

A population of Rose Chafer *Cetonia aurata* (Linnaeus, 1758) (Coleoptera, Scarabaeidae) established at Pershore town, Worcestershire.

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01. Rose Chafer *Cetonia aurata* habitus, Pershore, Worcestershire, 2 June 2024. P. F. Whitehead.

Introduction

The Rose Chafer *Cetonia aurata* (Linnaeus, 1758) (01) is a well-known striking scarabaeid beetle with a long-extended history in Britain, colonising rapidly during the Windermere Interstadial, a brief temperate late-glacial interlude beginning some 13,000 years ago.

Relict populations of this colonisation event occur primarily in western coastal turf within influence of the Gulf Stream; Whitehead (2017) provided abundant detail on these distinct ecotypes which evidently since 2019 have extended north to Argyll in Scotland (Keith Zealand, *in litt.*). The second ecotype is essentially a synanthropic development of the first, most usually using compost heaps in gardens scattered across southern England (Fremlin, 2018) and south-east Wales, a situation pertaining also in continental Europe. The notion that *C. aurata* was once 'more common' in Worcestershire (Green, 2004) is somewhat uncertain. The *Victoria County History of Worcestershire* (Willis-Bund & Doubleday, 1901) states that it 'occurs sparingly' without further information while Fowler (1890) states 'sparsely north to Birmingham' again without further details. There are a few modern vice-county records cited below.

Discussion

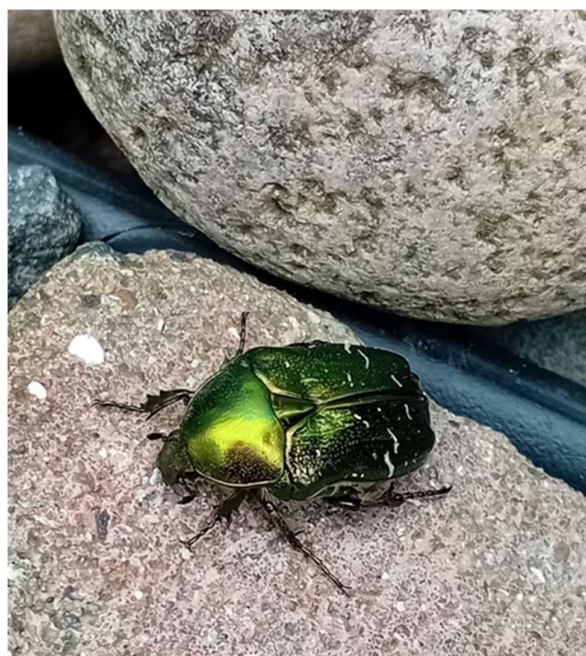
Photographs of one of two green scarabaeid chafer beetles from a garden in a spacious built environment on the western edge of Pershore town at O. S. map reference SO9445 32 m altitude were received by GHG on 26 May 2024. They were passed to PFW who commented that they resembled Rose Chafer. Unless one is particularly familiar with the complex taxonomy of cetoniine chafer beetles photographs can be misleading. *Cetonia aurata* exists globally in a range of forms and related species such as, for example, *Cetonia cyprica* Alexis, 1994 may have to be dissected. Specimens of closely related genera such as *Protaetia* may be identified only after close scrutiny and PFW has examples of both *Protaetia metallica* (Herbst, 1782) and *C. aurata* from the same meadow in Armenia.

The Pershore landowner kindly arranged for us to visit the site on the morning of 2 June 2024. It was bright and sunny with an ambient temperature of 20°C. A further chafer beetle had been seen that morning and had been retained. Its identity was confirmed by PFW as a normal Rose Chafer (01, 04, 05) thereby providing a modern record for Worcestershire.

On 2 June 2024 the Pershore garden was a directly insulated thermal hotspot with a temperature exceeding that prevailing generally by some 3°C and a number of warmth-demanding insects were active, the microclimate enhanced further by topographic shelter.

Between 26 May 2024 and 11 June 2024 there were at least six sightings of Rose Chafer in the garden and more were seen on warm sunny days to the beginning of July. The beetles were persistently attracted to the edge of a compost bin (02). A video taken by Karen Harris on 29 June showed a Rose Chafer endeavouring to find an entrance to the bin whilst a second one was seen on a tree trunk nearby.

Later we received unconfirmed reports of Rose Chafers in two nearby gardens in 2023 and 2024. All the observations to date are suggestive of successful breeding, noting fidelity to a large circular compost bin (02).



02. *Cetonia aurata* Pershore, Worcestershire, 6 June 2024. Beetles were persistently attracted to the edges of a circular compost bin probably for ovipositing. Karen Harris.

In 2021 a large pile of compost and wood fragments that existed in one corner of the garden was cleared and incorporated into plant beds. Part of the garden comprises a parterre form of layout with paths surfaced with comminuted slate (03). It is noteworthy that the specimen from 2 June 2024 was observed to be cutting down through this slate into the soil below which is notably sandy, presumably at 17 metres above alluvium representing Avon No. 4 terrace (Twynning Member) of the Avon Valley Formation (Whitehead, 2014).



03. Location of sightings of adult Rose Chafer, Pershore, Worcestershire, 2 June 2024. P. F. Whitehead.

The finding of a population of Rose Chafers in a Pershore garden raises many questions foremost of which is how the beetles arrived there. Probably this was through entirely natural dispersion but it could have been assisted passively through transportation; neither of us regard this population as historic there being no prior evidence of the beetle in a generally well-studied area.

It sometimes happens that beetles finding sites acceptable in broad terms modify their behaviour to accommodate particular aspects of the site and Rose Chafer is known for this ability. On the Somerset coast it breeds in old hollowed Holm Oak *Quercus ilex* L. (Whitehead, 2004) and is adapted to the urban environment of Bath (Whitehead & Whitehead, 2007) which provides a great diversity of microclimates. Remarkably, at Portland Bill in Dorset, it has been observed breeding amongst ivy roots and organic detritus in the interstices of a medieval limestone wall (Whitehead, 2023).

The attraction of organic compost heated by insolation in plastic bins has been mentioned but the beetles may also be using organically enriched plant beds (03). Fremlin (2018) greatly enhanced knowledge of synanthropy in Rose Chafer with garden adaptations of larvae developing in planted hanging baskets, flower pots and vegetable beds. This opportunism is presumably a manifestation of global warming the larvae having a biennial periodicity requiring frost-free pabula. It should be noted also that larvae of *C. aurata* like those of *Gnorimus nobilis* (Whitehead, 2003) are omnivorous consuming insects and shell remains for purposes other than nutrition and are not exclusively herbivorous as is sometimes stated.

There are a limited number of documented records of Rose Chafer in Worcestershire. Mr John Meiklejohn recorded an urban example at Henwick Road, Worcester City (SO835555) during 1951 seen by PFW. Other records cover the period 1979-1981 at the Knapp and Papermill (SO748516) Alfrick CP based on information provided by Mr L. H. Doncaster which could be followed up as a potential breeding site. Mr William Watson observed a single individual at Ankerdine Hill (SO735558) Doddenham CP on 12 May 2016, and on 10 August 2017 Mr Ian Wright observed a specimen at Abberley Lodge (SO750666) Great Witley CP.

There is a possibility that the 1979-81 records at the Knapp and Papermill may have been misidentified Noble Chafers which are now known to occur in many old Worcestershire orchards including that at the Knapp and Papermill.

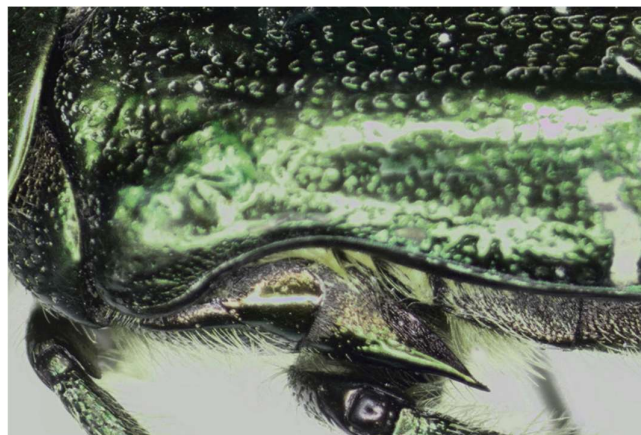
Distinguishing Rose Chafer and Noble Chafer

Traditional orchards in the Pershore area of Worcestershire once supported enormous colonies of Noble Chafer *Gnorimus nobilis* (L., 1758) and small colonies persist (Whitehead, 2003; Bunney, 2012). These are easy to distinguish from Rose Chafer by *habitus*, colouration, microsculpture and structure (04), and we illustrate these distinctions here.



04. Above, Rose Chafer at Slapton Ley 24 June 2021 and below, Noble Chafer at Hipton Hill Orchards 3 July 2021. Gary Farmer.

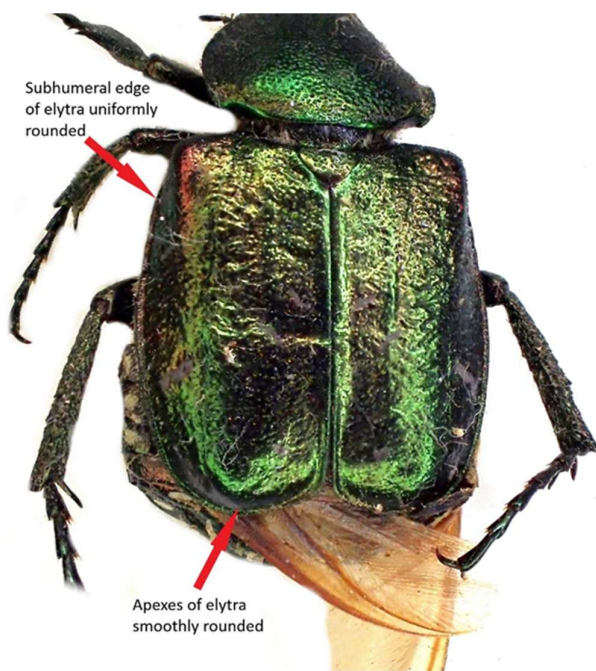
The elytra of Noble Chafer are often somewhat widened behind appearing wrinkled and the pronota are somewhat narrower in relation to the width of the elytra, more coarsely punctate and more incurved behind (04, 07). The elytral apexes (06, 07) and the subhumeral edges of the elytra (05, 07) are clearly very different and the illustrations provided highlight the distinct elytral microsculpture of both species.



05. *Cetonia aurata*, Pershore, Worcestershire, 2 June 2024. Left elytron lateral aspect showing the undulating subhumeral edge. P. F. Whitehead.



06. *Cetonia aurata*, Pershore, Worcestershire, 2 June 2024. Elytral apexes showing indented slightly apiculate posterior margin as a point of distinction from related genera. P. F. Whitehead.



07. Noble Chafer *Gnorimus nobilis* habitus. Found dead on the steps of Pershore Abbey, Pershore, Worcestershire, 12 June 2010, showing key criteria for separation from Rose Chafer. Dispersal of Noble Chafers into the built environment is rarely observed. G. H. Green.

Conclusion

An active viable population of Rose Chafers was observed in a Pershore town garden during June 2024 with some evidence that the population may be a little more widespread. The beetles benefit from an enhanced directly-insolated thermal environment and from particular features of that garden and its immediate environs. Their origin is a matter of some speculation but may represent normal dispersal and this population has the potential to drive an expanding population in Worcestershire. It is possible that breeding populations which could become expansive exist undetected on the western fringes of the vice-county. Confusion with sympatric Noble Chafers can be avoided by attending to particular features which are highlighted.

Acknowledgments

We thank the landowner Karen Harris for her powers of observation, for providing opportunities for study and for photographs and videos. Simon Wood of Worcestershire Biological Records Centre kindly provided supporting data and Jean Young also made helpful comments.

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Images

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