

# ***LENTINELLUS URSINUS* & *L. VULPINUS***

## **make their first recorded appearance in Epping Forest**

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Following Martyn Ainsworth's excellent article on 'Identifying Important Sites for Beech Deadwood Fungi', FM 6 (2): 41-61 (2005), I thought it apt to write about two of the species included in his list of 30 species. The two species in question are *Lentinellus ursinus* and *L. vulpinus* both of which were recorded from Epping Forest for the first time during 2003-2004.

The genus *Lentinellus* is thinly represented throughout the UK, with most of the 24 species known worldwide occurring more frequently in other parts of Europe or in more subtropical or tropical climates. The most often recorded species in the UK, with 334 records to date, is *L. cochleatus* which enjoys a widespread distribution from Devon to Perth and from Wales to Northern Ireland – see BMSFRD. Only five other species have been recorded from the UK during the past couple of centuries, mostly very rarely: *L. flabelliformis* (with 5 records but none since 1873), *L. laurocerasi* (1 record from Wales in 1879), *L. tridentinus* (9 records all Scottish and after 1960), *L. ursinus* (23 records, with 22 after 1960), *L. vulpinus* (11 records - 6 after 1960). Four records of *L. omphalodes* are probably misidentifications.

In November of 2003 (yes that horrible, drought ridden year of few fungi) I was leading my last foray of the year for the London Fungus Group (a.k.a 'Fungi To Be With') into Epping Forest. Things weren't going so well, with the odd mushroom here and there, when I came across a huge fallen beech trunk. At one end and about a third of the way along, were overlapping clusters of what looked like some kind of *Pleurotus*; on closer inspection this proved to be a *Lentinellus*. The fruit body was quite robust

and large for a *Lentinellus*, up to 8cm across, the upper surface was pinkish, heavily tomentose and rivulose (vein-like), the gills were partially serrated, some were entire, and it had a strong, liquorice-medicinal smell and seemed to be bruising brown on the gills, where handled. Pictures were taken *in situ*.

As I was off for a week or so to Madrid the following day to help with the BMS overseas foray and had to prepare for this, I had no choice but to pop most of the fungus into the fridge until my return. I took a fruitbody along with me, thinking that possibly, someone would recognise it, but no one did. Whilst in Madrid, staying at the Yellow House in Mataelpino with Prof. David and Patricia Taylor Hawksworth, David, picking up on my frustration with the *Lentinellus*, brought to my attention a new monograph of *Lentinellus* by Ronald H. Petersen. David asked me if I would review it for *Mycotaxon*, by using it to help identify the species I had with me from Epping Forest. I did so and the monograph was very useful and further cemented my suspicion that the species I had was *L. vulpinus*. Upon my return to England, I found, just like the specimen I had taken with me, those in the fridge had all gone very dark and tough.

I then consulted *The Genus Lentinus: A World Monograph* by Pegler (1983), and again *L. vulpinus* seemed right, even though it is not actually fully treated in this monograph. I wasted no more time and delivered my find to an unsuspecting, but willing participant, Peter Roberts at Kew. Peter very kindly took a look at the fungus and determined it as *L. ursinus*, due to amyloid hyphae in the pileipellis, but due to my previous research, I wasn't so sure. Some of the macroscopic and



Fig.1. *Lentinella vulpinus*, collected from a fallen beech log in Epping Forest, November 2003. Photograph © Andy Overall.

microscopic features didn't seem to fit the description of *L. ursinus*, including the stature of the fresh fruiting bodies. Peter hadn't seen the collection when fresh, only when dry.

The spores of *L. vulpinus* are broadly ellipsoid to subglobose and usually slightly larger (3.8-4.6 x 3.0-3.8µm) than the broadly ellipsoid spores of *L. ursinus* (3.5-4.0 x 2.5-3.4µm), both are minutely warty. The cap flesh (trama) of *L. ursinus* consists of three forms of hyphae (trimitic), generative, skeletal and gloeoplerous hyphae (Petersen & Hughes, 2004: 11). In *L. ursinus* the skeletal hyphae in both the cap and gill trama, undulate and thicken in places to produce protruding fin-like bumps (bosselées) that stain more heavily bluish in Meltzer's Reagent (amyloid). These are much less common in *L. vulpinus* as the cap flesh is considered of intermediate construction, yet 'dimitic' by Peterson & Hughes (2004: 11) having generative and gloeoplerous hyphae, but no skeletal hyphae. Both species have varying amyloid reactions of spores and of hyphae. There are other microscopic differences between the two but for the purposes of this article I will end the discussion here.

Sometime later, having acquired a copy of

Petersen and Hughes 2004, I compared my macroscopic and microscopic details with *L. vulpinus* and *L. ursinus*, and then contacted Dr Petersen with a picture of the collection and all of my details. He very kindly responded and agreed that this was almost certainly, *L. vulpinus* so that is what I am calling it. Whether it turned out to be *L. ursinus* or *L. vulpinus*, either record would have stood as the first for Epping Forest and South Essex. But it didn't end there...

In July 2004, this time following plenty of rain and sunshine, I paid a visit to Epping Forest as I had got reports that fungi were appearing in profusion. What I didn't expect to find, growing on a very rotten piece of Oak or Beech (it was so far gone, it was hard to tell), was another species of *Lentinella* - in a very different area of the forest. Upon examination, macro- and microscopically, I determined it as *L. ursinus*. This species is very variable in cap surface, from totally smooth-glabrous to heavily tomentose. The form pictured here is smooth, with only slight tomentum towards where it is attached. It is much less robust than *L. vulpinus*.

Thus within eight months of each other, both *L. ursinus* and *L. vulpinus* were recorded

from Epping Forest for the first time. Another species included in Martyn Ainsworth's list, *Ossicaulis lignitalis*, recurs almost every year in the same spot, on dead Beech, in Epping Forest. I don't know whether Epping Forest was considered by Martyn in his research, but whatever the case, with the emergence of the species mentioned here, others on his list are most likely present - suggesting another site worthy of further investigation.

*L. vulpinus* was described by Sowerby (1803) from a tree hollow in Islington (now a part of London) as *Agaricus vulpinus* (p. 111 pl. 361), sanctioned by Fries (1821), and combined in *Lentinellus*.

*L. ursinus* was described as *Agaricus ursinus* Fries (1821:185) and combined as *Lentinellus* by Kühner, *Botaniste* 17: 99 (1926).

The illustration accompanying the description of *L. ursinus* in B & K, *Fungi of Switzerland* Vol. 3, bears little resemblance to my collection pictured from Epping Forest, which highlights the enormous variation

within this species. *L. ursinus* var. *robustus* resembles *L. vulpinus* almost identically morphologically, in stature and cap features (rivulose and tomentose) and smell, but differs in having a preference for coniferous trees (Peterson & Hughes 2004). Microscopically *L. vulpinus* lacks the swollen hyphae found in *L. ursinus* var. *robustus*, which otherwise differs in no way from *L. ursinus* var. *ursinus*. *L. ursinus* was included in the *Fungi of Southeast England* by R.W. G. Dennis as *L. vulpinus* f. *ursinus* and not at all in the *Checklist of British Agarics and Boleti*, Dennis, Orton & Hora 1974. It is included in the recently published new checklist (Legon & Henrici 2005). *L. vulpinus* on the other hand is included in both of the former publications and in the new checklist, yet it is undoubtedly the rarer of the two species. It could be that they were thought of as being one and the same species as suggested by Dennis above.



Fig. 2. *Lentinellus ursinus* from an undetermined log, possibly beech or oak, in Epping Forest, July 2004. Photograph © Andy Overall.

Table 1. Hyphal structure of pileus and lamellar trama with a range of spore measurements for *Lentinellus ursinus* and *Lentinellus vulpinus* and the literature sources consulted in this study.

	<i>Lentinellus ursinus</i>		<i>Lentinellus vulpinus</i>	
	Trama Hyphae	Spore size $\mu\text{m}$	Trama Hyphae	Spore size $\mu\text{m}$
Petersen & Hughes 2004	Trimitic	4-4.5 x 3.0-3.5	Dimitic	(3.0)3.8-5.0 x (2.5-)3.0-4.1
Breitenbach & Kränzlin 1991	Strongly amyloid skeletal hyphae	3.5-5 x 2.9-3.5	Not covered	
This study	Trimitic (presence of amyloid 'bosselées' in pileus and lamellar trama)	3.0-4.6 x 2.3-3.4	Dimitic (absence of amyloid 'bosselées' in pileus and lamellar trama)	3.0-3.8 x 3.0-4.6
Watling & Gregory BFF-1989	Cap cuticle, amyloid reaction confined to thick walled hyphae, often swollen at the septa, (bosselées)	3-4 x 2.5-3	No mention of the amyloidity of hyphae, which are described as being thin, flexuose and thin-walled in the cap cuticle.	2.5-3.5 x 3.5-4.5
Pegler 1983	Microscopic details not provided		Microscopic details not provided	

## References

- Breitenbach, J. & Kränzlin, F. (1991). *Fungi of Switzerland*, Vol. 3.
- Pegler, D. N. (1983). *The Genus Lentinus: A World Monograph*. Kew Bulletin Additional Series 10: 1-281.
- Petersen, R.H. & Hughes, K.W. (2004). *A preliminary monograph of Lentinellus (Russulales)*. J. Cramer, Berlin, Stuttgart.
- Watling, R. & Gregory, N.M. (1989). *British Fungus Flora* Vol. 6.