

Pimelea villosa

COMMON NAME

sand daphne, autetaranga, toroheke, sand pimelea

SYNONYMS

Gymnococca arenaria Fisch. et Mey., *Pimelea arenaria* A.Cunn., *P. villosa* subsp. *arenaria* (A.Cunn.) C.J.Burrows, *Pimelea dasyantha* Colenso

FAMILY

Thymelaeaceae

AUTHORITY

Pimelea villosa Sol. ex Sm.

FLORA CATEGORY

Vascular – Native

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

STRUCTURAL CLASS

Trees & Shrubs - Dicotyledons

CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: PD, RF

PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Declining | Qualifiers: PD, RF

2004 | Gradual Decline

BRIEF DESCRIPTION

Much-branched sprawling shrub with hairy branches (often mostly covered by sand) bearing pairs of pointed leaves that have long hairs on the underside, hairy white flowers and black, red, pink or white fruit inhabiting sandy areas south to about Christchurch and the Chatham Islands. Leaves 5-15mm long by 3-7mm wide.

DISTRIBUTION

Endemic. North, South and Rekohu (Chatham Island). Abundant on Rekohu.

HABITAT

Confined to sand dunes and associated swales and flats - usually in free draining sites but sometimes bordering streams in places prone to sudden flooding. On Rekohu (Chatham Island) this species often extends outside these habitats onto the sandy peat soils that were once forest and are now mostly pasture, and in these places it sometimes extends into dune forest remnants. It can be very common in pasture there probably because the soils are free draining and sandy and also because it is toxic and so cattle and sheep will not eat it. On the southern tablelands it is sometimes found within clears (on shallow peat soils) where it grows with other plants typical dune country such as *Coprosma acerosa*. Unusually for this species around Te Whanga it sometimes grows on limestone outcrops.



Tokerau Beach. Photographer: John Smith-Dodsworth



At 90 Mile Beach. Photographer: John Smith-Dodsworth

FEATURES

A medium-sized to large, much-branched, erect to decumbent, sometimes prostrate shrub; stems stout to slender, flexible to stiff, to 1.5 m long, usually shorter, sometimes developing adventitious roots if buried by sand. Young branchlets densely covered in short to long, white, or rarely yellowish, appressed hair. Internode length 0.8–10.0 mm; older stems sparsely hairy, or hairless, brown. Node buttresses short (0.25 mm), lunate, glabrous, or with short hairs, but masked by internode hair on young stems; not prominent on leafless stems. Leaves decussate, ascendant or spreading, then often deflexed, imbricate or distant, on short (0.2–0.8 mm) often red petioles. Lamina 5–15 mm long × 3–7 mm wide, broad-elliptic to broad-ovate, flat; obtuse, or acute, base cuneate. Upperside of leaf glaucous to medium green, usually glabrous, but young leaves sometimes sparsely hairy, above. Lower sides and margins are densely covered by appressed white to dull white or sometimes yellowish hair; midvein not prominent. Stomata on both leaf surfaces. Inflorescences terminal on branchlets, 3–7-flowered. In some individuals grouped in clusters of 2 or more. Receptacles very hairy. Involucral bracts 4, of similar size to, or smaller than, adjacent ordinary leaves (8–10 × 5–7 mm), broad-elliptic to broad-ovate, densely hairy below, usually glabrous above but sometimes with a few hairs on that side. Plants gynodioecious. Flowers white or sometimes cream, on short pedicels (0.5 mm); tube and calyx lobes very hairy outside, inside hairless or with a few hairs in the ovary portion, lobes open in ascendant or salverform fashion. Female tube 4–5.5 mm long, ovary portion 3–4.5 mm, calyx lobes 2.2 × 2.0 mm; hermaphrodite tube 5–7 mm, ovary portion 3.5–5 mm, calyx lobes 2.5–2.7 × 2–2.5 mm. Anther filaments short, inserted at mouth of tube; anther yellow. Ovary partly or completely hair-covered. Fruits ovoid, fleshy, dark purple-black, red, pink or white, opaque, 5.2 × 4.2 mm. The tube breaks off irregularly as the fruit ripens. Seeds 4 × 2.2 mm. Description based on Burrows (2009)

SIMILAR TAXA

A very distinctive shrub, the erect, open-branching habit, small oblong to sub-orbicular close-set leaves, and restriction to coastal sand dunes and swales set it apart from all other *Pimelea* species. The treatment offered here includes plants with a lower, more spreading shrub habit and more widely spaced, longer and narrower spreading leaves (these forms are treated by de Lange et al. (2009) as *Pimelea* aff. *arenaria* (AK 216133; Southern New Zealand), and they were treated as subsp. *arenaria* by Burrows (2009), though circumscription of the subspecies in that paper is better regarded as pro parte because Burrow (2009) included elements of *P. villosa* s.s. within it (see comments on taxonomy below)

FLOWERING

September - March

FLOWER COLOURS

Cream, White

FRUITING

October - April

PROPAGATION TECHNIQUE

Easy from semi-hardwood cuttings. Will germinate readily and swiftly when seed is fresh (Nan Pullman, pers. comm.).

THREATS

Threatened throughout its range (except possibly Rekohu (Chatham Island) by competition from marram grass; trampling by cattle, sheep and horses; browsing of seedlings by possums; seed destruction by rodents; vehicle damage and fire. More worryingly it has been observed that fruiting plants are now rarely seen over large parts of its range despite apparently good sex ratios within populations. It is suspected that the low fruit set being observed is due to the decline of and perhaps loss from some areas of pollinators. Further study is needed to confirm this. Although treat in the broad sense here the southern variant (*Pimelea* aff. *arenaria* (AK 216133; Southern New Zealand)) is by far the less common and more threatened of the two forms.

ETYMOLOGY

pimelea: *Pimeleoides* means “resembling *Pimelea*”, a genus in the family Thymelaeaceae (Greek, -oides = resembling, like).

villosa: From Latin (*villus*) meaning shaggy or hairy.

TAXONOMY

Burrows (2009) reinstated the earlier legitimate and effectively published name *Pimelea villosa* for the species long known as *Pimelea arenaria* A.Cunn. In the process he recognised a new subspecies - *P. villosa* subsp. *arenaria* (A.Cunn.) C.J.Burrows based on the type of *P. arenaria* collected from the Hokianga. This subspecies was meant to encompass the southern variant recognised by many other New Zealand botanists (a point unacknowledged by Burrows (2009)) and even named at species rank as *P. dasyantha* Colenso. NZPCN does not recognise subsp. *arenaria* because the type suite of that subspecies encompasses shade and sun forms of *P. villosa*. Shaded plants of *P. villosa* s.s. tend to lose their imbricating smaller leaves, and adopt a laxer growth habit with larger leaves (this also happens in cultivation) - so approaching the southern variant. However these shade plants of *P. villosa* still retain the taller growth habit typical of *P. villosa* s.s. and not of the southern variant. Further the situation on the Chathams is not as described by Burrows (2009) either - whereby he stated that both subspecies occur there, overlap and hybridise - that observation stems from confusion over shade and sun plants of *P. villosa* s.s. It is important to appreciate that Burrows had not undertaken field work on those islands and based his decisions on often inadequately labelled herbarium specimens. It is the view of both P. J. de Lange & M. J. Thorsen (*pers. comm.*) who have spent considerable time on these islands that all plants there are *P. villosa* s.s. Lastly because Burrows (2009) included elements of *P. villosa* s.s. within his circumscription of *P. villosa* subsp. *arenaria*, and also used as type, material that is referable to *P. villosa* s.s., subsp. *arenaria* is treated here as a synonym of *P. villosa* s.s. Further research into the natural variation of *P. villosa* throughout New Zealand, using molecular techniques is needed to adequately address the status of *P. villosa* s.s. and the southern variant. Finally contrary to Burrows (2009) the southern variant (his "subsp. *arenaria*") is not known to be sympatric with *P. villosa* s.s. (though it comes close at Kawhia). Currently this variant is still only known from Kawhia and the Hawke's Bay south.

ATTRIBUTION

Fact Sheet by P.J. de Lange (1 November 2009). Description based on: Burrows (2009).

REFERENCES AND FURTHER READING

- Burrows, C.J. 2009: Genus *Pimelea* (Thymelaeaceae) in New Zealand 3. The taxonomic treatment of six endemic hairy-leaved species. *New Zealand Journal of Botany* 47: 325-354.
- de Lange, P.J.; Norton, D.A.; Courtney, S.P.; Heenan, P.B.; Barkla, J.W.; Cameron, E.K.; Hitchmough, R.; Townsend, A.J. 2009: *Threatened and uncommon plants New Zealand Journal of Botany* 47: 61-96.
- Merrett, M. 2005. The lowdown on *Pimelea arenaria*. *Wellington Botanical Society Bulletin* 49: 3-6

NZPCN FACT SHEET CITATION

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MORE INFORMATION

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