WILDLIFE DIARY
June 2012

Great Finds

The Eprapah Creek survey revealed a surprisingly rich Goblin spider fauna. The genus Opopaea is most diverse, comprising 8 species of which 6 species are new to science. We have recently been asked to provide a scientific name to one of the new Goblin spiders. If you have a suggestion for a name let us know.

POPULATION MATTERS

A very Faustian choice is upon us: whether to accept our corrosive and risky behavior as the unavoidable price of population and economic growth, or to take stock of ourselves and search for a new environmental ethic.

E. O. Wilson

Visit: http://www.population.org.au/

Climate Change and koalas

Climate change has been recognised for its potential to affect the continued survival of many species across their current range and the International Union for Conservation of Nature (IUCN) has recognised that the koala is a species highly vulnerable to climate change. Recent scientific publications have identified the implication of climate change for koala distribution in Queensland and predicted that South East Queensland may become increasingly important to the long-term survival of Queensland's koala population as other parts of Queensland become more hostile to the species' survival (Adams-Hosking *et al*., 2011).

Velvet worms

Velvet worms belong to a phylum of their own, the Onychophora, meaning 'claw-bearers'. They are small, terrestrial (land-dwelling) worms that look rather like caterpillars, with antennae and clawed legs down the whole length of their bodies. Velvet worms range up to about 10 cm in length, but most often they are between two and four centimetres long. Despite their apparently gentle appearance, velvet worms are voracious and active carnivores, feasting on other small invertebrates (for example, termites, woodlice and small spiders) that they encounter during their travels. Velvet worms capture their prey by squirting sticky slime from their oral tubes. The slime effectively entangles the prey so it can't escape. The velvet worm bites off parts of the prey then sucks them up after they have been softened by digestive saliva extruded from the velvet worm's mouth. They also squirt the sticky slime in defence. Velvet worms are quite secretive and display 'photonegative' behaviour, they hide from light.

Velvet worms have been found in the Redlands.

Did You Know!

Did you know a 2010 study of Eprapah Creek in the Redlands found one hundred and nineteen species of spiders from 36 families were recorded during the survey?. Forty-one new species found. The lack of tramp species (Redbacks, Daddy Long Legs) indicated a lack of disturbance of studied sites,. while the diversity of environmentally sensitive spider groups was high indicating that these groups would provide target species for monitoring health of bushland patches within the Redlands. Two water spider species were found in the survey. One, Megadolomedes australianus, is a very large spider (leg span greater than a hand) and is found only in the least disturbed streams that have slower flowing regions. These spiders feed on fish and possibly frogs. They are found under large logs or rocks near water. BAAM 2010.

As this term “wise use” gained currency within the Ramsar community and was used elsewhere for different purposes, the Conference of the Parties recognized the need for greater precision and adopted a definition at its 3rd meeting in Regina, Canada, in 1987. This definition was revised in Resolution IX.1 Annex A (2005) as follows: "Wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development."

Great Walks

If you are walking through the Melaleuca Reserve on Coochiemudlo Island please take a few pictures of the trail. We are keen to compare a now and after shot (600 runners soon to trample through wetland) and send to compliance staff responsible for RAMSAR sites. Also visit http://www.coochietri.net/

WWW

Super Quarry – it’s back again
http://www.superquarry.org.au/

Bat Care Brisbane
http://www.bats.org.au/

Habitat Refugia
http://tinyurl.com/3bpbxxk

Sir David Attenborough & population
http://www.thersa.org/events/vision/vision-videos/sir-david-attenborough

Woody Debris, shade & leaf litter

Large woody debris (LWD) refers to whole trees, logs, branches and sticks that have fallen into rivers and streams. Snags are large complex accumulations of LWD. Once fallen into rivers evidence from elsewhere indicates LWD can persist for hundreds or even up to thousands of years (Nanson et al., 1995).

LWD provides habitat for many aquatic organisms (Treadwell et al., 2002). It provides a hard substrate for the colonisation of many species of bacteria, fungi and algae which form complex encrusting biofilms, essential components of carbon and nutrient pathways in aquatic systems. It is an important habitat for aquatic invertebrates and typically supports specific assemblages different from the fauna of other habitat types. Some species use the wood as a hard attachment site to filter feed, but most species feed upon the encrusting biofilms or occasionally the wood itself. Some macroinvertebrate species also use LWD as a hard substrate on which to attach eggs. LWD is also a major habitat for many species of fish and is the major habitat in rivers with low substrate heterogeneity and without other forms of complex habitat structure. Fish utilise LWD and snags to avoid predators, shelter from direct sunlight, avoid high water velocities, as ambush sites used by predators to capture their prey, as territorial markers, as spawning sites for adhering eggs and as both adult and juvenile habitat. Snags also provide habitat for birds, turtles, frogs and aquatic mammals.

In sand- or-silt dominated rivers, LWD can provide the only stable substrate for biota, particularly during periods of high velocity flows. In intermittently flowing rivers LWD can act as a drought refuge permitting the persistence of some species during dry spells.

Depending on the composition of the riparian zone it may provide ample shade for the water, reducing the amount of light and heat reaching a stream. For some provinces (e.g. Murray-Darling and Central), the sparse vegetation in the riparian zone does not give much shade. In other systems the reduction in light results in a reduction in the abundance and possibly species richness of algae and macrophytes that may otherwise be present, ultimately decreasing in-stream primary production as well as water temperature. These shading effects are more influential in the upper reaches of a stream system where the stream channel is narrow. The effect of shade on temperature in large, wide channels may be negligible. Fish utilise shade as an area of cover from which to launch predatory attacks, as well as a refuge from predation (Pusey and Arthington, 2003).

Pusey and Arthington (2003) suggest that increased rates of transfer of thermal energy between the atmosphere and stream in the absence of an intact riparian zone may disrupt reproduction of fish, and have direct effects on mortality rates, body morphology, disease resistance and metabolic rates in fish.

Riparian vegetation influences the spectral qualities of light entering the stream (Pusey and Arthington, 2003). Changes in light quality can lead to increased mortality of fish eggs and larvae due to increased ultraviolet light irradiation, reduction in the ability of adult fish to discriminate between potential mates, and increased conspicuousness to predators (Pusey and Arthington, 2003).

Both direct and indirect inputs are provided to the stream by riparian vegetation. Depending on the type of riparian vegetation it may deposit fruits, leaves, bark, large woody debris and/or snags into the stream. These inputs supply nutrients to the stream food chain. Terrestrially derived matter is consumed directly by some fish (Pusey and Arthington, 2003) and macroinvertebrates, and may be an important source of energy to some systems. It should be noted that in some systems (e.g. those dominated by grasses) the riparian zone may not provide many nutrients to the water.

When leaves derived from riparian vegetation first enter a stream, the soluble components undergo leaching. Fungi and bacteria then condition the leaf material, before macroinvertebrate shredders consume fragments of the leaves. The seasonality of leaf inputs, the volume, and the chemical composition of the leaves are determined by the species that occur in the riparian zone. Native vegetation, such as species of Eucalyptus, Acacia, and Melaleuca, have sclerophyllous leaves, which may persist for months or years before completely breaking down. Herbaceous material, such as grass litter, breaks down very quickly in streams. A sclerophyllous input ensures a continuous food resource for stream organisms, whereas herbaceous inputs may not be as consistent throughout the year (Steward, 2000). Riparian zones dominated by exotic vegetation such as the willow (Salix sp.) supply an autumn-dominated energy input to the adjacent stream, providing only a brief food supply for aquatic organisms (Frankenberg, 1992). Litter fall in Australian forests tends to be continuous throughout the year, with a peak in summer (Lake, 1982; Lake et al., 1985; Bunn, 1988). Some streams in Queensland are fringed by the exotic camphor laurel, *Cinnamomum camphora*, the leaves of which contain camphor, camphorene, and reticuline, which may be unpalatable to stream consumers (Jantan *et al*, 1992). As a result, these leaves take a significant period of time to break down (see Steward, 2000). http://wetlandinfo.derm.qld.gov.au/wetlands/

Never doubt that a small, group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has. Margaret Mead.

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