species, where two or more inflorescences are produced per node). The capsules open loculicidally only. The chalaza of the seed is at about the middle, unlike *V. anagallis-aquatica* and *V. catenata*, where it is off centre.



**Fig. 1080:** *Veronica scutellata*. Habitat. Near Foxton Beach, Manawatu.



**Fig. 1081:** *Veronica scutellata*. Habit. Lake Sarah, Canterbury.



**Fig. 1082:** *Veronica scutellata*. Sprig.  
Scale = 10 mm.



**Fig. 1083:** *Veronica scutellata*. Stem, with cross section on right. Scale = 1 mm.



**Fig. 1084:** *Veronica scutellata*. Stem apex, showing leaf bud and arrangement of developing inflorescences. Scale = 10 mm.



**Fig. 1085:** *Veronica scutellata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1086:** *Veronica scutellata*. Flowers. Scale = 1 mm.



**Fig. 1087:** *Veronica scutellata*. Capsule, unripe (above) and dehiscent (below). Scale = 1 mm.



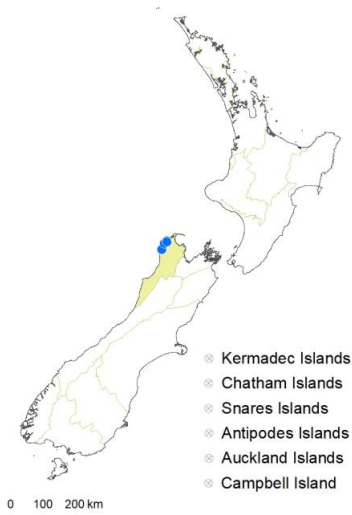
**Fig. 1088:** *Veronica scutellata*. Seeds.  
Scale = 1 mm.

***Veronica senex* (Garn.-Jones) Garn.-Jones in Garnock-Jones et al.,  
*Taxon* 56: 579 (2007)**

≡ *Parahebe senex* Garn.-Jones in Garnock-Jones & Lloyd, *New Zealand J. Bot.* 42: 220 (2004)  
Holotype: Webb Stream, Anatori Valley, calcareous sandstone cliff with southerly aspect,  
*Garnock-Jones 2464 & W. Malcolm*, 8 Feb 2001, WELT SP083381. Isotype: CHR 551076

**Etymology:** The epithet *senex* means old man, an allusion both to the white, whiskery indumentum and to the relatively large and woody stature of the plants, at least when compared to similar speedwell hebes (Garnock-Jones & Lloyd 2004).

Sub-shrub to 0.5 m tall. Stems decumbent to ascending or sometimes erect, eglandular-pubescent; hairs uniform, rarely bifarious or almost glabrous. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, lanceolate, ovate, elliptic, obovate, or oblanceolate, 20–80 mm long, 10–38 mm wide, dull green or dark green above, pale green or sometimes pinkish or whitish beneath; midrib evident and lateral veins sometimes evident above; surfaces pubescent above and beneath or rarely glabrous; margin pubescent or rarely glabrous, bluntly serrate; teeth in 3–16 pairs; apex sub-acute or acute; base cuneate, petiole 3–7 mm long. Inflorescence a lateral raceme, 100–250 mm long; flowers distant, 10–40, all bisexual; bracts alternate, lanceolate, < pedicels; pedicels erecto-patent, incurved at fruiting, 8–21 mm long, pubescent all around. Calyx lobes 4, acute, 1.5–2.5 mm long, sub-equal to unequal, pubescent. Corolla 10–12 mm diameter; tube white and greenish yellow, 1–2 mm long, < calyx, eglandular-hairy inside; lobes 4, white, spreading, unequal, elliptic or oblong to orbicular, 4–5 mm long, rounded or sometimes posterior lobe emarginate; nectar guides magenta or pink. Stamen filaments white, 4 mm long; anthers white. Style glabrous, 3.0–4.5 mm long. Capsules angustiseptate to turgid, truncate to emarginate, pubescent or glabrous, 2–4 mm long, 2.5–3.5 mm at widest point. Seeds ellipsoid to obovoid, flattened, smooth, pale brown to brown, 0.6–1.0 mm long.



**Fig. 1089:** *Veronica senex* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson (Anatori River, Webb Stream, Pukatea Stream, Raukawa Stream, and Ryan Creek).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Limestone and calcareous sandstone cliffs and associated talus slopes. Recorded elevations range from 6 to 220 m.

**Recognition:** *Veronica senex* belongs among the speedwell hebes, a group distinguished by short corolla tubes, coloured nectar guides on the corolla, plicate lateral corolla lobes, lax inflorescences with long pedicels, and stamen filaments attenuate at the base. In this group of similar species, *V. senex* plants are most similar to *V. catarractae* plants and larger plants of *V. lanceolata*. *V. catarractae* and *V. lanceolata* differ from *V. senex* because their leaves are glabrous on the surfaces, although *V. senex* plants sometimes have glabrous leaves. *V. senex* inflorescences are pubescent without any long glandular hairs, and the pedicels are pubescent all around (in one line in *V. catarractae*). The dull, often dark green adaxial surfaces of their leaves are also distinctive.

Larger plants of *V. lanceolata* often have narrower leaves than *V. senex*, while leaves of *V. catarractae* are white beneath and more coarsely toothed.

**Phenology:** Flowers: December–February; fruits: January–April, and old fruit present year round.

**Cytology:**  $2n =$  approx. 42 (Dawson & Beuzenberg 2000, as *Parahebe* aff. *catarractae*).

**Notes:** *Veronica senex* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “speedwell hebe” group (Albach & Meudt 2010).



**Fig. 1090:** *Veronica senex*. Habitat. Anatori River, Nelson.



**Fig. 1091:** *Veronica senex*. Habit. Anatori River, Nelson.





**Fig. 1092:** *Veronica senex*. Sprig.  
Scale = 10 mm.



**Fig. 1093:** *Veronica senex*. Stem showing node and internode. Scale = 1 mm.



**Fig. 1094:** *Veronica senex*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1095:** *Veronica senex*. Adaxial leaf surfaces, of a hairy leaf (above) and a glabrous leaf (below). Scale = 1 mm.



**Fig. 1096:** *Veronica senex*. Flower. Scale = 1 mm.



**Fig. 1097:** *Veronica senex*. Capsule. Scale = 1 mm.



**Fig. 1098:** *Veronica senex*. Seeds.  
Scale = 1 mm.

### ***Veronica serpyllifolia* L., Sp. Pl. 12 (1753)**

**Etymology:** The epithet *serpyllifolia* is from *serpyllum*, Latin for thyme, and *folium*, Latin for a leaf, meaning thyme-leaved.

**Vernacular name:** turf speedwell

**Biostatus:** Exotic; fully naturalised.

### ***Veronica serpyllifolia* L., Sp. Pl. 12 (1753) subsp. *serpyllifolia***

= *Veronica macrocalyx* Colenso, *Trans. & Proc. New Zealand Inst.* 24: 391 (1892) nom. illeg., non *Veronica macrocalyx* J.B.Armstr. 1881

Type: River Manawatu, 4 miles south of Dannevirke

= *Veronica rugulosella* Colenso, *Trans. & Proc. New Zealand Inst.* 24: 391 (1892)

Type: Open lands south of Dannevirke

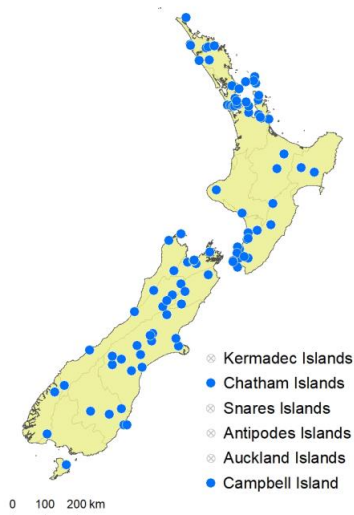
= *Veronica oligantha* Colenso, *Trans. & Proc. New Zealand Inst.* 25: 333 (1893)

Type: South of Dannevirke

**Etymology:** The epithet *serpyllifolia* is from *serpyllum*, Latin for thyme, and *folium*, Latin for a leaf, meaning thyme-leaved.

**Vernacular name:** turf speedwell

Perennial herb to 0.25 m tall. Stems decumbent and rooting at nodes below, ascending to erect above, eglandular-hairy; hairs uniform, antrorse. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, broadly ovate to broadly elliptic, to orbicular, 5–17 mm long, 4–15 mm wide, dull green above, paler beneath; midrib and 2–4 lateral veins evident; surfaces glabrous or sparsely minutely eglandular-puberulent; margin glabrous or sparsely ciliolate, shallowly crenate or crenate-serrate, rarely entire with marginal hydathodes, teeth in 3–8 pairs; apex and base more or less rounded; petiole 0.5–5.0 mm long. Inflorescence a terminal raceme, 20–60 (rarely to 110) mm long; flowers crowded at first, becoming distant, 3–12 (rarely to 60), all bisexual; bracts alternate or rarely the lowermost opposite, oblanceolate to elliptic, overtopping pedicels, the lowest leaf-like, becoming smaller above; pedicels erecto-patent, 1–3 mm long, shortly eglandular-puberulent all around. Calyx lobes 4, obtuse, more or less equal, 2–3 mm long, glabrous or sparsely eglandular-puberulent especially at base. Corolla 3–5 mm diameter, tube white and yellow, <1 mm long, < calyx, hairy at throat; lobes 4, pale blue fading to whitish, or rarely white or blue, darker inside and on posterior lobe, sub-erect to erecto-patent, unequal, broadly ovate to orbicular, 1.5–3.0 mm long, obtuse to rounded, nectar guides dark blue or purple, on posterior and lateral lobes. Stamen filaments white, 1.5–2.0 mm long; anthers blue. Style blue, 1.7–2.0 mm long. Capsules angustiseptate, emarginate to obcordate, sparsely glandular ciliate on margins, 3.0–3.5 mm long, 3.5–4.0 mm wide at widest point. Seeds, ellipsoid, flattened, smooth, pale brown, 0.5–0.7 mm long.



**Fig. 1099:** *Veronica serpyllifolia* subsp. *serpyllifolia* distribution map based on databased records at AK, CHR & WELT.

without nectar guides, the styles <0.2 mm long, and the capsules are a little smaller and more rounded.

**Phenology:** Flowers: January–December; fruits: January–December.

**Cytology:**  $2n = 14, 28$ , from overseas material (Albach et al. 2008).

**Notes:** *Veronica serpyllifolia* subsp. *serpyllifolia* is classified in *V.* subg. *Beccabunga* (Albach et al. 2004a; Albach & Meudt 2010), along with *V. americana*, *V. anagallis-aquatica*, *V. catenata* and *V. peregrina*.

**Distribution:** North Island: throughout.

South Island: throughout.

Stewart I., Chatham Is., Campbell I.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Wetlands in open turf and grassy places, pasture and lawns (usually damp), flushes and bogs. Recorded elevations range from 0 to 1281 m.

**First record:** Kirk in Hooker (1864, p. 217). Voucher likely to be WELT SP63061, 63064, T. Kirk, Auckland.

**Recognition:** *V. serpyllifolia* subsp. *serpyllifolia* plants are distinctive among New Zealand species of *Veronica*.

Characteristic features for their identification include the perennial habit with basal part of the stem decumbent and rooting at the nodes, short, antrorse stem hairs, almost glabrous dull green leaves, small, usually very pale blue corolla with a short anterior lobe, and rounded, emarginate capsule with marginal glandular cilia.

*V. peregrina* plants have a similar growth form, but differ in being annuals, completely glabrous, their flowers are almost sessile (pedicels <0.5 mm long), the corolla is pure white



**Fig. 1100:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Habit of a luxuriant densely grown plant. Hunterville.



**Fig. 1101:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Habit of a plant among mown grasses. Karori, Wellington.



**Fig. 1102:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Sprig. Scale = 10 mm.



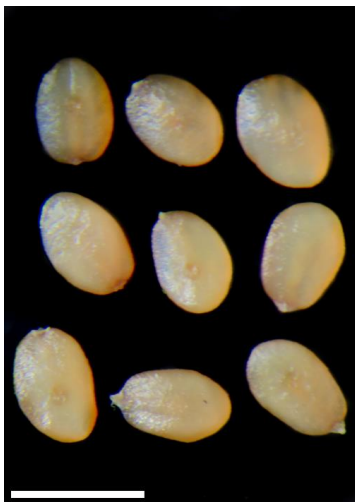
**Fig. 1103:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1104:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Flowers. Scale = 1 mm.



**Fig. 1105:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Capsules. Scale = 1 mm.



**Fig. 1106:** *Veronica serpyllifolia* subsp. *serpyllifolia*. Seeds. Scale = 1 mm.

## *Veronica simulans* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)

nom. nov. pro *Hebe crenulata* Bayly, Kellow & de Lange 2002

≡ *Hebe crenulata* Bayly, Kellow & de Lange in Bayly et al., *New Zealand J. Bot.* 40: 592 (2002)

Holotype: New Zealand, South Island, Nelson, Peel Range, Lake Peel near outlet, 1340 m, low shrubland over rock boulders, *M. J. Bayly* 1316 & *T. Galloway*, 16 Feb 2000, WELT 81743. Isotype: CHR 549428

**Etymology:** The epithet *simulans* (similar) refers to its close similarity to *V. cryptomorpha*.

Spreading low or bushy shrub to 1 m tall. Stems spreading or ascending to erect, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate, erecto-patent to reflexed; lamina coriaceous, usually oblanceolate to obovate, less often elliptic, 6–25 mm long, 3–8 mm wide, dull or slightly glossy green above, dull, glaucescent to glaucous beneath; midrib evident; surfaces glabrous except for eglandular hairs, and sometimes also short glandular hairs as well along midrib above; margin glabrous and minutely papillate, or sometimes clusters of minute glandular hairs in sinuses of teeth, entire or shallowly toothed in 1–3 pairs; apex obtuse to acute and plicate-mucronate; base abruptly cuneate; petiole 1.0–2.7 mm long. Inflorescence a lateral spike or raceme, sometimes tripartite, 9–31 mm long; flowers crowded, 4–16, female or bisexual on separate plants, ♀ > ♂; bracts opposite-decussate, linear to deltoid, > pedicels, often equalling the calyx; pedicels absent or erecto-patent, 0–1.5 mm long, eglandular-hairy all around, often with very short glandular hairs as well. Calyx lobes 4, sub-acute to acute, or sometimes obtuse, 1.8–3.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 6–9 mm diameter; tube white, 1.4–1.6 mm long, glabrous, about = calyx; lobes 4, white, sub-erect to recurved, unequal, elliptic to ovate, 3–4 mm long, obtuse; nectar guides absent. Stamen filaments white, 2.5–6.5 mm long; anthers magenta. Style glabrous, 5–7 mm long. Capsule latiseptate, sub-acute to obtuse, glabrous, 3.2–4.0 mm long, 2.2–3.2 mm at widest point. Seeds elliptic to oblong, flattened, finely wrinkled, pale brown, 1.5–1.9 mm long.

**Distribution:** South Island: Western Nelson (west of the Motueka River from Douglas Range southwards), Westland (Braeburn Range, Spenser Mountains), Marlborough (St James Range, Poplars Range).

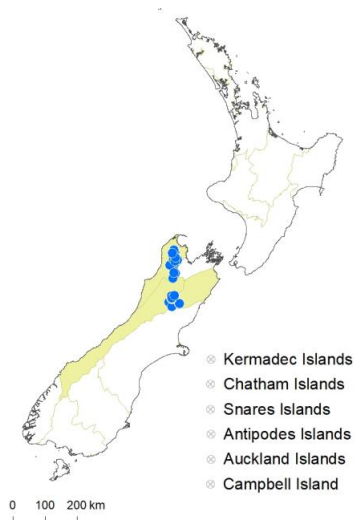
**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland and grassland, often on shallow soils in rocky sites. Recorded elevations range from 900 to 1660 m.

**Recognition:** *V. rigidula*, *V. cryptomorpha*, and *V. cockayneana* plants have similar discolorous leaves, a narrow, acute sinus in the bud, and opposite-decussate flower arrangement; these are most likely to be confused with *V. simulans* plants.

*V. cockayneana*, *V. cryptomorpha*, and *V. simulans* also share coarse, bifarious branchlet hairs and short, tubed corollas with obtuse lobes. *V. cockayneana* is confined to the south-west South Island, but the distributions of *V. cryptomorpha* and *V. simulans* come close to each other, but do not overlap, in south-east Nelson.

**Fig. 1107:** *Veronica simulans* distribution map based on databased records at AK, CHR & WELT.



Plants of *V. cryptomorpha* and *V. cockayneana* may be distinguished from *V. simulans* by having leaves that are almost never toothed or incised. However, in the southern populations of *V. simulans*, plants have leaf margins more sparsely toothed and a higher proportion of leaves with entire margins; such plants can be hard to distinguish from plants of *V. cryptomorpha*. Both *V. cryptomorpha* and *V. simulans* have very dense stomata on the leaf underside. On the upper surface there are few stomata, and these are weakly visible and more distant.

Plants of *V. rigidula* have corolla tubes that are about twice as long as the calyx, and they usually have tripartite inflorescences.

Plants of several other species of *Veronica* in north-west South Island are small-leaved shrubs with glaucous leaves. Of these, *V. topiaria* and *V. albicans* plants are easily distinguished from *V. simulans*

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because they lack a sinus in the vegetative bud. *V. baylyi* and *V. societatis* plants have a sinus in the vegetative bud, but their leaves are olive-green to glaucous equally on both surfaces.

In spite of its close similarities to *V. cryptomorpha*, recognition of *V. simulans* as a distinct species is supported by its chromosome number and flavonoid chemistry.

**Phenology:** Flowers: December–February; fruits: January–April, persisting all year.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe crenulata*).

**Notes:** *Veronica simulans* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). Phylogenetic studies based on ITS sequence data place *V. simulans* in a large and unresolved clade with many similar species such as *V. cryptomorpha*, *V. cockayneana*, and *V. baylyi*. Its very close similarities to *V. cryptomorpha* suggest they might be related.

Identification of *V. simulans* is difficult because there is very little morphological difference between it and *V. cryptomorpha*. Their species status depends instead on different flavonoid profiles and chromosome numbers, which combine to provide evidence that these are two independent and allopatric lineages.

The seeds were described from very limited material and might not represent the range present.



**Fig. 1108:** *Veronica simulans*. Habit. Lake Peel, Nelson.



**Fig. 1109:** *Veronica simulans*. Sprig. Scale = 10 mm.



**Fig. 1110:** *Veronica simulans*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1111:** *Veronica simulans*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1112:** *Veronica simulans*. Leaf with entire margins, adaxial surface. Scale = 1 mm.



**Fig. 1113:** *Veronica simulans*. Old inflorescence, showing opposite decussate arrangement of the flowers. Scale = 1 mm.



**Fig. 1114:** *Veronica simulans*. Flowers. Scale = 1 mm.



**Fig. 1115:** *Veronica simulans*. Capsules. Scale = 1 mm.

### ***Veronica societatis* (Bayly & Kellow) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

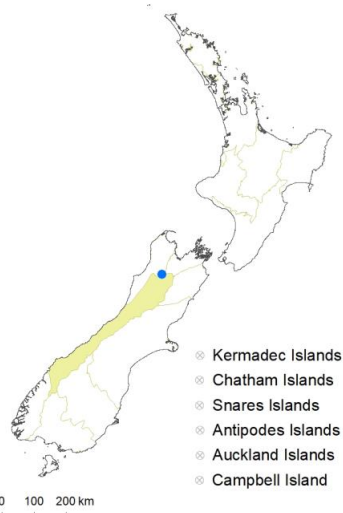
≡ *Hebe societatis* Bayly & Kellow in Bayly et al., *New Zealand J. Bot.* 40: 576 (2002)

Holotype: New Zealand, South Island, Nelson, Braeburn Range, Mt Murchison, 1450 m, steep north-east facing slopes in *Chionochoa australis* grassland, M. J. Bayly 1471 & A. V. Kellow, 12 Jan 2001, WELT 82424

**Etymology:** The epithet *societatis* means of the society and honours members of the Nelson Botanical Society who recognised that the plants on Mt Murchison did not match any known species.

Spreading, low shrub to 0.3 m tall. Stems decumbent to ascending, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves sub-distichous to opposite-decussate, erect to erecto-patent; lamina coriaceous, elliptic to ovate, 5–37 mm long, 2–10 mm wide, dull, glaucescent to glaucous above and beneath; midrib evident; surfaces mostly glabrous but with eglandular hairs along midrib and near base above; margin glabrous or sparsely ciliolate, entire; apex sub-acute to obtuse and weakly plicate-acuminate; base abruptly cuneate; petiole 1–2 mm long. Inflorescence a lateral spike or raceme, 15–35 mm long; flowers crowded, 10–25, all bisexual; bracts opposite below, alternate above, sub-circular to elliptic to broadly deltoid, > pedicels; pedicels erecto-patent, 0.2–2.0 mm long, eglandular-hairy all around. Calyx lobes 4, free or the anterior fused up to 2/3-way, obtuse to rounded, 1.5–2.5 mm long, sub-equal, mixed

glandular- and eglandular-ciliate. Corolla 7–9 mm diameter; tube white, 2.0–2.5 mm long,  $\geq$  calyx, glabrous; lobes 4, white, sub-erect to spreading, sub-equal, elliptic to ovate or orbicular, 3–4 mm long, sub-acute to rounded; nectar guides absent. Stamen filaments white, 2.8–3.5 mm long; anthers purple to magenta. Style glabrous, 5.0–5.5 mm long. Capsules latiseptate, sub-acute to acute, glabrous, 3.7–5.0 mm long, 2.4–3.2 mm at widest point. Seeds not described.



**Fig. 1116:** *Veronica societatis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland (known only from Mt Murchison, Braeburn Range, where the plants are found on a small area of grassland on the north-east side of the peak).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Steep, north-east-facing, low sub-alpine slope in *Chionochloa australis* turf. Recorded elevations range from 1340 to 1450 m.

**Recognition:** The decumbent to ascending stems are sparingly branched, and this, combined with the glaucescent to glaucous leaves, acute leaf bud sinus, very short pedicels, and short bracts, gives *V. societatis* plants a distinctive appearance.

*V. dilatata* plants can be quite similar, but their inflorescences are either tripartite or, if simple, have a pair of empty bracts at the base. *V. dilatata* plants also have a broader leaf bud sinus and a different chromosome number.

The growth form of *V. vernicosa* can be similar and it shares an unusual chromosome number with *V. societatis*, but *V. vernicosa* plants have glossy green leaves, shorter calyx lobes and corolla tubes, and pale anthers.

*V. canterburiensis* plants are also similar, and also occur on Mt Murchison, but they have hairy petioles beneath and glossy green leaves.

**Phenology:** Flowers: January–February; fruits: February–March.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe societatis*).

**Notes:** *Veronica societatis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). Its similar morphology and chromosome number to *V. vernicosa* suggest a relationship, but this has not been explicitly tested.



**Fig. 1117:** *Veronica societatis*. Habit. Mt Murchison, Nelson.



**Fig. 1118:** *Veronica societatis*. Sprigs showing variation in leaf size. Scale = 10 mm.





**Fig. 1119:** *Veronica societatis*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1120:** *Veronica societatis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1121:** *Veronica societatis*. Inflorescence. Scale = 1 mm.



**Fig. 1122:** *Veronica societatis*. Flowers. Scale = 1 mm.



**Fig. 1123:** *Veronica societatis*. Capsules. Scale = 1 mm.

## ***Veronica spathulata* Benth. in de Candolle, *Prodr.* 10 477 (1846)**

≡ *Parahebe spathulata* (Benth.) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

Holotype: Mt Tongariro, *Bidwill* 78, K

= *Veronica vulcanica* Colenso, *Trans. & Proc. New Zealand Inst.* 20: 203 (1888)

Holotype: Lower Slopes of Mt Ngauruhoe, 4700 ft, *Hill*, K

= *Veronica subrosulata* Colenso, *Trans. & Proc. New Zealand Inst.* 31: 278 (1899)

Holotype: Ruahine Range, *Hill*, WELT 23556

**Etymology:** The epithet *spathulata* refers to the spathulate leaves.

Low or mat-forming sub-shrub to 0.1 m tall. Stems prostrate to ascending, sometimes erect, eglandular-pubescent; hairs uniform. Leaf bud indistinct; leaves separating while small, opposite-decussate, erecto-patent to recurved; lamina sub-coriaceous, orbicular to deltoid or rhomboid, 2–12 mm long, 1.5–12.0 mm wide, dull green to dark green above, paler beneath; midrib evident, at least beneath; surfaces eglandular-hairy above and beneath, rarely glabrous; margin glabrous or ciliate to pubescent, crenate or bluntly serrate; lobes in 1–4 pairs; apex rounded or truncate to obtuse or sub-acute; base steeply cuneate to truncate; petiole 1–11 mm long. Inflorescence a lateral raceme, 7–45 mm long; flowers crowded, 2–8, all bisexual; bracts opposite, spathulate, > pedicels; pedicels sub-erect, 1–4 mm long, eglandular-hairy all around. Calyx lobes 4, sub-acute or acute, rarely weakly toothed, equal, 2.5–3.5 mm long, eglandular-hairy or ciliate. Corolla 5–8 mm diameter; tube white to greenish, 3–4 mm long, ≤ calyx, glabrous; lobes 4, white or rarely pale purplish, spreading to recurved, unequal, elliptic to orbicular, 3.5–4.0 mm long, rounded; nectar guides absent. Stamen filaments white, 2–3 mm long; anthers pink or purplish. Style glabrous, 1.5–2.0 mm long. Capsules angustiseptate, emarginate to didymous, eglandular-hairy, 3–4 mm long, 3.0–4.5 mm at widest point. Seeds discoid or ellipsoid, flattened, smooth, brown, 1.0–1.7 mm long.

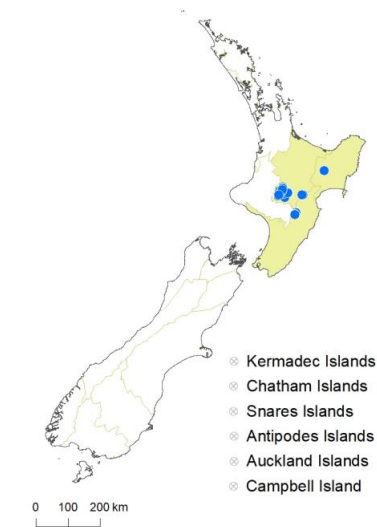
**Distribution:** North Island: Volcanic Plateau, Gisborne (Maungapōhatu), southern North Island (Ruahine Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Screes, scoria, ridges in light, stony soil, fell-field. Recorded elevations range from 1433 to 1830 m.

**Recognition:** *V. spathulata* is distinctive among the alpine *Veronica* in the North Island because the corollas lack nectar guides, have flat rather than plicate lateral corolla lobes, and the capsules are hairy. The few flowers and short inflorescences also distinguish it from other species in the North Island mountains (i.e., *V. lanceolata*, *V. hookeriana*). DNA sequence data place *V. spathulata* in the speedwell hebe group (along with *V. lanceolata* and *V. hookeriana*), although in overall appearance plants seem similar to snow hebes.

*V. spathulata* plants seem similar to *V. cheesemanii* of Nelson, Marlborough and Canterbury, but *V. cheesemanii* plants are more compact and mat- or cushion-forming, with longer corolla tubes and shorter lobes; their capsules are embedded in the cushions.



**Fig. 1124:** *Veronica spathulata* distribution map based on databased records at AK, CHR & WELT.

*V. spathulata* plants often grow together with *V. hookeriana*

and mixed collections are common. Leaves of both are usually hairy, but those of *V. hookeriana* are a brighter green. *V. hookeriana* inflorescences are long-pedunculate with smaller and alternate bracts. In *V. hookeriana* the lateral corolla lobes are folded, and they have prominent nectar guides.

**Phenology:** Flowers: December–March; fruits: January–April (old fruits persisting all year).

**Cytology:**  $2n = 84$  (Hair 1970, as *Parahebe spathulata*).

**Notes:** *Veronica spathulata* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “speedwell hebe” group (Albach & Meudt 2010). Ashwin (in Allan 1961) placed *V. spathulata* closest to *V. cheesemanii*, and they do have strong morphological similarities. Plants of both are cushion- or mat-forming with long-petiolate leaves, a tendency to turn black when dry, and strongly flattened hygrochastic capsules. Also, plants of *V. spathulata* sometimes have toothed or crenate bracts and calyx lobes, which are similar to the pinnatifid bracts and calyx lobes characteristic of *V. cheesemanii*. However, despite very different flowers and habit, molecular phylogenetic analyses (Wagstaff et al.

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2002) place *V. spathulata* in a clade characterised by short corolla tubes, folded lateral corolla lobes, and coloured nectar guides (e.g., *V. hookeriana*). *V. spathulata* is tetraploid, implying a complex origin that might be a cause of this uncertainty.



**Fig. 1125:** *Veronica spathulata*. Habit. Mt Tongariro.



**Fig. 1126:** *Veronica spathulata*. Sprig. Scale = 10 mm.



**Fig. 1127:** *Veronica spathulata*. Foliage. Scale = 10 mm.



**Fig. 1128:** *Veronica spathulata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1129:** *Veronica spathulata*. Flowers.  
Scale = 1 mm.



**Fig. 1130:** *Veronica spathulata*. Capsule.  
Scale = 1 mm.



**Fig. 1131:** *Veronica spathulata*. Seeds.  
Scale = 1 mm.

### ***Veronica speciosa* R.Cunn. ex A.Cunn. in Hooker, *Bot. Mag.* 63, sub-plate 3461 (1836)**

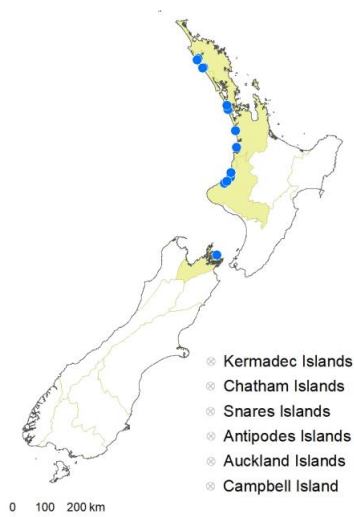
≡ *Hebe speciosa* (R.Cunn. ex A.Cunn.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
Lectotype (designated by Moore, in Allan 1961): *R. Cunningham* No. 373, 1834, K.  
Isolectotype: WELT 79342. Isolectotype: WELT 79342

**Etymology:** The epithet *speciosa* means beautiful, showy or splendid.

**Vernacular names:** napuka; tītīrangī

Spreading low or bushy shrub, usually to 1 m, rarely to 2 m tall. Stems spreading to ascending or pendent, glabrous. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus small and elliptic to rounded. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, elliptic to obovate, 45–100 mm long, 21–51 mm wide, glossy green or dark green above, dull pale green or green beneath; midrib and secondary veins evident; surfaces eglandular-hairy along midrib above and often beneath, sometimes glabrous beneath, sometimes covered in minute glandular hairs; margin usually puberulent, sometimes including glandular hairs or sometimes glabrous, entire; apex obtuse, truncate, or slightly retuse; base truncate or sub-cordate; petiole 1.5–6.0 mm long. Inflorescence a lateral raceme, 40–145 mm long; flowers crowded, 32–116, all bisexual; bracts alternate to loosely whorled, the lowest sometimes opposite, ovate to deltoid, ≤ pedicels; pedicels erecto-patent to spreading, sometimes recurved at fruiting, 1.0–6.5 mm long, sparsely to densely eglandular-hairy all

around. Calyx lobes 4, obtuse to acute, 2.5–3.2 mm long, sub-equal, eglandular-ciliate or mixed glandular- and eglandular-ciliate. Corolla 5–8 mm diameter; tube magenta, 2.5–4.0 mm long,  $\geq$  calyx, eglandular-hairy inside; lobes 4, magenta, erecto-patent to spreading, unequal, elliptic to ovate, 3–6 mm long, obtuse to rounded, nectar guides absent. Stamen filaments magenta, 7–13 mm long; anthers magenta. Style glabrous, 6.5–15 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous or eglandular-hairy along septal groove, 3.5–7.0 mm long, 3.5–6.6 mm at widest point. Seeds broadly discoid to ellipsoid, flattened, smooth, pale brown to brown, 1.1–1.9 mm long.



**Fig. 1132:** *Veronica speciosa* distribution map based on databased records at AK, CHR & WELT.

usually narrower and tapering to the apex. In addition, *V. speciosa* flowers have ciliate corolla lobes, a rare feature in New Zealand *Veronica* seen also in the white-flowered *V. rakaiensis*.

**Phenology:** Flowers: January–November; fruits: January–July, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe speciosa*).

**Hybridisation:** Wild hybrids are not known, but in cultivation *V. speciosa* hybrids are highly valued because it is a source of intense flower colour (magenta, purple, and pink). The commonest is *V. ×franciscana* ‘Blue Gem’ (*V. elliptica*  $\times$  *speciosa*). Some hybrids of cultivated origin may spread from cultivation or be inadvertently planted in revegetation projects.

**Notes:** *Veronica speciosa* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

According to Armstrong and de Lange (2005), the three northernmost populations (those north of Auckland) contain most of the genetic diversity of the species. They suggested the more southern populations might have originated from transplantation and cultivation by Māori.

**Distribution:** North Island: Northland, Auckland, Taranaki (scattered west coast localities from Hokianga to North Taranaki). A record from Matiu/Somes I., Wellington, is not considered to be indigenous there.

South Island: Marlborough Sounds (Titirangi Bay, Pelorus Sound). Several recorded populations are believed to be extinct (Armstrong & de Lange 2005).

**Biostatus:** Indigenous (Endemic).

Naturalised on sea cliffs in Ireland (Walter & Webb, in Tutin et al. 1972) and a cultivation escape in Hawaii (Wagner 1990).

**Habitat:** Coastal sites, usually on cliffs and rock outcrops. Recorded elevations range from 0 to 360 m.

**Recognition:** *Veronica speciosa* plants are very distinctive and characterised by their large, thick, shiny leaves and their large and robust magenta flowers. *V. punicea* is the only other species that is characterised by magenta flowers, but *V. punicea* plants can be distinguished from *V. speciosa* by longer corolla tubes (up to three times the calyx and longer than the lobes), leaf bud without a sinus, branchlets very shortly puberulent, pedicel hairs much shorter, and leaves



**Fig. 1133:** *Veronica speciosa*. Habit. Cultivated plant, Wellington.



**Fig. 1134:** *Veronica speciosa*. Habit. Maunganui Bluff, Northland.



**Fig. 1135:** *Veronica speciosa*. Sprig. Scale = 10 mm.



**Fig. 1136:** *Veronica speciosa*. Leaf bud with rounded sinus. Scale = 1 mm.



**Fig. 1137:** *Veronica speciosa*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1138:** *Veronica speciosa*. Inflorescence (left) and infructescence (right). Scale = 10 mm.



**Fig. 1139:** *Veronica speciosa*. Flowers.  
Scale = 1 mm.



**Fig. 1140:** *Veronica speciosa*. Capsules.  
Scale = 1 mm.



**Fig. 1141:** *Veronica speciosa*. Seeds.  
Scale = 1 mm.

### ***Veronica spectabilis* (Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Parahebe spectabilis* Garn.-Jones in Garnock-Jones & Lloyd, *New Zealand J. Bot.* 42: 223 (2004)

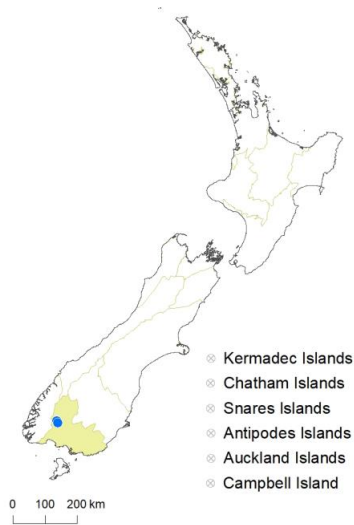
Holotype: New Zealand; Southland; Takitimu Range; ridge between Tower Peak and Excelsior Peak. Rock outcrops, mossy shelves and ledges.

*P. J. Garnock-Jones 2045 & W. M. Malcolm*, 17 Jan 1991, CHR 470109

**Etymology:** The epithet *spectabilis* is a reference to the large flowers characteristic of this species.

Low sub-shrub to 0.2 m tall. Stems trailing, decumbent to ascending, mixed eglandular- and glandular-hairy; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, broadly obovate to spathulate, 4.5–13.0 mm long, 2.5–6.0 mm wide, dull dark green to purplish above and beneath; veins not evident; surfaces sparsely to densely mixed glandular and eglandular hairy; margins mixed ciliate and glandular ciliate, crenate to lobed, rarely entire; lobes in 1–2 pairs; apex rounded or truncate; base cuneate; petiole 1–3 mm long. Inflorescence a lateral few-flowered raceme, 10–25 mm long, or a solitary bibracteate flower; flowers crowded, 2–3 or sometimes 1, all bisexual; bracts opposite, linear to spathulate, > pedicels; pedicels erecto-patent to sub-erect, 2.5–5.0 mm long, mixed glandular- and eglandular-hairy all around. Calyx lobes usually 4, sometimes a short linear 5th lobe present, sub-acute to obtuse, 5.5–9.0 mm long, equal, mixed glandular- and eglandular-hairy. Corolla 18–25 mm diameter; tube white or greenish, 6–7 mm long, = or slightly < calyx, glabrous; lobes 4, white, sub-erect to recurved, sub-equal, obovate

to orbicular, 9–13 mm long, rounded; nectar guides absent. Stamen filaments white, 3–4 mm long; anthers magenta or purple. Style glabrous, 3.5–4.5 mm long. Capsules angustiseptate, emarginate or truncate, mixed glandular- and eglandular-hairy at apex, 4–5 mm long, 4–5 mm at widest point. Seeds ovoid to ellipsoid, weakly flattened, very finely papillate, straw-yellow to pale brown, 1.0–1.4 mm long.



**Fig. 1142:** *Veronica spectabilis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Southland. Known only from the Takitimu Mountains (Tower Peak, Excelsior Peak, Revelation Peaks, headwaters of Spence Burn).

**Biostatus:** Indigenous (Endemic).

**Habitat:** High alpine rock crevices and mossy ledges. Recorded elevations range from 1340 to 1521 m.

**Recognition:** *V. spectabilis* and three similar species, *V. birleyi*, *V. densifolia*, and *V. trifida*, are placed together in the snow hebe group. The unusual and distinctive combination of broad, blunt, dull dark green, hairy leaves, often purplish, especially beneath, white solitary flowers, or two to three together, and short stamens and style enclosed in the corolla tube, distinguish plants of *V. spectabilis* from all other species of *Veronica* except *V. birleyi*. *V. birleyi* plants are generally smaller, and differ from *V. spectabilis* plants in having few glandular hairs on the leaves and inflorescences, shorter inflorescences 2–5 mm long, much smaller flowers, usually with five corolla lobes, and glabrous capsules. In *V. birleyi*, the flowers are closely included among subtending leaves, whereas in *V. spectabilis* the longer peduncles and pedicels tend to cause the flowers to be more exserted. Plants of

*V. trifida* and *V. densifolia* are similar, but have bronze or yellowish leaves, which are narrower, and in *V. densifolia* usually entire.

(See: Table 8)

**Phenology:** Flowers: January; fruits: March–April (persisting longer).

**Cytology:** Chromosome number not determined.

**Hybridisation:** A putative hybrid *V. ciliolata* × *spectabilis* has been collected once (OTA 31255).

**Notes:** *Veronica spectabilis* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010). ITS sequence data (Albach & Meudt 2010) place *V. spectabilis* as sister to *V. trifida* and *V. densifolia* with moderate support. Chloroplast DNA sequences also support a relationship to *V. densifolia*, but inferred relationships within the wider group are different (Albach & Meudt 2010), perhaps due to chloroplast exchange among species. Morphology suggests a close relationship to *V. birleyi*, a hypothesis that has not yet been tested with molecular data.

The seed description is based on very limited material and might not represent the range present.





**Fig. 1143:** *Veronica spectabilis*. Habit. Takitimu Mountains, Southland.



**Fig. 1144:** *Veronica spectabilis*. Sprig. Scale = 10 mm.



**Fig. 1145:** *Veronica spectabilis*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1146:** *Veronica spectabilis*. Bracts, pedicel, and calyx. Scale = 1 mm.



**Fig. 1147:** *Veronica spectabilis*. Flowers. Scale = 1 mm.



**Fig. 1148:** *Veronica spectabilis*. Old capsule and calyx (two lobes removed). Scale = 1 mm.

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## ***Veronica stenophylla* Steudel, *Nomencl. Bot.*, ed. 2, 2, 760 (1841)**

nom. nov. pro *Veronica angustifolia* A.Rich. 1832

≡ *Veronica angustifolia* A.Rich., *Essai Fl. Nouv.-Zél.*, 187 (1832) nom. illeg., non *Veronica angustifolia* Fisch. ex Link 1821

≡ *Hebe stenophylla* (Steudel) Bayly & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 38: 173 (2000)  
Lectotype (designated by Bayly et al. 2000): Herb. Richard, *Veronica angustifolia* Nob., Nlle Zelande, P

= *Veronica squalida* Kirk, *Trans. New Zealand Inst.* 28: 528 (1896)

Lectotype (designated by L.B.Moore, in Allan 1961): Matori, Nelson Province, *T. Kirk*, 9 Feb 1877, WELT 5339

= *Hebe angustifolia* Cockayne & Allan, *Trans. New Zealand Inst.* 57: 23 (1926)

**Etymology:** The epithet *stenophylla* is derived from the Greek for narrow-leaved, a translation of the Latin epithet for the replaced illegitimate name *V. angustifolia*.

Low-spreading to rounded bushy shrub to 2 m tall. Stems usually erect, sometimes decumbent or ascending, usually glabrous or sometimes eglandular-puberulent; hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, spreading and often recurved; lamina sub-coriaceous, linear to narrowly lanceolate, occasionally lanceolate to elliptic, 16–87 mm long, 2.5–6.5, sometimes to 10 mm, wide, usually dull, rarely more or less glossy, pale to dark green above, dull pale green beneath; midrib evident and two lateral veins sometimes visible; surfaces with small, pitted depressions above, each with a minute glandular hair, eglandular-hairy along midrib above; margin usually glabrous, occasionally pubescent, entire; apex acute; base cuneate; petiole indistinct, broadly winged, 1–2 mm long. Inflorescence a lateral raceme, 25–95 mm long; flowers crowded, 35–170, female or bisexual on separate plants, ♀ ≥ ♂; bracts alternate, linear to ovate or deltoid, usually ≤ pedicels; pedicels erecto-patent to spreading, 0.5–5.0 mm long, usually glabrous or with a few short hairs, sometimes puberulent. Calyx lobes 4, obtuse to acute, 1.0–1.5 mm long, sub-equal to unequal, usually eglandular-ciliate or sometimes mixed glandular- and eglandular-ciliate. Corolla 3.5–5.0 mm diameter; tube white, 1.8–4.9 mm long, > calyx usually glabrous or sometimes eglandular-hairy inside; lobes 4, white or tinged purplish, spreading to recurved, unequal, elliptic to orbicular, 1.5–2.0 mm long, obtuse to rounded, posterior sometimes emarginate; nectar guides absent. Stamen filaments white, 2.5–4.4 mm long; anthers magenta. Style glabrous, 3–7 mm long. Capsules latiseptate, acute to obtuse, glabrous, 2.0–3.5 mm long, 0.8–3.0 mm at widest point. Seeds ellipsoid to oblong, flattened, smooth, straw-yellow to pale brown, 0.9–1.5 mm long.

- 1 Leaves lanceolate to elliptic, mostly about 4× as long as wide; lamina glossy on abaxial surface..... var. *oliveri*  
Leaves usually linear to linear-lanceolate, sometimes narrowly elliptic to lanceolate, mostly 5–10× as long as wide; lamina dull to slightly glossy on abaxial surface..... 2
- 2 Pedicels usually glabrous or with a few hairs on the adaxial side, rarely puberulent; corolla tube 3.0–4.9 mm long, glabrous inside..... var. *stenophylla*  
Pedicels puberulent; corolla tube 1.8–3.5 mm long, hairy inside..... var. *hesperia*

**Distribution:** North Island: Auckland (a few sites near Hamilton; e.g., Narrows Bridge, Waikato River), Gisborne (a few scattered sites in the south), Taranaki (near Whanganui and in the Ruahine Range only), southern North Island (Hawke's Bay, Kaweka Range, Kaimanawa Mountains, and Ruahine Range, Manawatu, Wairarapa coast).

South Island: Western Nelson, Sounds Nelson, Marlborough, Westland and Marlborough (north of a line from Cape Farewell to Cape Campbell).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Bluffs, terraces, hillsides, open rocky sites, stream banks, gorges, and roadsides. Recorded elevations range from 0 to 1280 m.

**Recognition:** *Veronica stenophylla* is most often confused with three other species that are characterised by similar narrow leaves: *V. parviflora*, *V. strictissima*, and *V. traversii*. *V. stenophylla* leaf margins are glabrous whereas those of the three similar species have fine, short hairs.

The distribution of *V. stenophylla* overlaps only slightly with *V. traversii* and not at all with *V. strictissima*, but widely overlaps with *V. parviflora*. See the table below for characters to distinguish these species. *V. stenophylla* plants tend to have very slender leaves that are curved backwards, but they vary in this and other characters. The tiny pits on the upper leaf surface can best be seen with a stereo-microscope or good lens, and lighting from the side makes them easiest to see.

(See: Table 7)

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe stenophylla*).

**Notes:** *Veronica stenophylla* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Beever (1991) recorded koromiko tārangā and kōkōmuka tārangā as names in Māori for *V. parviflora*, but that species has since been revised (Bayly et al. 2000), and now it is unclear whether the name applies to *V. parviflora*, *V. stenophylla*, or both.

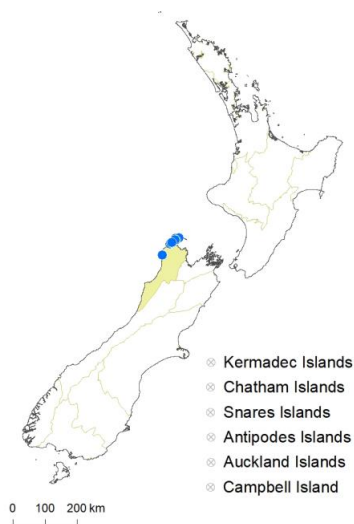
### ***Veronica stenophylla* var. *hesperia* (Bayly & Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe stenophylla* var. *hesperia* Bayly & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 38: 180 (2000)

Holotype: Nelson, c. 2 km southwest of Kaihoka Lakes, on bluffs beside Limestone Road, M. J. Bayly 1149, 28 Jan 1999, WELT 81486. Isotypes: AK, CHR 549400

**Etymology:** The epithet *hesperia* refers to the western distribution of this variety in the far west of Nelson.

Stem pubescence bifarious to uniform. Lamina oblong-elliptic, linear-lanceolate, or lanceolate, 16–62 mm long, 3.5–8.0 mm wide, dull above; stomata sparse except at apex and near midrib; minute pits near margins and sometimes near midrib; margins usually glabrous or sometimes with very fine hairs towards apex. Inflorescence 32–65 mm long; pedicels puberulent. Corolla tube 1.8–3.5 mm long, hairy within.



**Fig. 1149:** *Veronica stenophylla* var. *hesperia* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, near the west coast from Cape Farewell to Heaphy River.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Limestone outcrops and scrub near the coast. Recorded elevations range from 0 to 305 m.

**Phenology:** Flowers: December–March; fruits: January–April (persisting longer).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe stenophylla* var. *hesperia*).

**Notes:** *Veronica stenophylla* var. *hesperia* plants have a range of leaf sizes, even among adjacent plants.



**Fig. 1150:** *Veronica stenophylla* var. *hesperia*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1151:** *Veronica stenophylla* var. *hesperia*. Flower. Scale = 1 mm.

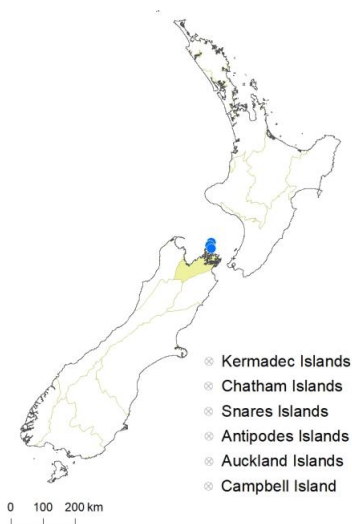
### ***Veronica stenophylla* var. *oliveri* (Bayly & Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe stenophylla* var. *oliveri* Bayly & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 38: 182 (2000)

Holotype: Stephens Island, *W. R. B. Oliver*, Jan 1922, WELT 64970. Isotype: WELT 15028

**Etymology:** The epithet *oliveri* honours Dr W.R.B. Oliver (1883–1957), Director of the Dominion Museum, who first collected it.

Stem pubescence glabrous to bifarious. Lamina lanceolate or elliptic, 22–37 mm long, 5–10 mm wide, glossy above; stomata sparse except near apex; minute pits near margins; margins usually glabrous or sometimes with very fine hairs. Inflorescence 26–60 mm long; pedicels puberulent or glabrous. Corolla tube 2.5–3.8 mm long, glabrous within.



**Fig. 1152:** *Veronica stenophylla* var. *oliveri* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Stephens and Trio Is.).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Wind-shorn scrub on exposed coastal cliffs. Recorded elevations range from 0 to 275 m.

**Recognition:** The glossy and lanceolate to elliptic leaves of this variety resemble those on plants of *V. urvilleana*, which grows on nearby Rangitoto ki te Tonga / D'Urville I. However, the shorter inflorescences and corolla tubes, sparsely hairy corolla tube, and larger capsules of *V. urvilleana* distinguish it.

**Phenology:** Flowers: January–March; fruits: February–April (persisting longer).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe stenophylla* var. *oliveri*).



**Fig. 1153:** *Veronica stenophylla* var. *oliveri*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.

***Veronica stenophylla* Steudel, *Nomencl. Bot.*, ed. 2, 2, 760 (1841)  
var. *stenophylla***

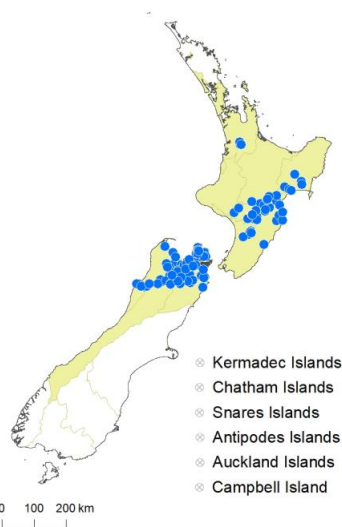
≡ *Hebe stenophylla* (Steudel) Bayly & Garn.-Jones in Bayly et al., *New Zealand J. Bot.* 38: 173 (2000)  
var. *stenophylla*

= *Veronica parviflora* var. *angustifolia* Hook.f., *Bot. Mag.* 98, t. 5965 (1872)

≡ *Hebe parviflora* var. *angustifolia* (Hook.f.) L.B.Moore in Allan, *Fl. New Zealand* 1, 912 (1961)  
Lectotype (designated by Bayly et al. 2000): *Botanical Magazine*: t. 5965 (1872)

= *Veronica angustifolia* var. *abbreviata* Petrie, *Trans. & Proc. New Zealand Inst.* 53: 371 (1921)  
Holotype: Valley of the Ure R., Marlboro [Marlborough], B.C. Aston, early Apr 1915, WELT 5340

Stem pubescence glabrous or bifarious to uniform. Lamina linear to narrow-lanceolate or narrowly elliptic, 19–87 mm long, 2.5–9.5 mm wide, dull above; stomata sparse to dense; minute pits abundant, or confined to near margins; margins usually glabrous or sometimes minutely hairy towards apex. Inflorescence 26–95 mm long; pedicels glabrous. Corolla tube 3.0–4.9 mm long, glabrous within.



**Fig. 1154:** *Veronica stenophylla* var. *stenophylla* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Auckland (a few sites near Hamilton, e.g., Narrows Bridge, Waikato River), Gisborne (a few scattered sites in the south), Taranaki (near Whanganui and in the Ruahine Range only), southern North Island (Hawke's Bay, Kaweka Range, Kaimanawa Mountains, and Ruahine Range, Manawatu, Wairarapa coast).

South Island: Western Nelson, Sounds Nelson, Marlborough, Westland and Marlborough (north of a line from Cape Farewell to Cape Campbell).

A collection labelled Dillon River (Martin, WELT SP082014, not mapped here) might be from south of this range, or it could be from Dillon Creek, close to Blenheim.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Bluffs, terraces, hillsides, open rocky sites, stream banks, gorges, and roadsides. Recorded elevations range from 1 to 1280 m.

**Phenology:** Flowers: December–April (occasionally to September); fruits: January–July, persisting all year.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe stenophylla* var. *stenophylla*).

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**Notes:** *Veronica stenophylla* var. *stenophylla* includes a range of populations that differ morphologically in several characters, particularly habit, leaf shape and size, and distribution of leaf stomata. North Island plants on mudstone usually have lower stature, often narrower leaves and more abundant leaf stomata than plants on greywacke and other rocks. For details, see Bayly & Kellow (2006).



**Fig. 1155:** *Veronica stenophylla* var. *stenophylla*. Habit. St Arnaud, Nelson.



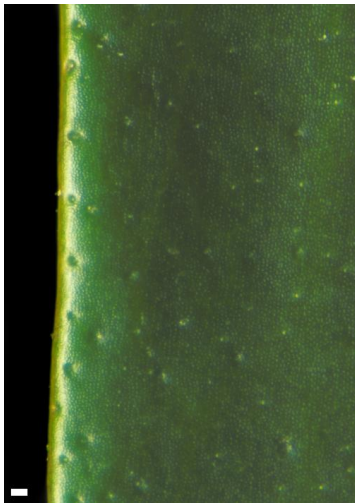
**Fig. 1156:** *Veronica stenophylla* var. *stenophylla*. Sprig. Scale = 10 mm.



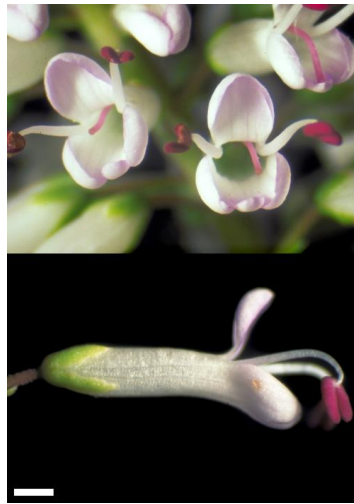
**Fig. 1157:** *Veronica stenophylla* var. *stenophylla*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1158:** *Veronica stenophylla* var. *stenophylla*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1159:** *Veronica stenophylla* var. *stenophylla*. Leaf margin and pitting on adaxial surface. Scale = 0.1 mm.



**Fig. 1160:** *Veronica stenophylla* var. *stenophylla*. Flowers. Scale = 1 mm.



**Fig. 1161:** *Veronica stenophylla* var. *stenophylla*. Capsules. Scale = 1 mm.



**Fig. 1162:** *Veronica stenophylla* var. *stenophylla*. Seeds. Scale = 1 mm.

### ***Veronica stricta* Banks & Sol. ex Benth. in de Candolle, *Prodr.* 10 459 (1846)**

≡ *Veronica salicifolia* var. *stricta* (Banks & Sol. ex Benth.) Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zel.) Part I*, 191 (1853)

≡ *Hebe salicifolia* var. *stricta* (Banks & Sol. ex Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 17 (1926)

≡ *Hebe stricta* (Banks & Sol. ex Benth.) L.B.Moore in Allan, *Fl. New Zealand* 1, 904 (1961)  
Lectotype (designated by Moore, in Allan 1961; designated more precisely by Bayly & Kellow 2004): Auckland, N. Z., *Sinclair*, Herb. Hookerianum K, four uppermost pieces on sheet only (sheet also includes another Sinclair specimen, of two pieces, from Thames)

**Etymology:** The epithet *stricta* is from Latin *strictus*, meaning straight or tight. Bayly and Kellow (2006) consider it might apply to the leaves or to the habit.

**Vernacular names:** korohiko; korokio; koromiko; koromuka; kōkoromiko; kōkoromuka; kōkōmuka

Spreading to erect, low to tall bushy shrub to 4 m tall. Stems usually erect, sometimes decumbent to ascending, eglandular-puberulent to pubescent or glabrous; hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to recurved; lamina thin to sub-coriaceous, rarely coriaceous, linear, lanceolate, oblanceolate, narrowly to broadly elliptic, ovate, obovate, or oblong, 19–127 mm long, 5.5–45.0 mm wide, dull to slightly glossy pale to dark or yellowish-green above, dull pale green beneath; midrib evident, secondary veins usually evident, sometimes faint; surfaces usually with very short eglandular hairs near midrib above and beneath, rarely glabrous or covered with mixed glandular and eglandular hairs when young; margin ciliolate, sometimes glabrous, rarely pubescent, usually entire, rarely minutely and distantly toothed; apex acute to acuminate, sometimes obtuse; base cuneate; petiole indistinct, broadly winged, 2–7 mm long. Inflorescence a lateral raceme, 26–215 mm long; flowers crowded, 35–300, female or bisexual on separate plants, ♂ ≈ ♀; bracts alternate to loosely whorled, the lowest sometimes sub-opposite, linear, lanceolate, oblong, oblanceolate, deltoid, or ovate, ≤ pedicels; pedicels erecto-patent to spreading, often recurved at fruiting, 0.5–4.3 mm long, puberulent to pubescent all around. Calyx lobes 4 or small 5th posterior lobe rarely present, usually narrowly acute to acuminate, sometimes obtuse to rounded, 1.5–2.8 mm long, sub-equal, mixed glandular- and eglandular-ciliolate, usually pubescent on outer faces but glabrous in southern plants. Corolla 3–6 mm diameter; tube white, 1.5–5.0 mm long, > calyx or rarely < calyx, eglandular-hairy inside and sometimes outside; lobes 4, white or pale purplish or bluish, sub-erect to erecto-patent, sub-equal, elliptic to ovate or obovate to oblanceolate, 1.5–3.5 mm long, usually rounded, sometimes sub-acute to obtuse; nectar guides absent. Stamen filaments white, 3.2–6.5 mm long; anthers usually mauve to purple, sometimes white to buff. Style glabrous or eglandular-hairy, 6–10 or rarely 2.3–6.0 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous or eglandular-hairy, 1.3–4.0 mm long, 2.0–3.3 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, straw-yellow to pale brown, 0.9–1.5 mm long.

- 1 Leaves narrowly lanceolate to linear (Mt Taranaki, Pouakai Range, lowland to sub-alpine)..... var. *egmontiana*  
 Leaves lanceolate to broadly obovate, only rarely narrowly lanceolate to linear (throughout range of species, but rare at base of Mt Taranaki).....2
- 2 Plants compact, <1 m tall; leaves sub-coriaceous to coriaceous (Raukūmara Range to Kaimanawa Mountains and Kaweka Range, sub-alpine)..... var. *lata*  
 Plants often tall and openly branching shrubs, mostly >1 m tall except on exposed coastal sites, leaves thin to sub-coriaceous (throughout range of the species)..... var. *stricta*

**Distribution:** North Island: throughout.

South Island: Western Nelson (near the coast of western Golden Bay), Sounds Nelson (near the coast), Marlborough (coastal) North Canterbury (near the coast north of Napenape).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Lowland to sub-alpine, usually in open sites: rock outcrops, banks, roadsides, scrub, forest clearings, slips, etc., and may be weedy in urban areas. Recorded elevations range from 0 to 1451 m.

**Recognition:** *Veronica stricta* is a widespread and variable species. Its characteristic features, which are, however, not constant everywhere, are: tall shrubby habit; stems usually uniformly puberulent; sinus absent; leaves quite large and usually thin, apex often acuminate; flowers small and crowded in long, slender, cylindrical inflorescences; calyx lobes narrowly triangular or narrowly lanceolate, usually acute to acuminate, often pubescent on outer face; corolla tube longer than calyx, corolla lobes short, narrow, and sub-erect to erecto-patent; and capsules small and crowded, often on recurved pedicels.

Varieties and segregate species have been recognised based principally on leaf shape and calyx indumentum, but there is uncorrelated variation also in other characters, such as stem pubescence, calyx lobe length, corolla tube and lobe length and shape, inflorescence length and flower number, and capsule size and shape.

Plants with narrow leaves may be difficult to distinguish from *V. angustissima*, for which this is the only visible character. Plants with leaves in the range that characterises *V. angustissima* may occasionally be found in all of the varieties of *V. stricta*, and the recognition of *V. angustissima* at species rank depends on its different flavonoid profile (Bayly & Kellow 2006; Mitchell et al. 2007). The *V. stricta* plants that most often have such narrow leaves are from Mt Taranaki and are classified as var. *egmontiana*, which is a tetraploid race there (see below).



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According to Webb and Simpson (2001), seed size ranges from 0.7–1.0 mm long (var. *stricta* as circumscribed here) to 0.9–1.5 mm (var. *lata*).

**Phenology:** Flowers: January–May (sometimes extending to September); fruits: January–September.

**Cytology:**  $2n = 40$  (commonly),  $2n = 80$  in *V. stricta* var. *egmontiana* and var. *lata* and some northern plants of var. *stricta* (see Bayly & Kellow 2006, as *Hebe stricta*).

**Notes:** *Veronica stricta* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Moore (in Allan 1961) and Bayly and Kellow (2006) recognised more varieties than I do below. *V. stricta* var. *stricta*, as circumscribed here, is variable in many characters, but the variation is not correlated, so that broad-leaved plants in coastal habitats (formerly often identified as var. *macroua*) match their local narrow-leaved populations in other characters (e.g., stems glabrous, midribs more-or-less glabrous, leaf margins densely hairy, calyx lobes pubescent on surfaces in East Cape and Hawke’s Bay; stems and midribs puberulent, leaf margins usually ciliolate, calyx lobes glabrous on surfaces in Wellington). In Gisborne and Hawke’s Bay, plants on the coast and inland may have very long inflorescences, up to 215 mm long at times. Such complex patterns of variation indicate that recognising varieties based on one or two characters is not biologically meaningful.

Variation in other characters within *V. stricta* (e.g., calyx lobe length, corolla form, leaf pubescence) has not been recognised with named varieties. I have recognised three varieties: *V. stricta* var. *stricta*, var. *egmontiana*, and var. *lata*. The last two have  $2n = 80$ ; population genetic research might show them to be independent lineages worthy of species rank, but if so they are still difficult to characterise on morphological characters.

### ***Veronica stricta* var. *egmontiana* (L.B.Moore) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe stricta* var. *egmontiana* L.B.Moore in Allan, *Fl. New Zealand* 1, 907 (1961)

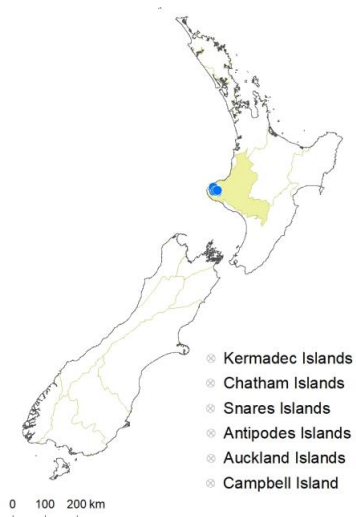
Holotype: Mt Egmont, subalpine scrub, *L. Cockayne* No. 8162, 18 March 1916, WELT 5365.

Isotypes: AK 7778, CHR 328767 (large piece on left only; small piece on right is probably *V. phormiiphila*, i.e., not part of the same gathering as the holotype), CHR 328766, K

**Etymology:** The epithet *egmontiana* is a reference to the English-language name for Mt Taranaki, Mt Egmont, where the variety is found.

**Vernacular name:** koromiko

Stems black when dry, glabrous or with bifarious, eglandular hairs. Leaves narrowly lanceolate to linear, 36–106 mm long, 5.5–14.5 mm wide; lamina sub-coriaceous, sparsely eglandular-puberulent on midrib above, glabrous on midrib beneath; margin glabrous at the edge but a few short papillae on lamina near the margin above. Calyx lobes glabrous on faces, mixed glandular- and eglandular-ciliolate on margins. Corolla tube = lobes.



**Fig. 1163:** *Veronica stricta* var. *egmontiana* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Taranaki (Mt Taranaki and Pouakai Range).

**Biostatus:** Indigenous (Endemic).

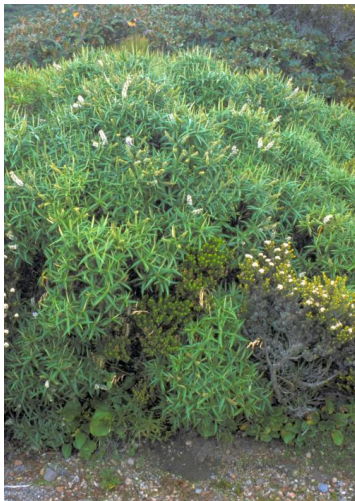
**Habitat:** Forest margins and scrub, lowland to sub-alpine. Recorded elevations range from 335 to 1311 m.

**Recognition:** *V. stricta* var. *egmontiana* plants are recognised by their narrow sub-coriaceous leaves. They share glabrous stems and glabrous faces of the calyx lobes with var. *lata* and some plants of var. *stricta*. *V. stricta* var. *lata* plants are distinguished from var. *egmontiana* plants by their broader, firmer-textured leaves, which have short cilia along the margins.

**Phenology:** Flowers: January–May; fruits: January–May, persisting all year.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe stricta* var. *egmontiana*).

**Notes:** The name koromiko is probably also applied to this variety, but no specific names have been recorded.



**Fig. 1164:** *Veronica stricta* var. *egmontiana*. Habit. Mt Taranaki.



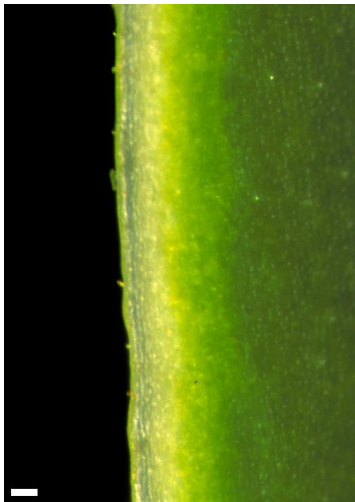
**Fig. 1165:** *Veronica stricta* var. *egmontiana*. Sprig. Scale = 10 mm.



**Fig. 1166:** *Veronica stricta* var. *egmontiana*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1167:** *Veronica stricta* var. *egmontiana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1168:** *Veronica stricta* var. *egmontiana*. Leaf margin, showing distant very short hairs. Scale = 0.1 mm.



**Fig. 1169:** *Veronica stricta* var. *egmontiana*. Flowers. Scale = 1 mm.

### ***Veronica stricta* var. *lata* (L.B.Moore) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

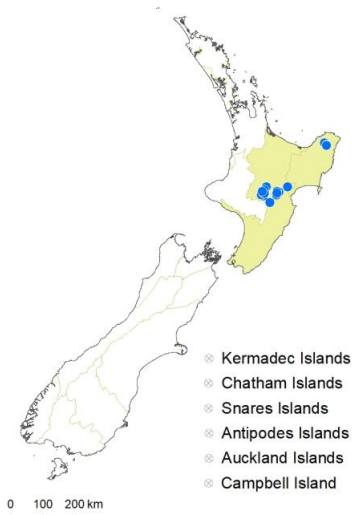
≡ *Hebe stricta* var. *lata* L.B.Moore in Allan, *Fl. New Zealand* 1, 907 (1961)

Holotype: Kaweka Mountains, west of Kuripapango Hill, c. 4400 ft, on rocky outcrop, A. P. Druce (457), 5 May 1959, CHR 76144. Isotype: K

**Etymology:** The epithet *lata* refers to the low-spreading habit.

**Vernacular name:** koromiko

Stems brown to dark brown when dry, glabrous or sometimes a few very short hairs in bifarious bands. Leaves lanceolate, narrowly elliptic, or oblanceolate, 26.0–70.5 mm long, 5.7–16.0 mm wide; lamina sub-coriaceous to coriaceous, eglandular-puberulent on midrib above, glabrous on midrib beneath; margin usually puberulent or rarely glabrous. Calyx lobes glabrous on faces, mixed glandular- and eglandular-ciliolate on margins; corolla tube > lobes.



**Fig. 1170:** *Veronica stricta* var. *lata* distribution map based on databased records at AK, CHR & WELT. tubes (1.5–3.5 mm long).

**Distribution:** North Island: Gisborne, Volcanic Plateau, southern North Island (Raukūmara Range, Kaimanawa Mountains, Huiarau Range, Maungaharuru Range, and Kaweka Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Tussock grassland, low shrub, and open rocky sites above tree line. Recorded elevations range from 457 to 1525 m.

**Recognition:** *Veronica stricta* var. *lata* plants are characteristically low-growing and compact, spreading shrubs with usually glabrous or sometimes sparsely bifariouly puberulent stems and firm, sub-coriaceous to coriaceous leaves. *V. stricta* var. *egmontiana* plants are distinguished by their narrower leaves, which are glabrous along the margins, although they may have short hairs just in from the margins.

Coastal forms of *V. stricta* (sometimes treated as var. *macroura* or under a broad concept of var. *stricta*) can have rather thick leaves of similar size and shape to leaves of var. *lata*, but these plants are diploid ( $2n = 40$ ). They usually have hairs on the outer faces of the calyx lobes and shorter corolla

**Phenology:** Flowers: January–March; fruits: March, persisting all year?

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe stricta* var. *lata*).

**Notes:** The name koromiko is probably also applied to this variety, but no specific names have been recorded.



**Fig. 1171:** *Veronica stricta* var. *lata*. Habit. Kaweka Range, Hawkes Bay.



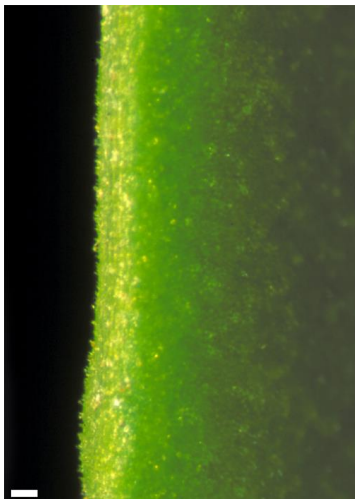
**Fig. 1172:** *Veronica stricta* var. *lata*. Sprig. Scale = 10 mm.



**Fig. 1173:** *Veronica stricta* var. *lata*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1174:** *Veronica stricta* var. *lata*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1175:** *Veronica stricta* var. *lata*. Leaf margin, showing very short hairs. Scale = 0.1 mm.



**Fig. 1176:** *Veronica stricta* var. *lata*. Flowers. Scale = 1 mm.



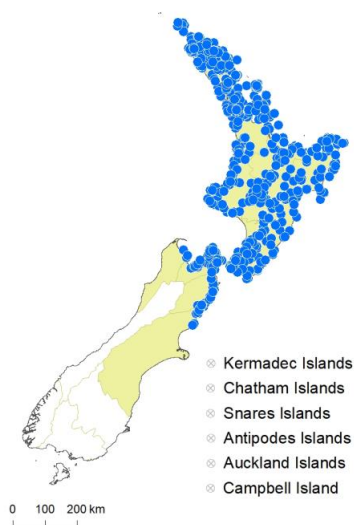
**Fig. 1177:** *Veronica stricta* var. *lata*. Capsules. Scale = 1 mm.

## ***Veronica stricta* Banks & Sol. ex Benth. in de Candolle, *Prodr.* 10 459 (1846) var. *stricta***

- = *Veronica lindleyana* Paxton, *Paxton's Mag. Bot.* 12: 247 (1846)  
≡ *Veronica stricta* var. *lindleyana* (Paxton) J.B.Armstr., *Trans. New Zealand Inst.* 13: 356 (1881)
- = *Veronica macroura* Hook.f. ex Benth. in de Candolle, *Prodr.* 10 459 (1846)  
≡ *Hebe macroura* (Hook.f. ex Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 15 (1926)  
≡ *Hebe stricta* var. *macroura* (Hook.f. ex Benth.) L.B.Moore in Allan, *Fl. New Zealand 1*, 906 (1961)  
≡ *Veronica stricta* var. *macroura* (Hook.f. ex Benth.) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)  
Holotype: "*Veronica macroura* Hook fil", N. Zealand, Herb. Benthamianum, K
- = *Veronica cookiana* Colenso, *Trans. & Proc. New Zealand Inst.* 20: 201 (1888)  
≡ *Veronica macroura* var. *cookiana* (Colenso) Cheeseman, *Man. New Zealand Fl.* 501 (1906)  
≡ *Hebe cookiana* (Colenso) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 16 (1926)  
Lectotype (designated by Moore, in Allan 1961): Table Cape plant, *H. Hill*, 1887, Herb. Colenso, WELT 5315
- = *Veronica parkinsoniana* Colenso, *Trans. & Proc. New Zealand Inst.* 21: 97 (1889)  
≡ *Hebe parkinsoniana* (Colenso) Cockayne, *Trans. New Zealand Inst.* 60: 472 (1929)  
Type: none designated
- = *Veronica salicifolia* var. *atkinsonii* Cockayne, *Trans. New Zealand Inst.* 48: 200 (1916)  
≡ *Hebe salicifolia* var. *atkinsonii* (Cockayne) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
≡ *Hebe stricta* var. *atkinsonii* (Cockayne) L.B.Moore in Allan, *Fl. New Zealand 1*, 906 (1961)  
Type: none designated (see notes by Moore in Allan 1961)
- = *Veronica salicifolia* var. *longiracemosa* Cockayne, *Trans. & Proc. New Zealand Inst.* 49: 61 (1917)  
≡ *Hebe salicifolia* var. *longiracemosa* (Cockayne) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 18 (1926)  
Lectotype (designated by Moore, in Allan 1961): on steep bank at outskirts of forest, Moumahaki (Egmont-Wanganui bot. distr. of N. Z.), lowland belt, *L. Cockayne 8163*, March 1916, K
- = *Hebe stricta* (Banks & Sol. ex Benth.) L.B.Moore in Allan, *Fl. New Zealand 1*, 904 (1961) var. *stricta*

**Vernacular names:** korohiko; korokio; koromiko; koromuka; kōkoromiko; kōkoromuka; kōkōmuka

Stems brown to black when dry, glabrous to densely puberulent. Leaves lanceolate to elliptic to oblanceolate or obovate, 19–127 mm long, 5.5–45.0 mm wide; lamina thin to sub-coriaceous, usually puberulent to pubescent on midribs and margins, occasionally glabrous on midribs, rarely glabrous on margins. Calyx lobes pubescent (north of about Manawatu Gorge) or glabrous on faces, mixed glandular- and eglandular-ciliolate on margins; corolla tube ≥ lobes.



**Fig. 1178:** *Veronica stricta* var. *stricta* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: throughout.

South Island: Western Nelson (near the coast of western Golden Bay), Sounds Nelson (near the coast), Marlborough (coastal), North Canterbury (near the coast north of Napenape).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Coastal to montane, usually in open sites: rock outcrops, banks, roadsides, scrub, forest clearings, slips, etc., and may be weedy in urban areas. Recorded elevations range from 0 to 1451 m.

**Recognition:** *Veronica stricta* var. *stricta* as circumscribed here is a variable complex of regional forms. Plants are large shrubs with glabrous to puberulent, rarely pubescent, stems, thin to sub-coriaceous leaves that are usually hairy along the midrib above and below and ciliolate along the margins.

Coastal plants throughout its range tend to have broader, more coriaceous leaves, often obovate. North of about Manawatu Gorge plants have hairs on the faces of the calyx lobes, whereas further south the calyx lobes are ciliolate on

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the margins only. Plants in Gisborne and East Cape tend to have very long inflorescences and may have glabrous stems.

In Coromandel and on Great Barrier I. (Aotea I.) some plants have longer hairs on the leaf midribs and margins and thus approach the appearance of *V. pubescens*. *V. pubescens* can usually be distinguished by having a small sinus in the leafy bud (but this is often obscured by dense hairs) and hairy corolla lobes (outside).

In the South Island, *V. stricta* var. *stricta* overlaps slightly in its distribution with the similar *V. salicifolia*. The most reliable distinction is the presence of a leaf bud sinus in *V. salicifolia* plants, absent in *V. stricta* plants.

**Phenology:** Flowers: January–July, extending to September; fruits: January–September, persisting all year.

**Cytology:**  $2n = 40, 80$  (see Bayly & Kellow 2006, as *Hebe stricta* var. *stricta*).

**Hybridisation:** It is likely that *V. stricta* hybridises with other species, which could explain some of its variability. Binomial names believed to be based on hybrids are listed below:

*Veronica* × *affinis* (Cheeseman) Garn.-Jones, *New Zealand Journal of Botany* 46: 524 (2008)  
≡ *Veronica macrocarpa* var. *affinis* Cheeseman, *Manual of the New Zealand Flora*: 505 (1906). ≡  
*Hebe* × *affinis* (Cheeseman) Cockayne & Allan, *Transactions of the New Zealand Institute* 57: 20 (1926). The plants are considered to be *V. macrocarpa* × *stricta*. The illegitimate name *Hebe* × *macrosala* also applies to this hybrid group (see Garnock-Jones 2008). *Veronica macrocarpa* × *stricta* (Garnock-Jones 2008).

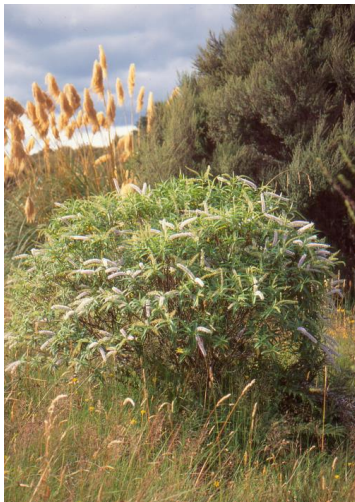
*Veronica* × *carsei* Petrie, *Transactions of the New Zealand Institute* 55: 96 (1924, as *V. carsei*).  
≡ *Hebe carsei* (Petrie) Cockayne, *Transactions of the New Zealand Institute* 60: 469 (1929).  
= *Hebe* × *laevisala* Cockayne & Allan, *Transactions of the New Zealand Institute* 57: 46 (1926).  
Thought to be *Veronica stricta* var. *stricta* × *V. venustula* (Garnock-Jones 2008).

*Veronica* × *simmonsii* Cockayne, *Transactions of the New Zealand Institute* 48: 202 (1916).  
≡ *Hebe* × *simmonsii* (Cockayne) Cockayne & Allan, *Transactions of the New Zealand Institute* 56: 20 (1926). = *Hebe* × *angustisala* Cockayne & Allan, *Transactions of the New Zealand Institute* 57: 46 (1926). Specimens are consistent with parentage (*V. stenophylla* × *V. stricta* var. *atkinsonii*) suggested in the protologue (Garnock-Jones 2008).

**Notes:** Previous treatments (Moore, in Allan 1961; Bayly & Kellow 2006) have recognised further varieties that here are included under var. *stricta*. The patterns of variation are more complex than reliance on a few characters, such as sepal indumentum (var. *atkinsonii*) and leaf width (var. *macroura*), would indicate.

### Cultivars

*Veronica* × *andersonii* Lindley & Paxton, *Paxton's Flower Garden* 2: t. 38 (1851, as *V. andersonii*). ≡  
*Hebe* × *andersonii* (Lindl. & Paxton) Cockayne, *Transactions of the New Zealand Institute* 60: 468 (1929). Likely to be *V. speciosa* × *stricta* (Heenan 1994a). Heenan (1994a) clarified the origins and naming of several cultivars of *V. ×andersonii* (as *Hebe ×andersonii*).



**Fig. 1179:** *Veronica stricta* var. *stricta*. Habit. Pokaka, Volcanic Plateau.



**Fig. 1180:** *Veronica stricta* var. *stricta*. Habit. French Pass, Nelson.



**Fig. 1181:** *Veronica stricta* var. *stricta*. Sprig from a narrow-leaved plant. Near Rangiwahia, Manawatu. Scale = 10 mm.



**Fig. 1182:** *Veronica stricta* var. *stricta*. Sprig from a broad-leaved coastal plant. Makarori, Gisborne. Scale = 10 mm.



**Fig. 1183:** *Veronica stricta* var. *stricta*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1184:** *Veronica stricta* var. *stricta*. Leaf surfaces of a narrow-leaved plant, adaxial (left) and abaxial (right). Scale = 10 mm.





**Fig. 1185:** *Veronica stricta* var. *stricta*. Leaf surfaces of a broad-leaved coastal plant, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1186:** *Veronica stricta* var. *stricta*. Leaf margins showing minute hydathode teeth. Scale = 1 mm.



**Fig. 1187:** *Veronica stricta* var. *stricta*. Inflorescence of female flowers. Scale = 1 mm.



**Fig. 1188:** *Veronica stricta* var. *stricta*. Inflorescence of bisexual flowers. Scale = 1 mm.



**Fig. 1189:** *Veronica stricta* var. *stricta*. Flowers of a northern plant with hairy calyx lobes. Scale = 1 mm.



**Fig. 1190:** *Veronica stricta* var. *stricta*. Flowers of a southern plant with ciliate calyx lobes. Scale = 1 mm.



**Fig. 1191:** *Veronica stricta* var. *stricta*. Capsules. Scale = 1 mm.



**Fig. 1192:** *Veronica stricta* var. *stricta*. Seeds. Scale = 1 mm.

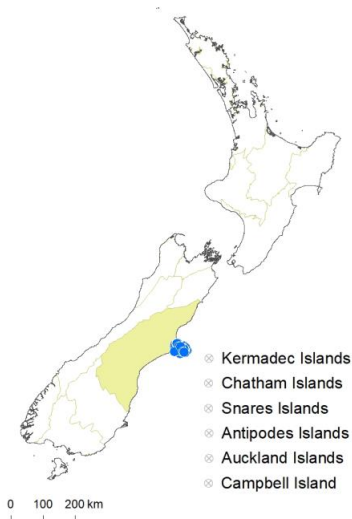
***Veronica strictissima* (Kirk) Garn.-Jones in Garnock-Jones et al.,  
Taxon 56: 579 (2007)**

- ≡ *Veronica parviflora* var. *strictissima* Kirk, *Trans. New Zealand Inst.* 28: 527 (1896)
- ≡ *Veronica leiophylla* var. *strictissima* (Kirk) Cockayne, *Cawthron Lecture* 3, 11 (1920)
- ≡ *Hebe leiophylla* var. *strictissima* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 24 (1926)
- ≡ *Hebe strictissima* (Kirk) L.B.Moore in Allan, *Fl. New Zealand* 1, 916 (1961)

Lectotype (designated by Moore, in Allan 1961): Akaroa, *T. Kirk*, Jan 1876, WELT 5341.  
Isolectotype: AK 7879

**Etymology:** The epithet *strictissima* is from the superlative form of *strictus*, meaning the most straight or tight, probably a reference to the inflorescences (Bayly & Kellow 2006).

Bushy shrub to 2.5 m tall. Stems erect, eglandular-puberulent or glabrous, hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, linear, linear-lanceolate or narrowly oblong, 9–49 mm long, 3–8 mm wide, dull, green above, pale green beneath; midrib evident and two lateral veins sometimes evident; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous or minutely papillate to minutely eglandular-hairy, entire; apex sub-acute to acute or shortly plicate-acuminate; petiole indistinct, broadly winged, 1–3 mm long. Inflorescence a lateral raceme, 17–107 mm long; flowers crowded, 11–72, female or bisexual on separate plants, ♂ > ♀; bracts alternate, ovate or deltoid to narrowly deltoid, < pedicels; pedicels spreading, 1–4 mm long, short eglandular-hairy, sometimes sparsely, in one row or all around. Calyx lobes 4, obtuse to rounded, 1.2–1.5 mm long, sub-equal, mixed glandular- and eglandular-ciliolate, sometimes sparsely. Corolla 4.0–6.5 mm diameter; tube white, 1.4–2.9 mm long, = or slightly > calyx, eglandular-hairy inside; lobes 4, white or sometimes pale purplish, spreading to recurved, unequal, elliptic, ovate, or orbicular, 2.0–3.2 mm long, obtuse to rounded, posterior sometimes emarginate; nectar guides absent. Stamen filaments white, 3–5 mm long; anthers dark magenta or purple. Style glabrous or sometimes eglandular-hairy, 2.3–6.0 mm long. Capsules latiseptate, sub-acute to obtuse, usually glabrous or occasionally eglandular-hairy, 2.9–4.0 mm long, 2.2–2.6 mm at widest point. Seeds broadly ellipsoid, flattened, smooth, brown, 1.0–1.6 mm long.



**Fig. 1193:** *Veronica strictissima* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Canterbury (confined to Banks Peninsula and the Port Hills).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Rock outcrops, stony ridges, cliffs, scrub, roadside banks. Recorded elevations range from 3 to 853 m.

**Recognition:** *V. strictissima* can be confused with *V. parviflora* and *V. stenophylla*, but plants of those species have longer corolla tubes that clearly exceed the calyx and shorter capsules about twice the calyx or less. *V. traversii* plants are also similar, but differ in their much longer corolla tubes.

(See: Table 7)

**Phenology:** Flowers: December–March, extending to June; fruits: January–June.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe strictissima*).

**Hybridisation:** A plant intermediate between *V. salicifolia* and *V. strictissima* has been collected (WELT 84066) and is probably a hybrid.

**Notes:** *Veronica strictissima* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Only four other indigenous species of *Veronica* are known from Banks Peninsula. The others, *V. lavaudiana*, *V. lyallii*, *V. odora*, and *V. salicifolia*, are all very different and unlikely to be confused with *V. strictissima*.

Reproduction of *V. strictissima* was extensively studied by Delph (1990), who showed that fruit set on hermaphrodite plants, but not on females, is highly variable and related to plant vigour. Fruit set on hermaphrodites is also higher in populations with fewer females.



**Fig. 1194:** *Veronica strictissima*. Habit. Lake Forsyth / Wairewa, Canterbury.



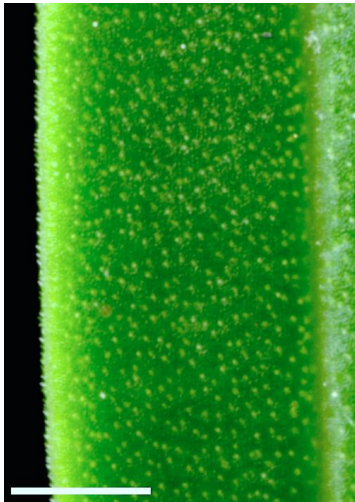
**Fig. 1195:** *Veronica strictissima*. Sprig. Scale = 10 mm.



**Fig. 1196:** *Veronica strictissima*. Leaf bud with no sinus. Scale = 1 mm.



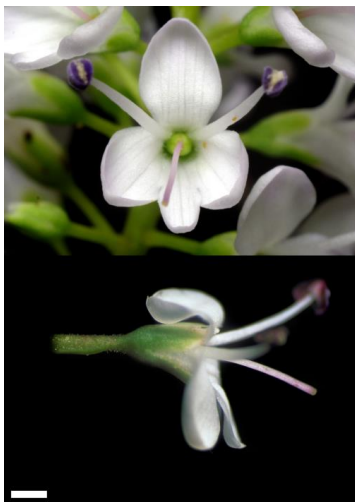
**Fig. 1197:** *Veronica strictissima*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1198:** *Veronica strictissima*. Leaf margin showing minute hairs. Scale = 1 mm.



**Fig. 1199:** *Veronica strictissima*. Inflorescence. Scale = 10 mm.



**Fig. 1200:** *Veronica strictissima*. Bisexual flowers. Scale = 1 mm.



**Fig. 1201:** *Veronica strictissima*. Infructescence. Scale = 1 mm.



**Fig. 1202:** *Veronica strictissima*. Capsules.  
Scale = 1 mm.

### ***Veronica subalpina* Cockayne, *Trans. New Zealand Inst.* 31: 420 (1899)**

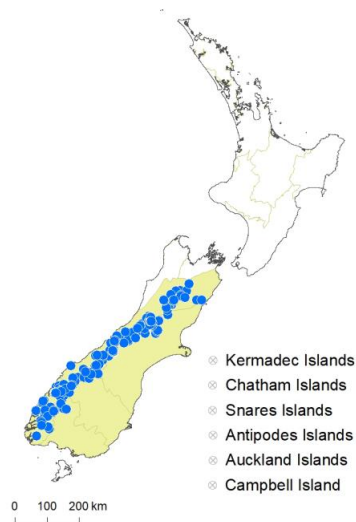
- ≡ *Hebe subalpina* (Cockayne) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)  
Lectotype (designated by Moore, in Allan 1961): Mt Rangi Taipo, Westland, L. Cockayne 8030, Jan 1896, AK 8012
- = *Veronica montana* J.B.Armstr., *N.Z. Ctry. J.* 3: 58 (1879) nom. illeg., non *Veronica montana* L. 1755
- ≡ *Veronica monticola* J.B.Armstr., *Trans. New Zealand Inst.* 13: 354 (1881) nom. illeg., non *Veronica monticola* Trautv. 1866
- ≡ *Hebe monticola* Andersen, *Trans. New Zealand Inst.* 56: 693 (1926) nom. nov. pro *Veronica montana* J.B.Armstr. 1879
- ≡ *Hebe montana* (J.B.Armstr.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 31 (1926) nom. illeg.
- ≡ *Hebe monticola* A.Wall, *Trans. & Proc. New Zealand Inst.* 60: 385 (1929) nom. illeg., non *Hebe monticola* Andersen 1926  
Lectotype (designated by Moore, in Allan 1961): Rangitata Valley, J. F. Armstrong, 1869, CHR 635761
- = *Hebe fruticeti* G.Simpson & J.S.Thomson, *Trans. Roy. Soc. New Zealand* 70: 30 (1940)  
Lectotype (designated by Moore, in Allan 1961): Head of Estuary Burn, Lake Wanaka, Otago, sub-alpine scrub, G. Simpson & J. S. Thomson, CHR 33029

**Etymology:** The epithet *subalpina* refers to the sub-alpine habitat where plants are found.

**Vernacular name:** mountain koromiko

Bushy or spreading low shrub to 1.4 m tall. Stems decumbent to erect, eglandular-pubescent, glabrous with age; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous to coriaceous, lanceolate to elliptic to oblong-elliptic, rarely linear-lanceolate, 7–51 mm long, 3–11 mm wide, glossy, pale to dark green above, pale green beneath; midrib evident; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous, narrowly cartilaginous, entire; apex sub-acute to obtuse, not or very weakly plicate-acuminate; base cuneate to abruptly cuneate; petiole absent or indistinct, 0–2 mm long. Inflorescence a lateral raceme, 11–60 mm long; flowers crowded, 4–32, female or bisexual on separate plants, ♂ > ♀; bracts alternate, lanceolate to ovate, ≤ pedicels; pedicels erecto-patent, 0.8–5.5 mm long, pubescent or puberulent, occasionally a few hairs glandular. Calyx lobes 4, sub-acute to acute, 1.6–2.3 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 5–10 mm diameter; tube white, 1.0–2.2 mm long, ≥ calyx, eglandular-hairy inside; lobes 4, white, rarely pale pink, erecto-patent to spreading, unequal, lanceolate to broadly ovate or elliptic, oblong, or deltoid, 2.5–5.0 mm long, sub-acute to obtuse; nectar guides absent. Stamen filaments white, 3–6 mm long; anthers pink to magenta. Style glabrous, 4–10 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 3–5 mm long, 2.4–3.0 mm at widest point (rarely up to 6.5

mm long, 3.5 mm wide). Seeds ellipsoid, sometimes broadly, flattened, smooth, pale brown, 1.2–2.0 mm long.



**Fig. 1203:** *Veronica subalpina* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland (from Nelson Lakes National Park southwards) and western parts of Marlborough, Canterbury, Otago, and Southland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland, penalpine grassland, occasionally in beech forest near the tree line and along stream banks. Recorded elevations range from 300 m (there is one record at 182 m) to 1525 m.

**Recognition:** *V. subalpina* is most likely to be confused with *V. rakaiensis*, *V. treadwellii*, and *V. urvilleana*.

*V. rakaiensis* plants may be distinguished by their broader, more obovate leaves, with minutely plicate-apiculate apices and minute hairs on the margins, some of the calyx lobes rounded at the apex, the corolla lobes rounded and usually sparsely to moderately ciliate or ciliate, and the ovary and often the base of the style hairy.

*V. treadwellii* plants may be distinguished by their low-spreading habit, broader, dished, obovate to oblanceolate or elliptic leaves, and often longer corolla tubes (1.9–3.5 mm long).

*V. urvilleana* plants are very similar and differ in quantitative characters that overlap in values. Their leaves and flowers are mostly smaller, and they have fewer ovules per ovary. They also differ in chromosome number.

*V. calcicola* plants have hairy ovaries and capsules, hairy leaf margins, and short, rounded corolla lobes. All plants of *V. calcicola* apparently have combined sexes.

Plants of *V. truncatula*, known only from the Ruahine Range, North Island, are similar to *V. subalpina*, but have a few consistent differences. Their leaf margins are minutely ciliolate and thus similar in this feature to *V. rakaiensis*. In addition, they have more flowers (28–68) per inflorescence, which may be loosely whorled, and sometimes there is a tail of undeveloped flower buds at the tip of the inflorescence, all features seen in *V. stricta* and similar species. Also, the flower shape is reminiscent of *V. stricta*. *V. truncatula* plants also have rather narrower leaves than is usual in *V. subalpina*, although there is overlap in the ranges, and *V. truncatula* leaves have few or no evident stomata on the upper surface (*V. subalpina* leaves tend to have abundant stomata). The leaf of *V. truncatula* has a distinctive apex, in which the broad plicate-acuminate tip is minutely truncate and somewhat hollowed on the adaxial surface.

**Phenology:** Flowers: November–February; fruits: December–May, persisting longer.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe subalpina*).

**Notes:** *Veronica subalpina* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006). *V. subalpina* might be sister species to *V. treadwellii*; this is supported by their close similarity and analysis of ITS sequence data.



**Fig. 1204:** *Veronica subalpina*. Habit. Matukituki Valley, Otago.



**Fig. 1205:** *Veronica subalpina*. Habit. Mt Wilberg, Westland.



**Fig. 1206:** *Veronica subalpina*. Sprig. Scale = 10 mm.



**Fig. 1207:** *Veronica subalpina*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1208:** *Veronica subalpina*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1209:** *Veronica subalpina*. Leaf apex and glabrous margin. Scale = 1 mm.



**Fig. 1210:** *Veronica subalpina*. Inflorescences, with bisexual flowers (left) and female flowers (right). Scale = 10 mm.



**Fig. 1211:** *Veronica subalpina*. Bisexual flowers. Scale = 1 mm.



**Fig. 1212:** *Veronica subalpina*. Female flowers. Scale = 1 mm.



**Fig. 1213:** *Veronica subalpina*. Capsules. Scale = 1 mm.

### ***Veronica subfulvida* (G.Simpson & J.S.Thomson) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe subfulvida* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 73: 163 (1943)  
Lectotype (designated by Moore in Allan 1961): Pelorus Valley, stream banks, G. Simpson, CHR 76003. Isolectotype: CHR 76012

= *Veronica menziesii* var. *divaricata* Cheeseman, *Man. New Zealand Fl.* 512 (1906)

≡ *Hebe divaricata* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 56: 20 (1926)  
Lectotype (designated by Moore, in Allan 1961): Rai Valley, J. H. McMahon 49, AK 7909.  
Isolectotypes: WELT 47643

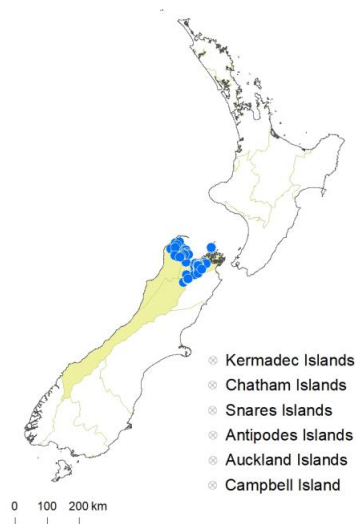
= *Hebe corymbosa* G.Simpson, *Trans. Roy. Soc. New Zealand* 79: 428 (1952)

Lectotype (designated by Bayly & Kellow 2004): From plant in cultivation, collected by Mr N. Potts at Dun Mt, Nelson, G. Simpson, Jan 1949, CHR 75693, two flowering pieces at top of sheet. Isolectotype: K

**Etymology:** The epithet *subfulvida* is derived from the Latin prefix *sub*, meaning less than or somewhat, and *fulvus*, tawny or reddish yellow. Simpson and Thomson's descriptions mention the brownish-yellow branches, and in the Latin, "*rami seniores fulvi*".



Bushy shrub to 1.8 m tall. Stems spreading to erect, eglandular-puberulent; hairs usually bifarious, sometimes uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate or sometimes sub-distichous, erecto-patent to spreading; lamina coriaceous or rigid, lanceolate to elliptic (usually narrowly), sometimes oblanceolate, 6–39 mm long, 2.5–7.5 mm wide, dull or glossy, green or dark green above, paler beneath, midrib evident; surfaces glabrous or eglandular hairs along midrib above; margin glabrous and minutely papillate or minutely antrorse ciliolate, entire; apex acute to acuminate or weakly plicate-acuminate; base cuneate; petiole 0.8–4.5 mm long. Inflorescence a lateral, usually compound, occasionally ternate or simple, raceme, 10–60 mm long; flowers crowded, 24–88, all bisexual; bracts alternate or sometimes the lowermost opposite, lanceolate to ovate to oblong, usually  $>$ , sometimes  $\leq$  pedicels; pedicels erect to erecto-patent, 0.5–4.0 mm long, usually shortly eglandular-hairy all around, sometimes almost glabrous. Calyx lobes 4–5, 5th lobe small, posterior, obtuse to sub-acute, occasionally emarginate, 1.5–2.0 mm long, sub-equal, mixed glandular- and eglandular-ciliolate. Corolla 6–10 mm diameter; tube white, 2.1–4.3 mm long,  $>$ calyx, hairy inside; lobes 4, white, pink, or pale purplish, sub-erect to spreading, sub-equal, elliptic to ovate to sub-orbicular, 2.5–4.5 mm long, obtuse; nectar guides absent. Stamen filaments white or pink, 3.5–5.5 mm long; anthers pink or pale purplish; style glabrous, 4.5–8.5 mm long. Capsules latiseptate, acute, glabrous, 2.9–4.5 mm long, 1.9–3.2 mm at widest point. Seeds broad ellipsoid to discoid, flattened, smooth, dark brown or orange-brown, 1.2–2.0 mm long.



**Fig. 1214:** *Veronica subfulvida* distribution map based on databased records at AK, CHR & WELT.

Some specimens of *V. subfulvida* with unusually broad leaves and simple inflorescences may be hard to distinguish from *V. brachysiphon*, but unbranched inflorescences are rare and on every plant some inflorescences are branched.

*V. baylyi* plants have more glaucescent leaves than *V. subfulvida* plants, unbranched inflorescences, and their corolla tubes are glabrous.

Plants of *V. brachysiphon* and *V. venustula* have broader leaves, simple or rarely tripartite inflorescences, and different chromosome numbers; also *V. venustula* plants are found only in the North Island and *V. brachysiphon* mostly occurs in south and east Marlborough and in Canterbury.

Plants of *V. subfulvida* can frequently be found growing with *V. leiophylla*, which can usually be distinguished by the uniformly puberulent stems, simple and often longer inflorescences, and short, broad, leaf bud sinus.

**Phenology:** Flowers: December–February (occasionally March); fruits: January–May, persisting to October.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe divaricata*).

**Hybridisation:** It is possible that some of the variation might be explained by hybridisation, e.g., with *V. baylyi* on the mineral belt of the Richmond Range and Bryant Range of Nelson, and perhaps with *V. brachysiphon* in Marlborough.

**Notes:** *Veronica subfulvida* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006).

**Distribution:** South Island: Western Nelson (northern parts), Sounds Nelson (Rangitoto ki te Tonga / D’Urville I., western ranges), Westland (Nelson Lakes National Park only).

**Biostatus:** Indigenous (Endemic).

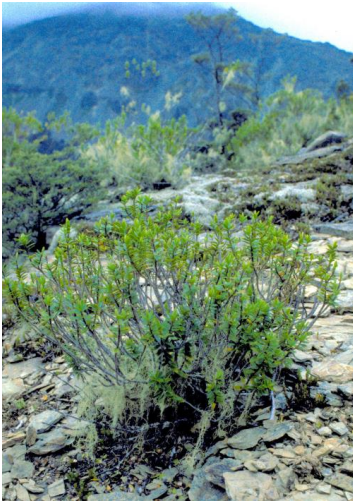
**Habitat:** Rock outcrops and gorges, scrub and forest margins, lowland to montane, occasionally sub-alpine. Recorded elevations range from 10 to 1300 m.

**Recognition:** Most plants of *V. subfulvida* can be recognised by the narrow leaves and dense, compound racemes. In these features they resemble *V. diosmifolia* plants, which may be distinguished by their usually incised leaf margins, some flowers on every plant having the anterior calyx lobes fused for some or all of their length, and their distribution in the northern North Island.

In Marlborough the distinction between *V. brachysiphon* and *V. subfulvida* becomes unclear, but, in general, plants with simple inflorescences and stout elliptic leaves are determined as *V. brachysiphon*, while those with branching inflorescences and thinner, narrowly elliptic leaves are determined as *V. subfulvida*. The two differ in chromosome number. Some

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Plants in north-west Nelson are generally larger and have large, extensively branched inflorescences. Plants in the Richmond Range and Marlborough Sounds can have sparingly branched inflorescences and are then sometimes difficult to distinguish from *V. baylyi* and *V. brachysiphon*.



**Fig. 1215:** *Veronica subfulvida*. Habit. Exposed site in the Richmond Range, Nelson.



**Fig. 1216:** *Veronica subfulvida*. Habit. Sheltered site in the Roding River gorge, Nelson.



**Fig. 1217:** *Veronica subfulvida*. Sprig. Scale = 10 mm.



**Fig. 1218:** *Veronica subfulvida*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1219:** *Veronica subfulvida*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1220:** *Veronica subfulvida*. Inflorescence. Scale = 10 mm.



**Fig. 1221:** *Veronica subfulvida*. Flowers, showing (above) the stigma enfolded in the anterior corolla lobe. Scale = 1 mm.



**Fig. 1222:** *Veronica subfulvida*. Inflorescence (above) and infructescence (below) showing branching pattern. Scale = 10 mm.

## ***Veronica tairawhiti* (B.D.Clarkson & Garn.-Jones) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579 (2007)**

≡ *Hebe tairawhiti* B.D.Clarkson & Garn.-Jones, *New Zealand J. Bot.* 34: 51 (1996)

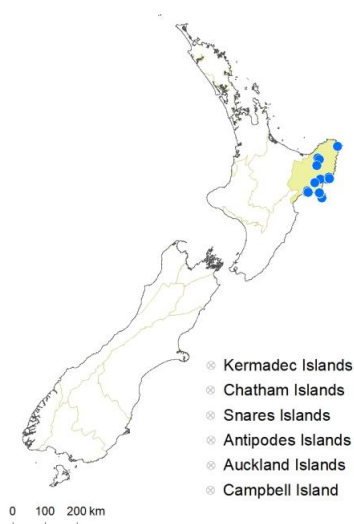
Holotype: New Zealand, Gisborne Land District, Makorori Beach, on mudstone banks and cliffs, *B. D. Clarkson*, 10 May 1994, CHR 454678. Isotypes: AK 229879, NZFRI, WAIK

**Etymology:** The epithet *tairawhiti* is the Māori name for the region where this species is found.

**Vernacular names:** koromiko; kōkōmuka

Bushy shrub to 3 m tall. Stems erect, eglandular-pubescent; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, spreading to recurved; lamina sub-coriaceous, linear-lanceolate, tapering evenly from base, 45–150 mm long, 5–11 mm wide, dull, green above, paler beneath; midrib and secondary veins evident; surfaces glabrous or with short eglandular and sessile glandular hairs along midrib above; margin puberulent, entire or sometimes with distant, slightly prominent to depressed hydathodes; apex very narrowly acute to weakly plicate-acuminate with large, blunt hydathode; base abruptly cuneate to rounded; petiole indistinct, broadly winged, 0–1.5 mm long. Inflorescence a lateral raceme, 68–150 mm long; flowers crowded, 120–180, all bisexual; bracts alternate and sometimes loosely whorled, linear to narrowly deltoid, usually <, sometimes > pedicels; pedicels erecto-patent to

spreading, 1.3–3.0 mm long, puberulent all around. Calyx lobes 4, acute to weakly acuminate, 1.2–1.7 mm long, sub-equal, mixed glandular- and eglandular-ciliate. Corolla 2.5–4.0 mm diameter; tube white, 3.0–3.5 mm long, > calyx, hairy inside; lobes 4, white, sometimes pale purplish at anthesis, erect to erecto-patent, unequal, narrowly elliptic to ovate or narrowly oblong, 1.8–3.0 mm long, sub-acute; nectar guides absent. Stamen filaments white, 3–5 mm long; anthers purplish. Style glabrous, 3.5–7.0 mm long. Capsules latiseptate, sub-acute to acute, glabrous, 2.7–5.2 mm long, 1.8–2.6 mm at widest point. Seeds discoid, obovoid, or ellipsoid, flattened, smooth, straw-yellow to brown, 0.8–1.2 mm long.



**Fig. 1223:** *Veronica tairawhiti* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Gisborne (from Maraehara River to Māhia and near Wairoa).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Shrubby vegetation on coastal cliffs and inland on river banks, road cuttings, and rock outcrops. Recorded elevations range from 5 to 549 m.

**Recognition:** In their growth form and flower shape, *V. tairawhiti* plants are very similar to plants of *V. stricta* and *V. angustissima*.

*V. stricta* plants differ in having leaves that are usually broader and are widest in the middle third. In the region of geographical overlap the calyx lobes in *V. stricta* plants are hairy on the outer faces.

*V. angustissima* plants are smaller shrubs, with softer and thinner leaves that are broadest some distance from the base; they usually have longer pedicels and fewer than 100 flowers per inflorescence. The distributions of *V. angustissima* and *V. tairawhiti* do not overlap, because *V. angustissima* occurs further west, in eastern Bay of Plenty, and further south, in the Wellington region.

**Phenology:** Flowers: January–April; fruits: February–May, persisting to December.

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe tairawhiti*).

**Notes:** *Veronica tairawhiti* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

The midrib is often yellowish, and this is also seen in *V. flavida* and *V. ligustrifolia*, both of which grow in Northland and have wider leaves and larger flowers.

The Māori names koromiko, kōkōmuka, and variants, applied to *V. stricta* and *V. salicifolia*, might be applied also to similar large-leaved hebes, such as *V. tairawhiti*.



**Fig. 1224:** *Veronica tairawhiti*. Habit. Maraehara River, Gisborne.



**Fig. 1225:** *Veronica tairawhiti*. Sprig. Scale = 10 mm.



**Fig. 1226:** *Veronica tairawhiti*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1227:** *Veronica tairawhiti*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1228:** *Veronica tairawhiti*. Inflorescences (left and centre) and infructescence (right). Scale = 10 mm.



**Fig. 1229:** *Veronica tairawhiti*. Flowers. Scale = 1 mm.



**Fig. 1230:** *Veronica tairawhiti*. Capsules. Scale = 1 mm.

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## ***Veronica tetragona* Hook., *Icon. Pl.* 6, Plate 580 (1843)**

≡ *Hebe tetragona* (Hook.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926)

≡ *Leonohebe tetragona* (Hook.) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)

Lectotype (designated by Ashwin, in Allan 1961): *Bidwill* 50, Herb. Hookerianum, K

= *Podocarpus dieffenbachii* Hook., *Icon. Pl.* 6, 547 (1843) – as *Podocarpus?* *dieffenbachii*

TYPE: “Queen Charlotte Sound, New Zealand. *Dr. Dieffenbach*”, K

**Etymology:** The epithet *tetragona* refers to the 4-angled leafy branches that characterise this species among related whipcord hebes.

**Vernacular name:** whipcord hebe

Whipcord shrub to 0.6 m tall. Stems ascending to erect, glabrous except for a tuft of eglandular hairs at the connate leaf bases. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, appressed and usually covering the well-marked node above, scale-like; lamina coriaceous, ovate to deltoid, 1.4–4.0 mm long, 1.5–4.0 mm wide, glossy olive-green above and beneath; veins not evident; surfaces glabrous; margin ciliolate, entire (incised to dentate in juvenile and reversion leaves); apex sub-acute or acute or acuminate; base broad; petiole absent. Inflorescence a terminal spike, 3.5–15.0 mm long; flowers crowded, 2–12, all bisexual; bracts opposite-decussate, connate, deltoid; pedicels absent. Calyx lobes 4–5 (5th lobe small, posterior), sub-acute to acute, equal, 2.0–3.2 mm long, usually eglandular-ciliate with long, deflexed, sinuous hairs, sometimes ciliolate. Corolla 5–6 mm diameter, tube white, 1.5–2.1 mm long,  $\leq$ calyx, eglandular-hairy inside; lobes 4, white, erect to recurved, sub-equal, ovate to broadly elliptic, 3–4 mm long, obtuse; nectar guides absent. Stamen filaments white, 3.3–3.7 mm long; anthers magenta. Style glabrous, 4–5 mm long. Capsule latiseptate, obtuse to truncate, 1.5–3.0 mm long, 1.7–2.4 mm at widest point. Seeds ellipsoid or irregular, flattened, smooth, pale brown, 0.9–1.5 mm long.

- 1 Lamina 1.4–2.3(–2.5) mm long, not keeled or keeled at apex only....  
.....subsp. *subsimilis*  
Lamina (1.8–)2–3.2(–4) mm long, strongly keeled and narrowed towards  
elongated tip.....subsp. *tetragona*

**Distribution:** North Island: Gisborne (Raukūmara Range), Volcanic Plateau, Taranaki (Pouakai Range and Ruahine Range only), southern North Island (Kaimanawa Mountains, Kaweka Range, Ruahine Range, Tararua Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland and penalpine grassland.

**Recognition:** The distinction between *V. tetragona* and *V. hectorii* plants is slight and is discussed in detail by Bayly and Kellow (2006), along with discussion of various options for taxonomic treatment at species rank.

Plants of *V. tetragona* (North Island only) and *V. hectorii* (South Island only) can be reliably distinguished by the thickened leaf apex of *V. tetragona*, compared to that of *V. hectorii*, which is not thickened (Bayly & Kellow 2006, Fig. 48). The strongly tetragonous to cruciform leafy branchlets characteristic of subsp. *tetragona* plants also provide a clear distinction from *V. hectorii*, but the more rounded branchlets characteristic of subsp. *subsimilis* plants are not so easily distinguished. Although *V. tetragona* and *V. hectorii* plants are very similar, differences in flavonoid chemistry and distribution support their recognition at species rank (Bayly & Kellow 2006).

**Phenology:** Flowers: December–April; fruits: January–May, persisting all year.

**Cytology:** 2n = 40 (see Bayly & Kellow 2006).

**Hybridisation:** Hybrids with *V. odora* are quite common; they are whipcord-like, but with a larger lamina, and usually occur singly among populations of the parents.

**Notes:** *Veronica tetragona* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “Flagriformes” group, also known as “whipcord hebes” (Albach & Meudt 2010; Bayly & Kellow 2006). Bracts and calyx lobes, but not the leaves, often have one to several longitudinal ribs, resembling the leaves of *V. lycopodioides* and *V. poppelwellii* plants.

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## ***Veronica tetragona* subsp. *subsimilis* (Colenso) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 579-580 (2007)**

- ≡ *Veronica subsimilis* Colenso, *Trans. & Proc. New Zealand Inst.* 31: 278 (1899)
- ≡ *Hebe subsimilis* (Colenso) Ashwin in Allan, *Fl. New Zealand* 1, 929 (1961)
- ≡ *Leonohebe subsimilis* (Colenso) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)
- ≡ *Hebe hectorii* subsp. *subsimilis* (Colenso) Wagstaff & Wardle, *New Zealand J. Bot.* 37: 33 (1999)
- ≡ *Hebe tetragona* subsp. *subsimilis* (Colenso) Bayly & Kellow, *Illustr. Guide New Zealand Hebes* 321 (2006)

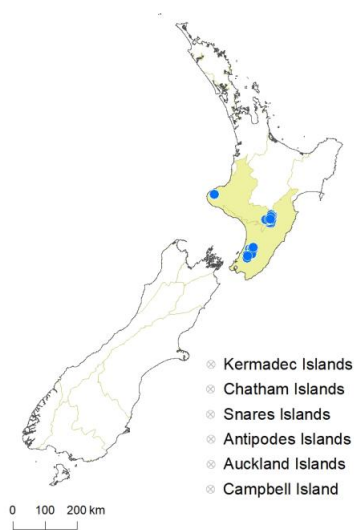
Type: Ruahine Range, *H. Hill*, Herb. Colenso, WELT 5342

- = *Veronica astonii* Petrie, *Trans. New Zealand Inst.* 40: 288 (1908)
  - ≡ *Hebe astonii* (Petrie) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 39 (1926)
  - ≡ *Hebe subsimilis* var. *astonii* (Petrie) M.B.Ashwin in Allan, *Fl. New Zealand* 1, 930 (1961)
  - ≡ *Leonohebe subsimilis* var. *astonii* (Petrie) Heads, *Bot. Soc. Otago Newsl.* 5: 9 (1987)
- Lectotype (designated by Ashwin, in Allan 1961): Tararua, Mt Hector, *D. Petrie*, 29 Jan 1907, WELT 5307. Isolectotype: AK 8191

**Etymology:** The epithet *subsimilis* means somewhat similar, a reference to its similarity to *V. tetragona*.

**Vernacular name:** whipcord hebe

Branchlets weakly to strongly tetragonous in cross-section; maximum width of ultimate branches 1.8–3.0 mm; internodes 0.5–1.5 mm long; lamina usually 1.4–2.5 mm long; apex sub-acute or acute, not keeled or keeled; edge of leaf at apex forming a 90° angle with adaxial surface and rounded to meet the abaxial surface.



**Fig. 1231:** *Veronica tetragona* subsp. *subsimilis* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Taranaki (Pouakai Range and Ruahine Range only), southern North Island (Ruahine Range, Tararua Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland and penalpine grassland. Recorded elevations range from 762 to 1707 m.

**Recognition:** *V. tetragona* subsp. *subsimilis* plants are generally smaller and less robust than plants of subsp. *tetragona*. Their leaves are smaller (although there is some overlap), less strongly keeled, and more rounded at the apex and shaped like the bow of a boat in side view.

**Phenology:** Flowers: December–February(–April); fruits: (January–)February–May(–November).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe tetragona* subsp. *subsimilis*).

**Hybridisation:** Hybrids between *V. tetragona* subsp. *subsimilis* and *V. odora* are sometimes found. These plants have small, elliptic, sub-erect leaves 3–6 mm long.



**Fig. 1232:** *Veronica tetragona* subsp. *subsimilis*.  
Habit. Mt Holdsworth, Tararua Range.



**Fig. 1233:** *Veronica tetragona* subsp. *subsimilis*.  
Branchlet. Scale = 1 mm.



**Fig. 1234:** *Veronica tetragona* subsp. *subsimilis*.  
Close-up of leaves showing evident nodal joints.  
Scale = 1 mm.



**Fig. 1235:** *Veronica tetragona* subsp. *subsimilis*.  
Terminal infructescence and capsules. Scale = 1 mm.



**Fig. 1236:** *Veronica tetragona* subsp. *subsimilis*.  
Terminal inflorescence and flowers.  
Scale = 1 mm.



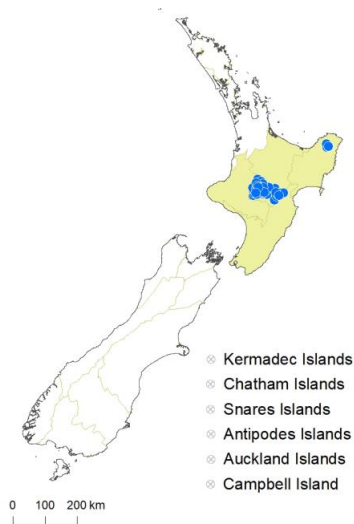
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***Veronica tetragona* Hook., *Icon. Pl.* 6, Plate 580 (1843) subsp. *tetragona***

≡ *Hebe tetragona* (Hook.) Andersen, *Trans. New Zealand Inst.* 56: 693 (1926) subsp. *tetragona*

**Vernacular name:** whipcord hebe

Branchlets strongly tetragonous to cruciform in cross-section; maximum width of ultimate branches usually 2.8–3.5 (rarely 2.4–4.5) mm; internodes 0.5–1.2 (rarely to 1.6) mm long; lamina usually 2.0–3.2 (rarely 1.8–4.0) mm long; apex sub-acute to acuminate, strongly keeled; edge of leaf at apex forming an angle <math><90^\circ</math> with adaxial surface and rounded to meet the abaxial surface.



**Fig. 1237:** *Veronica tetragona* subsp. *tetragona* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Gisborne (Raukūmara Range), Volcanic Plateau (Mountains of Tongariro National Park, Rangipo desert, Kaimanawa Mountains), southern North Island (Kaweka Range and northern Ruahine Range to Otupae Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland and penalpine grassland. Recorded elevations range from 700 to 1738 m.

**Recognition:** *V. tetragona* subsp. *tetragona* plants are generally larger and more robust than plants of subsp. *subsimilis*. Their leaves are larger (although there is some overlap) more strongly keeled, and elongated at the apex.

**Phenology:** Flowers: December–February(–April); fruits: (January–)February–May(–November).

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe tetragona* subsp. *tetragona*).

**Hybridisation:** Hybrids between *V. tetragona* subsp. *tetragona* and *V. odora* are sometimes found. Such plants have small, elliptic, sub-erect leaves 3–6 mm long (Bayly & Kellow 2006, p. 94).



**Fig. 1238:** *Veronica tetragona* subsp. *tetragona*. Habit. Mangatepopo Valley, Tongariro National Park.



**Fig. 1239:** *Veronica tetragona* subsp. *tetragona*. Sprig. Scale = 10 mm.



**Fig. 1240:** *Veronica tetragona* subsp. *tetragona*. Branchlet. Scale = 1 mm.



**Fig. 1241:** *Veronica tetragona* subsp. *tetragona*. Close-up of leaves with evident nodal joints. Scale = 1 mm.



**Fig. 1242:** *Veronica tetragona* subsp. *tetragona*. Terminal inflorescence and flowers. Scale = 1 mm.

### ***Veronica tetrasticha* Hook.f., *Handb. New Zealand Fl.* 212 (1864)**

≡ *Hebe tetrasticha* (Hook.f.) Andersen, *Trans. New Zealand Inst.* 56: 694 (1926)

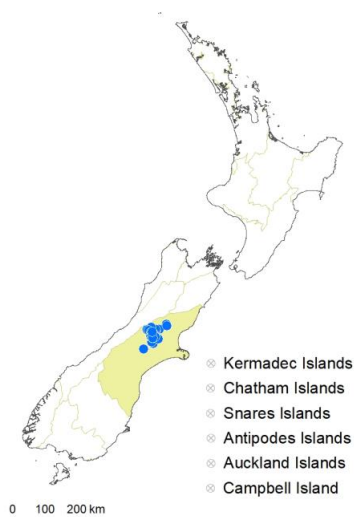
≡ *Leonohebe tetrasticha* (Hook.f.) Heads, *Bot. Soc. Otago Newsl.* 5: 5 (1987)

Lectotype (designated by Moore, in Allan 1961): Canterbury, New Zealand, *Haast* 763, 1862, Herb. Hookerianum, K [information from records of received specimens – in the library at K – indicates that this collection is from “River Hopkins forming Lake Ohau”].

**Etymology:** The epithet *tetrasticha* is from the botanical term tetrastichous, describing a 4-rowed leaf arrangement.

Straggling semi-whipcord shrub to 0.2 m tall. Stems decumbent or ascending, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, erecto-patent, densely crowded and overlapping; lamina sub-coriaceous, deltoid-subulate, 1.0–2.8 mm long, 1.0–2.8 mm wide, dull green above and beneath; veins not evident; surfaces glabrous; margin ciliolate or shortly ciliate (except at apex), entire; apex acute; bases broad; petiole absent. Inflorescence a lateral spike, 3–7 mm long; flowers crowded, 2–6, female or male on separate plants, ♂ > ♀; bracts opposite-decussate, free or barely connate, deltoid, >pedicels; pedicels erect-patent, 0–0.7 mm long, eglandular-pubescent all around. Calyx lobes 4, obtuse, equal, 1.5–2.5 mm long, mixed glandular- and eglandular-ciliolate (glandular often obscure). Corolla 2.5–4.5

mm diameter (♂ > ♀); tube white, 1–2 mm long, < calyx, glabrous; lobes 4, white, erecto-patent to recurved, sub-equal, elliptic to ovate to deltoid, 1.0–2.5 mm long, obtuse; nectar guides absent. Stamen filaments white, 0.7–1.5 mm long; anthers pink (pale in ♀ flowers). Style glabrous, 0.8–2.5 mm long. Capsules angustiseptate, obtuse, glabrous, 2–3 mm long, 1.5–2.5 mm at widest point. Seeds ellipsoid to oblong, flattened, smooth or finely papillate, pale brown to orange, 0.8–1.0 mm long.



**Fig. 1243:** *Veronica tetrasticha* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Westland (Upper Otira Valley), Canterbury (Puketeraki Range, Craigieburn Range, Torlesse Range, Big Ben Range, Mt Somers).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rocks and scree, occasionally establishing at lower altitudes in rocky places. Recorded elevations range from 860 to 1952 m.

**Recognition:** *V. tetrasticha* belongs to a well-supported clade of four species, the semi-whipcord hebes; the other species are *V. hookeri*, *V. quadrifaria*, and *V. tumida*. Relationships within this grouping are unclear.

Semi-whipcord hebes are characterised, and distinguished from true whipcord hebes, by very crowded, dull green, scale-like leaves that are long-persistent on old stems, dioecious sexual systems, and angustiseptate capsules.

In *V. tetrasticha* plants the leafy stem is shallowly grooved on the faces, compared with rounded in *V. tumida* and flat in *V. quadrifaria* plants. This is because the leaves of *V. tetrasticha* plants tend towards subulate with an acute apex; in dry specimens their margins are inrolled in the middle

portion of the leaf, whereas those of *V. quadrifaria* are straight. *V. hookeri* plants have stems that are cruciform in cross-section because the apical portions of the leaves are longer and more or less oblong from a broader base, compared with the shorter leaves of *V. tetrasticha* and *V. quadrifaria*. Also, *V. hookeri* leaves are minutely flattened at the swollen apex with a small, sunken hydathode, compared to the acute apex and absent hydathode on *V. tetrasticha* leaves.

The differences between *V. tetrasticha* and *V. quadrifaria* are slight and not always clear-cut (see detailed discussion in Bayly & Kellow 2006).

**Phenology:** Flowers: November–January; fruits: December–February.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Leonohebe tetrasticha*).

**Notes:** *Veronica tetrasticha* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “semi-whipcord hebe” group (Albach & Meudt 2010).



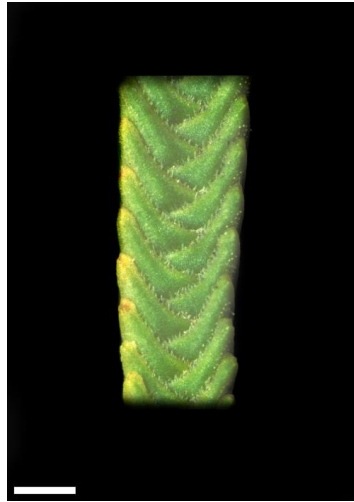
**Fig. 1244:** *Veronica tetrasticha*. Habit of male plant. Mt Torlesse, Canterbury.



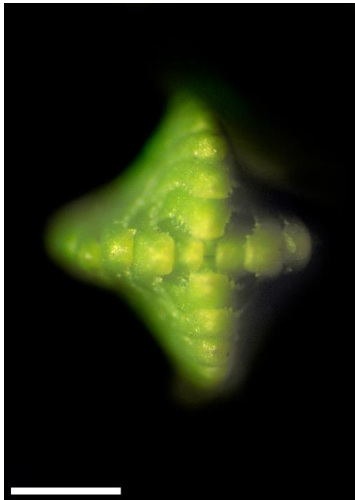
**Fig. 1245:** *Veronica tetrasticha*. Habit of female plant. Mt Torlesse, Canterbury.



**Fig. 1246:** *Veronica tetrasticha*. Sprig. Scale = 10 mm.



**Fig. 1247:** *Veronica tetrasticha*. Branchlet. Scale = 1 mm.



**Fig. 1248:** *Veronica tetrasticha*. Apical view of shoot apex showing the branchlet is cruciform in cross section. Scale = 1 mm.



**Fig. 1249:** *Veronica tetrasticha*. Immature lateral infructescence. Scale = 1 mm.



**Fig. 1250:** *Veronica tetrasticha*. Lateral inflorescence of a male plant showing side view of flowers. Scale = 1 mm.



**Fig. 1251:** *Veronica tetrasticha*. Male flowers. Scale = 1 mm.



**Fig. 1252:** *Veronica tetrasticha*. Female flowers.  
Scale = 1 mm.

### ***Veronica thomsonii* (Buchanan) Cheeseman, *Man. New Zealand Fl.* 540 (1906)**

≡ *Pygmea thomsonii* Buchanan, *Trans. & Proc. New Zealand Inst.* 14: 353, t. xxxii (1882) – as *Pygmea thomsonii*

≡ *Chionohebe thomsonii* (Buchanan) B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 2 (1976)  
Lectotype (designated by Meudt 2008): Mt Alta, *Buchanan s.n.*, WELT SP042922a.  
Paralectotypes: WELT SP042922b, SP042922c

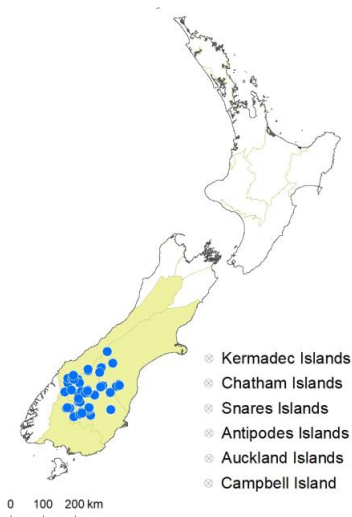
= *Pygmea myosotoides* Ashwin in Allan, *Fl. New Zealand 1*, 873 (1961)

≡ *Chionohebe myosotoides* (Ashwin) B.G.Briggs & Ehrend., *Contr. Herb. Austral.* 25: 2 (1976)

≡ *Veronica myosotoides* (Ashwin) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 578 (2007)  
Holotype: Mt Pisa, Otago, 6000 ft, *Petrie s.n.*, AK 8334. Isotype: CHR 329268

**Etymology:** The epithet *thomsonii* honours John Scott Thomson (1882–1943) (Godley 1996).

Dense cushion plant 0.01–0.08 m tall. Stems erect, densely crowded, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging, sub-decussate, sub-erect to appressed; lamina thin, oblanceolate to obovate, 1.7–4.7 mm long, 0.7–2.6 mm wide, dull green to olive-green above and beneath in distal half, pale brown to purplish towards base; veins not evident; adaxial surface with stiff eglandular hairs in a dense band across middle and occasional scattered hairs distally; abaxial surface glabrous or with hairs on distal half; margin ciliate especially in basal  $\frac{2}{3}$  and usually in an apical tuft, entire; apex obtuse to sub-acute; base cuneate; petiole absent. Inflorescence a solitary axillary bibracteate flower; flowers female or male on separate plants, ♂ > ♀; bracts 2, opposite, narrowly elliptic to oblanceolate, overtopping and investing calyx; pedicel absent. Calyx lobes 5, equal, obtuse to sub-acute, 1.5–2.8 mm long, glabrous or sparsely eglandular near apex adaxially, sparsely to densely eglandular-hairy distally abaxially, glabrous towards base; margins ciliate, rarely glabrous near apex or base. Corolla 2.5–5.0 mm diameter; tube white, 2.0–3.5 mm long,  $\geq$ calyx, glabrous; lobes 5, rarely 6, white, erecto-patent to spreading, equal, narrowly ovate to broadly obovate, 1–2 mm long, obtuse; nectar guides absent. Stamen filaments white, 0.2–0.5 mm long; anthers magenta to purple, sometimes white or pink. Style glabrous, 2.8–4.6 mm long. Capsules angustiseptate, emarginate to obcordate, glabrous to densely hairy at apex, 1.5–3.0 mm long, 1–2 mm at widest point. Seeds discoid to ellipsoid, weakly flattened, smooth, orange-brown to brown, 0.6–0.8 mm long.



**Fig. 1253:** *Veronica thomsonii* distribution map based on databased records at AK, CHR & WELT.

anthers are also common.

The hairiest plants of *V. chionohebe* may be confused with the least hairy plants of *V. thomsonii*, although generally plants of these two species are easily distinguished. For a detailed discussion of variation and recognition, see Meudt (2008).

(See: Table 8)

**Phenology:** Flowers: January–March; sometimes December; fruits: March.

**Cytology:**  $2n = 42$  (Hair 1970, as *Pygmea thomsonii*).

**Hybridisation:** *Veronica*  $\times$  *uniflora* Kirk, *Transactions of the New Zealand Institute* 28: 522 (1896, as *V. uniflora*),  $\equiv$  *Hebe uniflora* (Kirk) Cockayne & Allan, *Transactions of the New Zealand Institute* 57: 43 (1926).  $\equiv$  *Logania armstrongii* Buchanan, *Transactions of the New Zealand Institute* 14: 347, t. 28, f. 3 (1882) non *Veronica armstrongii* J.B.Armstr., *New Zealand Country Journal* 3: 59 (1879).  $\equiv$  *Pygmea armstrongii* Ashwin in Allan, *Flora of New Zealand* 1: 875 (1961). Lectotype: WELT SP086066 (Garnock-Jones 2008). The distributions of *V. thomsonii* and *V. densifolia* overlap widely in Otago, and hybrids have been collected from seven locations (Hector Col, Matukituki River valley; Richardson Mountains; Mt Pisa; Garvie Mountains; Hector Mountains; Dunstan Range; Old Man Range). The plants resemble small forms of *V. densifolia* but have smaller leaves in a slightly sub-decussate and more appressed arrangement, a distinctive patch of stiff hairs on the adaxial surface, longer cilia on the leaf margins, and smaller flowers (Meudt 2008).

Where *V. thomsonii* abuts the ranges of *V. ciliolata* in the west and *V. pulvinaris* in the north, intermediate plants may be found, suggestive of some gene exchange between these species (Meudt 2008).

*V. chionohebe*  $\times$  *thomsonii*. *V. chionohebe*, and *V. thomsonii* grow together in the Garvie Mountains and Pisa Range, and it is possible that hybridisation occurs between them. This might be the reason that molecular systematics techniques have so far not provided evidence of genetic divergence between them, despite morphological and habitat differences (Meudt 2008; Meudt & Bayly 2008).

**Notes:** *Veronica thomsonii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010).

Flowers on male plants are larger and have obvious and usually coloured anthers at the throat of the corolla; flowers on female plants are smaller, and their anthers are sterile, small and pale.

**Distribution:** South Island: south Westland, South Canterbury, Otago (on and west of the Rock and Pillar Range), Southland (Eyre Mountains). A specimen in CHR labeled Mt Captain (North Canterbury) has not been included on the map.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine to high alpine herb-field, fell-field, and cushion-field, among rocks, in crevices, on rocky outcrops, stony soil, rock tors and exposed ridges. Recorded elevations range from 1219 to 2086 m.

**Recognition:** Among the four species of New Zealand *Veronica* that are characterised by a cushion growth form and entire leaves, the leaf hairs of *V. thomsonii* plants are generally distinctive. In particular the leaves have a discrete, transverse band of stiff hairs across the adaxial surface, irregularly sparsely to densely ciliate margins, and an often glabrous (sometimes hairy) abaxial surface.

*V. ciliolata* plants have similarly ciliate leaf margins, but lack the distinctive transverse band of hairs on the adaxial surface.

On Fairfax Spur, Dunstan Mountains, most plants have white anthers, although around Leaning Rock pink and purple



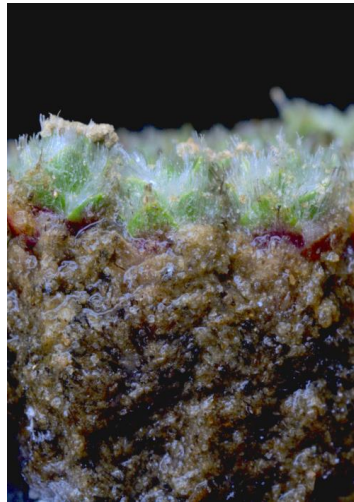
**Fig. 1254:** *Veronica thomsonii*. Habit of female plant. Garvie Mts Otago.



**Fig. 1255:** *Veronica thomsonii*. Habit of male plant. Garvie Mts Otago.



**Fig. 1256:** *Veronica thomsonii*. Habit. Remarkables Range, Otago.



**Fig. 1257:** *Veronica thomsonii*. Section through cushion. Old Man Range, Otago.



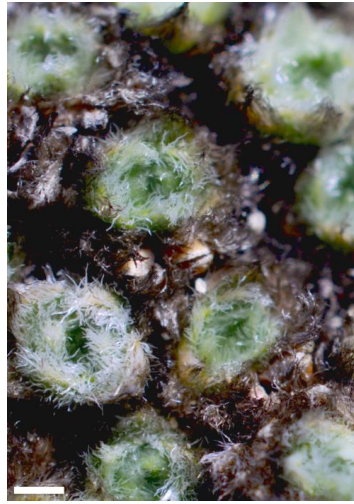
**Fig. 1258:** *Veronica thomsonii*. Leaf surfaces, adaxial (left) and abaxial (right), Old Man Range, Otago (above) and Dunstan Mts, Otago (below). Scale = 1 mm.



**Fig. 1259:** *Veronica thomsonii*. Male flowers. Scale = 1 mm.



**Fig. 1260:** *Veronica thomsonii*. Female flowers. Scale = 1 mm.



**Fig. 1261:** *Veronica thomsonii*. Surface of cushion in dry state showing closed embedded capsules. Scale = 1 mm.



**Fig. 1262:** *Veronica thomsonii*. Surface of cushion in wet state showing open embedded capsules. Scale = 1 mm.



**Fig. 1263:** *Veronica thomsonii*. Capsule and seeds. Scale = 1 mm.

## ***Veronica topiaria* (L.B.Moore) Garn.-Jones in Garnock-Jones et al., Taxon 56: 580 (2007)**

≡ *Hebe topiaria* L.B.Moore in Allan, *Fl. New Zealand* 1, 917 (1961)

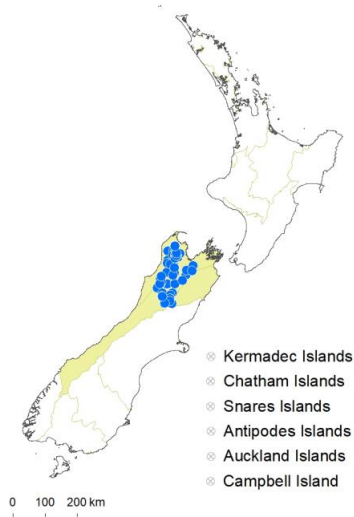
Holotype: Mt Arthur Tableland, Nelson, common at Cundy's Creek, etc., *F. G. Gibbs* (no. 576 to T. F. Cheeseman), July 1910 to T. F. C., CHR 76137. Isotype: AK 8051

**Etymology:** The epithet *topiaria* is derived from Latin *topiarius*, ornamental gardening, and refers to the neat habit of the plants, as if clipped. Topiary is the practice of trimming shrubs into shapes.

Shrub, often neatly rounded, to 1.2 m (rarely to 2.0 m) tall. Stems erect, eglandular-pubescent; hairs usually bifarious or rarely uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erect to erecto-patent; lamina coriaceous, narrowly elliptic to elliptic to obovate, 5–23 mm long, 3–8 mm wide, dull glaucous to glaucescent above, glaucous beneath; midrib and sometimes 2 secondary veins evident; surfaces glabrous except for eglandular hairs along midrib; margin minutely papillate or rarely ciliate, entire; apex obtuse to acute to apiculate; base cuneate; petiole absent or indistinct and broadly winged, 0–1 mm long. Inflorescence a lateral raceme, 10–40 mm long; flowers crowded, 9–33, female or bisexual on separate plants, ♀ > ♂; bracts alternate or lowest pair opposite, elliptic to narrowly deltoid, ≥pedicels; pedicels erecto-patent, 0.5–2.5 mm long, eglandular-pubescent all around. Calyx lobes 4, obtuse to acute, 1.5–2.5 mm long,



equal, mixed glandular- and eglandular-ciliolate. Corolla 4.0–7.5 mm diameter; tube white, 1.5–2.5 mm long,  $\geq$ calyx, eglandular-hairy inside; lobes 4, white, erecto-patent to spreading, sub-equal, elliptic to orbicular, 2.5–4.0 mm long, obtuse or rounded; nectar guides absent. Stamen filaments white, 3–6 mm long; anthers magenta. Style glabrous, 3.5–6.5 mm long. Capsules latiseptate, sub-acute, glabrous, 4–5 mm long, 2.5–3.5 mm at widest point. Seeds discoid to ellipsoid or irregular, flattened, smooth, brown, 1.2–2.0 mm long.



**Fig. 1264:** *Veronica topiaria* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson, Sounds Nelson, Marlborough, Westland (from near Boulder Lake in the north-west, Richmond Range in the north-east, and Amuri Pass and Poplars Range in the south).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Shrubland and tussock grassland above tree line. Recorded elevations range from 762 to 1462 m.

**Recognition:** *V. topiaria* plants can be distinguished from almost all other species by the combination of their neat, rounded habit, small, glaucous leaves, and absence of a sinus in the vegetative bud.

*V. glaucophylla* plants can have similar leaves and also lack a sinus, but usually have more open branching, corolla tubes shorter than the calyx, and hairy ovaries and capsules.

**Phenology:** Flowers: December–February, sometimes to April; fruits: February–May.

**Cytology:**  $2n = 122$  (see Bayly & Kellow 2006, as *Hebe topiaria*).

**Notes:** *Veronica topiaria* is classified in *V.* subg.

*Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).



**Fig. 1265:** *Veronica topiaria*. Habit of a flowering plant. Cobb Valley, Nelson.



**Fig. 1266:** *Veronica topiaria*. Habit. Mt Arthur, Nelson.



**Fig. 1267:** *Veronica topiaria*. Sprig. Scale = 10 mm.



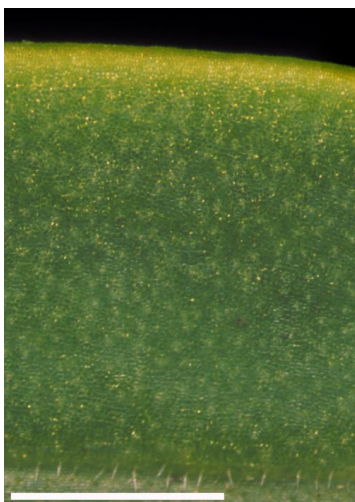
**Fig. 1268:** *Veronica topiaria*. Portion of young stem showing bifarious pubescence. Scale = 1 mm.



**Fig. 1269:** *Veronica topiaria*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1270:** *Veronica topiaria*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1271:** *Veronica topiaria*. Close-up of leaf showing glabrous margin and hairs along midrib. Scale = 1 mm.



**Fig. 1272:** *Veronica topiaria*. Inflorescence with visiting fly. Scale = 1 mm.



**Fig. 1273:** *Veronica topiaria*. Bisexual flowers. Scale = 1 mm.



**Fig. 1274:** *Veronica topiaria*. Female flowers. Scale = 1 mm.



**Fig. 1275:** *Veronica topiaria*. Capsules. Scale = 1 mm.



**Fig. 1276:** *Veronica topiaria*. Seeds. Scale = 1 mm.

## ***Veronica townsonii* Cheeseman, *Trans. New Zealand Inst.* 45: 95 (1913)**

nom. nov. pro *Veronica macrocarpa* var. *crassifolia* Cheeseman 1906

≡ *Hebe townsonii* (Cheeseman) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 20 (1926)

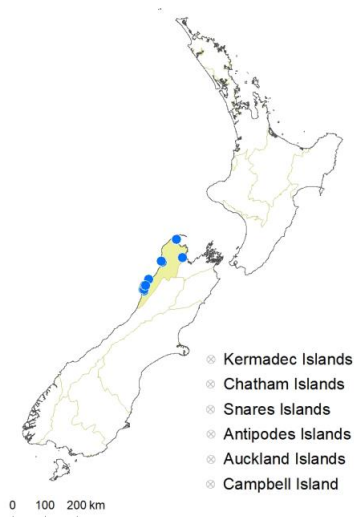
≡ *Veronica macrocarpa* var. *crassifolia* Cheeseman, *Man. New Zealand Fl.* 505 (1906)

Lectotype (designated by Moore, in Allan 1961): Karamea Hill, N. W. Nelson, *W. Townson 21B*, AK 7799

**Etymology:** Named after William Lewis Townson (1855–1926), pharmacist and plant collector of Westport, Marton, Gisborne, and Thames (Godley 1992).

Shrub to 2.5 m tall. Stems erect, eglandular-puberulent or glabrous; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus acute. Leaves opposite-decussate, erecto-patent to spreading, becoming recurved; lamina coriaceous, linear to narrowly lanceolate, 24–80 mm long, 4–9 mm wide, glossy green to dark green above, dull pale green beneath; midrib evident; surfaces glabrous or rarely some eglandular hairs along midrib above; margin glabrous or papillate to ciliate, entire; apex narrowly acute; base abruptly cuneate; petiole 2–5 mm. Inflorescence a lateral raceme (very rarely tripartite), 50–120 mm long; flowers crowded, 21–42, female or bisexual on separate plants, ♀ ≈ ♂; bracts alternate, or opposite below and becoming alternate above, lanceolate to narrowly deltoid, slightly < to slightly > pedicels; pedicels erecto-patent, 2–8 mm long, glabrous or puberulent all around with eglandular or glandular or mixed hairs. Calyx lobes 4 or 5 (5th lobe small,

posterior), 3.5–4.2 mm long, sub-equal, glandular ciliate or mixed glandular- and eglandular-ciliate. Corolla 9–15 mm diameter; tube white, 1.0–2.5 mm long, < calyx, glabrous; lobes 4, white or pale purplish to bluish, erecto-patent to recurved, sub-equal, lanceolate to narrowly elliptic, 5–8 mm long, acute; nectar guides absent. Stamen filaments white, 4.5–6.0 mm long; anthers purplish, sometimes cream. Style glabrous or occasionally a few hairs at base, 4.5–7.0 mm long. Capsules latiseptate, sub-acute to acute, glabrous or occasionally a few hairs at apex, 3.5–5.5 mm long, 3–4 mm at widest point. Seeds broadly ellipsoid-ovoid to discoid, flattened, smooth, brown, 1.0–1.4 mm long.



**Fig. 1277:** *Veronica townsonii* distribution map based on databased records at AK, CHR & WELT.

darker green, thinner in texture, and lack domatia; also, *V. stenophylla* plants do not have a sinus and their corolla lobes are small and rounded.

**Phenology:** Flowers: September–November, sometimes to January; fruits: October–February, persisting until August.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe townsonii*).

**Notes:** *Veronica townsonii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (large-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). ITS sequence data appear to place *V. townsonii* among species characterised by mostly small, glaucous leaves. However, in their growth form and especially in the shape of the flowers, *V. townsonii* plants seem instead to be very similar to northern hebes such as *V. pubescens*.

Plants on Mt Burnett tend to be glabrous or almost glabrous compared to those from the rest of the range. The latter, however, vary, from having very short, mostly glandular hairs on the inflorescence axis and pedicels (e.g., at Nile River) to having very short, mostly eglandular hairs (other sites near Westport).

**Distribution:** South Island: Western Nelson (from an isolated population on Mt Burnett to Punakaiki, with a single record from Graham Valley, Arthur Range). Records from Mt Messenger in Taranaki have not been verified by recent collections and are believed to have been planted there (see Bayly & Kellow 2006).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Among scrub on rocks and in gorges in calcium-rich rocks. Recorded elevations range from 40 to 640 m.

**Recognition:** *Veronica townsonii* leaves have a distinctive row of pits, usually referred to as domatia, running parallel between each margin and the midrib on the abaxial surface. These are small slits or holes and appear to be filled with short hairs. Their function is unknown and unlike domatia in other plants they are not associated with a vein axil. These domatia are unique in *Veronica* and a reliable identification marker for *V. townsonii*.

Narrow, coriaceous, bright green leaves in this size range are also unusual in *Veronica*. *V. stenophylla* plants can have leaves this size and shape, but they are usually narrower and



**Fig. 1278:** *Veronica townsonii*. Habit. Mt Burnett, Nelson.



**Fig. 1279:** *Veronica townsonii*. Sprig. Scale = 10 mm.



**Fig. 1280:** *Veronica townsonii*. Leaf bud with narrow, acute sinus. Scale = 1 mm.



**Fig. 1281:** *Veronica townsonii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 10 mm.



**Fig. 1282:** *Veronica townsonii*. Margin and abaxial leaf surface, showing domatia 1—2 mm in from the margin. Scale = 1 mm.



**Fig. 1283:** *Veronica townsonii*. Female flower. Scale = 1 mm.



**Fig. 1284:** *Veronica townsonii*. Bisexual flower.  
Scale = 1 mm.



**Fig. 1285:** *Veronica townsonii*. Capsules.  
Scale = 1 mm.

### ***Veronica traversii* Hook.f., *Handb. New Zealand Fl.* 208 (1864)**

≡ *Hebe traversii* (Hook.f.) Andersen, *Trans. New Zealand Inst.* 56: 694 (1926)

Lectotype (designated by V. S. Summerhayes in *Kew Bulletin*: 397 (1927)): Hurunui, 3-4000 ft, *Travers*, Herb. Hookerianum, K (mounted on upper left of sheet that includes several other collections)

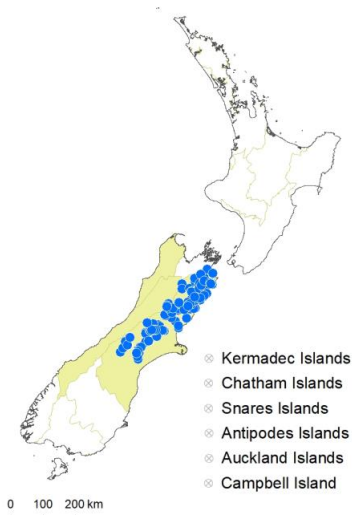
= *Veronica traversii* var. *elegans* Cheeseman, *Man. New Zealand Fl.* 519 (1906)

Lectotype (designated by Moore, in Allan 1961): Craigieburn, upper Waimakariri, Canterbury, *L. Cockayne 8018*, Herb. T. F. Cheeseman (1574 to Kew), AK 8004. Isolectotype: WELT 79056

**Etymology:** The epithet honours William T.L. Travers (1819–1903).

**Vernacular name:** Travers's hebe

Bushy shrub to 2.5 m tall. Stems erect, eglandular-puberulent or -pubescent; hairs usually uniform, rarely bifarious, sometimes sparse. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, narrowly oblong to oblong-lanceolate, 16–44 mm long, 2.5–9.0 mm wide, dull, green or pale green above and beneath; midrib and often two lateral veins evident; surfaces glabrous or with sparse, fine, eglandular hairs along midrib and near base above, sometimes hairs short and glandular; margin scabrous, ciliate, or pubescent, entire; apex obtuse to acute, sometimes weakly plicate-acuminate; base cuneate; petiole indistinct, broadly winged, 1–3 mm long. Inflorescence a lateral raceme, 23–73 mm long; flowers crowded, 34–72, female or bisexual on separate plants, ♀ > ♂; bracts alternate or loosely whorled, lanceolate to ovate, < pedicels; pedicels erecto-patent to spreading, 0.8–3.0 mm long, puberulent all around. Calyx lobes usually 4, sometimes 5 (5th lobe small, posterior), obtuse to sub-acute, 0.8–1.5 mm long, equal, usually mixed glandular- and eglandular-ciliate or rarely glandular-ciliate. Corolla 4–7 mm diameter; tube white, 2.5–4.5 mm long, >calyx, eglandular-hairy inside; lobes 4, white or tinged purplish or pink at anthesis, erecto-patent to spreading or recurved, unequal, elliptic to obovate, 2–3 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 2.5–3.3 mm long; anthers pink or magenta. Style glabrous, 4–7 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 3.5–5.5 mm long, 1.8–4.0 mm at widest point. Seeds ellipsoid, ovoid, or oblong, flattened, smooth, brown, 1.3–2.4 mm long.



**Fig. 1286:** *Veronica traversii* distribution map based on databased records at AK, CHR & WELT.

three to four times longer than the calyx (*V. strictissima* plants have similar capsules, but much shorter corolla tubes, and their distributions do not overlap).

(See: Table 7)

**Phenology:** Flowers: January–March, but specimens have been collected in flower in all months; fruits: January–June, persisting to November.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe traversii*).

**Notes:** *Veronica traversii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

**Distribution:** South Island: Marlborough, Westland (near Lewis Pass only), Canterbury (southwards to Four Peaks Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Scrub and forest margins, rock outcrops, often in valleys and river terraces. Recorded elevations range from 152 to 1127 m.

**Recognition:** *Veronica traversii* plants may be hard to distinguish from plants of three other species that are also characterised by narrow leaves and small flowers: *V. parviflora*, *V. stenophylla*, and *V. strictissima*. The distributions of these species mostly don’t overlap, but *V. traversii*, *V. parviflora* and *V. stenophylla* plants grow in close proximity, near Blenheim.

Plants of *V. traversii* may be distinguished by their very long corolla tubes. Some plants of *V. stenophylla* have similarly long tubes, but then the tubes are usually glabrous inside, and *V. stenophylla* plants can be distinguished by the tiny pits on the adaxial surfaces of the leaves and usually glabrous leaf margins. *V. traversii* plants can also be identified by capsules



**Fig. 1287:** *Veronica traversii*. Habit. Boyle River, Canterbury.



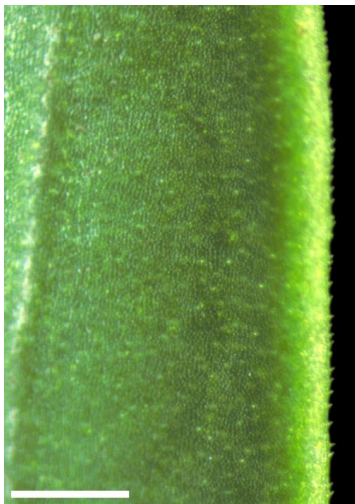
**Fig. 1288:** *Veronica traversii*. Sprig. Scale = 10 mm.



**Fig. 1289:** *Veronica traversii*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1290:** *Veronica traversii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1291:** *Veronica traversii*. Minute hairs on leaf margin. Scale = 1 mm.



**Fig. 1292:** *Veronica traversii*. Newly opened bisexual flower. Scale = 1 mm.



**Fig. 1293:** *Veronica traversii*. Older bisexual flower. Scale = 1 mm.



**Fig. 1294:** *Veronica traversii*. Portion of infructescence. Scale = 1 mm.





**Fig. 1295:** *Veronica traversii*. Capsules.  
Scale = 1 mm.



**Fig. 1296:** *Veronica traversii*. Seeds.  
Scale = 1 mm.

### ***Veronica treadwellii* (Cockayne & Allan) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 580 (2007)**

≡ *Hebe treadwellii* Cockayne & Allan, *Trans. & Proc. New Zealand Inst.* 56: 27 (1926)

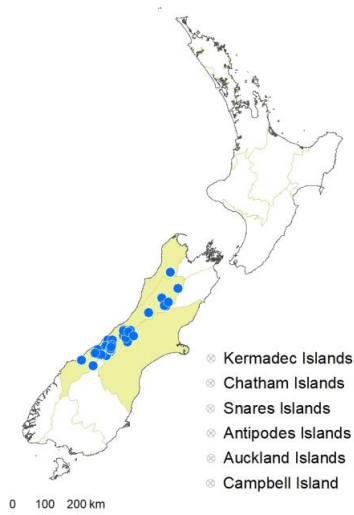
Lectotype (designated by Bayly & Kellow 2006): in open places in scrub near grassline of Mt Ollivier, Sealey [Sealy] Range, *L. Cockayne*, 17 Feb 1919, CHR 332342

= *Hebe brockiei* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 72: 28 (1942)

Lectotype (designated by Moore, in Allan 1961): hills above Amuri Pass, north Canterbury, grassland, *G. Simpson & J. S. Thomson*, Dec 1940, CHR 56679

**Etymology:** The epithet honours Charles H Treadwell (1862–1936) (Bayly & Kellow 2006).

Spreading low shrub to 0.3 m tall. Stems decumbent to ascending, eglandular-pubescent to almost glabrous; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate to sub-distichous, erecto-patent; lamina sub-coriaceous to fleshy, obovate or sometimes oblanceolate or elliptic, 10–32 mm long, 4–15 mm wide, glossy, pale to dark green above, pale green beneath, midrib and sometimes two lateral veins evident; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous, cartilaginous, entire; apex obtuse to rounded and minutely bluntly plicate-acuminate; base cuneate to sub-cordate; petiole absent or indistinct and broadly winged, 1–3 mm long. Inflorescence a lateral raceme, 15–31 mm long; flowers crowded, 5–34, female or bisexual on separate plants, ♀ > ♂; bracts alternate or sometimes the lowest pair opposite, linear, lanceolate, ovate, deltoid, or oblong, ≥ pedicels; pedicels erecto-patent, 0–2.5 mm long, eglandular-hairy or some glandular hairs also, in 1 row or all around. Calyx lobes 4, rarely small 5th posterior lobe present, sub-acute to acute, rarely obtuse, 1.6–2.2 mm long, sub-equal, mixed glandular- and eglandular-ciliolate, sometimes almost glabrous. Corolla 5–8 mm diameter; tube white, 1.9–3.5 mm long, ≥ calyx, glabrous or eglandular- to glandular-hairy inside; lobes 4, white, erecto-patent to spreading, unequal, ovate to elliptic or elliptic-oblong, 3–6 mm long, obtuse or seeming sub-acute because of in-rolled margins; nectar guides absent. Stamen filaments white, 1.5–4.5 mm long; anthers pink, beige, or cream. Style glabrous, 3.5–10.5 mm long. Capsules latiseptate, acute to obtuse, glabrous, 2.5–5.0 mm long, 1.6–3.0 mm at widest point. Seeds ellipsoid to discoid, flattened, smooth, straw-yellow to pale brown, 0.9–1.5 mm long.



**Fig. 1297:** *Veronica treadwellii* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Western Nelson (Bald Knob Ridge only), Canterbury (near the Main Divide), Westland.

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine shrubland, and penalpine grassland. Recorded elevations range from 762 to 1680 m.

**Recognition:** *V. treadwellii* and *V. subalpina* plants are very similar and sometimes grow together.

*V. subalpina* plants differ in their narrower and flatter leaves, without a small plicate-apiculate tip; their flowers are less crowded and have longer pedicels, and usually a shorter corolla tube, which is hairy inside. Their capsules are widest at the midpoint, unlike in *V. treadwellii* plants, where they are widest below the middle.

*V. rakaiensis* plants have similar broad and somewhat plicate-apiculate leaves, but these are minutely hairy along the margins; the ovary and base of the style are also hairy and the margins of the corolla lobes usually so. *V. rakaiensis* plants have corolla lobes that are generally rounder, and two of the calyx lobes are rounded, the other two acute.

**Phenology:** Flowers: December–February; fruits: December–February, persisting to October.

**Cytology:**  $2n = 40$  (see Bayly & Kellow 2006, as *Hebe treadwellii*).

**Notes:** *Veronica treadwellii* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006). Analysis of ITS sequence data suggests *V. treadwellii* is sister species to *V. subalpina*.



**Fig. 1298:** *Veronica treadwellii*. Habit. Amuri Pass, Canterbury.



**Fig. 1299:** *Veronica treadwellii*. Habit. Sealy Range, Canterbury.



**Fig. 1300:** *Veronica treadwellii*. Sprigs, from Sealy Range (left) and Amuri Pass (right). Scale = 10 mm.



**Fig. 1301:** *Veronica treadwellii*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1302:** *Veronica treadwellii*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1303:** *Veronica treadwellii*. Inflorescences, from female plant (left) and male plant (right). Scale = 1 mm.



**Fig. 1304:** *Veronica treadwellii*. Female flower. Scale = 1 mm.



**Fig. 1305:** *Veronica treadwellii*. Bisexual flower. Scale = 1 mm.



**Fig. 1306:** *Veronica treadwellii*. Capsules.  
Scale = 1 mm.

***Veronica trifida* Petrie, *Trans. & Proc. New Zealand Inst.* 55: 437  
(1924)**

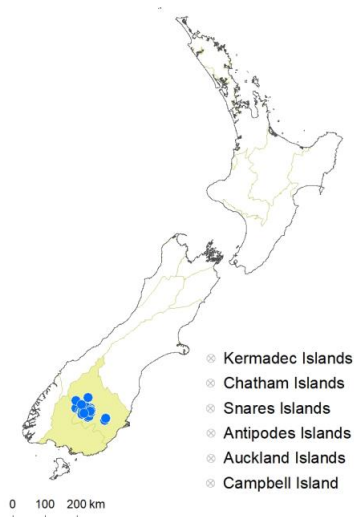
≡ *Parahebe trifida* (Petrie) W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944)

≡ *Hebejeebie trifida* (Petrie) Heads, *Bot. Soc. Otago Newsl.* 36: 11 (2003)

Holotype: Garvie Range, *Speden & Darton*, WELT 5120 (Petrie Herbarium)

**Etymology:** The epithet *trifida* is a reference to the commonly trifid leaves that are characteristic of the species, although the leaves sometimes have five teeth or lobes.

Low sprawling or creeping sub-shrub to 0.2 m tall. Stems prostrate, ascending at tips, eglandular-pubescent; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate to sub-distichous, erecto-patent. Lamina thin to sub-coriaceous, elliptic, obovate, oblong, oblanceolate, or spatulate, rarely sub-orbicular, 2–10 mm long, 1–7 mm wide, glossy green or bronze-green above and beneath; veins not evident; surfaces glabrous; margin sparsely glandular-ciliate, rarely some eglandular hairs as well, serrate, crenate or lobed; teeth or lobes in 1–3 pairs; apex obtuse, rounded, or sub-acute; base cuneate; petiole 1–2 mm long. Inflorescence a lateral raceme, 15–25 mm long; flowers crowded or distant, 2–3 or solitary and bibracteate; peduncle 2–10 mm long, all bisexual; bracts opposite or alternate, elliptic or obovate, >pedicels; pedicels sub-erect, 0.5–7.0 mm long, mixed glandular- and eglandular-hairy all around. Calyx lobes 4, rarely reduced 5th lobe present, obtuse to sub-acute, 4.0–5.5 mm long, equal, glandular-hairy with a few eglandular hairs. Corolla 15–20 mm diameter; tube white, rarely purplish, greenish-yellow at the base, 3–4 mm long, < calyx, glabrous; lobes 5, sometimes 6, white, rarely purplish, erecto-patent to recurved, unequal, elliptic to obovate or orbicular, 6–11 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white or greenish, 2–3 mm long; anthers purple, sometimes magenta or pink. Style glabrous, 2.5–4.0 mm long. Capsule angustiseptate, emarginate, glabrous or with a few glandular hairs, 4.5–6.0 mm long, 2.5–3.5 mm at widest point. Seeds ellipsoid to obovoid, flattened, smooth, pale brown to brown, 0.8–1.2 mm long.



**Fig. 1307:** *Veronica trifida* distribution map based on databased records at AK, CHR & WELT.

*V. densifolia* and *V. trifida* are placed in the snow hebe group.

(See: Table 8)

**Phenology:** Flowers: December–February: fruits: January–April (and probably persisting longer).

**Cytology:**  $2n = 42$  (Hair 1970).

**Hybridisation:** Where the ranges of *V. trifida* and *V. chionohebe* meet (Garvie Mountains, Old Man Range) hybrids between them are quite frequent (Garnock-Jones & Lloyd 2004). Such plants are lax, softly woody sub-shrubs to about 5 cm tall; leaves entire, margin ciliate and glandular-ciliate; flowers solitary, axillary, bibracteate; pedicel c. 0.8 mm long; calyx 3-nerved with a few cilia, both glandular and eglandular, 3 mm long; calyx lobes 5, regular or 1 smaller, obovate-elliptic, with glandular and eglandular cilia (glandular distally); corolla rotate, 7 mm diameter, tube c. 2.5 mm (< calyx).

**Notes:** *Veronica trifida* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “snow hebe” group (Albach & Meudt 2010).

Analysis of ITS sequence data indicates *V. trifida* is sister species to *V. densifolia*, and its next nearest relative is *V. spectabilis* (and probably *V. birleyi*). These species are morphologically similar in growth form, leaf lobing (when present), inflorescences, five- to six-lobed corollas, and short stamens and styles. The ITS tree topology suggests this group is sister to a large clade of shrubby hebes, sun hebes and speedwell hebes, but field observations and phylogenetic analysis of chloroplast DNA indicate they hybridise with the cushion snow hebes, and that process probably includes chloroplast exchange. Thus cpDNA sequences of *V. densifolia* and *V. spectabilis* cluster with those of *V. pulvinaris* and *V. thomsonii*, whereas those of *V. trifida* cluster with *V. ciliolata*, *V. chionohebe* (with which hybrids are observed in the field), and another accession of *V. thomsonii*.

The leaves often dry black in herbarium specimens, but retain their glossy surface. The margins of the corolla lobes are finely fimbriate or erose.

The earlier *V. trifida* Gilibert, *Flora Lithuanica* 1, 121 (1785), based on a different type, is not a legitimate name because the work it is published in is listed in *Opera Utique Oppressa* (<http://www.bgbm.org/iapt/nomenclature/code/saintlouis/0116AppendixV.htm>).

**Distribution:** South Island: Otago (Hector Mountains, Old Man Range, Garvie Mountains, Umbrella Mountains, Lammermoor Range), Southland (Cecil Peak).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine seepages and flushes of melt-water associated with summer snow-banks, edges of water races, boggy ground. Recorded elevations range from 1070 to 1840 m.

**Recognition:** *Veronica trifida* plants are distinctive and easily recognised by their glossy, often bronze-green, glandular-hairy leaves and large, white (sometimes mauve) corolla, yellow at the base of the corolla tube.

Occasionally, and from localities outside the known range of *V. trifida*, *V. densifolia* plants may have leaves with lobed margins, which can then appear similar to *V. trifida*, but *V. densifolia* plants have fewer glandular hairs on the inflorescences and none on the leaves, their leaves have a distinctive thickened and finely papillate margin, and their flowers are sessile, with equally five-lobed calyx and generally smaller (usually 10–15 mm diameter) corolla. Both



**Fig. 1308:** *Veronica trifida*. Habit. Garvie Mountains, Southland.



**Fig. 1309:** *Veronica trifida*. Sprig. Scale = 10 mm.



**Fig. 1310:** *Veronica trifida*. Portion of stem, showing indumentum and leaf bases. Scale = 1 mm.



**Fig. 1311:** *Veronica trifida*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1312:** *Veronica trifida*. Inflorescence. Scale = 10 mm.



**Fig. 1313:** *Veronica trifida*. Bracts and calyces. Scale = 1 mm.



**Fig. 1314:** *Veronica trifida*. Flower. Scale = 1 mm.



**Fig. 1315:** *Veronica trifida*. Capsule (calyx lobes removed). Scale = 1 mm.



**Fig. 1316:** *Veronica chionohebe* (small flowers) and *V. chionohebe* x *trifida* (larger flowers) growing together near Blue Lake, Garvie Mountains, Southland.



**Fig. 1317:** *Veronica chionohebe* x *trifida*. Habit and flowers. Near Blue Lake, Garvie Mountains, Southland. Scale = 10 mm.



**Fig. 1318:** *Veronica chionohebe* x *trifida*. Flower and leafy sprig. Near Blue Lake, Garvie Mountains, Southland. Scale = 1 mm.

## *Veronica triphyllos* L., Sp. Pl. 14 (1753)

**Etymology:** The epithet *triphyllos* is Latin for three-leaved and refers to the deeply divided upper leaves.

**Vernacular name:** fingered speedwell

Annual herb to 0.2 m tall. Stems ascending, erect above, eglandular-puberulent throughout with longer, spreading, dark-tipped glandular hairs becoming dense above; hairs uniform. Leaf bud indistinct; leaves diverging while still small, opposite-decussate, erecto-patent to spreading, thin, elliptic to ovate to deltoid, 3–10 mm long, 3–12 mm wide, dull pale green to green above and beneath; mid-vein and 2–4 palmate lateral veins evident at least beneath; surfaces hairy with long eglandular and glandular hairs on both sides and margins; margins serrate crenate to deeply crenate on lower leaves; upper becoming deeply digitate, and often with a few teeth on lobes; teeth and lobes in 2–4 pairs; apex obtuse or rounded; base abruptly cuneate or truncate; petiole 0.5–1.5 mm long. Inflorescence a terminal raceme, 70–100 mm long; flowers distant, 5–20, all bisexual; bracts alternate, 3–5-fid to base with obovate to spatulate lobes, uppermost sometimes simple, < or about = pedicels; pedicels erecto-patent, 5–10 mm long, eglandular- and glandular-hairy all around. Calyx lobes 4, obtuse to rounded, entire or sometimes toothed, 3.5–4.5 mm long, unequal, glandular-hairy with a few eglandular hairs. Corolla 4–6 (rarely to 8) mm diameter; tube white and yellow, 0.5–1.0 mm long, < calyx, shortly eglandular-hairy inside; lobes 4, blue, erecto-patent to spreading, sub-equal, ovate to rhomboid, 3.5–4.5 mm long, obtuse; nectar guides dark blue. Stamen filaments white to blue, 1.5–2 mm long; anthers dark blue. Style glabrous, 0.8–1.5 mm long. Capsules angustiseptate, emarginate to obcordate, glandular-ciliate near margins and usually also on faces, 3–5 mm long, 4–6 mm at widest point. Seeds ellipsoid to ovoid, concave on funicle face, convex on back, bluntly wrinkled, dark brown, 1.3–1.8 mm long.

**Distribution:** South Island: Otago (Alexandra, Clyde, and Puketoi).

**Biostatus:** Exotic; fully naturalised.

Indigenous to Europe, south-west Asia, western North Africa.

**Habitat:** Depleted grassland, waste land, railway yards, sale yards. Recorded elevations range from 150 to 400 m.

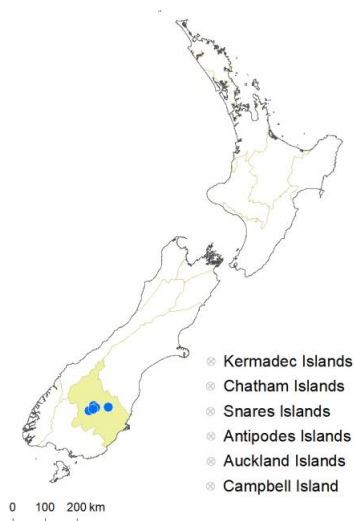
**First record:** Healy (1946, p. 402). Voucher: CHR 48478, G. Simpson, Alexandra.

**Recognition:** *Veronica triphyllos* plants can be easily identified because they have deeply divided upper leaves and lower bracts, and deeply cup-shaped, dark-coloured seeds that are wrinkled on their outer faces.

Plants of *V. verna*, which grow in similar habitats, also have divided upper leaves and lower bracts, but their flowers and capsules are much smaller and their seeds are disc-like, pale, and smooth.

**Phenology:** Flowers: August–October; fruits: October–November.

**Fig. 1319:** *Veronica triphyllos* distribution map based on databased records at AK, CHR & WELT.



**Cytology:**  $2n = 14$ , from overseas material (Albach et al. 2008).

**Notes:** *Veronica triphyllos* is classified in *V.* subg. *Pellidosperma* (Albach et al. 2004a; Albach & Meudt 2010).





**Fig. 1320:** *Veronica triphyllos*. Habitat. Alexandra, Otago.



**Fig. 1321:** *Veronica triphyllos*. Habit. Cultivated plant in Wellington, from seed collected at Alexandra, Otago.



**Fig. 1322:** *Veronica triphyllos*. Sprig. Scale = 10 mm.



**Fig. 1323:** *Veronica triphyllos*. Stem, showing indumentum. Scale = 1 mm.



**Fig. 1324:** *Veronica triphyllos*. A pair of lower leaves (cultivated plant). Scale = 1 mm.



**Fig. 1325:** *Veronica triphyllos*. Leaf surfaces of upper leaves (wild plant), adaxial (above) and abaxial (below). Scale = 1 mm.



**Fig. 1326:** *Veronica triphyllos*. Calyx and pedicel. Scale = 1 mm.



**Fig. 1327:** *Veronica triphyllos*. Flowers. Scale = 1 mm.



**Fig. 1328:** *Veronica triphyllos*. Immature capsule; note one of the calyx lobes is abnormally trifid. Scale = 1 mm.



**Fig. 1329:** *Veronica triphyllos*. Capsules. Scale = 1 mm.



**Fig. 1330:** *Veronica triphyllos*. Seeds. Scale = 1 mm.

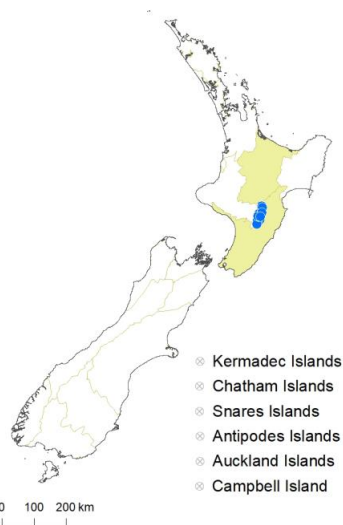
## *Veronica truncatula* Colenso, *Trans. & Proc. New Zealand Inst.* 31: 276 (1899)

≡ *Hebe truncatula* (Colenso) L.B. Moore in Allan, *Fl. New Zealand* 1, 912 (1961)

Lectotype (designated by Moore, in Allan 1961): Ruahine Range, *H. Hill*, ex Herb. Colenso, AK 8436

**Etymology:** The epithet *truncatula* means minutely truncate, and refers to the very end of the plicate-apiculate leaf apex.

Bushy shrub to 2 m tall. Stems erect, eglandular-puberulent to pubescent; hairs bifarious or uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent; lamina coriaceous, linear-lanceolate to narrowly elliptic, 13–42 mm long, 3.7–10.3 mm wide, glossy, dark green above, paler beneath; midrib evident; surfaces with eglandular hairs along midrib above; margin ciliolate or ciliate, entire; apex acute and plicate-apiculate with minutely truncate tip; base cuneate; petiole indistinct, broadly winged, 1–3 mm long. Inflorescence a lateral raceme, 30–90 mm long; flowers crowded, 28–68 per inflorescence, female or bisexual on separate plants, ♀ ≥ ♂; bracts alternate or loosely whorled, linear, oblanceolate, elliptic or deltoid, usually ≤, sometimes > pedicels; pedicels erecto-patent to spreading, 0.9–2.0 mm long, eglandular-hairy all around. Calyx lobes 4, acute, or sometimes obtuse or acuminate, 1.8–2.2 mm long, sub-equal, mixed glandular- and eglandular-ciliate or -ciliolate. Corolla 5–7 mm diameter; tube white, 1.5–3.2 mm long, ≥ calyx, eglandular-hairy inside; lobes 4, white or tinged purplish at anthesis, sub-erect to spreading, sub-equal, elliptic to ovate or oblong, 2.5–4.0 mm long, obtuse; nectar guides absent. Stamen filaments white, 4.5–5.5 mm long; anthers purple. Style glabrous, 5–7 mm long. Capsules latiseptate, obtuse to truncate or sub-acute, glabrous, 3–4 mm long, 2–3 mm at widest point. Seeds ellipsoid to broadly ellipsoid, flattened, smooth, pale brown, 1.0–1.4 mm long.



**Fig. 1331:** *Veronica truncatula* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** North Island: Volcanic Plateau (Reporoa Bog), southern North Island (Ruahine Range only, southwards to Maharahara).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Sub-alpine scrub. Recorded elevations range from 1035 to 1500 m.

**Recognition:** *V. evenosa* plants, found in the Tararua Range, are similar in having glossy leaves with ciliolate margins, but they have shorter leaves and shorter inflorescences with fewer (15–40) flowers.

All other similar species are found in the South Island.

*V. subalpina* plants are most similar to *V. truncatula* plants, but they differ in their glabrous leaf margins, less prominent plicate-apiculate apex, shorter inflorescences with fewer (4–32) flowers, and longer corolla tubes.

*V. rakaiensis* plants have similar hairy leaf margins and plicate-apiculate apices, but they differ in their broader leaves, some lobes in each calyx rounded at the apex, ciliate corolla lobes, and hairy capsules and styles.

*V. calcicola* plants have similar glossy leaves with hairy margins, but their ovaries and capsules are hairy, and their corolla tubes are shorter than the calyces. *V. truncatula* plants also differ from all the above similar species in a tendency for the flowers to be loosely whorled, which is more often a feature of species characterised by larger leaves and smaller flowers, such as *V. stricta*.

**Phenology:** Flowers: November–March; fruits: April–May (probably earlier, and persisting later).

**Cytology:**  $2n = 80$  (see Bayly & Kellow 2006, as *Hebe truncatula*).

**Notes:** *Veronica truncatula* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006).

Bayly & Kellow (2006) discussed the rationale for continuing to treat *V. truncatula* as a separate species from the similar *V. subalpina*, which includes several morphological differences, flavonoid differences, and a different chromosome number, combined with allopatric distributions.

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DNA sequence data so far have not demonstrated any close relationship between *V. subalpina* and *V. truncatula*; it is possible that *V. truncatula* has hybridisation in its history, which might obscure such a relationship, but for now DNA and flavonoid data (Bayly & Kellow (2006)) seem to argue against combining the two under one species name.



**Fig. 1332:** *Veronica truncatula*. Habit. Rangiwahia hut, Ruahine Range.



**Fig. 1333:** *Veronica truncatula*. Sprig. Scale = 10 mm.



**Fig. 1334:** *Veronica truncatula*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1335:** *Veronica truncatula*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1336:** *Veronica truncatula*. Leaf apex and margins, showing short hairs. Scale = 1 mm.



**Fig. 1337:** *Veronica truncatula*. Portion of an inflorescence. Scale = 1 mm.



**Fig. 1338:** *Veronica truncatula*. Flowers. Scale = 1 mm.



**Fig. 1339:** *Veronica truncatula*. Capsules. Scale = 1 mm.

***Veronica tumida* Kirk, *Trans. New Zealand Inst.* 28: 521 (1896)**

≡ *Hebe tumida* (Kirk) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 39 (1926)

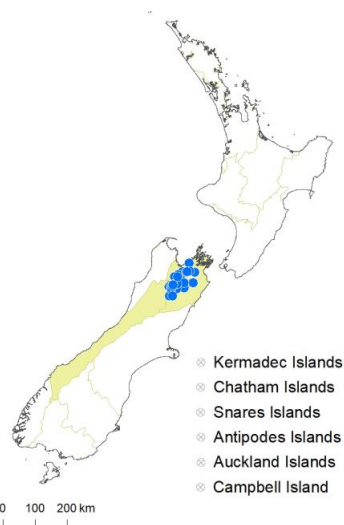
≡ *Leonohebe tumida* (Kirk) Heads, *Bot. Soc. Otago Newsl.* 5: 5 (1987)

Lectotype (designated by Bayly & Kellow 2004): Ben Nevis, F. G. Gibbs, 15 Jan 1896, private herbarium of T. Kirk., mounted on two sheets with the same number, WELT 43493/A and WELT 43493[B]

**Etymology:** The epithet *tumida* is from Latin: tumid, swollen, a reference to the rounded, swollen keels of the leaves.

Semi-whipcord sub-shrub to 0.2 m tall. Stems decumbent to ascending, glabrous. Leaf bud indistinct, its outer leaves fully grown, diverging. Leaves opposite-decussate, connate in pairs and encircling stem, erecto-patent, crowded and overlapping, separating early; lamina sub-coriaceous, deltoid, 1–1.5 mm long, 1.5–2.5 mm wide, dull green to dark green above and beneath; veins not evident; surfaces glabrous; margin ciliolate in lower half, glabrous towards apex, entire; apex rounded, and back of the leaf keeled with a rounded swelling; bases broad; petiole absent. Inflorescence a lateral spike or raceme, 2–9 mm long; flowers crowded, 2–8, female or male on separate plants, ♂ ≈ ♀; bracts opposite-decussate, free or barely connate, deltoid or oblong, > pedicels; pedicels absent or erecto-patent to spreading, 0–1 mm long, glabrous or eglandular-hairy all around. Calyx lobes 4, obtuse, equal, 1.5–2.0 mm long, mixed eglandular- and glandular-ciliolate. Corolla 3.5–4 mm diameter; tube white, 1–2 mm long, ≤ calyx, glabrous; lobes 4, white, erecto-patent to spreading, sub-

equal, broadly elliptic to ovate or sub-orbicular, 1.5–2.0 mm long, obtuse to rounded; nectar guides absent. Stamen filaments white, 1.0–1.2 mm long; anthers purple, paler or pink in ♀. Style glabrous, 1–4 mm long. Capsules angustiseptate, obtuse to emarginate, glabrous, 1.5–3.2 mm long, 1.3–2.7 mm at widest point. Seeds discoid to ellipsoid, flattened, smooth, pale brown, 0.8–1.1 mm long.



**Fig. 1340:** *Veronica tumida* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Bryant Range, Richmond Range, Gordon Range), Westland (mountains near Lake Rotoiti), Marlborough (Raglan Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Alpine rock outcrops and scree. Recorded elevations range from 1280 to 1800 m.

**Recognition:** *V. tumida* belongs to a well-supported clade of four species, the semi-whipcord hebes; the other species are *V. hookeri*, *V. quadrifaria*, and *V. tetrasticha*. Relationships within this grouping are unclear.

Semi-whipcord hebes are characterised, and distinguished from true whipcord hebes, by very crowded, dull green, scale-like leaves that are long-persistent on old stems, dioecious sexual systems, and angustiseptate capsules.

In habit, *V. tumida* plants resemble *V. tetrasticha* and *V. quadrifaria* plants; *V. hookeri* plants have longer leaves. The swollen, rounded keels on the backs of the leaves are distinctive and distinguish *V. tumida* plants from the other semi-whipcord hebes.

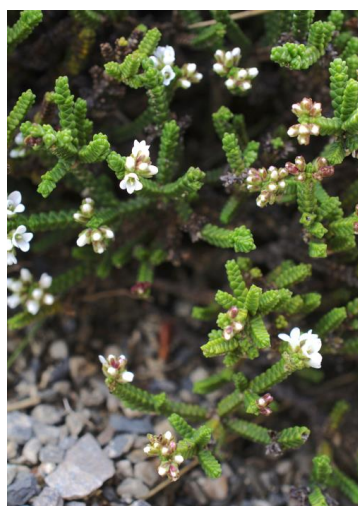
**Phenology:** Flowers: November–February; fruits: January–April.

**Cytology:**  $2n = 42$  (see Bayly & Kellow (2006), as *Leonohebe tumida*).

**Hybridisation:** At Mt Robert some specimens appear intermediate between *V. tumida* and *V. hookeri*, whereas at the eastern extremes of its range some specimens are intermediate between *V. tumida* and *V. quadrifaria*.

**Notes:** *Veronica tumida* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and informally in the “semi-whipcord hebe” group (Albach & Meudt 2010).

Some populations of *V. tumida* might be gynodioecious rather than strictly dioecious, because some polliniferous plants appear to also have fruit.



**Fig. 1341:** *Veronica tumida*. Habit. St Arnaud Range, Nelson.



**Fig. 1342:** *Veronica tumida*. Sprigs, female (left), male (right). Scale = 10 mm.



**Fig. 1343:** *Veronica tumida*. Branchlet. Scale = 1 mm.



**Fig. 1344:** *Veronica tumida*. Apical view of shoot apex. Scale = 1 mm.



**Fig. 1345:** *Veronica tumida*. Male flowers. Scale = 1 mm.



**Fig. 1346:** *Veronica tumida*. Female flowers. Scale = 1 mm.



**Fig. 1347:** *Veronica tumida*. Infructescence. Scale = 1 mm.



**Fig. 1348:** *Veronica tumida*. Capsule. Scale = 1 mm.

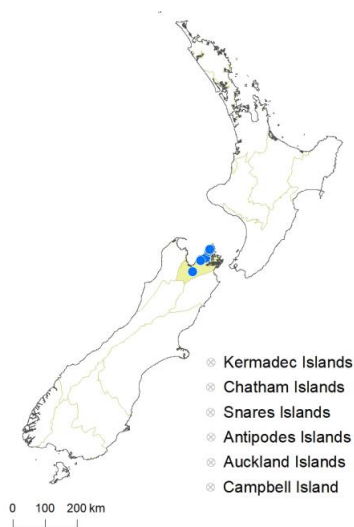
## *Veronica urvilleana* (W.R.B.Oliv.) Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 580 (2007)

≡ *Hebe urvilleana* W.R.B.Oliv., *Rec. Domin. Mus.* 1: 212 (1944)

Lectotype (designated by Moore, in Allan 1961): Bald Spur, D'Urville Island, low manuka scrub on serpentine, *W.R.B.O[liver]*, 9 Feb 1943, WELT 5335. Isolectotypes: CHR 89147, WELT 47651

**Etymology:** The epithet refers to Rangitoto ki te Tonga / D'Urville Island, from where the original collections were made.

Bushy shrub to 1.5 m tall. Stems usually erect, sometimes prostrate, eglandular-pubescent; hairs bifarious. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus absent. Leaves opposite-decussate, erecto-patent to spreading; lamina coriaceous, elliptic or lanceolate to oblanceolate, 3–24 mm long, 2–8 mm wide, glossy green above, dull or glossy green beneath; midrib evident; surfaces glabrous or with eglandular hairs along midrib above; margin glabrous or minutely papillate, entire; apex sub-acute to acute, not or weakly plicate-acuminate; base cuneate; petiole indistinct, broadly winged, 1–2 mm long. Inflorescence a lateral raceme, 10–31 mm long; flowers crowded, 5–23, female or bisexual on separate plants, ♀ ≥ ♂; bracts alternate, linear to elliptic, < or sometimes ≥ pedicels; pedicels erecto-patent, 1–4 mm long, eglandular-hairy all around, sometimes with minute glandular hairs as well. Calyx lobes 4, sub-acute to obtuse or rounded, 1.5–2.1 mm long, sub-equal, mixed glandular- and eglandular- ciliolate. Corolla 4–6 mm diameter; tube white, 1.8–2.2 mm long, > calyx, eglandular-hairy inside; lobes 4, white, erecto-patent to spreading, sub-equal or unequal, elliptic to broadly elliptic or orbicular, 2–3 mm long, obtuse or rounded, posterior sometimes emarginate, nectar guides absent. Stamen filaments white, 3.7–4.7 mm long; anthers sometimes magenta to purple. Style glabrous, 5–8 mm long. Capsule latiseptate, sub-acute to obtuse, glabrous, 2.5–5.3 mm long, 2.2–3.0 mm at widest point. Seeds not seen.



**Fig. 1349:** *Veronica urvilleana* distribution map based on databased records at AK, CHR & WELT.

**Distribution:** South Island: Sounds Nelson (Rangitoto ki te Tonga / D'Urville I. and western Marlborough Sounds, extending to scattered localities in the Bryant Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Lowland to montane *Leptospermum* scrub and open shrubland. Recorded elevations range from 180 to 1220 m.

**Recognition:** In their green, elliptic leaves and short inflorescences, *V. urvilleana* plants are very similar to plants of several other species, especially *V. subalpina*, *V. treadwellii*, *V. rakaiensis*, *V. calcicola*, and *V. evenosa*, none of which overlap in distribution with *V. urvilleana*.

*V. subalpina* and *V. treadwellii* plants are alpinines with larger flowers and corolla lobes.

*V. rakaiensis* and *V. calcicola* plants can be distinguished by their hairy ovaries and fruits, and *V. evenosa* plants by their generally shorter leaves, which taper more abruptly at both base and apex, their longer inflorescences, and corolla tubes that are shorter than the calyx.

*V. stenophylla* var. *oliveri* plants, from nearby Stephens I. / Takepourewa and the Trio Is / Kuru Pongi, have similar leaves,

but these differ in being less glossy and being conspicuously pitted near the margins above, and they have longer (2.5–3.8 mm) and usually glabrous corolla tubes. Usually their calyx cilia are all eglandular.

The chromosome number of *V. urvilleana* ( $2n = 120$ ) is shared with *V. evenosa*, but with no other similar species.

**Phenology:** Flowers: January–February; fruits: February–April, persisting until November.

**Cytology:**  $2n = 120$  (see Bayly & Kellow 2006, as *Hebe urvilleana*).

**Notes:** *Veronica urvilleana* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Occlusae” (Albach & Meudt 2010; Bayly & Kellow 2006). On the basis of ITS sequence data, *V. urvilleana* appears to be related to a large group of species characterised by small, green leaves,



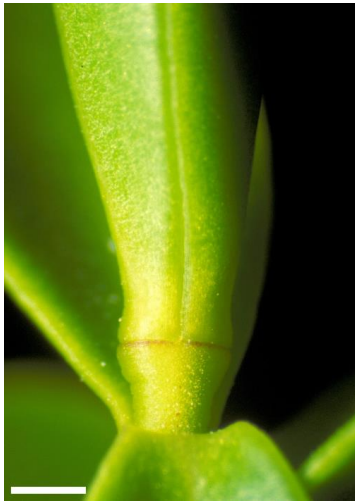
including *V. evenosa*, *V. venustula*, *V. brachysiphon*, and *V. stenophylla*, but its position is not well understood.



**Fig. 1350:** *Veronica urvilleana*. Habit. Rangitoto ki te Tonga / D'Urville I.



**Fig. 1351:** *Veronica urvilleana*. Sprig. Scale = 10 mm.



**Fig. 1352:** *Veronica urvilleana*. Leaf bud with no sinus. Scale = 1 mm.



**Fig. 1353:** *Veronica urvilleana*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1354:** *Veronica urvilleana*. Inflorescence. Scale = 1 mm.



**Fig. 1355:** *Veronica urvilleana*. Flowers. Scale = 1 mm.



**Fig. 1356:** *Veronica urvilleana*. Capsules.  
Scale = 1 mm.

***Veronica venustula* Colenso, *Trans. & Proc. New Zealand Inst.* 27: 393 (1895)**

≡ *Hebe venustula* (Colenso) L.B.Moore in Allan, *Fl. New Zealand* 1, 897 (1961)

Lectotype (designated by Moore, in Allan 1961): east side of Ruahine Range, *A. Olsen*, Dec 1893, AK 7891. Isolectotype: K

= *Veronica laevis* Benth. in de Candolle, *Prodr.* 10 461 (1846) nom. illeg., non *Veronica laevis* Lam. 1778

≡ *Hebe laevis* (Benth.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 26 (1926)

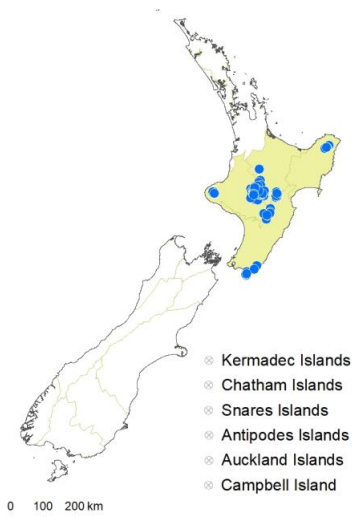
Lectotype (designated by Moore, in Allan 1961): *Colenso* 4060, K

= *Veronica azurea* Colenso, *Trans. & Proc. New Zealand Inst.* 31: 277 (1899) nom. illeg., non *Veronica azurea* Link 1821 – as *azunea*

Lectotype (designated by Moore, in Allan 1961): Ruahine Range, *H. Hill*, WELT 5316

**Etymology:** The epithet *venustula* is derived from the Latin *venustus*, meaning charming, or lovely.

Bushy and often rounded shrub to 1.8 m tall. Stems erect, eglandular-pubescent; hairs bifarious; occasionally uniform, minute eglandular hairs also present. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus narrow, acute. Leaves opposite-decussate to weakly sub-distichous, erecto-patent to spreading; lamina coriaceous to rigid, obovate to elliptic, 4–29 mm long, 3–10 mm wide, glossy green to dark green above, paler and duller beneath; midrib evident; surfaces glabrous or rarely with eglandular hairs along midrib above; margin eglandular-ciliolate when young, often with a few glandular cilia, becoming glabrous to minutely papillate with age, entire; apex sub-acute to obtuse, mostly acute, keeled beneath and weakly apiculate; base cuneate; petiole 0.5–6.0 mm long. Inflorescence a lateral raceme or sometimes ternate or rarely a compound raceme, 14–68 mm long; flowers crowded, 7–75, all bisexual; bracts opposite below, becoming alternate above, lanceolate to ovate, ≥ pedicels; pedicels erecto-patent, 0.5–7.0 mm long, eglandular-hairy all around or sometimes almost glabrous. Calyx lobes 4, sub-acute or rarely obtuse, 2–3 mm long, equal or sub-equal, mixed glandular- and eglandular-hairy. Corolla 7–9 mm diameter; tube white, 3.0–4.2 mm long, > calyx, eglandular-hairy inside; lobes 4, white, or purplish when young, erecto-patent to spreading, sub-equal, usually elliptic to ovate, sometimes lanceolate; nectar guides absent. Stamen filaments white or tinged purplish, 3–5 mm long, rarely to 7 mm; anthers magenta to purple. Style glabrous, 6.5–9.0 mm long, rarely to 11.0 mm. Capsules latiseptate, sub-acute, glabrous, 3.5–5.0 mm long, 2.3–3.5 mm at widest point. Seeds ellipsoid to ovoid or oblong, flattened, smooth, brown, 1.3–2.2 mm long.



**Fig. 1357:** *Veronica venustula* distribution map based on databased records at AK, CHR & WELT.

petioles and more conspicuous stomata on the laminae above, are more often hairy on the mid-veins above, and have shorter styles in mature flowers. These minor differences support the decision to recognise *V. brachysiphon* and *V. venustula* at species rank, along with differences in their flavonoid chemistry and geographical distribution (Bayly & Kellow 2006).

(See: Table 11)

**Phenology:** Flowers: December–March; fruits: February–April.

**Cytology:**  $2n = 120$  (see Bayly & Kellow 2006, as *Hebe venustula*).

**Hybridisation:** *V. venustula* plants have been reported to hybridise with *V. stricta* plants, a hybrid known as *Veronica*  $\times$  *carsei*.

A hybrid between *V. venustula* and *V. tetragona* subsp. *subsimilis* (*V.*  $\times$  *laevastonii*) has been reported (Garnock-Jones 2008).

**Notes:** *Veronica venustula* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). The very close similarity of *V. brachysiphon* and *V. venustula* suggests a close relationship. These two are associated with a large group of species that are characterised by mostly green leaves shorter than 40 mm long, and including several others with  $2n = 120$  (*V. evenosa*, *V. urvilleana*) or  $2n = 122$  (*V. topiaria*).



**Fig. 1358:** *Veronica venustula*. Habit. Makahu Spur, Kaweka Range.



**Fig. 1359:** *Veronica venustula*. Habit. Mt Hikurangi, East Cape.

**Distribution:** North Island: Gisborne (Raukūmara Range), Volcanic Plateau, Taranaki (Taranaki National Park), Southern North Island (Ruahine Range and Aorangi Range). Two uncertain records, from Kapiti I. and Mt Holdsworth, are excluded (Bayly & Kellow 2006).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Penalpine and sub-alpine scrub and grassland, at lower altitudes on Aorangi Range. Recorded elevations range from 121 to 1525 m.

**Recognition:** The habit and general appearance of the leaves in plants of *V. brachysiphon* and *V. venustula* are very similar to each other and to *V. odora* plants, and they are often confused.

*V. odora* plants are readily distinguished by the broad, shield-shaped sinus in the vegetative buds, the rounded shoulders to the leaf base, the terminal inflorescence with large, opposite, leaf-like bracts that cover the calyx, and the narrow corolla lobes.

*V. venustula* plants are not easily distinguished from *V. brachysiphon* plants, but the latter tend to have broader



**Fig. 1360:** *Veronica venustula*. Sprig.  
Scale = 10 mm.



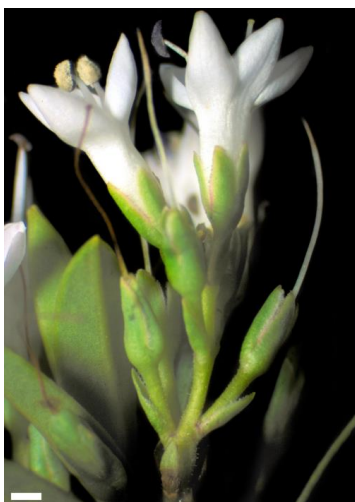
**Fig. 1361:** *Veronica venustula*. Sprig, showing lateral inflorescences. Scale = 10 mm.



**Fig. 1362:** *Veronica venustula*. Leaf bud with acute sinus. Scale = 1 mm.



**Fig. 1363:** *Veronica venustula*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1364:** *Veronica venustula*. Inflorescence, showing pedicellate flowers. Scale = 1 mm.



**Fig. 1365:** *Veronica venustula*. Flowers. Scale = 1 mm.



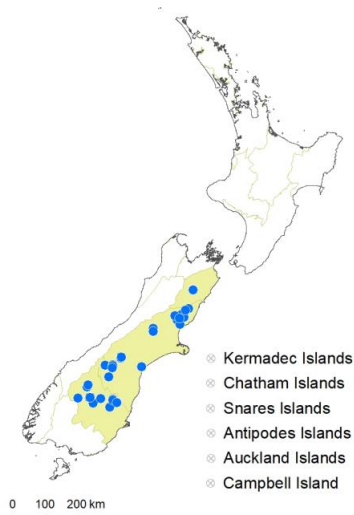
**Fig. 1366:** *Veronica venustula*. Capsules.  
Scale = 1 mm.

### ***Veronica verna* L., Sp. Pl. 14 (1753)**

**Etymology:** The epithet *verna* means of springtime, referring to the timing of growth and flowering of this species.

**Vernacular name:** spring speedwell

Annual herb to 0.25 m tall. Stems erect, sometimes ascending at base, uniformly eglandular-hairy below, becoming glandular-hairy above. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina thin, lanceolate to ovate to elliptic to deltoid in outline, deeply pinnatifid in 3–7 lobes, 3–15 mm long, 2–12 mm wide, dull green above and beneath; midrib and lateral veins visible; surfaces and margins with scattered, long eglandular hairs, and also some glandular hairs especially on upper leaves; stomata not visible; margin of lobes entire or distantly and shallowly crenate or serrate; apex obtuse to acute; base cuneate or abruptly cuneate; petiole 0–1.5 mm long. Inflorescence a terminal raceme, 10–150 mm long; flowers crowded at first, becoming more distant at fruiting, 2–100, all bisexual; bracts alternate, the lower deltoid and deeply pinnatifid, the uppermost becoming simple, linear, > pedicels; pedicels erect to erecto-patent, 1.0–1.5 mm long, mixed eglandular- and glandular-hairy all around. Calyx lobes 4, acute, 1.5–2.5 mm long, unequal, mixed eglandular- and glandular-hairy. Corolla 1.0–1.5 mm diameter; tube white and usually somewhat greenish-yellow, 0.5–0.6 mm long, < calyx, sparsely eglandular-hairy inside; lobes 4, blue, erect to erecto-patent, sub-equal, elliptic, 0.8–1.2 mm long, obtuse; nectar guides dark blue. Stamen filaments white, 0.4–0.6 mm long; anthers blue. Style glabrous, 0.3–0.5 mm long. Capsules angustiseptate, obcordate, eglandular-hairy on faces and glandular as well near margins, 2.5–3.2 mm long, 3.2–4.2 mm at widest point. Seeds elliptic to obovoid, flattened, smooth, straw-yellow to pale brown, 0.9–1.2 mm long.



**Fig. 1367:** *Veronica verna* distribution map based on databased records at AK, CHR & WELT.

differ in habit (decumbent to ascending), leaf lobes that are broader and more rounded, larger flowers (4–6 mm diameter) and fruits (3–5 × 4–6 mm), and cup-shaped dark seeds.

**Phenology:** Flowers: September–November (rarely extending to January); fruits: October–December (occasionally to January).

**Cytology:**  $2n = 16$  from overseas material (Albach et al. 2008).

**Notes:** *Veronica verna* is classified in *V.* subg. *Chamaedryis* (Albach et al. 2004a; Albach & Meudt 2010).

The hairs on the lower part of the stems are short, eglandular, and antrorse. Longer-spreading glandular hairs become common in the flowering portion, especially above.



**Fig. 1368:** *Veronica verna*. Habit of a plant in fruit. Alexandra, Otago.



**Fig. 1369:** *Veronica verna*. Whole plants in fruit. Ranfurly, Otago.

**Distribution:** South Island: Marlborough (Molesworth), Canterbury, Otago.

**Biostatus:** Exotic; fully naturalised.

**Habitat:** Dry, inland sites such as pasture and arable crops, river terraces, waste land, roadsides. Recorded elevations range from 10 to 862 m.

**First record:** Allan (1940a, p. 303). Voucher not cited, but “noted at Fairlie”.

Indigenous to temperate Eurasia and North Africa.

**Recognition:** *V. verna* is one of several similar species. Plants are most likely to be misidentified as *V. arvensis*, which is characterised by a similar growth form and overall appearance. However, *V. arvensis* plants are less strictly erect, have different stem hairs (short, bifarious eglandular hairs and long, uniform eglandular hairs), upper leaves and bracts toothed but never pinnatifid, and capsules glabrous on their faces with long, fringing, marginal glandular or eglandular hairs.

*V. triphyllus* plants have pinnatifid stem leaves and bracts, but



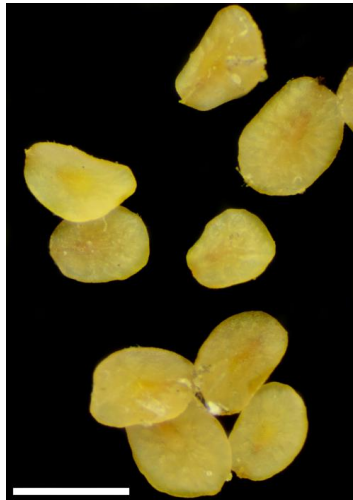
**Fig. 1370:** *Veronica verna*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1371:** *Veronica verna*. Flower. Scale = 1 mm.



**Fig. 1372:** *Veronica verna*. Capsules. Scale = 1 mm.



**Fig. 1373:** *Veronica verna*. Seeds. Scale = 1 mm.

***Veronica vernicosa* Hook.f., *Handb. New Zealand Fl.* 208 (1864)**

≡ *Hebe vernicosa* (Hook.f.) Cockayne & Allan, *Trans. New Zealand Inst.* 57: 30 (1926)

Lectotype (designated by Moore, in Allan 1961): upper Wairau, *Dr Munro no. 12*, Jan 1854, K (pieces on left side of sheet that also includes material from Canterbury Hills, *Travers*)

= *Veronica greyi* J.B.Armstr., *N.Z. Ctry. J.* 3: 57 (1879) – as *grayi*

≡ *Hebe greyi* (J.B.Armstr.) Cockayne, *Trans. New Zealand Inst.* 60: 471 (1929)

Holotype: Waiiau Valley, 3000 ft, J. B. Armstrong, CHR 635757

= *Veronica vernicosa* var. *gracilis* Cheeseman, *Man. New Zealand Fl.* 520 (1906)

Lectotype (designated by Moore, in Allan 1961): Mt Arthur Plateau, Nelson, 3500 ft, *T. F. Cheeseman* (1562 to Kew), AK 8032

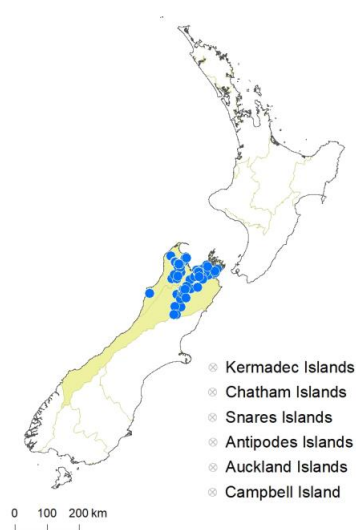
= *Veronica vernicosa* var. *multiflora* Cheeseman, *Man. New Zealand Fl.* 520 (1906)

Lectotype (designated by Moore, in Allan 1961): cultivated in Mr Matthews' garden, Dunedin, *H. J. Matthews*, AK 8029

**Etymology:** The epithet *vernicosa* means varnished, a reference to the glossy leaves.

**Vernacular name:** beech forest hebe

Spreading, low shrub to 0.8 m tall, rarely to 1 m. Stems spreading to obliquely ascending, eglandular-pubescent, hairs bifarious to uniform. Leaf bud distinct, its leaves appressed at margins until fully grown; sinus rhomboid to narrowly rhomboid. Leaves sub-distichous, erecto-patent to spreading; lamina sub-coriaceous, elliptic to obovate, 5–20 mm long, 2.5–8.0 mm wide, glossy, especially above, green to dark green above, green beneath, midrib evident; surfaces usually with eglandular hairs along midrib above, sometimes glabrous; margin glabrous or ciliolate, entire; apex sub-acute to obtuse, broadly and bluntly plicate-acuminate; base shouldered or abruptly narrowed to petiole; petiole 0.5–3.0 mm long. Inflorescence a lateral raceme, 16–72 mm long; flowers crowded, 9–43, all bisexual; bracts alternate, ovate to deltoid,  $\geq$  pedicels; pedicels erecto-patent, 0–3.5 mm long, eglandular-pubescent all around. Calyx lobes 4, usually obtuse or rounded, rarely sub-acute or acute, 1.0–1.5 mm long, equal or sub-equal, usually mixed eglandular- and glandular-ciliolate, sometimes eglandular-ciliate. Corolla 6.0–8.5 mm diameter; tube white, 0.6–1.5 mm long, glabrous inside; lobes 4, white, sometimes pink when young, erecto-patent to spreading, unequal, elliptic to ovate, 3.5–5.0 mm long, sub-acute; nectar guides absent. Stamen filaments white, 3.0–5.5 mm long; anthers white to pale pink. Style glabrous, 2.7–7.0 mm long. Capsules latiseptate, sub-acute to obtuse, glabrous, 2.8–4.2 mm long, 1.6–2.5 mm at widest point. Seeds ellipsoid, obovoid, or oblong, flattened, smooth, pale brown, 1.3–1.5 mm long.



**Fig. 1374:** *Veronica vernicosa* distribution map based on databased records at AK, CHR & WELT.

*V. societatis* plants have a similar growth form, but glaucous leaves, longer calyx lobes (1.5–2.0 mm long), a longer corolla tube  $\geq$  calyx, magenta to purple anthers, and larger capsules (3.7–5.0 mm long). They grow in grassland above the tree line only on Mt Murchison, Braeburn Range. The glossy green leaves are similar to those of *V. odora*. *V. odora* plants can be distinguished by their terminal inflorescences with large, opposite bracts and sessile flowers, and long corolla tubes and narrow corolla lobes, and their leaf bud sinus is broader and shield-shaped due to the abrupt narrowing of the lamina to the petiole.

*V. societatis* plants have a similar growth form, but glaucous leaves, longer calyx lobes (1.5–2.0 mm long), a longer corolla tube  $\geq$  calyx, magenta to purple anthers, and larger capsules (3.7–5.0 mm long). They grow in grassland above the tree line only on Mt Murchison, Braeburn Range.

The glossy green leaves are similar to those of *V. odora*. *V. odora* plants can be distinguished by their terminal inflorescences with large, opposite bracts and sessile flowers, and long corolla tubes and narrow corolla lobes, and their leaf bud sinus is broader and shield-shaped due to the abrupt narrowing of the lamina to the petiole.

**Phenology:** Flowers: October–January; fruits: December–May, persisting to September.

**Cytology:**  $2n = 42$  (see Bayly & Kellow 2006, as *Hebe vernicosa*).

**Notes:** *Veronica vernicosa* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* and the informal group “Apertae” (small-leaved) (Albach & Meudt 2010; Bayly & Kellow 2006). The relationships of *V. vernicosa* are puzzling. Although it looks very similar to *V. canterburiensis*, its chromosome number and its ITS sequence data both indicate it diverged at a node low in the tree of shrubby hebes, close to the whipcord hebes.

**Distribution:** South Island: Western Nelson (widespread from Goulard Downs south to Matiri Range), Sounds Nelson, Westland (Nelson Lakes National Park only); Marlborough (western Wairau Mountains, St James Range).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Southern beech forest, often at or near the tree line. Recorded elevations range from 606 to 1524 m.

**Recognition:** *Veronica vernicosa* is one of only a few hebes that are mostly found in montane southern beech forest. The species is easily recognised. It is characterised by spreading to obliquely ascending branches and shiny, quite small leaves arranged sub-distichously. The petioles are puberulent above and along the edges, but glabrous on the backs. The inflorescence is quite conical when the lowest flowers open, and flower development is strongly acropetal. The calyx lobes are short and almost always rounded to obtuse, and the corolla lobes taper to a sub-acute apex. The anthers are pink, often pale.

*V. canterburiensis* plants are similar, but they can be distinguished by often – although not always – having dense,





**Fig. 1375:** *Veronica vernicosa*. Habit. Mt Robert, Nelson.



**Fig. 1376:** *Veronica vernicosa*. Sprig. Scale = 10 mm.



**Fig. 1377:** *Veronica vernicosa*. Leaf bud with acute, narrowly shield-shaped sinus. Scale = 1 mm.



**Fig. 1378:** *Veronica vernicosa*. Leaf surfaces, adaxial (left, with enlargement showing hairs on leaf margin) and abaxial (right). Scale = 1 mm.



**Fig. 1379:** *Veronica vernicosa*. Inflorescences, showing front view of flowers. Scale = 1 mm.



**Fig. 1380:** *Veronica vernicosa*. Old flower. Scale = 1 mm.



**Fig. 1381:** *Veronica vernicosa*. Flower.  
Scale = 1 mm.



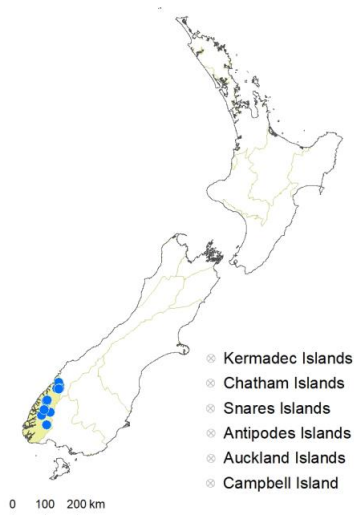
**Fig. 1382:** *Veronica vernicosa*. Capsules.  
Scale = 1 mm.

### ***Veronica zygantha* Garn.-Jones in Garnock-Jones et al., *Taxon* 56: 580 (2007)**

- nom. nov. pro *Veronica laxa* G.Simpson & J.S.Thomson 1942  
 ≡ *Veronica laxa* G.Simpson & J.S.Thomson, *Trans. & Proc. Roy. Soc. New Zealand* 72: 32 (1942)  
 nom. illeg., non *Veronica laxa* Benth. 1835  
 ≡ *Parahebe laxa* W.R.B.Oliv., *Rec. Domin. Mus.* 1: 230 (1944) nom. nov. pro *Veronica laxa* G.Simpson  
 & J.S.Thomson 1942  
 ≡ *Parahebe planopetiolata* var. *laxa* (W.R.B.Oliv.) Ashwin in Allan, *Fl. New Zealand* 1, 882 (1961)  
 Holotype: Fine debris amongst rocks of moraine on the floor of the Homer Valley, near the  
 tunnel, with *Myosotis lyallii* at 800 m altitude, D. S. Coombs, CHR 76013. Isotypes: AK  
 107862, 107863

**Etymology:** The epithet *zygantha* is from the Greek words *zygos*, a yoke or pair, and *anthos*, a flower, a reference to the paired flowers in this species.

Lax and soft-straggling sub-shrub to 0.15 m tall. Stems decumbent or ascending, eglandular-pubescent, or rarely with some glandular hairs as well; hairs uniform. Leaf bud indistinct; leaves separating while very small, opposite-decussate, erecto-patent to spreading; lamina sub-coriaceous, elliptic to orbicular or spatulate, 3–10 mm long, 2–9 mm wide, glossy green or dark green above, dull pale green beneath; veins not evident or midrib faint; surfaces glabrous; margin glabrous, crenate or bluntly serrate, rarely entire; teeth in 0–5 pairs; apex rounded to truncate; base cuneate; petiole 3–5 mm long. Inflorescence a lateral raceme, 8–15 mm long; flowers distant, usually 2–3 or sometimes solitary and bibracteate, all bisexual; bracts alternate, oblanceolate or spatulate, > pedicels; pedicels erecto-patent, 1–3 mm long, eglandular-hairy all around. Calyx lobes 4, obtuse to sub-acute, 4–8 mm long, glabrous. Corolla 5–6 mm diameter; tube white and yellowish, 1.5–3.0 mm long, < calyx, glabrous; lobes 4–5, white, sub-erect to spreading, sub-equal, oblong to obovate, 3–6 mm long, obtuse or rounded; nectar guides absent. Stamen filaments white, 0.5–2.0 mm long; anthers purple. Style glabrous, 0.5–3.0 mm long. Capsules angustiseptate, didymous, glabrous, 4–6 mm long, 3.5–5.5 mm at widest point. Seeds ellipsoid, flattened, smooth, pale brown, 1.0–1.3 mm long.



**Fig. 1383:** *Veronica zygantha* distribution map based on databased records at AK, CHR & WELT.

*laxa*).

**Notes:** *Veronica zygantha* is classified in *V.* subg. *Pseudoveronica* sect. *Hebe* but is not currently assigned to any informal group (Albach & Meudt 2010). The phylogenetic position of *V. zygantha* is uncertain, because it has not been included in published molecular studies so far. On morphology it seems likely to be placed close to the speedwell hebes, especially *V. colostylis* and *V. planopetiolata*, or to the snow hebes, such as *V. birleyi* and *V. spectabilis*.

Based on limited herbarium collections, *V. zygantha* plants in the northern part of its range (e.g., at Freeman Burn and Fowler Pass) may have broader calyx lobes, smaller corollas, shorter styles (0.5–0.8 mm long), and anthers that touch the stigma at anthesis.



**Fig. 1384:** *Veronica zygantha*. Habit. Mt Burns, Fiordland.



**Fig. 1385:** *Veronica zygantha*. Sprig. Scale = 1 mm.

**Distribution:** South Island: Fiordland (Freeman Burn, Fowler Pass, Doon River, Wapiti Lake, Mt Tūtoko, Homer Valley, Mt George, Mt Burns).

**Biostatus:** Indigenous (Endemic).

**Habitat:** Fine, sandy debris among boulders on screes and moraines, often on east-facing boulder screes below cliffs. Recorded elevations range from 920 to 1650 m.

**Recognition:** *V. zygantha* and *V. planopetiolata* plants are similar, and both are classified in the snow hebe group.

*V. planopetiolata* plants can be distinguished by their more compact, mat-forming habit, narrower leaves, and spreading (rather than antrorse) stem and inflorescence hairs.

*V. lyallii* plants may be superficially similar to *V. zygantha* plants in their small, rounded leaves, but these are thicker and dull or bronze-green. *V. lyallii* plants are more woody and they have long inflorescences of many short-tubed flowers, folded lateral corolla lobes, and only weakly flattened capsules.

**Phenology:** Flowers: February–March; fruits: March–April.

**Cytology:**  $2n = 84$  (Beuzenberg & Hair 1983, as *Parahebe laxa*).



**Fig. 1386:** *Veronica zyantha*. Stem and leaves. Scale = 1 mm.



**Fig. 1387:** *Veronica zyantha*. Leaf surfaces, adaxial (left) and abaxial (right). Scale = 1 mm.



**Fig. 1388:** *Veronica zyantha*. Inflorescence. Scale = 1 mm.



**Fig. 1389:** *Veronica zyantha*. Flower. Scale = 1 mm.



**Fig. 1390:** *Veronica zyantha*. Capsules. Scale = 1 mm.

**Table 8:** Morphological features to distinguish the snow hebes in *Veronica* (sensu lato: i.e. *Chionohebe*, *Hebejeebie*, *Parahebe* p.p.). Species are ordered according to similarity of their habit.

	<i>birlevi</i>	<i>spectabilis</i>	<i>trifida</i>	<i>densifolia</i>	<i>thomsonii</i>	<i>pulvinaris</i>	<i>chionohebe</i>	<i>ciliolata</i>
Habit	lax sub-shrub	lax sub-shrub	lax sub-shrub	lax sub-shrub	cushion plant	cushion plant	cushion plant	cushion plant
Stem hairs	eglandular & a few glandular, spreading	mixed glandular & glandular, spreading	eglandular, retrorse	eglandular, retrorse	glabrous	glabrous	glabrous	glabrous
Leaf size (mm)	4.0–12 × 2.5–11	4.5–13 × 2.5–6.0	2–10 × 1–7	2–6.5 × 0.7–3	1.7–4.7 × 0.7–2.6	1.8–4.8 × 0.5–2	1.75–5 × 0.75–2.25	1.75–4.5 × 0.8–2.8
Leaf margins	deeply crenate to lobed	deeply crenate to lobed	shallowly toothed to lobed, rarely entire	usually entire, rarely 1–2 teeth or lobes	entire	entire	entire	entire
Lamina	subcoriaceous, flat; margin not thickened, smooth	subcoriaceous, flat; margin not thickened, smooth	subcoriaceous, flat; margin not thickened, smooth	coriaceous, keeled, with thickened papillate margin	thin, flat; margin not thickened, smooth	thin, flat; margin not thickened, smooth	thin, flat; margin not thickened, smooth	thin, flat; margin not thickened, smooth
Leaf hairs: adaxial	scattered eglandular	mixed eglandular & glandular	glabrous	glabrous	eglandular: in broad band across middle, occasionally scattered distally	eglandular appressed: scattered or in a central patch on distal half	absent	absent or isolated and scattered in distal ½
Leaf hairs: abaxial	scattered eglandular	mixed eglandular & glandular	glabrous	glabrous	glabrous, or stiff, eglandular, isolated distal hairs	glabrous or eglandular appressed scattered distally	absent or isolated distal ½	absent or isolated and scattered in distal ½
Leaf hairs: margin	eglandular-ciliate	mixed eglandular & glandular-ciliate	long glandular-ciliate	stiff eglandular-ciliate	ciliate in basal ½ with apical tuft	eglandular appressed: ciliate	absent or scattered cilia	ciliate throughout or in basal or distal half, usually with apical tuft
Sexual system	cosexual	cosexual	cosexual	cosexual	dioecious	dioecious	dioecious	dioecious
Inflorescence	2–3 flowers, sometimes solitary	2–3 flowers, sometimes solitary	2–3 flowers, sometimes solitary	solitary	solitary	solitary	solitary	solitary
Peduncle (mm)	2–4	5–15	2–10	0	0	0	0	0
Pedicel (mm)	0.3–1.5	2.5–5	0.5–7	0	0	0	0	0
Calyx lobes	4	4	4	5	5	5	5	5
Corolla lobes	(4)5(–6)	4(–5)	5(–6)	5(–6)	5	5	5	5
Corolla diameter (mm)	7–10	18–25	15–20	7–16	2.5–5	2.5–6	1.5–4.1	2.1–6.5
Corolla shape	funnelform	funnelform	funnelform	funnelform	rotate	rotate	rotate	rotate
Capsule size (mm)	3–4 × 3–4	4–5 × 4–5	4.5–6 × 2.5–3	2.7–5 × 1.7–4.25	1.5–3 × 1–2	1–3 × 1.2–2.7	1.9–2.5 × 1.5–1.9	2.5–3.5 × 1.4–3.1
Capsule hairs	glabrous	mixed glandular & eglandular-hairy at apex	glandular-ciliate, sometimes glabrous	glabrous	glabrous to densely hairy at apex	eglandular-hairy, especially at apex	absent	absent or apical

**Table 9: Regional variation in *Veronica hookeriana*.**

Location	Stem hairs	Leaf shape	Leaf apex	Margin	Leaf hairs	Inflorescence hairs	Corolla	Capsule
Volcanic Plateau ( <i>V. hookeriana</i> sens. str.)	sparse, uniform	oval, ovate-oblong, broad-ovate	obtuse to rounded	deeply & bluntly crenate	mostly glandular, on both surfaces	densely glandular-hairy	lavender	large; valves acute to apiculate
Ruahine Range ( <i>V. olsenii</i> )	uniform or bifarious	narrow-ovate to suborbicular	acute to subacute	shallowly & sharply serrate	glabrous	crisped eglandular, sometimes also glandular	pink	broader than long, valves incurved at apex
Raukūmara Range	uniformly pubescent to weakly bifarious	narrow-ovate to suborbicular	obtuse to subacute	crenate to serrate	glabrous	densely eglandular- and glandular-hairy	pale pink or lavender	valves incurved
Kaimanawa & Kaweka Ranges	bifarious (Kaimanawa) to uniform (Kaweka)	narrow-ovate to broadly ovate-oblong or suborbicular	obtuse to subacute	bluntly crenate to bluntly serrate	glabrous beneath, eglandular near margin and apex above	densely glandular-hairy	lavender	valves incurved with small apiculus
Maungapohatu	uniformly pubescent	ovate to suborbicular	obtuse to rounded	crenate or more or less sharply serrate	glabrous, eglandular-hairy, or sometimes glandular hairy at apex or whole surface, or a few eglandular hairs on midrib above & beneath.	glandular-hairy, or sometimes peduncles eglandular	not seen	emarginate

**Table 10: Regional variation in *Veronica lanceolata*.**

Region	Stems	Leaf shape & size (mm)	Leaf apex	Leaf base	Pairs of teeth	Flower number	Inflorescence hairs	Bracts	Pedicel length & hairs	Calyx hairs
Coromandel, Taranaki, Paturau (NW Nelson)	ascending to erect; internodes 5–25 mm long; bifarious (rarely glabrous)	linear to lanceolate, 20–100 x 1.5–12 mm	acute to acuminate	cuneate	(3–) 6–15	9–30	glabrous or eglandular	linear or lanceolate, glabrous or ciliate	5–13 mm, eglandular or glandular all around	glabrous or ciliate
N Taranaki, Whanganui mudstone	stout, decumbent to erect; internodes 10–90 mm long; glabrous (rarely bifarious)	lanceolate, ovate, or elliptic, 15–80 x 8–35 mm	acute to acuminate	cuneate to cordate	(7–) 10–18	20–35	glabrous or eglandular	lanceolate or narrow elliptic, glabrous or ciliate	8–18 mm, eglandular all around or sometimes glandular	margins or adaxial surface, eglandular or glandular
Volcanic Plateau	slender to stout, decumbent to erect; internodes 5–70 mm long; bifarious or glabrous	lanceolate, ovate, or elliptic, 8–45 x 3–25 mm	acute or subacute	cuneate to cordate	(3–) 6–10	8–30	eglandular sometimes mixed with glandular	lanceolate, elliptic, or ovate	8–20 mm, eglandular and/or glandular all around	glabrous, or marginal, or abaxial, eglandular or glandular
East Cape, Kaimanawa, Kaweka, and Ruahine Ranges	slender to stout, prostrate to erect; internodes 5–70 mm long; bifarious, or rarely uniform	lanceolate to oblanceolate, elliptic, or ovate to obovate, 3–50 x 1.5–22 mm	subacute to acuminate	cuneate or subcordate	(2–) 4–9 (–12)	5–25	eglandular, rarely some glandular hairs (Maungaharuru Range)	lanceolate to narrowly elliptic	8–25 mm, eglandular all around (rarely some glandular (Maungaharuru Range))	glabrous or eglandular on margins
Lowland Hawke's Bay & eastern Bay of Plenty	stout, ascending to erect; internodes 5–40 mm long, bifarious	lanceolate or elliptic, 5–55 x 3–15 mm	subacute to acute	cuneate	4–11	5–25	eglandular, sometimes also glandular; peduncle may be glabrous	lanceolate or elliptic	7–16 mm, eglandular or mixed eglandular & glandular all around	glabrous or eglandular on margins
Tararua & Aorangi Ranges (alpine)	moderately stout, decumbent to ascending; internodes 5–25 mm long, bifarious	ovate or elliptic, rarely lanceolate, 10–25 x 5–20 mm	subacute	subcordate to cordate, rarely abruptly cuneate	(3–) 6–12	8–20	eglandular and glandular	lanceolate or elliptic	6–9 (–11) mm, eglandular or glandular all around	glabrous or eglandular on margins
Tararua Range (lowland); similar plants at Kaituna R., NW Nelson	slender to stout, ascending to erect; internodes 3–35 mm long, bifarious	linear, lanceolate, oblanceolate, or elliptic, 7–40 x 2–13 mm	narrowly acute to subacute	cuneate	3–8 (–12)	6–20	eglandular, sometimes also glandular, peduncle may be glabrous	lanceolate, rarely elliptic	(5–) 8–12 mm, eglandular or mixed eglandular & glandular all around	marginal, eglandular or mixed eglandular & glandular, rarely glabrous

Region	Stems	Leaf shape & size (mm)	Leaf apex	Leaf base	Pairs of teeth	Flower number	Inflorescence hairs	Bracts	Pedicel length & hairs	Calyx hairs
Southern Hawke's Bay & lowland Wairarapa	very slender prostrate to decumbent; internodes 5–30 mm long, bifarious	lanceolate or oblanceolate to broadly elliptic, 5–20 x 2.5–10 mm	subacute or acute	cuneate	2–6	4–8 (–12)	eglandular (peduncle glabrous)	elliptic	6–10 mm, eglandular all around, rarely glabrous	marginal eglandular, or glabrous
Rimutaka Range & Cape Palliser	stout, ascending to erect; internodes 8–70 mm long, bifarious	broadly ovate or elliptic, 8–30 x 7–25 mm	obtuse to subacute	cuneate, truncate, or cordate	(4–) 6–9 (–12)	6–15 (–30)	mixed eglandular & glandular, peduncle glabrous	elliptic	8–12 mm, eglandular all around (glandular at C. Palliser)	glabrous or rarely 1–2 hairs at apex



**Table 11:** Morphological features to distinguish *Veronica odora* and look-alikes. Species are ordered according to similarity of their habit.

	<b>odora</b>	<b>mooreae</b>	<b>pauciramosa</b>	<b>masoniae</b>	<b>venustula</b>	<b>brachysiphon</b>
Leaf bud sinus	broad, shield-shaped	narrow & acute to broad & shield shaped	broad, shield-shaped	broad, shield-shaped	narrow, acute	narrow, acute
Leaf margin	sharply bevelled; glabrous	bevelled at 90° to surfaces, glabrous	rounded; glabrous or with minute hairs or denticles	rounded, papillate towards apex; ciliolate when young	weakly bevelled; ciliolate when young, becoming glabrous or papillate	weakly bevelled; ciliolate to ciliate when young, becoming papillate
Stomata	adaxial – (but often + at Arthur's Pass), abaxial +	adaxial – (+ at Caswell Sound, Denniston); abaxial +	adaxial +; abaxial +	adaxial +; abaxial +	adaxial ±; abaxial +	adaxial ±; abaxial +
Midrib	sharply keeled beneath	depressed above; prominent beneath	rounded beneath and flattened just short of apex	keeled throughout	evident but not keeled	evident but not keeled
Inflorescence	terminal + usually lateral spikes	lateral spikes only	lateral spikes only	terminal spikes only	lateral raceme, sometimes ternate, rarely compound.	lateral raceme, sometimes ternate.
Bracts	not overtopping calyx	< calyx	< calyx	≥ calyx	≥ pedicels, < calyx	≥ pedicels, < calyx
Bracts and flowers	opposite	opposite	opposite	opposite	opposite below, becoming alternate	alternate, or lowermost opposite
Pedicels	0 mm	0–1 mm	0–0.5 mm	0 mm	0.5–7.0 mm	0.6–3.0 mm
Calyx, anterior lobes	free	free or fused to 1/3-way	fused > 1/2-way	free	free	free
Corolla lobes	narrow	broad	narrow	broad	± broad	± broad

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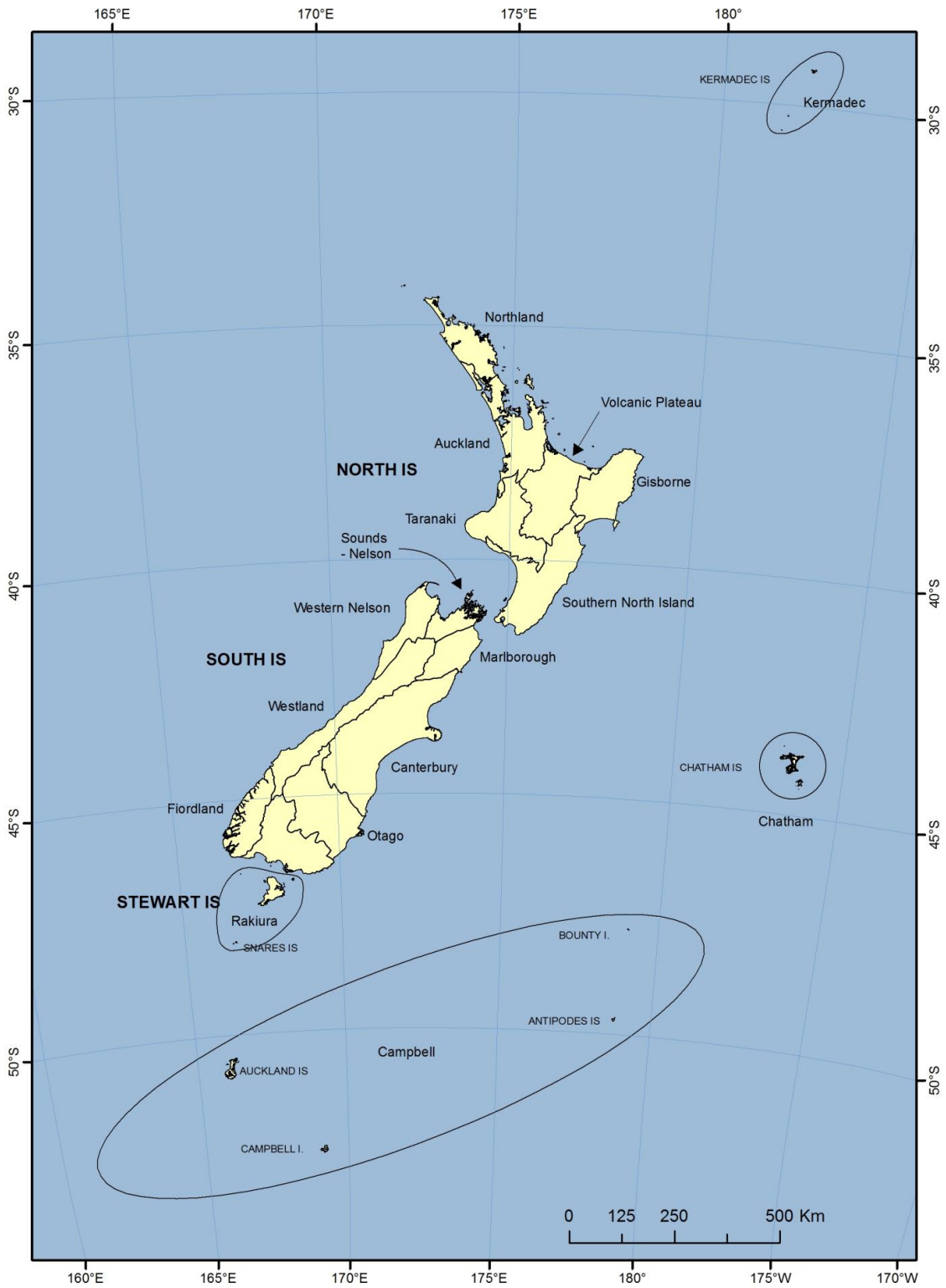
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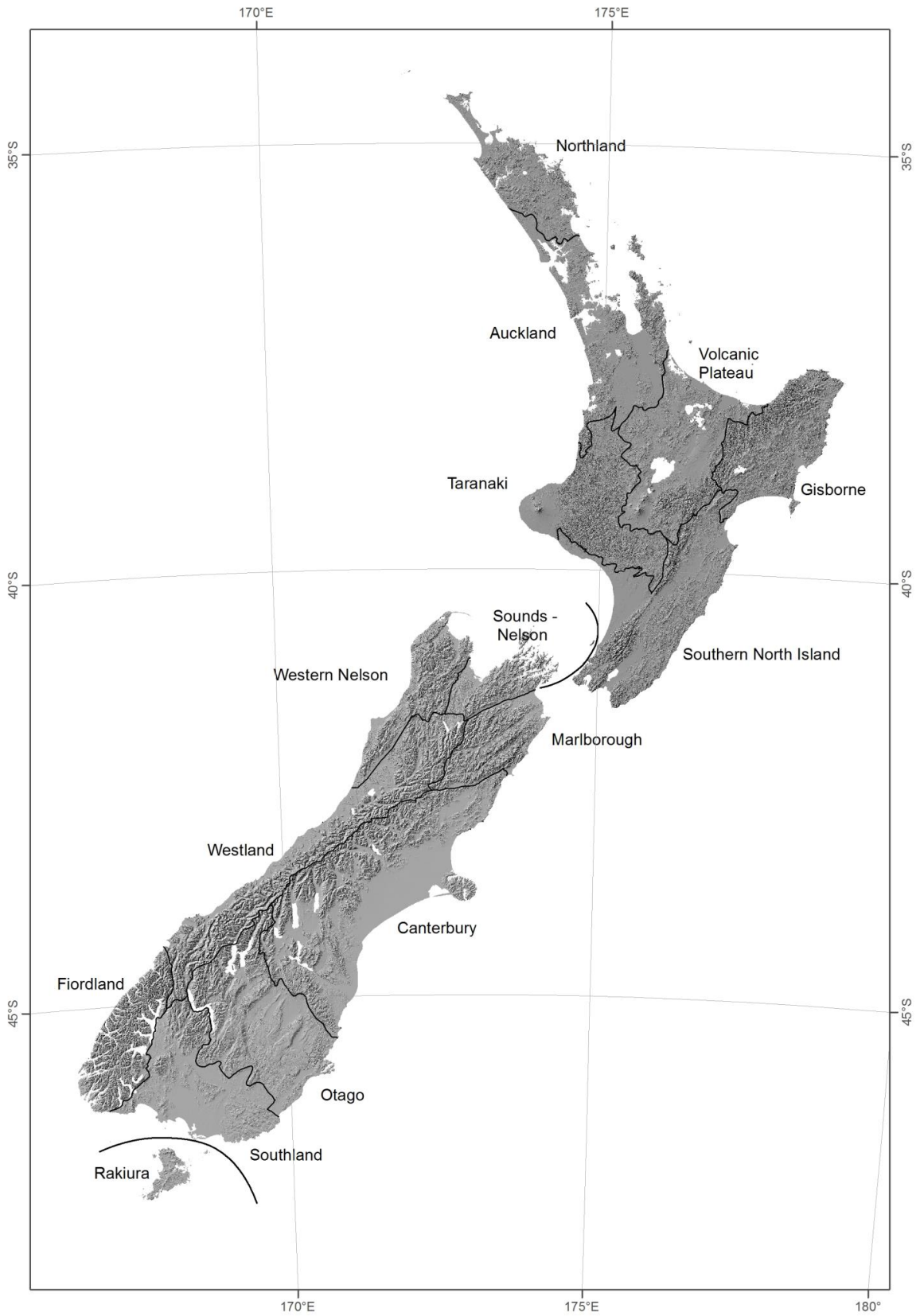
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**Map 1:** Map of New Zealand and offshore islands showing Ecological Provinces



**Map 2:** Map of New Zealand showing Ecological Provinces

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The electronic Flora of New Zealand (**eFloraNZ**) project provides dynamic, continually updated, online taxonomic information about the New Zealand flora. Collaborators in the project are Manaaki Whenua – Landcare Research, the Museum of New Zealand Te Papa Tongarewa, and the National Institute of Water and Atmospheric Research (NIWA).

The eFloraNZ presents new systematic research and brings together information from the Manaaki Whenua – Landcare Research network of databases and online resources. New taxonomic treatments are published as fascicles in PDF format and provide the basis for other eFloraNZ products, including the web profiles.

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For each eFloraNZ set the PDF files are made available as dated and numbered fascicles. With the advent of new discoveries and research the fascicles may be revised, with the new fascicle being treated as a separate version under the same number. However, superseded accounts will remain available on the eFlora website.

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