Persoonia acerosa

Sieber ex Schultes & Schultes f.

Common name: Mossy Geebung

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) and with the accompanying "Threatened Species Information" sheet.

Survey

Persoonia acerosa can be surveyed at any time of year, though the species is more readily detected when flowering during summer and autumn. Effort should concentrate on but not be restricted to disturbance margins such as road and trail verges and the edges of cleared sites adjoining bushland. Ridge-top sites that have been previously cleared but where the soil is intact are particularly likely to support this species.

Populations at sites which have not been disturbed in the last 10 or so years may not be representative of the potential population size. This is because of the important role that disturbance, including fire, plays in the germination of the seed bank and the reduction in native plant competition. The extent to which counts may underestimate the potential population size varies with many parameters. However, one old adult plant in an area of preferred habitat may, when the habitat is suitably disturbed and sufficient time elapsed, lead to the establishment of approximately five seedlings.

Despite the extent of past survey, large areas of potential, though low quality habitat are unsurveyed.

Life cycle of the species

The longevity of *P. acerosa* is unknown but is likely to be at least 20 years. Fire and mechanical disturbance play a role in germination. These factors appear to be important in stimulating germination and in reducing competition from other native plants.

If a proposal is likely to result in fire frequencies less than 10-15 years, this may lead to decline of the affected population, since an adequate seedbank will not be able to develop between fires. Alternatively, if a proposal is likely to reduce the incidence of fire beyond 20 years, this may also lead to population decline from reduced opportunity for recruitment.

P. acerosa is primarily pollinated by the *Leioproctus* (subgenus *Cladocerapis*) and *Exoneura* genera of native bees (Bernhardt & Weston, 1996).

Similarly, frequent track maintenance and slashing will prevent seedbank establishment, thus preventing local populations from replicating and ultimately resulting in local extinction.

Threatening processes

"*High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition*" is listed in the NSW *Threatened Species Conservation Act* 1995 as a key threatening process which may affect P. acerosa.

Viable local population of the species

The minimum size of a viable local population of *P. acerosa* is unknown. However, in the absence detailed population viability analysis, the NPWS considers that all populations should be considered viable until further information is available.

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A significant area of habitat

Due to the restricted distribution of habitat and small population sizes, the NPWS considers that all habitat of *P. acerosa* should be considered significant.

Isolation/fragmentation

Populations of *P. acerosa* tend to be naturally isolated and fragmented across much of its range. Any increase in the extent of isolation exposes populations to the risk of genetic isolation and subsequent decline through reduced opportunities for outcrossing and the subsequent development of inbreeding depression.

Populations closer than 500m are likely to be interbreeding (given that bees are pollen vectors). Thus any proposal which would prevent this interbreeding would result in further isolation of populations. An example of this might be a housing development between populations which discourages native bees from travelling between them.

Similarly, as seeds are probably dispersed by birds and marsupials, developments which prevent this dispersal between populations would also cause increased isolation.

Regional distribution of the habitat

P. acerosa is restricted to the Sydney Basin Bioregion, within the Central Coast and Central Tablelands Botanical Divisions. (Harden 1991)

Limit of known distribution

The historical northern, southern, western and eastern limits of *P. acerosa* are the Newnes Plateau, Hilltop, Lithgow/Jenolan and Springwood respectively. Recent surveys have indicated that the southern limit has contracted by about 60km as the population at Hilltop is now extinct. The old western records from Jenolan are also likely to be extinct contracting the south western limit by about 30km. (Douglas pers. obs.).

Adequacy of representation in conservation reserves

P. acerosa is unlikely to be adequately conserved in conservation reserves or other protected areas because the largest known populations are outside conservation estate and under threat, while those within conservation estate are generally small, and often consist of isolated individuals.

Critical habitat

Critical habitat cannot be declared for *P. acerosa* as it is not listed on Schedule 1 of the NSW *Threatened Species Conservation Act* 1995.

For further information contact

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References

Bernhardt, P. and Weston, P.H. (1996) The pollination ecology of *Persoonia* (Proteaceae) in eastern Australia. *Telopea* 6(4): 775-804.

Harden G. (Ed.) (1991) *Flora of NSW* Vol. 2. UNSW Press, Kensington.

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