



FUNGI FORAGERS

No. 3, June 2017

OUR PURPOSE: TO RAISE AWARENESS AND INTEREST IN FUNGI OF THE CAIRNS REGION

This newsletter is not formally published and is not associated with any club or organisation, but is emailed free of charge to anyone who may be interested. Anyone who wishes to contribute to the newsletter with observations, anecdotes, corrections, comments or photographs is welcome to do so. Although this “newsletter” is science-based we try not to make it too “scientific”. We recognise that there are school children, bush-walkers and others just interested in fungi, and we hope this leaflet will become a medium for furthering that interest.

Barry Muir, editor Jenn Muir

News

Professor Jim Trappe, from Oregon in the USA, visited north Queensland this month to study truffles. Truffles are fungal fruit bodies that lie buried in the soil attached to plant roots. Small animals like bettongs and wallabies dig them up for food. By the time the next edition of Cairns Fungi Foragers is ready, some of the fungi will have been identified and we can give you more detail, so watch this space.

A rare Northern Bettong (*Bettongia tropica*) hiding in a log
Photo B Muir



Did you know?

Fungi possess almost all the senses used by humans. Many can sense light, gases, chemicals and surfaces, gravity and electric fields, and one fungal species (*Phycomyces blakesleeanus*) is known to sense adjacent objects. Fungal cells sense each other through chemicals secreted during mating or through gaseous or water-borne chemicals secreted by other fungi in the vicinity.

Climate and Fungi near Cairns

Tropical North Queensland (TNQ) has many climate zones based on distance from the coast and height above sea-level. It is generally hot and humid with a distinct wet season (December–March) and dry season (April–November). Annual rainfall for Cairns is about 2000 mm, virtually unchanged since 1941 when records commenced. Most rain (about 1200mm) falls during the wet season, but annual and seasonal rainfall are very variable. This is why our fungi are unpredictable in when they appear.

The months from May to October are mostly affected by winds that come from the south-east and are known as “Trade Winds”, a name that derives from sailing ship days when trading ships depended on wind to get around. In Cairns the Trade Winds often produce showers during the night and morning and weaken during the afternoon. They last from one to only a few days and can be considered short-term events for fungi. If enough rain falls, these events may produce their own suite of fungi, some of which may not occur at any other time. These fungi usually appear, last a day or two, then disappear again.

During the wet season (officially December to March) climate in Cairns is dominated by the monsoon; an inflow of moist west to north-westerly winds producing dense cloud and heavy rainfall over northern Australia. These moisture-laden winds originate from the Indian Ocean and southern Asian waters. The monsoon goes through a series of active and non-active cycles over a varying timescale in the order of a few weeks. During the last (2017) wet season, the first monsoon rainfall period was from 3 January to 19 January and the fungi loved it. Then there was a half-hearted one from 26 January to 6 February and most fungi said “ho-hum”. Then there was a drawn-out but pretty useless monsoon period from 22 February to 6 March which barely raised any fungal enthusiasm. The monsoon rains can be considered long-term rainfall events for fungi and there may be a succession of species, some coming early in the rainfall period then being replaced by others, often in a set sequence.

Thunderstorms regularly develop over the ranges inland from Cairns, but seldom move off the ranges to Cairns city. Thunderstorms *appear* to have a unique suite of fungi associated with them, but we don't have enough information to be certain and don't yet understand why they should be different.

The monsoon is also the breeding ground for tropical cyclones in the Pacific and Indian Oceans. Whenever the trough is over warm water, there is a risk of tropical cyclone formation. Tropical cyclones have occurred near Cairns from November through to April, although the hazard is greatest between January and March. In fact, Cairns is not often directly affected by cyclones. Between 2005 and 2017 only two cyclones (Larry 17-21 March 2006 and Yasi 2-4 February 2011) crossed the coast close to Cairns, although there have been impacts from five other cyclones that occurred elsewhere in the region.

Thus, the climatic systems that bring sufficient moisture to the Cairns region to trigger fungal fruiting are extremely variable and relate to seasonal events, annual variations, and even variations between decades, nearly all of which are difficult to predict. These entangled events explain the high degree of variation in TNQ in both fruiting species and fruit-body abundance. This situation differs somewhat to, for example, the southern states and even, to some extent, as far north as New South Wales. Rainfall is much more predictable in these regions, being primarily a reliable winter rainfall during the cooler months and occasional brief summer storms. Probably the reason the fungal suite around Cairns differs from that of the southern states is that here it is wettest when it is hottest, whereas further south it is wettest when it is coldest.

You can get lots of information about climate on <http://www.bom.gov.au/>



This Month's Question

During the last wet season did you see what we believe to be a variant of *Clavulina tasmanica*? Peter Newling and Barry Muir have found it to be common at Stoney Creek (Kamarunga) and Goomboora Park (Brinsmead), where it grows on fallen timber, mainly at the beginning of monsoon rains, but sometimes also during the short rain events that arise during the “dry” season.



Specimens of *Clavulina tasmanica* from Goomboora Park. Note the velvety appearance which is caused by numerous very long sterile hyphae that protrude out of the fruit-body surface.

Originally described in 1891, these little guys are supposed to grow up to 70 mm tall, but we have only found them to 40 mm or less. Basidia (the little structures that support the spores), spore measurements and other microscopic characters match the original description, but the original specimens were said to grow on silica-rich soil in New South Wales, Victoria and Tasmania. Ours grow on decaying wood near Cairns, Queensland. Are they the same species; is the original description not fully representative; are our locals a new species; or have we just misidentified them? Any ideas?

Did you know?

Francesco Valenti Serini (1795-1872) made numerous life-sized clay models of fungal fruiting bodies found in Italy. The full article can be read here:

<http://www.apsnet.org/publications/apsnetfeatures/Pages/TerraCotta.aspx>

This reference is extracted from Sydney Fungal Studies Group Inc. www.sydneyfungalstudies.org.au

An Interesting Paper

A little out of date, but a good summary of how much of Australia's vegetation has been lost to land-clearing. Much more land has been cleared since this article was written; Bradshaw, C.J.A. (2012). *Little left to lose: deforestation and forest degradation in Australia since European colonization*. J Plant Ecol 5 (1): 109-120.

<http://jpe.oxfordjournals.org/content/5/1/109.full>. For more up-to-date info have a look at:

<http://us9.campaign-archive1.com/?e=2fad16f3a3&u=228c18608b6eb3bd8fc42327e&id=69c39e7eff>

Lichens

Lichens are unique organisms derived from fungi cooperating with algae. Algae are plants related to seaweeds and the green pond-slime you see in creeks and ponds. The fungi give the algae nutrients extracted from the rocks or bark on which the lichen grows, and the algae uses sunlight to produce sugar which it passes to the fungus. Lichens are so unique they are given their own scientific names, different to either the fungus or algae that combine to make them.

Lichens have properties different from those of either the fungus or the algae and come in many colours, sizes, and forms. Some might look like moss, but lichens are not related to mosses or any green plant. Although they often live on plants, such as on tree trunks, they are not parasites. Lichens grow on bark, leaves, mosses, on other lichens, rock, walls, gravestones, roofs, and exposed soil. They can even live inside solid rock, growing between the grains. Lichens may be long-lived, with some considered to be among the oldest living things.

(Text derived in part from Wikipedia)



Two beautifully coloured lichens found in the Cairns Region. Photos: B Muir

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