Leionema lachnaeoides

Formerly known as *Phebalium lachnaeoides*

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

Surveys for *L. lachnaeoides* can be conducted at any time of the year, though the species is easier to detect when flowering. It can be distinguished from other *Leionemas* by its short (0.5-2.0 cm long), linear, nearly terete leaves with a fine coverage of hairs on the lower leaf surface.

The number of visible individuals located, probably represents an under estimate of total population size. Depending on the fire history of the site, a potentially larger number of individuals may exist in the seed bank.

Life cycle of the species

Fire is likely to be an important factor in the life cycle of this species. If a proposal is likely to result in frequent fires, then this is likely to lead to declines in the population, since an adequate seedbank will not be able to develop between fire events. Alternatively, if a proposal is likely to reduce the incidence of fire, this may also lead to declines from reduced opportunity for recruitment.

Physical disturbance can also affect the life cycle of this species. *L. lachnaeoides* is not known to reproduce vegetatively, being totally reliant on sexual reproduction. Disturbance, resulting in physical damage will, no doubt, reduce the ability of this species to sexually reproduce.

Threatening processes

"High frequency fire resulting in the disruption of life cycle processes in plants and animal and loss of vegetation structure and composition" is a key threatening process listed under the TSC Act. This process is relevant to this species.

Other generally recognised threats include habitat degradation caused by alteration to drainage patterns, sedimentation, erosion, increased nutrient status and weeds. Such threats may be the result of development up-slope of *L. lachnaeoides* populations (NSW NPWS 2001).

Viable local population

Viable refers to the ability of this species to successfully maintain a local population capable of recruiting individuals in the wild.

There is currently no information about the viability of *L. lachnaeoides* populations or the number of individuals that constitute a viable population. Information needed to more accurately assess viability include fecundity, seed dynamics, population dynamics (recruitment, mortality) and response to fire. Investigations into key aspects of the biology and ecology of *L. lachnaeoides* is one action of the draft recovery plan.

Fire is one of the most important factors that affect the viability of a population. A population may not be viable in the long term if a proposal is likely to reduce the opportunity for an appropriate fire regime to be imposed.

A significant area of habitat

The full extent of *L. lachnaeoides* habitat is yet to be fully determined. However,

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the largest and most significant populations currently known, include two sites at Radiata Plateau (which constitute approximately 48% of the known area of habitat) one site at Shipley Plateau, Double Echo Point and another at Nellies Glen West (which respectively constitute 25% and 21% of the known area of habitat)(NPWS 2000).

The following factors should be considered in relation to determining whether a significant area of *L. lachnaeoides* habitat exists:

- whether identified *L. lachnaeoides* habitat is present (NPWS 2000);
- whether the habitat in question is located within or outside of the current distributional limits;
- whether the habitat in question contains *L. lachnaeoides* individuals, and the number, density and population dynamics (age) of the individuals occurring there (including potential individuals which may exist in the seed bank);
- the proximity of the habitat in question to existing *L. lachnaeoides* populations;
- whether the habitat in question is continuous between existing *L. lachnaeoides* individuals and facilitates pollinator movement;
- whether the habitat in question is subject to threat and the likelihood of ameliorating any existing threatening processes;
- whether the habitat in question will be modified or removed.

Isolation & fragmentation

All currently known *L. lachnaeoides* populations occur within 12km of each other.

An assessment of isolation and fragmentation effects on this species should consider whether the proposal:

- will lead to a breakdown in the pollination and dispersal processes of the species;
- is likely to create a fire regime which is likely to be detrimental to the species.

Regional distribution

The distribution of *L. lachnaeoides* is confined to the Upper Blue Mountains between Katoomba and Blackheath, NSW. Targeted surveys prescribed in the draft recovery plan may result in a range extension for this species.

Limit of known distribution

Potential habitat is likely to occur in the Megalong, Jamison and possibly Grose Valleys.

The draft recovery plan recommends additional surveys of potential *L. lachnaeoides* habitat so as to establish the full extent of the distribution of this species (NPWS 2001).

Adequacy of representation in conservation reserves

L. lachnaeoides is not currently considered to be adequately represented in conservation reserves. While 6 of the 8 known populations, occur within conservation reserve or similar protected areas, the majority of adult individuals (61%) occur on private land

Critical habitat

Critical habitat has not been declared for this species.

For further information contact

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