

BOYAGIN NATURE RESERVE

DESCRIPTION

Boyagin Nature Reserve is situated 110 km south-east of Perth in the western part of the Wheatbelt region of Western Australia. The nature reserve comprises of two areas of native vegetation surrounded by cleared farmland and separated by a large cleared strip of private property, 500m wide at its narrowest point. A dominant feature of the reserve is Boyagin Rock, two granite domes on the eastern edge of the western block.

The landform of the reserve can be divided into the lateritic uplands, or remnants of the old plateaus, and the dissected landscapes, which have formed after removal of the upper parts of the lateritic profile.

Boyagin NR is in the South-west Botanical Province on the boundary between the Darling Botanical District (Dale Sub-district) and the Avon Botanical District. Since the reserve is positioned on the boundary between these major two botanical districts the area has a rich flora with approximately 420 native plant species.

The vegetation of the Boyagin Nature Reserve can be divided into three major structural types; woodlands, Kwongan (sclerophyllous shrubland) and herbaceous or Lithic communities.

The most widespread association in the reserve is woodland or low woodland dominated by *EUCALYPTUS ACCEDENS* (Powderbark), often with *E. WANDOO* (Wandoo) or *E. ASTRINGENS* (Brown Mallee). On more favourable sites *E. WANDOO* and *E. CALOPHYLLA* (Marri) are more common. *E. MARGINATA* (Jarrah) also occurs on some plateau, as scattered individuals or small populations. Pediment slopes below the laterite breakaways generally support *E. ACCEDENS* woodlands but on some laterite or, particularly, clay soils *E. ASTRINGENS* woodlands or patches of forest replace them.

In many of the broad valleys and shallow slopes bordering them, generally on sandy loamy soils, *E. wandoo* is the dominant tree. *ALLOCASUARINA HUEGELIANA* (Rock She-oak) is commonly an understorey tree in *E. WANDOO* woodland. *ACACIA ACUMINATA* (Jam) is less common, sometimes occurring with *Allocasuarina* in the understorey, and sometimes without it. The two poisons *GASTROLOBIUM SPINOSUM* (Bullock Poison) and *OXYLOBIUM PARVIFLORUM* (Box Poison) form dense shrub understoreys to over 2m tall under wandoo canopies.

A. HUEGELIANA forms monospecific stands of open low forest on lower slopes and drainage floors and on granite rocks and soils around them.

Two wattles *ACACIA ACUMINATA* (Jam) and *ACACIA LASIOCALYX*, form low forest and open low forest that on some sites may be better described as shrub communities. Communities dominated by *A. ACUMINATA* are uncommon in the reserve, but dense *A. LASIOCALYX* communities form mosaics with *ALLOCASUARINA HUEGELIANA* low forests around many of the granite outcrops. In some areas *ALLOCASUARINA CAMPESTRIS* forms dense thickets that closely resemble *A. HUEGELIANA* stands.

Where there is shallow soil developed on granite outcrops, there is often a low meadow of resurrection plants and small, ephemeral annuals.

Kwongan communities of Boyagin Nature Reserve are structurally similar to those of Tutanning Nature Reserve and can be classified into four structural types.

- 1) Very dense *DRYANDRA - PETROPHILE* shrublands 2-3 m tall confined to areas of duricrust;
- 2) mixed low (<2m) shrubland with a high proportion of species from the Proteaceae, Myrtaceae and Leguminosae families and found on both upper landform units; and
- 3) Mallee shrublands (*E. EXILIS*, *E. DRUMMOUDII*) of very limited extent occurring in small patches usually mixed with types 1 & 2. On Boyagin Rock the over storey is dominated by *E. CAESIA*.
- 4) Sclerophyllous shrubland with *XANTHORRHOEA PREISSII* and emergent *BANKSIA ATTENUATA*, *B. PRIONTES*, *B. GRANDIS* AND *HAKA BAXTERI* on highly reflective, white, sandy soils.

Nature Reserve has probably lost at least 13 mammal species. Today 14 species of native mammal are found in the Boyagin Nature Reserve. Several threatened species and a number of species uncommon in the wheatbelt have been recorded here. The fauna also includes some species which have been successfully re-introduced to the reserve, the numbat (*MYRMECOBIUS FASCIATUS*). The tree communities dominated by wandoo and Powderbark wandoo are the most important to numbats. Kwongan communities are sometimes used for refuges, but rarely for feeding.

A relatively diverse bird fauna of 88 species have been recorded from Boyagin Nature Reserve. The area once included Mallee fowl however this has recently become extinct. Twenty two reptiles and five frog species have also been collected.

CONDITION AND INTEGRITY

Parts of the area have been logged in the past; for instance most of the Brown Mallet woodlands are pole stands that are regenerating following heavy, recurrent cutting from the 1930s (or earlier) until the 1960s. No logging is possible under the present land use vesting.

The area is actively managed by the Department of Conservation and Land Management as part of their nature conservation reserves system. It is considered to be in good condition within the context of the Wheatbelt region. Fox baiting in the reserve and adjacent land has led to an increase of the small to medium native mammal populations. A translocation program has successfully reintroduced numbats to the area.

STATEMENT OF SIGNIFICANCE

The Boyagin Nature Reserve is of major significance in maintaining on-going ecological processes within the Wheatbelt region of Western Australia. The area is one of the few pockets of uncleared land which is large and varied enough to continue to provide a habitat for the remaining species of the Wheatbelt. The area therefore plays a critical role in the maintenance of the fauna and flora bio-diversity of the Wheatbelt region and the State. The site is also likely to act as a stepping stone reserve for a number of bird species.

This site contains patches of kwongan which is of considerable significance for the high level of endemism and high species richness which is a major contributor to the region's rich bio-diversity. This community contains the highest number of vascular plant species per unit area than any other sclerophyllous vegetation type in southern Australia.

The Boyagin Nature Reserve contains a number of rare, geographically restricted endemics and unnamed plant species. The areas flora includes the rare *EUCALYPTUS CAESIA* and *E. EXILIS* and the geographically restricted species *ACACIA DEFLEXA*, *BORONIA CAPITA* SSP. *CLAVATA*, *CALOTHAMNUS PLANIFOLIUS*, *CALOTHAMNUS RUPESTRIS*, *DRYANDRA CYNAROIDES*, *GASTROLOBIUM STRIPULARE*, *HAKEA LORANTHIFOLIA*, *HEMIGENIA SALIGNA* and *THOMASIA MONTANA*.

The Boyagin Nature Reserve contain a number of rare, threatened and regionally uncommon vertebrate species including Red-tailed Phascogale, Numbat, Woylie, Tammar Wallaby, Brush Wallaby and Carnaby's Black-Cockatoo. Many of these species have all but disappeared from the Wheatbelt region and are now found in only a few location.

The area contains expressions of a number of vegetation communities in excellent condition which are characteristic of the Wheatbelt region. This includes Kwongan, Powder-bark Wandoo Woodlands, *ALLOCASUARINA* woodlands etc.

<p>B.1 Importance for rare endangered or uncommon flora, fauna, communities, ecosystems, natural landscapes or phenomena, or as a wilderness.</p>	<p>1) The area contains rare and geographically restricted plant species. Gazetted Rare by WA Government</p> <ul style="list-style-type: none"> • <i>Eucalyptus caesia</i> • <i>E. exilis</i> <p style="text-align: right;">(Dames & Moore 1985)</p> <p>Geographically Restricted Species</p> <ul style="list-style-type: none"> • <i>Acacia deflexa</i>, • <i>Boronia capita ssp. clavata</i>, • <i>Calothamnus planifolius</i> • <i>Calothamnus rupestris</i>; • <i>Dryandra cynaroides</i>; • <i>Gastrolobium stripulare</i>; • <i>Hakea loranthifolia</i> • <i>Hemigenia saligna</i> • <i>Thomasia montana</i> <p style="text-align: right;">(Dames & Moore 1985)</p> <p>2) The Tutanning Nature Reserve contain a number of rare, threatened and regionally uncommon vertebrate species; <u>Threatened Species</u></p> <ul style="list-style-type: none"> • Red-tailed Phascogale (<i>Phascogale calura</i>), • Numbat (<i>Myrmecobius fasciatus</i>), • Woylie (<i>Bettongia penicillata</i>), • Tammar Wallaby (<i>Macropus eugenii</i>) <p style="text-align: right;">(Friend et al 1992)</p> <p><u>Specially Protected</u></p> <ul style="list-style-type: none"> • Peregrine Falcon (<i>Falco peregrinus</i>), • Carnaby's Black-Cockatoo (<i>Calyptorhynchus funereus latirostris</i>), <p style="text-align: right;">(Butler 1972)</p>	<p>High to Very High</p> <p>High to Very High</p> <p>Med. to High</p>
<p>C.1 Importance for information contributing to wider understanding of Australian natural history, by virtue of their use as research sites, teaching sites, Type localities, reference or benchmark sites.</p>	<p>Boyagin Nature Reserve is important in the study of the translocation of mammals (Friend et al 1986, Friend 1990, Friend et al 1992).</p>	<p>High</p>
<p>D.1 Importance in demonstrating the principal characteristics of the range of landscapes, environments or ecosystems, the attributes of which identify them as being characteristic of their class.</p>	<p>The area contains expressions of a number of vegetation communities in excellent condition which are characteristic of the Wheatbelt region (pers comm Mitchell 1995). This includes kwongan, Powder-bark Wandoo Woodlands, <i>Allocasuarina</i> woodlands, lithic complexes etc.</p>	<p>High</p>

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BOUNDARY

Includes all Reserve A 20610 and 11144 vested with the National Parks and Nature Conservation Authority.

RECOMMENDATIONS

1) To remain on the Register of the National Estate.