Fungi

Tony Leech

Despite the lack of rain, which reduced fungal diversity well into October, 2009 was a surprisingly good year for the Rooting Bolete *Boletus radicans*, a large and irregular bolete found under oak. The three new sites (Hunstanton, TF7341, 22.9.09; Briston, TG0630, 24.9.09; Holt, TG0839, 18.10.09) doubled the number of Norfolk records. Devil's Bolete *Boletus satanas*, reputedly the only seriously poisonous member of the genus, was found by Darren Frohawk at its second Norfolk site, near Hunstanton (TF7341, 22.9.09).

Since its appearance in Norfolk in 2001 (Leech *et al.* 2008) *Gymnopilus dilepis* has become increasingly common on woodchips both here and throughout the country. The yellow variant, noted by Rees (2004) in her description of this genus in Australia, and subsequently recorded in Britain, was found by Tom Bolderstone, together with the normal purple form, at Dersingham Bog (TF6628, 20.8.2009).

Second British record

One of the benefits of teaching fungus identification classes is that it widens the net of those who gather interesting specimens, which is how I received a large (11 cm diameter) mushroom with a dense covering of wine-red fibrils and very strongly yellowing flesh. Michelle Hoare had found a clump of them pushing up (and still almost subterranean) in grassland near willow trees at Whitlingham Broad (TG2507, 18.10.09) on the south-eastern outskirts of Norwich. Superficially they resembled the mushroom *Agaricus porphyrizon* but were clearly not this species. I was puzzled but Michelle, with the enthusiasm of the novice, found a matching picture on the Internet and I was able to confirm from the unusual branched and knobbly cheilocystidia (cells on the gill-edge) that her identification of *Allopsalliota geesterani* was indeed correct. The only other British record is from Potteric Carr in Yorkshire where it was first found in 2004 by Caroline Hobart (2005).

Another student on the course, Elena Whittaker-Slark, found the first Norfolk *Paxillus rubicundulus* at Horstead Mill (TG2619, 2.10.09). Although a specimen was not taken, her photograph and the habitat, under Alder *Alnus glutinosa*, clearly indicated this species, a scaly 'version' of the familiar Brown Rollrim *Paxillus involutus.*

A mouldy grasshopper

Kerry Robinson, an amateur mycologist from Baldock, kindly sends me a list of her best finds when she visits Norfolk. When she came across a dead grasshopper on a heather stem at Winterton Dunes (TG 4721, 25.6.09) she realised that it was the victim of a parasitic fungus which she identified as *Entomophaga grylli*, a determination confirmed by Dr Brian Spooner at Kew as only the third British record for the species. This is one of a number of insect-infecting fungi which subvert their hosts' behaviour causing the insect to ascend vegetation before it dies and so improve dispersal of the spores.

Two more truffles new to Norfolk

The excitement of finding the truffle *Tuber macrosporum* in the county in 2008 has been followed by the addition of two more species of the genus to the county list. When I mentioned to Robert Maidstone that not even the highly esteemed Summer Truffle *T. aestivum* had been recorded in Norfolk he told me he came across them quite often, and within a month he had collected a specimen from Tibbenham (TM1488, 9.7.09) – from under Laurel *Prunus laurocerasus.*

Less than a month later Sue Flaxman unearthed several *Tuber maculatum* at a depth of about 5 cm while extending her vegetable patch near Loddon (TM3998, 29.7.09). The nearest tree was White Poplar *Populus albus* with Holly *Ilex aquifolium* a little further away. For the latter truffle there are about 15 records on the national database.

Strange mushrooms

It is well known that the Yellow-staining Mushroom *Agaricus xanthodermus* causes disturbing symptoms in most people who eat it, so when a woman rang to tell me that she and her husband had been very ill (for five days) after a mushroom meal, I suspected that species. However, when she brought me fresh specimens it was apparent that they were not *A. xanthodermus*. They showed no sign of yellowing, had no strong smell, but possessed a fragile ring and rhizoids. Despite lacking scales on the cap they appeared to be close to *A. bresadolanus* /*A. romagnesii*, species which are considered to be a single entity in Britain (recorded under the first name) but are distinguished by continental authors. Intriguingly, both Cappelli (1984) and Courtecuisse *et al*. (1995) note that *A. romagnesii* is, or may be , poisonous whereas *A. bresadolanus* is considered edible! The mushrooms were found at Cley (TG0443, 13.11.09) but a very similar mushroom, which I had tentatively ascribed to *A. bresadolanus* as a new county record' had been found earlier in the year by Sue Rees in a garden at Dersingham (TF6830, 6.8.09). It is noted by Geoffrey Kibby in his unpublished key to British species of *Agaricus* that *A. bresadolanus* is rarely found 'in the wild' and is almost always in gardens.

Yellow sand dunes would appear to be an unlikely habitat for fleshy fungi but several species are restricted to them. Amongst these is a species of true mushroom, *Agaricus devoniensis* which can be found almost buried in sand quite commonly along the Norfolk coast, although there are relatively few national records. Examination of a specimen of from Blakeney Point (TG0046, 1.12.09), however, revealed unusually large and variable spore lengths, ranging from 8.0 to 20.0 micrometres (μm); the expected range is 5.0-7.5 μm. The explanation came from observing that the basidia, gill-surface cells normally bearing four spores each, bore only two spores (occasionally one or three). A number of fungus species have 2-spored variants, considered by some to constitute separate species but the phenomenon does not appear to have been recorded in this species.

A true species with 2-spored basidia is *Laccaria fraterna* which closely resembles the widespread and variable Deceiver *L. laccata* but which is always under *Eucalyptus* spp. – so clearly non-native. It has been found widely in Britain but not in Norfolk until a neighbour in Holt (TG0839, 27.11.09) asked me to reassure him that that the toadstools on his lawn were harmless to both him and the surrounding trees. As so often happens with fungal finds the same species turned up a day later, in very large numbers, under two eucalyptus trees in Holt Cemetery.

An interesting association

Many of the larger fungi (for example, brittlegills, milkcaps and boletes) form mycorrhizal associations with woody plants which are mutually beneficial. These links are obligatory so that when such a fungus is found, the tree or shrub will not be far away. It was therefore a surprise to find a webcap (*Cortinarius* sp.) on the dunes at Blakeney Point (TG0046, 1.12.09) remote from any apparently suitable mycorrhizal partner. *Cortinarius* species of the *Dermocybe* group are notoriously difficult to identify but I tentatively named the find as *Cortinarius croceus*. Very soon afterwards I read a report (2009) by Peter Roberts (a recently retired mycologist from the Royal Botanic Gardens, Kew) that several species this group had been recorded growing in apparent association with species of sedge (*Carex* spp.). Although neither *Cortinarius croceus* nor Sand Sedge *Carex arenaria* (the

only sedge in the vicinity) were specifically mentioned, it would be interesting to investigate this further.

Novel pale ones

The prefix 'leuco-' means white and has been used in the name of several genera of white-spored toadstools which are in other ways smilar to dark-spored species. Thus *Leucocoprinus* resemble *Coprinus* (inkcaps), and *Leucoagaricus* resemble *Agaricus* (mushrooms). Together with the genus *Lepiota* (into which most of these were formerly placed) there are some 80 species in Britain. Despite most being large and with distinctive characteristics the majority of these fungi are nationally scarce with fewer than half occurring in Norfolk. Jonathan Revett has now added two more to the list. The first was *Leucoagaricus meleagris* from Foxley Wood, (TG0422, 2.10.09) where there were two large groups (50+ fruitbodies) growing on a huge year-old pile of woodchips which had considerable underlying warmth when the top level was excavated (see photo p. xx). The abundance and habit are consistent with its probable status as a semi-naturalised alien The specimens discoloured deeply and blackened on handling, which is typical of the genus.

The second find was *Lepiota ignivolvata* at Two Mile Bottom (TL8487, 7.11.09). This robust fungus (see photo p. xx) is characterised by a ring with a distinct dark edge, a stem base which can slowly redden and a habitat preference for soil with underlying chalk or limestone.

New Norfolk records

In addition to the above, nine species were added to the Norfolk list in 2009; four of them from Flordon Common (TM1797) in connection with the Society's research which is reported elsewhere in this volume:

Cortinarius alnetorum A webcap under Alder *Alnus glutinosa* (Alec Bull, 4.11.09).

Microbotyrium stellariae On the anthers of Water Chickweed *Myosoton aquaticum* (ARL, 28.9.09). This would previously have been recorded as Violet Anther Smut *Ustilago violacea* s.l. but the species has been split.

Pluteus griseoluridus An agaric, on wood fragments (ARL, 28.9.09).

Sphaerotheca epilobii Powdery mildew on Greater Willowherb *Epilobium hirsutum* (ARL, 28.9.09).

The remaining records were:

Campanella caesia A small greyish oysterling-like fungus (but not closely related) on the dead leaves beneath clumps of Marram *Arenaria ammophila*, found by Martyn Ainsworth at Gun Hill (TF8445, 30.10.09).

Hohenbuehelia tremula Found by Karl Charters on woodchips at Roydon Common (TF6822, 13.8.09).

Hygrocybe glutinipes On a lawn at Brinton Hall (TG0335, 2.8.09) by ARL.

Hygrocybe vitellina Under bracken at Spout Hills, Holt (TG0738, 29.8.09) by ARL.

Podospora pleiospora On Rabbit dung at Dersingham Bog (TF6628, dung collected 20.8.09) by ARL.

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Leucocoprinus meleagris Two large groups of over 50 fruitbodies were found at Foxley Wood on a large pile of year-old woodchips which had considerable underlying warmth when the top layer was excavated. The fungus discoloured and blackened on handling, as is typical for the genus. *Photo:* Jonathan Revett.

Allospsalliota geesterani This specimen collected at Whitlingham Broad by Michelle Hoare in October 2009 was the second UK record for this robust mushroom. *Photo:* Tony Leech.

Lepiota ignivolvata Characterised by relatively large size, rings with a dark edge, slowly reddening stem-base and a preferencefor growing in soil with underlying chalk or limestone. These specimens were found at Two Mile Bottom, near Thetfod. *Photo:* Jonathan Revett.