MEMBERS' PAGE

A WHITE NEW HOLLAND HONEYEATER

Occasionally people notice white colour forms of various animals, but we have not heard of a white New Holland honeyeater before. It is not completely white, having pale blue eyes and grey around the head, as well as the normal yellow wing patch, so it is showing leucism and is not an albino (see an explanation in WW 10/4 p 9).

These photos of a white and a normal bird were sent in by Helen James and David Poynton of Honeymoon Hill Estate, Margaret River. Helen says it is an amazingly beautiful bird which is part of the general flock of small birds that frequent the property. There is abundant shrub cover in which to hide from predators. It would be interesting to know if it will breed in the coming season, and perhaps produce more individuals with this striking colour form.

Photos: Helen James

Boodies – ecosystem engineers in the arid shrublands

Boodies (*Bettongia lesueur*) also called burrowing bettongs, were once widespread in Australia. Jim Noble of CSIRO described their extent and the distinctive warren shape in WW5/1 (Jan 2001) – we also reproduced a great historical photo from the WA Museum. In his article Jim postulated that a combination of boodies and periodic fire was responsible for maintaining the open grassy shrublands seen by early settlers in the semi-arid shrublands of southern Australia. After a few years of stock and rabbits, combined with fewer fires and the extinction of boodies and other small marsupials, these southern rangelands became dominated by a dense growth of native shrubs and the grass component essential for stock was much reduced.

Jim and his colleagues have now written another paper elaborating on this theme*. It uses mathematical modeling to investigate different scenarios involving boodies, shrubs and fire. They conclude that a high density of boodies (as shown by relict warrens), together with an average of five fires every hundred years, would maintain the grassy shrubland so prized by the early pastoralists. The challenge now is how to manage with stock instead of boodies.

Although much of this paper is mathematical, there are interesting snippets about marsupial digestive processes and fire behaviour. If you manage land in the southern rangelands or the northern and eastern edges of the wheatbelt, you will find its conclusions thought-provoking.

*Noble J.C., Hik, D.S. & A.R.E. Sinclair. 2007. *Landscape ecology of the burrowing bettong: fire and marsupial biocontrol of shrubs in semi-arid Australia.* The Rangeland Journal. 29: 107-119.

IN BRIEF

Why are many remnant trees in decline?

Everyone will be aware that many of the trees in remnant vegetation are in decline. These are the widespread, common trees that give character and sense of place to so much of our landscape. For example, *Western Wildlife* has, over the years, featured problems affecting wandoo, tuart, marri, jarrah, yate, salmon gum and flooded gum. Leaving aside threats such as climate change and altered hydrology leading to salinity, what factors might be causing this decline? Some researchers in Tasmania* looked at whether past land management might be a contributory factor.

In 49 remnants they took detailed measurements of the current condition of the site, especially of soil, understorey composition and tree health. Then they asked each landholder specific questions about management history, and sometimes records were found to stretch back 80 years. The mass of data was subjected to mathematical analysis and they found that 60% of the variation in overstorey tree health was associated with the cover of native shrubs, litter, moss and lichen in healthy sites, and with cover of exotic pasture grasses in declining sites. Soil attributes explained 72% of the variation in tree health, with healthy sites having lower soil nitrogen and pH, and higher soil organic carbon.

So, get your remnants – even small ones – fenced off and give those beneficial natural soil-based ecosystem processes a chance to get going again!

*Davidson, NJ, et al: 2007. *Eucalypt health and agricultural land management within bushland remnants in the Midlands of Tasmania, Australia.* Biological Conservation 139: 439-446.

Gnammas contain amazing diversity of freshwater fauna

In the wheatbelt, the only pools that are probably unthreatened by salinity are the rain filled gnammas on rock outcrops. Their invertebrate fauna is amazingly diverse and, moreover, varies substantially between different types of gnammas (see WW 3/3) and between outcrops. A recent study* of outcrops near Hyden found 66 invertebrate taxa. On Wave Rock, even after sampling 57 pools, new species were still being added to the list!

The fauna studied are small, often needing a microscope to see, and include insects, crustaceans, mites, worms and snails, however they are an essential part of the food chain, especially for frogs. Many of the species are endemic and they often have poor means of dispersal between pools – let alone between rock outcrops. Most survive the dry summer as eggs in the debris at the bottom of the pool.

This work reinforces the theory that every rock outcrop in the wheatbelt could have a unique assemblage of invertebrate fauna. Conserving this diversity means conserving the gnammas themselves. If stock (or feral goats) are allowed access, they will trample and powder the basal debris, destroying the over-summering organisms and the nutrient substrate on which they depend. In addition, stock faeces will build up in the gnammas and cause eutrophication. So fencing out hoofed stock is essential.

This winter, have a look at a gnamma near you to see what invertebrates you can see. [For a list of publications with illustrations to help ID contact the Editor.]

*Jocque, M., Timms, B.V. and L. Brendonck. 2007. *A contribution on the biodiversity and conservation of the freshwater fauna of rocky outcrops in the central wheatbelt of WA.* J. Royal Society of WA, 90: 137-142.