

STRATEGIC PLAN FOR AUSTRALASIAN MYCOLOGICAL SOCIETY, INC.

At present the Australasian Mycological Society, Inc. does not have a Strategic Plan. The first step to developing such a plan is preparation of a Vision Statement and a Mission Statement. If the Society is to continue to grow and prosper both statements are desirable. This is especially so if we are to seek corporate support and sponsorship. Both Statements would appear on the inside cover of the *Newsletter*. The Statements could be reviewed and updated as necessary.

Financial members of the Australasian Mycological Society are invited to send comments on the Draft Statements to the Secretary by 1 September 1998. It is proposed that a Vision Statement and Mission Statement be presented for adoption at the next annual general meeting of the Society. The new Executive will then be able to develop Objectives and Performance Indicators for the Society compatible with the Vision and Mission Statements.

Vision

'More people benefiting more often from the diversity of fungi in Australasia.'

Mission

'The Australasian Mycological Society facilitates interaction and communication between mycologists, provides fora for discussion and debate on mycological topics, seeks to advance our knowledge and understanding of the diversity of fungi in the environment, and acts to help conserve the indigenous mycoflora of Australasia.'

J. A. Simpson
President

NORFOLK ISLAND MACROFUNGI: HISTORY AND BIBLIOGRAPHY

Norfolk Island is a sub-tropical island, at a latitude of approximately 29 degrees south, and is about halfway between New Zealand and New Caledonia. The island measures roughly 8 by 5 kilometres and there are two smaller islands nearby: Philip Island (about 2 by 2 kilometres), 6 kilometres to the south and Nepean Island, quite small and very close to Norfolk itself. The population is near 2000 but the island plays host to a large number of tourists each year and much of the island's economy is dependent on tourism. Norfolk Island National Park (about 460 hectares) and a few smaller reserves hold remnants of the island's sub-tropical vegetation, while much of the rest of the island is open to cattle grazing and so consists of grassy paddocks with scattered trees (with the Norfolk Island Pine, *Araucaria cunninghamii*, being very noticeable). There are several introduced plants which have created a weed problem, especially the Cherry Guava (*Psidium cattleianum*) which can form dense, monocultural stands in the National Park.

In this report I will summarise the history of studies of the island's macrofungi. As I have an ongoing interest in the island's fungi, I would welcome any additional bibliographic references, personal accounts or any other mycological information pertinent to Norfolk Island. Please send anything to me at:
Heino Lepp, PO Box 38, Belconnen ACT 2616, Australia.

Norfolk Island as a type locality

The type specimens of *Secotium fragariosum* G.H. Cunningham and *Gasteroagaricoides ralstoniae* Reid were collected on Norfolk Island. While the *Secotium* has also been collected on Lord Howe Island, *Gasteroagaricoides* is known only from Norfolk Island (despite the 8th edition of the *Dictionary of Fungi* recording it only for New Zealand!).

Collectors of Norfolk Island fungi

While Ferdinand Bauer collected extensively on the island from 1804–1805 and Allan Cunningham in 1830, there are no Norfolk Island fungal specimens from either of them. The earliest preserved fungal specimen from Norfolk Island is a collection, of what is now *Cymatoderma elegans* var. *lamellatum*, made in June 1855 by W.G. Milne, botanist on the *HMS Herald* expedition. This specimen (Milne, No. 34) is stored at Kew. In the latter part of the 19th century Isaac Robinson, a resident of the island and American consul, collected for Ferdinand von Mueller and included some fungi in his collections. J.H. Maiden visited the island in November

1902 and noted that he had collected several fungi including *Lentinus exilis*, which was new to the island. He also added that 'Hirneola was regularly exported...the market being China'. Maiden's collections were originally held at the herbarium of the Royal Botanic Gardens in Sydney before moving to DAR in the 1970s. Michael Priest, curator at DAR, has noted that for several decades before the move the fungi had not been curated and many specimens had been destroyed by insects. No Maiden Norfolk Island collections could be found.

It seems there was no other fungal collecting on the island until 1947 when W. Cottier made several collections, including the type of *Secotium fragariosum*, and his collections are in Auckland, at PDD. In 1970 an island resident and naturalist, Mrs P. Ralston, collected the type of *Gasteroagaricoides ralstoniae* which is kept at Kew.

In preparation for an issue of postage stamps featuring fungi of the island, several fungi were collected in 1982 by islanders and sent to Kew for identification. During the 1980s/1990s H. Streimann, of the Australian National Botanic Gardens, visited the island several times to gather material for a monograph about the island's mosses and also made about 20 fungal collections which are stored at CANB. John Tierney (of the Queensland Department of Primary Industries) visited the island in 1989 to advise on *Phellinus noxius*, but no *Phellinus noxius* collections from the island could be found in the herbaria I contacted. J.H. Willis made a non-botanical visit to the island in October 1989, but managed to collect a small number of fungal specimens which are stored at MEL, while Marie Taylor collected a few fungi in September 1991 and deposited them at PDD.

From my 1994, 1995 and 1997 visits to the island I have accumulated around 400 herbarium collections (though not of 400 different species) and these are also stored at CANB where I am currently working on them.

The literature

Norfolk Island is distinguished by its virtual absence from the mycological literature and the few published accounts are mostly just short lists of species collected there, rather than detailed accounts of the mycoflora.

The first published account of any fungus from the island appears to be by James Backhouse who visited in 1835 and noted (without name) a small, luminous *Mycena*:

Being out after dark, we were interested by seeing numbers of a small species of agaric, or mushroom, so luminous as to reflect a shadow on substances near them. When held near a watch, the hour might be distinctly seen, or on being put near the face, the features might be discovered. This remarkable fungus has attained the name of Bluelight, though its radiance is rather green than blue; it grows from decaying sticks or straw, and is very abundant amongst the sugar-canes, as well as in the bush. Its cap is rather convex, covered with mucilaginous matter, and is less than an inch across; the stalk is slender, two or three often grow together; the whole plant is very watery. The brilliancy is greatest in the cap, which shines most on the underside.

As the remaining literature consists of simple species records, I'll summarise the bulk of it in the following table, in which the literature references are listed across the top (in chronological order) and taxa down the side. I have kept all taxonomic names as they appeared in the original references.

The following, cryptic bibliographic references should be the only ones needing explanations: C & C = Cleland and Cheel; GHC = G.H. Cunningham; C & T = Castellano and Trappe. Note that while von Mueller and Maiden simply record an *Aseroe* sp., Cleland & Cheel record *Aseroe rubra*. Edgecombe contains a colour photograph of *Cymatoderma elegans* var *lamellatum*.

In 1983 Norfolk Island issued a set of four postage stamps that featured coloured illustrations of *Coprinus domesticus*, *Cymatoderma elegans* var. *lamellatum*, *Marasmius niveus* and *Panaeolus papilionaceus*. While the occurrence of the *Cymatoderma* had already been recorded in print, this was the first printed record of the occurrence of the other three species on the island! Hence, the island also gets a mention in several philatelic publications (not seen by me) dealing with fungi on stamps [see Bentley; Molitoris; Moss & Dunkley].

	M u e l l e r	M a s s e e	M C C o o k e	M a i d e n	C & C	G H C	G H C	W B C o o k e	G H C	G H C	R e i d	R e i d	H o r a k	M i l l e r	C & T	E d g e c o m b e	G u z m a n	J H W i l l i s	C r I b b	M a y & W o o d
<i>Aseroe</i>	x			x	x															
<i>Auricularia polytricha</i>																x				
<i>Coprinus domesticus</i>																				x
<i>Cymatoderma elegans</i> var. <i>lamellatum</i>											x					x				
<i>Gasteroagaricoides ralstoniae</i>												x		x						x
<i>Hirneola Auricula-Judae</i>	x			x																
<i>Hymenochaete purpurea</i>	x	x	x	x																
<i>Hypocrea fusarioides</i>	x			x																
<i>Lentinus exilis</i>				x																
<i>Lentinus sajor-caju</i>																				x
<i>Marasmius niveus</i>																				x
<i>Panaeolus papilionaceus</i>																				x
<i>Pleurotus djamour</i>																	x			x
<i>Peniophora vinosa</i>							x													
<i>Polyporus australis</i>	x			x																
<i>Polyporus hirsutus</i>	x			x																
<i>Polyporus sanguineus</i>	x			x																
<i>Schizophyllum commune</i>								x												x
<i>Secotium fragariosum</i>						x							x		x			x	x	x
<i>Stereum caperatum</i>							x													
<i>Stereum lamellatum</i>									x											
<i>Stereum lobatum</i>	x			x			x													
<i>Thelephora caperata</i>	x			x																
<i>Tremella lutescens</i>	x			x																
<i>Tyromyces grammocephalus</i>										x										
<i>Tyromyces lacteus</i>										x										
<i>Xylaria schweinitzii</i>	x			x																

Herbarium holdings

The following summarises the herbarium collections known to me:

- 400 Centre for Plant Biodiversity Research, Canberra (CANB)
- 48 Queensland Forest Research Institute, Brisbane (QFRI)
- 20 Royal Botanic Gardens, Kew (K)
- 19 National Herbarium, Melbourne (MEL)
- 10 Landcare Research, Auckland (PDD)

Note that these are counts of macrofungal collections, admittedly not a very precise term, and others could come up with numbers slightly different to mine. Some of the above herbaria (plus others) do hold collections of Norfolk Island plant pathogenic microfungi, but those are beyond my area of interest and are therefore excluded from the counts.

It is possible that the above herbaria have Norfolk Island macrofungal collections not included in the above, owing to some collections not yet being incorporated or databased. For example, curators of MEL, PDD and DAR have noted the definite or highly likely existence of small numbers of unincorporated Norfolk Island collections. However, I think it unlikely for there to be any additional significant collections, since there is very little mention of Norfolk Island in the mycological literature (especially in regional treatments of various taxonomic groups). G.H. Cunningham, in particular, searched for Australasian collections at Kew but recorded no island taxa other than those in the main table above.

Thus there are currently about 500 herbarium collections of Norfolk Island macrofungi and, while many of the herbarium collections have not yet been identified, they represent at least 300 species.

Acknowledgements

The Australian Nature Conservation Agency funded my 1994 and 1995 visits. The curators of the herbaria noted above supplied information concerning their holdings of Norfolk Island fungi. Ian Endersby brought the Bentley and Guzman *et al* references to my attention. J.H. Willis and Marie Taylor provided information about their 'mycologizing' on the island.

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FUNGAL INVADERS

Peter Johnston and Peter Buchanan, Landcare Research, Private Bag 92170, Auckland, John Leathwick, Landcare Research, Private Bag 3127, Hamilton, and Shannan Mortimer, Auckland University, Private Bag 92109, Auckland.

The Landcare Research 'Invasive fungi in native ecosystems' programme (Johnston & Buchanan 1997) is a first attempt to measure the impact of introduced non-pathogenic fungi on New Zealand's indigenous communities. Although the consequences of such fungi invading indigenous ecosystems have not been considered in the past, they may be far-reaching, especially for a long-isolated island biota such as New Zealand's. Invading fungi could displace native fungi from the communities in which they occur, and disrupt natural fungal successions in these communities. Fungi are basic to many biological processes within forests. Flow-on effects from the displacement of native fungal species could include the disruption of food chains of indigenous insects and birds, and, for mycorrhizal fungi, changes to the vigour of host trees.

The fungal invaders programme aims to address the following questions:

- What is the extent of the invasion of native ecosystems by exotic fungi?
- What characteristics allow some exotic fungal species to invade indigenous ecosystems?
- What are the biological consequences of these invasions?

The programme has focussed initially on two invasive macrofungi, each with conspicuous sporocarps. The large ectomycorrhizal mushroom, the 'fly agaric' (*Amanita muscaria*), and the small wood-rotting 'orange pore fungus' (*Favolaschia calocera*), both introduced to New Zealand in historically recent times, are known to be invading indigenous forests at some sites.

Extent of invasion

A public survey was initiated to gather information on the distribution of *Amanita muscaria* and *Favolaschia calocera* in indigenous forests in New Zealand. Over the first six months of 1997 posters and leaflets publicising the programme, and requesting records of sightings of the two fungi, were distributed. This was achieved primarily with the assistance of the Department of Conservation (DOC), with many DOC visitor centres and field centres setting up displays on the programme. In addition, the Auckland Regional Authority visitor centres at Hunua and Arataki, and the Auckland Museum helped publicise the programme in the Auckland area.

Responses were received from over 200 people nation-wide, many reporting several records of one or both of the fungi. The first positive result from this programme is to show that public surveys by 'parataxonomists' provide a potentially useful way to gather information on the distribution of fungi. The ephemeral nature of fungal fruiting bodies means that without input from a large number of people over an extended period, even this most basic of information is often very difficult to gather (May 1997).

Amanita muscaria

Amanita muscaria, first reported from New Zealand in the late 1880s (Armstrong 1880), is now common throughout the country in human-modified habitats. As an ectomycorrhizal mushroom growing only in association with the roots of suitable trees, it is found under a wide range of introduced broad-leaved trees and conifers including oak, radiata pine, macrocarpa, and eucalypts. It has long been known to have the ability to form mycorrhizae with *Nothofagus* trees established in nurseries and subsequently planted into gardens or parks. Stevenson (1958, 1962) first reported it from natural stands of *Nothofagus* from the Nelson Lakes National Park. Since then it had been found at other sites in the Nelson Lakes area (Johnston & Buchanan 1997), but prior to the Fungal Invaders survey had not been reported from *Nothofagus* forest in other areas. The survey revealed *A. muscaria* to be widespread in *Nothofagus* forests in the northern half of the South Island, and also that it occurs in a few sites in the central North Island (Figure 1). In contrast to the numerous records from *Nothofagus*, there is only a single, unconfirmed record from *Leptospermum scoparium* and *Kunzea ericoides*, the other native ectomycorrhizal trees in New Zealand, this from the Bay of Islands area in the northern North Island.