

Hakea decurrens Bushy Needlewood

TAXONOMY

Division	Angiosperm (flowering plant)
Subclass	Dicotyledonae (dicotyledon)
Family	PROTEACEAE

Previous Taxonomic Names

Hakea decurrens has been the recognised name since 1830.

Also previously known as *H. sericea* (misapplication), *H. tenuifolia* var. *decurrens*, *H. brachyrrhyncha*, *H. decurrens* ssp. *physocarpa*: *H. longispina*, *H. vittata* var. *glabriflora* (ANH et al 2005).

Note that the following subspecies changes have also been made:

Hakea decurrens subsp *decurrens* is new since 1996.

Hakea decurrens subsp *physocarpa* is new since 1996 for *H. sericea*, *H. longispina* and others.

Hakea decurrens subsp *platytaenia* is new since 1996.

Reference: Barker, R.M., Haegi, L., & Barker, W.R. (1999) *Hakea*. *Flora of Australia* 17B in ANH et al 2005.

Taxonomic Identification Number 13780 (ANH et al 2005)

Taxonomic Status

Long lived woody perennial.

Common Names

Bushy Needlewood (Walsh & Entwistle 1999), Silky Hakea (GAV n.d.).

MORPHOLOGY

Shrub or small tree 0.3-4m high, sometimes lignotuberous. Young branchlets silky with sparse to dense appressed hairs. Leaves more or less cylindrical, usually widely spreading, 1.5-8 cm long, 0.7-2.8 mm wide, grooved below, smooth, with a straight apex. 3-6 flowered on pedicel, white or pink. Fruit obliquely to broadly ovoid 1.8-3.5 cm long, 1-3 cm wide, finely or coarsely warty, beak smooth or sparsely covered in blister-like elevations. Seed does not occupy whole valve face (Walsh & Entwistle 1996).

SUBSPECIES

There are three subspecies, two of which are found in Victoria:

- ***H. decurrens* ssp. *physocarpa*** - Shrub or small tree 0.8-4 m high. Branchlets sparsely to densely hairy to appressed silky. Fruit 2.1-3.2 cm long, 1-2.5 mm wide, red-brown wood zone 1-2.5 mm wide on inner valve face beside seed (Walsh & Entwistle 1996).
- ***H. decurrens* ssp. *platytaenia*** - Stunted to erect shrub 0.3-2m high. Branchlets moderately to densely hairy with some hairs appressed and persistent until flowering, sometimes for several seasons. Leaves sparsely hairy (with some appressed), or smooth. Fruit 2.9-3.5 cm long, 2.5-3 mm wide. Red-brown zone of inner valve face 3-5 mm wide (Walsh & Entwistle 1996).

HYBRIDS

No known hybrids.

SIMILAR SPECIES

Of similar leaf form to Mountain Needlewood (*Hakea lissosperma*), Small-fruit Hakea



(*Hakea microcarpa*) and Spreading Wattle (*Acacia genistifolia*). There has been some confusion over the species as it has been known as *Hakea sericea* in the region. Dated revegetation reference guides refer to *Hakea sericea* rather than *H. decurrens*.

Hakea sericea is a separate species. *Hakea sericea* is largely indigenous to NSW and ACT but it has also become naturalised in Victoria. (ANH et al, 2005)

GEOGRAPHIC RANGE

- ***H. decurrens* ssp. *physocarpa*** - Widespread and locally common in open forest, damp heath or dry scrubland, predominately in hilly areas, on sandy loams or clayey soils. Ranges from near sea-level up to about 300m. Also NSW & Bass Strait islands (Walsh & Entwistle, 1996).
- ***H. decurrens* ssp. *platytaenia*** - Currently only recorded at windswept coastal heaths at Wilson's Promontory and in the Mallacoota area, but possibly more widespread in similar sites. Also NSW & Bass Strait islands (Walsh & Entwistle 1996).

BIOREGIONS

Central Victorian Uplands

PLANT COMMUNITIES

Heathy dry forest, especially in the Brisbane Ranges area and towards Meredith.

Note that *Hakea sericea* for which *Hakea decurrens* was also known (but is a separate species) is scattered in other locations across the region such as at Anglesea and Carlisle River.

FRAGMENTATION

Unknown

RELEVANT HISTORY & RESEARCH

Enright and Goldblum (1999) studied a non-lignotuberous *H. decurrens* ssp. *physocarpa* population in the Grampians that only regenerates from seed. They found the primary cue that dictates *H. decurrens* regeneration in south-east Australia is fire, although drought and diseases such as *Phytophthora* (which Proteaceae are particularly susceptible to), may also be important cues. The study found a distinct lack of seedling recruitment in stands up to 24 years of age, except after fire, and that *H. decurrens* generally occurred in even aged stands. In a 28 year old stand with high levels of adult mortality, seed release and seedling recruitment did occur, indicating that in the absence of fire, mixed age stands can occur.

POPULATION DENSITY

Unknown

BREEDING SYSTEMS

FLOWERING

Long flowering period, perfumed flowers (GAV n.d.).

- ***H. decurrens* ssp. *physocarpa*** - Flowers Jun-Sep (Walsh & Entwistle 1996).
- ***H. decurrens* ssp. *platytaenia*** - Flowers May-Sep (Walsh & Entwistle 1996).

POLLEN

Triangular with rounded edges

POLLINATION

No detailed data found

POLLINATORS

Birds (GAV n.d.), Insects (GAV n.d.)

SEED

SEED DESCRIPTION

Seed 17-23 mm long, 6.5-10.5 mm wide. Seed body 6-10 mm long, wrinkled, wing down one side only, dark blackish-brown in colour (Walsh & Entwistle 1996).

Approximately 30 seeds/gram (GAV n.d.).

- ***H. decurrens* ssp. *physocarpa*** – A study of a non-lignotuberous population in the Grampians found an average seed weight of 55 mg (18 seeds/gram) with a high level (98%) of firm, potentially viable seed, and an aborted seed rate of around 2%. The germination rate of firm seed was 97% (Enright & Goldblum 1999).

SEED CROP

Fruit becomes hard and brown or grey-brown when mature and usually ripen in the second year after flowering. Each fruit usually contains 1-2 winged seeds. Immature fruit will not ripen off the plant. Fruit is usually held on the plant for several years. Crop size will vary from profuse to scarce. Seed can be collected year round (Ralph 1994).

- ***H. decurrens* ssp. *physocarpa*** – seed production begins at around 3 years of age, although large crops are not produced until 8-12 years of age, with the numbers of fruits held on the tree increasing with age. This canopy seedbank is generally released after fire, although other factors such as plant death or injury, or increasing fruit age may also trigger seed release. For at least the first twelve years only a negligible number of seed is released, and a Grampians study found this percentage did not increase until adult plants began to die after 24 years (Enright & Goldblum 1999).

SEED DISPERSAL

Wind

EXTRACTION & STORAGE

Dry fruit which will usually open within 1-2 weeks (Ralph 1994).

Seed is not held in the soil seedbank, and seed shed by plants will germinate the following winter (Enright & Goldblum 1999).

PROPAGATION

Many *Hakea* species are easily propagated from fresh seed (Ralph 2003).

TREATMENT OPTIONS

H. decurrens lacks post-dispersal dormancy mechanisms (Enright & Goldblum 1999), so pre-treatment is not necessary.

GERMINATION TIME

Hakea species usually germinate within 3-6 weeks (Ralph 2003).

FIELD ESTABLISHMENT

Natural regeneration primarily from seed after fire (Enright & Goldblum 1999).

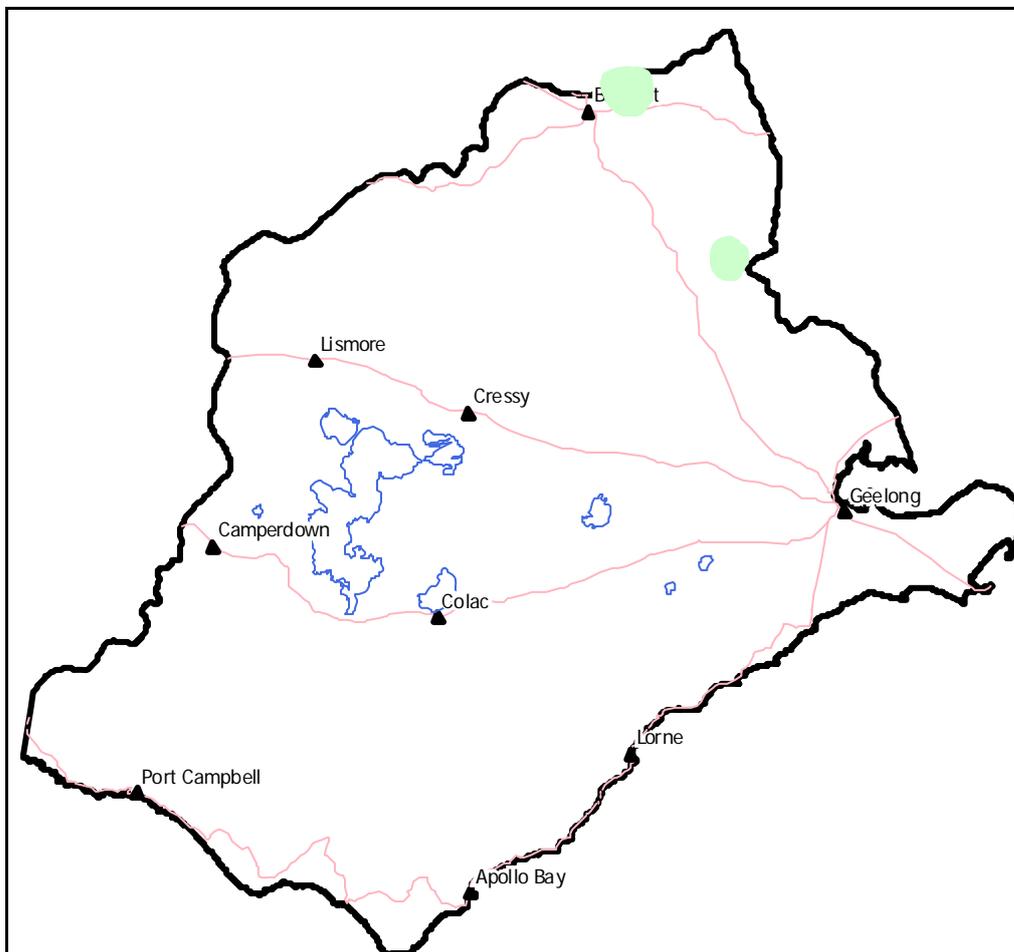
Direct seeding moderately successful when sufficient seed is available (GAV n.d.; Ralph 1994).

SEED COLLECTION RANGE - *Hakea decurrens*

Narrow collection range—within which, seed should be collected from remnant stands that are close to the revegetation project.

Hakea decurrens has a limited range within the catchment. It occurs just north of Ballarat and also east of Meredith on the extreme margins of the catchment. Records are confusing, however as it has also been known as *Hakea sericea*. Further information on population dynamics is required.

Seed collection should focus on providing seed for indigenous revegetation activities on the north-eastern boundary of the catchment. Collect from large, healthy populations. Collect from at least 30–60 plants. Seed is not held within the soil seed bank but is held for a long period on the plant (over 2 years).



MAP: *Hakea decurrens* distribution

DATA SOURCE: DSE Flora Information System May 2005, accessed May 2006

 Broad distribution of *Hakea decurrens* populations

REFERENCES

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