

**SOME MACROFUNGI ASSOCIATED WITH ANTARCTIC BEECH IN LAMINGTON NATIONAL
PARK, QUEENSLAND, AUSTRALIA**

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One of the most distinctive floristic components of the Lamington National Park is the cool temperate rainforest composed of Antarctic Beech, *Nothofagus moorei*. The Lamington beech forests have a disjoint distribution along the summits of the southern facing escarpment of the McPherson Range (which forms the caldera rim of the extinct Mount Warning volcano) but the beeches are also found in other small patches, mostly along the tops of the ridges which radiate northwards from the Mt Warning caldera. The beech forests are found in those sections of the Park which receive cooler and moister climatic conditions compared with the remainder and since higher altitudes produce such climatic conditions, the beech communities are generally found on the highest parts of the McPherson Range although local climatic conditions (eg. deep gullies with waterfalls and wind funnel effects) may sometimes allow the beeches to exist at lower altitudes. Typical locations with their altitudes above sea-level are Mt Hobwee (1140 m), Mt Wanungara (1165 m) and Mt Durigan (1110 m).

Beech forests are of special interest as they are known to contain macrofungi that form ectomycorrhizal associations (Horak 1973, 1979) and some of these genera (eg. *Descolea*) are associated with beech forests in New Zealand and South America. The Lamington beech forests are almost invariably small 'islands' within a non-ectomycorrhizal sub-tropical rainforest and as a consequence if known mycorrhizal macrofungal taxa are found in the beech forests, then they can be reasonably assumed to be mycorrhizal on the beech.

In 1995, attempts were begun to collect macrofungi within two beech communities which could be easily reached from the Binna Burra entrance to the Park. The two beech communities are on the Beechmont Range at 'Tullawallal' (900–950 m) and in a gully on the Dave's Creek/Shipstern Track (800–900 m). The primary aim was to document the taxa present in the beech communities that were known to form mycorrhizal associations. The following macrofungal taxa, together with their dates of collection and substrates are listed for the years 1995 and 1996; an asterisk '*' denotes a taxon known to form mycorrhiza. (Voucher collections are held for all taxa.):

Taxon	Date	Substrate	Mycorrhizal
<i>Lactarius</i> sp.	17 Feb. 1990	moss	*
<i>Tyromyces pulcherrima</i>	15 Mar. 1995	heart wood of Antarctic beech	
<i>Amanita</i> sp.1	15 Mar. 1995	soil	*
<i>Ramaria subaurantiaca</i>	15 Mar. 1995	soil	*
<i>Descolea recedens</i>	04 Apr. 1995	soil	*
<i>Hydnum crocidens</i>	04 Apr. 1995	soil	*
<i>Cortinarius</i> sp.1	04 Apr. 1995	soil	*
<i>Cortinarius</i> sp.2	04 Apr. 1995	soil	*
<i>Russula</i> sp.1	04 Apr. 1995	soil	*
<i>Lactarius</i> sp.	05 Apr. 1995	soil	*
<i>Amanita</i> sp.2	11 Jan. 1996	soil	*
<i>Cortinarius</i> sp.3	11 Jan. 1996	soil	*

The following taxa have been observed in these two beech forests but no voucher specimens are held: *Boletellus* sp., *Hygrocybe miniata*, *Inocybe* sp. *Cyttaria gunnii* has been collected on Antarctic beeches at the rim of the Mt. Warning caldera.

These extremely preliminary results are interesting for several reasons. First, there seems to be ample evidence that mycorrhizal taxa are associated with the Antarctic beech forests near Binna Burra as eight of the genera recorded/observed are well known to form ectomycorrhizae. Second, field observations thus far suggest that when basidiomes appear, they are rarely in quantity: most collections consisted of one or at most two fruiting bodies although *Ramaria subaurantiaca* produced its usual large, coralloid clump. Third, basidiome appearance for the mycorrhizal taxa has been found to be extremely unpredictable. Whatever seasonal and/or

climatic combination stimulates basidiome production in the sub-tropical rainforest may not be the same combination to stimulate basidiome production in the Antarctic beech. Extensive examination of the two beech forests during the period 27–30 April 1996 failed to find any mycorrhizal taxa fruiting despite climatic conditions apparently being suitable and the presence of plentiful basidiomes of various taxa in the sub-tropical rainforest. Finally, the record for *Tyromyces pulcherrima* is also interesting as it conforms with observations by both J.H. Willis and L. Rodway in Cunningham (1965) where the species is described as mostly found on the evergreen beech *Nothofagus cunninghamii*, or rarely on a eucalypt.

Current intentions are to continue collecting in the beech forests as much as possible with two aims: first to identify which taxa are present and second to determine, if and when abundant fruiting occurs.

References:

- Cunningham, G.H. (1965). Polyporaceae of New Zealand. *New Zealand Department of Scientific and Industrial Research Bulletin* 164, 121–122.
- Horak, E. (1973). Fungi Agaricini Novazelandiae I–V. *Beihefte zur Nova Hedwigia* 43, 1–200.
- Horak, E. (1979). Fungi, Basidiomycetes Agaricales y Gasteromycetes Secotioides. *Flora Criptogamica de Tierra del Fuego* 11, 1–524.

LARGER FUNGI OF SOUTH AUSTRALIA

Larger Fungi of South Australia by C.A. Grgurinovic will be published in June this year. It is over 700 pages long. Only 1000 copies will be printed at a cost of about \$80 each. A flier will be enclosed in the next issue of the *Newsletter* for those who wish to order the book.

MYCOSURFING ON THE WORLD WIDE WEB

The 'World Directory of Myxomycologists' published as a hard copy in 1996 is now available on the WWW at <<http://www.wvonline.com/myxo/direct.htm>>

<<http://www.medconnect.com>> An excellent set of mushroom poisoning cases written up in an interactive format.

<<http://www.nybg.org/bsci/res/hall/costaric.html>> The Agaricales of Costa Rican Quercus Forests describes a project conducted by Gregory Mueller and Roy Halling and includes explanatory text as well as images and commentary on agarics/boletes and a few other miscellaneous macrofungi found in that habitat.

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