



WA's Bushland - Ours to protect
Proceedings of the seminar and workshop on
Saturday 22nd November 2014 and associated
activities for celebrating WA's bushland.

2.2 Western Australia's Natural Vegetation

2.2.1 Synopsis Greg Keighery

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Biodiversity is considered to be composed of three elements, genes, species and communities. The way plants compete and share resources organises them into groups of species (communities) that vary over space and time as climate and soils change. These changing groupings are what we see as vegetation.

Vegetation is diverse, dynamic, provides habitat and a sense of place. Vegetation communities can be widespread and common, restricted to rare and even extinct (totally destroyed).

These plant communities give people a sense of place, one can instantly recognise a tropical or desert scene from the plants alone. This is also true for Australians who in the nineteenth century especially developed Bush Poetry as a response to the unique Australian Landscape, rather than romanticise a European one. This focussed especially on Gum trees (both the scent and visually) that became the "Bush". Since over 80% of Australian plants are only found here our vegetation is uniquely "Australian" as has defined us as a nation. In Western Australia at a more local scale Wheatbelt Woodlands and Tuart woodlands (forest at Busselton) are icons of these regions.

Plant communities are dynamic over historical and geological time. However at the human life scale, they appear static and clothe the landscape and can be represented as maps. Since WA is a continental sized State our vegetation can be mapped at many scales. At the very largest scale the state is divided into the three major climatic zones - the Kimberley (tropic), Desert (dry) and Southwest (temperate). At this scale areas are covered by very generalised vegetation, such as: *Eucalypt* woodlands, *Acacia* woodlands and shrublands, *Triodia* Hummock Grasslands (our commonest vegetation type), Samphire shrublands and shrublands (heath).

John Beard mapped the vegetation of the entire state at a 1:250,000 scale. He distinguished 831 vegetation types (704 individual and 127 mosaic units, including a single unit for granite rocks). At this scale the vegetation types are largely defined by the tallest strata (layer), for example Salmon Gum woodlands (Beard, 1990, Beard *et al.*, 2014). This was a monumental project and has greatly aided biogeography and conservation planning. Unfortunately when these data are used for land use planning below the regional or catchment scale (the scale they were intended for), the maps do not match the types on the ground at a local scale.

Below the 1:250,000 scale there are maps at a wide variety of scales ranging from 1:50,000 down to 1:5,000 for individual bushland areas. For example, granite rocks at the lower scale consist of many vegetation types including individual moss swards dominated by combinations of herbs, grasses and sedges (Figure 2). Vegetation at these scales closely matches what we can see on the ground and are widely used for management of bushland and planning purposes. They can incorporate many understorey layers and even all species present in set areas (floristics). For example Wheatbelt woodlands comprise at the Beard scale comprise 12 types, mostly mosaics, where Harvey and Keighery (2012) based on small-scale maps and floristics have listed 18 communities with 62 distinct sub-types. There are now attempts to digitize and standardise these maps for example Ben Baylis digitised over 400 maps for the Wheatbelt (Avon Native Vegetation Map Database 2014).



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Figure 2: Granite rock grass dominated communities on rocks east of Mukinbudin.

Other attempts to incorporate both large scale (Matisse vegetation complexes) with small-scale mapping and floristics in conservation planning have been made in the Perth area with *Bush Forever* (Government of Western Australia, 2000a and b). This led to the still to be completed System 6 Update (includes *Bush Forever* and Swan Bioplan) which covered the entire southern Swan Coastal Plain (south of Moore River to Dunsborough).

In Western Australia we have many thousands of plant species found nowhere else, this especially so for the Southwest. These thousands of plants form the vegetation we see so it is not surprising that most plant communities are only found in parts of Western Australia. For example, in the Wheatbelt all of the 62 woodlands are only found in Western Australia. Not only are these combinations of plants intrinsically valuable and often visually stunning they provide food and shelter for our unique animals and their loss or degradation diminishes all levels of biodiversity.

Like plant species a number of these plant communities (referred to as ecological communities which may be plant or animal based) have been greatly reduced by clearing, mostly for agriculture or urban development, and in some cases disease, to the point where less than 10% of their original extent remains. A series of these communities are listed as threatened ecological communities, both at state and federal level. Of the 69 listed



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in WA 51 are plant communities (21 Critically Endangered, 17 Endangered, 28 Vulnerable and 3 Totally Destroyed). Most of these vegetation communities are defined by their total species components. There are a further 376 ecological communities listed by DPaw (www.dpaw.gov.au/plants) and animals/threatened-species-and-communities/threatened-ecological-communities) as needing more information, most of which are plant communities. Currently the Federal Government has or is listing some broader plant types including south coast heathlands, Wheatbelt woodlands and Banksia woodlands of the Swan Coastal Plain (www.environment.gov.au/biodiversity/threatened/communities). All of the totally destroyed ecological communities are located in the agricultural zone and are broad scale being the Greenough flats, Irwin Flats and Broomehill vegetation system. Most of the critically endangered communities are from the Swan Coastal Plain and include such wonders as the species rich claypans and Banksia woodlands, Marri woodlands and everlasting dominated ironstone shrublands. We have lost some communities, before they were documented, such as the chalk hills of Gingin and the lost limestone hills of Fremantle.

Western Australia's natural vegetation helps define what it is to be an Australian and a Western Australia by the distinctiveness of our "bush". The diversity of our vegetation communities adds to the world-class biodiversity present in our state both in terms of variety and habitat for fauna. It's variety and beauty although worthy of conservation intrinsically provides most of our wildflowers in context for tourism and areas for people to escape the city and reconnect with nature.

2.2.2 References

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