Report on beetles (Coleoptera) collected from the Dartington Hall Estate, 2015
by Dr Martin Luff

1. Introduction and Methods

The majority of beetle recording in 2015 was concentrated on three sites and habitats:
1. Further sampling of moss on the Deer Park wall (SX794635), as mentioned in my 2014 report. This was done on two dates in March by MLL and again in October, aided by Messrs Tony Allen and Clive Turner, both experienced coleopterists.
2. Beetles associated with the decomposing body of a dead deer. The recently (accidentally) killed deer was acquired on 12th May by Mike Newby who pegged it out under wire netting in the small wood adjacent to 'Flushing Meadow', here referred to as 'Flushing Copse' (SX802625). The body was lifted regularly and beaten over a collecting tray, initially every week, then fortnightly and then monthly until early October. In addition, two pitfall traps were installed just beside the corpse, with a small amount of preservative in each. These were emptied each time the site was visited.
3. Water beetles sampled on 28th October, together with Tony Allen and Clive Turner, from the ponds and wheel-rut puddles on Berryman's Marsh (SX799615).
Other work again included the contents of the nest boxes from Dartington Hills and Berrymans Marsh at the end of October, thanks to Mike Newby and his volunteer helpers.

2. Results

In all, 203 beetle species were recorded in 2015, of which 85 (41.8%) were additions to the Dartington list. This increase over the 32% new in 2014 (Luff, 2015) results partly from sampling habitats (carrion, fresh-water) not previously examined. The total Dartington beetle list now totals 504!
The colour coded list of additional species appended to this report shows that all but seven of the 'new' species were found in one of the three particular habitats listed above. Notable features of each of these are as follows.

2.1 Deer Park Wall Moss

Two of the new species from the moss are of interest.
Ilyobates nigricollis a small rove beetle (Staphylinidae) graded RDBK Insufficiently Known (Hyman, 1994). There are two previous Devon records in Ashe's unpublished index of Devon Coleoptera. It is probably predatory.

Mniophila muscorum a small flea beetle (Chrysomelidae) graded Nationally Notable B. Larvae and adults feed on mosses. There are several previous records from the County, possibly because the wet regional climate favours moss growth.

2.2 The dead deer

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71 species have so far been identified from the deer and associated pitfalls, although one or two, like the large ground weevil *Otiorhynchus clavipes* are probably incidental catches in the pitfall traps. Some further small species still await final identification.

Relatively few are actually carrion feeders. Only one burying beetle, *Nicrophorus vespillo* (Silphidae) (figured right) was found. These large beetles usually breed in smaller corpses, a deer is too large for them to bury.

Several leiodid beetles, genera *Catops* (figured left) and *Sciodrepoides* occurred, feeding on decomposing flesh.

Also found were a few dung beetles (Scarabaeidae) that may also be attracted to rotting meat: *Aphodius* and *Onthophagus* species (figured right).

Similarly some species more usually found in decomposing fungi, *Ootypus globosus* (Cryptophagidae) and *Sphaerosoma pilosum* (Alexiidae). Some sap beetles *Omosita* species (Nitidulidae) (figured left) that feed on liquid decomposition products were common.

Most of the beetles on the deer are predatory, many on the fly maggots that were very abundant in the early stages of decomposition. The commonest were rove beetles (Staphylinidae) ranging from the large species of *Creophilus* and *Ontholestes* (figured right) to many very small ones in the genus *Atheta* and related taxa.

Three of these are rare; *Quedius invreae* graded Nationally Notable B, *Atheta procera* RDBK and *Datomicra zosterae* Nationally Notable (identification of the last two of these is provisional). There were also several *Aleochara* whose larvae develop as endoparasitoids in the puparia of flies.

Also predatory are the shining pill beetles (Histeridae) genera *Saprinus* (figured right) and *Margarinotus*.

In the later stages of decomposition the predatory boneyard beetle *Necrobia violacea* (Cleridae) (figured left) was also found.

2.3. Berryman's Marsh water beetles

Of the 16 species recorded, all but one was new to the Dartington list. They included one crawling water beetle *Haliplus ruficollis* (Haliplidae) (figured right),

six predatory diving beetles (Dytiscidae) from the medium sized *Agabus bipustulatus* to small species of *Hydroporus* (figured left)
and the cherry stone beetle *Hyphydrus ovatus* (figured right)

Several species of *Helophorus* (Helophoridae – mud beetles) (figured left) occurred in the wheel rut puddles but not in the ponds!

Two water scavenger beetles (Hydrophilidae) were found; one of these, *Helochares lividus* is graded Nationally Notable B (figured right).

Finally there were two species of riffle beetles (Hydraenidae) from the genera *Hydraena* and *Ochthebius* (figured left).

2.4. Other results.

The few further additional species came from vacuum sampling in Berryman's Marsh, fungi on the standing ash stump sampled in previous years, a small heap of cut grass near this, under bark of logs and a small wood chip pile on the edge of the Deer Park. None were of especial interest. The birds nest box contents yielded only six beetle species, all of which been found in previous years.

The most exciting beetle event to the casual observer was in early September, when large numbers of beetles were seen crawling on the paths in North Wood. I visited the area with Mike Newby and Vicky Churchill on 17th September; we found numerous examples of the forest dor beetle, *Anoplotrupes stercorosus* (Geotrupidae) crawling in the afternoon sunshine. It was difficult to walk more than a metre or so without seeing one or more and hard to avoid treading on them. These beetles supposedly lay their eggs in underground tunnels, which they provision with dung for their larvae. There can hardly be sufficient animal droppings in North Wood to have supported such a large population of these beetles. However studies in eastern Europe (e.g. Byk, 2011) state that this species can provision its burrows with rotting leaf litter, and thus fulfil a similar role to earthworms in recycling organic matter. I have so far been unable to find any comparable study of the feeding ecology of this species in Britain, despite it being common and widespread.

3. Future Work

I hope to carry out a more detailed study of the conservation area Berryman's Marsh, using a combination of ground (pitfall) and aerial (flight interception and Malaise) traps. The water beetles of the ponds and of temporary water in Queen's Marsh will also be worth further study. Clearly there is still more to be learned of the Dartington beetle fauna.

4. Acknowledgements

As always I am indebted to John Channon for permission to collect on the estate and to Mike Newby and his volunteers for all their help and continuing interest. Tony Allen and Clive Turner enthusiastically aided in the recording from the ponds and the moss. Thanks also to Vanessa Pike for copying and distributing copies of this report to the EECG members.

5. References Cited

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6. List of Additional species recorded in 2015.

Blue – aquatic sampling, Berryman's Marsh
Brown – dead deer, Flushing Copse
Green – moss, Deer Park Wall
Black – other habitats

HALIPLIDAE
Haliplus ruficollis
DYTISCIDAE
Laccophilus minutus
Hyphydrus ovatus
Hydroporus erythrocephalus
Hydroporus palustris
Hydroporus pubescens
Agabus bipustulatus
CARABIDAE
Leistus rufomarginatus
Trechus quadristriatus
Anchomenus dorsalis
Bradycellus sharpi
HELOPHORIDAE
Helophorus aequalis
Helophorus grandis
Helophorus brevipalpis
Helophorus obscurus
HYDROPHILIDAE
Hydrobius fuscipes
Helochares lividus
Cercyon unipunctatus
Megasternum immaculatum
HISTERIDAE
Saprinus semistriatus
Margarinotus brunneus
HYDRAENIDAE
Hydraena riparia
Ochthebius dilatatus
PTILIIDAE
Acrotrichis danica
Acrotrichis fascicularis
LEIODIDAE
Sciodrepoides fumatus
Catops coracinus
Catops nigrita
SILPHIDAE
Nicrophorus vespillo
STAPHYLINIDAE
Omalium caesum
Metopsia clypeata
Bythinus macropalpus
Sepedophilus immaculatus
Tachyporus atriceps
Habrocerus capillaricornis
Ilyobates nigricollis
Callicerus rigidicornis
Bessobia occulta
Cadaverota cadaverina
Datomicra zosterae
Atheta xanthopus
Atheta fungicola
Atheta intermedia
Atheta procera
Atheta ravilla
Dimetrota marcida
Dimetrota nigripes
Acrotona aterrima
Acrotona muscorum
Acrotona parvula
Aleochara curtula
Aleochara lata
Aleochara lanuginosa
Autalia impressa
Oligota punctulata
Scaphidium quadrimaculatum
Neuraphes elongatulus
Stenus juno
Stenus lustrator
Stenus providus
Stenus picipes
Stenus aceris
Philonthus addendus
Philonthus marginatus
Philonthus politus
Bisnius cephalotes
Ontholestes tessellatus
Creophilus maxillosus
Quedius invreae
Quedius fumatus
Quedius nemoralis
SCARABAEIDAE
Onthophagus coenobita
Aphodius rufipes
Aphodius pusillus
CLAMBIDAE
Clambus punctulum
ELATERIDAE
Denticollis linearis
CLERIDAE
Necrobia violacea
NITIDULIDAE
Omosita depressa
Omosita discoidea
SILVANIDAE
Ahasverus advena
CRYPTOPHAGIDAE
Ootypus globosus
CHRYSOMELIDAE
Chaetocnema picipes
Mniophila muscorum
CURCULIONIDAE
Otiorhynchus clavipes
Hypera rumicis

MLL, March 7th 2016