ENDANGERED ECOLOGICAL COMMUNITY INFORMATION

Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion

Conservation Status

Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion (ESBS) is listed on Schedule 1 Part 3 of the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* as an endangered ecological community.

ESBS at Jennifer St. La Perouse. Photo-PH Glass.

Distribution

Eastern Suburbs Banksia Scrub once occupied around 5,300 hectares of land between North Head and Botany Bay. Today, less than 3% of the original distribution of this community remains in a number of isolated remnants, ranging in size from 0.06 to 69 hectares.

Surviving stands of ESBS (totalling approximately 146 hectares) have been recorded from the local government areas of Botany, Randwick, Waverley, and Manly. ESBS is one of the most critically endangered communities in NSW.

Habitat

ESBS once grew extensively over the aeolian dune sands that overlay the Hawkesbury Sandstone of Sydney's Eastern Suburbs (Benson & Howell 1990a). On North Head, ESBS occurs on a sand sheet of similar age and composition to that which ESBS occupies south of the harbour (NSW Scientific Committee 2002).

Description

ESBS generally forms a sclerophyllous heath or scrub community. Some remnants contain small patches of woodland, low forest or limited wetter areas, depending on site topography and hydrology.

Common species of ESBS include *Banksia aemula, B. ericifolia, B. serrata, Eriostemon australasius, Lepidosperma laterale, Leptospermum laevigatum, Monotoca elliptica* and *Xanthorrhoea resinifera* (NSW Scientific Committee 2002; Benson & Howell 1990a, 1990b, and 1994).

The ESBS community is similar to the more widespread coastal heath vegetation of the eastern seaboard but can be distinguished using the following characteristics. ESBS occurs on disjunct patches of nutrient poor aeolian (wind blown) dune sand. Coastal heath occurs on soils derived from sandstone, Holocene marine sands (Benson & Howell 1994) or on aeolian sands of younger age than those of ESBS (NSW Scientific Committee 2002).

Coastal heath is also characteristically much lower than ESBS and, although sharing many species with ESBS, characteristically contains maritime elements such as *Baeckea imbricata, Correa alba* and *Westringia fruticosa* (Benson & Howell 1990a; NSW Scientific Committee 2002).

Ecology

The floristic composition and structural diversity of ESBS is influenced by the size and disturbance history of the remnant (Benson & Howell 1990a; NSW Scientific Committee 2002). A soil seed bank for ESBS exists and the community has been observed to regenerate naturally on cleared sand where the soil profile remains intact (Lesak 2000; Clements *et al* 2001).

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Field observations indicate that after a prolonged period (>15 years) without fire or similar disturbance, the floristic composition and vegetation structure of ESBS becomes simplified with a few species dominating the standing vegetation (P. Ibbetson, DEC, pers. comm.).

Threats

A major threat to ESBS is the loss and fragmentation of habitat through clearing and development. Less than 3% (146 ha) of the original distribution (5,300 ha) of ESBS exists and the remaining stands are small and fragmented.

The fragmentation of ecological communities has many potential consequences for ecological processes including the following:

- A reduction in species diversity;
- An increased susceptibility to degradation through increased edge-to-area ratios;
- A reduction in population size, which in turn can increase the probability of extinction;
- Changes in the fluxes of radiation, wind, water and nutrients across the landscape;
- An increased abundance of defoliating insects resulting in canopy decline and tree dieback;
- The genetic isolation of populations which may result in the loss of genetic diversity and species fitness; and
- A reduction in seed set resulting from the reduced abundance of pollinating agents (Yates and Hobbs 1997).

Most ESBS remnants are exposed to a number of potentially degrading processes including:

- Altered nutrient status;
- Altered hydrological regimes;
- Over shading;
- Mowing, slashing and the inappropriate use of herbicide;
- Invasion by weed species (particularly Bitou Bush, Lantana and African Love Grass);
- Inappropriate fire regimes;
- Grazing and trampling by horses and rabbits;
- Infection of native plants by *Phytophthora cinnamomi;*
- Erosion and/or physical damage from surface water run-off, bicycles, motor vehicles, horses, rabbits and excessive pedestrian use;
- Inappropriate plantings in and around remnants;
- Seed and wildflower collection;
- Factors affecting pollination and seed dispersal processes; and
- Dumping of rubbish including fill material and green waste.

Recorded occurrences in conservation reserves

Only 33 hectares of ESBS (0.6% of the original estimated distribution of the community) occurs in conservation reserves (Botany Bay National Park, La Perouse and Sydney Harbour National Park, North Head). Accordingly, the community is not considered to be adequately represented in conservation reserves.

Management

Management actions should address site specific threats and may involve fire management, bush regeneration, pest control, fencing, and public education.

Management should also aim to increase the security of sites through appropriate protection mechanisms. This may include the preparation of plans of management, entering into voluntary conservation agreements, rezoning for conservation, etc.

Recovery Plan

A recovery plan for ESBS was approved in February 2004.

For Further Information contact

Threatened Species Unit, Metropolitan Region, Environment Protection and Regulation Division, Department of Environment and Conservation, PO Box 1967, Hurstville NSW 2220 Phone 02 9585 6678 or www.nationalparks.nsw.gov.au

References

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Figure 1. Eastern Suburbs Banksia Scrub