

The species of *Alseuosmia* (Alseuosmiaceae)

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ABSTRACT

A new species *Alseuosmia turneri* R. O. Gardner (Alseuosmiaceae Airy Shaw) from the Volcanic Plateau, North Island, New Zealand is described and illustrated. *A. linariifolia* A. Cunn. is reduced to a variety of *A. banksii* A. Cunn. and *A. quercifolia* A. Cunn. is given hybrid status (= *A. banksii* A. Cunn. \times *A. macrophylla* A. Cunn.). A key to the four *Alseuosmia* species, synonymy, and a generalised distribution map are given. *A. pusilla* Col. is illustrated for the first time.

INTRODUCTION

Allan Cunningham (1839) described eight species of a new flowering plant genus *Alseuosmia* from material collected in the Bay of Islands region by Banks and Solander in 1769, by himself in 1826 and 1838, and by his brother Richard in 1833-4. The species, all shrubs of the lowland forest, were supposed to differ from one another chiefly in the shape and tothing of their leaves.

Hooker (1852-5, 1864), with the benefit of additional Colenso and Sinclair material, reduced Cunningham's species to four, but stated that these four species were "excessively variable". Kirk (1899) and Cheeseman (1906, 1925) both followed Hooker's treatment; not finding any new characters which would help clarify the group, they repeated Hooker's comment on the species' variability.

Allan (1926) and Carse (1930) suggested that this variability might be due to hybridism and they supposed that all the four accepted species could be linked in that way. Allan (1961), however, went back to a conservative treatment, accepting seven Cunningham species and one species of Colenso (1885) previously treated as a variety (Kirk) or put into synonymy (Cheeseman). Even with eight species, Allan could not account for all the variation and he refers to the "polymorphy" of some species and the likelihood that hybridism produces plants of uncertain affinity.

In this paper a synthetic approach is taken and only four *Alseuosmia* species are recognised (not those four of the earlier authors). Hybridism is

judged to be frequent between only one pair of species and the "excessive variability" lies mostly there.

A NEW SPECIES OF ALSEUOSMIA A. CUNN.

An undescribed species of *Alseuosmia* from the Waimarino region of the Volcanic Plateau has been known for some time (Cockayne 1928, p.179; A. P. Druce in Atkinson 1971). The following description of this species is based on plants observed in the field over the years 1973 to 1976.

Alseuosmia turneri R. O. Gardner, sp. nov.

Frutex ad 1.5 m altus, glaber (nisi oculis lentacula sublevatis) praeter pilos ferrugineos ad axillas limitatas. *Rami* sparsi, ubi novi aequabilis virides. *Folia* elliptica-ovovata, chartacea, apice acuta, marginibus sparsim serratis, supra subterque aequabilis viridia, (5)-9-(12) cm longa et (2)-3-(4) cm lata. *Petioles* c. 8 mm longi, aliquantum basi dilatata. *Inflorescentiae* axillares fasciculares (1)-3-(6)-florae; pedicelli c. 5 mm longi, interdum bracteis parvis ovatis. *Sepala* 4-5, \pm libera, ovata, c. 1.5 mm longa. *Corolla* regularis infundibuliformis carmesina diluta vel rosea interne dilutior; tubo 13-20 mm longo, ore c. 3 mm diametro; lobis 4-5 patentibus fimbriatis ovatis. *Stamina* 4-5 ad oram aequalis inserta vix infra stigma. *Ovarium* c. 3 mm longum, disco coronato. *Baccae* \pm obovoideae, c. 12 mm longae, carmesinae, (2)-8-(∞)-spermae.

Differential diagnosis: Facie inter *A. macrophyllam* A. Cunn. et *A. pusillam* Col. Differt ab *A. macrophylla* floribus minoribus, foliis minoribus tenuior-

ibus, statura minore, ramis paucioribus. Differt ab *A. pusilla* floribus amplioribus, foliis amplioribus emaculatis, ramis ubi novis haud purpureis, statura majore, ramis plure.

Intermediate in appearance between *A. macrophylla* A. Cunn. and *A. pusilla* Col. Differing from the former in its smaller flowers, smaller thinner leaves, lesser stature, and less-branched habit. Differing from the latter in its larger flowers, larger unblotched leaves, new growth of branches never crimson-purple, greater stature, and more-branched habit.

HOLOTYPE: CHR 308307, Ohakune Mountain Road, Volcanic Plateau (grid ref. NZMS 1 N121:924516), *Weinmannia-Podocarpus* forest, c. 680 m, R. O. Gardner 1161, 25 November 1975. Flowering specimen. Fig. 1. Isotypes in AK, AKU, K, MO, WELT.

DISTRIBUTION: Podocarp-broadleaf and beech forests; western flanks of Mt Hauhangatahi and Mt Ruapehu and nearby lower country west towards the Wanganui River (Waimarino region); North Island, New Zealand; c. 650–850 m.

The specific epithet was chosen to commemorate the association of E. Phillips Turner (1865–1937) with the flora of the above locality (cf. *Pittosporum turneri* Petrie).

SPECIMENS SEEN: Allan, Waimarino Plain 1924, CHR 10594; Attwood, Raetihi 1944, CHR 44628; Carse, Waimarino Plain 1920, CHR 289245; Cooper, Ohakune 1957, AK 50090; Druce, Ohakune 1963, CHR 159940; Druce, Ohakune 1963, CHR 159941; Druce, Ohakune 1963, CHR 159942; Foweraker, Pokaka, CANU 4117; Foweraker, Erua, CANU 4128; Gardner, Ohakune 1972, AKU 008006; Melville, Ohakune 1962, CHR 144349; Melville, Ohakune 1962, CHR 140085; Melville, Rongokaupo 1962, CHR 144353; Oliver, Raetihi summit 1927, WELT 37609; Oliver, Raetihi summit 1927, WELT 8343; Oliver, Mt Hauhangatahi 1954, WELT 39375; Petrie, Waimarino 1921, WELT 37117; Poole, Rangataua 1947, CHR 62245; Turner, Ohakune, AK 36969; Zotov, Waimarino 1932, CHR 4578.

NOTES: The characters which tend to distinguish *A. turneri* from *A. macrophylla* and *A. pusilla* are shown in Table 1. Although these three species are amply distinct in the field, determination of dried specimens can be difficult unless they bear flowers (see Key).

The overall likeness between *A. turneri* and *A. macrophylla* and the absence of the latter species from the Volcanic Plateau (Fig. 3) might suggest that *A. turneri* would be properly treated as a subspecies (geographical race) of *A. macrophylla*. Against such a treatment it can be noted that no forms intermediate between these taxa have so far been collected (AK! AKU! CANU! CHR! WELT! WELTU!).

THE SMALL-LEAVED SPECIES; HYBRIDISM

All authors (Hooker 1852–5, 1864; Kirk 1899; Cheeseman 1906, 1925; Carse 1930; Allan 1961) have had trouble providing discriminatory characters for the small-leaved species of *Alseuosmia* that were described by Allan Cunningham (1839). These so-called "species", *A. atriplicifolia*, *A. banksii*, *A. ligustrifolia*, *A. linariifolia*, and *A. palaeiformis*, share a restricted distribution centred on the Bay of Islands–Hokianga region and are distinct in the genus in having small leaves, slender branchlets, and fine pale pubescence (unicellular hairs) on the younger regions of the shoot. (Similarly-disposed unicellular hairs are present in *A. macrophylla*, *A. pusilla*, and *A. turneri*, but are too short and sparse ever to form a pubescence or be visible to the naked eye.)

The more-or-less continuous variation between the small-leaved "species" suggests that these taxa should be merged, and this is done below under the best-known name, *A. banksii* A. Cunn. Then the correlation between the shape of the leaf and the degree of dissection of the leaf margin found in this taxon can be recognised by accepting the epithet *linariifolia* at varietal level.

Diagnoses are:

Alseuosmia banksii A. Cunn., Ann. Nat. Hist. 2: 209 (1839)

var. *banksii*

Leaves broad-ovate to obovate, margins usually serrate-dentate.

var. *linariifolia* (A. Cunn.) R. O. Gardner comb. nov.

Foliis linearibus vel anguste ellipticis, marginibus plerumque subintegris.

Leaves linear to narrowly elliptic, margins usually subentire.

Basionym: *A. linariifolia* A. Cunn., loc. cit. 209

The differences between the leaves of these varieties are well shown by Hooker (1852–5, plates XXIV, XXVA). The varieties cannot be distinguished on ecological or geographical grounds.

Specimens which match the Cunningham types of *A. banksii* var. *banksii* and var. *linariifolia* in leaf size (<3 cm long) are seldom encountered outside the Bay of Islands–Hokianga region. Larger-leaved forms occur southwards to c. lat. 38°, and almost certainly originate by hybridism between *A. banksii* and *A. macrophylla* (Carse 1930, Gardner 1976).

A nomenclatural treatment of this hybrid group, arbitrary to some degree but avoiding the loss of information attendant on the acceptance of an "*A. macrophylla* s.l.", is proposed:

- (i) that the name *A. banksii* A. Cunn. be applied to all members of the group whose leaves (blade

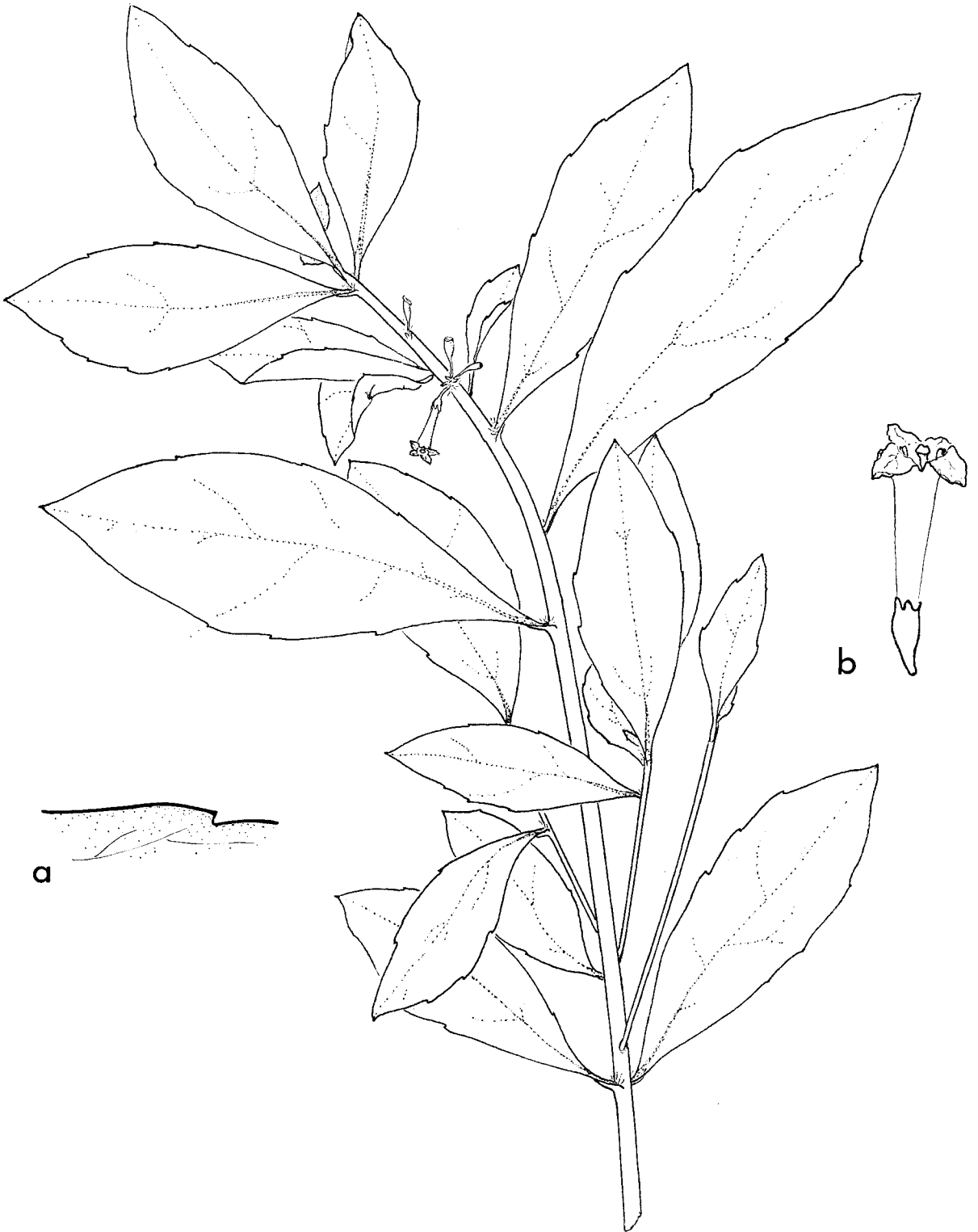


Fig. 1 Holotype of *Alseuosmia turneri*, (CHR 308307). $\times\frac{1}{4}$. a, leaf tooth. $\times c.4$. b, flower. $\times 2$.

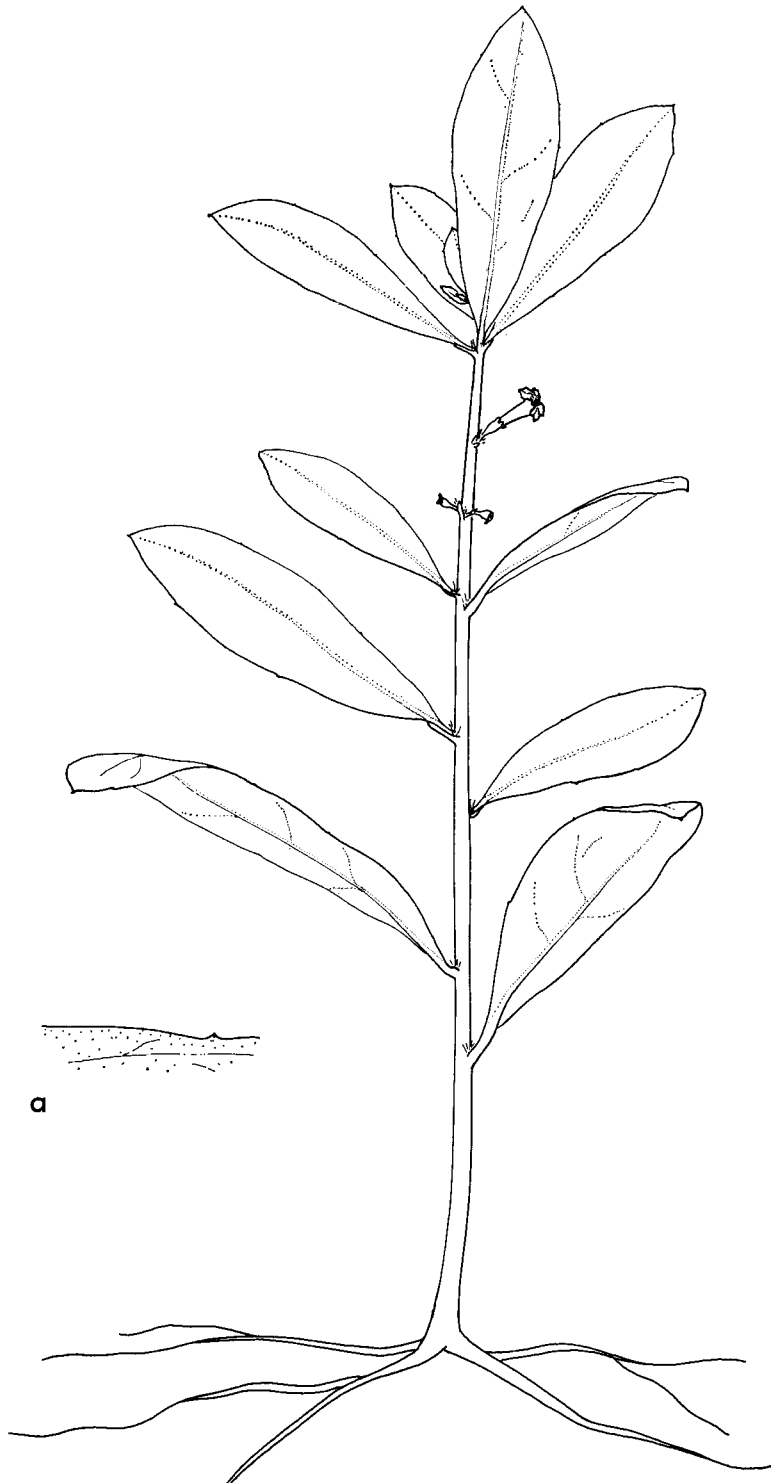
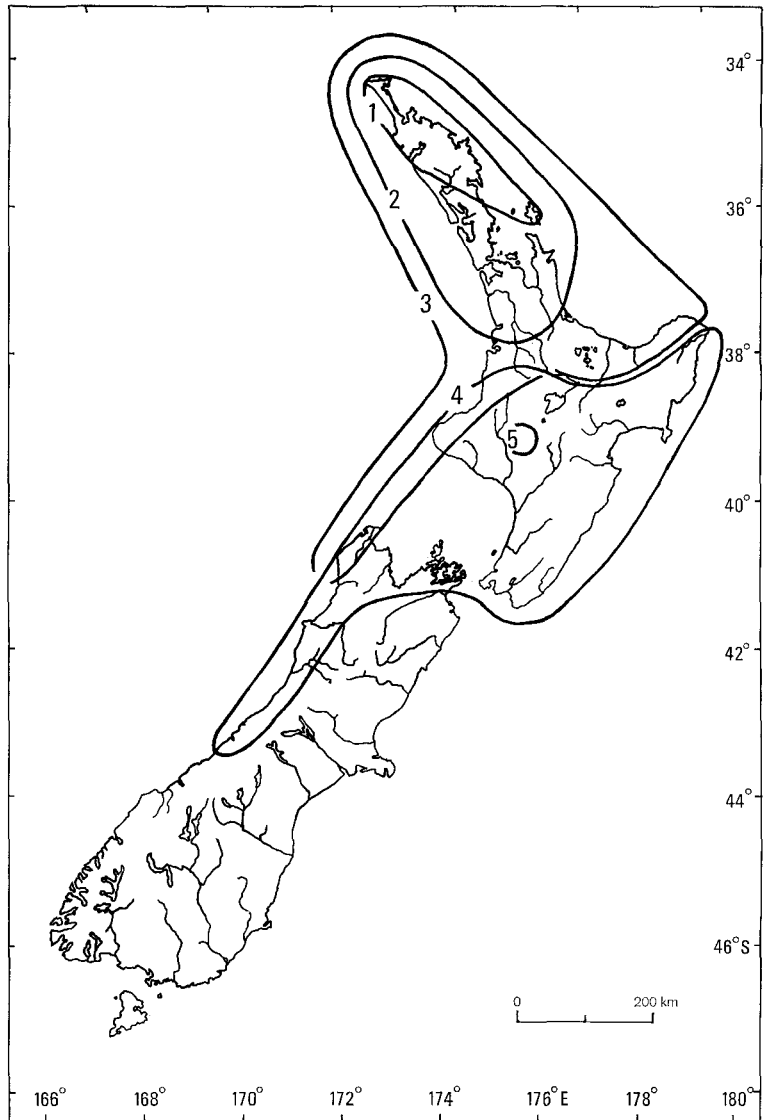


Fig. 2 *Alseuosmia pusilla*. $\times \frac{1}{2}$. a, leaf tooth. $\times c.4$.

Fig. 3 *Alseuosmia* species. Generalised extreme boundaries of distribution. 1, *A. banksii*; 2, *A. × quercifolia*; 3, *A. macrophylla*; 4, *A. pusilla*; 5, *A. turneri*.



plus petiole) are <3 cm long, i.e., those plants which more-or-less agree with the Cunningham types — see Table 1 for other characters of this taxon;

- (ii) that the names *A. illex* A. Cunn. and *A. quercifolia* A. Cunn., which have been given to different forms within the hybrid group, be judged as synonyms at the interspecific hybrid level (Article H3, International Code of Botanical Nomenclature 1972), and therefore;
- (iii) that because *quercifolia* is the better-known of these epithets, the name *A. × quercifolia* A. Cunn. be used to refer to (all) members of the

A. banksii × *macrophylla* group.

Alseuosmia × *quercifolia* is usually intermediate between the parental species in its appearance, but there are striking variants, e.g., some plants from the Waipoua Forest have long entire leaves which resemble those of *Persoonia toru* (Proteaceae) or *Myrsine salicina* (Myrsinaceae).

Southwards in its range, *A. × quercifolia* tends to be larger in stature, larger-leaved, and less pubescent, and is relatively uniform in some localities. This pattern of variation is presumably a consequence of the “diffusion” of *A. banksii* genes into the more widespread and abundant *A. macrophylla*.

Table 1 Comparison between *Alseuosmia* species.

Character ¹	<i>A. banksii</i>	<i>A. macrophylla</i>	<i>A. turneri</i>	<i>A. pusilla</i>
Habit, mature height (m)	Few-branched, <1.5	Few-branched, <3.5	Few-branched, <1.5	Often unbranched, <1
Branchlets (mm diam. at level of commencement of 2° growth)	Slender (c. 1), green-crimson, with pale pubescence	Robust (c. 3.5), green, glabrous to naked eye	Quite robust (c. 3), green, glabrous to naked eye	Not quite robust (c. 2), crimson-purple, glabrous to naked eye
Leaf length (cm), shape	0.5–3, obovate-linear-ovate	(6)–12–(18), obovate-elliptic	(5)–9–(12), obovate-elliptic	(3.5)–7–(10), obovate-elliptic
Leaf margin	Serrate-dentate to subentire	Crenate-serrate	Serrate	Weakly dentate to subentire
Leaf colouring	± uniformly green above, below and on margin	± uniformly green above, below and on margin	± uniformly green above, below and on margin	Usually blotched with crimson above, flecked with pink below and drying to pale purple especially on midrib, crimson margin
Corolla tube length (mm)	8–12	(22)–30–45	13–20	8–12
Unknown substance(s) reacting anomalously in Dragendorff's alkaloid test (see Cambie <i>et al.</i> 1961, Gardner 1976, for details)	Absent	Absent	Present	Absent

¹All measurements and colours refer to the fresh state.

KEY TO THE SPECIES OF ALSEUOSMIA

- 1a Leaves (blade plus petiole) <3 cm long; new growth of stem with grey-white pubescence **A. banksii**
- 1b Leaves (blade plus petiole) >3.5 cm long; new growth of stem glabrous to naked eye 2
- 2a Corolla tube ≤1.2 cm long*; leaves usually crimson-blotched above, crimson on margins, and drying to pale purple below especially on midrib; leaf margin with occasional denticles; new growth of stem usually crimson-purple; a ± unbranched shrub usually <50 cm tall **A. pusilla**
- 2b Corolla tube ≥1.3 cm long*; leaves usually uniformly green above and below, not crimson on margins, and not drying to pale purple below; leaf margin distantly crenate to serrate; new growth of stem uniformly green (occasionally crimson-flecked in exposed plants), a few-branched shrub usually >50 cm tall 3
- 3a Corolla tube (2.2)–3–4.5 cm long* **A. macrophylla**
- 3b Corolla tube 1.3–2.0 cm long* — (Waimarino region of Volcanic Plateau) **A. turneri**

*Corolla tube may shrink c. 10% on drying.

Alseuosmia × *quercifolia* can take any combination of the parental species' characters, and is therefore not included in the Key. It will often be identified from the Key, however, because its leaf size and degree of pubescence, considered together, seldom agree with either lead of the first couplet.

ILLUSTRATIONS

Alseuosmia banksii A. Cunn. var. *banksii*
Hook. f., Fl. N.Z., plate XXIV (1852).

Alseuosmia banksii var. *linariifolia* (A. Cunn.)
Gardner

Hook. f., loc. cit., plate XXVA.

Alseuosmia macrophylla A. Cunn.

Hook. f., loc. cit., plate XXIII.

Cheeseman, Illustr. N.Z. Fl., Vol. 1, plate 78
(1914).

Alseuosmia pusilla Col.

Fig. 2.

Alseuosmia × *quercifolia* A. Cunn.

Hook. f., loc. cit., plate XXVB

Alseuosmia turneri Gardner

Fig. 1.

SYNONYMY AND TYPES

Alseuosmia banksii A. Cunn., Ann. Nat. Hist. 2: 209 (1839). Lectotype: "Bay of Islands, R. Cunningham 1834, A. Cunningham 1838", K.

var. *banksii*

A. atriplicifolia A. Cunn., loc. cit. 210. Holotype: "Wangaroa, R. Cunningham 1834", K.

A. palaeiformis A. Cunn., loc. cit. 210. Holotype: "Wangaroa, R. Cunningham 1834", K.

[*Fagoides triloba* Banks et Sol., MS. et Ic., nom. ined.]

var. *linariifolia* (A. Cunn.) Gardner

A. hookeria Col., Exc. North I. N.Z., 84 (1844). Holotype: "Colenso 326", K.

A. ligustrifolia A. Cunn., loc. cit. 209. Holotype: "Wangaroa, R. Cunningham 1834", K.

A. linariifolia A. Cunn., loc. cit. 209. Holotype: "Bay of Islands, A. Cunningham 1826", K.

A. linariifolia var. *ligustrifolia* (A. Cunn.) Hook. f., Fl. N.Z., 103 (1852).

Alseuosmia macrophylla A. Cunn., loc. cit. 210. Holotype: "A. Cunningham, 1838", 2 sheets, K.

Alseuosmia pusilla Col., Trans. N.Z. Inst. 17: 241 (1885). Lectotype: ["In shady forests near Norsewood, Colenso"], WELT 37669.

A. quercifolia A. Cunn. var. *pusilla* (Col.) Kirk, Stud. Fl. N.Z., 227 (1899).

A. quercifolia A. Cunn. var. *glauca* Kirk, loc. cit., 227. Syntype: "Rai Valley, J. Rutland", AK 9186. Other syntypes not traced (see Allan 1961, p.556).

A. × *quercifolia* A. Cunn., loc. cit. 210.

Holotype: "Bay of Islands, A. Cunningham 1826-34", K.

A. ilex A. Cunn., loc. cit. 210.

Holotype: "A. Cunningham 1826-36, R. Cunningham 1834", K.

[*A. bupleurifolia* Heynhold, Nom. Bot. Hort., Vol. 2, 27 (1840), nom. dub. Only the description "hare's-ear leaved" is given.]

Lectotypes in the genus were chosen by Allan (1961).

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