



Grevillea parviflora subsp. *parviflora*

The following information is provided to assist authors of species impact statements, development and activity proponents, and determining and consent authorities, who are required to prepare or review assessments of likely impacts on threatened species pursuant to the provisions of the *Environmental Planning and Assessment Act 1979*. These guidelines should be read in conjunction with the NPWS *Information Circular No. 2: Threatened Species Assessment under the EP&A Act: The '8 Part Test' of Significance* (November 1996).

Survey

G. parviflora subsp. *parviflora* is an inconspicuous, often small shrub which is similar in appearance to other *Grevillea* species which may grow in similar habitat including *G. diffusa* and *G. montana*. It is best surveyed during the main flowering period between July and December when it is easier to identify. Distinctive features include the reddish stems; crowded, erect to ascending, narrow, light green leaves, often with a silvery sheen on lower surface; and small white to pale pinkish flowers.

G. parviflora subsp. *parviflora* may be confused with several closely related taxa. *G. linearifolia* is a taller shrub with longer leaves 3-11cm long and is found on sandstone in the Sydney district. *G. patulifolia* also grows on sandstone and has stout, angular and strongly ribbed branchlets, broader, more rigid leaves and pink flowers. It is found south of Sydney including within the Wedderburn and Picton districts. *G. parviflora* subsp. *supplicans* also grows in the Sydney district and can be distinguished by its spreading branches and branchlets which are held to one side with the leaves held skyward. Leaves are generally narrower (to 1.3mm wide). This subspecies is

restricted to the NW of Sydney in the Berrilee-Maroota district on sandstone and is also listed as a threatened species under the TSCAct.

Surveys should target flat to gently sloping land within areas of geology with both a shale and sandstone influence. At higher altitudes in shale/sandstone transition areas the location of Shale/Sandstone Transition Forest on the crests and upper slopes coincides well with *G. parviflora* subsp. *parviflora* habitat. Soils often contain ironstone gravels and are highly infertile and often poorly drained. Populations are more commonly found in relatively open, disturbed sites along roads and tracks in areas of open-forest or woodland. Canopy species vary greatly with community type but generally are species that favour soils with a strong lateritic influence including *Eucalyptus fibrosa*, *E. parramattensis*, *Angophora bakeri* and *Eucalyptus sclerophylla*. Key associated understorey species include *Daviesia ulicifolia*, *Allocasuarina littoralis*, *Kunzea ambigua*, *Banksia spinulosa*, *Leptospermum trinervium*, *Acacia terminalis*, *Melaleuca nodosa*, *Pimelea linifolia*, *Themeda australis*, *Entolasia stricta* and *Eragrostis brownii*.

Grevillea parviflora subsp. *parviflora* may be more common than currently documented in view of its wide distribution and habitat requirements.

Due to the suckering nature of *G. parviflora* subsp. *parviflora* it is often difficult to determine the number of plants present at a site. Sucker stems generally occur in patches close to the parent plant. The rhizome can be easily seen below the soil surface.

Life cycle of the species

Little information is available on the life cycle of *G. parviflora* subsp. *parviflora*. Although most populations are relatively large as a result of suckering, the health

and long-term viability of populations is likely to be dependant on adequate seedling recruitment. Any activity or development that impacts on the accumulation of seed in the soil seedbank, seed germination or seedling growth is likely to be a threat to the population or species.

Inappropriate fire regimes are a primary threat to these critical stages of the life cycle. High fire frequency may be responsible for a decline in the soil seedbank and limited seedling recruitment and low fire frequency may result in poor levels of seed germination and dense growth of the shrub layer. Such fire regimes may result from locating new developments too close to populations of *G. parviflora* subsp. *parviflora* and associated habitat without provision of adequate buffer or fire protection zones.

Other developments or activities that may also impact on the life cycle of *G. parviflora* subsp. *parviflora* include those that require regular mowing or slashing of the understorey to maintain visibility or for protection around buildings. Urban development generally, including road construction, may result in considerable modification of habitat including overshadowing, altered hydrology, increased soil nutrients and dumping of fill and waste. Potential impacts include preventing plants from maturing and setting seed, changes in the relative frequency of species, potential increase in weed colonisation and changes in soil conditions. The native shrub Tick Bush *Kunzea ambigua* is an aggressive early coloniser of bare sites and has prolific seedling recruitment in disturbed areas. It is considered to be a threat to *G. parviflora* subsp. *parviflora* at several sites.

Threatening processes

Loss of biodiversity and degradation of habitat following clearing and fragmentation of native vegetation is a key threatening process listed on Schedule 3 of the TSCA and is relevant to *G. parviflora* subsp. *parviflora*.

High fire frequency resulting in the disruption of life cycle processes and loss of vegetation structure and composition

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is also listed on Schedule 3 of the TSCA and should be considered in relation to *G. parviflora* subsp. *parviflora*.

Urban development, road maintenance and weeds are also recognised as threats by the Scientific Committee (Final Determination).

Viable local population of the species

The viable population size for *G. parviflora* subsp. *parviflora* is unknown. Until such information is available all populations should be assumed to be viable.

A significant area of habitat

Until there is adequate protection of *Grevillea parviflora* subsp. *parviflora*, all sites are considered important and the habitat considered significant. Sites of particular significance would include the following:

- Population of >50 plants.
- Population with a varied age structure including active recruitment of seedlings.
- Area of intact habitat away from high disturbance areas.

Isolation/fragmentation

Connectivity between populations of *G. parviflora* subsp. *parviflora* is likely to be good along the shale/sandstone transition zone in southern parts of its distribution and within the localised occurrence of Kurri Sand Swamp Woodland in the Lower Hunter Valley. In more urbanised areas closer to Sydney, isolation of populations is likely to be increasing and possibly reflected in the smaller population sizes in these areas.

Isolation of populations is likely to result in reduced gene flow and low genetic diversity which may affect long-term viability. Due to limited natural seed dispersal (probably <-2 m) in *G. parviflora* subsp. *parviflora*, even minimal clearing may act as an effective barrier. Plants may re-colonise a nearby area where a population has been lost by suckering, however, there will still be a loss in genetic diversity.

Most developments will create such barriers as a result of clearing for the

construction of roads, tracks, houses, factories, hobby farms etc. Activities such as mowing, frequent fires, the dumping of fill and grazing by domestic animals may also isolate populations at a physical and/or genetic level. Degradation of habitat may also cause isolation of populations in *G. parviflora* subsp. *parviflora* by creating barriers of dense weed growth.

Regional distribution of the habitat.

G. parviflora subsp. *parviflora* is restricted to the Sydney Basin Bioregion.

Limit of known distribution

The northern limit of *G. parviflora* subsp. *parviflora* is at Heddon Greta in the Lower Hunter Valley. The southern and western limit is Bargo and the eastern limit is Awaba, near Newcastle. If an uncertain record from Moss Vale is confirmed, this would be the new southern limit

Adequacy of representation in conservation reserves or other similar protected areas

Substantial numbers of this species occur in Werakata National Park. One population of at least 50 plants of *G. parviflora* subsp. *parviflora* occurs within Wirrimbirra Sanctuary at Bargo, however, the conservation status of this area is uncertain. Two populations (one population with only 1 plant) occur on Sydney Water land within a Schedule 1 Special Area, however, both are in disturbed sites. A small population is located within a Wildlife Refuge near Maldon. A Wildlife Refuge does not provide permanent reservation and plants at this site appear to be threatened by the spread of *Kunzea ambigua*. *G. parviflora* subsp. *parviflora* is not considered to be adequately protected.

Critical habitat

Critical habitat cannot be declared for *Grevillea parviflora* subsp. *parviflora* as it is not listed on Schedule 1 of the TSC Act.

For Further Information contact

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References

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