

The

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Ballarat Naturalist



Wetland Plants and Animals

25th Annual Stella Bedggood Memorial Lecture

Speaker: Damien Cook, Wetland Ecologist

After initially working for the National Trust Damien has developed his own business *Wetland Ecosystems*, providing expertise to government departments and City Councils. He advises on the revegetation of degraded wetlands and the establishment of new ones, has managed large wetland projects and has conducted workshops, given lectures and published articles. His business, which includes an aquatic plant nursery using waste water from the Carrum Sewage Plant, is located at Paterson Lakes.

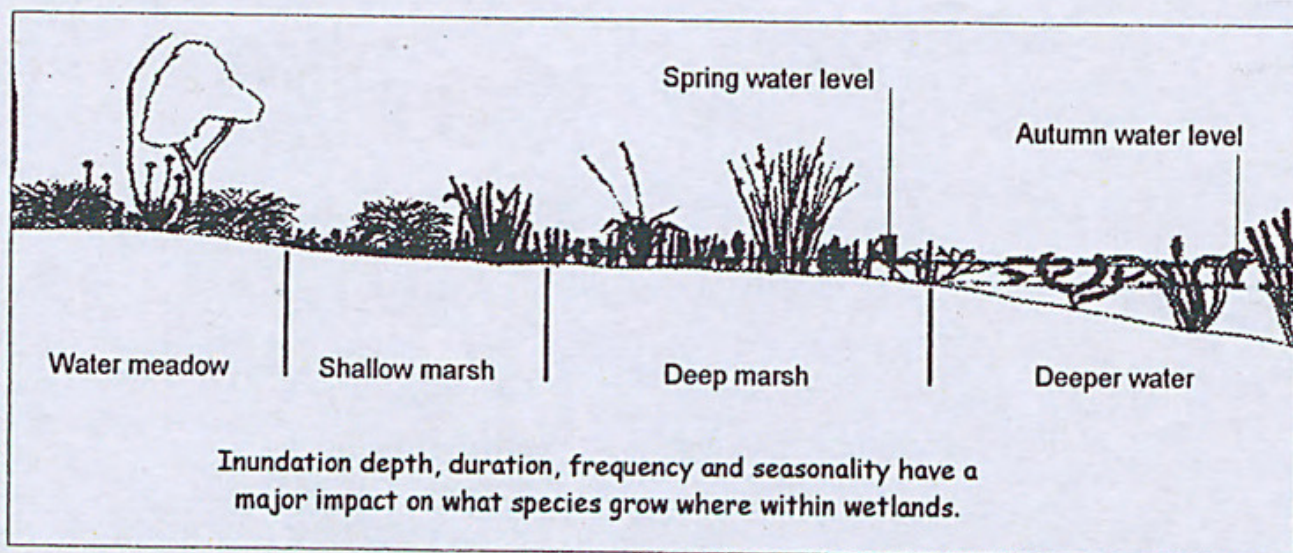
Damien began by explaining the need for wetlands—the "kidneys" of our environment which remove excess quantities of substances like nitrogen and phosphorus, the cause of algal blooms. At least 50% of our wetlands have been drained, perhaps 80% if you include small wet patches in paddocks. The term "wetland" does not necessarily mean permanent water; seasonally inundated or ephemeral areas are included.

Wetlands can be classified according to their depth and hydrological characteristics e.g. freshwater meadows having a depth of around 20cms and seasonally inundated. Some of these occur on basalt, a fertile substrate and have a particular plant association, while the same wetland on sandstone will be quite different. However, areas which are seasonally dry have a more varied set of plants due to the larger number of niches to be filled. Water meadows can have orchids such as *Diuris* sp., and together with other flowering plants can provide an ever-changing colour sequence. Damien illustrated these points with a series of slides plus overhead transparencies.

Many wetland plants have starchy tubers, enabling them to survive dry periods; such tubers were often bush tucker for the Aborigines.

Receding water triggers flowering and seed production, thus ensuring the survival of the species. So wetlands need shallow gradients, with catchments allowing water to fill them, and then allowing the water to be drawn down in summer. There is a tendency to design wetlands which remain full all year because it looks better, but this results in too simple a habitat with resulting poor biodiversity.

Wetlands are good for frogs such as the Spadefoot Toad, which can dig itself into the mud in dry weather using a "shovel" on its back foot. No mosquito fish (*Gambusia*), which eats frogspawn, can live in this type of habitat.



Shallow Marsh has deeper water $\frac{1}{2}$ -1m deep and lasts from July to February. Running Marshflower, and Red Gums characterise such areas and near Horsham provide habitat for the Red-tailed Black Cockatoo. These trees may have deep scars on them—perhaps they're canoe trees, utilised by the Aborigines, which may be 600-700 years old and provide habitat for barn owls, geckos, possums etc. Dead trees are used as perches for Darters and cormorants.

Deep Marsh 1-1½m deep, and nearly permanent water, will have Tall Spike Rush, Running Marshflower, Water Ribbons and Water Milfoil (such as we have on Lake Wendouree). Creatures may include the Growling Grass Frog, or the Striped Marsh Frog, which begin breeding in November. Coots and Swans get protein from the various waterplants as well as the usual vitamins and minerals expected from such 'greens'.

Along drainage lines in the basalt a series of clearly defined plant zones exists, from the drier higher terraces supporting *Poa lab.*, to freshwater meadow with Saltgrass. Why salt? Mineral salts leach out of the basalt. Then the deeper water contains Water Ribbons. In water with high nutrient content there will be species of floating plants such as *Azolla* sp.. Bladderworts—*Utricularia* sp. such as Fairies' Aprons may be present; they are carnivorous. The bladder has a trigger which is tripped and insects are sucked in due to a vacuum in the cells.

Damien showed us illustrations of projects which his company has been involved with such as the re-establishment of wetlands at Carrum which was originally drained in 1874. Such is the change in the perceived value of wetlands that house blocks with frontages or views over the wetlands command high prices. What a change from the perception of mosquito-ridden useless swamp!

So these projects aim to provide storm water treatment, improve the aesthetics of an area and create habitat—all of which we can see in our own North Gardens Wetland and Paul's Drain being completed in Dowling Street.

Readers wishing to pursue the progress of Damien's schemes should look at his web-site www.wetlandecosystems.com.au where comprehensive descriptions including species names and many of the images he showed us are displayed, including time-lapse sequences which show the progress of the projects.

Moorabool Roadside Reserves Excursion 5/10/03

Leader: Carol Hall

Carol handed out carefully prepared excursion notes and a map before we departed for the area to the south east of Ballarat. From the edge of Ballarat, through Bungee and Millbrook we travelled over the basalt area which has weathered to produce fertile chocolate-coloured soils used for grazing and growing potatoes. Winter rains have filled the dams used for irrigation. The volcanic cones of Mounts Warrenheip and Buninyong and Black Hill near Gordon were clearly visible landmarks.

After crossing Black Creek on the Yendon-Mt. Egerton Road we stopped at the first of many, signed areas of Significant Roadside Vegetation. Among the Blackwood *Acacia melanoxylon*, Kangaroo Grass, *Themeda australis* was the dominant grass. Two species of tussock grass were compared, the grey, pubescent leaves of *Poa morrisii* were soft compared with the harsh leaves of *Poa sieberiana*. Bidgee-widgee *Acaena novae-zelandiae* had brighter green leaves and prostrate habit while the closely related Sheep's Burr *Acaena echinata* was duller green and produces an upright seed spike. Many bright turquoise blue beetles were crawling over one patch of Bidgee-widgee. One of the few plants in flower was the delicate Common Woodruff *Asperula conferta* with small white flowers. Leaves of onion orchid and sun orchid were seen. Weeds invading the grassland included Onion-grass *Romulea rosea* (some with white rather than pink flowers), several grasses and Spanish Heath *Erica lusitanica*. Nearby Swamp Gum *Eucalyptus ovata* grew with Blackwood.

An outcrop of Ordovician sediments forms a line of hills north of Mt Egerton. The gravelly soils support different flora. Messmate, Narrow-leaved Peppermint, Blackwood and Silver Wattle shelter a diverse understorey. Common Bird Orchid *Chiloglottis valida*, Nodding Greenhood *Pterostylis nutans*, Bulbine Lily *Bulbine*



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