



Acacia baueri subsp. *aspera*

(Maiden & Betche) Pedley

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 species profile.

Survey

A. baueri subsp. *aspera* can be identified with experience from vegetative features, however, it is best surveyed during the flowering period between December and March. Plants of *A. baueri* subsp. *aspera* are inconspicuous and the dwarf habit and sclerophyllous phyllodes are similar to many other heath plants, particularly within the family Fabaceae. There are no other species of *Acacia* occurring at known sites which can be confused with *A. baueri* subsp. *aspera*.

Potential habitat is widespread but occurrence of plants is rare. Both the central Blue Mountains and the Woronora Plateau have been relatively well surveyed in recent years, however, only one new record has been made (T. James *pers. comm.*).

Survey for *A. baueri* subsp. *aspera* should be concentrated in open, damp heathland sites, particularly within a few years of a fire event, or on rocky

outcrops. It is more likely to be found in open conditions.

Where *A. baueri* subsp. *aspera* is present, the number of plants, approximate age of individuals and extent of flowering and fruiting should be recorded. Information on fire history should be recorded to assist interpretation of results and estimation of potential population size including dormant seeds in the soil seedbank.

Life cycle of the species

The biology and life cycle of *A. baueri* subsp. *aspera* is poorly known. Several older recorded populations of *A. baueri* subsp. *aspera* appear to have become extinct or have declined in numbers over the last 30-100 years and only one new population has been recorded. It appears, from our present knowledge of the species, that *A. baueri* subsp. *aspera* is at extreme risk of extinction. The small size and ageing structure of most known populations is indicative of poor levels of recruitment through seedling establishment, at least in the short-term. Maintenance of the population is largely dependant, therefore, at least between fire events, on low mortality rates. In general *Acacia* species live between 5-100 years. Records and observations of *A. baueri* subsp. *aspera* suggest that plants can live for 20+ years. The majority of plants observed in 1999 surveys were mature, woody at the base and well-branched (T. James *pers. comm.*).

Populations of *A. baueri* subsp. *aspera* are rare and typically small (<30 plants) with probable low genetic diversity. Although seed germination appears to be irregular, any loss in seed production and

storage in the soil seedbank is likely to have a significant impact. There are no known *ex-situ* populations of *A. baueri* subsp. *aspera* in cultivation. In the absence of information on growing plants from cuttings or seed, propagation or replanting is not considered to be a suitable ameliorative strategy.

Threatening processes

Any activities that result in loss of individuals or reduce recruitment to the population may threaten the survival of that population. The significance of a particular action which physically destroys individual plants will require: (i) an examination of the number of plants to be destroyed in relation to the size of the population; and (ii) a discussion of whether and how regeneration will be affected, including an assessment of the affect on the seedbank and whether seeds are likely to germinate following disturbance.

The recent listing of High Frequency Fire as a Key Threatening Process is relevant to this species. The frequency and intensity of fire events will primarily control seed germination and recruitment to the population. The impact of a particular action which proposes to alter the fire regime will require a specific site analysis of: (i) the population structure and the proportion of individuals flowering/fruitlet at the site; (ii) the disturbance history of the site, particularly fire history; and (iii) the likelihood of new germinates being recruited into the population from a soil stored seedbank post disturbance (to be inferred from ii above).

More research into the specific fire requirements of *A. baueri* subsp. *aspera* is needed. Until then the precautionary principle should be applied.

Populations are also threatened by habitat modification which may include weed invasion, establishment of canopy trees and shrubs, altered soil characteristics and drainage conditions. Changes which accelerate the successional process e.g. planting, nutrient enrichment, sedimentation, dumping of fill or improved drainage are particularly a threat in view of the open habitat

required by *A. baueri* subsp. *aspera*. In the absence of information on the pollination ecology of the species, any activity resulting in the loss of native bees or flies from *A. baueri* subsp. *aspera* habitat should be avoided.

Bushrock removal is a Key Threatening Process which could potentially affect populations of *A. baueri* subsp. *aspera* where plants occur in rocky areas. At all known rocky sites, however, this is unlikely to be a problem due to the size and nature of the rock outcrops.

Other threats identified include trampling associated with recreational activities and tourism, and further development.

In the longer-term at least, the genetic integrity and evolutionary potential of *A. baueri* subsp. *aspera* may be threatened as a consequence of small, isolated populations.

Viable local population of the species

In the absence of detailed population viability analysis it is difficult to determine what constitutes a viable population of this species. The NPWS considers that all populations should be considered viable, until further information becomes available.

A significant area of habitat

Due to the small size and number of known populations, all habitat should be considered significant.

Isolation/fragmentation

Known populations of *A. baueri* subsp. *aspera* are typically isolated reflecting the specific habitat and growing requirements of the species. Seed dispersal is restricted to within 1-2 m of parent plant. Any further isolation or fragmentation will have significant impacts and should be avoided due to risks of genetic isolation, low genetic diversity and inbreeding.

Regional distribution of the habitat.

A. baueri subsp. *aspera* habitat occurs in the Sydney Basin Bioregion. Within this region *A. baueri* subsp. *aspera* is

restricted to the central Blue Mountains (Kings Tableland) and the Woronora Plateau.

Limit of known distribution

The northern and western distributional limit of *A. baueri* subsp. *aspera* is at Wentworth Falls, in the central Blue Mountains. The southern limit is near Mt. Keira and the eastern limit in the Royal National Park. Further survey may identify additional occurrences of *A. baueri* subsp. *aspera*, particularly on the Woronora Plateau.

For further information contact:

Threatened Species Unit, Central Directorate, NSW NPWS PO Box 1967, Hurstville NSW 2220 Phone 02 9585 6678

www.npws.nsw.gov.au

Adequacy of representation in conservation reserves or other similar protected areas

Only one population of c. 30 plants occurs within a conservation reserve (Blue Mountains National Park). *A. baueri* subsp. *aspera* is not considered to be adequately represented in conservation reserves.

Critical habitat

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

IMPORTANT DISCLAIMER

The NSW National Parks and Wildlife Service and the editor expressly disclaim all liability and responsibility to any person, whether a purchaser or reader of this document or not, in respect of anything done or omitted to be done by any person in reliance upon the contents of this document although every effort has been made to ensure that the information presented in this document is accurate and up to date.