

The Shining Guest Ant

G H Green & B Westwood

Formicoxenus nitidulus (Nylander, 1846) in Wyre Forest

Every issue of British Wildlife contains a section called Wildlife Reports. A report by David Baldock in 2002 in the section on Bees, Wasps and Ants set us on the trail of the Guest Ant in Wyre Forest. His report followed Robinson (1998) who found an easy way of discovering this elusive ant, whose biology and ecology are not well understood. The species forms small colonies within the vast mounds built by various species of wood ants especially the commonest: *Formica rufa*. These colonies are usually in hollow stems within the Wood Ant nest and are of about 100 individuals. There may be several colonies within a Wood Ant nest. It is difficult to find these even if a Wood Ant nest is pulled to pieces, a method often used by Victorian naturalists in search of myrmecophilous beetles, though eschewed by modern conservationists. As both Robinson and Baldock have reported, a better way is to sit and gaze at the surface of a Wood Ant nest between August and November and to look for the tiny Guests moving about on the surface of the nest unmolested by the relatively huge Wood Ants. If Guest Ants are present and the search is made at the right time of year in the correct weather conditions they are usually seen within less than five minutes.



Formicoxenus nitidulus showing slim build of species and curved antennae of the male. Denise Bingham

The Guest Ant is about 3 mms long. In late summer and early autumn males and females emerge from their colonies and go to the surface of the Wood Ant nest where mating occurs. The queens are winged; the males flightless. It is the males that are most often found – after mating the queens may fly to establish a new colony in another wood ant nest, or bite off their wings and return into the same Wood Ant nest to start a new colony. Males remain active over for a period of about three months. An important factor in finding the Guest Ant appears to be

the weather. They seem to be most active on the surface of a Wood Ant nest during overcast warm weather and especially in the morning.



Formicoxenus nitidulus male showing distinctive small downward-pointing spike on the post-petiole.

Denise Bingham

One of us (BW) was particularly fascinated by David Baldock's 2002 report and since then both of us have peered at the surfaces of wood ant nests in Wyre Forest in autumn, though in a somewhat cursory fashion. Eventually on the 16th September 2006 we attended a Wyre Forest Study Group field meeting to a section of the Pipeline in at Hawkbatch, around grid reference SO763782, on a warm, damp, overcast morning. We found a Wood Ant nest and, following BW's example, we (about ten of us!) all crouched down and stared at the surface (trying to ignore the wood ants invading our clothing). Within a couple of minutes BW saw small ants amongst the Wood Ants *Formica rufa*. Soon we were all finding them and several were captured. Later that day HG confirmed their identity as *Formicoxenus nitidulus* using the standard keys (Bolton & Collingwood 1975, Skinner & Allen 1996). They were all males.



Study Group members in Hawkbatch 16/9/06

Rosemary Winnall

Following these observations we visited Wyre Forest again (with Rosemary Winnall who was also present when the previous records were made) on 24th September and found Guest Ants on seven Wood Ant nests in the Wimperhill/Longdon area of Wyre Forest, SO7476, SO7376). Rosemary subsequently found them on single Wood Ant nests on 30th September at New Parks (SO7575), on 29th October in Ribbesford Wood (SO7873), and on 24th October in Ribbesford Wood (SO7872). We have also checked (and kept records) of several Wood Ant nests where Guest Ants were not seen. Our impression so far is that they tend to inhabit Wood Ant nests in warmer more open places along the sides of woodland rides, and to avoid shaded nests, but this is an impression rather than a conclusion as insufficient information has been collected to date.



Formicoxenus nitidulus above and *Formica rufa* Harry Green

Published records and other historical information

A glance at the national distribution map in the annotated atlas, Edwards & Telfer (2002), shows only three dots (each a 10 km square) in the 100km square SO (of the national grid) which covers most of Worcestershire, Herefordshire, south Staffordshire, south Shropshire and parts of the Welsh borders. There is one black dot – a recent record in N Herefordshire (presumably arising from David Baldocks's account); an empty circle in the very south of SO (a record between 1900 and 1969); and a small cross on SO77, the Wyre Forest 10 km square, indicating a pre-1900 record! Apparently our 2006 records were the first for over 100 years. As far as we can discover the pre-1900 record in the national database originates from the Victoria County History of Worcestershire (1901) and the report therein by Fletcher & Martineau on Hymenoptera which states: "*Formicoxenus nitidulus*, Bewdley (Blatch)" and no more!

It would of course be most interesting to discover more details of both Blatch and his records. A biography on The Coleopterist web site www.coleopterist.org.uk at least gives some background to the man. William Gabriel Blatch was born in 1840 and died in 1900. He worked for most of his life in Lunatic Asylums, especially at The Midland Counties Lunatic Asylum at Knowle as Secretary and Superintendent. As an entomologist he was interested in a variety of groups but he was mainly a coleopterist. In the Midlands he was closely associated with the Birmingham Natural History & Philosophical Society and a founder of the Midland Union, an organisation which aimed to draw together naturalists from many societies in the Midlands. His main period of entomological activity in the Midlands appears to have been from around 1870 to the 1890s. Thanks to David Antrobus we have been able to consult the Birmingham Natural History Society library and particularly publications for this period, including the Midland Naturalist published by the Midland Union. There are several articles by Blatch, in particular one of an imaginary visit to Wyre Forest in search of insects, written to encourage interest in insects amongst naturalists (Blatch 1879). While on this "virtual" foray he demolishes a Wood Ant nest in search of beetles but there is no mention of the Guest Ant. However, the trail is not yet cold. According to The Coleopterist biography Blatch published 62 papers, and his insect collections became scattered between several museums. To date all we have seen are a few of his papers. Serendipitously, in a very recent paper on a quite different subject, Lane (2006) mentions that he has seen five of Blatch's notebooks ... Perhaps in them there is mention of the Guest Ant – we shall see!

Any student of ants is well advised to consult Donisthorpe's (1927) book. Many subsequent authors quote him with or without acknowledgement. Therein we read that *Formicoxenus nitidulus* (as *Myrmica nitidula*) was originally described by Nylander in 1846. It was added to the British list in 1857 by G R Waterhouse. Donisthorpe writes "Nylander described *F. nitidulus* as long ago as 1846, but the male remained unknown until 1884 when it was discovered by Adlerz in Sweden. This sex was not discovered in Britain till 1906 when Bagnall captured some ten examples in nests of *F rufa* at Corbridge-on-Tyne on August 12th, and in July and August, 1910 ... however an unrecognised male in the Rothney Collection at Oxford doing

duty as a worker as *Stenammas westwoodi* was taken by Dr Power at Weybridge on July 24th in 1864". Did Blatch find males in Wyre?

He goes on: "On September 6th, 1912, I secured a number of males from a nest of *F. rufa* in Weybridge The day was dull and cloudy and the males were seen running about on the surface of the *rufa* nest".

And again: "After a cold night, the sun remained behind masses of clouds at about 9 am, when I saw dozens of *Formicoxeni* of all three phases [queens, males, workers] but mostly males, running hither and thither over small twigs and other debris forming the outer coating of an old *rufa* nest Then the sun suddenly emerged from the clouds and, as if by magic, all the *Formicoxeni* disappeared into the nest". (attributed to Wheeler 1907).

What next?

Now that we know that *Formicoxenus* occurs in Wyre Forest we have an interesting opportunity for further study.

- 1 To map the distribution in Wyre Forest and adjacent sites perhaps on a 1x1km scale, similar to our studies on Land Caddis *Enoicyla pusilla*.
- 2 Such a survey should record both negative and positive Wood Ant nests and it will also provide information about Wood Ant nests, their distribution and situation. Each Wood Ant nest to be located by 8-figure grid references (using hand held GPS).
- 3 Undertake a series of visits to Wood Ant nests known to contain *Formicoxenus* to ascertain

the period of appearance of queens and males on the nest surface

- 4 To undertake a fuller investigation of literature and museum collections, especially in attempting to track down the origin of Blatch's record.

Modern status of the Guest Ant in Britain

Formicoxenus nitidulus has a trans-palaeartic distribution along a broad central band from France to China with small northern extensions into Britain and Scandinavia. (Czechowski et al 2002). It is classified as LOCAL in Great Britain and as globally VULNERABLE by the IUCN Red List. It is of course dependent on Wood Ants of the genus *Formica* and threatened by factors which threaten them – shading, disturbance, habitat destruction. It is a UK Biodiversity Action Plan priority species and a Species Action Plan has been produced. The issue is clouded by a lack of records and the difficulty in finding the ant. The species may occur wherever there are wood ants because when intensive searches have been made they have usually been found.



Formicoxenus nitidulus males

Harry Green

REFERENCES

- BALDOCK D. 2002. Wildlife Reports: bees, wasps and ants. *British Wildlife* 13(3): 213-214.
- BLATCH WG. 1879 Entomological rambles in the Midlands. No 1 Bewdley Forest. *Midland Naturalist* 2:193-196 continued in *Midland Naturalist* Vol 2:229-232
- BOLTON B, & COLLINGWOOD CA. 1975. Hymenoptera: Formicidae. Handbooks for the identification of British Insects. Vol VI, part 3(c). Royal Entomological Society. London.
- CZECHOWSKI W, RADCHENKO A, & CZWCHOWSKA W 2002 The ants of Poland. Museum and Institute of Zoology, Warszawa.
- DONISTHORPE H St JK. 1927. British ants, their life-history and classification. 2nd revised and enlarged edition. Routledge: London. Pages 88-95.
- EDWARDS R & TELFER M. 2002. *Formicoxenus nitidulus* (Nylander, 1846) in Provisional atlas of the aculeate hymenoptera of Britain and Ireland. Part 4 pages 26-27. Biological Records Centre, Centre for Ecology and Hydrology. Huntingdon.
- FLETCHER JE & MARTINEAU JH. 1901. Insects: Hymenoptera. In *The Victoria history of the counties of England: Worcestershire*. Volume 1, pages 86-87. Dawson: London.
- LANE SA 2006 *Nebria livida* (L) (Carabidae) in Staffordshire. *The Coleopterist* 15(3):119-122.
- ROBINSON NA. 1998. Observations on the "Guest ant" *Formicoxenus nitidulus* (Nylander) in nests of the red wood ant *Formica rufa* L. in 1997. *British Journal of Entomology and Natural History*, 11:125-128.
- SKINNER, GJ & ALLEN GW. 1996. Ants. *Naturalists Handbooks* 24. Richmond.