

An entomological survey and assessment of Petersfield Heath, 29/8/1999

1. Background

1.1 A preliminary survey visit was made on 29/8/1999 to the decommissioned golf course at Petersfield Heath in order to assess whether there were any heathland-associated insects present and, in particular, whether the old bunker areas were being used as nesting sites. The survey was carried out in warm sunny conditions, after a rather dull start. Being late in the season it was expected that relatively few species would be recorded, but these should give some indication as to the likely fauna present.

2. Site assessment

2.1 The area was shown to support a reasonable selection of heathland-associated insects, especially in view of the late timing of the survey. Of the forty-eight insect species recorded over one quarter are particularly associated with sandy habitats. Most species were found in low numbers, reflecting the badly degraded nature of the heathland. However, populations would be expected to increase with suitable restoration management. Many more species would be expected here during a full, year-long survey.

2.2 Much of the north-east of the area is covered in woodland, mostly birch, but with a few larger oaks present. The trees are too close here to support many insect species, but this could be improved by the creation of open glades. This would suit a number of dead-wood insects associated with heathy woodland, these are definitely present in several sites nearby: one, the hoverfly *Eumerus ornatus* (**Nationally scarce**) has already been recorded.

2.3 The majority of the open grassland still has too dense a sward and shows the effects of years of unsympathetic golf-course management. There appear to be very few nectar sources present over most of the site, although a notable exception is by the eastern margin of the pond where a damp heathland flora, (largely Devils Bit Scabious, *Succisa pratensis* and Tormentil, *Potentilla erecta*,) may support a number of species, including the specialist bee *Andrena tarsata*, although it was too late for to find it on this visit. Another area of disturbed ground alongside the highly canalised stream had a wider variety of plant species present. Here the **RDB 3** carpenter bee *Ceratina cyanea* was found as well as several small *Lasioglossum* bees. The *Ceratina* requires open bramble bushes with dead stems in warm situations for a nesting habitat and as such is a component of the heath/woodland edge fauna.

2.4 The old bunkers still have a large proportion of bare sandy ground present. Those near the stream mentioned above had more species nesting than those further to the south. This may be because the flora was more varied in this part of the site, but further investigation is required.

2.5 Heathland, including heathers, is re-establishing itself, particularly on the more disturbed or droughted areas. The shortest grasslands around the pond, despite being largely municipal grassland, may support nesting populations of burrowing bees and wasps earlier in the year, especially where the vegetation is sparsest. An acid grassland flora is present in small patches, Wild Carrot, *Daucus carota*, was especially important during my visit and Sand Spurrey and yellow composites are likely to be important earlier in the year.

2.6 There is a lot of scrub oak with patches of bramble and gorse present. Whilst small this scrub component provides excellent cover and shelter, but it will need managing to maintain as scrub, not developing into young oak woodland.

3. Management suggestions

3.1 The open sand of the old bunkers, both horizontal and vertical faces, clearly forms an important nesting resource. These faces are beginning to vegetate over and will not stay in a suitable state beyond the next two or three years. Raking off the vegetation from the open sand is required to maintain this habitat component. Areas of about one third the total bunker should be raked in any one year to minimise overall disturbance to nesting populations. This management will need carrying out on a three to four-year rotation.

3.2 The grasslands would benefit from being heavily disturbed in patches to encourage the leaching out of nutrient and break up the grass root-mat. The disturbance alongside the stream shows what can be attained through this management technique. There will be the added advantage of providing further hot, sparsely vegetated areas essential for many heathland associated invertebrates. It is important to avoid disturbing areas which currently support the limited diversity of plant species but disturbing adjacent dense grass areas is highly recommended. A regime of cutting and carrying off the arisings from the grasslands will accelerate ecologically valuable changes on the grasslands. Arisings do create their own disposal problem however and the disposal of these on site, as has happened in the past, is not to be recommended.

3.3 The need for the creation of structure within the woodland component has already been noted. Again areas of disturbance within these glades, probably created by selected removal of trees, would be advantageous. Ring-barking of unwanted trees would provide some dead-wood resource and additional openings in the canopy. The glades, including the area between the boundary hedges and the woodland, will need periodic management to maintain their openness. Such management should not be carried out all at one time but sections should be managed on a two -three year rotation. The creation of a layered, sloping boundary to the wood, rather than a steep or vertical one is desired. This will require removal of taller trees at the margins and coppicing of shrubs.

3.4 The stream has been severely canalised in the past, the restoration of meanders and open boggy places along its course is required. The fact that water was present in the bottom, even after a prolonged drought, suggests that, like the pond, it is spring-fed and would be expected to maintain itself as a wetter area. There are other areas which have a vegetation suggestive of active flushes, including stands of Tomentil. It is possible that the Bog Bush-cricket, *Metrioptera brachycera*, still exists within these wetter areas, although it was not seen during the current survey. The margins of the pond itself also need surveying.

4. Conservation Status Categories, Distribution and Abundance Terms for Insects

Conservation status categories

RDB (Red Data Book) categories are based upon the most modern work, usually one of the English Nature *Research and Survey in Nature Conservation* reviews. Where these do not exist the category given in Shirt, D.B., 1987 *The British Red Data Books: 2* is given. These categories may require revision in the light of new information but a new Red Data Book has yet to be compiled. Such revisions are indicated as p(rovisional).

RDB 1. Endangered. Species currently (post 1970) known to exist in five or fewer ten-kilometre squares.

RDB 2. Vulnerable. Species in severely declining or vulnerable habitats, or of low known populations. Known to exist in ten, or fewer, ten-kilometre squares.

RDB 3. Rare. Species with small populations, not at present Endangered or Vulnerable, but which are felt to be at risk. Species currently known to exist in fifteen, or fewer, ten-kilometre squares.

RDB K. Species of undoubted RDB rank, but with insufficient information for accurate placement; includes possible recent arrivals.

Nationally Scarce. Species currently known to exist in one hundred, or fewer, ten-kilometre squares.

In some groups these are further sub-divided into:-

Nationally Scarce a. Species currently known to exist in thirty, or fewer, ten-kilometre squares.

Nationally Scarce b. Species currently known to exist in one hundred, or fewer, ten-kilometre squares.

Distribution categories

Distribution refers solely to the geographical extent of a species in the British Isles. Considerable confusion has been caused in the past by the varying meanings given to many assessments of species where geographic distribution has been confused with local abundance.

Distribution comments are based upon national status as far as is known (e.g. published distribution maps or the most recent taxonomic/ecological work giving distribution information). This may be supplemented by personal knowledge of the species.

A distribution classification, based on the known distribution range, is being developed. Where possible a provisional national distribution range status under this system is given.

Universal. Distributed throughout England and Wales, with at least some extension into Scotland.

Widespread. Distributed in about three-quarters of England and Wales, but not found to the north (southern widespread) or south (northern widespread) of the British Isles. (NB northern widespread species are found in Scotland as well.)

Restricted. Distributed in about half of England and Wales (northern or southern, eastern or western), or Scotland only. The distribution of most of these species is defined by the 'Wash-Severn line'.

Abundance Comments

Abundance comments are much more subjective, being dependent upon the precise timing of survey visits and the timing of emergence of the insect species. Often a species appears to be rarely found, until the particular way of looking for it is discovered, when it proves to be much more prevalent than previously thought. Some species, however, seem to exist in low numbers at all times in all suitable places. This may reflect the species' position in its particular ecological pyramid. The abundance may have no connection with the distribution status; some Red Data Book species are numerous in their particular locations: some Universal species may only ever be found as singletons. Comments under this heading rely heavily upon the observer's accumulated experience as the rating given is a measure of the expectation of finding the species in a suitable habitat. Species living towards the edge of their range are often less frequent than they are in the middle of their range.

The method of recording may also affect the observed abundance. The recording method may be appended to the abundance, e.g. by sight or hand-netting, sweeping, beating, malaise trap, pan trap.

It is assumed that recording takes place under favourable conditions of habitat, weather and season.

Life History Terms

Cleptoparasitic: A species taking the stored provisions of another species to feed its young. This usually involves the cleptoparasite laying an egg in the nest of the host, but may involve oviposition on prey being transported by the host.

Nesting situations: Bees and wasps may construct their nesting chambers in the ground (**ground nesting**) or in aerial situations (**aerial nesting**). Such aerial nests may be constructed in dead wood (**dead-wood nesting**), dead bramble stems or similar pith-filled stems (**stem nesting**) or in a variety of cavities (**cavity nesting**).

Nest provisioning terms: These relate to the preferred sources of pollen for provisioning the nest. Such resources may be very specific for some species. Nectar sources are not so clearly defined, although bees with longer tongues can forage at flowers with longer nectaries. Such flowers often have more concentrated nectar. The structure of the anthers and stigma is often related to the length of the tongue of the preferred pollinating insect.

Oligolectic: Bees which confine their pollen gathering activities to one species of plant, or a closely-related group of plants.

Polylectic: Bees which forage for pollen at a variety of different plants and show no particular preference.

Social organisation: The majority of bee and wasp species are **solitary**. One female provisions the nest and lays her eggs on the provisions. A number of solitary nesting insects may use the same small area when they are said to nest **colonially**. **Eusocial** species have a founding female who lays all the eggs, but the first insects to hatch (females) stay and help run the nest. At the end of the season males and females are produced. These mate and the newly mated females start their own nests. Usually only mated females overwinter. Some ant colonies have several mated females (**queens**).

5. The species recorded.

ORTHOPTERA (Grasshoppers and Crickets)

Tettigoniidae (Bush Crickets)

Conocephalus discolor Long-winged Cone-head Conservation status: Nationally Scarce a
Distribution: Southern Widespread. Abundance: Locally common. Increasingly widespread throughout southern
England.

Acrididae (Grasshoppers)

Chorthippus brunneus Field Grasshopper Conservation status:
Distribution: Universal Abundance: Commonly found. A ready coloniser of disturbed areas with a
sparse vegetation.

Chorthippus parallelus Meadow Grasshopper Conservation status:
Distribution: Universal Abundance: Commonly found in a variety of grassy habitats.

LEPIDOPTERA (Butterflies)

Pieridae (Whites)

Pieris brassicae Large White Conservation status:
Distribution: Universal Abundance: Very commonly found. The larvae often feed on plants of the
cabbage family Brassica spp..

Satyridae (Browns)

Parage aegeria Speckled Wood Conservation status:
Distribution: Universal (disjunct) Abundance: Commonly found. Associated with shady woodlands, although it
still requires patches of sunlight.

Maniola jurtina Meadow Brown Conservation status:
Distribution: Universal Abundance: Very commonly found. The larvae feed on a variety of grass
species.

DIPTERA (Flies)

Tipulidae (Craneflies)

Nephrotoma scurra Conservation status: Distribution: Universal.
Abundance: Frequently found. Associated with well-drained soils.

Asilidae (Robber-flies)

Machimus (Epitriptus) cingulatus Conservation status: Distribution: Southern Widespread.
Abundance: Commonly found south of London, infrequent elsewhere. Dry grasslands, heaths and scrub.

Syrphidae (Hover-flies)

Cheilosia impressa Conservation status: Distribution: Southern Widespread.
Abundance: Frequently found. Damp woodlands.

Episyrphus balteatus Conservation status: Distribution: Universal.
Abundance: Very commonly found everywhere. A migratory species.

Eristalis nemorum Conservation status: Distribution: Universal
Abundance: Commonly found. The larvae live in organically rich wet mud.

Eristalis tenax Conservation status: Distribution: Universal.
Abundance: Very commonly found. The larvae live in organically rich wet mud.

Eumerus ornatus Conservation status: Nationally Scarce Distribution: Southern Restricted
Abundance: Frequently found. Local to wooded areas in the south, a few northern records. The larvae develop in
bulbs.

Helophilus pendulus Conservation status: Distribution: Universal
Abundance: Very commonly found. The larvae live in organically rich wet mud.

Metasyrphus latifasciatus Conservation status: Distribution: Universal
Abundance: Commonly found. The larvae prey on aphids on conifers.

Paragus haemorrhous Conservation status: Distribution: Universal
Abundance: Locally common. Associated with patches of bare ground in short grassland.

Platycheirus albimanus Conservation status: Distribution: Universal.
Abundance: Commonly found. The larvae are predacious.

Platycheirus clypeatus s.s. Conservation status: Distribution: Universal.
 Abundance: Commonly found. The larvae are predacious.

Pyrophaena rosarum Conservation status: Distribution: Universal.
 Abundance: Locally common. Associated with lush marshy places. The larvae are predacious.

Rhingia campestris Conservation status: Distribution: Universal
 Abundance: Commonly found.

Sphaerophoria scripta Conservation status: Distribution: Universal
 Abundance: Very commonly found in the southern half of the British Isles. A grassland species, the larvae feed on aphids and Homoptera living in the ground layer.

Syrirta pipiens Conservation status: Distribution: Universal.
 Abundance: Very commonly found in most places throughout Britain. The larvae live in decaying vegetation.

Syrphus ribesii Conservation status: Distribution: Universal
 Abundance: Very commonly found. A migratory species. The larvae feed on aphids.

Conopidae (Thick-headed Flies)

Conops quadrifasciatus Conservation status: Distribution: Universal.
 Abundance: Commonly found. A parasite of bumble bees.

Sarcophagidae

Metopia campestris Conservation status: Distribution: Universal.
 Abundance: Commonly found in a variety of open habitats, a parasite of ground-nesting wasps.

ACULEATE HYMENOPTERA (ants, bees and wasps)

Tiphiidae (Solitary wasps)

Tiphia femorata Conservation status: Distribution: Southern Restricted.
 Abundance: Locally common. Sandy places. Parasitises larvae of scarabaeid beetles.

Formicidae (Ants)

Myrmica scabrinodis Conservation status: Distribution: Universal.
 Abundance: Commonly found in a variety of open habitats.

Lasius flavus Conservation status: Distribution: Universal.
 Abundance: Commonly found. The large, dome-shaped nests are an indicator of long-established pasture.

Lasius niger s.l. Conservation status: Distribution: Universal.
 Abundance: Very commonly found. A variety of open habitats. Thought to be a mix of two species which are difficult to separate.

Pompilidae (Spider-hunting wasps)

Priocnemis parvula Conservation status: Distribution: Universal.
 Abundance: Very common in sandy localities, frequent elsewhere. Ground nesting.

Arachnospila anceps Conservation status: Distribution: Universal.
 Abundance: Commonly found. Ground nesting.

Evagetes crassicornis Conservation status: Distribution: Universal.
 Abundance: Commonly found, especially in sandy places. A cleptoparasite on other pompilids.

Anoplius infuscatus Conservation status: Distribution: Southern Widespread.
 Abundance: Locally common on damp heaths and dunes. Preys on wolf spiders (Lycosidae). Ground nesting.

Episyron rufipes Conservation status: Distribution: Southern Widespread.
 Abundance: Locally common in loose, sandy situations on heaths and dunes. Preys on orb spiders. Ground nesting.

Eumenidae (Solitary wasps)

Ancistrocerus gazella Conservation status: Distribution: Southern Widespread.
 Abundance: One of the more frequently found Eumenids. Nests in a variety of cavities. Provisions its nest with small caterpillars.

Vespidae (Social wasps)

Dolichovespula media Conservation status: Distribution: Southern Widespread
Abundance: A recent colonist in Great Britain. Since 1980 this species has spread steadily northwards and westwards from its first recorded localities in East Sussex. It has a distinctive nest (football-sized when mature) which is usually placed between one and two metres high in bushes. Despite its large size it appears docile towards humans. Queens of this species may easily be confused with worker Hornets (*Vespa crabro*). Aerial nesting.

Sphecidae (Solitary wasps)

Crossocerus pusillus Conservation status: Distribution: Universal.
Abundance: Commonly found. Preys on small Diptera. Ground nesting.
Crossocerus quadrimaculatus Conservation status: Distribution: Southern Widespread.
Abundance: Commonly found. Preys on small Diptera. Ground nesting.
Ectemnius continuus Conservation status: Distribution: Universal.
Abundance: Commonly found in a variety of habitats. Dead-wood nesting. Preys on flies.
Oxybelus uniglumis Conservation status: Distribution: Southern Widespread.
Abundance: Very common in sandy places. Preys on flies. Ground nesting.
Psen equestris Conservation status: Distribution: Universal.
Abundance: Commonly found in sandy places. Preys on Homopteran bugs. Ground nesting.
Ammophila sabulosa Conservation status: Distribution: Southern Widespread.
Abundance: Commonly found. Associated with sandy, and many coastal, localities. Hunts caterpillars. Ground nesting.
Cerceris arenaria Conservation status: Distribution: Southern Widespread.
Abundance: Locally common in sandy places. Preys on *Otiorrhynchus* weevils. Ground nesting.
Cerceris rybyensis Conservation status: Distribution: Southern Restricted.
Abundance: Locally common. Heathland and downland. Preys on various solitary bees. Ground nesting.
Philanthus triangulum Conservation status: RDB 2 pRDB4 -out of danger. Distribution: Southern Restricted.
Abundance: Locally common. The 'Bee Wolf'. Preys on honeybees. Long restricted to the south coast of the Isle of Wight as a permanent breeding population, this wasp has recently undergone a rapid expansion of its range.

Apidae (Bees)

Halictus tumulorum Conservation status: Distribution: Universal.
Abundance: Commonly found. A eusocial species. Polylectic.
Lasioglossum leucozonium Conservation status: Distribution: Southern Widespread.
Abundance: Commonly found in a variety of habitats. Polylectic.
Lasioglossum morio Conservation status: Distribution: Southern Widespread.
Abundance: Commonly found. Polylectic.
Lasioglossum punctatissimum Conservation status: Distribution: Southern Widespread.
Abundance: Commonly found. Sandy places. Polylectic.
Ceratina cyanea Conservation status: RDB 3. Distribution: Southern Restricted
Abundance: This small blue bee is our only Carpenter Bee, so called because of their habit of drilling burrows in wood in which to make their nests. They do this with their strong mandibles. *Ceratina* drills out the soft pith of dead ramble stems, both for nests which are provisioned during May and June, and for overwintering by the adults which emerge from these summer nests. Overwintering is communal, unmated males and females pack into drilled stems, following in the one which made the burrow. I have found up to ten adults in one stem.
Bombus pascuorum Conservation status: Distribution: Universal.
Abundance: Very commonly found. Polylectic. Nests in surface litter.