

SOUTHERN OYSTER MUSHROOM BEETLE
TRIPLAX LACORDAIRII



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1 Introduction

This report describes the work done in 2014 on the Southern Oyster Mushroom Beetle *Triplax lacordairii* Crotch, 1870 (Erotylidae). This is the first report from the Species Recovery Trust's project on this beetle.

The aims of the work done in 2014 were firstly to collate and review the available information on the distribution, ecology, phenology and conservation status of Southern Oyster Mushroom Beetle (SOMB) from published and unpublished sources. Secondly, fieldwork was undertaken targeting known sites for SOMB in Kent, East Sussex and the New Forest, South Hampshire, aiming firstly to establish whether SOMB still occurs, to gather more information about its habitat preferences, fungal hosts and phenology, and to help develop a survey protocol for the species.

2 Review of information

2.1 DISTRIBUTION AND CHANGE IN RANGE

The Southern Oyster Mushroom Beetle is a very rare species in Britain. It was known as a British species to coleopterists of the 19th century: Fowler (1889) described it as "very local and rare" and gave four localities (from four different coleopterists): "Windsor (Stephens); Erith (Power); Darenth Wood (Champion); Dulwich, one example (T. Wood)". Theodore Wood (1884) actually collected two individuals "in the neighbourhood of Dulwich", one in "the latter part of July, the other early in August". Prance (1988) noted that the Windsor record "has long been agreed to be erroneous".

Joy (1932) gave "Kent, Berks; vr" for *Triplax lacordairii*. "Berks" presumably relates to Stephens' Windsor record. "Kent" presumably relates to the records for Erith, Darenth Wood and Dulwich. However, as noted by Prance (1988), the Dulwich records are more likely to be from vice-county Surrey (VC 17) (though directly adjacent to the West Kent (VC 16) border) and Denton (2005) includes SOMB on the Surrey list on the basis of the Dulwich records. Joy's brief "Kent, Berks" statement suggests that there were no new localities discovered for SOMB between Fowler (1889) and Joy (1932), or if new localities were discovered, they were in Kent. However, 60 years after Joy's publication, Hyman and Parsons (1992) listed records from eight vice-counties in total: "Dorset, South Hampshire, East Kent, West Kent, Surrey and Worcestershire before 1970 and Isle of Wight, South Hampshire, East Kent and South Essex from 1970 onwards" and assigned SOMB to the Rare (RDB3) category (see Section 2.2).

The discovery of SOMB well beyond Kent began with a record of a single specimen near Matley Passage in the New Forest (South Hampshire, VC 11), captured by Peter Skidmore on 4.vii.1962 (Prance, 1987). However, as Prance (1987) goes on to explain, A.A. Allen followed this with a note published in 1965 explaining that Philip Harwood had found SOMB perhaps 40 or 50 years previously (i.e., in the approximate period 1915 to 1925) near Chetter Wood, in the neighbourhood of Crichel and Witchampton in Dorset (VC 9). A Dorset record had in fact already been published by Pearce (1927) who noted that F.H. Haines collected SOMB at Arne on 25.viii.1926. Allen (1965) also noted that G.H. Ashe had found SOMB at Hartlebury in Worcestershire (VC 37). The record by G.H. Ashe is undated but he lived from 1879 to 1961.

Following the first New Forest record in 1962, Prance (1987) notes that there were records from Denny Wood in 1975 (by R.D. Pope) and 1980 (a single specimen by Peter Hodge) and refers to the report edited by Richard Jones (1986) of the Coleoptera exhibits at the 1985 Annual Exhibition of the British Entomological and Natural History Society. At that exhibition, D.A. Porter exhibited SOMB, stating that “several specimens of this uncommon species were taken in company with *T. aenea* on fungus in the rot pocket at the base of the trunk of a holly tree” at Brockenhurst, 13/14.vii.1985. David Appleton also exhibited SOMB, stating that it was “one of a number found at two New Forest woods in this year [1985]. The exhibited specimen was from fresh *Pleurotus* on beech, 21.ix.1985”. In a later publication, Appleton (2004) named Whitley Wood as the source of the 21.ix.1985 record, and Denny Wood as the other New Forest wood from which he had recorded SOMB: 15+ in fungi on birch on 27.vii.1985 and two from fungi on a small, fallen bough (undated).

To bring New Forest records of SOMB up to date:

- Howard Mendel collected SOMB in Mallard Wood on 26.vi.1988;
- The New Forest LIFE Project in 1999 generated four records (Table 1);
- Rik Harris found SOMB in Denny Wood at SU 33645 05911 on 7.vi.2014.
- Paul Brock found two specimens in a fungus at Vales Moor, near Burley on 16.viii.2014.

Table 1: New Forest records of SOMB from the LIFE project.

Site Name	Grid ref.	Date	Stage	Recorder (and Determiner)	Comment
New Forest: Berry Wood	SU214057	22.v.1999	Adult	Boyce, D.C.	
New Forest: Brincken Wood	SU2706	July 1999	Adult	Luff, M.L.	1 teneral adult in pitfall trap.
New Forest: Holmsley, Stoney Moors	SZ2199	20-23.v.1999	Adult	Luff, M.L.	Several on fungi on dead standing birch(?) stump, in very wet area.
New Forest: Stoney Moors	SZ215996	21.v.1999	Adult	Welch, R.C.	

As summarised by Hyman and Parsons (1992), the post-1970 period saw new vice-county records from the Isle of Wight (VC 10) and South Essex (VC 18). David Appleton exhibited four specimens of SOMB “off fungus on elder, Brading Down, Isle of Wight, 11.vi.1984” (Appleton, 1985). In a much later publication, Appleton (2004) repeated the details of his 1984 record and added an earlier record from the same locality of “one from fungi on gorse” from 25.ix.1983.

The South Essex record (Thorndon Park, 1983, attributed to I. McClenaghan) has been investigated by Keith Alexander and should be regarded as erroneous, the details being repeated here just for the avoidance of confusion.

Following the Dorset records by Haines and Harwood from the early 1900s, SOMB was re-found in Dorset at Vitower on 24.ix.1994 (Denton, 1996) where a teneral adult was swept from upper saltmarsh. Adrian Mylward (*in litt.*, November 2014) had another Dorset record, finding one from an unidentified fungus on a birch stump at Studland, Dorset (SZ0385) on 4.vi.2013.

SOMB continued to be recorded from both East and West Kent in the 1900s with 11 localities represented in the records collated by Keith Alexander. The dearth of recent records from Kent is striking: it was last recorded from the Blean Woods complex in 1978 and the last Kent record was from the Hamstreet Woods complex (aka Orlestone Forest SSSI) in 1990.

Finally, the present author discovered SOMB at Eridge Rocks Sussex Wildlife Trust reserve on 9.v.2011 (see cover photograph); the first record for East Sussex though not far from the Kent border (Telfer, 2012).

2.2 CONSERVATION STATUS

As noted above, Hyman and Parsons (1992) assigned SOMB to the Rare (RDB3) category in Britain. Rare (RDB3) species occur in small populations and are at risk, though are currently neither Endangered (RDB1) nor Vulnerable (RDB2). Rare species exist in 15 or fewer 10-km squares, or are more widespread than this but dependent on small areas of especially vulnerable habitat.

SOMB is one of the 27 saproxylic beetles identified as Endangered at a European scale by Nieto and Alexander (2010). In the British fauna, only one other saproxylic beetle is also considered Endangered in Europe: the Violet Click-beetle *Limoniscus violaceus* (Müller, P.W.J.). Another click-beetle, *Ischnodes sanguinicollis* (Panzer), is regarded as Vulnerable. All three are likely to be added to Annex II of the EU Habitats Directive and the UK will then need to ensure that they are adequately represented in the Special Area of Conservation (SAC) network (Alexander, 2011).

The "[BAP priority species review](#)" for SOMB, an online document dated 19th July 2010, states: "Continued loss of habitat must be eroding population very significantly; Severn Basin population appears extinct; Thames Basin population in severe decline – most recent records from Blean 1971 and Ham Street 1990; known from 17 hectads¹ in England, but only 7 with records from 1975 to date – decline >50% & especially severe in Kent". RSPB's records for their Blean Woods reserve up to 2012 show the most recent record of SOMB as being from 1978. It should be noted that SOMB has not been added to the list of BAP priority species, or its equivalent in the post-2010 Biodiversity Framework.

2.3 ECOLOGY

SOMB is a saproxylic beetle associated with the fungus *Pleurotus* (and probably other bracket fungi) on beech, ash, elm, holly, gorse, elder and birch (Hyman and Parsons, 1992; Alexander, 2002; Appleton, 2004). It is thought to require large old trees to produce suitable decaying wood for the host fungi and is known to be restricted to sites with a long historical continuity of ancient trees.

Information on host fungi is very scant for British records though *Pleurotus* is recorded for a few records, one specifying a fresh *Pleurotus*. Rik Harris's record from Denny Wood in June 2014 was accompanied by a photograph (Figure 1) on which Sara Cadbury commented "It may well be *P. ostreatus*, but I would err towards *P. pulmonarius*".

¹ A hectad is a 10 × 10 km square of the national grid.



Figure 1: *Pleurotus* on birch at Denny Wood with many *Triplax lacordairii* and *T. russica*.
© Rik Harris, 2014.

Rik Harris's observed dozens of *Triplax* on the oyster mushrooms at Denny Wood with approximately equal numbers of both *T. lacordairii* and *T. russica*. Howard Mendel's record from Mallard Wood in June 1988 also refers to *T. lacordairii* occurring in the same fungal fruiting bodies as *T. russica* and *T. aenea*.

One publication, that of Wood (1884), refers to specimens "from toadstools" which implies a very different host fungus to *Pleurotus*, excepting that modern usage of the word "toadstools" may be different to that of Wood (1884).

2.3.1 British oyster mushrooms

There are five British species of oyster mushroom *Pleurotus* and the following comments from Alan Outen (by email, 14.x.2014) on his personal experience of the species are repeated almost verbatim here as being highly relevant to an understanding of the ecology of SOMB.

"The two commonest species are *P. cornucopiae* and *P. ostreatus*.

P. cornucopiae became very common on large fallen elms following the epidemic of Dutch Elm Disease but is now declining on that host. It does occur on a variety of other hosts of which *Fagus*, *Fraxinus*, *Quercus* and *Sorbus aucuparia* are the most commonly utilised. It mainly fruits in about (April-) May (-June) but does have a second flush in the autumn. It is usually some shade of cream to rather pale brown.

P. ostreatus is common and widespread on a variety of hosts including both deciduous and coniferous species. It is very variable with some forms having been given varietal names (e.g. the peacock-blue young fruit-bodies, occurring especially on *Salix*, have been called var.

columbinus) but there is no valid distinction in these. Cultivated forms are equally variable in colour, shape and size. *P. ostreatus* fruits mainly in autumn and can continue even until January if conditions remain favourable.

The three remaining species are less common.

P. pulmonarius is macroscopically typically smaller, thinner and flatter than *P. ostreatus* and usually whitish to pale beige. I see it probably 4 or 5 times a year on average.

P. dryinus has a lateral stipe with a fugacious ring and a rather scaly cap (from veil), typically creamy, becoming darker and brownish towards the centre. I might see it a couple of times a year on average. It occurs on a good range of hosts.

P. euosmus is rarely reported, with most records on elm. It is said to smell of Tarragon. I have seen it just once in 40 years! Some regard it as yet another form of *P. ostreatus*."

2.4 PHENOLOGY

Hyman and Parsons (1992) note records of adults from June to September. The Eridge Rocks record extends the adult activity period to 9th May. Denton (1996) noted a recently emerged adult on 24th September, and another teneral adult was recorded in July 1999 in the New Forest (Table 1). David Appleton's record of 25.ix.1983 (Appleton, 2004) appears to be the latest British record. Records seem to be fairly evenly spread across the May to September period with perhaps September yielding more records than the other months.

3 Fieldwork

Survey work was carried out in the New Forest on 28th August, and at three sites (Hothfield Heathlands, Faggs Wood (Orlestone Forest) and Eridge Rocks) in Kent and East Sussex on 24th and 25th August. An informal fieldwork diary describes the fieldwork and the results.

3.1 FIELDWORK DIARY

3.1.1 Thursday 28th August: New Forest

I started at Mallard Wood at 10.00 in good weather. There are lots of veteran beeches here in all stages of decay from freshly-fallen to long-dead and well-rotted. *Ganoderma* brackets were evident but it took an hour of searching through the wood to locate a fallen beech with fruiting *Pleurotus*. As soon as I sampled a bit of *Pleurotus*, I found SOMB, and found two in total. Both were well hidden and only found by detaching the oyster mushroom and breaking it up over a sieve. They were both found on mid-age oyster mushrooms; neither very fresh nor very old and soggy. SOMB was outnumbered 16:2 by *T. aenea*. The host fungus was determined from photographs as probably *Pleurotus ostreatus* (but just possibly *P. pulmonarius*) by Alan Outen.

Moving on to Denny Wood from 14.15, in light, intermittent rain, I soon found an excellent beech with lots of fruiting *Pleurotus*. A GPS reading later revealed this to be exactly the same tree where Rik Harris had recorded SOMB in June. Two more SOMB were recorded here, outnumbered 6:2 by *T. aenea*. The host fungus here was extraordinarily and bafflingly variable in colour and appearance but was determined from a series of photographs as *Pleurotus ostreatus* (a very variable species) by Alan Outen.

A wider search of Denny Wood, concentrating on beeches, failed to locate any more oyster mushrooms. The impression gained was that finding oyster mushrooms in the New Forest

can take quite a lot of time but once found, finding SOMB is fairly easy. The following day, still in the New Forest but on fieldwork unrelated to this contract, I found another, single SOMB, this time from *Pleurotus* on a fallen Holly at Warwick Slade.

3.1.2 Wednesday 24th September: Kent

I arrived at Hothfield Heathlands Kent Wildlife Trust reserve at 11.20 having driven there in heavy rain and fully overcast conditions, contrary to the weather forecast. I made a start in full waterproofs but the rain soon cleared. An earlier conversation with Ian Rickards (the warden) meant that I knew precisely where to go to find beech trees, standing and fallen. The priority initially was to search for fruiting oyster mushrooms, targeting beech. Secondly, I was searching for any other fungi, especially bracket fungi, which might conceivably support SOMB.

Hothfield Heathlands reserve has an area of wood-pasture, which was being grazed by ponies and Highland cattle at the time of my visit, with numerous fallen or felled trees, many fallen boughs, and many standing dead or damaged trees. The area generally looked to have excellent potential for finding SOMB. But my time was largely spent walking, covering as much ground as possible in search of suitable fungi, or any fungi - fungi were in short supply and I found no oyster mushrooms. I did sample Birch Polypore *Piptoporus betulinus* and earthballs *Scleroderma* in order to generate some beetle records.

Having carried out a thorough search of the available habitat at Hothfield Heathlands, I moved on to Faggs Wood in the Orlestone Forest SSSI (better known to many as Hamstreet Woods). At Faggs Wood, the main habitat is of young broad-leaved plantation and natural regeneration with some older, standard trees around the car park and in strips bordering the roads and rides. There are very few fallen trees, there is little deadwood, and thus little habitat for oyster mushrooms and other bracket fungi. However, there were many more fungi on the ground and on old stumps than at Hothfield Heathlands and sampling these produced a range of beetles, though no *Triplax*.

It is difficult to imagine that Faggs Wood was much different in 1990 when SOMB was last recorded here. Perhaps at different times of year or in different seasons, fruiting oyster mushrooms can be found here and SOMB can be found on them, or perhaps SOMB utilises different fungi at this site.

3.1.3 Thursday 25th September: Kent and Sussex

I continued my search of Faggs Wood in the morning, finding some workable fungi in coppice-with-standards alongside the road: tufts of gilled toadstools on stumps of out-shaded hornbeam and oak. In the absence of any oyster mushrooms, it seemed reasonable to suppose that *T. lacordairii* might utilise other fungi such as these. However, despite finding numerous beetles of a range of species, no *Triplax* were found.

I returned to Hothfield Heathlands briefly, curious to understand why I'd found so comparatively few fungi the previous day, compared to Faggs Wood. It was a good move as I had only to walk a short part of the previous day's route to realise that the ground was very dry (something not so apparent in the previous day's wet weather). The wood-pasture at Hothfield is on very sandy, free-draining soil, on high ground, and much more open to the drying effects of wind and sun, compared to Faggs Wood. I would expect fungal fruiting at Hothfield to be more sporadic and irregular than on the saturated soils of Faggs Wood.

I left Hothfield to make the rather long drive west to Eridge Rocks Sussex Wildlife Trust reserve, and went straight to the beech where I'd found *T. lacordairii*, new to Sussex, in 2011. Unfortunately, there were no oyster mushrooms fruiting (though there was a tuft of *Panellus stipticus* (determined by Alan Outen)) and sampling of other potentially suitable fungi, though yielding plenty of other beetles, failed to produce any *Triplax*. Widening the search for oyster mushrooms, and sampling other potentially suitable fungi, I came into an area of the upper scarp with numerous large Holly bushes. In the New Forest, I had found oyster mushrooms to be quite frequent on the dead, self-shaded interior branches of large Holly bushes, and after pushing inside several, I found one such branch. The oyster mushrooms (determined by Alan Outen from photographs and dried specimens as *Pleurotus cornucopiae*) yielded 4 individuals of *Triplax aenea* but sadly no *T. lacordairii*. I checked lots more Holly without finding any more oyster mushrooms, until it was time to leave for home.

3.2 NEW RECORDS OF SOMB

Three new records of SOMB were made by the author in 2014 (Table 2).

Table 2: New records of SOMB from 2014.

Site Name	Grid ref.	Date	Number and stage	Comment
Mallard Wood, New Forest	SU31960887	28.viii.2014	2 adults	From <i>Pleurotus</i> on fallen beech tree.
Denny Wood	SU3364505911	28.viii.2014	2 adults	From <i>Pleurotus</i> on fallen beech boughs.
Warwick Slade: near the New Forest Reptiliary	SU275066	29.viii.2014	1 adult	From <i>Pleurotus</i> on a fallen Holly.

3.3 RECORDS OF OTHER INVERTEBRATES

A separate spreadsheet (*Triplax lacordairii* project 2014 - Mark G Telfer.xlsx) accompanies this report, detailing all of the invertebrate records generated by the fieldwork for this project.

In total, 84 species of invertebrate were identified across all sites visited. Besides SOMB, six other species with conservation status were recorded: Wood-cricket *Nemobius sylvestris* (in the New Forest) and five Nationally Scarce saproxylic beetles (*Diaperis boleti*, *Corticus unicolor* (both Tenebrionidae), *Bolitochara mulsanti*, *Atheta basicornis* (both Staphylinidae) and *Uleiota planatus* (Silvanidae)).

4 Discussion and conclusions

4.1 A DRAFT SURVEY PROTOCOL FOR SOMB

To generate more records, and a better understanding of, SOMB, further survey is required. Survey work should be targeted at ancient, semi-natural habitats with trees, not necessarily just woodland but also heathland, downland and saltmarsh sites that are bordered with trees or have a scattering of trees across the site.

SOMB is probably not restricted to oyster mushrooms but our current understanding of its fungal preferences is poor, and the only fungi worth targeting are oyster mushrooms. Oyster mushrooms should be looked for primarily on beech trees but ash, elm, holly, gorse, elder and birch are also worth surveying. Oyster mushrooms can be found on an even wider range of broad-leaved and coniferous hosts, including oak, rowan and *Salix*, though there are no SOMB records from these trees.

SOMB can be found between 9th May and 25th September at least. Oyster mushrooms may be found in any month of the year but the best times to look for them are probably either in the spring ((April-) May (-June)) which is the peak fruiting season for *Pleurotus cornucopiae* or in the early autumn which is the peak fruiting season for *Pleurotus ostreatus*.

On locating fruiting oyster mushrooms, visual examination of the underside of the bracket may reveal SOMB but the most effective way to find SOMB is first to put a tray under the bracket, then break off the bracket, break it up and sieve it over the tray. Because this is a destructive sampling technique, no more than a quarter of the brackets should ever be broken off. Afterwards, the fragments should be tipped into a pile at the base of the trunk or next to the fallen deadwood where they can still provide habitat for invertebrates despite the damage.

The best oyster mushroom brackets to target seem to be those that are beginning to wilt and wrinkle - ones that would no longer be worth collecting for the pot.

4.2 CHANGING RANGE AND CHANGING STATUS

The review of records (Section 2.1) could suggest that SOMB was restricted to Kent and adjacent parts of Surrey in the 1800s and that it has expanded its range in the 1900s. Or this pattern could equally be an artefact showing merely the increasing awareness of SOMB amongst British coleopterists and their increasingly diligent work at recording the beetle fauna of different parts of Britain.

However, it is hard to come to any other conclusion than that SOMB colonised the New Forest shortly before its discovery in 1962. The New Forest has always been a well-recorded part of the country for beetles and numerous coleopterists have had little trouble finding SOMB there since 1962; so the absence of earlier records must result from an absence of beetles to record. The New Forest is certainly the present day stronghold of SOMB in Britain.

Extinction is a very much more difficult thing to detect than colonisation. But there is an absence of SOMB records from Kent since 1990 which contrasts with the more frequent pattern of records in preceding decades. The 2011 record from just over the border into East Sussex shows that SOMB is unlikely to be extinct in Kent but the absence of records since 1990 is a cause for concern and raises a number of questions. These questions are discussed below under the heading "Future Work" (Section 4.4).

4.3 THREATS

Oyster mushrooms are edible and popular such that fungal foraging for personal consumption or sale is a potentially serious threat to the beetle.

The optimum woodland management to generate a rich resource of oyster mushrooms would probably be similar to the management of Mallard and Denny Woods in the New Forest and Hothfield Heathlands in Kent, where livestock grazing maintains open wood-pasture and where trees are allowed naturally to mature, decay, collapse and fall creating a

large volume of deadwood. By inference then, the far more intensive management of Kent woodlands such as Faggs Wood for timber cannot create optimum conditions for oyster mushrooms nor for SOMB, and may in fact be so marginal for SOMB that it is dying out or becoming extremely difficult to find in such woodlands.

4.4 FUTURE WORK

Future work in the New Forest, where SOMB should continue to be reasonably straightforward to find, should focus on refining the draft survey protocol (Section 4.1) by improving our understanding of the range of host fungi used, the range of host trees on which they grow, and the best times of year for survey. Work in 2014 failed to find any SOMB larvae in *Pleurotus* so looking for larvae should remain a target of future work.

With an improved survey protocol derived from work in the New Forest, much more work is required in Kent (and perhaps neighbouring parts of Surrey and Sussex) firstly to establish whether SOMB still persists in the county, and secondly to try to understand what threats the population may face. Does the Kent population have similar habitat requirements to the New Forest population, or does it use different fungal hosts, on different trees, or at different times of year? If SOMB has declined in Kent, can this decline be linked to any widespread changes in woodland management over the same period?

Key to work in both areas is an understanding of the ecology of oyster mushrooms and it is recommended that a partnership between a mycologist and a coleopterist, working together in the field, could make substantial progress towards conserving this species in Britain and redressing its status as Endangered in Europe.

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