

Notes on the Brown Boronia (Boronia megastigma)

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by

P. Christensen.

Boronia is one of the species of wildflower which it is intended to study as part of the Department's research programme on Fire Ecology. In order to familiarize ourselves with this species, and to see something of the range of its habitat, a limited survey of boronia localities was undertaken during the flowering period in August.

The excellent report compiled by J.A. Thomson was used as a guide, and indeed most of the areas visited, we should not have located without it.

Thirty six localities were inspected in the vicinity of the areas indicated below:—

<u>Area</u>	<u>No. of areas inspected</u>
Wheatley	11
Yornup	7
Nannup	3
Margaret River	2
Mt. Barker	2
Denmark	2
Shannon River	1
Quinninup	8
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Notes on vegetation and soils were made, and pH samples were collected at each locality.

All boronia areas inspected were wet situations within Jarrah forest country, mostly along the edges of Paperbark flats or close to creeks.

Blackboys, (Xanthorrhoea preissii) were present in over 90% of the areas, Sharkstooth (Acacia decipiens) in over 70%, and Paperbark and Swamp Banksia (B. littoralis) in approximately 50% of the areas. Other species, Hakea varia Ti-tree, and the rush Lepidosperma leptostachyum were present in approximately 30% of the areas. Bullich (Euc. megacarpa) Acacia cyanophylla, Bottle-brushes of various species and Dasypogon Hookeri were also found in association with Boronia megastigma.

Boronia megastigma more often than not occurred in shady situations, but was frequently found in the open also. Soils were often clayey or overlying clay, and ranged from white, grey or yellow sandy soils, through to yellow, brown and even red clay loams. The most common type appeared to be a grey sandy soil. At the time of inspection all soils were saturated and most were entirely under water.

The pH samples showed that the soils on which B. megastigma grows are not acid, as is commonly believed, but are very close to being neutral. The mean pH of soils in the 36 localities was 6.5 (95% confidence limit = 0.5). However, waterlogged soils are commonly close to neutral

and have some sulphides present. As such soils dry out, the sulphides are oxidized to sulphates and the pH may fall. In view of this all samples were air dried and the pH of the air dry soil recorded. The mean pH was 6.4, 95% (confidence limit 0.5). It is a measure of the consistency of this small difference of 0.1 between the wet and the air dry soils that it almost proved significant at the 0.05 level!

This unexpected high pH of B. megastigma soils and the very narrow confidence limit, giving a range of only pH 6.00 – 7.00, (wet soil), may explain why this species is not found in many of the situations where one would expect it to grow. The extensive area of flats in the Shannon area for example might appear to be a suitable habitat, but these flats are mostly acid peaty soils with low pH's.

Such narrow confidence limits on pH makes B. megastigma a very good pH indicator species. There are also indications that other Boronia species may occur over equally limited pH range. The Red or Kalgan boronia (B. heterophylla) occurs in a soil of pH 6.1 in a flat on Northumberland Rd. A pink Boronia, (B. languinosa) common in open flats grows on soils with a pH of 5.5. However, since only a few samples were taken from areas where these last two species occurred, it is not known whether their range is equally limited.