



FUNGI FORAGERS

No. 1, February 2017

Greetings

This is the first of what we hope will be a series of information newsletters with the aim of uniting the interests of the many Cairns-dwellers who have a soft spot for fungi. We are not a club with its needs for incorporation, insurances and all the other impediments to casual information swapping. We are just a couple of amateur mycologists that find fungi fascinating on many levels.

We spend as much time as we can in the field, especially during periods of rainfall, and have collected over the years a wealth of information, some of which may be of interest to those with less time on their hands than we have. This newsletter is not formally published, 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. Additionally, 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 that are just interested, and we hope this leaflet will become a medium for furthering that interest.

Barry Muir & Peter Newling. Proofing: Jenn Muir

A PLEA ON BEHALF OF FUNGI

(This article is to be published, in slightly modified form, in the Cairns Regional Council magazine “Green Space Our Place” issue 14, March 2017)

There are basically three types of fungi: saprophytes which decompose organic matter and turn it into food for plants and animals; parasites/pathogens that grow on plants or animals and cause diseases; and mycorrhizae. This article discusses mycorrhizal fungi – perhaps the most important of them all.

Mycorrhizae (from the Greek mykos = fungus and riza = root) are a close association between a fungus and a plant to the mutual benefit of both. It is believed these associations have been around for at least 400 million years and that the presence of the fungi probably allowed the first plants to begin to colonise land. It is also thought that plant roots may have evolved to provide suitable accommodation for the fungi.

The association with plants is complex with mycorrhizal fungi, but basically the fungus extracts minerals and water from the soil and passes them to the plant, and the plant passes sugars that it has made using photosynthesis, back to the fungus. Fungi also store nitrogen and pass this to the plant during hard times. Both benefit from the arrangement and, although most plants will grow without the mycorrhizal fungus, many struggle to survive.

Mycorrhizae also play other roles: they reduce transplant shock when plants are moved; they extend the growing season and plants grow larger, flower earlier and produce higher yields. Mycorrhizae provide protection from attack by soil-borne pathogens; buffer against toxic levels of elements on contaminated land;



increase a plant's ability to tolerate environmental stresses; improve soil structure (particularly in degraded soils); and allow survival of many kinds of seedling that would otherwise never compete, in effect increasing plant diversity.

Plants that use mycorrhizae, and with which you will be familiar, include nearly all the rainforest trees and shrubs; all the eucalypts, melaleucas and wattles; all timber trees including pines; all fruit and nut trees; grapes; almost all vegetables and salad plants; all the palms; most garden flowers; all cactuses; wheat and all the other cereal crops; ferns; and grasses including all forage grasses and sugarcane. In fact, it is estimated that about 80% of all the plants on the planet are dependent on mycorrhizal fungi. Without mycorrhizal fungi, food production would drop dramatically in just a year or two. Unfortunately over-fertilising, use of fungicides and pesticides, and over-cultivation, destroy or

damage the mycorrhizal fungi and usually do more harm than good in the long-run. In summary – **our very existence depends on fungi – cherish them.**



Question: have you sighted any luminous fungi this season? A single specimen of *Mycena chlorophos* was observed (in daylight) at Goomboora Park, Brinsmead, Cairns, two weeks into the heavy monsoonal rains that started at the beginning of January this year. So far no others have been found or reported.

New species for FNQ: back in 2014 Dave Largent (Humboldt State University, USA), Sarah Bergemann (Middle Tennessee State University, USA), and Sandra Abell-Davis (James Cook University, Cairns) published a joint paper entitled “*Entoloma* species from New South Wales and northeastern Queensland, Australia”. It described four new species for our region: *Entoloma hymenidermum* from Yorkeys Knob and Clifton Beach; *Entoloma kewarra* from Kewarra Beach; *Entoloma rugosiviscosum* from the Marrjda Track in Daintree National Park; and *Entoloma guttulatum* from Mossman National Park and Emmagen Creek Track in Daintree National Park.

The full reference is: Largent, DL, Bergemann, SE & Abell-Davis, SE. (2014). *Entoloma* species from New South Wales and northeastern Queensland, Australia. *Mycotaxon* 129 (2): 329-359. The paper is available online at <http://dx.doi.org/10.5248/129.329>

Info online: have a look at the website <https://www.flickr.com/groups/aussiefungi> for some fantastic photographs of local fungi taken by Ray Palmer, another local amateur mycologist.

New info: Judith Hewett, Secretary of the Queensland Mycological Society tells us that “The Hunter Valley Fungi Guide” has been reprinted and is now available on line for \$20 plus postage. It has been renamed: “A Guide to the Common Fungi of Coastal New South Wales”.

<http://www.tocal.nsw.edu.au/publications/list/field-crops-and-pastures/fungi-of-coastal-nsw>

The 2016 edition of “A Field Guide to Tasmanian Fungi” by Genevieve Gates and David Ratkowsky (Tasmanian Field Naturalists Club) is now available and can be ordered through bookshops. Barry obtained

his copy through Andrew Isles (www.AndrewIsles.com). Simple keys and lots of illustrations to help you to genus. Trying to get to species with Tropical North Queensland fungi is another story altogether!!

Did you know: there are two amateur technical studies on fungi underway in the Cairns Region?

1. Peter Newling is compiling a checklist of fungal species found along Stoney Creek in Kamerunga and is collecting information on *Entoloma* species, in particular; and
2. Barry Muir is undertaking an ecological study of macrofungi succession along a transect in Goomboora Park.

Are there any other amateur mycologists out there doing technical studies?

Top picture



Trogia infundibuliformis at Goomboora Park. These beautiful, translucent fungi are common after prolonged rains on wood that is in a moderate to advanced state of decay. Photo Barry Muir

Who are we?

Barry Muir, BSc Hons, Western Australian Museum, Department of Conservation and Land Management (WA), Environmental Superintendent Argyle Diamond Mine, Scientific Director of Muir Environmental (consultancy), 50 years ecology in Australia and south-east Asia. Address for correspondence PO Box 15003, Edge Hill, Queensland 4870; or email unit57.may@gmail.com.

Peter Newling, Citizen Scientist, 15 years environmental studies regionally and eight years studying fungi in Cairns Region. Email spdx@gmx.us.

HAPPY MULCH-PEERING!