

WILDLIFE DIARY

August 2011



Great Finds

Water Rat, *Hydromys chrysogaster* active found along Tarradarrapin Creek.

Humpback whale, *Megaptera novaeangliae* off North Stradbroke Island,

Fur seal observed surfing at Point Lookout on North Stradbroke Island.

POPULATION MATTERS

Population Film Festival Brisbane: Recent documentaries and short films on the contribution of population growth to ecological, social and economic crises. Covering global, Australian and local perspectives. Includes films by David Attenborough and Dick Smith, as well as the Australian Premiere of *Mother: Caring for 7 Billion* (2011), and Queensland Premiere of *Dennis Grosvenor's State of Siege* (2011). Followed by public discussion forum.

For full program and online tickets, visit www.populationfilmfestival.com

Sunday 28 AUGUST 10:00 am to 6:30 pm.
Tribal Cinema, 346 George Street, Brisbane.

When the Dust Settles

Part 1: <http://www.youtube.com/watch?v=aSScncD3Ark>

Part 2: <http://www.youtube.com/watch?v=-e8yZmTjUlo&feature=related>

Part 3: <http://www.youtube.com/watch?v=p9diy3apwHY&feature=related>

Part 4: <http://www.youtube.com/watch?v=xanbonp-9Kk&feature=related>

Radon gas: <http://www.epa.gov/radon/pubs/citguide.html>

Eprapah Wattle

The **Eprapah Wattle**, *Acacia perangusta* was previously considered to be a species in its own right, but is now considered to be an extreme form of another species, the Brisbane Golden Wattle. Regardless this acacia is one of the author's favourite small trees. Flowers are bright yellow to golden puff balls, the beautiful blossoms of this species are now out and their perfume fills the air.

Extinction

"Once a species is gone, it's not just the materials of its body that are gone, it's wisdom, it's the knowledge it has for us." Janine Benyus

Did You Know?

Did you know as many as 90% of the world's plant species use beneficial fungi to acquire water and nutrients from the soil? The specialized roots that the plants grow and the fungus which inhabits them are together known as mycorrhizae, or "fungal roots". The famous, and delicious, truffle mushroom is a mycorrhizal fungus.

Did you know Blue Banded Bees don't fly during Winter? In April and May, all the adult bees die as the cold weather starts. In the nest burrows, though, immature bees (called prepupae) are curled up inside their sealed cells. These prepupae become dormant during winter and stay inside their cells until the weather warms up in spring. Then they complete their development into adults and emerge into the sunshine to begin the new flying season. So from about May to October no adult blue banded bees can be found flying in the garden.

Did you know there is approximately an 80% decline in aquatic taxa when there is a 0.5 to 2% increase in the impervious cover within the landscape? Impervious landscapes are typically found in urban areas due to roads, concrete and general urbanisation.



Easterlies) pickup.

Great Walks

The water might be cold, some say freezing but it's clear, so this is the best time to explore the shallows of Moreton Bay before the winds (Westerlies and South

WWW

Super Quarry - it's back again

<http://www.superquarry.org.au/>

http://www.youtube.com/watch?v=wjyQoQB8onA&feature=player_embedded#

Biomimicry

<http://www.biomimicryinstitute.org/>

Population film festival

<http://population.org.au/index.php/events/spa-events/689-population-film-festival-brisbane>

Nature in Action

<http://www.asknature.org/>

Fungi

The Kingdom Fungi includes some of the most important organisms, both in terms of their ecological and economic roles. By breaking down dead organic material, they continue the cycle of nutrients through ecosystems. In addition, most vascular plants could not grow without the symbiotic fungi, or **mycorrhizae**, that inhabit their roots and supply essential nutrients. Other fungi provide numerous drugs (such as penicillin and other antibiotics), foods like mushrooms, truffles and morels, and the bubbles in bread, champagne, and beer.

Fungi also cause a number of plant and animal diseases: in humans, ringworm, athlete's foot, and several more serious diseases are caused by fungi. Fungi are more chemically and genetically similar to animals than other organisms, which makes fungal diseases very difficult to treat. Plant diseases caused by fungi include rusts, smuts, and leaf, root, and stem rots, and may cause severe damage to crops. However, a number of fungi, in particular the yeasts, are important "model organisms" for studying problems in genetics and molecular biology.

While fungi are not uncommon fossils, their fossils tend to be microscopic. Fungal filaments have been found in Cretaceous amber from northern France.

As part of their life cycle, fungi produce spores and from these haploid **hyphae** grow and ramify, and may give rise to asexual sporangia, special hyphae which produce spores without meiosis. The sexual phase is begun when haploid hyphae from two different fungal organisms meet and fuse. When this occurs, the cytoplasm from the two cells fuses, but the nuclei remain separate and distinct. The single hypha produced by fusion typically has two nuclei per "cell", and is known as a **dikaryon**, meaning "two nuclei". The dikaryon may live and grow for years, and some are thought to be many centuries old. Eventually, the dikaryon forms sexual sporangia in which the nuclei fuse into one, which then undergoes meiosis to form haploid spores, and the cycle is repeated.

Fungi are not able to ingest their food like animals do, nor can they manufacture their own food the way plants do. Instead, fungi feed by absorption of nutrients from the environment around them. They accomplish this by growing through and within the substrate on which they are feeding. Numerous hyphae network through the wood, cheese, soil, or flesh from which they are growing. The hyphae secrete digestive enzymes which break down the substrate, making it easier for the fungus to absorb the nutrients which the substrate contains.

This filamentous growth means that the fungus is in intimate contact with its surroundings; it has a very large surface area compared to its volume. While this makes diffusion of nutrients into the hyphae easier, it also makes the fungus susceptible to desiccation and ion imbalance. But usually this is not a problem, since the fungus is growing within a moist substrate. Most fungi are saprophytes, feeding on dead or decaying material. Fungi is one of the few organisms that can breakdown lignin in wood to its basic carbon form. This helps to remove leaf litter and other debris that would otherwise accumulate on the ground. Nutrients absorbed by the fungus then become available for other organisms which may eat fungi. Very few fungi actively capture prey, one being *Arthrotrichy* which snares nematodes on which it feeds. Many fungi are parasitic, feeding on living organisms without killing them. Ergot, corn smut, Dutch elm disease, and ringworm are all diseases caused by parasitic fungi.

Most plants rely on a symbiotic fungus to aid them in acquiring water and nutrients from the soil. The specialized roots which the plants grow and the fungus which inhabits them are together known as **mycorrhizae**, or "fungal roots". The fungus, with its large surface area, is able to soak up water and nutrients over a large area and provide them to the plant. In return, the plant provides energy-rich sugars manufactured through photosynthesis. Examples of mycorrhizal fungi include truffles and *Auricularia*, the mushroom which flavours sweet-and-sour soup.

In some cases, such as orchids, the young plant cannot establish itself at all without the aid of its fungal partner. In liverworts, mosses, lycophytes, ferns, conifers, and flowering plants, fungi form a symbiotic relationship with the plant. Because mycorrhizal associations are found in so many plants, it is thought that they may have been an essential element in the transition of plants onto the land. Source: <http://www.ucmp.berkeley.edu/fungi/fungi.html>

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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