

Plant Communities and selected soil seedbank study in an urban bushland including recommendations for management

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October 2011



Declaration page

This thesis is my original work and has not been submitted, in whole or in part, for a degree at this or any other university. Nor does it contain, to the best of my knowledge or to my belief any material published or written by another person, except as acknowledged in the text.

Candice J. Schippers, 31st October 2011

Word count for all parts of the thesis excluding references and appendices:

Abstract

Urban reserves are important reservoirs of biodiversity and contribute to urban public amenity in the city landscape. Despite their value there are many adverse impacts on reserves and there is often a lack of funds or interest that can be utilized to assist in their management. In order to develop a management and restoration plan for part of Bushforever site 456 (in the Perth suburb of Langford) a vegetation survey and soil seedbank analysis was conducted. A total of 134 of the 185 species recorded on the site were identified in the survey of which 71% were native. *Callitris pyramidalis* was the most abundant woody species with the most abundant exotic species being *Cynodon dactylon*, *Ehrharta calycina*, and *Briza maxima*. Four different plant communities were identified on site via the use of ordination software. These four communities were: grassland dominated by exotic species, a Banksia Woodland and two different shrubland communities. These communities were found to be influenced primarily by soil hardness, salinity and pH. The thickness of A horizon sand over a clay subsoil is also likely to be important in community distribution as it controls the degree of winter waterlogging (and severity of summer drought) in low-lying parts of the reserve. The seedbank study found, in a degraded part of the Banksia Woodland vegetation, that there is a number of viable seed of some native species within the soil. However this does not closely reflect the present community and would need to be supplemented with extra seed or green stock if it was utilized as part of a restoration process. Littering, trampling of vegetation and invasive species are major factors causing degradation of the communities with the Banksia Woodland and the grassland the worst affected.

These results indicate the need to develop a management plan that concentrates on controlling and eradicating exotics. There is also a need to work with the local community to develop an education program in order to develop positive interactions with the bushland ecology while maintaining the recreational and aesthetic values of the site.

Acknowledgements

I would like to thank Phillip Ladd, Joe Fontaine and Neal Enright for their expertise and assistance in the identification of plant species, the use of statistical programs and the construction and running of my research. I would also like to thank Ryan Zaknitch and the Western Australian Planning Commission for some images and permission to access and conduct my research on my site. Thank you to the City of Gosnells for their assistance in ascertaining land ownership and zoning of the reserve. I would like to thank Google for allowing the use of several images created using the Google Earth software according to the terms and conditions stated on their website <http://maps.google.com/support/bin/static.py?page=ts.cs&ts=1342531>. Finally I would like to acknowledge Neil Goldsbrough, Mark Goreing, Raymond Schippers and Amy Perry for their assistance with helping me to collect samples as part of the vegetation survey.

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