

# Mushroom Newsletter

20 February 2012

This is always a frustrating time of year for the mycophile. Although there are certainly some edible mushrooms out there (for example I've got a fair number of Jew's ears and reader Denise reports finding oyster mushrooms last week), in general this is the equivalent of farming's 'hungry gap'. For those unfamiliar with John Seymour (author of the seminal *Self-Sufficiency*), this is the period before new growth begins when storerooms are at their most depleted after a long winter.



Jew's ear and oyster mushrooms are still available, but the gastronomic prizes are still a few weeks away

Likewise, it is now four months since the height of autumn's fungal bonanza and I am itching to get out there, picking the first really good mushrooms of the year – March morels and, a few weeks later, St George's.

I did manage to get a partial fungal fix a couple of weeks ago, however. This followed a tip-off from newsletter subscriber, Dr Dai Jenkins, who recommended the excellent mushroom exhibition that graces one of the galleries at the National Botanic Gardens of Wales near Carmarthen. It is not exactly comprehensive, but there was plenty of interesting information and I boosted this further by buying the

accompanying book. From Another Kingdom: The Amazing World of Fungi. This is crammed full of fascinating facts so, with your permission, I will pass on a few to help while away the time before I can report the first serious finds of the year.

Let's start with the sheer scale of the three kingdoms. There are an estimated 1.5 million fungal species, but fewer than 100,000 have been named. In contrast about 90% of the world's 400,000 plants have been taxonomically classified and only a handful of mammals have yet to be discovered, with 4,260 named species. Put another way, there are 2.2 tonnes of fungi for every human on earth and every square metre of soil contains around 16,000 km of mycelium. Reindeer lichen (*Cladonia stellaris*) is probably the world's commonest fungus. This strange cross between a plant and mushroom grows in dense mats about 15 cm deep across the taiga and in Canada alone it probably covers over four million square kilometers. On the other hand, the world's largest living organism is a honey fungus in Oregon which covers 900 hectares, weighs 600 tonnes and is over 2,400 years old.



The world's largest living organism is a honey fungus (spp. *Armillaria*)

One surprising fact is that while most of us think of mushrooms as near-plants, in reality they have more in common with animals. For a start their cell walls are made of chitin rather than cellulose. Also, several are capable of locomotion, propelling themselves through water or across a surface using structures such as flagellae. Indeed, at least one slime mould can negotiate itself through a labyrinth.

This ability to move goes further – some actively hunt small animals. For example the Entomophthorales family fire large heavy spores (ballistospores) at passing insects. If these fail to connect, they break up to release smaller spores that act like landmines, sticking to anything that moves past and they also produce a third, even smaller version which wafts off either on air currents or in water.



A tropical black fly

Another family, Erynia, specializes in parasitizing the biting blackflies which live in tropical streams. Infected insects die clinging to rocks along forest water courses and the fungi burst through their cuticles to expose their fruiting bodies. These time the release of their ballistospores from the corpse for late afternoon, firing them into the air as healthy insects visit the streams to feed, drink and mate.

I hesitate to venture into the wonderful world of Cordyceps because one reader, Daniel Winkler, is possibly the world's foremost authority on this bizarre group . . . but what the hell! These fungi parasitize insects such as moths and ants, usually entering their victims via the trachea (microscopic breathing holes on their flanks). They then feast on their unwitting host's internal organs before sending out a chemical message. This forces the insect to leave the safety of their leafy habitats. Once exposed to the potentially spore-bearing wind, the fungus kills its host by sending a fruiting body (the mushroom) through its brain.



Caterpillar fungus or 'Himalayan Viagra' is the world's most expensive mushroom

The most famous of this 700-odd strong group is without doubt *Ophiocordyceps sinensis* or caterpillar fungus. This lives on the larvae of the Tibetan ghost moth at altitudes of 3,000 – 5,000 metres. The resultant part-insect, part-fungus is highly-prized in Chinese medicine. No doubt because the fruiting body is decidedly phallic, it has long been regarded as an aphrodisiac, but more recently the dramatic improvement of the Chinese Olympic swimming squad during the 1990s is rumoured to have been based on a synthetic derivative.

Meanwhile, the wild version of mummified caterpillar/fungi combinations are incredibly valuable, with top-quality specimens fetching up to US\$20,000 a kilo. Now in theory an Alba truffle has fetched a higher price (a 1.2kg specimen fetched £62,000), but this was at a charity auction. As a result in practice *O. sinensis* is the world's most valuable mushroom, with whole Nepalese villages relying on the June to July harvest to support them around the year. Indeed, it played a vital role in funding the Maoist rebels during the Nepalese Civil War (1996 – 2006). Anyway, if anyone wants to know more about this fascinating group and wants a real mycologist as a guide (as opposed to my self-taught enthusiasm), Daniel does adventurous fungal tours around the world (he's just come back from Bolivia – for more information see [www.mushroaming.com](http://www.mushroaming.com)).

Anyway, in the meanwhile have fun – and keep your eyes peeled! The last few years have thrown up odd weather conditions and there are certainly some strange things going on out there (fungally at least).

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P.S. As always, let me know if you want to be removed from the list and I will do it forthwith.