



Noble Chafer Larva Survey

New Forest 2021

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Introduction

The Noble Chafer *Gnorimus nobilis* is a saproxylic beetle whose larvae develop in the decaying wood of various species of tree. Larvae can be found in the dry or slightly humid wood mould in the base of cavities in tree trunks and larger branches, and more occasionally in pockets of wood mould between the bark and the trunk of the tree. The majority of modern records for this species come from the fruit growing areas of Herefordshire, Worcestershire and Gloucestershire, with breeding sites being found in a mix of apple, cherry, plum and damson trees in older "traditional" orchards. Elsewhere, there are modern records for the species from the Chilterns, where it has been found in old orchards and wild cherry trees, and from the New Forest in Hampshire.

In the New Forest, records of the Noble Chafer go back over 100 years. While adult beetles have been recorded by searching suitable flowers in summer, or have been attracted to flowers placed as "bait" in woodland clearings or pheromone lures, there are no records for any confirmed Noble Chafer breeding sites from the Forest.

Adult Noble Chafers are only infrequently encountered, and are only on the wing for a short period in June and July. The majority of modern records for breeding sites are based on the recording of larval faecal pellets. Noble Chafer larvae produce distinctively shaped, long lasting frass pellets which can remain intact in the wood mould for some time. In many instances, these pellets can accumulate to such an extent that they can fill the tree cavity and even spill over to accumulate around the base of the tree or in snags on the bark. Examples of these accumulations of faecal pellets in orchard trees can be seen in Figures 1 and 2.

Searching for these faecal pellets is a much more effective and less potentially damaging method of surveying for larval breeding sites than the excavation of the entire contents of the cavity in the hope of finding larvae or the remains of adult beetles. These pellets tend to aggregate at the top of the wood mould, so removing a few spoonfuls of wood mould from the cavity and sorting through it to see if frass is present is a relatively easy and non-destructive way to survey for the presence of this species.

In traditional orchards, rot cavities are relatively easy to access and sample as in most trees the main trunk of the tree extends for 2-3m before being allowed to branch out. In the New Forest, the Noble Chafer is presumed to breed in cavities in older oak or beech trees, where potential breeding sites are usually much further from the ground and much more difficult to access. This survey was commissioned to establish if a mechanical "cherry picker" platform, capable of reaching above 2m, could be used as a method to access tree cavities for Noble Chafer breeding sites in the New Forest.



Figure 1: Noble Chafer larval frass pellets filling a cavity in the trunk of an old apple tree.



Figure 2: Noble Chafer larval frass pellets accumulating in a bark pocket of an old apple tree.

Method

Three sites were selected as potential survey sites based on the presence of records of adult Noble Chafer attracted to pheromones during a 2018 survey and the presence of areas of hard standing on which to base the cherry picker. These were:

- 1) Warwick Slade and the New Forest Reptillary area, SU270070.
- 2) Holland Wood Campsite, SU303034
- 3) Whitley Wood carpark SU300055

Because of the requirement to use a cherry picker machine, surveys could only be undertaken after the end of September when the Holland Wood Campsite was closed to campers for the winter months.

Initial visits were made to Warwick Slade and Holland Wood Campsite on 6 October to investigate the sites and assess if they were suitable for survey with a cherry picker. Whitley Wood was similarly inspected on 15 October. Of the 3 sites, only Holland Wood was found to have enough hardstanding close enough to trees which showed evidence of tree cavities to be suitable for this method of survey. On 15 October, a cherry picker was used to gain access to various trees at Holland Wood. Unfortunately, after inspecting a number of trees, both live and dead, the machine experienced a mechanical failure which meant the survey had to be curtailed after approximately 2.5 hours.

Results

A single small larva, together with some frass pellets, were extracted from a bark pocket low down on a dead beech in Warwick Slade. Examination of the faecal pellets identified these as being produced by the Rose Chafer *Cetonia aurata*. The larva was a small 2nd instar larva, and its mode of locomotion (moving along on its back) was typical of a Rose Chafer.

A small amount of wood mould with small frass pellets was collected from a cavity at Holland Wood Campsite. This sample has been sent to Royal Holloway College for further examination.

Because of its use as a campsite, regular inspections and management work is carried out on the larger trees at Holland Wood to reduce the risk of dead or dying branches falling onto the public below, usually by means of removing the branches at the base where they join the main trunk of the tree. This means large hollow branches are very rare, and the majority of the trees appear to be too young to have developed large cavities in the main trunks by natural methods. While there are areas of rot around a lot of the pruning cuts, most of these are of limited depth and are too wet inside to be suitable for Noble Chafer larvae to develop.

Discussion

Surveying for evidence of Noble Chafer breeding sites by looking for the presence of larval faecal pellets is an established survey method. Adult beetles are only infrequently encountered, and the great majority of the records for this species shown on the NBN Gateway maps have been generated using this method. In the field, this technique is simple to undertake, is non-destructive and requires no specialist equipment. Samples of wood mould can be extracted from tree cavities by hand or with the aid of a long handled spoon or similar, and samples can be examined and identified upon collection. Noble Chafer larval pellets are relatively large and have a distinctive shape and appearance. With experience and / or comparison with a reference sample, these pellets can be confidently separated from the frass of other saproxylic species.

The limiting factor using this method is the ability to access rot cavities in trees. At managed traditional orchard sites, most trees are relatively short, with the main trunk extending to a height of 2-3m before branching, allowing wood mould samples to be collected by a surveyor at ground level. Beyond this height, tree cavities are more difficult to access without the use of ladders, tree climbing equipment or mobile platforms such as the cherry picker, all of which require additional costs for things like tree climbing equipment or training or machinery hire. In the New Forest, there are almost no areas of "traditional orchard", and the presumed breeding sites for the Noble Chafer are the rot cavities in taller forest trees such as oak, beech or cherry, requiring the use of these additional methods.

The experience of using the cherry picker platform in Holland Wood showed that this is a safe and effective way of gaining access to the upper parts of taller trees. However, the method is relatively slow as the operator has to manoeuvre the machine up to the base of each tree individually, before raising the platform up into the tree to get to each potential cavity in turn, with this process being repeated for each tree selected. What may appear to be a good potential site to investigate when viewed from ground level may not actually be a suitable rot hole once the platform reaches it.

Because of the requirement for firm ground beneath the machine, access is limited to those trees close to areas of hard standing, and many of the potential tree cavities observed within more densely wooded areas may not be accessible to the machine. As seen at Holland Wood, the potential for the breakdown of the cherry picker also needs to be considered. Overall, although the cherry picker can provide access to survey for breeding sites in taller trees at sites like the Holland Wood Campsite, it is not a suitable method that could be employed across most of the New Forest when searching for Noble Chafer breeding sites.

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