

A SURVEY OF THE BEES AND WASPS OF FIFTEEN CHALK GRASSLAND AND CHALK HEATH SITES WITHIN THE EAST SUSSEX SOUTH DOWNS

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Abstract

For six years between 2003 and 2008, over 100 site visits were made to fifteen chalk grassland and chalk heath sites within the South Downs of Vice-county 14 (East Sussex). This produced a list of 227 bee and wasp species and revealed the comparative frequency of different species, the comparative richness of different sites and provided a basic insight into how many of the species interact with the South Downs at a site and landscape level. The study revealed that, in addition to the character of the semi-natural grasslands present, the bee and wasp fauna is also influenced by the more intensively-managed agricultural landscapes of the Downs, with many species taking advantage of blossoming hedge shrubs, flowery fallow fields, flowery arable field margins, flowering crops such as Rape, plus plants such as buttercups, thistles and dandelions within relatively improved pasture. Some very rare species were encountered, notably the bee *Halictus eurygnathus* Blüthgen which had not been seen in Britain since 1946. This was eventually recorded at seven sites and was associated with an abundance of Greater Knapweed. The very rare bees *Anthophora retusa* (Linnaeus) and *Andrena niveata* Friese were also observed foraging on several dates during their flight periods, providing a better insight into their ecology and conservation requirements. There was evidence that the low coverage of unimproved chalk grassland on the South Downs today following much loss and fragmentation in the last century may have resulted in some serious declines of certain bees and wasps and several probable local extinctions.

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http://sxbrc.org.uk/publications/East_Sussex_Bees_Wasps_Survey_Falk_2011.pdf

also the Bee, Wasp and Ant Recording Society website: www.bwars.com

Introduction

The South Downs is a range of chalk hills extending some 70 miles from Winchester in the west to Eastbourne in the east. It encompasses some of the finest and most biodiverse scenery in south-east England and in consequence much of it falls within an Area of Outstanding Natural Beauty (The South Downs AONB) and an Environmentally Sensitive Area (The South Downs ESA). The area was also

declared a National Park in 2011. For most naturalists, the image of the Downs likely to be conjured up is one of steep hillsides swathed in flowery chalk grassland. The reality is that the greater part of the Downs is dominated by improved pasture, arable land and woodland. Within the Sussex part of the Downs, floristically-rich chalk grassland now accounts for only 3% coverage (Sussex Biodiversity Action Plan), and the majority of this is confined to steep escarpments (particularly along its steeper north edge) and along a relatively short coastal strip between Seaford and Eastbourne. Losses have been substantial, especially since the last war when traditional sheep grazing on relatively unimproved grassland was widely replaced by arable farming and improved pasture, and various settlements (e.g. Brighton, Woodingdean, Newhaven, Seaford and greater Eastbourne) encroached onto the Downs. This loss is not just a matter of local concern. Sussex's reduced holdings still represent nearly 10% of the circa 30,000 hectares of chalk grassland currently found in Britain, so the scale of that existing resource has national and European significance.

But like so many of our finest habitats, the biodiversity of chalk grassland is very unevenly studied or understood, with a conspicuous lack of systematic survey work or published information for many of the insect groups that contribute most heavily to its biodiversity. In this survey, the author has attempted to gain some solid baseline data for the bee, wasp and fly faunas at fifteen key sites in the Vice-county of East Sussex to help rectify this situation. This paper presents the results for the bee and wasp part of the survey. The only other comparable study of bees and wasps on chalk grassland that the author is aware of relates to work carried out in Germany on aerial nesting species and their parasitoids (Tscharntke et. al., 2003). That work used samples obtained from trap nests to examine the relationship between aculeate diversity and factors such as plant species richness, site size, site isolation and habitat age and habitat continuity. There have been valuable studies of bees and wasps at important British chalk grassland sites like Salisbury Plain and Porton Down, and amateur hymenopterists and consultant entomologists have accumulated much *ad hoc* data for chalk grasslands. But these datasets are largely unpublished except for the contribution that the records make to the various national distribution maps published by the Bee, Wasp and Ant Recording Society (BWARS) since 1997. Alexander (2003) furnishes a list of aculeates recorded from lowland calcareous grassland based mainly on data from Falk (1991) and BWARS maps in Edwards & Telfer (2001, 2002). Recent county atlases for Surrey (Baldock, 2008 & 2010) and Kent (Allen, 2009) also provide valuable distributional data for aculeates of the North Downs.

Methods

Prior to the survey, the author contacted several organisations and individuals, including Natural England at Lewes, the South Downs AONB Office at Cuckmere, the National Trust, and entomologists such as Alan Stubbs, George Else and Mike Edwards. They kindly provided information on the most substantial and potentially interesting chalk grassland sites in East Sussex. This resulted in the selection of fifteen sites which were then subject of at least one detailed survey (covering flies,

bees and wasps) within each month between April and August. This meant that every site was subject to at least five visits, and some experienced several more if poor weather (including wet weather, cold weather or summer drought) had compromised a survey, or if a particularly large and complex site was involved. Most visits were carried out in dry weather with at least some sunshine, and involved 5-7 hours in the field. Shorter visits were made in spring (sometimes sampling 2 or 3 sites in a day) or when revisiting a site to complete a previously compromised survey or to search for a specific species (or suite of species). A little data is also included from visits that the author made to Deep Dean, Mount Caburn and Willingdon Downs in 1988.

The main sampling technique was sweeping with a long-handled (5-6 ft) white-netted insect net. This method allowed detailed interrogation of many parts of a site, including patches of specific flowers or foodplants, swards of different types, scrub foliage and blossom, and aculeate nesting areas. If employed carefully, sweeping can capture vast quantities of material that can then be screened visually inside the net bag by holding the net bag horizontally towards the sun with one hand, using your head to prevent easy escape. This allows easy pootering up of samples (see Falk, 2010). Visual surveillance was also used inbetween sweeping sessions to scrutinise flowers, foliage and ground, and to gather first-hand information on behaviour such as foraging and nesting. Information was constantly transferred to a field note book, resulting in a provisional species list, and any interesting behavior and locational information was noted. Because flies were being surveyed at the same time as bees and wasps, only limited time was available to observe habits of the aculeates, so scarcer species were prioritised e.g. *Halictus eurygnathus*, *Anthophora retusa*, *Andrena niveata*, *Bombus humilis* and any other Red Data Book or Nationally Scarce species that could be recognised in the field. Species lists were finalised after checking samples critically under a microscope (using identification keys and comparative material). Supporting voucher material has been retained in the author's collection as appropriate.

The fifteen sites selected and the dates of visits are as follows (bracketed dates relate to short or suboptimal visits, abbreviated site names relate to the species list in the Appendix):

BC – Black Cap (TQ374125): 19.5.04, 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07

BG – Birling Gap (TV554959): 22.4.03, 15.4.05, 15.6.06, 24.7.06, 22.5.07, 25.8.07

BH – Beachy Head (TV597962): 22.4.03, 23.5.04, 22.7.04, 16.4.05, 14.6.05, 16.8.06, 11.4.07, (22.5.08)

CH – Castle Hill (TQ370068): 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07, 24.6.08

Cr – Cradle Hill (TQ487036-510014): 22.5.04, 19.8.06, 8.4.07, 19.5.07, 28.6.07, 24.7.07

Cu – Cuckmere Haven downs (TV510973 & 521975): 18.4.03, (9.4.04), 23.8.03, 23.5.04, 17.6.05, 14.7.05, 11.4.07, 24.5.07

DD – Deep Dean (TQ538024): (30.7.88), 11.4.04, 30.8.04, 13.6.05, 3.5.06, 28.7.06, 12.4.07, 20.5.07

- De – Denton area (TQ462031): (21.5.04), 2.5.06, 26.7.06, 9.4.07, 26.6.07, 26.8.07, 21.5.08, 26.6.08
- FH – Friston Hill (TV549994): 26.8.03, 16.5.04, 16.4.05, 13.6.06, 21.7.07
- FF – Frog Firle (TQ511011): 20.4.03, 26.8.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06, 29.8.07
- LD – Lewes Downs (TQ429099): 11.4.04, 17.5.04, 29.8.04, 12.7.05, 12.6.06, 9.4.07
- LH – Lullington Heath (TQ544016): 20.4.03, 25.8.03, 12.4.04, 18.5.04, 10.7.05, 11.6.06, (12.4.07), 29.8.07, 18.5.08
- MC – Mount Caburn (TQ444089): (30.7.88), 19.5.04, 23.7.04, (12.4.05), 17.4.05, 18.6.05, 15.8.06, 19.5.08
- SH – Seaford Head (TV495980): 21.4.03, 18.5.04, 17.4.05, 11.4.07, 25.6.07, 22.7.07, 28.8.07, (29.8.07), 20.5.08, 23.6.08
- WD – Willingdon Downs (TQ579022): (31.7.88), 9.4.04, 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07



A map showing the fifteen study sites

The choice of sites enabled a good variety of open downland conditions to be investigated, including escarpments of differing steepness, height and orientation, coastal and non-coastal areas, grassland swards of different height and botanic character, grassland grazed variously by sheep, cattle, horses, goats and rabbits, chalk heath and other areas capped by non-calcareous and often leached deposits (e.g. sands of the Lenham Beds), plus downland adjacent to coastal levels, or cliffs, or arable, or woodland, or urban development. Surveys also included any

immediately adjacent arable field margins, set aside/fallow land and footpaths i.e. flowery areas likely to be supporting significant aculeate activity. The span of the dates allowed drought years (e.g. 2003) and post-drought years to be compared with much wetter years (e.g. 2007). The survey did not cover the interior of woodland, dense scrub, fully improved pasture or the interiors of arable fields. It also failed to cover any of the many small and isolated remnants of unimproved chalk grassland that are scattered widely over the Downs.

Results

Richness

227 species were recorded in total (see Appendix). Seaford Head produced the longest list (121 species) and also the best single day list (73 species on 22 July 2007). Friston Hill was the least productive site, only producing 69 species, and its best single day list (34 species on 21 July 2007) was also the shortest of the fifteen sites. Overall, there was a surprising equitability between sites, with most producing lists of between 90 and 110 species (see Table 1). The relative richness of sites varied across a year, and sites that were relatively poor in spring, could become amongst the richest sites in summer and vice versa, which demonstrates why site evaluation ideally needs to be based on samples from several dates across spring and summer (as carried out here).

Rarity

Falk (1991) was the last published list of rarity grades for aculeates and is now out of date. Publication of distribution maps for most British species by the Bee, Wasp and Ant Recording Society (BWARS) reveals that many species are less rare than previously thought (in many cases due to recent expansions in range), but some species are scarcer. This unstable situation creates difficulties in assembling rarity values for sites. However it is clear that many scarce and rare species are present on the Downs (indicated in the Appendix). The list includes two Red Data Book Category 1 (RDB1) species (*Anthophora retusa* and *Halictus eurygnathus*), six RDB2 species (*Andrena niveata*, *Chrysis gracillima*, *Nomada conjungens*, *Nomada signata*, *Philanthus triangulum* and *Sphecodes spinulosus* and nine RDB3 and RDB K species (*Andrena hattorfiana*, *Andrena nitidiuscula*, *Andrena proxima*, *Ceratina cyanea*, *Diodontus insidiosus*, *Dolichovespula saxonica*, *Nomada fulvicornis*, *Sphecodes niger* and *Stelis ornatula*). This should be qualified by stating that *P. triangulum* and *D. saxonica* have spread so dramatically in recent years that they no longer warrant any rarity status, and species such as *A. proxima*, *S. niger* and *D. insidiosus* are better considered as Nationally Scarce today.

A further 41 species currently afforded Nationally Scarce status were also recorded, plus several further species that seem to require adding to this category such as *Astata boops* and its parasite *Hedychridium roseum*. Records of species such as *Andrena cineraria* and *Dolichovespula norwegica*, which are not considered rare nationally, were also significant in a Sussex and S.E. England context. *Bombus humilis* and *B. ruderarius* are UK Biodiversity Action Plan priority species. In terms of the relative value of different sites for scarce species, Cuckmere Haven, Denton

Downs and Mount Caburn each produced lists of 23 RDB and Nationally Scarce species, whilst Friston Hill produced a list of only nine. But as in richness, there was a general similarity between most sites (see Table 1).

Halictus eurygnathus was the most significant of the rare species encountered in that it had been considered extinct in Britain (graded as RDB1*). The encounter of a female on the Lewes Downs in 17th May 2004 was the first record since 1946, and it was subsequently found at six further sites, with some strong populations discovered at places like Denton, Beachy Head and Mount Caburn.



Halictus eurygnathus (female left, male right) had been considered extinct in Britain but was rediscovered at seven sites. It forages primarily on Greater Knapweed.

Habitat indicators

All sites produced respectable suites of calcicolous species that are heavily reliant upon chalk and limestone geology when considered nationally (see Table 1). This includes species such as *Andrena hattorfiana*, *A. minutuloides*, *Halictus eurygnathus*, *Hoplitis spinulosa*, *Hylaeus annularis*, *Lasioglossum fulvicorne*, *Melitta tricincta*, *Osmia bicolor* and to a lesser extent species like *Andrena bucephala*, *A. fulvago*, *A. nitidiuscula*, *Arachnospila minutula*, *Hylaeus cornutus*, *H. signatus*, *Lasioglossum laevigatum*, *Odynerus melanocephalus*, *Osmia aurulenta* and *Priocnemis agilis*. It is noteworthy that the poorest site for calcicoles (Seaford Head) was the richest site overall, though high quality chalk grassland is rather restricted here due to sandy head deposits, extensive scrub and the presence of a large golf course. The richest sites for calcicoles (Castle Hill, Deep Dean, Lewes Downs and Mount Caburn) are all characterised by particularly extensive, south-facing chalk grassland.

Several sites also produced a number of psammophilous (sand-loving) species that are almost certainly restricted to parts of the Downs with thicker cappings of sand or sandy-clay. This includes species such as *Andrena barbilabris*, *Anthophora bimaculata*, *A. retusa*, *Cerceris arenaria*, *Colletes daviesanus*, *C. succinctus*, *Crossocerus quadrimaculata*, *Dasygaster hirtipes*, *Diodontus insidiosus*, *D. minutus*, *Episyron rufipes*, *Harpactus tumidus*, *Mellinus arvensis*, *Oxybelus uniglumis*, *Philanthus triangulum* and *Tachysphex pompiliformis* plus three associated

cleptoparasites, *Coelioxys rufescens*, *Epeolus variegatus* and *Sphecodes pellucidus*. The number of these psammophiles recorded at each site is also shown in Table 1. Seaford Head was the best assemblage with 17 species, followed by the Hope Gap area of Cuckmere Haven with 10 species, and Birling Gap with 8 species. At Seaford Head, sandy habitat is provided both by cliff-top superficial deposits plus exposures of sandy ground in more sheltered areas away from the coastline (including a small sand face). At Cuckmere Haven and Birling Gap, sandy habitat is restricted to the rather exposed cliff tops.

The encounter with the heathland specialist *Colletes succinctus* at Birling Gap was a surprise, given the small area of the chalk heath here, and the fact that it was unrecorded at Lullington Heath, which looked eminently more suited to it. *Bombus jonellus*, the 'Heath Bumblebee', is also strongly associated with heathland and moorland when considered nationally and was seen in numbers on Bell Heather at Lullington Heath. However, it can colonise sites without heathers, often using Wild Thyme in its place, a situation that was evident at Black Cap, and also observed by the author at various other coastal sites in southern Britain.

Table 1. The total number of species recorded at each site (# spp), the best daily catch for each site plus date (BDC), the total number of Red Data Book and Nationally Scarce species recorded at each site (# scarcer spp), the total number of calcicoles (# Calc) and psammophiles (# Psamm) recorded at each site.

Site	# spp	BDC	# scarcer spp	# Calc	# Psamm
BC	117	60 (16.6.06)	21	9	0
BG	94	67 (24.7.06)	22	9	8
BH	94	56 (22.7.04)	16	9	0
CH	94	59 (24.7.04)	19	12	0
Cr	106	62 (24.7.07)	18	9	2
Cu	104	52 (24.5.07)	24	7	10
DD	88	51 (20.5.07)	17	12	0
De	94	48 (26.7.06)	23	11	1
FF	90	58 (25.7.06)	18	9	0
FH	69	34 (21.7.07)	9	8	0
LD	88	49 (12.6.06)	20	12	0
LH	102	53 (10.7.05)	14	8	1
MC	107	55 (15.8.06)	23	13	0
SH	121	73 (22.7.07)	20	5	17
WD	84	46 (13.7.05)	13	6	0



Superficial deposits of sands, gravels and clays can mask the underlying chalk in various parts of the Downs (cliff top near Seaford Head, top left) and promote the presence of psammophilous species such as *Andrena barbilabris* (middle left), *Anthophora bimaculata* (middle right) and *Cerceris arenaria* (bottom left). Fully developed chalk heath can develop on these deposits, notably at Lullington Heath and Birling Gap (top right) creating a valuable habitat for bees and wasps including heathland specialists like *Colletes succinctus* (bottom right).

Discussion

The South Downs of East Sussex support a rich and important bee and wasp fauna. The individual sites are not as rich as the best southern heathlands or the best chalk heath sites of East Anglia, but are still amongst the richest calcareous sites in Britain and seem to support nationally important holdings of several rare species, notably *Halictus eurygnathus*, *Anthophora retusa* and *Andrena niveata*. A number of factors are clearly affecting the quality and character of the bee and wasp assemblages here, and understanding these can bring about more informed decisions on how to conserve them.

Site size and structural variation in the vegetation

No single site stood out as being significantly better than the others, but the richest ones tended to have the largest and most varied provision of semi-natural grassland, typically with a variety of soil and other vegetation types such as scrub and tall herb, as exemplified by Seaford Head, Cuckmere Haven (Hope Gap side) and Cradle Hill. The least rich sites were found to be the more heavily and extensively sheep-grazed scarps with relatively little habitat diversity e.g. Willingdon Downs, Deep Dean and the Lewes Downs, or conversely, large expanses of tall rank grassland with relatively little structural variation or associated topography e.g. Friston Hill. But the less rich sites could still support important assemblages of rare species, with the Lewes Downs emerging as one of the better sites for rarer species and sites like Deep Dean being one of the best sites for calcicoles. It is possible that if more of the smaller and more isolated patches of chalk grassland had been studied, a correlation between site size, site isolation and aculeate species richness could have been established. The work on aerial nesting bees and wasps and their parasites carried out in Germany (Tscharntke et. al., 2003) reveals that small and isolated patches of chalk grassland supported fewer species, especially of cleptoparasitic aculeates. It also showed that scrub and trees within open downland were crucial for supporting good assemblages of aerial nesters, an observation supported by this survey.

Aspect and topography

Traditionally, it had always been considered that south-facing slopes were 'better' for bees and wasps than north-facing ones, reflecting the thermophilic nature of these insects. The data from this survey reveals that this is not strictly the case on the South Downs. Well grazed, south-facing hillsides such as Frog Firl and Deep Dean were observed to become too drought-struck and xeric by late summer (or earlier in a drought year) to support a diverse fauna throughout the season. What is more, north-facing sites such as Cradle Hill, Seaford Head and Black Cap are exceptionally flower-rich and may be attracting foraging aculeates from nesting areas elsewhere. North-facing slopes often have topography such as fairly flat lower sections, plateaus, tracks, coombs or topography associated with former quarrying, that allows some parts to receive greater insolation. But it is clear that many species do prefer to nest on warm, south-facing slopes, and are much more abundant here than north-facing ones e.g. *Lasioglossum morio* and *L. pauxillum*, most *Sphcodes* and most pompilids (including the scarce *Aporus unicolor*).



The north-facing, floristically diverse escarpment of Cradle Hill (left) is just as rich as the nearby south-facing slope of Frog Firle (right) and is less prone to becoming drought-struck.

At all downland sites, topography and aspect is important in providing areas of shelter from winds. Strong winds suppress aculeate activity dramatically on the Downs. On a fairly average summer day with what might be judged to be a gentle prevailing wind from the west, the cliff tops of Seaford Head can be quite windswept, making it difficult to record more than 15-20 species, whilst more sheltered areas downslope might be producing 50 species. Likewise at Mount Caburn, the top of the hill is usually far less productive than the lower slopes. But summits of hills can occasionally provide good results, because important forage plants may flower two to three week later here than in sheltered locations at low altitude and become a magnet for local insect activity on certain days. On 23rd July 2004, a very extensive patch of flowering Hogweed at the top of Mount Caburn yielded a very good catch on the NE side of the summit where it was protected from the prevailing breeze. The Hogweed at the foot of the hill and in most of the surrounding countryside had already gone over by this point. As a recorder, it is important to locate the more sheltered and insolated parts of a site to ensure that you maximise recording efficiency. You need to be aware of the ways in which topography and sun position influence insect activity.

The effects of hot and wet springs and summers

Drought summers (e.g. 2003) had a profound impact on the bees and wasps of the Downs, reducing both the numbers of species and of individuals found, with many important forage plants tending to wilt early. As an example, in August 2003, a visit to Lullington Heath on the 25th produced only 18 species, a visit to Frog Firle on the 26th also produced only 18 species, and a visit to Friston Hill later that day produced only 15 species. These were the lowest August one day scores of the six-year survey. By contrast, the Augusts of 2006 and 2007 produced dramatically better lists as a consequence of much greater rainfall and much larger quantities of flowers throughout the month. Mount Caburn, for instance, produced a list of 55 species on the 15th August 2006 whilst Beachy Head produced a list of 46 species on the following day.

Spring weather is equally critical. 2005 saw a very cold mid-April, delaying the peaking of the Blackthorn blossom and dramatically suppressing aculeate activity. A

visit to Mount Caburn on a partially sunny, but cold (c 9 degrees Celsius) and breezy day on April 12th produced only 9 species. A visit to the same part of the site on a much finer day five days later (c 15 degrees) produced a very impressive 40 species. 2007 produced a particularly good spring with many days of warm sunny weather coinciding with the peak of the Blackthorn blossom and resulted in good samples of bees and wasps from several sites. Most sites were subject to two or three April visits to compensate for the vagaries of the weather.

Surrounding habitats

In spite of the losses of chalk grassland to intensive agriculture and the contraction in the range of much downland wildlife that has inevitably followed, the farmland surrounding, or near to, semi-natural chalk grasslands can still contribute positively to the potential of those grasslands to support rich bee and wasp assemblages. In spring, many species that are probably nesting within semi-natural grasslands designated as Sites of Special Scientific Interest or National Nature Reserves are actually foraging outside of those designated areas on Blackthorn and Hawthorn-rich hedges, flowery fallow land and waysides (especially those with plentiful dandelions, hawk's-beards, Cow Parsley, Alexanders, buttercups and Germander Speedwell) and even relatively improved pasture with buttercups and Daisy. There is even ample evidence from this survey that flowering Rape is a major source of spring nectar and pollen for many species (particularly *Bombus* and *Andrena*). The semi-natural grasslands, by contrast, are often conspicuously lacking in flowers in spring other than Blackthorn, Common Gorse and Cowslip (the last not being an especially important forage plant).

By summer, semi-natural grasslands are much more flowery, but bees still continue to supplement their foraging here with visits to flower-rich areas elsewhere. Wild flowers at crop margins and within fallow land support much bee activity, especially mayweeds/chamomiles, thistles, knapweeds, ragworts, poppies, Charlock, Hedge-mustard, Hogweed, Hemlock and vetches. Footpaths and hedge margins can also be very flowery often supporting good quantities of plants like Bramble, Hogweed, Upright Hedge-parsley, Wild Parsnip, burdocks and Field Scabious that are scarce elsewhere. Woodland and scrub blocks in the vicinity of chalk grassland are likely to furnish valuable forage plants such as Blackthorn, Hawthorn, Goat Willow, Field Maple, Common Whitebeam, Dogwood and Wayfaring Tree. Woodland, scrub and Bramble in the vicinity of chalk grassland also provide the dead wood and hollow twigs required by aerial-nesting species. This helps to explain why sites like Black Cap and Seaford Head had relatively high numbers of aerial nesting species.

Grazing marsh and coastal habitats such as saltmarsh, vegetated shingle, maritime cliffs and coastal grassland can also interplay with downland, and influence species-richness. There is a strong likelihood that careful management of sites surrounding chalk downland, using approaches such as Higher Level Stewardship, will improve the biodiversity of bees and wasps on the chalk downs generally and also adjacent levels and lower-lying farmland to the north.



Examples of valuable bee and wasp habitats that can occur alongside semi-natural chalk grassland and influence its assemblages: rested pasture with a huge bloom of Beaked Hawk's-beard at Castle Hill (top left), a very flowery arable margin near Denton (top right), a Hogweed patch beside Seaford Golf Course (bottom left) and vegetated shingle, Cuckmere Haven (bottom right).

Site management

A variety of techniques are used to manage the fifteen sites. Periodic grazing is the traditional approach. The choice of grazing species, the stocking density, the timing of the grazing, and the history of grazing, can all affect the structure of the grassland swards and the relative abundance of different flowers or microhabitats used by bees and wasps for flower-visiting, hunting and nesting. Intense summer sheep grazing was often found to suppress the abundance and variety of key flowers and to promote xeric conditions on south-facing slopes by late summer (e.g. the CG1 grassland at Deep Dean, Frog Firle and the Lewes Downs). Intensive horse-grazing resulted in similar conditions on flatter areas (e.g. parts of the Denton Downs). Some flowers such as Horseshoe Vetch, Common Bird's-foot Trefoil, Red Bartsia, Common Ragwort, Creeping Thistle, buttercups, Daisy and Germander Speedwell can cope with fairly heavy grazing. But heavy grazing of south-facing slopes does seem to improve nesting conditions for many ground-nesting species and spider-hunting pompilids.

Cattle grazing at sites like Frog Firle and Mount Caburn was observed to promote more tussocky and heterogenous swards, often with greater numbers of plants like

Oxeye Daisy, thistles, knapweeds, ragworts, mignonettes, clovers and hawkish Asteraceae. Flowery tall herb seems to survive better under moderate levels of cattle grazing (e.g. on parts of Mount Caburn) than moderate levels of sheep or horse grazing. Goat grazing and browsing is employed within parts of Lullington Heath and seems to dramatically suppress Tor-grass and encroaching scrub.



Lullington Heath NNR is subject to grazing by a variety of stock including Exmoor ponies (left). This keeps scrub in check and promotes chalk heath and a variety of grassland types. Rabbit activity can also diversify grassland swards, and the disturbed ground around warrens can result in valuable patches of flowers like Ground-ivy (right).

Rabbit grazing was the only permanent grazing at some sites and has the benefit of creating patches of very short-grazed turf within a matrix of longer grassland, plus promoting the presence of bare ground through burrowing and scraping activity. Much aculeate nesting was observed around rabbit warrens, and spider wasp activity seemed to be especially high in rabbit grazed areas, possibly because such areas support higher spider densities and hotter microclimates. Long-established rabbit warrens can also produce pockets of high floristic richness with an abundance of valuable plants such as Ground-ivy, Viper's Bugloss, mignonettes, speedwells, forget-me-nots, Hound's-tongue, Wintercress, Common Ragwort, Slender Thistle and Elder.

Overall, it seems that there is no single perfect way of grazing a site for the benefit of bees and wasps, but that an approach which promotes a varied sward with reasonable quantities of key forage plants and nesting areas is the best strategy. Compartmentalising sites with temporary fencing and experimenting with different timings and intensities of grazing already happens at a number of the sites surveyed, and the author was able to make some observations. One of the most interesting observations took place in a series of small horse enclosures on the Downs immediately east of Denton village (TQ4596/0286). Some of these seem to be regularly rested from grazing for periods varying from several months to 1-2 years. They proved to be exceptionally productive with some of the densest stands of key forage plants such as Common Bird's-foot Trefoil, mignonettes, hawkish Asteraceae, knapweeds, Wild Carrot and Burnet-saxifrage seen anywhere on the Downs. One of the strongest populations of the RDB1 *Halictus eurygnathus* is present here and the number of scarce species was well above average for the

Downs. But the re-introduction of intense summer grazing was observed to quickly reduce the value of a paddock. Finding ways of releasing more patches of downland from stock grazing for relatively short periods in summer could be a good way of promoting bee and wasp numbers locally.

At sites with high amenity value such as Beachy Head and Seaford Head, mowing is used in place of grazing. Where done sensitively, using well-timed cuts and differential patterns of mowing (cutting some areas just annually whilst other areas are cut more frequently), a variety of sward heights can be created, and the abundance of various key plant species can be manipulated. Much of it is already done with the needs of butterflies in mind (especially blues) and this seems to cater for the general needs of downland bees and wasps pretty well, with high diversity of bees and wasps being loosely correlated with high butterfly diversity. However, it was felt that mowing of the Beachy Head area was over-zealous in places (particularly alongside the Seaford-Birling Gap road) and was compromising the capacity of the Downs here to support high quality chalk grassland.

In spite of grazing and cutting, scrub encroachment by species such as Blackthorn, Hawthorn, Gorse and Ash was still observed to be a local problem. At many sites it was being tackled by regular scrub cutting, typically on a piecemeal basis. This ensured that valuable spring blossom was available to early-flying bees and wasps, and scrub foliage for predatory crabronine wasps. Tor-grass was also observed to be another insidious invader of chalk grasslands that smothers out flower-rich areas and nesting sites. Subjecting Tor-grass to intense cattle or goat grazing, applying glyphosate, and nutrient stripping affected areas are some of the options available for suppressing it and retrieving valuable bee and wasp habitat (see Hurst & John, 1999).

Floristic diversity and the abundance of important plants

Chalk grassland is exceptionally rich botanically with over 50 species of flowering plant per square metre at its best. In their German studies, Tscharntke et. al. (2003) found that “species richness and abundance of bees were closely related to plant species richness of the habitat, a measure of the bees' food resource”. The Sussex survey did not carry out systematic counts of the plant species present to test this assertion properly, though it is clear that parts of some sites with either fewer flowers, or fewer ‘key flowers’ tended to yield fewer species. Species numbers rose dramatically when key forage plants became abundant, **but not necessarily within a botanically-rich setting**. Good stands of umbellifers such as Cow Parsley, Hogweed and Wild Parsnip for example can attract 30-40 species of bee and wasp but are often located at marginal parts of a site where fertility is somewhat elevated and the flora is less interesting botanically. Many other flowers present on the Downs, including orchids and rarities such as Round-headed Rampion and Nottingham Catchfly attract relatively few species of bee and wasp. The relationship of bee and wasp richness to botanical richness is a complex issue that needs more detailed investigation, because a botanist's view of ideal downland varies somewhat from a hymenopterist's, and defining conservation priorities purely on the basis of rare plants or key plant communities may actually damage important assemblages of bees, wasps and other invertebrates.

What is clear is that certain flowers are particularly important for aculeate foraging on the South Downs. The following list attempts to act as a summary of the more important floral associations noted in this survey (in botanical taxonomic sequence):

- **Buttercups:** Very attractive to *Andrena*, *Lasioglossum*, *Halictus* and *Nomada* species in late spring and early summer.
- **Violets:** Particularly attractive to *Osmia bicolor* in spring.
- **Yellow-flowered crucifers** (e.g. Charlock, Hedge Mustard and Rape): Attractive to *Bombus* and *Andrena* species in spring. On the Downs, the RDB2 *Andrena niveata* seems to carry out all of its foraging on such plants, especially Charlock and Hedge Mustard growing at the edge of arable fields (it uses white-flowered crucifers elsewhere).
- **Mignonettes** (Wild Mignonette and Weld): much visited by *Hylaeus*, *Ancistrocerus* and *Andrena* species, with *Hylaeus signatus* obtaining most if not all of its pollen from the two mignonette species.
- **Heathers** (mostly Bell Heather plus a little Ling): The bee *Colletes succinctus* typically obtains all its pollen from heathers and was recorded from chalk heath at Birling Gap. Heathers are also very attractive to *Bombus* species, especially *B. lucorum* and *B. jonellus*, species of *Lasioglossum*, *Halictus* and *Sphecodes*, also bee predators such as *Philanthus triangulum* and *Cerceris rybyensis*.
- **Hawthorn and roses:** These widely replace Blackthorn as important flowering shrubs in May and attract many of the same sorts of species, though early-flying mining bees like *Andrena trimmerana* and *A. varians* are replaced by the later-flying *A. fucata*, *A. helvola*, *A. synadelpha* and *A. chrysoceles*. Hawthorn (and Field Maple) is important for the scarce *Andrena bucephala*. Roses produce hollow twigs that are important nesting sites for various aerial-nesting species.
- **Brambles:** Attractive to many types of bee including species of *Bombus*, *Andrena*, *Lasioglossum*, *Halictus* and *Megachile*. Brambles also produce hollow twigs that are important nesting sites for various aerial-nesting species.
- **Blackthorn and other *Prunus*:** Blackthorn is by far the most important April blossom on the Downs, attracting the queens of *Bombus*, *Vespula* and *Dolichovespula*, thirteen of the listed *Andrena* species, plus their associated *Nomada* cleptoparasites, a number of early emerging *Lasioglossum* species, *Halictus tumulorum*, *Osmia bicolor* and *Anthophora plumipes*. It is an almost exclusive forage plants for Downland populations of *Andrena varians* and the first generation of *Andrena trimmerana*. Wild Cherry and Wild Plum, which flower at a similar time to Blackthorn and occur at a few sites, are probably attracting many of the same species.
- **Bird's-foot-trefoils, Kidney Vetch and Horseshoe Vetch:** Very important for a suite of legume-loving species including *Andrena labialis*, *A. wilkella*, *A. ovatula*, *Osmia aurulenta* and *Hoplitis claviventris*, and also much used by *Bombus* species (including the scarce *B. humilis*), the RDB1 *Anthophora retusa*, *Osmia bicolor* and certain *Megachile* species. *Vicia* vetches and restharrow attract some of the same bees.

- **Clovers and Medicks:** White and Red Clovers are important for *Melitta leporina* and *Bombus* species. Smaller clovers and Black Medick are much used by smaller *Lasioglossum* species, and supports the weevil larvae required by the scarce mason wasp *Odynerus melanocephalus*. Melilots seem to attract similar species to medicks.
- **Gorse:** The blossom is very attractive to queens and early workers of *Bombus*, plus various *Andrena* species. The males of *A. haemorrhoea*, *A. carantonica*, *A. trimmerana*, *A. nigroaenea* and *A. ovatula* frequently swarm around blossoming gorse bushes, and *A. ovatula* is especially dependent upon it as a pollen source for its first generation.
- **Rosebay willowherb:** Important for species of *Bombus*, certain *Megachile* and *Anthophora bimaculata* in mid to late summer.
- **Umbellifers** (Alexanders, Cow Parsley, Hogweed, Wild Carrot, Wild Parsnip, Hemlock, Upright Hedge-parsley and Burnet-saxifrage): These are exceptionally important forage plants, attracting very large numbers of aculeates of many sorts and substantially increasing the richness of a site. They probably act as a nectar source for most species, though a number of scarce bees specialise in collecting umbellifer pollen, including *Andrena minutuloides*, *A. proxima*, *A. nitidiuscula* and *Hylaeus cornutus*. Umbellifer flowers are a good place to search for crabronine wasps such as *Ectemnius*, *Crossocerus*, *Astata* and *Gorytes* species, pompilids, chrysidids and male *Dolichovespula* species. Alexanders is the first of the umbellifers to flower (April and May), followed by Cow Parsley (May and June), Hogweed and Upright Hedge-parsley (June and July) and Wild Carrot and Wild Parsnip (late June to August). The flowers of umbellifers at the tops of the Downs often peak several weeks later than those in sheltered locations at low altitude.
- **Viper's-bugloss and Hound's-tongue:** Very popular with bumblebees and also major forage plants for the RDB1 *Anthophora retusa* during its quite long flight period, plus the smaller *A. bimaculata*.
- **Ground-ivy and dead-nettles:** Ground-ivy and White Dead-nettle are important forage plants for queen *Bombus* in spring. Ground-ivy patches are the easiest places to detect queens of the scarce *B. ruderarius*, and also visited by *Anthophora plumipes*, males of the the RDB1 *A. retusa* and various *Lasioglossum*, *Andrena* and *Nomada* species. It can continue flowering well into summer. Red Dead-nettle is also used by queen *Bombus* and *A. plumipes*.
- **Marjoram, thymes and Wild Basil:** Very attractive to *Bombus* and *Lasioglossum* species.
- **Black Horehound:** Important for *Anthophora quadrimaculata*, *A. furcata*, *A. bimaculata* and *Anthidium manicatum*, and popular with certain *Bombus* species.
- **Red Bartsia:** The exclusive forage plant for the scarce *Melitta tricincta* (which can be locally abundant at some of the sites here) and popular with *Bombus* workers.
- **Speedwells:** Germander Speedwell, which is abundant in spring, seems to attract a variety of *Lasioglossum* species, and is also a major pollen source for the scarce *Andrena labiata*.

- **Bellflowers:** The pollen sources for *Chelostoma campanularum* and *Melitta haemorrhoidalis*. To date, these bees have only been found on the Downs in association with Harebell, though Clustered Bellflower is available to them at various sites.
- **Bedstraws:** Much favoured by *Lasioglossum* and *Halictus* species.
- **Elder:** Not especially important as a forage plant, but producing hollow twigs that are important nesting sites for various species. The foliage is also a magnet for aphid-hunting crabronids such as *Crossocerus* and *Pemphredon*.
- **Teasel:** Much favoured by *Bombus* species.
- **Scabioues** (Field Scabious, Small Scabious and Devil's-bit Scabious): Very attractive to a variety of bees, but most notably the RDB3 *Andrena hattorfiana*, which prefers Field Scabious. Devil's-bit Scabious is a major forage plant for bees in late summer (late August into September) and is often the main forage plant for the scarce *Andrena marginata* which has been recorded from the Downs historically but was not refound by this survey.
- **Daisy, chamomile types and Yarrow:** Attractive to many bees including species of *Lasioglossum*, *Sphecodes*, *Halictus*, *Colletes* and *Hoplitis spinulosa*.
- **Ragworts:** These attract a good variety of aculeates including various species of *Colletes*, *Andrena* (notably *A. denticulata*, *A. nigriceps* and *A. flavipes*), *Lasioglossum* and *Sphecodes*.
- **Knapweeds:** Greater Knapweed seems to be the main pollen source for the RDB1 *Halictus eurygnathus*, but both Greater and Common Knapweed attracted a good deal of foraging, especially by *Bombus* (including the scarce *B. humilis*), *Hoplitis spinulosa*, *Megachile* species and larger *Lasioglossum* species.
- **Thistles and burdocks:** All species of thistle are visited by a variety of species and are a major pollen source for *Megachile ligniseca* and *Osmia leaiana*. Musk Thistle and Spear Thistle are much used by fresh *Bombus* queens in late summer, and sweeping Creeping Thistle in July and August has produced the males of up to nine *Sphecodes* species on a single visit (Castle Hill 24 July 2004). Burdocks seem to attract similar species.
- **Hawkish Asteraceae** (including dandelions, hawkweeds, hawk's-beards, hawkbits, Common Cat's-ear, sow-thistles and Prickly Oxtongue): Vitally important from spring until late summer. Plants in this category are particularly important forage plants for *Andrena fulvago*, *A. humilis* and *Dasypoda hirtipes* and are clearly also much used by other *Andrena* species, various *Lasioglossum* and *Halictus* species, *Hoplitis spinulosa* and *Anthophora bimaculata*.

Further species recorded from the East Sussex South Downs historically

The following list has been assembled using the various BWARS atlases plus information used to produce the national review of scarce and threatened bees, wasps and ants (Falk, 1991). Further data may be available from the Sussex Biodiversity Records Centre and the National Biodiversity Network.

Ancistrocerus parietinus - BWARS Atlas 2

Ancistrocerus scoticus - BWARS Atlas 2
Andrena ferox - BWARS Atlas 4 (associated with oak woodland not downland)
Andrena marginata - BWARS Atlas 3, numerous old records for Downs until 1980s
Andrena praecox - BWARS Atlas 4 (requires willows)
Andrena pilipes – Ovingdean 1800s, modern records for Newhaven and Cuckmere Haven levels (not covered by this survey)
Bombus cullumanus – Seaford, 1920s (Mortimer, 1922, Nevison, 1923) now considered long-extinct in Britain and internationally endangered
Bombus ruderatus - BWARS Autumn 2006, Ovingdean 1940s, Bevingdean 1920s
Bombus subterraneus - Ovingdean, several records 1940s, now considered extinct in Britain but subject of re-introduction trials in Kent
Bombus sylvarum - BWARS Atlas 3, Ovingdean, several records 1940s, Lewes & Alfriston, both 1967
Chrysis mediata - BWARS Spring 2006
Chrysurans radicans - BWARS Atlas 4
Crabro peltarius - BWARS Atlas 1
Crossocerus pusillus - BWARS Autumn 2007
Ectemnius dives - BWARS Atlas 2
Lasioglossum cupromicans - BWARS Atlas 5
Lasioglossum fratellum - BWARS Atlas 6 (typically on heathland and acid grassland rather than chalk grassland)
Lasioglossum nitidiusculum - BWARS Spring 2006 (an old record)
Macropis europaea - BWARS Atlas 2 (a wetland species still present in the levels adjacent to downland)
Megachile centuncularis - BWARS Spring 2008
Monosapyga clavicornis - BWARS Atlas 2
Nomada argentata - BWARS Atlas 3, Castle Hill until 1970s
Omalus violaceus - BWARS Atlas 5
Osmia xanthomelana - BWARS Atlas 1 (cliffs with seepages, almost certainly extinct in Sussex)
Pemphredon morio - BWARS Spring 2008
Sphecodes reticulatus - BWARS Atlas 6
Stelis punctulatissima - BWARS Atlas 1
Stigmus pendulus - BWARS Atlas 6

Recommendations for further studies

This paper invites more detailed and systematic studies of the bees and wasps on the South Downs, specifically:

- More detailed studies of the effects of habitat management on bee and wasp assemblages on chalk grassland like those carried out for beetles at Salisbury Plain (Woodcock et.al., 2005), for Homoptera and Coleoptera (Morris, 1969, 1971, 1973, 1990 etc.) and for certain butterflies (e.g. Butterflies Under Threat Team, 1986; Thomas, 1990).
- Autecological studies of individual bee and wasp species, especially the rarest ones.

- Corresponding pollination studies of the flowers known to attract bees and wasps, examining the relationship between bee and wasp diversity and general floristic diversity, and the effects of habitat isolation and fragmentation, like the work carried out in Germany (Tschamntke et. al., 2003).
- Searches for additional populations of scarce species that seem especially vulnerable on the Downs today (notably *Anthophora retusa* and *Andrena hattorfiana*), or scarce species historically known to exist on the Downs but not found by this survey (e.g. *Andrena marginata* and its parasite *Nomada argentata*, *Bombus sylvarum*, *B. subterraneus* and *B. cullumanus*). Checking collections and literature for historical data that can shed further information on any declines or increases in the bee and wasp fauna of the Downs.
- Examining the extent to which wild bee populations on chalk grassland contribute to the pollination of nearby arable crops such as Rape, in addition to that achieved by hive bees.
- Carrying out further audit surveys of sites not covered here, including some relatively large sites in West Sussex, plus the many small and isolated patches of chalk grassland that exist throughout the Downs.
- Comparing the bee and wasp fauna of the Sussex Downs with chalk grassland in other parts of Britain e.g. the North Downs, Dorset, the Isle of Wight and the Chilterns, to investigate whether distinctions exist in relation to the presence or absence of species, the relative abundance of species, and the ecology of the species within chalk grassland (e.g. flower preferences). Data seen for the Kent and Surrey North Downs and the Isle of Wight suggests all three distinctions are at play (see Allen, 2009, Baldock, 2008 & 2010; Wright, 2004).
- Checking historical data for Sussex to glean further information on changes to the bee and wasp fauna.

All such studies should attempt to inform the Sussex Biodiversity Action Plan process (see: www.biodiversitysussex.org/chalkgrass.htm), the South Downs Management Plan 2008-2013, and the various agencies, authorities, trusts and site owners who undertake management of chalk grassland and chalk heath in East Sussex and beyond. Some of the recommended studies would be ideal for postgraduate students based at Sussex University.

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Appendix

A list of bees and wasps recorded from fifteen sites in the East Sussex South Downs. Species are arranged alphabetically within alphabetically-arranged families. Sites and dates of capture are given, and field notes are attached to some dates. Comments summarise the status and ecology of each species, **considered in a South Downs context**, and also provide any national rarity status.

Apidae (bees)

***Andrena barbilabris* (Kirby)**

Cr 28.6.07,

SH 21.4.03, 18.5.04, 23.6.08

Comments: 2 sites, 4 records. Highly restricted with a strong nesting aggregation located in eroding head deposits at Seaford Head (near the Kittiwake colony), where suitable forage plants include hawkish Asteraceae and Wild Carrot. Cradle Hill does not seem especially suited to it and this specimen may have been a wanderer. This is the special host of the cuckoo-bee *Sphexodes pellucidus*. All the following *Andrena* species are ground-nesters.

***Andrena bicolor* (Fabricius)**

BC 11.4.05, 10.4.07, 28.7.07

BH 22.4.03, 22.7.04

CH 22.5.04, 24.7.04, 11.4.05, 11.7.05

Cr 22.5.04, 8.4.07, 19.5.07, 28.6.07, 24.7.07

Cu 18.4.03, 14.7.05

DD 3.5.06, 28.7.06, 12.4.07

De 2.5.06, 9.4.07, 26.6.08

FF 12.4.04, 16.5.04, 25.7.06

FH 16.4.05, 21.7.07

LD 11.4.04, 9.4.07

LH 10.7.05, 18.5.08

MC 19.5.04, 23.7.04, 17.4.05, 18.6.05, 19.5.08

SH 11.4.07

WD 9.4.04, 12.4.07 (also on Rape)

Comments: 14 sites, 39 records. A frequent bivoltine species (only unrecorded at Birling Gap). Spring females visit Blackthorn and a range of herbs, including hawkish Asteraceae (especially dandelions) and flowering Rape in adjacent farmland. Summer females are particularly fond of White Bryony.

***Andrena bucephala* (Stephens)**

LH 18.5.08 (Hawthorn)

MC 19.5.04, 17.4.05

Comments: 2 sites, 3 records. A scarce mid-spring species with females that forage mainly on shrubs such as Hawthorn and Field Maple. **Nationally Scarce**.

***Andrena carantonica* Pérez (= *scotica* Perkins)**

BC 19.5.04, 10.4.07, 23.5.07, 28.7.07

BG 22.4.03, 15.6.06

BH 22.4.03, 23.5.04, 16.4.05, 14.6.05, 11.4.07

CH 22.5.04, 11.4.05

Cr 8.4.07, 19.5.07

Cu 18.4.03, 23.5.04, 11.4.07

DD 11.4.04, 3.5.06, 12.4.07, 20.5.07

De 21.5.04 (common on hawk's-beards), 2.5.06 (common), 9.4.07, 21.5.08

FF 12.4.04, 16.5.04

FH 16.4.05

LD 11.4.04, 17.5.04, 12.7.05, 12.6.06 (many fresh males swarming), 9.4.07

LH 20.4.03, 12.4.04, 18.5.04, 18.5.08

MC 12.4.05, 17.4.05, 19.5.08

SH 17.4.05, 11.4.07, 20.5.08
WD 9.4.04, 17.5.04, 12.4.07

Comments: 15 sites, 47 records. The most abundant of the large spring mining bees, particularly on Blackthorn and early composites. It can produce a partial second generation (noted at Black Cap and the Lewes Downs), though there is some uncertainty over the taxonomic status of this second generation, as the abundance of new males at the Lewes Downs on 12.6.06 is more suggestive a univoltine population (which the author has suspected of some Cornish and Devon populations).



Four of the larger spring-flying mining bees of the Downs, *Andrena nigroaenea* (top left), *A. pubescens* (top right), *A. fulva* (bottom left) and *A. cineraria* (bottom right). They nest in short turf and banks exposed to the sun and forage heavily from Blackthorn and other *Prunus* species, dandelions, hawk's-beards, early umbellifers and also flowering Rape in arable areas. Each one is attacked by a species of nomad bee (see *Nomada*).

***Andrena chrysoceles* (Kirby)**

Cr 19.5.07
Cu 17.6.05
MC 17.4.05, 18.6.05
SH 20.5.08

Comments: 4 sites, 5 records. Rather scarce. It forages on a wide variety of spring flowers including Common Hawthorn, umbellifers like Cow Parsley, and crucifers.

***Andrena cineraria* (Linnaeus)**

FH 13.6.06 (one female)
LH 18.5.08 (a small colony along a footpath beside Friston Forest)

Comments: 2 sites, 2 records. Scarce on the Downs (it prefers central and west Britain).

***Andrena denticulata* (Kirby)**

CH 24.7.04

DD 28.7.06

LH 10.7.05 (esp. on ragworts),

Comments: 3 sites, 3 records. Scarce. It forages on various Asteraceae, notably ragworts, thistles and knapweeds.

***Andrena dorsata* (Kirby)**

BC 11.4.05 (abundant), 10.4.07, 28.7.07

BG 15.4.05, 24.7.06

BH 22.4.03, 22.7.04, 16.4.05, 11.4.07

CH 22.5.04, 24.7.04, 11.4.05, 11.7.05

Cr 8.4.07, 19.5.07, 28.6.07, 24.7.07

Cu 14.7.05

DD 30.8.04, 3.5.06, 12.4.07

De 2.5.06, 9.4.07, 26.6.07 (common), 26.6.08

FF 12.4.04, 16.5.04, 25.7.06

FH 16.4.05, 21.7.07

LD 11.4.04, 12.7.05 (common on Bramble), 9.4.07

LH 20.4.03, 12.4.04, 10.7.05 (esp. Bramble), 18.5.08

MC 19.5.04, 23.7.04, 17.4.05, 19.5.08

SH 11.4.07, 25.6.07, 22.7.07, 20.5.08

WD 9.4.04, 17.5.04, 13.7.05, 4.5.06, 12.4.07 (also on Rape nearby), 23.6.07

Comments: 15 sites, 51 records. A common bivoltine species. Many sorts of flower are visited, but on the Downs notably Blackthorn in spring and Bramble in summer, and it has also been observed visiting Rape.

***Andrena flavipes* Panzer**

BC 11.4.05, 23.5.07

BG 22.4.03, 15.6.06 (males swarming on cliff tops), 24.7.06

BH 22.4.03, 22.7.04, 16.4.05, 11.4.07, 22.5.08 (Cow Gap undercliff on Horseshoe Vetch)

CH 22.5.04, 24.7.04, 11.4.05 (colony along low bank), 11.7.05

Cr 22.5.04, 19.8.06, 8.4.07, 28.6.07, 24.7.07

Cu 18.4.03, 23.5.04, 17.6.05 (old females), 14.7.05, 11.4.07 (large colony on Hope Gap loess cliff face)

DD 3.5.06, 28.7.06, 20.5.07

De 21.5.04 (on hawk's-beard), 2.5.06, 26.7.06, 9.4.07, 26.6.07, 21.5.08, 26.6.08

FF 20.4.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06

FH 16.5.04, 16.4.05

LD 11.4.04, 17.5.04, 12.7.05, 9.4.07

LH 12.4.04, 10.7.05 (esp. on ragworts), 11.6.06, 18.5.08

MC 23.7.04, 17.4.05, 19.5.08

SH 21.4.03, 18.5.04, 17.4.05 (large cliff-top colony), 11.4.07, 22.7.07, 28.8.07, 20.5.08 (on Thrift and Wall Cotoneaster), 23.6.08

WD 9.4.04, 17.5.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 66 records. One of the commonest mining bees on the Downs, often producing large nesting aggregations along cliff tops and south-facing slopes and banks. A bivoltine species that visits many different sorts of flowers. It is the special host for the nomad bee *Nomada fucata*, and the main host for the UKBAP Priority Dotted Beefly *Bombylius discolor* (though this switches to *A. cineraria* in other parts of Britain).

***Andrena fucata* Smith**

Cr 22.5.04

SH 22.7.07, 23.6.08

Comments: 2 sites, 3 records. Scarce on the Downs.



Andrena flavipes (top left) can form huge nesting aggregations and is the special host for the nomad bee *Nomada fucata* (top right) and the main host for the Dotted Beefly *Bombylius discolor* (bottom left). Mining bees also support some important colonies of oil beetles on the Downs (bottom right).

***Andrena fulva* (Müller)**

BC 11.4.05, 10.4.07

Cr 8.4.07

De 2.5.06

FH 16.4.05

LH 12.4.04

MC 12.4.05, 17.4.05

SH 17.4.05, 20.5.08 (on Wall Cotoneaster)

Comments: 7 sites, 10 records. Widespread on the Downs in spring but in rather low numbers, typically on Blackthorn. It is the special host of the scarce nomad bee *Nomada signata*.

***Andrena fulvago* (Christ)**

BC 16.6.06

BH 22.7.04 (Corn Sow-thistle), 14.6.05 (Cat's-ear),

CH 27.6.07, 24.6.08

Cr 24.7.07

Cu 24.5.07 (one male)

DD 30.7.88, 20.5.07

LD 12.6.06

LH 11.6.06

Comments: 8 sites, 11 records. Widespread on the Downs but rather scarce. Foraging is almost exclusively from hawkish Asteraceae, including hawk's-beards, hawkbits and sow-thistles, and it is rather calcicolous. **Nationally Scarce**.

***Andrena haemorrhoa* (Fabricius)**

BC 11.4.05, 16.6.06 (old females on Common Mignonette), 10.4.07, 23.5.07

BG 22.4.03, 15.6.06 (old females on Mignonette)

BH 22.4.03, 23.5.04, 16.4.05, 14.6.05 (lots on Mignonette), 11.4.07

CH 22.5.04, 11.4.05

Cr 8.4.07, 19.5.07

Cu 18.4.03, 23.5.04, 17.6.05

DD 13.6.05, 3.5.06, 12.4.07

De 2.5.06, 9.4.07, 21.5.08

FF 12.4.04

FH 16.4.05

LD 11.4.04, 17.5.04, 9.4.07, 9.4.07

LH 20.4.03, 12.4.04, 11.6.06, 12.4.07, 18.5.08

MC 19.5.04, 12.4.05, 17.4.05, 19.5.08

SH 21.4.03, 18.5.04, 17.4.05, 11.4.07, 20.5.08

WD 9.4.04, 4.5.06, 12.4.07

Comments: 15 sites, 47 records. Common and sometimes abundant, especially the males in spring swarming around blossoming shrubs such as Blackthorn and Common Gorse. Females forage on a wide variety of flowers, but old ones often end up clustering on Wild Mignonette in June.



The spectacular and much-declined Andrena hattorfiana which forages exclusively from scabious species.

***Andrena hattorfiana* (Fabricius)**

CH 24.7.04 (several females on Field Scabious)

De 26.7.06 (several females on Field Scabious)

Comments: 2 sites, 2 records. Rare, despite careful scrutiny of its main forage plant, Field Scabious, wherever found, and the large size of the bee (Britain's largest *Andrena*). The area where it was found at Castle Hill in 2004 subsequently lost most of its scabious due to grazing. Cradle Hill and parts of the Beachy Head escarpment looked eminently suitable for the bee but gave blank results. It seems to have declined substantially on the Downs. **Nationally Rare (RDB3)**.

***Andrena helvola* (Linnaeus)**

Cr 19.5.07 (both sexes on Hawthorn),

LH 18.5.08

MC 19.5.08 (several on rose)

SH 18.5.04

WD 4.5.06 (a male)

Comments: 5 sites, 5 records. Scarce, perhaps preferring more wooded, non-coastal locations.

***Andrena humilis* Imhoff**

BG 22.5.07

De 21.5.04 (common on hawk's-beard), 26.6.07, 21.5.08,

Comments: 2 sites, 4 records. Like *A. fulvago*, this bee forages almost exclusively from hawkish Asteraceae, including Cat's-ear, Mouse-ear Hawkweed and hawk's-beards, though nationally it is more usually encountered in sandy, non-calcareous settings. The colony at Denton was associated with hawk's-beards in a fallow field/set-aside area. **Nationally Scarce** (though dubiously so).

***Andrena labialis* (Kirby)**

BC 16.6.06, 23.5.07

Cu 24.5.07

FH 13.6.06

LD 17.5.04, 12.6.06

Comments: 4 sites, 5 records. Scarce. A species of legume-rich grassland where it forages mainly on bird's-foot-trefoils, clovers and vetches.

***Andrena labiata* (Fabricius)**

DD 20.5.07 (one male)

Comments: 1 site, 1 record. Very rare, despite the great abundance on the Downs of one of its main forage plant, Germander Speedwell. **Nationally Scarce**.

***Andrena minutula* (Kirby)**

BC 10.4.07, 28.7.07

BG 24.7.06, 25.8.07

BH 22.4.03, 22.7.04, 11.4.07

CH 22.5.04, 24.7.04, 11.4.05, 11.7.05, 27.6.07

Cr 8.4.07, 19.5.07, 28.6.07 (common), 24.7.07 (Hogweed)

Cu 14.7.05, 24.5.07

DD 11.4.04, 13.6.05 (all worn), 3.5.06, 12.4.07, 20.5.07

De 21.5.04, 2.5.06, 9.4.07, 21.5.08, 26.6.08

FF 12.4.04, 16.5.04, 11.6.05, 25.7.06

FH 16.4.05, 21.7.07

LD 11.4.04, 12.7.05, 9.4.07

LH 18.5.04, 10.7.05, 11.6.06, 18.5.08

MC 23.7.04, 17.4.05, 15.8.06, 19.5.08

SH 11.4.07, 23.6.08

WD 9.4.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 52 records. A common bivoltine species. Many sorts of flower are visited, but Blackthorn and Cow Parsley are much favoured in spring, and Wild Carrot, Wild Parsnip and Hogweed in summer.

***Andrena minutuloides* (Perkins)**

BC 27.8.07

BG 24.7.06, 25.8.07

BH 23.5.04, 22.7.04 (especially on WildCarrot), 14.6.05, 16.8.06 (esp Carrot), 22.5.08 (Cow Gap undercliff)

CH 22.5.04, 24.7.04,

Cr 19.8.06, 19.5.07, 24.7.07

DD 30.8.04, 13.6.05 (fresh), 28.7.06 (common on Carrot), 20.5.07

De 26.7.06 (common on Hogweed, Upright Hedge-parsley, Carrot), 26.8.07, 21.5.08

FF 25.7.06 (q.common)

FH 13.6.06, 21.7.07 (Hogweed, Wild Parsnip, Carrot)

LD 17.5.04, 12.7.05 (common), 12.6.06
LH 18.5.04, 11.6.06, 18.5.08
MC 19.5.04 (common), 23.7.04 (common), 18.6.05, 15.8.06, 19.5.08
SH 22.7.07
WD 17.5.04

Comments: 14 sites, 36 records. Common and sometimes abundant (though unrecorded at Cuckmere). The Sussex Downs are undoubtedly one of its national strongholds. Generally regarded as bivoltine, though the two generations are not that clearly expressed in the data gathered (and it appears about a month later than the obviously bivoltine *A. minutula*). A moderately calcicolous species with foraging largely on umbellifers, notably Wild Carrot, Wild Parsnip, Burnet-saxifrage and Hogweed. **Nationally Scarce**.

***Andrena nigriceps* (Kirby)**

SH 22.7.07

Comments: 1 site, 1 record. Rare. Like the related *A. denticulata*, it forages mainly on ragworts, thistles and knapweeds. **Nationally Scarce**.

***Andrena nigroaenea* (Linnaeus)**

BC 11.4.05, 16.6.06 (worn females), 10.4.07, 23.5.07
BG 22.4.03, 15.4.05, 15.6.06 (Reseda), 24.7.06, 22.5.07
BH 22.4.03, 16.4.05, 14.6.05, 11.4.07, 22.5.08 (Cow Gap undercliff, Horseshoe Vetch)
CH 22.5.04, 11.4.05 (common, esp. on dandelions in fallow field at top)
Cr 8.4.07, 19.5.07 (Rape), 28.6.07
Cu 18.4.03, 17.6.05 (old females), 24.5.07
DD 11.4.04, 13.6.05, 3.5.06, 12.4.07, 20.5.07
De 2.5.06, 9.4.07, 26.6.07 (old females on Common Mignonette), 21.5.08 (Rape), 26.6.08
FF 20.4.03, 12.4.04, 16.5.04
FH 16.4.05
LD 11.4.04, 12.7.05 (v. worn female), 12.6.06, 9.4.07
LH 20.4.03, 12.4.04, 11.6.06 (old females on Mignonette), 18.5.08
MC 17.4.05, 18.6.05
SH 21.4.03, 18.5.04, 17.4.05, 11.4.07, 20.5.08 (Thrift)
WD 17.5.04, 4.5.06, 12.4.07

Comments: 15 sites, 54 records. A common spring and early summer species that forages on a wide variety of flowers. Males swarm around gorse.

***Andrena nitidiuscula* Schenck**

Cu 14.7.05 (cliff top Carrot)

Comments: 1 site, 1 record. Small numbers associated with plentiful Wild Carrot in cliff-top grassland near Hope Gap. It could not be found on the Carrot-rich grassland of the Beachy Head area, suggesting that the head deposits of the Cuckmere area may be important for nesting. **Nationally Rare (RDB3)**.

***Andrena niveata* Friese**

BG 22.5.07 (probably on Charlock at road verge)
CH 27.6.07 (Hedge Mustard & Rape at edge of Rape field)
Cr 19.5.07 (on Rape and Charlock in Rape field), 28.6.07 (on Charlock at edge of Rape field)
Cu 24.5.07 (Charlock along fenceline)
De 26.6.07 (arable edge Hedge Mustard), 21.5.08 (ditto)

Comments: 5 sites, 7 records. Strongly associated with crucifers such as Charlock, Hedge Mustard and Rape, and usually encountered at the edges of arable fields. Current information suggests that the East Sussex Downs could be the most important modern stronghold for this very rare bee (see Else & Roberts, 2008). **Nationally Vulnerable (RDB2)**.



The very rare Andrena niveata and its special foraging habitat – arable margins with Charlock and Hedge Mustard. It forages on Rape too. The East Sussex Downs proved to be an unrecognised national stronghold. Higher Level Stewardship has great potential to promote this bee.

***Andrena ovatula* (Kirby)**

BH 22.4.03

LH 20.4.03, 10.7.05

Comments: 2 sites, 3 records. Scarce on the Downs, but with a moderately strong population at Lullington Heath. It forages on a variety of legumes and is bivoltine. Gorse appears to be essential for the spring generation.

***Andrena proxima* (Kirby)**

BH 23.5.04 (Alexanders), 14.6.05

Cu 17.6.05 (Cow Parsley)

De 21.5.08 (Cow Parsley)

FF 11.6.05

LH 11.6.06 (numerous on Cow Parsley)

MC 19.5.04 (Cow Parsley), 19.5.08

Comments: 6 sites, 8 records. Associated with good stands of umbellifers, with foraging on the Downs recorded from Cow Parsley, Alexanders and Hogweed. This is the special host of the rare nomad bee *Nomada conjungens*. **Nationally Rare (RDB3)**, though Nationally Scarce is now a more appropriate grade.

***Andrena pubescens* (Olivier)**

BC 11.4.05, 16.6.06 (worn females), 10.4.07, 23.5.07

BH 22.4.03

CH 22.5.04

Cr 8.4.07, 19.5.07

Cu 18.4.03, 17.6.05 (old females)

DD 3.5.06

De 21.5.04 (common on hawk's-beard), 2.5.06, 21.5.08

FF 12.4.04, 16.5.04

FH 16.4.05

LD 9.4.07

LH 20.4.03, 18.5.04

MC 19.5.04, 12.4.05, 17.4.05, 19.5.08

SH 17.4.05, 11.4.07, 20.5.08

WD 9.4.04, 12.4.07

Comments: 14 sites, 29 records. Frequent in spring and early summer (only unrecorded at Birling Gap) and visiting a variety of flowers.

***Andrena semilaevis* (Pérez)**

BC 19.5.04, 16.6.06, 28.7.07
BG 22.5.07
BH 23.5.04, 14.6.05 (esp. Cow Parsley)
CH 22.5.04, 11.7.05, 24.6.08
Cu 17.6.05 (Cow Parsley), 14.7.05, 24.5.07
De 21.5.08
FF 11.6.05
FH 16.5.04
LD 17.5.04, 12.6.06
LH 11.6.06 (common on Cow Parsley)
MC 19.5.04, 18.6.05, 19.5.08
SH 20.5.08, 23.6.08
WD 17.5.04, 13.7.05

Comments: 13 sites, 25 records. Frequent in late spring, especially on Cow Parsley.

***Andrena subopaca* Nylander**

BC 19.5.04, 16.6.06 (common on Bramble and Wild Mignonette), 23.5.07
CH 24.6.08
FH 16.5.04, 13.6.06
LH 18.5.08
MC 19.5.04
SH 20.5.08

Comments: 6 sites, 9 records. Rather localised on the Downs. It forages on a variety of flowers.

***Andrena synadelpha* (Perkins)**

BC 19.5.04
Cu 23.5.04, 17.6.05
De 21.5.08
MC 19.5.04
SH 11.4.07

Comments: 5 sites, 6 records. Rather scarce on the Downs with the flight period coinciding with one of its main forage plants, Common Hawthorn. It peaks some 3-4 weeks later than the similar *A. varians*.

***Andrena tibialis* (Kirby)**

De 2.5.06 (one female),
FF 20.4.03 (stylopized intersex)

Comments: 1 site, 1 record. Rare. **Nationally Scarce.**

***Andrena trimmerana* (Kirby)**

BC 11.4.05, 10.4.07
BG 15.4.05, 24.7.06 (both sexes on Bramble)
BH 11.4.07
CH 24.7.04 (Hogweed)
Cr 8.4.07, 28.6.07, 24.7.07 (Hogweed)
Cu 14.7.05
DD 11.4.04, 3.5.06, 12.4.07
De 9.4.07
FF 12.4.04, 25.7.06
FH 16.4.05, 21.7.07 (one female)
LD 11.4.04 (common), 12.7.05 (Bramble & Wild Mignonette), 12.6.06 (worn females)
LH 12.4.04, 10.7.05
SH 17.4.05, 11.4.07, 22.7.07 (females on Hogweed)
WD 9.4.04, 13.7.05

Comments: 14 sites, 28 records. Frequent on Blackthorn in spring (only unrecorded at Mount Caburn), though usually less abundant than the closely-related *A. carantonica*. A rarer late summer generation is produced which forages mainly on umbellifers and Bramble. The East Sussex Downs population seems exceptionally strong. **Nationally Scarce.**



Andrena trimmerana is one of several spring-flying mining bees that rely heavily on Blackthorn blossom.

***Andrena varians* (Kirby)**

BC 10.4.07

BH 16.4.05, 11.4.07 (common)

Cr 8.4.07

Cu 18.4.03, 11.4.07

DD 11.4.04, 12.4.07

De 2.5.06, 9.4.07

LD 9.4.07

LH 12.4.04, 12.4.07, 18.5.08

SH 18.5.04, 17.4.05 (males on Blackthorn), 11.4.07 (common), 20.5.08 (old females on Wall Cotoneaster)

WD 9.4.04 (females also on Dandelion), 4.5.06

Comments: 10 sites, 20 records. Frequent in spring on Blackthorn. Females have also been observed in numbers on Dandelion, Hawthorn and Wall Cotoneaster. An unusually high proportion of females on the Downs are extensively pale-haired on the abdomen and superficially resemble *A. synadelpha*. Probably the main host of *Nomada panzeri* on the Downs. **Nationally Scarce.**

***Andrena wilkella* (Kirby)**

BC 16.6.06

BG 22.5.07

BH 23.5.04 (many females on hawk's-beard), 14.6.05

CH 24.6.08

Cr 19.5.07, 28.6.07

Cu 17.6.05, 24.5.07

DD 3.5.06, 28.7.06, 20.5.07

De 21.5.04, 21.5.08, 26.6.08

FH 16.5.04, 13.6.06

LD 17.5.04, 12.6.06

LH 11.6.06 (Common Bird's-foot-trefoil and Common Gorse), 18.5.08

MC 18.6.05

SH 20.5.08

Comments: 13 sites, 23 records. Frequent and locally common in legume-rich grasslands, with much foraging on the Downs observed on bird's-foot-trefoils and Horseshoe Vetch. Females were also abundant on a Beaked Hawk's-beard near Beachy Head on one occasion (probably a nectar source). This is the special host of *Nomada striata*.

***Anthidium manicatum* (Linnaeus)**

BG 24.7.06 (Black Horehound)

LD 12.7.05 (ditto)

Comments: 2 sites, 2 records. Rare on the Downs. Associated with Black Horehound on both encounters, though other labiates and bird's-foot trefoils are also used by this bee. Nesting occurs in pre-existing cavities in dead wood, walls, the ground and hollow stems.

***Anthophora bimaculata* (Panzer)**

BG 24.7.06

Cu 14.7.05 (common on Viper's-bugloss and nesting at cliff edge at Hope Gap), 24.5.07

SH 22.7.07, 28.8.07 (nesting in golf course sandface), 23.6.08 (ditto)

Comments: 3 sites, 6 records. A ground-nesting flower-bee that within the Downs is confined to a few coastal areas with sandy head deposits, where it can be abundant, especially at cliff edges. A variety of flowers are visited, but notably Viper's-bugloss, Black Horehound, knapweeds, thistles and hawkish Asteraceae. This is the main host of *Coelioxys rufescens* on the Downs.

***Anthophora furcata* (Panzer)**

SH 22.7.07 (Black Horehound)

WD 23.6.07

Comments: 2 sites, 2 records. Rare on the Downs. Foraging was observed on Black Horehound and it is likely that other labiates such as woundworts are also used. Nesting occurs in dead wood.

***Anthophora plumipes* (Pallas)**

BG 22.4.03, 15.4.05

BH 22.4.03, 16.4.05

Cu 18.4.03, 11.4.07 (a few females on Ground-ivy)

LD 11.4.04 (Ground-ivy), 9.4.07

SH 21.4.03, 17.4.05, 11.4.07 (on a comfrey), 20.5.08

Comments: 5 sites, 12 records. Locally common in spring, especially in coastal areas, where it can form some quite sizeable nesting aggregations in sandy slopes and faces associated with head deposits. Favoured flowers include Ground-ivy, dead-nettles, comfrees and (females only) Blackthorn.

***Anthophora quadrimaculata* (Panzer)**

Cu 14.7.05 (one female at cliff edge)

LD 12.7.05 (numerous on Black Horehound)

Comments: 2 sites, 2 records. Rare. Observed in numbers on Black Horehound near Lewes (it more or less specialises in Lamiaceae). Nesting usually occurs in cliffs, banks and walls. **Nationally Scarce.**

***Anthophora retusa* (Linnaeus)**

Cu 17.6.05 (females mainly on Viper's-bugloss, some on Common Bird's-foot-trefoil, a few males on Viper's-bugloss, all close to Hope Gap, where nesting observed on upper cliff face), 14.7.05 (a female on Bird's-foot-trefoil, none on late Viper's-bugloss), 11.4.07 (males numerous on Ground-ivy near Hope Gap), 24.5.07 (males and females on Hound's-tongue, males also on Ground-ivy and Slender Thistle)

SH 18.5.04 (one male on Common Bird's-foot-trefoil close to Seaford Beach), 20.5.08 (a female by radio station),

Comments: 2 sites, 6 records (probably representing individuals from a single extensive colony). One of Britain's rarest and most declined bees (see Else & Roberts, 2006) with an important colony located at Hope Gap, where it nests in a dense mixed colony with *A. plumipes*, and almost certainly extending towards Seaford in association with the thick capping of head deposits on this section of coast.

Seemingly absent from areas lacking such deposits (e.g. the Beachy Head area). Foraging seems to occur mainly in flowery grasslands within a few hundred metres of nesting areas, and almost certainly on flowery cliff faces. Females have been observed foraging on Viper's Bugloss, Common Bird's-foot-trefoil and Hound's-tongue on downland and on Greater Bird's-foot-trefoil and Hemlock Water-dropwort down on the levels. Males have additionally been observed in numbers on Ground-ivy in spring and Slender Thistle at the end of their flight period. No sign of foraging on Brassicaceae or Lamiaceae as described by Westrich (1989). Further information on the Cuckmere colony, including analysis of pollen samples, is furnished by Edwards & Jenner (2009). **Nationally Threatened (RDB1).**



Anthophora plumipes is one of the most conspicuous bees of the sandy cliff-tops between Beachy Head and Seaford in spring. The brownish male (top left) looks very different to the black female (top middle). Its cleptoparasite *Melecta albifrons* (top right) can be found around nesting aggregations. The very rare *Anthophora retusa* (bottom left) has one of its strongest British colonies at Hope Gap near Cuckmere Haven (bottom right).

***Bombus barbutellus* (Kirby)**

MC 30.7.88

Comments: 1 site, 1 record. The cuckoo-parasite of *B. hortorum*, but rare in spite of the frequency of the host.

***Bombus campestris* (Panzer)**

BC 27.8.07

CH 24.7.04

FH 21.7.07

MC 30.7.88, 23.7.04

WD 28.8.04

Comments: 5 sites, 6 records. The cuckoo-parasite of carder bumblebees, with three hosts available on the Downs: *B. pascuorum*, *B. ruderarius* and *B. humilis*.

***Bombus hortorum* (Linnaeus)**

BC 11.4.05, 16.6.06, 23.5.07, 28.7.07, 27.8.07

BG 22.4.03, 15.4.05, 15.6.06, 24.7.06, 22.5.07, 25.8.07

BH 22.4.03, 22.7.04, 16.4.05, 14.6.05

CH 31.8.04, 11.7.05, 27.6.07, 24.6.08

Cr 19.5.07, 28.6.07, 24.7.07

Cu 23.8.03, 14.7.05, 24.5.07

DD 30.7.88, 11.4.04, 13.6.05, 3.5.06, 28.7.06, 20.5.07

De 2.5.06 (queens on Ground-ivy), 26.7.06, 26.6.07, 26.8.07, 26.6.08

FF 12.4.04, 11.6.05 (Viper's-bugloss), 25.7.06, 29.8.07
FH 16.5.04, 16.4.05, 13.6.06
LD 11.4.04, 12.6.06, 9.4.07
LH 20.4.03, 25.8.03, 12.4.04, 10.7.05, 11.6.06, 29.8.07, 18.5.08
MC 30.7.88, 23.7.04, 17.4.05, 18.6.05, 15.8.06
SH 11.4.07, 22.7.07, 28.8.07, 23.6.08
WD 9.4.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 67 records. Locally common and utilising a wide variety of flowers, though queens especially favour Ground-ivy, dead-nettles and comfrees, whilst workers are frequent on Viper's-bugloss, various legumes, knapweeds and thistles.

***Bombus humilis* Illiger**

BH 16.8.06 (males & workers quite common on knapweeds), 22.5.08 (queens on Horseshoe Vetch on Cow Gap undercliff)
CH 31.8.04 (several males on Wild Basil), 27.6.07 (male on Musk Thistle), 24.6.08
De 26.7.06, 26.6.07, 26.8.07 (workers on Basil & knapweeds), 26.6.08 (a queen on Greater Knapweed)
MC 15.8.06 (male & worker)
SH 28.8.07

Comments: 5 sites, 11 records. Highly localised and often in very low numbers. Queens have been observed foraging on Horseshoe Vetch, bird's-foot-trefoils and knapweeds. Workers have been observed on Wild Basil and knapweeds. **A UKBAP Priority Species.**

***Bombus jonellus* (Kirby)**

BC 16.6.06 (workers on Wild Thyme),
FH 26.8.03 (a male), 13.6.06 (males on Bramble flowers)
LH 25.8.03 (males), 11.6.06 (male on Bramble), 29.8.07 (workers on Bell Heather)

Comments: 3 sites, 6 records. Scarce with a moderately strong population at Lullington Heath associated with chalk heath, with workers foraging mainly from heathers. The records of males from Friston Hill may represent wanderers from Lullington. At Black Cap, workers were foraging on Wild Thyme, and a suspected worker was also seen on thymes at Seaford Head.

***Bombus lapidarius* (Linnaeus)**

BC 19.5.04, 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 22.4.03, 15.4.05, 15.6.06, 24.7.06, 22.5.07, 25.8.07
BH 22.4.03, 23.5.04, 22.7.04, 16.4.05, 14.6.05, 16.8.06, 11.4.07
CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07, 24.6.08
Cr 22.5.04, 19.8.06, 8.4.07, 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 23.5.04, 17.6.05, 14.7.05, 24.5.07
DD 30.7.88, 11.4.04, 30.8.04, 13.6.05, 3.5.06, 28.7.06, 20.5.07
De 21.5.04, 2.5.06, 26.7.06, 9.4.07, 26.6.07, 26.8.07, 21.5.08, 26.6.08
FF 26.8.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06
FH 26.8.03, 16.5.04, 16.4.05, 13.6.06, 21.7.07
LD 11.4.04, 17.5.04, 29.8.04, 12.7.05 (common on thistles), 12.6.06, 9.4.07
LH 20.4.03, 25.8.03, 12.4.04, 18.5.04, 10.7.05, 11.6.06, 29.8.07, 18.5.08
MC 30.7.88, 23.7.04, 12.4.05, 17.4.05, 18.6.05, 15.8.06, 19.5.08
SH 21.4.03, 18.5.04, 17.4.05, 11.4.07, 25.6.07, 22.7.07, 28.8.07, 20.5.08, 23.6.08
WD 9.4.04, 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 101 records. Very common and foraging on a wide variety of flowers.

***Bombus lucorum* (Linnaeus)**

BC 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 15.4.05, 15.6.06, 24.7.06, 25.8.07
BH 22.4.03, 22.7.04, 16.4.05, 14.6.05, 16.8.06
CH 24.7.04, 31.8.04, 11.4.05, 11.7.05, 24.6.08
Cr 22.5.04, 19.8.06, 8.4.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 17.6.05, 14.7.05
DD 30.7.88, 30.8.04, 13.6.05, 12.4.07

De 26.7.06, 9.4.07, 26.6.07, 26.8.07, 26.6.08
 FF 20.4.03, 11.6.05, 25.7.06
 FH 16.4.05, 13.6.06, 21.7.07
 LD 11.4.04, 29.8.04, 12.7.05, 9.4.07
 LH 20.4.03, 25.8.03, 12.4.04, 10.7.05, 11.6.06, 12.4.07, 29.8.07, 18.5.08
 MC 30.7.88, 23.7.04, 17.4.05, 15.8.06
 SH 21.4.03, 18.5.04, 11.4.07, 25.6.07, 22.7.07, 28.8.07, 20.5.08
 WD 9.4.04, 28.8.04, 13.7.05, 12.4.07, 23.6.07
Comments: 15 sites, 72 records. Common and foraging on a wide variety of flowers.



The four most significant bumblebees found on the East Sussex Downs, *Bombus humilis* (top left), *B. muscorum* (top right), *B. ruderarius* (bottom left) and *B. jonellus* (bottom right). The severely declined *B. muscorum* has its Sussex population concentrated on coastal levels, but may supplement its foraging using the Downs.

***Bombus muscorum* (Linnaeus)**

SH 22.7.07 (one male)

Comments: 1 site, 1 record. No evidence of any established colonies on the Downs. It is apparently widespread in the Pevensey Levels (M. Jenner – pers. comm.) and has been recorded on saltmarsh at Cuckmere Haven. The Seaford Head record is a presumed vagrant from nearby levels. This species is arguably worthy of Nationally Scarce status following a long period of severe national decline.

***Bombus pascuorum* (Scopoli)**

BC 11.4.05, 16.6.06, 10.4.07, 28.7.07, 27.8.07

BG 22.4.03, 15.4.05, 15.6.06, 24.7.06, 22.5.07, 25.8.07
BH 22.4.03, 23.5.04, 22.7.04, 16.4.05, 14.6.05, 16.8.06
CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07, 24.6.08
Cr 22.5.04, 19.8.06, 8.4.07, 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 23.5.04, 14.7.05, 11.4.07, 24.5.07
DD 30.7.88, 30.8.04, 13.6.05, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 21.5.04, 2.5.06 (queens on Ground-ivy), 26.7.06, 9.4.07, 26.6.07, 26.8.07, 21.5.08, 26.6.08
FF 20.4.03, 26.8.03, 16.5.04, 11.6.05, 25.7.06, 29.8.07
FH 26.8.03, 16.5.04, 16.4.05, 13.6.06, 21.7.07
LD 11.4.04, 17.5.04, 29.8.04, 12.7.05, 12.6.06, 9.4.07
LH 20.4.03, 25.8.03, 12.4.04, 18.5.04, 10.7.05, 11.6.06, 12.4.07, 29.8.07, 18.5.08
MC 30.7.88, 23.7.04, 12.4.05, 17.4.05, 18.6.05, 15.8.06, 19.5.08
SH 21.4.03, 18.5.04, 17.4.05, 11.4.07, 25.6.07, 22.7.07, 28.8.07, 20.5.08, 23.6.08
WD 9.4.04, 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07
Comments: 15 sites, 100 records. Very common and foraging on a wide variety of flowers.

***Bombus pratorum* (Linnaeus)**

BC 11.4.05, 16.6.06, 23.5.07, 28.7.07, 27.8.07
BG 15.6.06, 24.7.06, 25.8.07
BH 22.4.03, 23.5.04, 22.7.04, 16.4.05, 14.6.05
CH 24.7.04, 11.4.05, 24.6.08
Cr 22.5.04, 19.8.06, 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 17.6.05, 14.7.05, 11.4.07, 24.5.07
DD 13.6.05, 20.5.07
De 26.7.06, 21.5.08, 26.6.08
FF 16.5.04, 11.6.05 (esp. Viper's-bugloss)
FH 16.4.05, 13.6.06
LD 11.4.04, 12.6.06
LH 20.4.03, 12.4.04, 18.5.04, 10.7.05, 11.6.06 (Bramble), 29.8.07, 18.5.08
MC 12.4.05, 17.4.05, 18.6.05, 15.8.06
SH 18.5.04, 11.4.07, 25.6.07, 22.7.07, 28.8.07, 20.5.08, 23.6.08
WD 9.4.04, 13.7.05, 23.6.07

Comments: 15 sites, 58 records. Common and foraging on a wide variety of flowers but workers particularly attracted by Bramble when available.

***Bombus ruderarius* (Müller)**

BH 22.4.03, 23.5.04, 22.7.04, 16.4.05, 14.6.05
De 2.5.06 (queens on Ground-ivy)
FH 16.4.05
LD 17.5.04, 12.6.06
SH 21.4.03

Comments: 5 sites, 10 records. Rather localised and mostly recorded as queens on Ground-ivy, but workers also seen foraging on Horseshoe Vetch. The workers can be easily overlooked for *B. lapidarius* which may have resulted in some under-recording, though few males were encountered, suggesting it is genuinely scarce. Populations of *B. ruderarius* ought to be further screened to check that the very similar *B. cullumanus* (now considered extinct in Britain but historically known from the Seaford area) is not persisting somewhere. **A UKBAP Priority Species.**

***Bombus rupestris* (Fabricius)**

BC 23.5.07, 28.7.07, 27.8.07
BH 23.5.04, 22.7.04, 14.6.05
CH 22.5.04, 24.7.04, 31.8.04
Cr 19.8.06, 28.6.07, 24.7.07
DD 30.8.04, 3.5.06, 28.7.06
De 26.7.06, 9.4.07
FH 26.8.03
LD 12.6.06
MC 23.7.04, 18.6.05, 15.8.06

SH 18.5.04
WD 13.7.05

Comments: 11 sites, 24 records. Frequent, especially the males in summer on ragworts, thistles and knapweeds. The special cuckoo-parasite of *B. lapidarius*. **Nationally Scarce**, though much increased in recent years, so no longer worthy.



Bombus vestalis (left) and *B. rupestris* (right), the two most frequent 'cuckoo bumblebees' of the Downs. Cuckoo bumblebees lack workers and pollen-collecting apparatus, and use specific host bumblebees to rear their brood.

***Bombus sylvestris* (Lepeletier)**

BC 16.6.06, 23.5.07
CH 27.6.07
Cr 19.5.07
FF 11.6.05
FH 13.6.06
LH 11.6.06
MC 18.6.05

Comments: 7 sites, 8 records. The cuckoo-parasite of *B. pratorum* and *B. jonellus*, but preferring wooded settings in the south of Britain which may account for its relative scarcity on the open Downs.

***Bombus terrestris* (Linnaeus)**

BC 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 22.4.03, 15.4.05, 15.6.06, 24.7.06, 22.5.07, 25.8.07
BH 22.4.03, 22.7.04, 16.4.05, 14.6.05, 16.8.06, 11.4.07, 22.5.08 (Cow Gap undercliff, queens on Horseshoe Vetch)
CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07, 24.6.08
Cr 22.5.04, 19.8.06, 8.4.07, 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 23.5.04, 17.6.05, 14.7.05, 11.4.07, 24.5.07
DD 30.7.88, 11.4.04, 30.8.04, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 2.5.06, 26.7.06, 9.4.07, 26.6.07, 26.8.07, 21.5.08, 26.6.08
FF 20.4.03, 26.8.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06, 29.8.07
FH 26.8.03, 16.4.05, 13.6.06, 21.7.07
LD 11.4.04, 17.5.04, 29.8.04, 12.7.05 (Bramble), 12.6.06, 9.4.07
LH 20.4.03, 25.8.03, 12.4.04, 10.7.05, 11.6.06, 12.4.07, 29.8.07, 18.5.08
MC 30.7.88, 19.5.04, 23.7.04, 12.4.05, 17.4.05, 18.6.05, 15.8.06, 19.5.08
SH 21.4.03, 17.4.05, 11.4.07, 25.6.07, 22.7.07, 28.8.07, 20.5.08, 23.6.08
WD 9.4.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 100 records. Very common and foraging on a wide variety of flowers but particularly attracted by Bramble when available.

***Bombus vestalis* (Geoffroy)**

BC 11.4.05, 10.4.07, 23.5.07
BH 22.7.04, 16.4.05, 24.7.06
CH 24.7.04, 31.8.04, 11.4.05, 27.6.07
Cr 19.8.06, 8.4.07, 28.6.07, 24.7.07
Cu 24.5.07
DD 13.6.05, 3.5.06, 28.7.06
De 26.7.06, 9.4.07, 26.6.07, 26.6.08
FF 20.4.03, 16.5.04
FH 16.4.05, 21.7.07
LD 17.5.04, 12.7.05, 9.4.07
LH 20.4.03, 25.8.03, 12.4.04, 12.4.07
MC 30.7.88, 23.7.04, 17.4.05, 15.8.06
SH 17.4.05, 11.4.07, 22.7.07, 23.6.08
WD 9.4.04, 13.7.05, 4.5.06, 23.6.07

Comments: 13 sites, 45 records. Frequent and often common. The special cuckoo-parasite of *B. terrestris*.

***Ceratina cyanea* (Kirby)**

BC 19.5.04, 23.5.07
CH 24.6.08
LD 17.5.04, 12.6.06
MC 18.6.05 (males), 15.8.06

Comments: 4 sites, 7 records. Seemingly scarce, preferring south-facing slopes with a mixture of floristically-rich grassland and some bramble or scrub as a source of the hollow twigs it requires for nesting. No foraging was observed, though buttecups, Fairy Flax, Yellow-rattle, hawkish Asteraceae, and bird's-foot-trefoils are amongst the flowers that are likely to be visited. **Nationally Rare (RDB3)**.

***Chelostoma campanularum* (Kirby)**

BC 28.7.07, 27.8.07 (Harebell)
De 26.6.07
LD 12.7.05
MC 23.7.04, 18.6.05

Comments: 4 sites, 6 records. Associated with bellflowers, most typically Harebell. Nesting occurs in dead wood.

***Coelioxys inermis* (Kirby)**

DD 30.7.88 (female)
De 26.6.07 (probable male, indissected),

Comments: 2 sites, 2 records (but only the Deep Dean record confirmed, as males require dissection to separate them from the scarcer *C. elongata*). A cuckoo-parasite of certain dead wood-nesting *Megachile* and *Anthophora* bees.

***Coelioxys rufescens* Lepeletier & Serville**

Cu 17.6.05 (cliff edge), 14.7.05 (common), 24.5.07
SH 22.7.07, 23.6.08

Comments: 2 sites, 4 records. A cuckoo-parasite of certain *Anthophora* bees and clearly associated with *A. bimaculata* here (the normal host in sandy locations).

***Colletes daviesanus* Smith**

Cu 14.7.05
SH 22.7.07, 28.8.07, 23.6.08 (colony in golf course sandface)

Comments: 2 sites, 4 records. Seemingly associated with sandy head deposits in coastal areas, where it can be locally common. Foraging occurs on various Asteraceae including ragworts and Yarrow. *Colletes* bees are typically ground-nesting.



Colletes daviesanus (left) and its cleptoparasite *Epeolus variegatus*.

***Colletes similis* Schenck**

CH 27.6.07

De 26.6.07, 26.6.08 (chamomile)

Comments: 2 sites, 3 records. Very scarce, though common on Corn Chamomile at field margins near Denton. Further Asteraceae such as ragworts, Oxeye Daisy, Yarrow and umbellifers are probably also used.

***Colletes succinctus* (Linnaeus)**

BG 25.8.07 (on Bell Heather near lighthouse)

Comments: 1 site, 1 record. A heathland specialist that requires heathers for foraging. Several found on chalk heath at Birling Gap, though seemingly absent from Lullington Heath which supports a much larger area of heathers.

***Dasypoda hirtipes* (Fabricius)**

SH 22.7.07

Comments: 1 site, 1 record. This bee requires sandy ground for nesting and forages mostly on hawkish Asteraceae such as Cat's-ear, hawk's-beards and hawkbits. **Nationally Scarce.**

***Epeolus variegatus* (Linnaeus)**

Cu 14.7.05

SH 22.7.07

Comments: 2 sites, 2 records. A cuckoo-parasite of certain *Colletes* bees, and associated with *C. daviesanus* at the two sites here.

***Halictus eurygnathus* Blüthgen**

BH 23.5.04, 22.7.04, 14.6.05 (on early Greater Knapweed), 16.8.06 (males q. common in G. Knapweed areas),

CH 31.8.04 (one male), 24.6.08 (several females on G. Knapweed)

DD 13.6.05 (a few females)

De 26.7.06 (common on G. Knapweed), 26.6.07 (several females, G. Knapweed), 26.8.07 (mostly males), 26.6.08 (several females on G. Knapweed)

FF 25.7.06 (one female)

LD 17.5.04 (one female), 12.6.06

MC 19.5.04 (female), 23.7.04 (females common on G. Knapweed, males on Pastinaca & Heracleum)

18.6.05 (several), 15.8.06 (males abundant on Marjoram, a few females on G. Knapweed)

Comments: 7 sites, 18 records. Considered extinct in Britain until its rediscovery by this survey in May 2004. Widespread within the East Sussex Downs but localised and requiring an abundance of Greater Knapweed. Females appear in May before the main forage plant is in flower, and flower visits have not been observed this early in its flight period, through buttercups, Germander Speedwell and Dropwort are usually the main flowers present where it has been found. From mid June onwards Greater

Knapweed seems to become the exclusive forage plant for females. It has never been observed by the author on Common Knapweed, but is said to forage on a variety of plants abroad. Males additionally visit umbellifers and have been seen swarming around Marjoram. The Denton and Beachy Head populations are particularly strong. All *Halictus* species are ground-nesters. **Nationally Endangered (RDB1)** – see Falk (1991) for historic data.

***Halictus rubicundus* (Christ)**

BC 10.4.07, 27.8.07
BG 22.4.03
CH 24.7.04, 31.8.04, 11.4.05, 11.7.05, 24.6.08
Cu 14.7.05
DD 3.5.06, 28.7.06
De 9.4.07, 26.6.07
CH 21.7.07
LD 17.5.04, 9.4.07
LH 10.7.05, 18.5.08
MC 23.7.04, 15.8.06
WD 28.8.04, 4.5.06, 23.6.07

Comments: 11 sites, 23 records. Fairly frequent though rarely abundant. It forages on a variety of flowers, especially Asteraceae such as ragworts, thistles and knapweeds. The host of *Sphcodes gibbus*.

***Halictus tumulorum* (Linnaeus)**

BC 19.5.04, 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 22.4.03, 15.6.06, 24.7.06, 22.5.07, 25.8.07
BH 22.4.03, 23.5.04, 22.7.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)
CH 24.7.04, 31.8.04, 11.7.05, 24.6.08
Cr 19.8.06, 8.4.07, 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 23.5.04, 17.6.05, 14.7.05, 24.5.07
DD 30.8.04, 13.6.05, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 26.7.06, 9.4.07, 26.8.07, 21.5.08, 26.6.08
FF 20.4.03, 26.8.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06, 29.8.07
FH 26.8.03, 16.5.04, 13.6.06
LD 11.4.04, 17.5.04, 29.8.04, 12.6.06
LH 25.8.03, 18.5.04, 10.7.05, 11.6.06, 18.5.08
MC 19.5.04, 23.7.04, 17.4.05, 18.6.05, 15.8.06, 19.5.08
SH 18.5.04, 11.4.07, 22.7.07, 23.6.08
WD 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 79 records. Common and often abundant. It forages on a very wide variety of flowers.

***Hoplitis claviventris* (Thomson)**

BC 16.6.06, 23.5.07
Cr 24.7.07
DD 13.6.05, 28.7.06, 20.5.07
De 26.7.06
FF 11.6.05
FH 13.6.06
LH 10.7.05
WD 13.7.05

Comments: 8 sites, 11 records. Rather localised and usually associated with good stands of bird's-foot-trefoils. Nesting occurs in hollow stems. This is the special host of the scarce bee *Stelis ornatula*.

***Hoplitis spinulosa* (Kirby)**

BC 16.6.06
BG 24.7.06
BH 22.7.04, 14.6.05, 16.8.06
CH 24.7.04, 31.8.04, 11.7.05, 24.6.08

Cr 28.6.07, 24.7.07
Cu 14.7.05, 24.5.07
DD 30.7.88, 13.6.05, 28.7.06
De 26.7.06 (thistles & knapweeds), 26.6.07, 26.6.08
FF 25.7.06 (thistles)
FH 21.7.07
LD 12.7.05, 12.6.06
LH 10.7.05
MC 30.7.88, 23.7.04, 18.6.05 (common), 15.8.06
SH 23.6.08
WD 23.6.07

Comments: 15 sites, 30 records. Frequent and often common. It forages on a variety of Asteraceae including hawkish species, thistles, knapweeds, Oxeye Daisy and chamomiles. Nesting occurs in empty snail shells and it seems to favour those in particularly short or sparse turfs fully exposed to the sun. A strongly calcicolous species.



Hoplitis claviventris (left) a stem nesting bee that forages heavily on bird's-foot-trefoils; *H. spinulosus* (right) a strongly calcicolous species that forages on Asteraceae and nests in empty snail shells.

***Hylaeus annularis* (Kirby)**

BC 27.8.07
BG 24.7.06, 25.8.07
BH 22.7.04, 14.6.05, 16.8.06,
CH 24.7.04, 31.8.04, 11.7.05, 27.6.07, 24.6.08
DD 30.7.88, 30.8.04, 13.6.05, 28.7.06
De 26.8.07, 26.6.08
FF 26.8.03, 25.7.06
FH 13.6.06
LD 12.7.05, 12.6.06
LH 10.7.05, 11.6.06
MC 23.7.04, 18.6.05, 15.8.06
SH 22.7.07
WD 13.7.05, 23.6.07

Comments: 13 sites, 30 records. Frequent and often common. It forages on a variety of flowers, but perhaps especially Asteraceae such as knapweeds and hawkish species. Nesting occurs in hollow plant stems. A calcicolous species.

***Hylaeus brevicornis* Nylander**

BC 16.6.06
BG 24.7.06
BH 22.7.04, 16.8.06

CH 24.6.08
Cr 24.7.07
DD 28.7.06
De 26.7.06
FF 25.7.06
LD 12.7.05
LH 25.8.03, 10.7.05, 11.6.06
SH 22.7.07
WD 13.7.05

Comments: 12 sites, 15 records. Frequent but not usually abundant. Usually encountered on mignonettes and Wild Carrot, though a wider variety of flowers are probably used. Nesting occurs in hollow stems.

***Hylaeus communis* Nylander**

BC 16.6.06, 28.7.07 (common)
BG 15.6.06 (Reseda), 25.8.07
BH 16.8.06
CH 24.7.04, 11.7.05
Cr 28.6.07, 24.7.07
Cu 24.5.07
DD 30.8.04
De 26.7.06, 26.8.07, 26.6.08
FF 25.7.06
FH 21.7.07
MC 15.8.06
SH 22.7.07
WD 13.7.05, 23.6.07

Comments: 13 sites, 20 records. Frequent and occasionally common. Often encountered on Wild Mignonette, though various composites and umbellifers are also used. Nesting occurs in hollow stems and dead wood.

***Hylaeus confusus* Nylander**

BC 16.6.06
BH 22.7.04
CH 27.6.07
Cr 28.6.07
Cu 17.6.05
DD 13.6.05, 20.5.07
LD 12.7.05, 12.6.06
LH 10.7.05, 11.6.06
MC 18.6.05, 15.8.06
WD 13.7.05, 23.6.07

Comments: 10 sites, 15 records. Fairly frequent. No flower-visiting was noted though it is known to use a variety of flowers. Nesting occurs in hollow plant stems.

***Hylaeus cornutus* Curtis**

BG 24.7.06
LD 12.7.05
MC 15.8.06

Comments: 3 sites, 3 records. Wild Carrot and Wild Parsnip seem to be the main forage plants on the Downs. Nesting occurs in hollow plant stems. A rather calcicolous species. **Nationally Scarce.**

***Hylaeus hyalinatus* Smith**

BG 15.6.06 (Wild Mignonette)
BH 16.8.06
DD 30.8.04, 20.5.07
LD 12.6.06
SH 23.6.08 (nesting in sandface)

Comments: 5 sites, 6 records. Very localised. Flower visiting was observed on Wild Mignonette, but a variety of other plants, especially Asteraceae are probably also used. Nesting was observed in a sandface at Seaford Head Golf Course, though it can use hollow plant stems too.



Hylaeus bees are small and black with inconspicuous pilosity. *H. annularis* (left) and *H. signatus* (right) are both moderately calcicolous species frequent on the Downs. The former forages on a variety of flowers but the latter specialises in mignonettes.

***Hylaeus pictipes* (Smith)**

BG 15.6.06, 24.7.06, 22.5.07, 25.8.07

Cu 14.7.05

Comments: 2 sites, 5 records. Rare and seemingly favouring coastal sites on the Downs. All encounters relate to Wild Mignonette, though it is probably using other plants such as Wild Carrot.

Nationally Scarce.

***Hylaeus signatus* (Panzer)**

BC 16.6.06, 28.7.07

BG 15.6.06, 24.7.06

DD 28.7.06

De 26.7.06 (common on Wild Mignonette), 26.6.07 (on mignonettes)

LD 12.7.05, 12.6.06

Comments: 5 sites, 8 records. Rather scarce, despite the abundance of its pollen sources (Wild Mignonette and Weld) on the Downs. Nesting can occur in hollow plant stems and in the ground. A rather calcicolous species. **Nationally Scarce.**

***Lasioglossum albipes* (Fabricius)**

BC 16.6.06, 23.5.07, 27.8.07

BG 15.6.06, 24.7.06, 22.5.07, 25.8.07

BH 22.4.03, 23.5.04, 22.7.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)

CH 22.5.04, 24.7.04, 31.8.04, 11.7.05, 27.6.07, 24.6.08 (common),

Cr 22.5.04, 19.8.06 (common), 19.5.07, 24.7.07

Cu 23.8.03, 23.5.04

DD 30.7.88, 30.8.04, 13.6.05, 3.5.06, 28.7.06, 20.5.07

De 26.6.07, 26.8.07, 21.5.08, 26.6.08

FF 11.6.05, 25.7.06, 29.8.07

FH 26.8.03, 16.5.04, 13.6.06, 21.7.07

LD 17.5.04, 29.8.04, 12.7.05

LH 25.8.03, 18.5.04, 10.7.05, 11.6.06, 29.8.07, 18.5.08

MC 19.5.04, 23.7.04, 18.6.05, 15.8.06, 19.5.08

SH 18.5.04, 11.4.07, 22.7.07, 28.8.07, 20.5.08

WD 28.8.04, 4.5.06, 23.6.07

Comments: 15 sites, 64 records. Common and often abundant. Most foraging by females was

observed on Asteraceae, especially hawkish species, though males can be common on ragworts, Yarrow and umbellifers. *Lasioglossum* species are all ground-nesters.

***Lasioglossum calceatum* (Scopoli)**

BC 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 24.7.06
BH 22.4.03, 23.5.04, 22.7.04, 14.6.05
CH 22.5.04, 24.7.04, 31.8.04, 11.7.05, 11.7.05, 24.6.08 (common),
Cr 22.5.04, 19.8.06, 8.4.07, 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 23.5.04, 14.7.05, 24.5.07
DD 30.8.04, 13.6.05, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 2.5.06, 26.7.06, 9.4.07, 26.6.07, 21.5.08, 26.6.08
FF 26.8.03, 16.5.04, 25.7.06
FH 26.8.03, 16.5.04, 21.7.07
LD 11.4.04, 17.5.04, 29.8.04, 12.7.05
LH 20.4.03, 25.8.03, 18.5.04, 10.7.05, 29.8.07, 18.5.08
MC 19.5.04, 23.7.04 (abund), 17.4.05, 18.6.05, 15.8.06, 19.5.08
SH 18.5.04, 22.7.07, 28.8.07, 20.5.08, 23.6.08
WD 28.8.04, 13.7.05, 4.5.06, 23.6.07

Comments: 15 sites, 71 records. Common and often abundant. It forages on a wide variety of flowers.



Lasioglossum calceatum female (left) and *L. xanthopus* female (right). *Lasioglossum* bees are small to medium-sized ground nesting species that can be amongst the most abundant bees on the Downs in summer.

***Lasioglossum fulvicorne* (Kirby)**

BC 19.5.04, 11.4.05 (abund), 16.6.06, 10.4.07, 23.5.07, 28.7.07 (common), 27.8.07
BG 24.7.06, 25.8.07
BH 22.4.03 (abund) 26.8.03 (abund), 23.5.04, 22.7.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)
CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07 (common), 24.6.08 (common)
Cr 22.5.04, 19.8.06, 19.5.07, 28.6.07
Cu 18.4.03, 23.8.03, 24.5.07
DD 30.8.04, 13.6.05, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 2.5.06, 26.7.06, 9.4.07, 21.5.08, 26.6.08
FF 26.8.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06, 29.8.07
FH 26.8.03, 16.5.04, 16.4.05, 21.7.07,
LD 11.4.04, 17.5.04, 29.8.04, 12.7.05, 12.6.06, 9.4.07
LH 25.8.03, 18.5.04, 10.7.05, 11.6.06, 29.8.07, 18.5.08
MC 19.5.04, 23.7.04, 17.4.05, 18.6.05, 15.8.06
SH 22.7.07, 28.8.07
WD 17.5.04, 28.8.04, 13.7.05, 4.5.06, 23.6.07

Comments: 15 sites, 75 records. Common and often abundant. Females visit a variety of flowers (but

perhaps especially Asteraceae), with males often abundant on late summer umbellifers. A moderately calcicolous species.

***Lasioglossum laevigatum* (Kirby)**

BC 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07

CH 31.8.04

LD 11.4.04, 12.6.06

MC 19.5.04, 23.7.04, 17.4.05 (common on Blackthorn), 18.6.05 (common), 15.8.06 (a few females), 19.5.08

Comments: 4 sites, 14 records. Localised, but common at Black Cap and Mount Caburn. Early females have been observed in number on Blackthorn, but are probably using a variety of flowers in summer. A candidate for Nationally Scarce status.

***Lasioglossum lativentre* (Schenck)**

BC 16.6.06, 27.8.07

BG 15.6.06, 24.7.06, 25.8.07

BH 22.4.03, 23.5.04, 22.7.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)

CH 11.7.05

Cr 19.5.07

Cu 23.5.04, 17.6.05, 24.5.07

DD 30.8.04, 13.6.05, 20.5.07

De 9.4.07, 26.8.07, 21.5.08

FF 16.5.04, 25.7.06, 29.8.07

FH 26.8.03, 16.4.05, 13.6.06 (common), 21.7.07

LD 17.5.04, 29.8.04, 12.7.05, 12.6.06

LH 10.7.05, 11.6.06, 29.8.07

MC 19.5.04, 23.7.04, 17.4.05, 18.6.05, 15.8.06

SH 29.8.07, 20.5.08

WD 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07

Comments: 15 sites, 48 records. Frequent but never abundant. No flower-visiting noted though it appears to use a variety of plants.

***Lasioglossum leucopus* (Kirby)**

BC 16.6.06, 23.5.07, 27.8.07

BG 15.6.06, 24.7.06, 22.5.07, 25.8.07

BH 22.4.03, 23.5.04, 22.7.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)

CH 24.7.04, 31.8.04, 11.7.05, 27.6.07, 24.6.08

Cr 22.5.04, 19.8.06, 19.5.07, 24.7.07

Cu 23.8.03, 23.5.04, 14.7.05

DD 30.8.04, 28.7.06, 20.5.07

De 26.7.06, 26.6.07, 26.8.07, 21.5.08, 26.6.08

FF 16.5.04, 11.6.05, 25.7.06, 29.8.07

FH 26.8.03, 13.6.06, 21.7.07

LD 11.4.04, 12.7.05, 12.6.06

LH 18.5.04, 10.7.05, 11.6.06, 29.8.07, 18.5.08

MC 19.5.04, 23.7.04, 18.6.05, 15.8.06, 19.5.08

SH 18.5.04, 22.7.07, 23.6.08

WD 17.5.04, 13.7.05

Comments: 15 sites, 58 records. Frequent and often common. No flower-visiting noted though it appears to use a variety of plants.

***Lasioglossum leucozonium* (Schrank)**

BC 23.5.07, 28.7.07, 27.8.07

BG 15.6.06, 24.7.06, 22.5.07, 25.8.07

BH 22.4.03, 23.5.04, 22.7.04, 14.6.05, 16.8.06 (common),

CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07, 24.6.08

Cr 19.8.06, 24.7.07

Cu 23.8.03, 23.5.04

DD 30.8.04, 13.6.05, 3.5.06, 28.7.06
De 21.5.04 (Beaked Hawk's-beard), 26.7.06, 26.6.07, 26.6.08
FF 25.7.06
FH 26.8.03, 16.4.05, 13.6.06 (thistles), 21.7.07
LD 29.8.04
LH 25.8.03, 10.7.05
MC 19.5.04, 15.8.06
SH 28.8.07
WD 28.8.04, 23.6.07

Comments: 15 sites, 44 records. Frequent and sometimes common, particularly females on knapweeds and hawkish Asteraceae such as Cat's-ear and hawk's-beards.

***Lasioglossum malachurum* (Kirby)**

BC 11.4.05, 27.8.07
BG 24.7.06, 25.8.07
BH 22.4.03 (nesting on path), 26.8.03, 22.7.04
CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07 (mayweeds)
Cr 19.8.06 (common), 8.4.07, 28.6.07 (common), 24.7.07
Cu 18.4.03, 23.8.03, 14.7.05, 11.4.07
De 2.5.06, 26.7.06, 9.4.07 (large colony at valley bottom), 26.6.07 (esp. chamomile/mayweeds), 26.8.07, 26.6.08 (large colony at valley bottom)
FH 16.4.05
FF 26.8.03, 16.5.04, 29.8.07
LH 29.8.07
SH 11.4.07, 22.7.07, 29.8.07, 23.6.08
WD 4.5.06, 23.6.07

Comments: 12 sites, 38 records. Frequent and sometimes locally abundant, forming some very large and dense nesting aggregations along well-trodden footpaths. Most flower visits observed related to Asteraceae including hawkish species, Oxeye Daisy, Daisy, chamomiles, mayweeds and knapweeds.

Nationally Scarce, but subject to a massive increase in national distribution in recent years and no longer worthy.

***Lasioglossum minutissimum* (Kirby)**

BC 27.8.07
BG 15.6.06
Cr 19.8.06, 19.5.07, 28.6.07, 24.7.07
Cu 17.6.05, 14.7.05
De 26.6.07
LH 11.6.06
SH 22.7.07

Comments: 7 sites, 11 records. Rather localised. No flower-visiting noted.

***Lasioglossum morio* (Fabricius)**

BC 19.5.04, 11.4.05, 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 22.4.03, 15.6.06, 24.7.06, 22.5.07, 25.8.07
BH 22.4.03, 26.8.03, 23.5.04, 22.7.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)
CH 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07, 24.6.08 (common)
Cr 19.8.06 (common), 19.5.07, 28.6.07, 24.7.07
Cu 18.4.03, 23.8.03, 23.5.04, 17.6.05, 14.7.05, 24.5.07
DD 11.4.04, 30.8.04, 13.6.05, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 2.5.06, 26.7.06, 9.4.07, 26.6.07, 26.8.07, 21.5.08, 26.6.08
FF 26.8.03, 12.4.04, 16.5.04, 11.6.05, 25.7.06, 29.8.07
FH 26.8.03
LD 11.4.04, 17.5.04, 29.8.04, 12.7.05, 12.6.06, 9.4.07
LH 20.4.03, 25.8.03, 12.4.04, 18.5.04, 10.7.05, 11.6.06, 18.5.08
MC 30.7.88, 19.5.04, 23.7.04, 17.4.05, 18.6.05, 15.8.06
SH 21.4.03, 18.5.04, 11.4.07, 22.7.07, 28.8.07, 20.5.08, 23.6.08
WD 9.4.04, 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 89 records. Common and often abundant, visiting a variety of flowers.

***Lasioglossum parvulum* (Schenck)**

BC 11.4.05, 16.6.06, 10.4.07, 28.7.07, 27.8.07
BH 22.4.03, 22.7.08, 22.7.04, 11.4.07
CH 27.6.07
Cr 8.4.07, 24.7.07
Cu 18.4.03, 11.4.07
DD 3.5.06, 28.7.06
De 2.5.06, 9.4.07, 21.5.08, 16.5.04
FF 16.5.04, 11.6.05, 25.7.06
LD 29.8.04
LH 11.6.06, 18.5.08
MC 17.4.05
SH 21.4.03, 11.4.07, 22.7.07
WD 17.5.04, 12.4.07

Comments: 13 sites, 32 records. Frequent but rarely common. No flower-visiting noted.

***Lasioglossum pauxillum* (Schenck)**

BC 16.6.06, 10.4.07, 23.5.07, 28.7.07, 27.8.07
BG 24.7.06, 25.8.07
BH 23.5.04, 14.6.05, 16.8.06 (common), 11.4.07, 22.5.08 (Cow Gap undercliff)
CH 22.5.04, 24.7.04, 31.8.04, 11.4.05, 11.7.05, 27.6.07 (common), 24.6.08
Cr 19.8.06 (common), 19.5.07, 28.6.07, 24.7.07
Cu 23.5.04, 17.6.05, 14.7.05, 11.4.07, 24.5.07 (common)
DD 30.8.04, 13.6.05, 3.5.06, 28.7.06 (common), 12.4.07, 20.5.07
De 2.5.06 (abundant), 26.7.06, 9.4.07, 26.6.07, 26.8.07, 21.5.08, 26.6.08
FF 20.4.03, 26.8.03 (males common on thistle flowers), 12.4.04, 16.5.04, 11.6.05, 25.7.06, 29.8.07
FH 26.8.03, 16.5.04, 13.6.06, 21.7.07 (common)
LD 17.5.04, 29.8.04, 12.7.05, 12.6.06, 9.4.07
LH 25.8.03, 18.5.04, 10.7.05 (common), 11.6.06, 29.8.07, 18.5.08
MC 19.5.04 (common), 23.7.04 (common), 17.4.05, 18.6.05 (abund), 15.8.06, 19.5.08
SH 11.4.07, 22.7.07, 28.8.07, 20.5.08
WD 17.5.04, 28.8.04, 13.7.05, 4.5.06, 12.4.07, 23.6.07

Comments: 15 sites, 79 records. Frequent and often the most abundant bee at a site, especially on drier south-facing slopes where much foraging takes place on hawkish Asteraceae. Males can be common on thistles and umbellifers. **Nationally Scarce**, but subject to a massive increase in distribution in recent years and no longer worthy.

***Lasioglossum punctatissimum* (Schenck)**

BC 19.5.04
BG 15.6.06, 24.7.06, 22.5.07, 25.8.07
LH 11.6.06
SH 22.7.07

Comments: 4 sites, 7 records. Highly localised (common at Birling Gap), with females observed visiting Ground-ivy at some sites.

***Lasioglossum puncticolle* (Morawitz)**

BC 16.6.06
FF 26.8.03
MC 15.8.06

Comments: 3 sites, 3 records. Very scarce with poorly understood requirements, though the three sites feature some of the finest short turf areas observed on the Downs. No flower-visiting was observed, though Wild Carrot is a known pollen source elsewhere and it is also said to visit Asteraceae. **Nationally Scarce**.

***Lasioglossum smeathmanellus* (Kirby)**

BG 15.6.06

BH 23.5.04, 14.6.05, 16.8.06, 22.5.08 (Cow Gap undercliff)
Cu 23.8.03, 17.6.05, 14.7.05, 24.5.07
LD 17.5.04, 12.6.06
SH 18.5.04, 20.5.08
WD 12.4.07, 23.6.07
Comments: 6 sites, 15 records. Rather localised. No flower-visiting noted.

***Lasioglossum villosulum* (Kirby)**

BC 16.6.06, 23.5.07
BG 25.8.07
BH 23.5.04, 22.7.04
CH 22.5.04, 11.7.05, 27.6.07
Cr 19.8.06, 19.5.07
Cu 23.8.03, 17.6.05, 14.7.05
DD 30.8.04, 20.5.07
De 21.5.04 (hawk's-beards), 26.6.07, 21.5.08
FF 16.5.04, 25.7.06, 29.8.07
LH 11.6.06
MC 18.6.05, 15.8.06
SH 18.5.04, 22.7.07, 28.8.07, 23.6.08
Comments: 12 sites, 28 records. Recorded visiting hawk's-beards, though a variety of flowers are probably used.

***Lasioglossum xanthopus* (Kirby)**

BG 15.6.06, 22.5.07
BH 23.5.04, 14.6.05
CH 22.5.04, 24.6.08
Cr 8.4.07, 19.5.07, 28.6.07 (collecting pollen from Greater Knapweed)
Cu 24.5.07
DD 3.5.06
De 2.5.06, 9.4.07, 26.6.07, 26.8.07 (several males), 21.5.08, 26.6.08 – also several females gathering pollen from Germander Speedwell in 2011 here
FH 13.6.06 (female collecting pollen from Bramble)
FF 12.4.04, 16.5.04, 11.6.05, 29.8.07
LD 12.6.06
MC 19.5.04, 17.4.05, 18.6.05 (several)
Comments: 11 sites, 26 records. Frequent though usually in small numbers. Flower-visiting by females was observed on Germander Speedwell, Bramble, Viper's-bugloss, Greater Knapweed and Common Ragwort, though a variety of further species are probably also used. Males are most typically found on Corn Sowthistle and late thistles from late August onwards. **Nationally Scarce.**

***Lasioglossum zonulum* (Smith)**

BC 27.8.07
Cr 24.7.07
DD 30.8.04, 13.6.05, 20.5.07
De 26.7.06
FH 16.5.04
LH 25.8.03, 18.5.04
Comments: 6 sites, 9 records. Localised and usually not common. Oversized males were encountered on several occasions. No flower-visiting noted though Asteraceae are known to be favoured.

***Megachile dorsalis* Pérez**

BG 24.7.06, 22.5.07
SH 23.6.08
Comments: 2 sites, 3 records. Scarce and coastal. Females forage mainly on Common Bird's-foot-trefoil. Nesting occurs in hollow stems. **Nationally Scarce.**

***Megachile ligniseca* (Kirby)**

CH 11.7.05, 24.6.08

LH 10.7.05

MC 30.7.88

Comments: 3 sites, 4 records. Scarce. Females were usually observed on thistles. Nesting occurs in dead wood.

***Megachile versicolor* Smith**

BC 23.5.07

BG 24.7.06

Cr 24.7.07

DD 30.7.88, 30.8.04, 28.7.06, 20.5.07

SH 22.7.07

WD 28.8.04

Comments: 6 sites, 9 records. Rather localised. Females were observed on bird's-foot-trefoils, thistles and knapweeds. Nesting typically occurs in dead wood and hollow plant stems.

***Megachile willughbiella* (Kirby)**

BG 24.7.06

FF 25.7.06

SH 22.7.07

Comments: 3 sites, 3 records. Scarce. Females were observed on thistles, though other plants such as legumes and Rosebay Willowherb are probably used too.



Leafcutter bees: Megachile versicolor (left) one of Britain's commonest species and M. dorsalis (right) which is mostly coastal.

***Melecta albifrons* (Forster)**

BH 16.4.05

SH 17.4.05 (head deposits with *A. plumipes*)

Comments: 2 sites, 2 records. The special cuckoo-parasite of *Anthophora plumipes*. Observed in small numbers at Beachy Head and Seaford Head, at cliff edges.

***Melitta haemorrhoidalis* (Fabricius)**

BC 28.7.07 (Harebell), 27.8.07 (Harebell)

Comments: 1 site, 2 records. Rare. Females obtain pollen exclusively from bellflowers, specifically Harebell at Black Cap. Not recorded at Clustered Bellflower, which is quite numerous at some sites on the Downs. This and the following *Melitta* species all nest in dry soils.

***Melitta leporina* (Panzer)**

BG 24.7.06

BH 22.7.04

CH 24.7.04, 11.7.05, 27.6.07
Cr 28.6.07, 24.7.07
De 26.7.06 (White Clover), 26.6.07
SH 25.6.07, 22.7.07
WD 13.7.05

Comments: 7 sites, 12 records. Rather localised. Females were observed foraging on White Clover and seem to obtain their pollen exclusively from legumes, though males like ragwort flowers. A host of the scarce nomad bee *Nomada flavopicta*.



Melitta bees are ground-nesting species with rather restricted pollen sources. *M. haemorrhoidalis* (top left) specialises on campanulas; *M. leporina* (top right) forages mostly on clovers; *M. tricincta* (bottom left) forages exclusively on Red Bartsia. Some if not all of these three species are attacked by the nomad bee *Nomada flavopicta* (bottom right).

***Melitta tricincta* Kirby**

BC 28.7.07
BG 24.7.06, 25.8.07
BH 16.8.06
CH 24.7.04
Cr 19.8.06
Cu 23.8.03
DD 30.8.04, 28.7.06
De 26.8.07, 26.6.08
LD 29.8.04
LH 25.8.03, 29.8.07 (common)

MC 23.7.04, 15.8.06
WD 28.8.04

Comments: 12 sites, 17 records. Locally common in association Red Bartsia, the exclusive pollen source. The bee and plant are often found in lightly or periodically grazed pasture of a fairly improved nature, as well as more floristically diverse grasslands. A host of the scarce nomad bee *Nomada flavopicta*. **Nationally Scarce**.

***Nomada conjungens* Herrich-Schäffer**

MC 18.6.05 (one female), 19.5.08 (one male)

Comments: 1 site, 2 records. Rare. The special cuckoo-parasite of *Andrena proxima*, which has a fairly strong population at Mount Caburn. **Nationally Vulnerable (RDB2)**.

***Nomada fabriciana* (Linnaeus)**

BC 11.4.05, 16.6.06

BH 22.7.04, 16.4.05

CH 24.7.04, 11.4.05, 11.7.05

Cr 28.6.07, 24.7.07

Cu 18.4.03, 14.7.05

DD 3.5.06, 28.7.06

De 9.4.07, 26.6.07

FF 20.4.03, 12.4.04, 16.5.04

FH 16.4.05

LD 11.4.04, 12.7.05

LH 12.4.04, 10.7.05, 18.5.08

MC 17.4.05

SH 11.4.07

WD 9.4.04, 13.7.05

Comments: 14 sites, 28 records. Frequent (only unrecorded at Birling Gap). The cuckoo-parasite of *Andrena bicolor*, *A. chrysoceles* and possibly others, but bivoltine like the first host.



Nomad bees are rather wasp-like cleptoparasites of *Andrena* and *Melitta* species. Two of the commonest species on the Downs are *N. fabriciana* (left) and *N. flava* (right). *N. fucata* and *N. flavopicta* are illustrated elsewhere in this report.

***Nomada flava* Panzer**

BC 19.5.04

BG 22.5.07

BH 23.5.04, 14.6.05, 22.5.08 (Cow Gap undercliff)

CH 22.5.04

Cr 19.5.07
Cu 23.5.04, 24.5.07
DD 20.5.07
De 2.5.06, 21.5.08
FF 16.5.04, 11.6.05
FH 13.6.06
LD 17.5.04
LH 18.5.08
MC 17.4.05
SH 18.5.04
WD 17.5.04, 4.5.06

Comments: 15 sites, 21 records. Frequent. Primarily a cuckoo-parasite of *Andrena carantonica* but possibly attacking some other *Andrena* species.

***Nomada flavoguttata* (Kirby)**

BC 19.5.04, 16.6.06, 10.4.07, 23.5.07, 28.7.07
BH 22.4.03, 23.5.04, 22.7.04
CH 24.7.04, 11.7.05
Cr 8.4.07, 19.5.07, 28.6.07, 24.7.07
Cu 14.7.05, 24.5.07
DD 3.5.06, 28.7.06, 12.4.07
De 2.5.06, 26.7.06, 9.4.07, 26.6.07, 21.5.08
FF 12.4.04, 16.5.04, 11.6.05, 25.7.06
LD 11.4.04, 17.5.04, 12.7.05
LH 12.4.04, 18.5.04, 10.7.05
MC 23.7.04, 17.4.05, 18.6.05
SH 11.4.07
WD 17.5.04, 23.6.07

Comments: 13 sites, 40 records. Frequent and sometimes common. A cuckoo-parasite of small *Andrena* species such as *A. minutula*, *A. minutuloides*, *A. semilaevis* and *A. subopaca*. Bivoltine.

***Nomada flavopicta* (Kirby)**

BC 28.7.07
BG 24.7.06
BH 22.7.04, 16.8.06
CH 24.7.04
Cr 24.7.07
DD 30.8.04, 28.7.06
LD 29.8.04, 29.8.04, 12.7.05
MC 23.7.04, 15.8.06

Comments: 8 sites, 13 records. Fairly frequent. A cuckoo-parasite of *Melitta leporina* and *M. tricineta*.

Nationally Scarce.

***Nomada fucata* Panzer**

BG 22.4.03, 24.7.06
BH 22.4.03, 23.5.04, 22.7.04, 16.4.05, 11.4.07, 22.5.08 (Cow Gap undercliff)
CH 22.5.04, 24.7.04
Cr 28.6.07, 24.7.07
Cu 18.4.03, 14.7.05, 11.4.07
DD 28.7.06
De 2.5.06, 26.7.06, 9.4.07, 26.6.07, 21.5.08
FF 20.4.03, 12.4.04, 16.5.04
FH 16.4.05
LD 11.4.04, 17.5.04, 12.7.05
LH 20.4.03, 12.4.04, 10.7.05
MC 17.4.05, 15.8.06
SH 17.4.05, 22.7.07, 20.5.08
WD 17.5.04, 13.7.05, 4.5.06, 12.4.07

Comments: 14 sites, 40 records. Frequent and often common close to nesting aggregations of the host *Andrena flavipes* and bivoltine like the host. Only unrecorded at Black Cap. **Nationally Scarce**, but much increased in recent years like the host and probably no longer worthy of this grade.

***Nomada fulvicornis* Fabricius**

BG 22.4.03

Comments: 1 site, 1 record. A cuckoo–parasite of several *Andrena* species, *A. tibialis* being the only host recorded by this survey. **Nationally Rare (RDB3)**.

***Nomada goodeniana* (Kirby)**

BC 10.4.07, 23.5.07

BG 22.4.03

BH 23.5.04, 11.4.07, 22.5.08 (Cow Gap undercliff)

CH 27.6.07

Cr 19.5.07

Cu 18.4.03, 17.6.05, 24.5.07

DD 3.5.06

De 2.5.06, 9.4.07, 21.5.08

FF 16.5.04

FH 16.4.05

LD 12.6.06

LH 18.5.04, 11.6.06, 18.5.08

MC 19.5.04, 17.4.05, 18.6.05

SH 18.5.04, 20.5.08

WD 4.5.06, 12.4.07

Comments: 15 sites, 28 records. Frequent in spring. A cuckoo parasite of *Andrena nigroaenea*, *A. pubescens* and possibly some other species.

***Nomada leucophthalma* (Kirby)**

Cr 8.4.07

Comments: 1 site, 1 record. Possibly a vagrant as neither of the hosts (*Andrena clarkella* and *A. apicata*) were recorded on the Downs, and the open downland lacks the plentiful Grey Willow or Goat Willow that these host bees require.

***Nomada marshamella* (Kirby)**

BC 11.4.05, 16.6.06, 23.5.07

BG 22.5.07

BH 16.4.05, 11.4.07, 22.5.08 (Cow Gap undercliff)

CH 22.5.04

Cr 8.4.07, 19.5.07

Cu 18.4.03, 24.5.07

DD 3.5.06, 28.7.06 (fresh females), 12.4.07

De 2.5.06, 9.4.07

FF 20.4.03, 12.4.04, 16.5.04

LD 17.5.04

LH 18.5.08

MC 17.4.05

SH 21.4.03, 20.5.08

WD 9.4.04, 4.5.06

Comments: 14 sites, 27 records. Frequent in spring with a very weak summer generation (noted at Deep Dean on 28.7.06). A cuckoo-parasite of *Andrena carantonica* and possibly *A. trimmerana*.

***Nomada panzeri* Lepelletier**

BC 19.5.04

Cr 19.5.07

Cu 17.6.05

LH 18.5.08

SH 18.5.04, 20.5.08

Comments: 5 sites, 6 records. Rather localised. A cuckoo-parasite of *Andrena* species such as *A. varians*, *A. synadelpha*, *A. helvola* and *A. fucata*.

***Nomada ruficornis* (Linnaeus)**

BC 23.5.07
BH 14.6.05
Cr 19.5.07
Cu 24.5.07
LH 11.6.06
MC 17.4.05
SH 18.5.04, 20.5.08
WD 4.5.06

Comments: 8 sites, 9 records. Rather localised. The special cuckoo-parasite of *Andrena haemorrhoa*.

***Nomada rufipes* Fabricius**

CH 24.7.04
SH 22.7.07

Comments: 2 sites, 2 records. Rare. A cuckoo-parasite of *Andrena* species such as *A. denticulata*, *A. nigriceps* and possibly *A. nitidiuscula*.

***Nomada sheppardana* (Kirby)**

BC 23.5.07

Comments: 1 site, 1 record. Rare. A cuckoo-parasite of small *Lasioglossum* species.

***Nomada signata* Jurine**

BC 10.4.07
BH 16.4.05, 11.4.07
Cu 11.4.07
FH 16.4.05
MC 17.4.05
SH 11.4.07

Comments: 6 sites, 7 records. Rather localised. A special cuckoo-parasite of *Andrena fulva* in certain parts of the host's range (though replaced by a form of *N. panzeri* in many areas). **Nationally Vulnerable (RDB2)**, though an increase in status in recent years would make Nationally Scarce more appropriate.

***Nomada striata* Fabricius**

Cr 19.5.07
Cu 17.6.05
FH 13.6.06
LH 11.6.06

Comments: 4 sites, 4 records. Scarce. The special cuckoo-parasite of *Andrena wilkella*.

***Osmia aurulenta* (Panzer)**

BG 15.6.06 (esp on Viper's-bugloss), 24.7.06, 22.5.07
BH 23.5.04, 22.7.04, 14.6.05 (bird's-foot-trefoils, Horseshoe Vetch), 22.5.08 (Cow Gap undercliff, Horseshoe Vetch)
Cr 19.5.07, 28.6.07
Cu 23.5.04, 17.6.05, 14.7.05, 24.5.07
DD 13.6.05, 3.5.06, 20.5.07
De 2.5.06, 26.7.06 (bird's-foot trefoils), 9.4.07, 26.6.07, 21.5.08, 26.6.08
FF 16.5.04, 11.6.05
FH 13.6.06 (bird's-foot trefoils)
LD 12.6.06
LH 11.6.06
MC 17.4.05, 18.6.05 (common), 19.5.08
SH 18.5.04

Comments: 12 sites, 31 records. Frequent, especially on short and sparse turfs upon south-facing

slopes. Much foraging was observed on bird's-foot-trefoils and Horseshoe Vetch. Nesting occurs in empty snail-shells, and the sapygid wasp *Sapyga quinquepunctata* is clearly a significant parasite at some sites. Typically a species of coastal dunes and shingle.



Mason bees: *Osmia bicolor* (top left) is one of Britain's most calcicolous bees, nesting in empty snail shells and foraging on a variety of flowers; *O. aurulenta* (top right) has similar nesting habits but has a mostly coastal distribution and forages heavily on Fabaceae; *O. leaiana* (bottom left) nests in dead wood and forages mainly on Asteraceae. All three appear to be attacked by the brood-parasite wasp *Sapyga quinquepunctata* (bottom right).

***Osmia bicolor* (Schrank)**

- BC 11.4.05 (female on Blackthorn), 16.6.06, 10.4.07
- BG 15.6.06, 22.5.07
- BH 22.4.03, 16.4.05, 14.6.05 (bird's-foot-trefoils, Horseshoe Vetch), 11.4.07
- CH 11.4.05
- Cr 8.4.07 (Hairy Violet), 19.5.07
- Cu 24.5.07
- DD 13.6.05, 3.5.06 (Ground-ivy, females on Blackthorn), 20.5.07
- De 2.5.06, 9.4.07, 21.5.08 (bird's-foot-trefoils, Horseshoe Vetch)
- FF 11.6.05
- FH 13.6.06
- LH 20.4.03, 12.4.04, 18.5.04, 10.7.05, 11.6.06 (Bramble, cinquefoils), 12.4.07 (Blackthorn, Ground-ivy), 18.5.08
- MC 19.5.04, 19.5.08
- WD 13.7.05, 4.5.06,

Comments: 13 sites, 32 records. Frequent and often common in spring. It forages on a variety of flowers, but especially bird's-foot trefoils, Horseshoe Vetch, Kidney Vetch, Ground-ivy and Blackthorn. Nesting occurs in empty snail-shells, often in longer and denser turfs than used by *O. aurulenta* or *Hoplitis spinulosa*, and the shells are eventually covered in a thatch of plant debris. A strongly calcicolous species. **Nationally Scarce** though rather dubiously so.

***Osmia caerulescens* (Linnaeus)**

BC 23.5.07

Cu 24.5.07

LD 17.5.04

Comments: 3 sites, 3 records. Scarce. Various types of flower are visited and it nests in dead wood and walls.

***Osmia leaiana* (Kirby)**

BC 16.6.06

Cr 28.6.07

De 26.6.07, 26.6.08

LD 12.6.06

LH 11.6.06

MC 18.6.05

Comments: 6 sites, 7 records. Rather scarce. Usually encountered on thistles and knapweeds. Nesting habits resemble *O. caerulescens*.

***Osmia rufa* (Linnaeus)**

BH 22.4.03

De 21.5.08

LH 11.6.06, 18.5.08

MC 17.4.05

SH 21.4.03, 20.5.08, 23.6.08

Comments: 5 sites, 8 records. Rather scarce, probably due to a lack of suitable nesting sites on the open downs (typically dead wood and walls).

***Sphecodes crassus* Thomson**

BC 19.5.04, 16.6.06 (common), 10.4.07, 23.5.07 (abund), 28.7.07

BG 24.7.06, 22.5.07, 25.8.07

BH 23.5.04, 22.7.04, 16.8.06

CH 24.7.04, 31.8.04, 11.7.05, 27.6.07, 24.6.08

Cr 22.5.04, 19.8.06, 19.5.07, 28.6.07, 24.7.07

Cu 23.5.04

DD 30.8.04, 13.6.05, 3.5.06, 28.7.06, 20.5.07

De 26.7.06, 9.4.07, 26.6.07, 26.8.07

FF 26.8.03, 16.5.04, 11.6.05, 25.7.06

FH 26.8.03, 13.6.06

LD 17.5.04, 12.7.05, 12.6.06

LH 18.5.04 (common), 10.7.05, 11.6.06

MC 23.7.04, 17.4.05, 18.6.05 (common), 15.8.06 (common)

WD 17.5.04, 13.7.05, 4.5.06, 23.6.07

Comments: 14 sites, 50 records. Frequent and often common (only unrecorded at Seaford Head). A cuckoo-parasite of various *Lasioglossum* species and possibly *Halictus tumulorum*. **Nationally Scarce** but now known to be far too common for this grading.

***Sphecodes ephippius* (Linnaeus)**

BC 19.5.04, 11.4.05, 16.6.06, 10.4.07, 23.5.07, 27.8.07

BG 24.7.06, 25.8.07

BH 22.7.04

CH 24.7.04, 11.7.05

Cr 19.5.07, 28.6.07, 24.7.07

Cu 17.6.05

DD 30.8.04, 3.5.06, 28.7.06, 12.4.07, 20.5.07
De 2.5.06, 26.7.06, 9.4.07, 26.8.07, 21.5.08
FF 16.5.04, 25.7.06
LD 17.5.04, 29.8.04, 12.7.05
LH 18.5.08
MC 23.7.04, 17.4.05, 15.8.06
SH 22.7.07
WD 17.5.04, 4.5.06, 12.4.07

Comments: 14 sites, 38 records. Frequent. A cuckoo-parasite of various *Lasioglossum* species and *Halictus tumulorum*.



Sphecodes pellucidus (left). *Sphecodes* bees are cleptoparasites of *Lasioglossum*, *Halictus* and a few *Andrena* species. Beware the similar-looking *Andrena labiata* (left) females of which have pollen-collecting brushes on the hind leg whilst males have white faces.

***Sphecodes ferruginatus* Hagens**

BG 25.8.07
CH 22.5.04, 24.7.04, 31.8.04
Cr 19.5.07
Cu 23.8.03, 23.5.04
DD 20.5.07
De 26.7.06, 26.8.07
FF 16.5.04
LH 29.8.07
WD 28.8.04

Comments: 9 sites, 13 records. Fairly frequent. A cuckoo parasite of *Lasioglossum* species, especially as *L. fulvicorne* on calcareous grasslands. **Nationally Scarce.**

***Sphecodes geofrellus* (Kirby)**

BG 25.8.07
BH 23.5.04, 22.7.04, 14.6.05, 16.8.06
CH 24.7.04, 11.7.05
Cr 19.8.06, 19.5.07, 28.6.07, 24.7.07
DD 28.7.06, 12.4.07
De 26.7.06, 21.5.08, 26.6.08
FF 16.5.04, 11.6.05, 25.7.06, 29.8.07
LD 17.5.04
LH 18.5.04, 11.6.06
MC 23.7.04, 18.6.05
SH 22.7.07, 23.6.08
WD 28.8.04, 12.4.07

Comments: 12 sites, 29 records. Fairly frequent. A cuckoo-parasite of *Lasioglossum* species such as *L. morio* and *L. leucopus*.

***Sphecodes gibbus* (Linnaeus)**

BC 16.6.06, 23.5.07
BH 22.7.04, 16.8.06
CH 24.7.04
DD 3.5.06, 20.5.07
MC 23.7.04, 15.8.06

Comments: 5 sites, 9 records. Rather scarce. A cuckoo-parasite of *Halictus rubicundus*.

***Sphecodes hyalinatus* Hagens**

BC 19.5.04, 23.5.07, 28.7.07
BH 23.5.04, 22.7.04, 16.8.06
CH 24.7.04, 31.8.04, 11.7.05
Cr 19.8.06, 24.7.07
Cu 17.6.05
DD 28.7.06
De 26.7.06
FF 26.8.03, 11.6.05, 25.7.06, 29.8.07
FH 16.5.04, 21.7.07 (common)
LD 17.5.04, 29.8.04, 12.7.05, 12.6.06
LH 10.7.05
MC 19.5.04, 23.7.04, 15.8.06 (common)
WD 28.8.04

Comments: 13 sites, 29 records. Fairly frequent and sometimes common. A cuckoo-parasite of *Lasioglossum fulvicorne*, seemingly sharing it with *S. ferruginatus*.

***Sphecodes monilicornis* (Kirby)**

BC 19.5.04, 16.6.06, 23.5.07
BG 24.7.06
BH 22.4.03, 16.8.06
CH 24.7.04, 31.8.04, 11.7.05
Cr 19.8.06, 24.7.07
Cu 24.5.07
DD 13.6.05, 3.5.06, 28.7.06, 20.5.07
De 26.7.06
FF 26.8.03, 16.5.04, 25.7.06
LD 12.7.05, 12.6.06
LH 10.7.05
MC 19.5.04, 23.7.04, 18.6.05
WD 17.5.04, 12.4.07

Comments: 13 sites, 28 records. Fairly frequent. A cuckoo-parasite of *Lasioglossum calceatum*, *L. albipes* and *L. malachurum*.

***Sphecodes niger* Hagens**

BC 19.5.04
BG 24.7.06 (a male)
BH 23.5.04, 22.7.04
CH 24.7.04, 31.8.04, 11.7.05
Cr 19.8.06, 28.6.07, 24.7.07
De 26.7.06
FF 26.8.03 (common), 16.5.04, 25.7.06
LD 29.8.04
LH 18.5.04 (common), 10.7.05
MC 18.6.05, 15.8.06
WD 17.5.04 (common)

Comments: 11 sites, 20 records. Frequent and sometimes common. A cuckoo-parasite of

Lasioglossum morio which it seems to share with *S. geofrellus* (but possibly selecting warmer locations). **Nationally Threatened (RDB3)** but much increased in abundance and range in recent years and better regarded as Nationally Scarce.

***Sphecodes pellucidus* Smith**

SH 18.5.04 (several)

Comments: 1 site, 1 record. Several encountered around a nesting aggregation of the host *Andrena barbilabris* at Seaford Head cliff top.

***Sphecodes puncticeps* Thompson**

BC 23.5.07

BG 24.7.06

BH 16.8.06

CH 24.7.04, 31.8.04

Cr 19.8.06

Cu 17.6.05

FF 26.8.03, 29.8.07

WD 28.8.04

Comments: 8 sites, 10 records. Localised. A cuckoo-parasite of *Lasioglossum lativentre* and possibly other species such as *L. villosulum*.

***Sphecodes rubicundus* von Hagens**

Cu 17.6.05, 24.5.07 (several males)

SH 18.5.04 (males common),

Comments: 2 sites, 3 records. Scarce. A cuckoo-parasite of *Andrena labialis* and possibly *A. flavipes* (the latter being common at the two sites given above, where *A. labialis* was unrecorded). **Nationally Scarce.**

***Sphecodes spinulosus* Hagens**

BG 15.6.06 (males & females on bare cliff tops E of Gap), 22.5.07 (ditto)

Cr 19.5.07 (males numerous)

Cu 24.5.07 (small numbers)

De 21.5.08

Comments: 4 sites, 5 records. Scarce but occasionally quite numerous. The special cuckoo-parasite of *Lasioglossum xanthopum*. A suspected sighting was also made at Beachy Head close to Hope Gap. **Nationally Vulnerable (RDB2).**

***Stelis ornatula* (Klug)**

BC 23.5.07

DD 13.6.05, 20.5.07 (small numbers)

LH 10.7.05

MC 15.8.06

WD 13.7.05

Comments: 5 sites, 6 records. Associated with good populations of the host bee *Hoplitis claviventris*. Most often encountered on ragworts. **Nationally Rare (RDB3).**

Chrysididae (ruby-tailed cuckoo wasps)

***Chrysis angustula* Schenck**

BC 16.6.06

Comments: 1 sites, 1 record. A brood parasite of *Ancistrocerus trifasciatus*, and possibly other stem and dead wood-nesting aculeates.

***Chrysis gracillima* Förster**

FF 25.7.06

Comments: 1 site, 1 record. Swept from a steep south-facing scarp below the White Horse at Frog Firle. Possibly a brood parasite of *Trypoxylon* wasps. **Nationally Vulnerable (RDB2).**

***Chrysis impressa* Schenck**

BC 16.6.06, 23.5.07
BG 24.7.06, 25.8.07
BH 22.7.04
CH 24.7.04
Cr 19.8.06, 24.7.07
DD 13.6.05, 20.5.07
LD 12.7.05
SH 22.7.07

Comments: 8 sites, 12 records. Widespread but usually in small numbers. Often swept from umbellifers. A brood parasite of *Ancistrocerus* wasps, the distribution on the Downs suggesting that *A. parietum* and *A. gazella* could be its main hosts rather than *A. trifasciatus* (one of the species it has been associated with in literature).

***Hedychridium ardens* (Latreille)**

BG 24.7.06

Comments: 1 site, 1 record. A brood parasite of *Tachysphex pompiliformis*.

***Hedychridium roseum* (Rossi)**

SH 22.7.07

Comments: 1 site, 1 record. A brood parasite of *Astata boops* and possibly *Tachysphex pompiliformis*. A worthy candidate for Nationally Scarce status.

***Omalus puncticollis* (Mocsáry)**

BC 28.7.07

Comments: 1 site, 1 record. A brood parasite, possibly of small stem-nesting wasps like *Pemphredon* and *Passaloecus* species. **Nationally Scarce.**

***Pseudomalus auratus* (Linnaeus)**

BG 24.7.06
DD 20.5.07
De 26.7.06
FF 25.7.06
MC 18.6.05
WD 13.7.05

Comments: 6 sites, 6 records. Scarce. A brood parasite of stem and dead wood-nesting wasps such as *Pemphredon*, *Passaloecus*, *Rhopalum* and *Trypoxylon*.

***Trichrysis cyanea* (Linnaeus)**

BH 16.8.06, 22.5.08 (Cow Gap undercliff)
DD 28.7.06, 20.5.07
FF 26.8.03, 16.5.04, 11.6.05
LD 12.6.06
LH 10.7.05, 11.6.06
MC 23.7.04, 15.8.06
WD 13.7.05

Comments: 7 sites, 13 records. Fairly frequent, especially on south-facing slopes with short sparse turf. A brood parasite of various small stem-nesting or wood-nesting wasps and bees, perhaps especially *Trypoxylon* wasps.

Crabronidae (crabronid wasps)

***Argogorytes mystaceus* (Linnaeus)**

FH 21.7.07

Comments: 1 site, 1 record. A ground-nesting species often associated with woodland edge (in this case Friston Forest). It stocks its cells with the nymphs of *Philaenus* bugs extracted from frothy cuckoo-spit on low herbage. The host of the cuckoo-wasp *Nysson spinosus*.

***Astata boops* (Schrank)**

BG 24.7.06

BH 22.7.04

De 26.7.06

LH 10.7.05, 29.8.07 (Wild Parsnip)

SH 22.7.07 (common, some on Hogweed)

Comments: 5 sites, 6 records. Local. A ground-nesting species that stocks its nests with the nymphs of shieldbugs. Adults were also observed on umbellifers such as Hogweed and Wild Parsnip. A worthy candidate for Nationally Scarce status.

***Cerceris arenaria* (Linnaeus)**

BG 24.7.06

Cu 14.7.05

SH 22.7.07, 28.8.07, 23.6.08

Comments: 3 sites, 5 records. Scarce and seemingly coastal, requiring the light soils associated with head deposits for nesting. The prey consists of weevils and adults can also be found on flowers such as thistles and umbellifers.

***Cerceris rybyensis* (Linnaeus)**

BG 24.7.06, 25.8.07

BH 22.7.04, 16.8.06

CH 11.7.05 (nesting in low bank)

Cr 24.7.07

Cu 14.7.05

DD 28.7.06

De 26.7.06, 26.6.07, 26.8.07

FF 25.7.06

LD 29.8.04, 12.7.05

LH 10.7.05, 29.8.07

MC 15.8.06

SH 22.7.07, 28.8.07, 23.6.08

WD 13.7.05

Comments: 13 sites, 21 records. Frequent and able to nest in quite chalky soils. The prey consists of medium-sized bees such as *Lasioglossum* and *Halictus* species.

***Crossocerus annulipes* Lepeletier & Brullé**

WD 13.7.05

Comments: 1 site, 1 record. Seemingly rare. It typically nests in dead wood. Nest cells are stocked with small bugs, though most of the *Crossocerus* species below stock their nests with small flies.

***Crossocerus capitosus* (Shuckard)**

LH 11.6.06

Comments: 1 site, 1 record. Seemingly rare. It nests in hollow twigs and stems.

***Crossocerus cetratus* (Shuckard)**

BC 28.7.07

Cr 24.7.07

Cu 24.5.07

DD 13.6.05

FH 13.6.06, 21.7.07

Comments: 5 sites, 6 records. Rather local. Nesting occurs in dead wood and hollow stems.

***Crossocerus distinguendus* (Morawitz)**

LD 12.7.05, 12.6.06 (ruderal area)

SH 23.6.08

WD 13.7.05

Comments: 3 sites, 4 records. Scarce. Nesting occurs in light soils. A relatively recent colonist in Britain that has been spreading northwards. **Nationally Scarce** but possibly too frequent now to justify

this.



Four of the larger and more conspicuous crabronid 'digger wasps' of the Downs: *Astata boops* (top left), *Cerceris rybyensis* (top right), *Mellinus arvensis* (bottom left) and the 'Bee-wolf' *Philanthus triangulum* (bottom right).

***Crossocerus elongatulus* (Vander Linden)**

BG 24.7.06, 22.5.07, 25.8.07

BH 16.8.06

Cu 17.6.05, 14.7.05 (common), 24.5.07

LD 12.7.05, 12.6.06

SH 22.7.07, 20.5.08, 23.6.08

Comments: 5 sites, 12 records. Locally common. Nesting occurs both in soil and dead wood.

***Crossocerus megacephalus* (Rossi)**

BC 28.7.07

BG 22.5.07

Cr 19.8.06, 19.5.07, 28.6.07

Cu 17.6.05, 24.5.07

DD 20.5.07

FF 25.7.06

LD 12.7.05

MC 15.8.06

SH 22.7.07

Comments: 9 sites, 12 records. Frequent, typically in association with scrub or woodland edge. Nesting occurs mostly in dead wood.

***Crossocerus nigrinus* Lepeletier & Brullé**

BC 23.5.07, 28.7.07

Cr 19.5.07

Cu 24.5.07

DD 20.5.07

WD 23.6.07

Comments: 5 sites, 6 records. Rather localised and usually in association with scrub or woodland edge. Nesting occurs in hollow stems and dead wood.

***Crossocerus podagricus* (Vander Linden)**

BC 28.7.07, 27.8.07

BG 24.7.06, 25.8.07

BH 22.7.04, 16.8.06

CH 24.7.04, 11.7.05, 24.6.08

Cr 19.8.06, 24.7.07

Cu 14.7.05, 24.5.07

De 26.7.06, 26.8.07, 26.6.08

FF 25.7.06

FH 21.7.07

LH 10.7.05

MC 23.7.04, 18.6.05, 15.8.06

SH 22.7.07, 29.8.07

WD 13.7.05, 23.6.07

Comments: 13 sites, 26 records. Frequent and often common, especially on umbellifers. Nesting is said to occur in dead wood, though its frequency in open grasslands suggests hollow stems might also be used.

***Crossocerus quadrimaculatus* (Fabricius)**

SH 23.6.08 (golf course sandface)

Comments: 1 site, 1 record. A colony was found in a soft sandstone face within Seaford Head Golf Course.

***Didineis lunicornis* (Fabricius)**

SH 29.8.07

Comments: 1 site, 1 record. Nesting occurs in clay ground that has developed desiccation cracks. Prey consists of cicadellid and delphacid bugs. **Nationally Scarce.**

***Diodontus insidiosus* Spooner**

BG 15.6.06 (bare cliff tops), 24.7.06, 22.5.07 (common, cliff tops)

Cu 14.7.05 (common, bare cliff tops), 24.5.07 (ditto)

SH 22.7.07, 20.5.08, 23.6.08

Comments: 3 sites, 6 records. Common at cliff edges where head deposits are exposed but no evidence of its occurrence elsewhere. *Diodontus* species are ground-nesters that stock their nest cells with aphids. **Nationally Rare (RDB3)**, but Nationally Scarce would be more appropriate.

***Diodontus luperus* Shuckard**

BG 24.7.06 (bare cliff tops)

BH 22.7.04, 14.6.05, 16.8.06

Cu 24.5.07 (bare cliff tops)

LD 12.7.05

MC 15.8.06

Comments: 5 sites, 7 records. Occurring at cliff edges alongside *D. insidiosus*, but also present further inland on south-facing slopes with rabbit burrows and exposed soil.

***Diodontus minutus* (Fabricius)**

Cu 17.6.05

Comments: 1 site, 1 record. Rare.

***Ectemnius cavifrons* (Thomson)**

BG 25.8.07 (Hogweed)

LH 11.6.06

SH 22.7.07

Comments: 3 sites, 3 records. It nests in dead wood and stocks its nest cells with medium-sized flies such as hoverflies. Adults are most often encountered on umbellifers. All the following *Ectemnius* typically nest in dead wood with the exception of *E. rubicola*.

***Ectemnius cephalotes* (Olivier)**

BC 28.7.07, 27.8.07

FH 21.7.07

Comments: 2 sites, 3 records.

***Ectemnius continuus* (Fabricius)**

BC 28.7.07, 27.8.07

BG 15.6.06, 24.7.06, 22.5.07, 25.8.07 (Hogweed)

BH 22.7.04, 16.8.06

CH 24.7.04, 11.7.05, 24.6.08

Cr 19.8.06, 19.5.07

Cu 23.8.03, 24.5.07

DD 30.8.04, 28.7.06, 20.5.07

De 26.7.06

FF 25.7.06

FH 21.7.07

LH 10.7.05, 29.8.07 (Wild Parsnip)

MC 19.5.04, 23.7.04, 15.8.06

SH 22.7.07

Comments: 13 sites, 27 records. Fairly common.

***Ectemnius lituratus* (Panzer)**

BC 28.7.07, 27.8.07

BH 22.7.04, 16.8.06

CH 24.7.04, 11.7.05

Cr 28.6.07, 24.7.07

De 26.7.06

FF 25.7.06

FH 26.8.03, 21.7.07 (common)

LD 12.7.05

LH 25.8.03, 29.8.07 (Wild Parsnip)

MC 23.7.04, 18.6.05, 15.8.06

SH 22.7.07

WD 13.7.05, 23.6.07

Comments: 12 sites, 21 records. Fairly common.

***Ectemnius rubicola* (Dufour & Perris)**

BC 28.7.07

BG 22.5.07

Cr 28.6.07, 24.7.07

Cu 14.7.05, 24.5.07

De 26.7.06, 26.6.08

FF 25.7.06 (common)

SH 22.7.07

WD 13.7.05

Comments: 8 sites, 11 records. Fairly frequent. Unlike the other *Ectemnius* listed, this species typically nests in hollow plant stems.



Ectemnius species are medium-sized crabronid wasps that usually nest in wood, stocking their cells with flies. The two most frequent species on the Downs are *E. continuus* (right) and *E. lituratus* (left).

***Entomognathus brevis* (Vander Linden)**

Cr 24.7.07

Cu 14.7.05

De 26.7.06, 26.6.08

FF 25.7.06

LH 10.7.05

SH 23.6.08

WD 13.7.05

Comments: 7 sites, 8 records. Locally common. Nesting occurs in light soil and nest cells are stocked with small chrysomelid beetles.

***Gorytes bicinctus* (Rossi)**

SH 22.7.07

Comments: 1 site, 1 record. Rare. A ground-nester that stocks its cells with cicadellid and cercopid hoppers. **Nationally Scarce.**

***Gorytes quadrifasciatus* (Fabricius)**

CH 24.7.04

SH 22.7.07

Comments: 2 sites, 2 records. Rare. A ground-nester that stocks its cells with hoppers like *Philaenus*. Adults are most often encountered on umbellifers. Coarse grassland with invading scrub and bramble seems to be favoured by this wasp.

***Harpactus tumidus* (Panzer)**

BG 24.7.06

SH 22.7.07

Comments: 2 sites, 2 records. Scarce but easily overlooked. It favours sparsely-vegetated light soils and may be restricted on the Downs to areas with head deposits. A ground-nester that stocks its cells with cercopid and cicadellid hoppers.

***Lindenius albilabris* (Fabricius)**

BH 16.8.06

Cu 17.6.05, 24.5.07

De 26.6.07, 26.6.08

LH 10.7.05

SH 22.7.07

Comments: 5 sites, 7 records. A ground-nester that stocks its cells with small homopteran bugs.

***Mellinus arvensis* (Linnaeus)**

SH 28.8.07

Comments: 1 site, 1 record. Rare. A ground-nesting species that favours sandy ground or sand faces. It stocks its cells with medium-sized flies.

***Nysson spinosus* (Forster)**

BC 16.6.06

LH 11.6.06

Comments: 2 sites, 2 records. The cuckoo-parasite of *Argogorytes mystaceus*.

***Nysson trimaculatus* (Rossi)**

SH 22.7.07

Comments: 1 site, 1 record. The cuckoo-parasite of *Gorytes quadrifasciatus* and *G. bicinctus*.

Nationally Scarce.

***Oxybelus uniglumis* (Linnaeus)**

Cr 19.8.06

Cu 14.7.05

SH 22.7.07, 20.5.08 (cliff top sands), 23.6.08

Comments: 3 sites, 5 records. Scarce but with a strong population at Seaford Head associated with exposed head deposits. It nests in light soils and stocks its cells with small flies.

***Passaloecus gracilis* (Curtis)**

BG 24.7.06

De 26.6.07

SH 22.7.07

WD 23.6.07

Comments: 4 sites, 4 records. Seemingly localised but a small, easily overlooked wasp. Nesting occurs in hollow stems and dead wood and nest cells are stocked with aphids.

***Passaloecus singularis* Dahlbom**

BC 16.6.06, 28.7.07

CH 24.7.04

LD 12.7.05, 12.6.06

WD 13.7.05, 23.6.07

Comments: 4 sites, 7 records. Seemingly localised. Habits as for *P. gracilis*.

***Pemphredon inornata* Say**

BC 23.5.07

BH 16.8.06, 22.5.07

CH 11.7.05

Cr 19.5.07

Cu 24.5.07

DD 13.6.05, 20.5.07

FF 25.7.06

LD 12.6.06

LH 11.6.06

Comments: 9 sites, 11 records. Fairly frequent, usually in association with scrub. Nesting occurs in hollow plant stems and nest cells are stocked with aphids.

***Pemphredon lethifer* (Shuckard)**

BC 16.6.06

BG 24.7.06, 22.5.07, 25.8.07

BH 23.5.04, 22.7.04, 16.8.06, 22.5.08 (Cow Gap undercliff)

CH 24.7.04, 11.7.05

Cr 28.6.07, 24.7.07

Cu 23.8.03, 14.7.05, 24.5.07

DD 28.7.06, 20.5.07

De 26.8.07
FF 11.6.05, 25.7.06
LD 12.7.05
LH 10.7.05
MC 18.6.05
SH 29.8.07

Comments: 13 sites, 24 records. Frequent. Habits resemble *P. inornata*. Material has been checked for the rarer *P. austriaca* (=enslini).

***Pemphredon lugubris* (Fabricius)**

Cr 19.5.07, 28.6.07
FF 25.7.06
LH 11.6.06
MC 15.8.06

Comments: 4 sites, 5 records. Scarce. Nesting occurs in dead wood.

***Philanthus triangulum* (Fabricius)**

BG 24.7.06 (Wild Mignonette), 25.8.07 (Mignonette and Bell Heather)
Cu 23.8.03 (Mignonette)
De 26.7.06
SH 22.7.07, 28.8.07

Comments: 4 sites, 6 records. Rather scarce, mostly encountered visiting Wild Mignonette on cliff tops with sparsely-vegetated head deposits. Nesting occurs in sandy soils; the nest cells are stocked with medium-sized bees like *Apis* and *Andrena*. **Nationally Vulnerable (RDB2)**, though it has shown a massive increase in range and abundance over recent years and currently does not merit a rarity grade.

***Psenulus concolor* (Dahlbom)**

FF 25.7.06
WD 23.6.07

Comments: 2 sites, 2 records. Scarce. Nesting occurs in hollow stems and cells are stocked with psyllids.

***Psenulus pallipes* (Panzer)**

BC 16.6.06
Cu 24.5.07
LD 12.7.05
LH 10.7.05
SH 25.6.07, 22.7.07
WD 13.7.05, 23.6.07

Comments: 6 sites, 8 records. Localised and usually encountered on scrub. Nesting occurs in hollow stems or dead wood and cells are stocked with aphids.

***Psenulus schencki* (Tournier)**

BC 16.6.06
MC 18.6.05

Comments: 2 sites, 2 records. Scarce. Habits are as for *P. concolor*. **Nationally Scarce.**

***Rhopalum clavipes* (Linnaeus)**

Cr 19.8.06
FF 25.7.06
WD 13.7.05

Comments: 3 sites, 3 records. Scarce. Nesting occurs in hollow stems or occasionally dead wood and cells are typically stocked with small flies.

***Spilomena troglodytes* (Vander Linden)**

BG 24.7.06
Cr 19.8.06,

Comments: 2 sites, 2 records. A tiny wasp that is easily overlooked. Nesting mainly occurs in old beetle holes in wood and the cells are stocked with thrips. Scrub is likely to be important for this species.

***Stigmus solskyi* Morawitz**

WD 13.7.05

Comments: 1 site, 1 record. Another tiny wasp that is easy to overlook. Nesting occurs in hollow stems or dead wood and nest cells are stocked with aphids.

***Tachysphex pompiliformis* (Panzer)**

BG 22.5.07

LH 10.7.05

SH 23.6.08

Comments: 3 sites, 3 records. Scarce. A ground-nester that is likely to require the light soils associated with head deposits. Cells are stocked with grasshopper nymphs.

***Trypoxylon attenuatum* Smith**

BC 23.5.07

Cr 19.5.07, 24.7.07

FF 11.6.05

LD 12.6.06

LH 11.6.06

MC 15.8.06

WD 23.6.07

Comments: 7 sites, 8 records. Frequent but usually in small numbers. Nesting occurs in hollow stems, holes in dead wood and vertical earth faces. Cells are stocked with tiny spiders.

***Trypoxylon clavicorum* Lepeletier & Serville**

BC 28.7.07, 27.8.07

Comments: 1 site, 2 records. Scarce. Habits as for *T. attenuatum*.

***Trypoxylon 'figulus* Linnaeus' sensu lato.**

CH 24.6.08

Cr 19.8.06

DD 28.7.06, 20.5.07

FF 11.6.05

LH 10.7.05, 11.6.06

MC 15.8.06

SH 20.5.08

Comments: 7 sites, 9 records. Frequent but in small numbers. Habits as for *T. attenuatum*. I have not attempted to distinguish the three species generally recognised to exist as keys to the adults are difficult to interpret. Most females seem to equate most closely to *T. medium* de Beaumont.

Mutillidae (velvet ants)

***Myrmosa atra* Panzer**

BC 28.7.07

DD 28.7.06

De 26.6.08

FF 25.7.06

SH 22.7.07, 29.8.07

Comments: 5 sites, 6 records. Rather localised, with all records relating to winged males. Searching specifically for the wingless females may reveal a greater presence on the Downs. A brood parasite of small ground-nesting bees such as *Halictus* and *Lasioglossum*.

Pompilidae (spider wasps)

***Agenioideus cinctellus* (Spinola)**

BH 14.6.05

FF 11.6.05

Comments: 2 sites, 2 records. Seemingly scarce.

***Anoplius nigerrimus* (Scopoli)**

BC 16.6.06, 23.5.07, 28.7.07

BH 16.8.06

CH 24.7.04, 31.8.04

Cr 19.8.06, 19.5.07, 24.7.07

Cu 24.5.07

DD 13.6.05, 28.7.06, 20.5.07 (common)

LD 12.6.06

LH 11.6.06, 29.8.07

MC 15.8.06

Comments: 9 sites, 17 records. Locally frequent.

***Aporus unicolor* Spinola**

BC 28.7.07 (several males)

BH 22.7.04 (Carrot flowers)

Cr 24.7.07

Cu 14.7.05 (Carrot flowers)

FF 25.7.06

LD 12.7.05 (several males, slopes)

WD 13.7.05

Comments: 7 sites, 7 records. Rather local. This wasp specifically hunts the Purse-web Spider *Atypus affinis* which tends to favour well-grazed south-facing slopes with cracks and fissures for constructing its webs. **Nationally Scarce.**

***Arachnospila anceps* (Wesmael)**

BC 16.6.06, 27.8.07

BG 24.7.06

BH 23.5.04, 22.7.04, 22.5.08 (Cow Gap undercliff)

CH 24.7.04

Cr 24.7.07

Cu 14.7.05

DD 30.8.04, 13.6.05, 20.5.07

FF 11.6.05, 25.7.06

LD 12.6.06

LH 18.5.04, 10.7.05

MC 18.6.05

Comments: 11 sites, 18 records. Frequent.

***Arachnospila minutula* (Dahlbom)**

CH 27.6.07

Cr 24.7.07

DD 28.7.06, 20.5.07

De 26.6.08

FF 11.6.05, 25.7.06

LD 12.7.05, 12.6.06

MC 18.6.05, 15.8.06, 19.5.08

Comments: 7 sites, 12 records. Fairly frequent. A rather calcicolous species. **Nationally Scarce.**

***Arachnospila spissa* (Schiodte)**

BC 16.6.06, 23.5.07

BH 23.5.04

CH 24.6.08
 Cr 22.5.04
 DD 13.6.05, 20.5.07
 FF 16.5.04, 11.6.05
 LH 10.7.05, 11.6.06 (common)
Comments: 7 sites, 11 records. Fairly frequent.



Spider wasps thrive on the Downs, taking advantage of good spider populations. *Anoplius nigerrimus* (top left) is the commonest; *Priocnemis perturbator* (top right) is a less frequent spring-flying species; *Episyron rufipes* (bottom left) is a psammophile recorded at coastal cliffs with sandy head deposits; *Aporus unicolor* (bottom right) is a specialist predator of the Purseweb Spider *Atypus affinis* on hot, south-facing slopes with broken turfs. It has a flattened body to help it gain access to its prey.

***Arachnospila wesmaeli* (Thomson)**

FF 11.6.05

SH 22.7.07

Comments: 2 sites, 2 records (both single males). **Nationally Scarce.**

***Auplopus carbonarius* (Scopoli)**

MC 18.6.05

Comments: 1 site, 1 record. Probably a straggler from nearby woodland as open downland lacks the sources of wet mud and shade it requires. **Nationally Scarce.**

***Caliadurgus fasciatellus* (Spinola)**

BC 16.6.06, 23.5.07

Cr 24.7.07
FH 21.7.07

Comments: 3 sites, 4 records. Seemingly scarce.

***Episyron rufipes* (Linnaeus)**

BG 24.7.06, 22.5.07
SH 22.7.07

Comments: 2 sites, 3 records. Seemingly confined to cliffs with sandy head deposits.

***Evagetes crassicornis* (Shuckard)**

Cr 24.7.07
FF 25.7.06
FH 16.5.04
LH 18.5.04

Comments: 4 sites, 4 records. Seemingly rather scarce. A cuckoo-parasite of other pompilids such as *Arachnospila* and *Anoplius* species.

***Priocnemis agilis* (Shuckard)**

CH 24.7.04
Cr 24.7.07
DD 28.7.06
FF 25.7.06
FH 21.7.07
MC 15.8.06

Comments: 6 sites, 6 records. Rather localised.

***Priocnemis coriacea* Dahlbom**

De 2.5.06 (one male)

Comments: 1 site, 1 record. **Nationally Scarce.**

***Priocnemis exaltata* (Fabricius)**

Cu 14.7.05
LH 10.7.05
SH 29.8.07

Comments: 3 sites, 3 records. Seemingly scarce

***Priocnemis perturbator* (Harris)**

MC 17.4.05

Comments: 1 site, 1 record. A large, spring-flying pompilid.

***Priocnemis pusilla* Schiødte**

BC 16.6.06, 27.8.07
CH 24.7.04, 31.8.04, 11.7.05
Cr 24.7.07
DD 28.7.06
FF 25.7.06
LD 12.6.06
MC 18.6.05

Comments: 7 sites, 10 records. Fairly frequent.

Sapygidae (sapygid wasps)

***Sapyga quinquepunctata* (Fabricius)**

BC 16.6.06
BH 23.5.04, 14.6.05, 11.4.07, 22.5.08 (Cow Gap undercliff, q. common)
DD 3.5.06
MC 19.5.04

Comments: 4 sites, 7 records. A cuckoo-parasite of various *Osmia* bees, perhaps especially *O. aurulenta*, *O. caerulescens* and *O. leaiana*.

Tiphiidae (tiphiid wasps)

***Tiphia femorata* Fabricius**

De 26.8.07

Comments: 1 site, 1 record. The larvae are parasitoids of dung beetle larvae, typically in open habitats with light soils.

***Tiphia minuta* Vander Linden**

BC 16.6.06, 23.5.07

BG 22.5.07

CH 27.6.07

Cu 17.6.05, 24.5.07

DD 20.5.07

FH 13.6.06

LD 12.6.06

LH 11.6.06

MC 18.6.05

Comments: 9 sites, 11 records. Fairly frequent. Typically encountered in areas with plentiful rabbits, the wasp possibly exploiting the dung beetle larvae associated with their dung. **Nationally Scarce**, though much increased in recent years and no longer worthy.

Vespidae (social and mason wasps)

***Ancistrocerus gazella* (Panzer)**

BG 24.7.06

BH 16.8.06

CH 31.8.04

Cu 23.8.03

De 26.6.07

FH 13.6.06, 21.7.07

MC 15.8.06

Comments: 7 sites, 8 records. Locally frequent, especially on flowers like mignonettes, thistles, bramble and umbellifers. Nesting usually occurs in hollow plants stems and walls.

***Ancistrocerus oviventris* (Wesmael)**

DD 20.5.07

Comments: 1 site, 1 record. Nesting usually occurs in walls or rock faces.

***Ancistrocerus parietum* (Linnaeus)**

BC 16.6.06

BG 15.6.06 (Wild Mignonette), 24.7.06, 25.8.07

BH 16.8.06

Cr 19.8.06

Cu 23.8.03

FF 26.8.03

SH 22.7.07, 23.6.08

Comments: 7 sites, 10 records. Locally frequent, with similar habits to *A. gazella*.

***Ancistrocerus trifasciatus* (Müller)**

BC 28.7.07

BG 15.6.06, 24.7.06

Cr 19.5.07, 28.6.07

FH 21.7.07

LH 10.7.05
MC 18.6.05
WD 23.6.07

Comments: 7 sites, 9 records. Locally frequent, with similar habits to *A. gazella*, though possibly more reliant on hollow stems for nesting.



Mason wasps are non social vespids that nest variously in dead wood, hollow stems and in earth, stocking their cells with the larvae of moths, sawflies or beetles depending on the species. *Ancistrocerus trifasciatus* (left) is one of the commonest mason wasps on the Downs and is attacked by the ruby-tailed (chrysidid) wasp *Chrysis angustula* (right).

***Dolichovespula media* (Retzius)**

BC 28.7.07
Cr 24.7.07
SH 22.7.07

Comments: 3 sites, 3 records. Scarce on the open Downs and usually encountered as males on Hogweed or Wild Parsnip. The nests are suspended from twigs in shrubs or trees, and it seems to prefer partially wooded or suburban locations. A relatively recent British colonist, the first record being from Friston Forest in 1980 (Falk, 1982). **Nationally Scarce** but now known to be widespread and locally frequent over much of southern Britain.

***Dolichovespula norwegica* (Fabricius)**

Cr 24.7.07

Comments: 1 site, 1 record. Rare on the Downs. This wasp displays a northern bias in Britain and is scarce this far south. Nesting occurs in shrubs and sometimes within grass tussocks.

***Dolichovespula saxonica* (Fabricius)**

BC 11.4.05 (on Blackthorn)
CH 24.7.04
MC 23.7.04

Comments: 3 sites, 3 records. Scarce. A queen was recorded on Blackthorn, males were encountered on Hogweed. Nesting usually occurs in bushes. Another recent British colonist (first recorded in 1987). **Red Data Book Insufficiently Known (RDB K)**, but now known to be widespread and locally frequent over much of southern Britain.

***Dolichovespula sylvestris* (Scopoli)**

BC 16.6.06
BG 24.7.06
BH 16.8.06
CH 24.7.04
Cu 23.8.03

FH 21.7.07
MC 30.7.88, 23.7.04, 15.8.06
SH 22.7.07

Comments: 8 sites, 10 records. Fairly frequent, especially in the vicinity of woodland or more mature scrub. Nesting can occur in bushes or various cavities. Most records here relate to males on Hogweed.

***Microdynerus exilis* (Herrich-Schäffer)**

FF 25.7.06 (Mignonette)
WD 13.7.05

Comments: 2 sites, 2 records. Rare. Nesting occurs in hollow plant stems and dead wood. Adults like the flowers of umbellifers and mignonettes. **Nationally Scarce** but possibly a species that colonised Britain in the last century.

***Odynerus melanocephalus* (Gmelin)**

De 26.6.08
MC 19.5.08

Comments: 2 sites, 2 records. Rare. Nests are excavated on clay slopes and have characteristic short entrance funnels. The recorded prey is larvae of the weevil *Hypera postica* obtained from Black Medick (Falk, 2005). **Nationally Scarce**.

***Symmorphus bifasciatus* (Linnaeus)**

BC 28.7.07
MC 23.7.04
SH 22.7.07

Comments: 3 sites, 3 records. Scarce. Nesting occurs in hollow plant stems, dead wood, cavities in walls etc. The prey consists of phytophagous beetle larvae. Adults like umbellifer flowers.

***Symmorphus gracilis* (Brullé)**

LD 12.6.06

Comments: 1 site, 1 record. Habits similar to *S. bifasciatus*.

***Vespula germanica* (Fabricius)**

BC 28.7.07
BG 25.8.07
BH 22.7.04, 16.8.06
CH 24.7.04, 31.8.04
Cu 23.8.03
De 26.7.06, 21.5.08
FF 26.8.03
LD 29.8.04
LH 20.4.03
MC 19.5.04, 23.7.04
SH 22.7.07, 28.8.07
WD 17.5.04, 28.8.04, 4.5.06, 12.4.07

Comments: 12 sites, 20 records. Fairly frequent and sometimes common. On the Downs nesting usually occurs in cavities created within old mammal burrows on warm, south-facing slopes. It seems to be more thermophilic than *V. vulgaris*.

***Vespula rufa* (Linnaeus)**

BC 28.7.07
FF 25.7.06
LH 20.4.03

Comments: 3 sites, 3 records. Scarce. Nesting occurs underground, often within coarse, tussocky grassland.

***Vespula vulgaris* (Linnaeus)**

BC 11.4.05 (queen on Blackthorn), 16.6.06, 10.4.07, 28.7.07, 27.8.07

BH 22.4.03, 22.7.04, 16.4.05, 11.4.07
 CH 24.7.04, 31.8.04
 Cr 19.8.06, 28.6.07, 24.7.07
 Cu 18.4.03
 DD 28.7.06, 12.4.07
 De 26.7.06, 26.6.07
 FF 25.7.06
 FH 21.7.07 (workers abundant)
 LH 20.4.03, 29.8.07
 MC 23.7.04, 15.8.06
 SH 22.7.07, 28.8.07
 WD 28.8.04, 4.5.06, 12.4.07

Comments: 13 sites, 30 records. Fairly frequent and sometimes common. Nesting habits similar to *V. germanica*.



Social vespids are our most familiar wasps and form large colonies with numerous workers serving a single queen. The Common Wasp *Vespula vulgaris* (top left) and German Wasp *V. germanica* (top right) are the two commonest species of the Downs and typically nest underground in old rodent burrows. The Tree Wasp *Dolichovespula sylvestris* (bottom left) and French Wasp (bottom right) form football-sized nests in trees and bushes. The latter species was added to the British list from a specimen taken at Friston Forest in 1980 (adjacent to one of the study sites, Lullington Heath) and has since spread across much of Britain.