

To Foray or to Forage?

Alison Pouliot

According to Pliny, foragers seeking edible mushrooms should steer clear of serpents' dens as their breath renders mushrooms toxic. Despite his counsel, great flourishing crops of poisonous Yellow Stainer mushrooms (*Agaricus xanthodermus*) are becoming commonplace on urban nature strips, sans serpents. This special issue of *Fungimap Newsletter* addresses the germane yet contentious theme of foraging for wild edible mushrooms in Australia. What are the risks and benefits of foraging for wild edible fungi? What position should Fungimap take regarding the increasing number of requests for information about the edibility of fungi? And what can we learn from responses to the rapid rise of foraging in similarly traditionally mycophobic nations such as the UK and the USA in recent decades?



How might restricted species such as *Cyttaria gunnii* be affected by increased interest in foraging?

Image: Alison Pouliot

Since its founding in 1996, Fungimap has focussed on the scientific collection of fungus data with the aim to map the distribution of Australian macrofungi and contribute to knowledge about fungal ecology, life histories and conservation. A core part of the activities of Fungimap is identification of the numerous records that are submitted each year as part of the ongoing mapping scheme for Australian fungi, focussed on target species, but also covering other fungi that are recognisable in the field. All images submitted with records are checked, and data are also checked via inspection of maps to detect outliers that might be

dubious records. In addition to records of fungi, Fungimap is increasingly receiving requests for identification in relation to edibility (a typical email is a couple of images with the request: 'Can I eat this mushroom?'). In this special issue, various authors share their experiences and views on the potential perks and perils involved in foraging for wild edible fungi, and how Fungimap should respond to this growing interest.

People have been eating edible fungi for thousands of years — potentially tens of thousands of years — the first possibly being Aboriginal Australians. In dozens of developing countries wild edible fungi provides an important food source for alleviating hunger and poverty. In contrast, wild edible fungi are eaten predominantly as a gourmet speciality in the developed world including Australia. However, relative to many other countries (e.g. continental Europe, particularly Slavic countries, Russia and some African, South-east Asian and South American cultures) little is known about the edibility of Australian fungi.

Poisonings from the ingestion of toxic mushrooms do occur in Australia, most notably and lethally from the Deathcap (*Amanita phalloides*). Cultural issues also come into play here. Despite stronger foraging traditions in other countries, knowledge about the edibility of fungi does not always translate to Australia where foragers encounter different species and environments. Moreover, unlike European fungus field guides, it is only in the rare exception that Australian guides indicate the edibility of a species. The disparity between the level of public knowledge about wild edible fungi and that required for safe foraging is an issue of great concern to Fungimap.

In Australia, other than Aboriginal use of fungi for which records are scant, interest in fungi has predominantly been among field naturalists who mostly take a scientific approach. The Field Naturalists Club of Victoria (FNCV) has held fungus forays since its founding in 1880. Interestingly, early reports from the FNCV journal, *The Victorian Naturalist*, reveal that some field naturalists also collected fungi as food. However, given the unstable taxonomy of Australian fungi and growing awareness of conservation as from the 1970s, field naturalists today mostly only pursue fungi as a scientific interest. Nevertheless, in countries such as Sweden, foraging and foraging often occurs simultaneously and many folk consider them to be mutually compatible, encouraging a wide appreciation of the many values of fungi. Much can be understood about the compatibilities and conflicts between foraging and foraging by looking beyond our shores.

The rapid increase in foraging in the UK and USA and the consequent environmental and social issues could inform an Australian response and protocol. Reviewing these situations could allow us to anticipate potential problems, hence minimizing environmental damage, social conflict and the need for regulation by fostering more sensitive and sustainable foraging practices.



Two of the more commonly foraged species in Australia, *Lactarius deliciosus* and *Suillus luteus*, are both often sought from pine plantations. Image: Alison Pouliot.

Further to human health risks associated with foraging, potential conservation issues, particularly from the commercial exploitation of wild edible fungi, require informed discussion. Lack of knowledge about species distributions and life histories make it difficult to predict potential impacts on popularly harvested species and environments, hence the need for a precautionary approach. Australia currently has no guidelines or recommendations for the collection of wild edible fungi, although all fungi are implicitly protected on public land (being lumped under plants if not specifically mentioned in legislation). Biodiversity conservation in Australia, indeed globally, has focussed on the protection of plants and animals, with fungi being largely overlooked. All current conservation efforts in Australia stem from NGOs, community groups and interested individuals. Recent initiatives such as the Global Fungal Red List <<http://iucn.ekoo.se/en/iucn/welcome>> are making important inroads into the recognition of fungi in conservation. Could interest in wild edible fungi also stimulate greater interest in the ecology and conservation as has been the case with many hunters and fishers?

The issue opens with two articles by fungus enthusiast and field guide author **Patrick Leonard**. He provides a fascinating historical summary of the various uses of fungi by Aboriginal and early European Australians.

His humorous account of the development of the commercial mushroom industry that produced a mushroom (*Agaricus bisporus*) that tastes like ‘wet cardboard’ might be a stimulus, he suggests, for a return to foraging. He lists several known edible Australian species, dispels some myths and provides some cautionary tips for foragers, and concludes by reminding us that despite the pleasures and benefits of foraging, there are ‘far too many of us to indulge in it regularly’.

Leonard’s second article focusses on the issue of whether foraging poses a conservation threat to fungi. As very few people forage for edible fungi in Australia it is unsurprising that there is little research to assess potential environmental effects. Hence, Leonard looks into research further afield — to China, the USA and Europe — to discover that commercial harvesting has led to a decline in fungus populations. Leonard addresses four major issues which he summarises as questionable sustainability, collateral damage, conflicts with local residents and habitat damage. While a commercial licensing system exists in Australia, Leonard outlines its failings particularly the challenge of determining sustainable yields and a lack of monitoring and policing. He concludes that regulation is necessary due to declining fungus populations.

Leonard provides a thoughtful assessment of many aspects of the argument while other contributors strongly represent a particular stance. A keen forager, **Kim Nguyen** insists that conversations about edibility need to be had among the mycological community. She discusses the various approaches to public queries regarding edibility among fungal studies groups and mycological societies in Australia and beyond. Furthering the argument for foraging, data administrator of the iFungi Au iPhone app, **Gregg Cook**, acknowledges the risks involved for uninformed foragers but considers that ‘is it is irresponsible or negligent’ to withhold knowledge about the edibility or toxicity of a species.

Chef, **George Biron** writes of his passion for foraging for wild edible fungi but also the dangers, noting that a ‘short half day foray’ is not sufficient to train someone to safely identify edible mushrooms. Biron recognises the growing interest in foraging for wild fungi and encourages the production of an ‘ecologically sound’ guide and accreditation courses. He suggests that accredited commercial foragers would not only become the preferred providers for provedores and restaurateurs, but that knowledge gained through courses would lead to greater respect for environments where fungi grow. In a more lighthearted article, self-confessed ‘boletivore-Biron’ introduces the French notion of ‘terroir’ as potentially influencing the flavour

of Australian grown *Boletus edulis*. Like Nguyen, he also sees a link between foraging and conservation.

Representing the other end of the foraging spectrum, mycologist **Genevieve Gates** begins her article by stating the difficulty in defining any fungus as definitively edible due to the differing responses of individuals (e.g. allergic reactions) to other types of supposedly edible foods such as shellfish and strawberries. Further to poisoning risks, Gates strongly conveys her belief that that fungi exist for species other than *Homo sapiens* and human foraging would not be sustainable and could not be regulated in an Australian context.

There are various arguments against foraging that mostly centre around conservation concerns and poisoning risks. Mycologist, **Tom May** provides an insightful overview of his observations of the general public's poor ability to accurately identify mushrooms. As a Senior Mycologist at the Royal Botanic Gardens Victoria and an honorary consultant to the Victorian Poisons Information Centre, May is probably the most experienced person in the country in identifying specimens provided by the public and advising on cases of fungal poisoning. May cites several incidents of mis-identification where major identification features such as morphology, colour, spore colour, habitat and other conspicuous characteristics were overlooked. In reference to specimens brought to the herbarium by the general public, he comments, 'Indeed, it is quite rare for the identification to be correct!'. His concerns echo those of mycologist Ian Pascoe who commented in the 1980s that the public are often poor observers and unlikely to have the necessary skills to differentiate species. However, May is not steadfastly opposed to foraging but encourages a cautious and slow approach — an 'apprenticeship' in learning how to accurately identify fungi.

Other authors relate their personal experiences of foraging. **Sarah Lloyd** and partner Ron have sampled various fungi that grow on their Tasmanian property — with mixed reactions and lament the loss of knowledge about the edibility of fungi held by the Traditional Owners of the region. While not specifically focussed on edible fungi, in their article, **Lloyd** and mycologist **Sapphire McMullan-Fisher** reiterate the connectedness of nature including fungi and provide a set of codes for ensuring that the environment is not damaged through the collection of fungi.

Masters of BioSciences student, **Grace Boxshall**, is conducting research on the poisonous species, *Agaricus xanthodermus* (and its allies), the species responsible for most poisonings in Victoria. The results of her work should provide valuable insights into the phylogeny for Australian representatives of the genus and a better understanding on variations in toxicity within the genus. Boxshall puts out a call to the public to assist in her research by submitting sightings of species of *Agaricus*, *Chlorophyllum* and *Macrolepiota*.

People seek and relate to fungi in many different ways. Mycologists study the ecological and evolutionary significance of fungi to situate them within larger schemes of life. Naturalists make lists of species to understand fungal ecology and geography. For visual artists and aesthetes, form and colour are the focus. Foragers seek edible mushrooms. All of these approaches contribute to the understanding and appreciation of fungi. The trick might be to focus on the common ground between them, so as to ensure a sensitive and sustainable approach that will minimise environmental damage, poisoning risk and ensure the ongoing flourishing of Australia's rich and unique mycota.

Eating wild fungi in Australia

Patrick Leonard

Introduction

The gathering of fungi has been undertaken by humans around the world for millennia. We tend to think of this as part of a food gathering tradition, but fungi have also been gathered for their medicinal, religious, recreational and practical values as tinder and dyes. Different cultures have had very different views on fungi (1).

Fungi are challenging, there are many species, they differ from country to country, place to place, they can delight or poison us. There are many myths and stories surrounding our use of fungi, very few of which have a sound basis in the science of mycology.

People differ radically on the question of whether we should eat wild fungi. Frequently their views reflect cultural roots: if you are from the Mediterranean or northern Europe you expect to eat fungi; if you are a Celt from the western fringes of Europe you will not. Similar differences occur in Asian cultures. Most of us do not seem to be aware of the cultural basis of our views. It is against this background that I venture cautiously in to the minefield of whether we should collect fungi for the pot in the Australian bush.

Gathering wild fungi in Australia

Early Australians have left no records of whether they regularly ate fungi. There is no tradition of holding a Corroboree to celebrate a flush of fungi which would