

Psoralea pinnata

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Fabales	Fabaceae

Common name dally pine (English, New Zealand), African scurfpea (English), blue Psoralea (English, Australia), bloukeur (English, South Africa), Albany broom (English, Western Australia), blue butterfly bush (English, Australia), blue broom (English, Western Australia), blue pea (English), umhlonishwa (English, South Africa), taylorina (English, Australia), fonteinbos (English, South Africa), penwortel (English, South Africa), Fountain Bush (English, South Africa)

Synonym *Psoralea arborea*

Similar species

Summary *Psoralea pinnata* is a slender, medium-sized shrub that occurs in riparian habitats along creeks and rivers, in waste land and disturbed natural vegetation. Any disturbance for e.g. a fire incident can trigger a mass germination of soil stored seed. It is fast growing and forms dense thickets that could shade out and impede the growth of lower stratal species; it is a nitrogen fixer and can alter soil nutrient status.



[view this species on IUCN Red List](#)

Species Description

Psoralea pinnata is a slender medium-sized fast growing shrub that can reach upto 5m in height. Its fine deep green linear leaves are deeply divided (about 4cm long). The linear leaf blades occur in crowded alterante spirals (0.8mm to 2mm wide) and tapering from the base. This plant blooms with white, lilac or blue pea shaped sweet smelling flowers in large clusters toward the end of the branches. Flowering is followed by the production of small pods, each of these contain a single dark brown seed [Description from EOL 2010]. The seeds are hard-coated (3.4 × 2.1mm); any disturbance for e.g. a fire incident can trigger a mass germination of soil stored seed (Groves *et al* 2005).

P. pinnata bears nodules that are associated with nitrogen-fixing bacteria. The species was examined for mychorrhizael associates by Hawley and Dames (2004): hyphae, vesicles and spores were found to be present in roots.

Uses

Psoralea pinnata is taken as emetics by healers in Africa (Hutchings *et al.* 1996). It has been screened for anticancer compounds by Fouche and colleagues (2008).

Habitat Description

Psoralea pinnata is found near waterfalls and in rocky places in its native South Africa (JSTOR Plant Science 2010). In its introduced range in Australia it occurs in riparian areas, occupying edges of rivers creeks and swamps; it is found growing amongst low trees, low (sclerophyll) shrubland; in rocky or stony soil, gravelly soil, sand, loam, clay, wet soil; road verges and walktrails, old quarries and rubbish tips; growing on wasteland, in gravel pits, in disturbed natural vegetation, and on bare areas. (Hussey *et al.* 1997; Muyt 2001; Department of Primary Industries 2008a; FloraBase 2010). It is reported to be highly invasive in heathland in Australia (Muyt 2001).

In the far north of New Zealand *P. pinnata* is found on volcanic soils and is most common close to roads and tracks (Enright 1989).

P. pinnata is tolerant of partial shade and invades forest. It is tolerant to frost (to temperatures of -4°C), fire (fire stimulates germination and mature plants can replot), dry conditions (not drought), waterlogging (occurs in swamps) and salt laden winds (Blood 2001, Muyt 2001, in Department of Primary Industries 2008b).

Reproduction

Psoralea pinnata reproduces by seed and can produce thousands of propagules (seeds) annually (Muyt 2001). Seeds remain persistent in soil for at least 8 years (Muyt 2001). In terms of reproductive period the plant can live for 15 years and is able to start flowering in its second year which would give it a potential reproductive period of more than 10 years (Blood 2001, Eliovson 1960, Muyt 2001, in Department of Primary Industries 2008b).

General Impacts

Psoralea pinnata is fast growing and can grow up to 1.5m in a year. It forms dense thickets that could shade out and impede the growth of lower stratal species (Muyt 2001). *P. pinnata* is capable of vegetative regeneration and resprouts from its base (FloraBase 2010). Its hard coated seeds persist in soil for upto 8 years; any disturbance for e.g a fire incident can cause mass germination of these seeds. Mature plants are generally killed in a fire (FloraBase 2010).

P. pinnata is a nitrogen-fixing plant which can alter soil fertility and affect indigenous species persistence (Muyt 2001).

In Western Australia *P. pinnata* is one of several weeds that invades the habitat of the endangered mountain villarsia (*Villarsia calthifolia*) and is listed as a threatening competitor to this rare species (Gilfillan & Barrett 2004). *P. pinnata* is also one of several weeds (gorse (*Ulex europaeus*; *Acacia longifolia* var *sophorae*; bitou bush (*Chrysanthemoides monilifera*) that threatens the heath and swamp habitat of the emu wrens in south-west Victoria (Maguire & Mulder, 2004). Additionally these weeds need to be managed and cause the use of chemicals and other mechanical tools in this habitat.

Management Info

Management notes in FloraBase (2010) suggest hand-pulling or digging out young plants and seedlings. For mature shrubs they suggest cutting and painting with 50% glyphosate. Since *P. pinnata* is capable of resprouting, a 1% glyphosate spray of resprouting material is suggested.

P. pinnata seeds are known to persist in the soil for upto 8 years, therefore treated sites need to be managed for at least 8 years.

Pathway

Human aided dispersal of *Psoralea pinnata* seeds may occur through movement of machinery and contaminated soil (FloraBase 2010). Dispersal over more than 1 km through contaminated machinery has been observed (Mitchard pers comm. 2007, in Department *Psoralea pinnata* is occasionally sold as an ornamental plant.



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Psoralea pinnata*

Principal source: [FloraBase, 2010. *Psoralea pinnata* L. Department of Environment and Conservation, Western Australia Herbarium](#)
[Department of Primary Industries, 2008b. Impact Assessment - Blue Psoralea \(*Psoralea pinnata*\) in Victoria. Victorian Resources Online. Government of Victoria](#)

Compiler: IUCN SSC Invasive Species Specialist Group (ISSG) with support from the Auckland Regional Council (ARC)

Review:

Publication date: 2010-06-10

ALIEN RANGE

[7] AUSTRALIA

[1] PORTUGAL

[1] UNITED STATES

[4] NEW ZEALAND

[1] UNITED KINGDOM

BIBLIOGRAPHY

36 references found for *Psoralea pinnata*

Management information

[Biosecurity New Zealand, 2010. Regional Pest Management. Map Display](#)

Summary: Available from: <http://www.biosecurityperformance.maf.govt.nz/public/Map.aspx> [Accessed 19 August 2010]

[City of Greater Geelong Environment & Natural Resources, n.d. Common pest plants that environmental weeds in the Geelong region. Version 08.](#)

Summary: Available from: <http://www.geelongcity.vic.gov.au/common/Public/Documents/8cbc7828594f688-GardenPlantsaregoingBush.pdf> [Accessed 19 August 2010]

[Csurhes, S. and R. Edwards, 1998. National Weeds Programme: Potential Environmental Weeds in Australia, Candidate species for preventative control. Queensland Department of Natural Resources](#)

Summary: Available from: <http://www.weeds.gov.au/publications/books/pubs/potential.pdf> [Accessed 19 August 2010]

[Department of Primary Industries 2008a. Invasiveness Assessment - Blue Psoralea \(*Psoralea pinnata*\) in Victoria. Victorian Resources Online. Government of Victoria](#)

Summary: Available from: http://www.land.vic.gov.au/DPI/Vro/vrosite.nsf/pages/invasive_blue_psoralea [Accessed 19 August 2010]

[Department of Primary Industries, 2009b. Impact Assessment - Blue Psoralea \(*Psoralea pinnata*\) in Victoria. Victorian Resources Online. Government of Victoria](#)

Summary: Available from: http://www.dpi.vic.gov.au/DPI/Vro/vrosite.nsf/pages/impact_blue_psoralea [Accessed 19 August 2010]

[FloraBase, 2010. *Psoralea pinnata* L. Department of Environment and Conservation, Western Australia Herbarium](#)

Summary: Available from: <http://florabase.calm.wa.gov.au/browse/profile/4155> [Accessed 19 August 2010]

[Groves, R.H., Boden, R. & Lonsdale, W.M. 2005. Jumping the Garden Fence: Invasive Garden Plants in Australia and their environmental and agricultural impacts. CSIRO report prepared for WWF-Australia. WWF-Australia, Sydney.](#)

[Howell, Clayton, 2008. Consolidated list of environmental weeds in New Zealand. DOC Research & Development Series 292](#)

Summary: Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/drds292.pdf> [Accessed 3 April 2010]

[McKergow, Lucy A., David M. Weaver, Ian P. Prosser, Rodger B. Grayson, Adrian E.G. Reed, 2003. Before and after riparian management: sediment and nutrient exports from a small agricultural catchment, Western Australia. Journal of Hydrology 270 \(2003\) 253-272](#)

[Moore, J.H., G.E. Fletcher and A. Rogerson, 1996. Golden dodder in Western Australia- its status and eradication issues. Eleventh Australian Weeds Conference Proceedings.](#)

Summary: Available from: <http://www.caws.org.au/awc/1996/awc199614971.pdf> [Accessed 19 August 2010]

[Murray, Brad R. & Megan L. Phillips, 2010. Investment in seed dispersal structures is linked to invasiveness in exotic plant species of south-eastern Australia. Biol Invasions \(2010\) 12:2265-2275](#)

[Muyt, A. 2001. Bush invaders of South-East Australia: A guide to the identification and control of environmental weeds found in South-East Australia. R.G. & F.J. Richardson, Melbourne.](#)

[Randall, R. P., Lloyd, S. G., 2002. Weed warning from downunder - the weed potential of selected South African plants in cultivation in California. \(Eds: Jacob, H. S., Dodd, J., Moore, J. H. 13th Australian Weeds Conference: weeds threats now and forever? , Sheraton Perth Hotel, Perth, Western Australia, 8-13 September 2002: papers and proceedings](#)

Summary: Available from: <http://www.cababstractsplus.org/abstracts/Abstract.aspx?AcNo=20023152167> [Accessed 19 August 2010]

[Thuiller, Wilfried; David, M. Richardson; Petr Pysek; Guy, F. Midgley; Greg O. Hughes and Mathieu Rouget, 2005. Niche-based modelling as a tool for predicting the risk of alien plant invasions at a global scale. Global Change Biology \(2005\) 11, 2234-2250](#)

[Waitakere City Council, 2010. Invasive or Environmental Weeds of Waitakere.](#)

Summary: Available from: <http://www.waitakere.govt.nz/cnliser/pw/plantweed/pdf/weedlist-env-inv.pdf> [Accessed 19 August 2010]



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Psoralea pinnata*

[Williams, Peter A., Aaron Wilton and Nick Spencer, 2002. A proposed conservation weed risk assessment system for the New Zealand border. SCIENCE FOR CONSERVATION 208 Department of Conservation New Zealand](#)

Summary: Available from: <http://www.conservation.gen.nz/upload/documents/science-and-technical/SFC208.pdf> [Accessed 19 August 2010]

General information

Atkinson, I. A. E., 1997. Problem weeds on New Zealand islands. SCIENCE FOR CONSERVATION: 45 Department of Conservation New Zealand

Behenna, M., S. Vetter a, S. Fourie, 2008. Viability of alien and native seed banks after slash and burn: Effects of soil moisture, depth of burial and fuel load. South African Journal of Botany 74 (2008) 454-462

[Delivering Alien Invasive Species Inventories for Europe \(DAISIE\), 2006. *Psoralea pinnata* L.](#)

Summary: Available from: <http://www.europe-aliens.org/speciesFactsheet.do?speciesId=11915> [Accessed 19 August 2010]

Deng, Y., J. Ogden, M. Horrocks, S. H. Anderson, S. L. Nicol, 2004. The vegetation sequence at Whangapoua Estuary, Great Barrier Island, New Zealand. New Zealand Journal of Botany, 2004, Vol. 42: 565-588

[Domingues de Almeida, J & Freitas, H. 2006. Exotic naturalized flora of continental Portugal. A reassessment. Bot. Complut. 30: 117-130.](#)

Summary: Available from: <http://revistas.ucm.es/bio/02144565/articulos/BOCM0606110117A.PDF> [Accessed 19 August 2010]

[Encyclopedia of Life \(EOL\), 2010. *Psoralea pinnata* L. Thread-leaved Fountain-bush](#)

Summary: Available from: <http://www.eol.org/pages/703013> [Accessed 19 August 2010]

Enright, N. J., 1989. Heathland vegetation of the Spirits Bay Area, far Northern New Zealand. New Zealand Journal of Ecology 12

Fouche, G., G.M. Cragg, P. Pillay, N. Kolesnikova, V.J. Maharaj, J. Senabe, 2008. In vitro anticancer screening of South African plants. Journal of Ethnopharmacology. Volume 119, Issue 3, 28 October 2008, Pages 455-461

[Giffillan, Sandra and Sarah Barrett, 2004. Mountain villarsia \(*Villarsia calthifolia*\) Interim Recovery Plan 2004-2009. Department of Conservation and Land Management](#)

Summary: Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/recovery/v-calthifolia/pubs/v-calthifolia.pdf> [Accessed 19 August 2010]

[Global Biodiversity Information Facility \(GBIF\), 2010. Species: *Psoralea pinnata* L.](#)

Summary: Available from: <http://data.gbif.org/species/13624315> [Accessed 19 August 2010]

[Global Compendium of Weeds \(GCW\), 2007. *Psoralea pinnata* \(Fabaceae\)](#)

Summary: Available from: http://www.hear.org/gcw/species/psoralea_pinnata/ [Accessed 19 August 2010]

Harvey, H. John, 1998. The English Nursery Flora, 1677-1723. Garden History, Vol. 26, No. 1 (Summer, 1998), pp. 60-101

Hawley, Greer L. and Joanna F. Dames, 2004. Mycorrhizal status of indigenous tree species in a forest biome of the Eastern Cape, South Africa. South African Journal of Science 100, November/December 2004

[JSTOR Plant Science, 2010. *Psoralea pinnata* L. \[family LEGUMINOSAE-PAPILIONOIDEAE\]](#)

Summary: Available from: <http://plants.jstor.org/taxon/Psoralea.pinnata> [Accessed 19 August 2010]

Maguire, S. Grainne & Raoul A. Mulder, 2004. Breeding biology and demography of the southern emu-wren (*Stipiturus malachurus*) Australian Journal of Zoology, 2004, 52, 583-604

Rozefelds, A. C. F., L. Cave, D. I. Morris and A. M. Buchanan, 1999. The Weed Invasion in Tasmania since 1970. Aust. J. Bot., 1999, 47, 23-48

[TasWeeds, 2009. Weeds and climate change- The work is just beginning. Winter 2009 No 43](#)

Summary: Available from: <http://www.tasweeds.org/pdf/Tasweeds%2043%20Winter%202009.pdf> [Accessed 19 August 2010]

Tucker, C. Shirley, 1991. Development of the cymose inflorescence, cupulum and flower of *Psoralea pinnata* (Leguminosae: Papilionoideae: Psoraleeae). Botanical Journal of the Linnean Society (1991), 106: 209-227.

[USDA-ARS, 2010. Taxon: *Psoralea pinnata* L. National Genetic Resources Program. Germplasm Resources Information Network - \(GRIN\) \[Online Database\]. National Germplasm Resources Laboratory, Beltsville, Maryland.](#)

Summary: Available from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?30254> [Accessed 19 August 2010]

Vivian M., Butz Huryn and Henrik Moller, 1995. An assessment of the contribution of Honey Bees *Apis mellifera* to weed reproduction in New Zealand Protected Natural Areas. New Zealand Journal of Ecology (1995) 19(2): 111-122