

# SILVERLAKE:

## Bee & Wasp surveys



### FINAL REPORT

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Bryan Edwards

Dorset Environmental Records Centre

**Front cover:** Top left; *Podalonia hirsuta* Hairy Sand-wasp  
Top right; *Nomada leucophthalma* Early Nomad Bee  
Bottom left; *Cerceris quinquefasciata* Five-banded Weevil Wasp  
Bottom right; *Hedychrum nobile*

Version control			
1	Report prepared by:	Bryan Edwards	14/07/2022
	Checked by:	Carolyn Steele	08/08/2022
2	Report updated by:		

## SUMMARY

- The survey was carried in suitable weather conditions between March 2019 and September 2021 and concentrated on the 50-hectare area in the southeast of the site.
- **97** species, **65 bees** and **32 wasps**, were recorded from the site, of which **32** were new to the area.
- A Section 41 wasp, *Cerceris quinquefasciata*, was seen in 2020 on umbellifer flowers, it has only been recorded from one other site in Dorset in recent years.
- The Section 41 wasp *Odynerus melanocephalus* was re-found in developing acid grassland. This species is mainly found on soft cliffs along the coast in Dorset with a very few inland sites.
- The digger-wasp *Argogorytes fargei* was recorded from Hogweed flowers in 2019, the first record from the area for around 100 years and only the second recent Dorset record.
- The bee *Stelis phaeoptera* was seen on Bramble flowers in the east of the site and is only the second recent record for the county. It is a nest-parasite of the widespread bee *Osmia leaiana*.
- A number of heathland indicator species have now colonised the restored area of Woodlark Heath including the wasps *Ammophila pubescens*, *Cerceris arenaria* and *Eumenes coarctatus* and the bees *Andrena fuscipes*, *Andrena ovatula* and *Colletes succinctus*.

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## 1. INTRODUCTION

The Dorset Heaths are famous for their rich flora and fauna, supporting many scarce and threatened species including a number of specialists that are confined to heathland habitats in Britain. The loss and fragmentation of the Poole Basin heaths has been well documented, and there have been several studies of the impact of habitat fragmentation on heathland species. A study of the heathland flora (Byfield & Pearman, 1994) showed that even after fragmentation species continued to decline even on protected sites, largely due to the changes in heathland management.

The aculeate Hymenoptera includes ants, bees and wasps. They are thermophilous insects which reach their maximum diversity on the sandy soils of southern and south-east England, particularly the heathland districts of Dorset, New Forest, Surrey and Sussex. There appears to be few studies in the changes in the aculeate fauna on a regional basis, but anecdotal evidence suggest than many species show a contraction in range and others have declined to the verge of extinction, both at a regional and national level. In Dorset we are fortunate in having records of aculeates from most areas of the Poole Basin spanning at least 100 years, we can therefore compare the assemblages over a long time period and attempt to assess these changes.

## 2.0 WHAT ARE SOLITARY BEES & WASPS?

The huge order Hymenoptera in Britain has over 7000 species the vast majority of which are parasitic species such as Ichneumons, plus gall wasps and sawflies that are associated with particular plants. Aculeates are a relatively small group of species, about 680, in which the ovipositor is modified into a sting. They include a number of very small wasps of the Bethyridae and Dryinidae which are much overlooked and not covered in this report. The remaining 570 species are ants, solitary wasps, social wasps, solitary bees, the honey bee and bumblebees. These will be very familiar to most people and can be found in many habitats including gardens.

Dorset is among the richest counties for ants, bees and wasps (aculeate Hymenoptera) in the British Isles due to its combination of mild and sunny climate, favourable geology and extensive areas of semi-natural habitats such as lowland heathland and soft cliffs. Despite this richness there have been significant declines of many species, notably grassland bumblebees. 40 species have not been recorded since 1990 and are considered extinct in the county. However, several generalist species that were formally rare or local have increased in the last 50 years, the bees *Andrena cineraria* and *A. flavipes* being good examples, along with their respective cleptoparasites *Nomada lathburiana* and *N. furcata*. Two species have colonised from the Continent and spread widely; *Colletes hederæ* and *Bombus hypnorum* have both found niches within the county and at present do not seem to be having an adverse effect on other species

	Dorset	Extinct	GB	% of GB
Ants	46	2	69	65%
Wasps	202	13	238	84%
Bees	223	25	271	82%
<b>Total</b>	<b>471</b>	<b>40</b>	<b>578</b>	<b>81%</b>

### 2.1 ECOLOGY OF SOLITARY BEES & WASPS

Like all insects, ants, bees and wasps require a warm or hot micro-climate. In addition, many prefer to nest in sandy soils and need to be in or near to flower-rich areas for nectar, bees need to forage pollen and wasps require a wide range, and good populations of, other invertebrates for prey. Therefore they are often found in heterogenous sites with a range of habitats, microhabitats and microclimates.

Heathland is the single most important habitat for the 580 larger species of aculeate Hymenoptera (ants, wasps & bees) found in the British Isles. Dorset is one of the richest counties for this group with 471 species (82%) recorded. Of these over 350 have been recorded from heathland landscapes in the county, with many wasps in particular strongly associated with, or confined to this habitat.

While heathlands are very important for this group there are actually relatively few species that are solely reliant on just the vegetation, the heather or gorse, with the warm sandy soils, micro-climate and our position on the South Coast the most important factors for the majority. Some are generalists and found in a wide range of habitats across the county but many are specialists. A list of 118 heathland bee and wasp indicator species has been compiled (Appendix II) and can be split between those that are strictly confined heath habitat and those ‘sandy ground specialists’ which are largely confined to heathland landscapes, but associated with acid grasslands, heathland margins, flowery trackways or old sand pits. They may occur rarely elsewhere in the county such as on the Greensand in the west or along the coast on sandy slumping soft cliffs.

Of the bees and wasps:

- 50% are ground nesting (fossorial) species, many favouring sandy substrates;
- 24% are cavity nesters utilising hollow stems particularly dead Bramble, or holes made by wood-boring beetles in dead wood and stumps;
- 24% are cleptoparasites or parasites of other bees or wasps, the 61 bee cleptoparasites target other bees nests and lack specialised hairs to collect pollen but regularly visit flowers for nectar.

## 2.2 BEE & WASP PARASITES

### Cleptoparasitism

Over a quarter (27%) of Dorset bees do not collect pollen themselves but are cleptoparasites or nest-robbers, entering the nests of other bees and laying an egg which hatches to devour the pollen resource of the host. Some of these may target several species of a particular genus, but many are restricted to a single host. Very rarely a species may target species from different genera, *Sphecodes pellucidus* being possibly the only Dorset example. The majority of the cleptoparasites target species that are within the same family, for example *Sphecodes* mainly target *Lasioglossum* species, both of which are within the Halictidae. A notable exception is *Nomada* which is within the Apidae and mainly target *Andrena* species in the Andrenidae.

There are fewer wasp parasites, which include most of the ‘jewel wasps’, in the Chrysidae that target various mason wasp (Vespidae; Eumeninae) and digger wasps (Crabronidae). The wingless females of two ‘velvet ant’ species (Mutillidae) target the nests of solitary bees and bumblebees or solitary wasps on heathlands.

### Other parasites

Bees and bumblebees are targeted by a number of other species particularly flies of the Bombylidae (bee-flies) and Conopidae (thick-headed flies) several of which are rare and found in heathland habitats. Oil-beetles (Meloidae) are specialists targeting the nests of solitary bees, the larvae ‘hitching’ a ride on the adult bees back to their nests where they feed on the bees’ nectar/pollen resource.



## Examples of solitary bee and wasp parasites found at Silverlake:



***Bombylius major* Dark-edge Bee-fly**

A frequent spring-flying bee-fly found along the edges of heaths and around scrub where it targets the nest burrows of spring-flying mining bees (*Andrena* species) often on south-facing banks. Seen in several places at Silverlake from mid-March to May.



***Thyridanthrax fenestratus* Mottled Bee-fly**

A Section 41 bee-fly strongly restricted to lowland heathland in Britain where it targets the nests of the sand-wasp *Ammophila pubescens* on bare ground and along tracks. Recorded in 2020 from Woodlark Heath.



***Leucophora obtusa* a 'satellite fly'**

This member of the Anthomyiidae is found around the burrows of mining bees, in this case *Andrena clarkella*. The fly enters the burrow and lays its eggs on the pollen-nectar food reserves meant for the developing bee grub. The record from Silverlake appears to be the first for Dorset.



***Sphecodes* bee with orange larvae of **Black Oil-beetle****

Oil-beetles are large specialised beetles (Meloidae) that parasitize solitary bees. The louse-like larvae (triungulins) sit on flowers waiting for bees to alight then attach themselves to the bee and hitch a ride back to the bees' nest where they then feed on the bee grubs and the pollen – nectar stores. No adult oil-beetles were seen at Silverlake but the orange triungulins were seen on several species of bee.

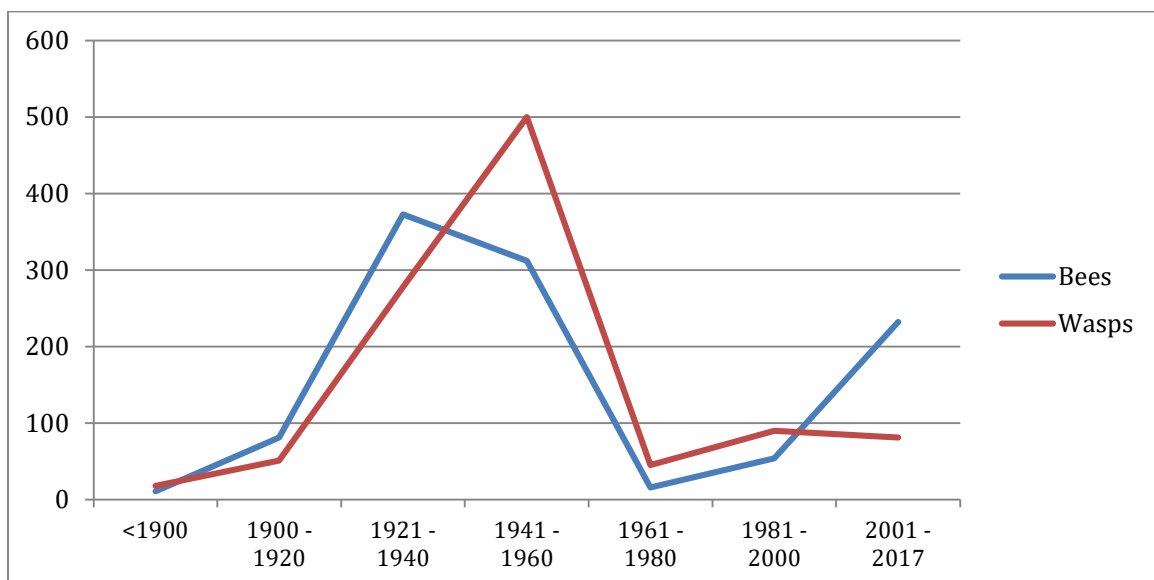
### **3.0 METHODS**

The surveys took place between the end of March and early September on sunny days with the air temperature above 10° C and light winds. Suitable areas of flower-rich habitat were swept using a soft sweep and the insects transferred into tubes and labelled for identification. In some habitats where using a net was difficult, such as around bramble patches, the species were caught using a tube. Those species that could be identified in the field were released on site, others were taken back and identified under a microscope using keys in Else & Edwards (2018) and Falk (2015) for bees, and for wasps Archer (2014), Day (1988) and Richards (1980).

#### 4.0 EXISTING DATA

The study area is fortunate in having good records of aculeate Hymenoptera over a significant time period and the presence of two local entomologists who were active in the first half of the 20<sup>th</sup> Century has provided us with a very good baseline from which to look at changes over the last 100 years. Most prolific of all was Malcolm Spooner who recorded widely in the southwest from the mid-1920s until the 1970s, a time period that saw significant changes in the countryside.

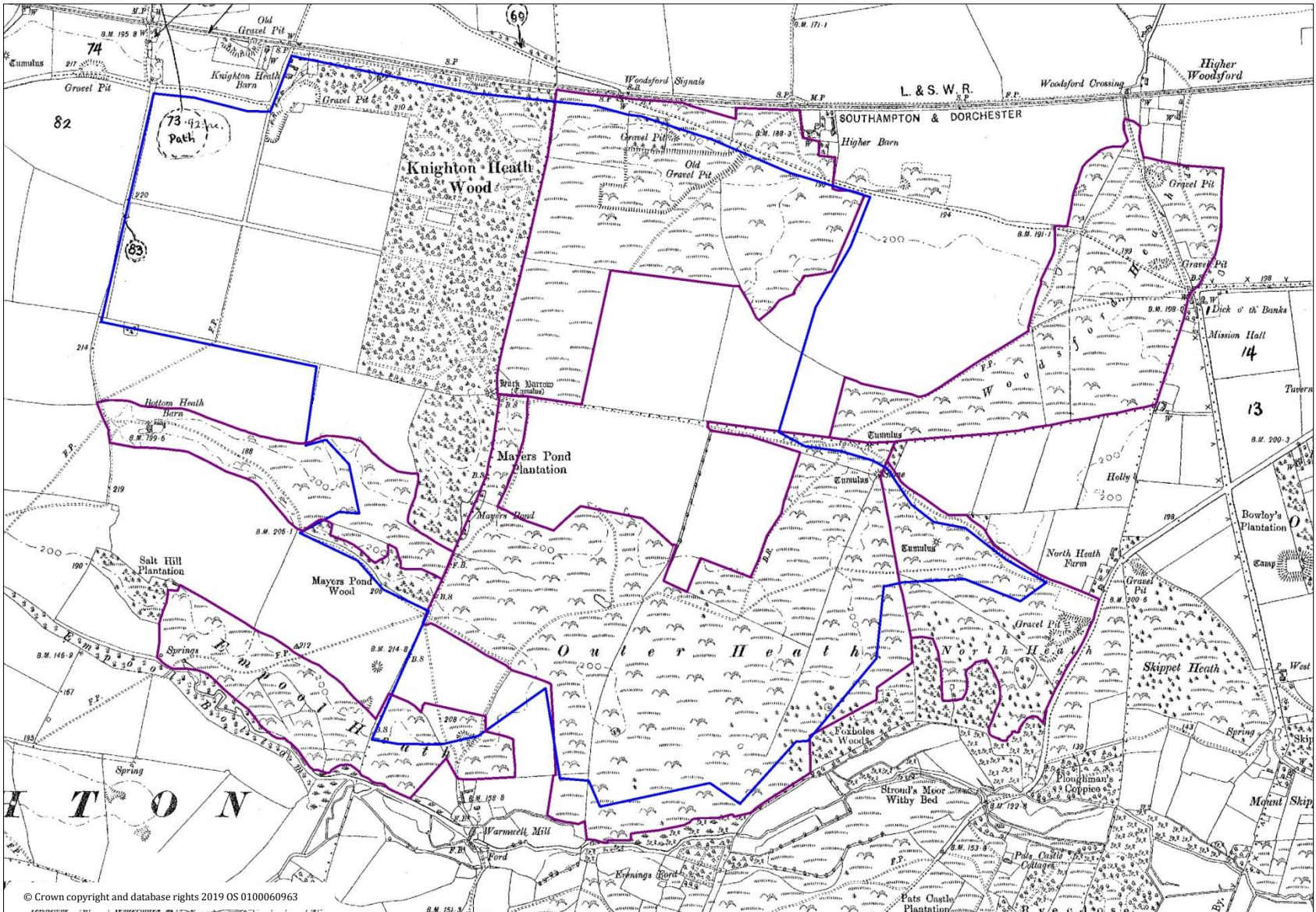
Taken as whole the five sites in the study area have supported 318 species of aculeate Hymenoptera, 158 bees, 144 wasps and 16 ants, representing 55% of the British fauna and 69% of the Dorset fauna, including many scarce and threatened species. However, as in many areas of lowland Britain there have significant declines and since 1990 only 176 have been recorded and many of the rarer species appear to have been lost, although there has been less recording since 1980 and some of the species may have been overlooked.



**FIG 1.** Analysis of aculeate records from the study area by date range



MAP 1. Past extent of heathland on and adjacent to the Silverlake complex



Blue line = Silverlake complex    Purple line = areas of former heathland

TABLE 1. Wasp species previously recorded from the West Knighton, Empool and Outer Heaths area

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
1	<i>Cleptes nitidulus</i>			NS(A)				1950
2	<i>Elampus panzeri</i>					H		1996
3	<i>Pseudomalus auratus</i>						1835	1945
4	<i>Hedychridium ardens</i>					S	1949	1996
5	<i>Hedychrum niemelai</i>			NR		H		1955
6	<i>Chrysis angustula</i>							1998
7	<i>Chrysis ignita</i>							1947
8	<i>Chrysis illigeri</i>		NS(B)			S	1947	1950
9	<i>Chrysis rutiliventris</i>							1916
10	<i>Chrysis viridula</i>					S	1947	1950
11	<i>Trichrysis cyanea</i>						1946	2002
12	<i>Tiphia minuta</i>	Small Tiphia	NS(B)					c. 1840
13	<i>Methocha articulata</i>		NS(B)			S	1927	1950
14	<i>Mutilla europaea</i>	Large Velvet Ant	NS(B)			H	1912	1979
15	<i>Myrmosa atra</i>	Black Headed Velvet Ant					1947	1956
16	<i>Dipogon variegatus</i>						1946	1947
17	<i>Cryptocheilus notatus</i>		VU			S	1947	1950
18	<i>Priocnemis exaltata</i>						1934	2016
19	<i>Priocnemis parvula</i>						1946	2016
20	<i>Pompilus cinereus</i>	Leaden Spider-wasp				H		2016
21	<i>Agenioideus cinctellus</i>					S	1947	1956
22	<i>Arachnospila anceps</i>						1934	1950
23	<i>Arachnospila minutula</i>			NS(B)		S		1929
24	<i>Arachnospila spissa</i>							1956
25	<i>Arachnospila wesmaeli</i>			NS(A)		S		1954
26	<i>Evagetes crassicornis</i>					H	1934	1951
27	<i>Evagetes dubius</i>			NS(B)		S	1930	1933
28	<i>Anoplius nigerrimus</i>						1934	1951
29	<i>Anoplius infuscatus</i>						1947	1950
30	<i>Anoplius viaticus</i>	Black-banded Spider Wasp				S	1943	1951

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
31	<i>Episyron rufipes</i>	Red Legged Spider Wasp				S	1843	1995
32	<i>Ceropales maculata</i>					S	1934	1950
33	<i>Eumenes coarctatus</i>	Heath Potter Wasp		NS(A)		H		1846
34	<i>Gymnomerus laevipes</i>							1947
35	<i>Ancistrocerus antilope</i>			NR			1927	1928
36	<i>Ancistrocerus gazella</i>							1951
37	<i>Ancistrocerus nigricornis</i>						1944	1954
38	<i>Ancistrocerus oviventris</i>							<1920
39	<i>Ancistrocerus scoticus</i>							1962
40	<i>Symmorphus crassicornis</i>			NR			1927	1928
41	<i>Vespa crabro</i>	Hornet					2002	2016
42	<i>Dolichovespula media</i>			NS(A)				1995
43	<i>Dolichovespula sylvestris</i>	Tree Wasp						1956
44	<i>Vespula rufa</i>	Red Wasp					1947	1951
45	<i>Vespula vulgaris</i>							2016
46	<i>Astata boops</i>					S		1951
47	<i>Tachysphex pompiliformis</i>					S	1842	1956
48	<i>Trypoxylon attenuatum</i>	Slender Wood Borer Wasp						1954
49	<i>Trypoxylon clavicerum</i>	Club Horned Wood Borer Wasp					1947	1951
50	<i>Trypoxylon figulus</i>	Black Wood Borer Wasp					1948	1950
51	<i>Crabro cribrarius</i>	Slender Bodied Digger Wasp				S	1926	1946
52	<i>Crabro peltarius</i>					S		2016
53	<i>Crossocerus capitosus</i>							1940
54	<i>Crossocerus cetratus</i>							1956
55	<i>Crossocerus elongatulus</i>	Slender Digger Wasp						1919
56	<i>Crossocerus palmipes</i>			NS(B)				1845
57	<i>Crossocerus podagricus</i>						1945	1956
58	<i>Crossocerus pusillus</i>							1950
59	<i>Crossocerus quadrimaculatus</i>	4-Spotted Digger Wasp				S	1946	1954
60	<i>Crossocerus tarsatus</i>							1923
61	<i>Crossocerus wesmaeli</i>	Wesmael's Digger Wasp				S	1950	1956

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
62	<i>Ectemnius cavifrons</i>						1951	1956
63	<i>Ectemnius lapidarius</i>						1948	1956
64	<i>Ectemnius ruficornis</i>			NS(B)				1948
65	<i>Ectemnius sexcinctus</i>			NS(B)				1950
66	<i>Ectemnius continuus</i>						1927	1956
67	<i>Ectemnius rubicola</i>							1948
68	<i>Ectemnius cephalotes</i>							1951
69	<i>Ectemnius lituratus</i>						1944	1956
70	<i>Lindenius albilabris</i>						1946	1950
71	<b><i>Entomognathus brevis</i></b>					S	1928	1956
72	<i>Oxybelus uniglumis</i>	Common Spiny Digger Wasp					1946	1956
73	<b><i>Mimesa bicolor</i></b>	<b>Two-coloured Mimic Wasp</b>	VU			H	1928	1950
74	<i>Mimesa bruxellensis</i>			NS(A)		S	1947	1954
75	<i>Mimesa equestris</i>					S	1841	1950
76	<i>Mimesa lutaria</i>					S	1947	1948
77	<i>Mimumesa dahlbomi</i>							1934
78	<i>Pemphredon lethifer</i>	Little Black Wasp		NR				1946
79	<i>Pemphredon lugubris</i>	Mournful Wasp						1923
80	<i>Diodontus luperus</i>						1946	1950
81	<b><i>Diodontus tristis</i></b>	<b>Melancholy Black Wasp</b>				S		1950
82	<i>Mellinus arvensis</i>	Field Digger Wasp					1923	1956
83	<i>Nysson dimidiatus</i>	<b>Small Spurred Digger Wasp</b>		NS(B)		S	1835	1950
84	<i>Nysson trimaculatus</i>			NS(B)			1933	1961
85	<b><i>Gorytes laticinctus</i></b>			NR		S	1928	1956
86	<b><i>Gorytes quadrifasciatus</i></b>	<b>4-Banded Digger Wasp</b>				S	1948	1956
87	<b><i>Harpactus tumidus</i></b>					S	1946	1950
88	<i>Argogorytes mystaceus</i>	Field Digger Wasp						1946
89	<b><i>Cerceris arenaria</i></b>	<b>Sand Tailed Digger Wasp</b>				S	1951	1995
90	<b><i>Cerceris quinquefasciata</i></b>	<b>Five-banded Weevil-wasp</b>		NR		S		1950
91	<b><i>Cerceris ruficornis</i></b>					S		1950
92	<i>Cerceris rybyensis</i>	Ornate Tailed Digger Wasp					1950	1995

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
93	<i>Philanthus triangulum</i>	Bee Wolf	VU			S		1995
94	<i>Ammophila pubescens</i>	Heath Sand Wasp				H		1951
95	<i>Ammophila sabulosa</i>	Red Banded Sand Wasp				S	1841	1956
96	<i>Podalonia hirsuta</i>	Hairy Sand Wasp		NS(B)		S	1821	1948
						41		

<sup>1</sup> HQI = Habitat Quality Indicator: H = Heathland, S = Sandy ground



**TABLE 2. Bee species previously recorded from the West Knighton, Empool and Outer Heaths area**

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
1	<i>Colletes daviesanus</i>	Davies' Colletes					1946	1951
2	<i>Colletes fodiens</i>	Hairy-saddled Colletes	VU(EU)			S	1947	1958
3	<i>Colletes similis</i>	Bare-saddled Colletes					1946	1950
4	<i>Colletes succinctus</i>	Heather Colletes	NT(EU)			H		1830
5	<i>Hylaeus brevicornis</i>	Short-horned Yellow-face Bee					1948	1962
6	<i>Hylaeus communis</i>	Common Yellow-face Bee					1928	1956
7	<i>Andrena argentata</i>	Small Sandpit Mining Bee		NS(A)		H	1933	1962
8	<i>Andrena bimaculata</i>	Large Gorse Mining Bee		NS(B)		S		1928
9	<i>Andrena coitana</i>	Small Flecked Mining Bee						1946
10	<i>Andrena denticulata</i>	Grey-banded Mining Bee				S	1933	1962
11	<i>Andrena dorsata</i>	Short-fringed Mining Bee						1950
12	<i>Andrena flavipes</i>	Yellow-legged Mining Bee					1941	1946
13	<i>Andrena fucata</i>	Painted Mining Bee						1927
14	<i>Andrena fuscipes</i>	Heather Mining Bee				H		1950
15	<i>Andrena haemorrhoa</i>	Orange-tailed Mining Bee					1918	1941
16	<i>Andrena marginata</i>	Small Scabious Mining Bee		NS(A)		S		1923
17	<i>Andrena nigroaenea</i>	Buffish Mining Bee						1946
18	<i>Andrena nitida</i>	Grey-patched Mining Bee					1941	2016
19	<i>Andrena ovatula</i>	Small Gorse Mining Bee				S		1946
20	<i>Andrena praecox</i>	Small Sallow Mining Bee				S		<1920
21	<i>Andrena synadelpha</i>	Broad-margined Mining Bee						<1920
22	<i>Andrena tarsata</i>	Tormentil Mining Bee			S41; PS	S	c. 1840	1947
23	<i>Andrena thoracica</i>	Cliff Mining Bee				S		1946
24	<i>Andrena trimmerana</i>	Trimmer's Mining Bee		NS(B)			1933	1950
25	<i>Andrena varians</i>	Backthorn Mining Bee		NS(B)				<1920
26	<i>Andrena wilkella</i>	Wilke's Mining Bee						1956
27	<i>Andrena alfkenella</i>	Alfken's Mini-miner		NR				1947
28	<i>Andrena minutula</i>	Common Mini-miner					1946	1950
29	<i>Andrena semilaevis</i>	Shiny-margined Mini-miner					1928	1948
30	<i>Panurgus banksianus</i>	Large Shaggy Bee				S		1840

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
31	<i>Panurgus calcaratus</i>	Small Shaggy Bee				S		1950
32	<i>Halictus tumulorum</i>	Bronze Furrow Bee					1933	1934
33	<i>Lasioglossum calceatum</i>	Common Furrow Bee					1923	2016
34	<i>Lasioglossum leucopus</i>	White-footed Furrow Bee		NR				1946
35	<i>Lasioglossum leucozonium</i>	White-zoned Furrow Bee					c. 1840	1934
36	<i>Lasioglossum minutissimum</i>	Least Furrow Bee					1946	1951
37	<i>Lasioglossum morio</i>	Green Furrow Bee						1951
38	<i>Lasioglossum prasinum</i>	Grey-tailed Furrow Bee				H		1947
39	<i>Lasioglossum punctatissimum</i>	Long-faced Furrow Bee					1946	1950
40	<i>Lasioglossum villosulum</i>	Shaggy Furrow Bee					1946	1950
41	<i>Lasioglossum xanthopus</i>	Orange-footed Furrow Bee		NS(B)				1940
42	<i>Lasioglossum zonulum</i>	Bull-headed Furrow Bee					c. 1840	1954
43	<i>Sphecodes ephippius</i>	Bare-saddled Blood Bee					1946	1950
44	<i>Sphecodes ferruginatus</i>	Dull-headed Blood Bee		NS(B)				1947
45	<i>Sphecodes geoffrellus</i>	Geoffroy's Blood Bee						1956
46	<i>Sphecodes longulus</i>	Little Sickle-jawed Blood Bee		NS(A)		S	1947	1956
47	<i>Sphecodes puncticeps</i>	Sickle-jawed Blood Bee						1947
48	<i>Sphecodes spinulosus</i>	Spined Blood Bee	VU					1943
49	<i>Dasypoda hirtipes</i>	Pantaloony Bee		NS(B)		S		1950
50	<i>Melitta leporina</i>	Clover Blunthorn Bee						1946
51	<i>Osmia bicornis</i>	Red Mason Bee						1934
52	<i>Osmia leaiana</i>	Orange-vented Mason Bee						1947
53	<i>Osmia spinulosa</i>	Spined Mason Bee						1956
54	<i>Hoplitis claviventris</i>	Wetted Lesser Mason Bee					1947	1951
55	<i>Stelis phaeoptera</i>	Plain Dark Bee	VU				1931	1951
56	<i>Stelis punctulatissima</i>	Banded Dark Bee		NS(B)			1930	1952
57	<i>Megachile ligniseca</i>	Wood-carving Leafcutter Bee						1923
58	<i>Megachile versicolor</i>	Brown-footed Leafcutter Bee					1934	1946
59	<i>Megachile willughbiella</i>	Willughby's Leafcutter Bee					1913	1918
60	<i>Coelioxys conoidea</i>	Large Sharp-tail Bee				S		1950
61	<i>Coelioxys elongata</i>	Dull-vented Sharp-tail Bee						1947

	Species	Common Name	Threat	Rarity	Other Status	HQI <sup>1</sup>	First	Last
62	<i>Coelioxys rufescens</i>	Rufescent Sharp-tail Bee				S		1950
63	<i>Nomada baccata</i>	Bear-clawed Nomad Bee		NS(A)		H		1954
64	<i>Nomada fabriciana</i>	Fabricius' Nomad Bee						1950
65	<i>Nomada flavopicta</i>	Blunthorn Nomad Bee		NS(B)				1946
66	<i>Nomada fulvicornis</i>	Orange-horned Nomad Bee		NR		S		1946
67	<i>Nomada goodeniana</i>	Gooden's Nomad Bee					1917	1923
68	<i>Nomada marshamella</i>	Marsham's Nomad Bee						1949
69	<i>Nomada roberjeotiana</i>	Tormentil Nomad Bee		NR			1840	1930
70	<i>Nomada rufipes</i>	Black-horned Nomad Bee				S	1834	1946
71	<i>Epeolus cruciger</i>	Red-thighed Epeolus				H	1834	1950
72	<i>Epeolus variegatus</i>	Black-thighed Epeolus				S	1928	1950
73	<i>Melecta albifrons</i>	Common Mourning Bee						1920
74	<i>Anthophora furcata</i>	Fork-tailed Flower Bee						1928
75	<i>Anthophora retusa</i>	Potter Flower Bee	EN		S41; PS	S		1946
76	<i>Bombus jonellus</i>	Heath Bumble Bee				H		2016
77	<i>Bombus lapidarius</i>	Large Red Tailed Bumble Bee						1947
78	<i>Bombus lucorum</i>	White-Tailed Bumble Bee						1947
79	<i>Bombus subterraneus</i>	Short-haired Bumble Bee		NS(A)	S41; PS			1928
80	<i>Bombus terrestris</i>	Buff-Tailed Bumble Bee					1947	2015
81	<i>Bombus humilis</i>	Brown-banded Carder-bee			S41; PS	S		1928
82	<i>Bombus pascuorum</i>	Common Carder Bee						1934
83	<i>Bombus ruderarius</i>	Red-shanked Carder-bee			S41; PS			1947
84	<i>Bombus campestris</i>	Field Cuckoo Bee						1947
85	<i>Bombus rupestris</i>	Red-tailed Cuckoo Bee		NS(B)				1947
86	<i>Bombus vestalis</i>	Vestal Cuckoo Bee						1951

26

<sup>1</sup> HQI = Habitat Quality Indicator: H = Heathland, S = Sandy ground

## 5.0 SITE DESCRIPTION

Silverlake is a large site of some 230 hectares of old sand and gravel working to the south and west of Crossways, near the southwest edge of the Poole Basin. The 2<sup>nd</sup> Edition Ordnance Survey map shows the area included parts of West Knighton, Empool, Outer and Woodsford Heaths plus some farmland and Knighton Heath Wood. Parts of the heaths were gradually enclosed and converted to agriculture with some being lost to Warmwell Aerodrome. Mineral workings were initially small scale and confined to the northeast of the area near Moreton Station. After the 2<sup>nd</sup> World War a combination of development, agriculture and mineral extraction continued to eat away at the remaining parts of Outer Heath and by 1990 only a very small remnant of the original heath remained within the complex of mineral workings.

### 5.1 *Heathland*

Of the original heath vegetation the only remaining fragment is on Outer Heath which is recognised as a Site of Nature Conservation Interest. The other heath areas, Woodlark Heath and Dart Heath, were quarried for sand and then used for landfill. Around 1996 they were capped and an acidic and nutrient-poor subsoil was spread over the surface and sown with heather seeds. Woodlark and Dart Heaths are extensively grazed by cattle, and Outer Heath by ponies.

The heath vegetation is dominated by Ling *Calluna vulgaris* with scattered Bell Heather *Erica cinerea* and patches of Dwarf Gorse *Ulex minor*. Outer Heath is damper with abundant Cross-leaved Heath *Erica tetralix* and locally Purple Moor-grass *Molinia caerulea*. Herbs are generally rare apart from Tormentil *Potentilla erecta* and Heath Milkwort *Polygala serpyllifolia*.

The restored heath areas have a very different structure to Outer Heath. Woodlark Heath has lots of bare ground and a trackway, both Woodlark and Dart Heath have increasing amounts of Birch and Willow scrub which is occasionally cut. Outer Heath is damper and pony grazed, and is mainly closed with very little bare ground.

### 5.2 *Acid grassland*

Acid grassland is beginning to develop in some areas, most extensively on a sandy area east of Beaumont Lake. The vegetation includes a patchy sward of Common Bent *Agrostis capillaris* with Sweet Vernal Grass *Anthoxanthum odoratum* and Yorkshire Fog *Holcus lanatus*. Herbs include Bird's-foot-trefoil *Lotus corniculatus*, Tormentil *Potentilla erecta*, Sheep's Sorrel *Rumex acetosella*, Common Stork's-bill *Erodium cicutarium*, Small Cudweed *Filago minima*, Lesser Hawkbit *Leontodon saxatilis* and Common Cat's-ear *Hypochaeris radicata*. The last two species are particularly important as they provide nectar resource for bees and hoverflies in particular. On more clayey and damp ground there are large patches of Common Fleabane *Pulicaria dysenterica*, Creeping Cinquefoil *Potentilla reptans*, Silverweed *Potentilla anserina*, with Scentless Mayweed *Tripleurospermum inodorum* particularly abundant.

### 5.3 *Heath edge habitats*

There are very good examples of heathland edge habitat both within the site and especially along the northern and eastern boundaries. The heath areas are often fringed by stands of Grey Willow *Salix cinerea* and Bramble *Rubus fruticosus* which are extremely important as forage and nectar sources in the spring and summer respectively. The hedgerows and scrub along the entrance road and the footpaths have shrubs such as Blackthorn *Prunus spinosa*, Hawthorn *Crataegus monogyna* and Holly *Ilex aquifolium* which are important nectar sources. They offer a wider range of herbs than the heaths that flower through the spring and summer, including Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum sphondylium*, Wild Parsnip *Pastinaca sativa*, Creeping Cinquefoil *Potentilla reptans*, Ground Ivy *Glechoma hederacea*, Wood Sage *Teucrium scorodonia*, Ragwort *Jacobaea vulgaris* and Smooth Hawk's-beard *Crepis capillaris*.

Around the current main development of Beaumont Village there are landscaped areas in the form of banks and small areas of grassland that have been sown with a wildflower mix and some have been planted with trees and shrubs. These areas now have a local abundance of herbs such as Bird's-foot-trefoil *Lotus corniculatus*, Wild Carrot *Daucus carota* and Common Knapweed *Centaurea nigra*, plus plants of ruderal and disturbed ground including Colt's-foot *Tussilago farfara*, Black Medick *Medicago lupulina*, Weld *Reseda luteola*, Viper's Bugloss *Echium vulgare* and Scentless Mayweed *Tripleurospermum inodorum*. These are important for nectar and forage for species on the heaths in the spring and summer before the heather plants are in flower and for those species that do not forage from heather or dwarf gorse.

## 6.0 RESULTS

97 species, 65 bees and 32 wasps, were recorded from the site, of which 32 were new to the area. The two scarce wasps *Argogorytes fargei* and *Cerceris quiquefasciata* were recorded for the first time in the area for over fifty years and both have only been recorded from one other in Dorset in recent years. The rare bee *Stelis phaeoptera* was also only the second recent Dorset record, it is a cleptoparasite of the widespread *Osmia leaiana*.

### 6.1 WASPS

A total of 32 species were recorded 16 of which were heathland and sandy ground indicator species. Most wasps appear later in the season compared to bees and the weather in mid-July and August during the survey was not particularly favourable for this group, it is therefore probably under-recorded.

Two of the most interesting species recorded were wasps. The Section 41 *Cerceris quinquefasciata* was noted in 2020 on Cow Parsley and Hogweed flowers along the entrance road and footpath. At present it is only otherwise known from the sand quarry area along Puddletown Road near Wareham. Also, on Hogweed along the footpath was a male *Argogorytes fargei*, a species that was recorded from the Dorset Heaths until the 1950s and then underwent a significant decline throughout Britain. It is now showing an increase in parts of eastern England but remain rare further west.

Other notable species include the colourful jewel wasp *Hedychrum nobile* a parasite of *Cerceris arenaria*, which was recorded around a large nesting aggregation of the *Cerceris* on Woodlark Heath. The heathland specialist *Eumenes coarctatus* was also noted on Woodlark Heath with a male seen on Dwarf Gorse flowers.

### 6.2 BEES

65 species of bees were recorded 14 of which were heathland and sandy ground indicator species. Many of the species are associated with heathland landscapes including the heath specialists *Andrena fuscipes*, *Colletes succinctus* and *Epeolus cruciger*, plus those that are associated with acid grassland and sandy ground such as *Andrena denticulata*, *A. thoracica*, *Anthophora bimaculata* and *Panurgus calcaratus*. Edge habitat such as bramble scrub, road verges and the banks sown with wild flowers around the development are favoured by the more generalist species including *Andrena cineraria*, *A. dorsata*, *A. nitida*, *A. scotica*, *Osmia caerulea*, *Lasioglossum calceatum* and *Bombus pascuorum*.

Several of the additions to the area, notably *Osmia aurulenta*, *O. bicolor* and *O. spinulosa*, nest in old snail shells and have probably colonised since the area has been developed. Limestone and concrete have been used and provide a source of calcium for snails which are otherwise rare in heathland areas. Two species, *Bombus hypnorum* and *Colletes hederæ* are relatively recent additions to the UK fauna and are well established across Dorset.

### 6.3 INDICATOR SPECIES

Indicator lists show 118 bee and wasp species that are confined to, or strongly associated with, lowland heathland habitats. The lists are split between those that are most strictly associated with heaths in Britain (A), including those reliant on the heather plants themselves, and a longer list (B) of those that are associated with sandy ground and in lowland Britain are most frequent in the heathland districts of southern and southeast England and the Brecklands and coastal Sandlings of East Anglia. The lists can be used to compare heathland sites.

Historically the heaths in the Silverlake area had 79 of the 118 indicator species (see Tables 3 & 4) of which 30 were recorded during the current survey, especially on Woodlark Heath.

**TABLE 3.** Summary of Dorset wasp heathland indicator species recorded from Silverlake area.

Species in red were refound during the current survey.

	Species	Common Name	Status		Last date
1	<i>Andrena argentata</i>	Small Sandpit Mining Bee	NS(A)	A	1962
2	<i>Andrena fuscipes</i>	Heather Mining Bee		A	
3	<i>Colletes succinctus</i>	Heather Colletes		A	
4	<i>Epeolus cruciger</i> *	Red-thighed Epeolus		A	
5	<i>Lasioglossum prasinum</i>	Grey-tailed Furrow Bee		A	1947
6	<i>Nomada baccata</i> *	Bear-clawed Nomad Bee	NS(A)	A	1954
7	<i>Andrena bimaculata</i>	Large Gorse Mining Bee	NS(B)	B	1928
8	<i>Andrena clarkella</i>	Clarke's Mining Bee		B	
9	<i>Andrena denticulata</i>	Grey-banded Mining Bee		B	
10	<i>Andrena marginata</i>	Small Scabious Mining Bee	NS(A)	B	1923
11	<i>Andrena ovatula</i>	Small Gorse Mining Bee		B	
12	<i>Andrena praecox</i>	Small Sallow Mining Bee		B	<1920
13	<i>Andrena tarsata</i>	Tormentil Mining Bee	BAP; S41	B	
14	<i>Andrena thoracica</i>	Cliff Mining Bee		B	
15	<i>Anthophora bimaculata</i>	Green-eyed Flower Bee		B	
16	<i>Anthophora retusa</i>	Potter Flower Bee	EN	B	1946
17	<i>Bombus humilis</i>	Brown-banded Carder Bee	BAP; S41	B	1928
18	<i>Coelioxys conoidea</i> *	Large Sharp-tail Bee		B	1950
19	<i>Coelioxys rufescens</i> *	Rufescent Sharp-tail Bee		B	1950
20	<i>Colletes fodiens</i>	Hairy-saddled Colletes		B	
21	<i>Dasygaster hirtipes</i>	Hairy Legged Mining Bee	NS(B)	B	1950
22	<i>Epeolus variegatus</i> *	Black-thighed Epeolus		B	
23	<i>Halictus rubicundus</i>	Orange-legged Furrow Bee		B	
24	<i>Lasioglossum punctatissimum</i>	Long-faced Furrow Bee		B	1950
25	<i>Nomada fulvicornis</i> *	Orange-horned Mining Bee		B	1946
26	<i>Nomada leucophthalma</i> *	Early Mining Bee		B	
27	<i>Nomada rufipes</i> *	Black-horned Nomad Bee		B	1946
28	<i>Panurgus banksianus</i>	Large Shaggy Bee		B	1840
29	<i>Panurgus calcaratus</i>	Small Shaggy Bee		B	
30	<i>Sphecodes gibbus</i> *	Dark-winged Blood Bee		B	

	Species	Common Name	Status		Last date
31	<i>Sphecodes longulus*</i>	Little Sickie-jawed Blood Bee	NS(A)	B	1956

TABLE 4. Summary of Dorset wasp heathland indicator species recorded from Silverlake area

	Species	Common Name	Status		Last date
1	<i>Ammophila pubescens</i>	Heath Sand Wasp		A	
2	<i>Cerceris ruficornis</i>			A	1950
3	<i>Crabro scutellatus</i>		NS(A)	A	
4	<i>Elampus panzeri*</i>			A	1996
5	<i>Episyron rufipes</i>	Red Legged Spider Wasp		A	1995
6	<i>Eumenes coarctatus</i>	Heath Potter Wasp	NS(A)	A	
7	<i>Evagetes dubius</i>		NS(B)	A	1933
8	<i>Hedychridium niemelai*</i>		pRDB3	A	1955
9	<i>Mimesa bicolor</i>		VU	A	1950
10	<i>Mutilla europaea</i>	Large Velvet Ant	NS(B)	A	1979
11	<i>Pompilus cinereus</i>	Leaden Spider Wasp		A	2016
12	<i>Agenioideus cinctellus</i>			B	1956
13	<i>Ammophila sabulosa</i>	Red Banded Sand Wasp		B	
14	<i>Anoplius infuscatus</i>			B	1947
15	<i>Anoplius viaticus</i>	Black Banded Spider Wasp		B	
16	<i>Arachnospila minutula</i>			B	1929
17	<i>Arachnospila wesmaelii</i>			B	1954
18	<i>Argogorytes fargeii</i>			B	
19	<i>Astata boops</i>			B	
20	<i>Cerceris arenaria</i>	Sand Tailed Digger Wasp		B	
21	<i>Cerceris quadrifasciatus</i>			B	
22	<i>Ceropales maculata</i>			B	1950
23	<i>Chrysis illigeri</i>			B	1950
24	<i>Cleptes nitidulus</i>			B	1950
25	<i>Crabro cribrarius</i>	Slender Bodied Digger Wasp		B	
26	<i>Crabro peltarius</i>			B	2016
27	<i>Crossocerus quadrimaculatus</i>	Four-spotted Digger Wasp		B	1954
28	<i>Crossocerus wesmaeli</i>	Wesmael's Digger Wasp		B	1956
29	<i>Cryptocheilus notatus</i>		RDB2	B	1950
20	<i>Diodontus tristis</i>			B	1950
31	<i>Entomognathus brevis</i>			B	1956
32	<i>Gorytes laticinctus</i>		RDB3	B	1956
33	<i>Gorytes quadrifasciatus</i>			B	
34	<i>Harpactus tumidus</i>			B	1950
35	<i>Hedychridium ardens*</i>			B	1996
36	<i>Hedychridium nobile*</i>			B	
37	<i>Lindenius albilabris</i>			B	1950
38	<i>Mellinus arvensis</i>			B	
39	<i>Methocha articulata</i>		NS(B)	B	1950
40	<i>Mimesa bruxellensis</i>		NS(A)	B	1954
41	<i>Mimesa equestris</i>			B	1950
42	<i>Mimesa lutaria</i>			B	1948



	Species	Common Name	Status		Last date
43	<i>Nysson dimidiatus*</i>		NS(B)	B	1950
44	<i>Nysson trimaculatus*</i>			B	1961
45	<i>Odynerus spinipes</i>	Spiny Mason Wasp		B	
46	<i>Philanthus triangulum</i>	Bee Wolf	RDB2	B	1995
47	<i>Podalonia hirsuta</i>	Hairy Sand Wasp	NS(B)	B	
48	<i>Tachysphex pompiliformis</i>			B	

\* = cleptoparasites targeting other bee and wasp species

## 7.0 ASSESSMENT

### 7.1 HABITATS & MICRO-HABITATS

#### 7.1.1 *Heath vegetation*

There are current around 10-hectares of heathland present within the Silverlake area with a further 5-ha of mire habitat along the southern edge that is within Warmwell Heaths SSSI. Of the 10-ha of dry and humid heath most of is of recent origin being restored from capped landfill that was seeded in 1996. Woodlark Heath contains the best habitat with good areas of bare sandy or clayey ground plus good development of heath vegetation with Ling *Calluna vulgaris*, Bell Heather *Erica cinerea*, Cross-leaved Heath *Erica tetralix* and Dwarf Gorse *Ulex minor* all present. The heather specialist bees *Andrena fuscipes* and *Colletes succinctus* were noted from here where they forage almost exclusively from Ling. The heathland wasps *Ammophila pubescens* and *Eumenes coarctatus* were also noted from Woodlark Heath. Good nesting aggregations of species such as *Cerceris arenaria* were noted on bare ground where its jewel-wasp parasite *Hedychrum nobile* was also noted.

#### 7.1.2 *Acid grassland*

The developing acid grassland area, including tracks and verges, are important as they have a range of flowering plants throughout the spring and summer when there is little in flower on the heaths. Of particular value are yellow-flowered species of the Asteraceae such as Lesser Hawkbit *Leontodon saxatilis*, Common Cat's-ear *Hypochaeris radicata*, Smooth Hawk's-beard *Crepis capillaris* and Ragwort *Jacobaea vulgare*, which are utilised by a range of bees including *Andrena denticulata*, *Anthophora bimaculata*, *Colletes fodiens*, *Lasioglossum villosulum* and *Panurgus calcaratus*. On damper ground and close to the lake margins there are large stands of Common Fleabane *Pulicaria dysenterica* which is important for these species. Other species favour Bird's-foot-trefoil, such as *Andrena wilkella*, *Anthidium manicatum*, *Osmia caerulea* and *Megachile willughbiella*. The local mason-wasps *Odynerus melanocephalus* and *O. spinipes* were noted on the flowers of Creeping Cinquefoil *Potentilla reptans* and Silverweed *Potentilla anserina*.

#### 7.1.3 *Heathland edge*

This is a particular rich habitat for bees and wasps as there is a wide range of flowers and flowering shrubs right through the season. Sallows are particularly frequent on the site and the blossom from mid-March is extremely important for emerging queen bumblebees and early spring solitary bees including *Andrena clarkella*. This forages solely from willow flowers and a large nesting aggregation was noted on vertical sand face where its nest-parasite *Nomada leucophthalma* was also noted. In April and May Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna* are used by a wide range of species and scrub edge herbs such as Ground Ivy *Glechoma hederacea* are important.

In late spring and summer umbellifers such as Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum sphondylium* and Wild Parsnip *Pastinaca sativa* are used by both bees and wasps. Two uncommon wasps, *Argogorytes fargei* and *Cerceris quinquefasciata*, were found along the verges of the entrance road and adjacent footpaths. The small bee *Andrena semilaevis* preferentially forages from umbellifers. In these areas there are also frequent stands of Bramble *Rubus fruticosus* agg., the flowers of which are used by many species through mid-summer including the second generation of bees such as *Andrena dorsata*, *A. flavipes*, *A. thoracicia* and a range of bumblebees. The rare *Stelis phaeoptera* was seen on Bramble flowers along the eastern edge of the site, it is a cleptoparasite on *Osmia leaiana* which nest in cavities such dead bramble stems.

## Heathland specialists



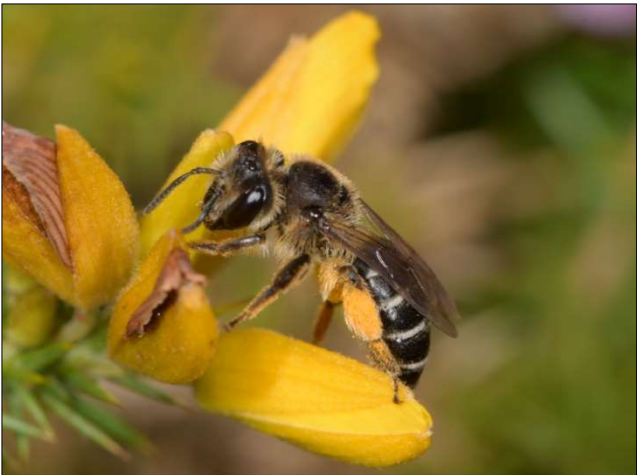
***Colletes succinctus* Heather Colletes**

A specialist bee foraging from Ling in late summer, found on Woodlark Heath in 2021.



***Andrena fuscipes* Heather Mining Bee**

Like *Colletes succinctus* this mining bee forages almost exclusively from the flowers of Ling.



***Andrena ovatula* Small Gorse Mining Bee**

A small double-brooded mining bee, the second brood forages from Dwarf Gorse flowers on the heaths.



***Epeolus cruciger* Red-thighed Epeolus**

A nest-parasite targeting *Colletes succinctus*.



***Eumenes coarctatus* Heath Potter Wasp** NS

A very distinctive large black and yellow wasp with a narrow waist, confined to the heathlands of southern England.



***Ammophila pubescens* Heath Sand Wasp** NS

A slender-bodied sand-wasp confined to the heath of southern England where it is host to the S41 bee-fly *Thyridanthrax fenestratus*.



## Acid grassland species



***Panurgus calcaratus* Small Shaggy Bee**  
A small hairy black bee that forages from yellow composites such as Lesser Hawkbit and Common Cat's-ear.



***Andrena denticulata* Grey-banded Mining Bee**  
A stout, dark mining bee that forages from yellow composites such as Fleabane and Ragwort.



***Anthophora bimaculata* Green-eyed Flower Bee**  
A frequent mid-summer bee in flowery grassland across the site, including the wildflower banks around Beaumont Village.



***Colletes fodiens* Hairy-saddled Colletes**  
This species is listed as Vulnerable on the European Red List, it forages from Ragwort and Fleabane.



***Podalonia hirsuta* Hairy Sand-wasp** NS  
A large stout sand-wasp found in several locations across the site. Females can overwinter and emerge in early spring.



***Odynerus melanocephalus* Black-headed Mason Bee**  
This Section 41 bee is mainly coastal in Dorset but does occur inland in old mineral workings. The females predate weevil larvae, several males were seen on Creeping Cinquefoil flowers in acid grassland.



## Generalist heathland edge species



Female *Andrena cineraria* Ashy Ming Bee  
One of the characteristic spring species often found in gardens which forages from a wide range of flowers and blossom.



Female *Andrena scotica* Chocolate Ming Bee  
A widespread spring flying bee found in a range of habitat particularly hedgerows and scrub edge.



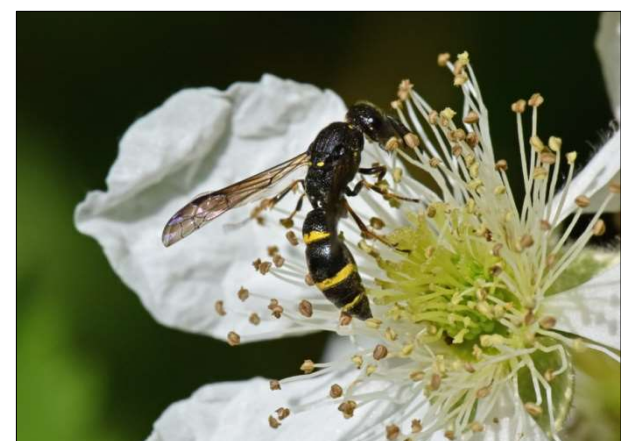
Male *Nomada goodeniana* Gooden's Nomad Bee  
One of the most frequent large nomad bees with a black and yellow abdomen targeting the single brooded *Andrena nitida* and double-brooded *A. thoracica*.



Female *Andrena semilaevis* Shiny-margined Mini-miner  
A small single brooded bee favouring flowery marginal habitat often foraging from umbellifers such as Cow Parsley and Hogweed.



Female *Ectemnius cavifrons*  
One of several medium-sized black and yellow bodied wasps found in edge habitat, predatory on flies and hoverflies and often seen on umbellifer flowers searching for nectar.



Female *Symmorphus bifasciatus*  
A slender mason wasp which nest in cavities in wood and in hollow stems, predatory on the larvae of Chrysomelid beetles, particularly the willow feeding *Phratora vulgatissima*.

## 7.2 COMPARISON WITH OTHER SITES

Of the five heathlands within the study area those heaths formerly in and the around Silverlake had the highest number of species recorded and, along with Winfrith Heath, the highest number of indicator species. However, due to the loss of nearly all the heathland habitat many species have been lost at Silverlake whereas three of the other sites still support significant areas of heathland habitat and are protected within various Sites of Special Scientific Interest. It is encouraging however that 30 indicator species were recorded at Silverlake during the current survey and with the correct management and ongoing restoration of the remaining development area there is an opportunity for more species to colonise from nearby sites such as Warmwell Heath.

	Total aculeates	Wasps (66)	Bees (52)	Total indicators	% of total
West Knighton, Empool & Outer Heaths (Silverlake area)	215	48	31	79 <sup>1</sup> (30 <sup>2</sup> )	33%
Warmwell Heath	165	45	29	69	42%
Tadnoll Heath	186	37	32	69	37%
Winfrith Heath	158	46	33	79	50%
Puddletown Heath	143	40	20	60	42%

<sup>1</sup> the total from all records

<sup>2</sup> the total from 2019-2021 surveys

### 7.2.1 Puddletown Forest

This is a large area of former heath that has mainly been planted with conifers, although the latest Forest Design Plan indicates that several open areas will be retained as heathland. The dry heath differs from the other sites in that Bilberry *Vaccinium myrtillus* is locally abundant. Despite the planting of conifers it still supports an interesting bee and wasp fauna, although the number of Indicator Species is low compared with the three SSSI heaths. One species that is found here but not on the other sites is *Andrena lapponica* which forages solely from Bilberry.

### 7.2.2 Tadnoll

This is the largest remaining remnant of the once extensive Moreton Heath which ran from Redbridge south to the Tadnoll Brook. The remaining heathland area extends from Tadnoll Mill east to the railway line and is split from Winfrith Heath by the valley meadow either side of the Tadnoll Brook. The reserve has been well recorded with a good series of records since 1900. Its rich fauna may reflect the degree of recording.

### **7.2.3 *Winfrith Heath***

A large and varied site which, along with Tadnoll, is partly owned and managed by Dorset Wildlife Trust. It has a long history of recording largely due to the efforts of F.H. Haines who lived nearby and more recently by Ian Cross. The bee and wasp fauna is rich and includes a high number of Indicator Species which reflects the variety of habitats present including dry heath, wet heath, acid grassland, scrub and heath-edge habitat. Recent management work by the DWT has involved creating large scrapes in sandy areas which should benefit a wide range of ground-nesting bees and wasps.

### **7.2.4 *Warmwell Heath***

A small site on the south side of the Tadnoll Brook protected within Warmwell Heath SSSI. It has dry and wet heath with extensive acid mire with scrub, wet woodland and fen in the north along the Tadnoll Brook. Pony grazing has recently been re-introduced to the site. There is a good series of records from the site since the 1900s although compared with the three other sites there are relatively few recent (post-1990) records and further survey work here is desirable.



## **8.0 MANAGEMENT AND RESTORATION FOR BEES AND WASPS**

The surveys have been very encouraging and have shown that a good range of species have colonised the site, including a number of heathland and sandy ground specialists. As the Silverlake development expands further areas will be restored to heathland and acid grassland. Within these areas, and the wider development, the following niches or micro-habitat should be incorporated:

- A range of bare ground habitat including flat, sloping and vertical surfaces covering a range of aspects.
- A variety of substrates including clayey, gravelly and sandy areas. At present the first two are most abundant and larger exposures of both loose and compacted sandy substrates would be beneficial as these are preferred by most species.
- Edge habitat including scrub with dead standing wood and dead stems of species such as bramble which are favoured by cavity nesting species.
- A wide range of nectar and pollen sources throughout the season from March to September, including edge habitats with willow and bramble, plus acid grassland with an abundance of yellow flowered Asteraceae (Dandelion family) which are important for a number of bees.
- Landscaping around developments should continue to include banks and other areas sown with wildflowers. Wooden fences and the provision of 'bee hotels' would provide sites for cavity nesting species.

## **9.0 FUTURE WORK**

Further survey work would undoubtedly reveal more species. It would be desirable to survey selected areas every 3-5 years targeting the heathlands areas, acid grasslands and edge habitats. It would also be useful to target others areas away from the eastern area, particularly those that will be restored to heathland and acid grassland.

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## REFERENCES

- Archer, M.E. 2014** *The Vespid Wasps of the British Isles*. Handbooks for the Identification of British Insects: Vol. 6, Part 6. Royal Entomological Society, London.
- Byfield, A. & Pearman, D.A. 1994** *Dorset's Disappearing Heathland Flora*. Plantlife and Royal Society for the Protection of Birds.
- Day, M.C. 1988** *Spider Wasps Hymenoptera: Pompilidae*. Handbooks for the Identification of British Insects: Vol. 6, Part 4. Royal Entomological Society, London.
- Else, G.R. & Edwards, M. 2018** *Handbook of the Bees of the British Isles*. The Ray Society, London.
- Falk, S. 2015** *Field Guide to the Bees of Great Britain and Ireland*. Bloomsbury.
- Richards, O.W. 1980** *Scolioidea, Vespoidea & Sphecoidea, Hymenoptera Aculeata*. Handbooks for the Identification of British Insects: Vol. VI, Part 3(b). Royal Entomological Society, London.

## APPENDIX I: SUMMARY OF SPECIES RECORDS

### COLLETIDAE; COLLETINAE

*Colletes fodiens* Geoffroy in Fourcroy, 1785

**Hairy-saddled Colletes**

Vulnerable (ERLB); Dorset Habitat Quality Indicator

1 ♂ West Knighton Heath, 1-viii-1947, G.M. Spooner

1 ♂ West Knighton Heath, 31-vii-1958, C.D. Day

1 ♀ foraging from flowers of Ragwort in developing acid grassland to the east of Beaumont Lake, 25-vi-2020

A local bee found on sandy soils in heathland areas of southern and southeast England and around the coast on sand dunes. Flying in mid-summer the females forage from yellow composites showing a preference for Ragwort *Jacobaea vulgaris* and Fleabane *Pulicaria dysenterica*.

*Colletes hederæ* Schmidt & Westrich, 1993

**Ivy Bee**

2 ♂ on Fleabane flowers, Lobelia Heath, 13-ix-2019

1 ♂ on Fleabane flowers, west of Starling Lake, 13-ix-2019

First recorded from Britain on the Purbeck coast in 2001 now widespread in the south and spreading north. A late flying bee, the females foraging solely from Ivy flowers, the males emerge earlier and can be found nectaring on other flowers.

*Colletes similis* Schenck, 1853

**Bare-saddled Colletes**

Dorset Habitat Quality Indicator

1 ♂ West Knighton Heath, 21-vii-1946, C.D. Day

1 ♂ West Knighton Heath, 13-vii-1950, C.D. Day, along wood side

1 ♀ swept from Mayweed on bank west of Beaumont Village, 17-vii-2019

A widespread species found in a variety of habitats including brownfield sites, forages mainly from species of Asteraceae and particularly fond of mayweeds. In Dorset it is scattered on the heaths and along the coast.

*Colletes succinctus* Linnaeus, 1758

**Heather Colletes**

Near Threatened (ERLB); Dorset Habitat Quality Indicator

Lewell Heath, 19-viii-1830, J.C. Dale

Several ♀ foraging from Ling flowers on Woodlark Heath, 3-ix-2021

One of the few solitary bees reliant on heathland vegetation, the females foraging solely from the flowers of heathers with a distinct preference for Ling *Calluna vulgaris*. Widespread in Dorset on the Poole Basin heaths but very rare elsewhere.

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### COLLETIDAE; HYLAEINAE

*Hylaeus communis* Nylander, 1852

**Common Yellow-face Bee**

1 ♀ Empool Heath, 5-viii-1928, G.M. Spooner

1 ♂ West Knighton Heath, 27-vii-1956, C.D. Day

Several ♀ around flowers of Weld on disturbed ground east of Beaumont Village, 17-vii-2019

One of several small yellow-face bees which nest in hollow plant stems such as Bramble or Hogweed. Widespread in Dorset in a variety of habitats.

*Hylaeus dilatatus* Kirby, 1802

**Chalk Yellow-face Bee**

1 ♀ on the flowers of Creeping Cinquefoil at the edge of the Angling Club car park, 25-vi-2020

This local yellow-face bee is mainly found on scrubby undercliffs along the coast in Dorset and is scarce in scrubby habitats inland although, like most of the genus, it may be overlooked.

*Hylaeus signatus* Panzer, 1798

**Large Yellow-face Bee**

2 ♂ on and around the flowers of Weld in a grassy area sown with wild flowers just east of Beaumont Village, 25-vi-2020

The largest of the genus, this bee is associated with the flowers of Wild Mignonette and Weld and is most frequent in chalky areas of central and southeast England, but occasionally is found in gardens and on brownfield sites where the host plants are frequent. There are only four other recent records for this species in Dorset.

## ANDRENIDAE; ANDRENINAE

*Andrena bicolor* Fabricius, 1775

**Gwynne's Mining Bee**

1 ♀ on Dandelion flowers along path northeast of office, 27-iii-2019

1 ♀ swept from Tormentil flowers along the eastern footpath, 27-vi-2019

One of the typical spring solitary bees found from March to May with a smaller second brood from the end of June. Widespread and found in many habitats, host to the cleptoparasite *Nomada fabriciana*.

*Andrena chrysoceles* Kirby, 1802

**Hawthorn Mining Bee**

1 ♀ swept from Creeping Cinquefoil flowers in the southeast of Woodlark Heath, 27-vi-2019

A widespread bee found in many habitats and on a wide variety of flowers. Widely distributed in Dorset and found in a variety of habitats particularly along hedgerows and edges of scrub.

*Andrena cineraria* Linnaeus, 1758

**Ashy Mining Bee**

1 ♀ in grassy heath, western part of Dart Heath, 21-v-2019

1 ♀ on Dandelion flowers on the verge of the entrance road, 22-iv-2021

1 ♀ on bank opposite Spa, southeast of Beaumont Village, 22-iv-2021

1 ♀ on the flowers of Creeping Cinquefoil in grassland east of Beaumont Lake, 8-vi-2021

One of the most familiar spring bees which is often found in gardens and urban green space and has increased over much of central and midland England in the last 50 years. It is targeted by the cleptoparasite *Nomada laburthiana*.

*Andrena clarkella* Kirby, 1802

**Clarke's Mining Bee**

1 ♂ West Knighton Heath, 12-iv-1919, F.H. Haines

1 ♀ on vertical sandy bank northeast of Starling Lake, 27-iii-2019

1 ♀ on Grey Sallow blossom along the northern boundary, 27-iii-2019

1 ♀ on Grey Sallow blossom northwest of Outer Heath, 8-iv-2019

Several ♀ on vertical sandy bank entering holes northeast of Starling Lake, a female *Nomada leucophthalma* present also, 8-iv-2019

1 ♀ on Grey Sallow blossom Woodlark Heath, 22-iv-2021

Several ♀ on vertical sandy bank entering holes in north-facing vertical sandy bank northeast of Starling Lake, female *Nomada leucophthalma* seen coming out of an *Andrena* burrow, 22-vi-21

This smart black bee with red-brown thorax and pollen hairs is one of the earliest solitary bees to emerge in spring the females foraging from the blossom of sallows, and forming nesting aggregations in sandy ground. Widespread but often localised.

*Andrena denticulata* Kirby, 1802

**Grey-banded Mining Bee**

- ♀ Empool Heath, 22-vii-1923, G.M. Spooner
- 1 ♂ & ♀ Empool Heath, 2-viii-1947, G.M. Spooner
- 1 ♀ West Knighton Heath, 21-vii-1946, C.D. Day
- 1 ♀ West Knighton Heath, Warmwell Aerodrome, 21-vii-1946, G.M. Spooner
- 6 ♀ West Knighton Heath, Warmwell Aerodrome, 30-vii-1947, G.M. Spooner
- 2 ♀ West Knighton Heath, Warmwell Aerodrome, 1-viii-1947, G.M. Spooner
- 1 ♀ West Knighton Heath, Warmwell Aerodrome, 22-viii-1962, G.M. Spooner
- 1 ♀ on Fleabane and Smooth Hawk's-beard flowers by track northwest of Fishing Lake, 17-vii-2019
- 1 ♀ on Fleabane on disturbed ground east of Beaumont Village, 17-vii-2019
- 1 ♀ on Fleabane flowers by track northwest of Fishing Lake, 7-viii-2020

A medium-large mining bee on the wing in summer in habitats where there is an abundance of yellow-flowered Asteraceae such as Ragwort and Fleabane. A widely distributed but generally scarce species found mainly in sandy or clayey habitats.

*Andrena dorsata* Kirby, 1802

**Short-fringed Mining Bee**

- 1 ♀ & 2 ♂ West Knighton Heath, 7-iv-1950, O.C. Boon,
- 1 ♀ on Bramble flowers on the edge of Woodlark Heath, 17-xii-2019
- 10+ ♀ on Bramble flowers along the northern verge of the entrance road, 25-vi-2020
- 1 ♀ along footpath in north of site, 22-iv-2021
- 1 ♀ on Bramble along footpath in north of site, 8-vii-2021

A double-brooded species found in many different habitats, it is thought to have increased in the last 100 years and is now one of the more frequently encountered mining bees.

*Andrena flavipes* Panzer, 1799

**Yellow-legged Mining Bee**

- ♂♂ and ♀♀ at *Taraxacum* on roadside, West Knighton Heath, 15-v-1941, G.M. Spooner
- Nesting aggregation in sandy bank, West Knighton Heath, 21-vii-1946, G.M. Spooner
- Nesting aggregation in sandy bank, West Knighton Heath, 24-vii-1946, G.M. Spooner
- Several ♂♂ on grassy bank west of Beaumont Village, seen on Colt's-foot flowers, 27-iii-2019
- Several ♂♂ on Dandelion flowers along path, 27-iii-2019
- Several ♀♀ around clayey exposure on Woodlark Heath, *Nomada fucata* present also, 8-iv-2019
- Several ♂♂ on Colt's-foot flowers on grassy bank west of Beaumont Village, 8-iv-2019
- Many ♂♂ and ♀♀, on bank south of the Spa, 8-iv-2019

A medium-large and very distinctive mining bee, the females with conspicuous orange pollen hairs on the hind legs, and distinct white hair bands on the wide abdomen. This bee has increased considerably over the last 100 years and is now one of the most frequent species and is found in many different habitats. It is the host of the cleptoparasite *Nomada fucata* which is frequently seen around holes at nesting aggregations.

*Andrena minutula* Kirby, 1802

**Common Mini-miner**

- 1 ♂ Warmwell Aerodrome, 21-vii-1946, G.M. Spooner
- 3 ♀♀ Empool Heath, 2-viii-1948, G.M. Spooner
- 1 ♂ West Knighton Heath, 28-vii-1950, C.D. Day
- 1 ♀ at clay exposure on Woodlark Heath, 8-iv-2019
- 1 ♀ at Cow Parsley flowers on verge of entrance road, 21-v-2019

One of a group of very small black mining bees with varying quantities of white banding on the abdomen and pale hairs on the face and thorax. Several can only be distinguished by the minute patterning of punctures on the thorax and tergites. This species is targeted by *Nomada flavoguttata*.

*Andrena nitida* Müller, 1776

### Grey-patched Mining Bee

3 ♀♀ at roadside Dandelion, West Knighton Heath, 15-v-1941, G.M. Spooner

1 ♀ on Woodlark Heath, 8-iv-2019

1 ♀ on west of Beaumont Village, 22-iv-2021

This large bee is one of the characteristic species of spring found widely in grassland habitats, often seen on Dandelions. Its nests are targeted by the large nomad be *Nomada goodeniana*.

*Andrena ovatula* Kirby, 1802

### Small Gorse Mining Bee

1 ♀ West Knighton Heath, 21-vii-1946, G.M. Spooner

Several ♀♀ around clay exposure on Woodlark Heath, 8-iv-2019

Several ♀♀ on Woodlark Heath, one seen on Western Gorse flowers, 17-vii-2019

1 ♀ on Woodlark Heath, 22-iv-2021

A small bee flying in two broods, found mainly in heathland areas and tolerant of firmer more gravelly ground than other species, also found in old mineral workings and on slumping cliffs. Although quite widespread in Britain this bee is listed as Near Threatened on the European Red List for bees (Nieto *et al*, 2014)

*Andrena semilaevis* Pérez, 1903

### Shiny-margined Mini-miner

1 ♀ Empool Heath, 5-viii-1928, G.M. Spooner

1 ♀ Empool Heath, 25-vi-1929, G.M. Spooner

1 ♂ Empool Heath, 27-vii-1948, G.M. Spooner

Several ♀♀ foraging on Rough Chervil and Hogweed along the verges of the entrance road, 27-vi-2019

One of the more frequent small black bees of the *Micrandera* group this species is single or possibly double brooded and often forages from umbellifers and is found in several different habitats. Like *A. minutula* it is host to the cleptoparasite *Nomada flavoguttata*.

*Andrena thoracica* Fabricius, 1775

### Cliff Mining Bee

1 ♂ West Knighton Heath, 21-vii-1946, G.M. Spooner

1 ♀ on Dandelion flowers along the verges on the entrance road, 27-iii-2019

Several ♀♀ on Woodlark Heath and one seen entering nesting burrow in bare ground, 17-vii-2019

1 ♀ on Bramble flowers along eastern footpath, 8-vii-2021

As its common name suggests this large and handsome bee is mainly found on the coast, but locally in southern and southeast England it can occur further inland on sandy heaths and in old mineral workings. Widespread along the coast in Dorset, but much more local inland.

*Andrena wilkella* Kirby, 1802

### Wilke's Mining Bee

1 ♀ West Knighton Heath, 26-vi-1956, C.D. Day

1 ♀ on Field Forget-me-not in developing acid grassland east of Beaumont Lake, 21-v-2019

1 ♀ foraging from Bird's-foot-trefoil in grassland by office car park, 8-vi-2021

1 ♀ foraging from Bird's-foot-trefoil along footpath in north of site, 8-vi-2021

1 ♀ foraging from Bird's-foot-trefoil along eastern footpath 12-vi-2021

A small mining bee, one of species pair with *A. ovatula* and easily confused with that species but differs in the incomplete hair-bands on the abdomen. It tends to prefer more calcareous sites than that species and is single brooded and on the wing between the two broods of *A. ovatula*. It forages mainly from members of the Fabaceae, especially Bird's-foot-trefoil, Restharrow and White Clover.

## ANDRENIDAE; PANURGINAE

### *Panurgus calcaratus* Scopoli, 1763

### Small Shaggy Bee

1 ♀ West Knighton Heath, 28-vii-1950, C.D. Day

1 ♀ on Smooth Hawk's-beard and Lesser Hawkbit flowers on verge of road north of Beaumont Village, 17-vii-2019

1 ♂ on Lesser Hawkbit flowers in acid grassland east of Beaumont Lake, 17-vii-2019

1 ♂ on Lesser Hawkbit flowers by track northwest of Fishing Lake, 17-vii-2019

1 ♂ on Lesser Hawkbit flowers in acid grassland on Lobelia Heath, 17-vii-2019

This is the smaller of the two *Panurgus* species in Britain and generally less widespread but it can be frequent where it occurs. A Summer flying bee, the females forage from yellow-flowered species of the Asteraceae, particularly Common Cat's-ear *Hypochaeris radicata* and Lesser Hawkbit *Leontodon saxatilis*. Scattered throughout the heathland area of southern-east Dorset but scarce elsewhere.

## HALICTIDAE; HALICTINAE

### *Halictus rubicundus* Christ, 1791

### Orange-legged Furrow Bee

1 ♀ on Fleabane on in acid grassland in the south of Lobelia Heath, 13-ix-2019

A medium-sized bee with a black abdomen with conspicuous white hair bands and distinctive orange-red pollen hairs on the hind tibia. Found on a variety flowers in many different habitats and is widespread in the British Isles. It is host to the cleptoparasitic blood-bee *Sphecodes gibbus*.

### *Halictus tumulorum* Linnaeus, 1758

### Bronze Furrow Bee

1 ♂ Empool Heath, 27-vii-1933, G.M. Spooner

1 ♀ Empool Heath, 23-viii-1934, G.M. Spooner

1 ♀ on Bramble flowers along eastern footpath, 8-vii-2021

A small, widespread bronze-green bee found in many habitats, it visits a wide variety of flowers. On heathland it is usually associated with edge habitats or acid grassland.

### *Lasioglossum leucozonium* Schrank, 1781

### White-zoned Furrow Bee

1 ♀ Empool Heath, 25-vi-1929, G.M. Spooner

1 ♂ in a pit near Ryeclose, Empool Heath, 23-viii-1934, G.M. Spooner

Several ♀♀ on Common Cat's-ear on bank south of Beaumont Village, 21-v-2019

2 ♀♀ on Smooth Hawk's-beard on verge of entrance road, 27-vi-2019

1 ♂ on Common Fleabane by track, Outer Heath, 7-viii-2020

1 ♀ 8-vi-2021

1 ♀ on Creeping Cinquefoil flowers along northern footpath, 8-vii-2021

The most widespread of the larger *Lasioglossum* species with conspicuous white bands on the abdomen found throughout the southern half of Britain, and is most frequent in coastal southern and south-eastern counties. It favours yellow composites for foraging.

### *Lasioglossum morio* Fabricius, 1793

### Green Furrow Bee

1 ♂ West Knighton Heath, 2-viii-1951, G.M. Spooner

Several ♀♀ along south-facing gravelly bank along northern footpath, 22-iv-2021

The most frequent of four small '*Dialictus*' *Lasioglossum* bees found in Britain that have metallic green colouration with pale hair bands on the abdomen. Females are found from the end of March to It is targeted by the small blood bee *Sphecodes geoffrellus*.

***Lasioglossum parvulum*** Schenck, 1853

**Smooth-gastered Furrow Bee**

1 ♀ along south-facing gravelly bank along northern footpath, 22-iv-2021

A small dark *Lasioglossum* found in a variety of habitats, in Dorset it is particularly associated with sandy ground on and around the heaths with a few records from the coast.

***Lasioglossum villosulum*** Kirby, 1802

**Shaggy Furrow Bee**

1 ♀ West Knighton Heath, 21-vii-1946, G.M. Spooner

1 ♂ Warmwell Aerodrome, 30-vii-1947, G.M. Spooner

1 ♂ Warmwell Aerodrome, 1-viii-1947, G.M. Spooner

1 ♂ West Knighton Heath, 23-viii-1950, C.D. Day

1 ♀ on Lesser Hawkbit flowers in developing acid grassland, 'Lobelia Heath', 27-vi-2019

This small dark *Lasioglossum* is widespread in England becoming mostly coastal in Wales and southern Scotland, it is locally frequent on light soils on the Dorset heaths and along the coast. Like several in the genus this species preferentially forages from yellow composites.

***Lasioglossum zonulum*** Smith, F., 1848

**Bull-headed Furrow Bee**

1 ♀ Empool Heath, 6-ix-1926, G.M. Spooner

1 ♀ Empool Heath, 25-vi-1929, G.M. Spooner

1 ♂ Empool Heath, 23-viii-1934, G.M. Spooner

1 ♂ Empool Heath, 5-viii-1950, G.M. Spooner

1 ♀ on Fleabane flowers in the east of 'Lobelia Heath', 13-ix-2019

Very similar to *Lasioglossum leucozonium* but has distinctly red-brown hairs on the thorax and a darker hairs on the tibia. It is much less widespread being only frequent in southern coastal counties from Dorset to Kent, elsewhere it is mainly coastal.

***Sphecodes ephippius*** Linnaeus, 1767

**Bare-saddled Blood Bee**

2 ♀♀ Warmwell Aerodrome, 21-vi-1946, G.M. Spooner

1 ♂ West Knighton Heath, 1-ix-1950, C.D. Day

Several ♀♀ on bare clayey bank on Woodlark Heath, 21-v-2019

1 ♀ on Lesser Hawkbit in developing acid grassland, 25-vi-2020

1 ♀ Woodlark Heath, on clayey ground, 22-iv-2021

1 ♀ on Creeping Cinquefoil flowers in developing acid grassland, 8-vi-2021

1 ♀ on Creeping Cinquefoil flowers by path, 8-vii-2021

One of the larger blood-bees found in a range of habitats where it targets several of the more common larger *Lasioglossum* species such as *L. calceatum* and *L. leucozonium* which were both noted nearby. It is widespread in England and Wales.

***Sphecodes geoffrellus*** Kirby, 1802

**Geoffroy's Blood Bee**

1 ♀ Warmwell Aerodrome, 9-viii-1956, G.M. Spooner

Several ♀♀ on bare clayey bank on Woodlark Heath, 8-iv-2019

A small and widespread blood-bee found in many open habitats where it targets several of the smaller *Lasioglossum* species such as *L. morio*.

***Sphecodes gibbus*** Linnaeus, 1758

**Dark-winged Blood Bee**

1 ♀ on Fleabane flowers by track northwest of Fishing Lake, 13-ix-2019

One of our larger blood-bees *Sphecodes gibbus* has a distinct brownish tinge to the wings. A cleptoparasite of *Halictus rubicundus* it is widespread in England and Wales.



*Sphecodes monilicornis* Kirby, 1802

**Box-headed Blood Bee**

1 ♀ on a leaf along the northern boundary path, the thorax had several orange trianguluns of *Meloe* attached to it, 21-v-2019

One of the smaller blood-bees which can be distinguished by the square, box-like shape to the head. Widespread over much of Britain where it is a cleptoparasite of various *Lasioglossum* bees.

## MEGACHILIDAE; MEGACHILINAE

*Anthidium manicatum* Linnaeus, 1758

**Wool Carder Bee**

2 ♀♀ foraging from Bird's-foot-trefoil flowers in developing acid grassland east of Beaumont Lake, 8-vi-2021

A large, distinctive and feisty bee often found in gardens around plants such as catmint and lamb's ears, the males flying around the plants and 'seeing off' any other bees that may stray too close. The females forage from Fabaceae and Lamiaceae and make their nests in cavities in wood. It can also be found in semi-natural habitats including calcareous grassland, undercliffs and heath edge.

*Stelis phaeoptera* Kirby, 1802

**Plain Dark Bee**

2 ♀♀ West Knighton Heath, 17-vii-1931, C.D. Day

1 ♀ West Knighton Heath, 30-vii-1947, G.M. Spooner

1 ♂ on Bramble flowers along eastern footpath, 8-vii-2021

This dark blue-black bee appears to have undergone a significant decline since the 1950s, with most of the recent records from the West Midlands. In Dorset there has been only one post-1990 from the far east of the county at Hengistbury Head, so this record from Silverlake is very welcome. It targets the cavity nesting mason bee *Osmia leaiana* which is widespread but is usually found in small quantity and is often overlooked.

*Osmia aurulenta* Panzer, 1799

**Gold-fringed Mason Bee**

1 ♀ on Bird's-foot-trefoil on disturbed ground east of Beaumont Village, 21-v-2019

1 ♀ on Bird's-foot-trefoil in acid grassland near the office, 8-vi-2021

1 ♀ on Bird's-foot-trefoil in developing acid grassland east of Starling Lake, 8-vi-2021

The females of this small bee are unmistakable with their body covered in orange-red hairs. One of three *Osmia* species that makes their nests in old snail shells and is most frequent along the coast or more rarely inland in chalk and limestone grassland. A surprise find at Silverlake where the soils are largely acid, but some of the roads and quarry tracks may have been made with imported limestone and therefore attract more snails.

*Osmia bicolor* Schrank, 1781

**Red-tailed Mason Bee**

1 ♀ along road verge of entrance, 21-v-2019

This very distinctive spring-flying bee nests in old snail shells, but unlike the other two British species it hides the sealed shell by covering in vegetation, usually pieces of grass. Most frequent on the chalk in Dorset it does occur locally elsewhere especially along roadsides and tracks made up with chalk or limestone therefore attracting snails.

*Osmia bicornis* Linnaeus, 1758

**Red Mining Bee**

1 ♀ West Knighton Heath, 21-vii-1934, C.D. Day

1 ♀ on Bird's-foot-trefoil on disturbed ground east of Beaumont Village, 21-v-2019

One of our most familiar solitary bees often found in gardens it will nest in cavities in stonework or wood and is easily attracted to 'bee hotels'. Widespread in Britain and Dorset with the majority of records coming from urban areas.

*Osmia caerulescens* Linnaeus, 1758

**Blue Mason Bee**

- 1 ♀ on Bird's-foot-trefoil in southeast corner of Woodlark Heath, 21-v-2019
- 1 ♂ on gate post by Woodlark Heath, 8-vi-2021
- 1 ♀ on Bird's-foot-trefoil in southeast corner of Woodlark Heath, 8-vi-2021
- 1 ♀ and 1 ♂ on Bird's-foot-trefoil by eastern footpath, 8-vi-2021

The females are very different from the previous two being largely hairless and a dark metallic blue colour, it is widespread but probably overlooked. Like *O. bicornis* it is a cavity nester in wood, hollow stems and is attracted to 'bee hotels'.

*Osmia spinulosa* (Kirby, 1802)

**Spined Mason Bee**

- 1 ♀ Empool Heath, 14-vii-1956, L.H. Woollatt det. G.M. Spooner
- 1 ♀ on Common Knapweed in area sown with wildflowers east of Beaumont Village, 25-vi-2020

A small dark bee that nests in old snail shells and is therefore most frequent in chalk and limestone areas. In Dorset it is most frequent on the coast becoming much more local inland. It forages mainly from Asteraceae with a preference for knapweeds and thistles.

*Megachile centuncularis* Linnaeus, 1758

**Patchwork Leafcutter Bee**

- 1 ♀ on Fleabane flowers, west of Starling Lake, 13-ix-2019
- 1 ♀ on Fleabane flowers by track near Outer Heath, 7-viii-2020

One of the smallest of our leafcutter bees *M. centuncularis* occurs in many different habitats and will forage from a range of flowers but shows a preference for *Asteraceae*. Nests are made in cavities in wood or stonework.

*Megachile willughbiella* Kirby, 1802

**Willughby's Leaf-cutter Bee**

- 1 ♂ West Knighton Heath, F.H. Haines, 12-viii-1913
- 1 ♂ West Knighton Heath, F.H. Haines, 12-vi-1918
- 1 ♂ on Bird's-foot-trefoil on disturbed ground east of Beaumont Village, 17-vii-2019
- 1 ♀ and 1 ♂ on Bird's-foot-trefoil in area sown with wildflowers east of Beaumont Village, 7-viii-2020

A large and impressive leafcutter with the males having modified front legs. It is widespread and found in many different habitats and the females forage from a range of plants with members of the Fabaceae particularly favoured. It nests in cavities in wood.

## APIDAE; NOMADINAE

*Nomada flavoguttata* Kirby, 1802

**Little Nomad Bee**

- Several ♀♀ along path along northern boundary, 27-iii-2019

As its common name suggests one of the smaller nomad-bees with a red abdomen with two cream-yellow spots on either side. It is a cleptoparasite of several of the smaller *Andrena* in the sub-family Micrandrena, including *A. minutula* and *A. semilaevis* that were both recorded nearby.

*Nomada fucata* Panzer, 1798

**Painted Nomad Bee**

- Several ♀♀ along path along northern boundary, 8-iv-2019
- Several ♀♀ at clayey exposure with nesting aggregation of *Andrena flavipes* in Woodlark Heath, 8-iv-2019
- Several ♀♀ on trackside bank with many *Andrena flavipes*, seen at flowers of Colt's-foot, west of Beaumont Village, 8-iv-2019
- 1 ♀ along grassy track southeast of Starling Lake, 21-v-2019

An obligate cleptoparasite of *Andrena flavipes* this nomad bee was considered uncommon or even rare thirty years ago but like its host it has increased dramatically and it now one of the most frequently encountered of the genus.

*Nomada goodeniana* Kirby, 1802

**Gooden's Nomad Bee**

1 ♀ West Knighton Heath, F.H. Haines, 11-v-1917

Empool Heath, C.D. Day, 6-viii-1923

1 ♀ along bank east of Starling Lake, 22-iv-2021

One of the larger and most frequent species spring flying *Nomada* species that targets *Andrena nitida* and *A. thoracica*, the form on the latter is double brooded. One of the most widespread *Nomada* species in Dorset found in many habitats.

*Nomada lathburiana* Kirby, 1802

**Lathbury's Nomad Bee**

1 ♀ along bank east of Starling Lake, 22-iv-2021

This species targets the nests of *Andrena cineraria* and like that species has increased its range over the last 30 years. In Dorset it is found through the range of the host but is never particularly frequent.

*Nomada leucothalma* Kirby, 1802

**Early Nomad Bee**

1 ♀ by vertical sandy bank with nesting aggregation of *Andrena clarkella* northeast of Starling Lake, 8-iv-2019

5+ ♀♀ by vertical sandy bank with nesting aggregation of *Andrena clarkella* northeast of Starling Lake, 22-iv-2021

This local nomad bee is an obligate cleptoparasite of the early-flying mining bee *Andrena clarkella*. A local species in Dorset where it mainly found in sandy places in and around the heaths in the Poole Basin.

*Nomada marshamella* Kirby, 1802

**Marsham's Nomad Bee**

West Knighton Heath, O.C. Boon, 15-v-1949

1 ♀ flying around sandy bank by footpath north of entrance road, 27-iii-2019

1 ♀ flying around sandy bank by northern footpath, 22-iv-2021

One of the more widespread spring nomad bees which targets the widespread *Andrena scotica*, which was not seen on site but probably occurs.

*Nomada sheppardana* Kirby, 1802

**Sheppard's Nomad Bee**

1 ♀ flying around sandy vertical bank, 21-v-2019

1 ♀ swept from Lesser Hawkbit along trackway in the south of Woodlark Heath, 27-vi-2019

The smallest and darkest of the British nomad bees which targets nests of the smaller species of the genus *Lasioglossum*. A local species of light sandy or chalky soils found south of a line from the Dee to the Wash and most frequent in southern and southeastern counties.

*Epeolus cruciger* Panzer, 1799

**Red-thighed Epeolus**

West Knighton Heath, J.C. Dale, 15-viii-1834

1 ♀ West Knighton Heath, C.D. Day, 13-viii-1950

1 ♀ exploring holes on sandy bank by the entrance to Outer Heath, 7-viii-2019

3 ♂♂ on sandy bank by the entrance to Outer Heath, 3-ix-2021

A small cleptoparasite which targets *Colletes succinctus* and can often be found flying sandy patches and banks on dry heath looking for burrows. It is widespread on the Dorset Heaths.

*Epeolus variegatus* Linnaeus, 1758

**Black-thighed Epeolus**

1 ♀ West Knighton Heath, G.M. Spooner, 5-viii-1928

3 ♀♀ West Knighton Heath, G.M. Spooner, 21-vii-1946

1 ♀ West Knighton Heath, G.M. Spooner, 24-vii-1946

2 ♀♀ West Knighton Heath, C.D. Day, 29-vii-1947

5 ♀♀ West Knighton Heath, G.M. Spooner, 30-vii-1947

1 ♀ on Fleabane flowers along the northern footpath, 17-vii-2019

Very similar to the above species, *Epeolus variegatus* targets *Colletes daviesanus*, *Colletes fodiens* and *C. similis* and tends to be found in sandy grassland areas and along the coast on dunes and sandy cliffs. It is widespread on the Dorset heaths and uncommon along the coast west to Charmouth.

## APIDAE; ANTHOROPHINAE

*Anthophora bimaculata* Panzer, 1798

**Green-eyed Flower Bee**

Abundant adults, Warmwell Heath, G.M. Spooner, 1929

Frequent adults, Warmwell Heath, G.M. Spooner, 22-vii-1933

A few, Warmwell Heath, G.M. Spooner, 27-vii-1948

A few near small pit, Warmwell Heath, G.M. Spooner, 28-vii-1952

1 adult, Warmwell Heath, G.M. Spooner, 12-viii-1954

2 ♀♀ on Bramble blossom along track west of Fishing Lake, 17-vii-2019

2 ♀♀ on Knapweed and Viper's Bugloss flowers on soil bund by track west of Beaumont Village, 17-vii-2019

1 ♂ and 1 ♀ on Knapweed and Fleabane in grassland east of Beaumont Village, 17-vii-2019

1 ♀ flying around sandy bank by path south of Woodlark Heath, 17-vii-2019

A very distinctive green-eyed bee which produces a very high-pitched whine as it flies fast around flowers and over sandy ground where it can form large nesting aggregations. Confined in England south of a line from the Severn to the Wash and most frequent in the sandy heath districts of Dorset, Hampshire and Surrey, also on brownfield sites around the Thames estuary and elsewhere mainly on the coast. Frequent on the Dorset heaths including in old sandpits, and more locally on slumping cliffs along the coast. It forages particularly from composites such as Fleabane, Ragwort and Knapweed, and occasionally on Bramble blossom.

*Anthophora furcata* Panzer, 1798

**Fork-tailed Flower Bee**

1 ♀ West Knighton Heath, G.M. Spooner, 5-viii-1928

1 ♂ Empool Heath, G.M. Spooner, 3-vi-1939

2 ♀♀ on Wood Sage flowers along path north of the entrance road, 17-vii-2019

A widespread species in England, Wales and southeast Scotland usually seen foraging around members of the Lamiaceae particularly *Ballota*, *Stachys* and *Teucrium*, and is found in open woodland, scrub, hedgebanks, fens and gardens. It nests in cavities in wood. Widespread in Dorset but possibly overlooked as it can be confused with dark forms of the common *Bombus pascuorum*.

*Anthophora plumipes* Pallas, 1772

**Hairy-footed Flower Bee**

1 ♀ flying around Willow blossom along sandy bank east of Beaumont Village, 22-iv-2021

Widespread bumblebee-like spring flying bee often found in gardens visiting *Pulmonaria* species. Widely distributed in Dorset and most often recorded in gardens and along the coast; very local on the heaths.

## APIDAE; BOMBINAE

*Bombus hypnorum* Linnaeus, 1758

**Tree Bumble Bee**

1 queen dead on sandy bank by the office car park, 27-iii-2019

A recent addition to the British fauna first discovered in Britain in 2001 it has spread rapidly and is now found throughout the country including Dorset where it is found in many habitats but tends to avoid very exposed or open dry grasslands and heaths.

*Bombus lapidarius* Linnaeus, 1758

### Large Red-tailed Bumble Bee

Seen on every visit to the site starting with several queens on Grey Willow blossom on 27-iii-2019

Seen on most visits visiting a range of plants including Common Knapweed, Teasel, Viper's Bugloss, Bird's-foot-trefoil, Common Fleabane, Bramble and Grey Willow

A very distinctive bumblebee found in open flowery habitats particularly grasslands and is still widespread in Britain and is found throughout Dorset, including in gardens. Its nests are targeted by the cuckoo bumblebee *Bombus rupestris*.

*Bombus lucorum s.l.* Linnaeus, 1761

### White-tailed Bumble Bee

One of the most frequent bumblebees in spring with the queens found on Sallow and Dandelion. Workers are very difficult to distinguish from the common *Bombus terrestris* in the field.

*Bombus pascuorum* Scopoli, 1776

### Common Carder Bee

Seen on all visits starting on the 27-ii-2019 with a queen noted on Sallow blossom. Later in the years it was noted on Bird's-foot-trefoil. Bramble, Viper's Bugloss and Wood Sage.

This is the most common bumble bee in Dorset and is found in most habitats where there is a good range of flowers including gardens and urban green space.

*Bombus pratorum* Linnaeus, 1761

### Early Bumble Bee

1 ♂ on Heath Speedwell in acid grassland in southwest part of Dart Heath, 21-v-2019

2 ♂♂ on Common Knapweed in areas sown with wild flowers, Beaumont Village, 25-vi-2020

1 ♂ on Bramble blossom along eastern footpath, 8-vii-2021

A small bumble bee generally distributed and found in many habitats in the county.

*Bombus terrestris* Linnaeus, 1758

### Buff-tailed Bumble Bee

1 queen noted on Sallow blossom, by the entrance road 27-iii-2019. Undoubtedly present later in the year but no definite records as workers cannot easily be identified in the field from *Bombus lucorum s.l.*

Usually the earliest bumble bee to emerge in late winter and early spring and is frequently found in garden and urban greenspace.

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## WASPS

### CHRYSIDIDAE; ELAMPINAE

*Hedychrum nobile* Scopoli, 1763

Several ♀♀ flying around sandy ground with large nesting aggregation of *Cerceris arenaria* in the southeast of Woodlark Heath, 17-vii-2019

This beautiful jewel-wasp has only recently been recognised as occurring in Britain, being easily confused with the rare *H. niemelai*, and is thought to be a relatively recent addition to the British fauna spreading rapidly westwards from southeast England, first recorded in Dorset from Wareham Forest in 2016 it is becoming well-established in parts of the Poole Basin. It appears to target nesting aggregations of the large black and yellow digger-wasp *Cerceris arenaria*. *H. niemelai* is thought to target *C. ruficornis*.

*Trichrysis cyanea* (Linnaeus, 1758)

1 ♀ West Knighton Heath, G.M. Spooner, 24-vii-1946

1 ♂ West Knighton Heath, G.M. Spooner, 30-vii-1947

1 ♀ swept from Hogweed flowers on the verge of the entrance road, 27-vi-2019

A small metallic blue-green jewel wasp which parasitizes wasps nesting in wood cavities and is widespread over much of central, eastern and southern England. The adults often visit the flowers of umbellifers.

## POMPILIDAE; POMPILINAE

### *Priocnemis exaltata* (Fabricius, 1775)

Several ♀♀ Empool Heath, G.M. Spooner, 23-viii-1934

1 ♀ West Knighton Heath, G.M. Spooner, 1-viii-1947

1 ♀ hunting along the east-west footpath, 7-viii-2020

One of the larger *Priocnemis* species found in a variety of habitat and flies later in season. In Dorset it is widespread across the Poole Basin heaths, with scattered records along the coast.

### *Priocnemis pusilla* Schiødte, 1837

1 ♀ swept from foliage along the northern footpath, 8-vi-2021

One of the smaller red and black *Priocnemis* species found mainly in southern and south-east England with very scattered records elsewhere north to the Scottish borders. Found mainly in the south of Dorset, especially on the heaths and along the coast.

### *Arachnospila anceps* (Wesmael, 1851)

1 ♂ West Knighton Heath, G.M. Spooner, 21-vii-1946

1 ♀ with spider prey, West Knighton Heath, C.D. Day, 24-vii-1946

1 ♀ West Knighton Heath, C.D. Day, 25-vii-1947

1 ♂ & 2 ♀ West Knighton Heath, G.M. Spooner, 30-vii & 1-vii-1947

1 ♀ West Knighton Heath, C.D. Day, 28-vii and 21-viii-1950

1 ♀ swept from Hogweed flowers along the public footpath in the north of the area, 27-vi-2019

1 ♀ hunting over bare ground on Woodlark Heath, 17-vii-2019

A medium red and black spider-hunting wasp and the most frequent of the genus found throughout most of England and Wales, becoming scarcer further and in Scotland where it is often coastal.

### *Anoplius nigerrimus* (Vander Linden, 1827)

1 ♂ & ♀ Empool Heath, G.M. Spooner, 23-viii-1934

1 ♀ West Knighton Heath, G.M. Spooner, 21-vii-1946

2 ♀♀ West Knighton Heath, G.M. Spooner, 30-vii-1947

1 ♂ West Knighton Heath, Aerodrome, G.M. Spooner, 27-vii-1948

1 ♀ West Knighton Heath, G.M. Spooner, 2-viii-1951

1 ♀ hunting along gravelly bank by the northern footpath, 8-vi-2020

The most widespread of the genus this all black spider-hunting wasp is found in a variety of habitats and is widely distributed across Dorset.

### *Anoplius viaticus* (Linnaeus, 1758)

1 ♂ West Knighton Heath, C.D. Day, 12-viii-1943

1 ♂ West Knighton Heath, C.D. Day, 14-vii-1946

1 ♀ West Knighton Heath, Aerodrome, G.M. Spooner, 21-vii-1946

1 ♂ West Knighton Heath, C.D. Day, 24-vii-1946

1 ♀ West Knighton Heath, C.D. Day, 21-vii-1947

2 ♀♀ West Knighton Heath, Aerodrome, G.M. Spooner, 30-vii-1947

1 ♂ West Knighton Heath, Aerodrome, G.M. Spooner, 1-viii-1947

2 ♂♂ West Knighton Heath, Aerodrome, G.M. Spooner, 2-viii-1951

## Black-banded Spider Wasp

1 ♀ hunting along sandy bank by path through scrub in the north of the site, 27-iii-2019

One of our more frequent and striking spider-hunting wasps found in sandy habitats such as heaths and dunes. Females can overwinter and emerge in March where they hunt for ground spiders of the Lycosidae. Found mainly in the heathland areas of southern and southeast England and East Anglia, very local and usually coastal elsewhere.

## VESPIDAE; EUMENINAE

*Eumenes coarctatus* (Linnaeus, 1758)

**Heath Potter Wasp**

West Knighton Heath, J. Curtis & J.C. Dale, 3-vii-1846,

2 ♂♂ on Dwarf Gorse flowers on Woodlark Heath, 3-ix-2021

This large black and yellow mason wasp is Nationally Scarce and confined to the heathland areas of southern England from east Devon to Sussex with the Dorset heaths a stronghold. The females makes characteristic 'pots' from clay on the woody stems of heather and gorse and stocks them with Lepidoptera larvae.

*Odynerus melanocephalus* (Gmelin in Linnaeus, 1790)

**Black-headed Mason Wasp**

2 ♂♂ on Creeping Cinquefoil flowers in developing acid grassland, east of Starling Lake, 8-vi-2020

1 ♂ on Silverweed flowers in damp grassland south of Beaumont Lake, 8-vi-2020

A distinctive mason wasp with a black and white abdomen found along the coast on soft cliffs and inland in old mineral workings. It prefers sparsely vegetated clayey ground and its nests are stocked with weevil larvae particularly those of *Hypera postica* which feed on Black Medick. This species is included on Section 41 of the NERC Act 2006.

*Odynerus spinipes* (Linnaeus, 1758)

**Spined Mason Wasp**

1 ♂ Warmwell Heath, G.M. Spooner, 25-vi-1929

1 ♀ on Creeping Cinquefoil flowers along the northern footpath, 8-vi-2020

A widely distributed species found along the coast and inland on heaths and in old mineral working preferring clayey ground. In Dorset it is mainly found on the heaths and on clay cliffs along the coast. The burrows are found on sloping ground or vertical faces and the females build a distinctive curved clay chimney at the entrance and stock the nests with *Hypera* weevil larvae.

*Ancistrocerus gazella* (Panzer, 1798)

1 ♀ entering burrow with prey, Warmwell Heath, G.M. Spooner, 15-vi-1927

1 ♂ West Knighton Heath, G.M. Spooner, 2-viii-1951

1 ♂ on Wild Parsnip flowers along the entrance road verge, 7-viii-2020

1 ♀ on Dwarf Gorse flowers on Woodlark Heath, 3-ix-2021

The most widely distributed of the *Ancistrocerus* species found in Britain and one of the smallest. It is found in a variety of habitat and makes its nests in cavities which it stocks with Lepidoptera larvae.

*Symmorphus bifasciatus* (Linnaeus, 1761)

1 ♀ on Bramble blossom along footpath along southeast edge of site, 27-vi-2019

The most widespread of the four *Symmorphus* species this large mason-wasp nests in hollow plant stems such as dead Brambles or in old beetle holes in dead wood. It predated the larvae of the Chrysomelid beetle *Phratora* (*Phyllodecta*) *vulgatissima* Blue Willow Beetle which is widespread in Britain although is not recorded for Silverlake but is probably present on the willows along the eastern edge.



## VESPIDAE; VESPINAE

*Vespa crabro* Linnaeus, 1758

**Hornet**

1 ♀ Silverlake, D. Hallett, 15-viii-2016

1 queen at edge of Knighton Heath Wood, 22-iv-2020

A very large and distinct Vespoid wasp found widely in wooded districts over much of England north to Yorkshire, and is widespread in Dorset, and locally frequent in the wooded parts.

*Vespula vulgaris* (Linnaeus, 1758)

**Common Wasp**

1 nest, Warmwell Heath, G.M. Spooner, 19-x-1929

1 queen on sandy bank by entrance road, 27-iii-2019

Several workers noted hunting along Bramble patch, Angler's Car Park 13-ix-2019

Widespread in the county but numbers vary considerably from year to year.

## CRABRONIDAE; ASTATINAE

*Astata boops* (Schrank, 1781)

♀ with Pentatomid prey, Warmwell Heath, G.M. Spooner, 22-vii-1933

2 adults, West Knighton Heath, G.M. Spooner, 2-viii-1951

1 ♀ hunting over bare ground on Woodlark Heath, 17-vii-2019

A small but stout wasp with a broad red band on the abdomen which predaes the larvae of Pentatomid bugs. It is most frequent on the sandy heaths of southern and southeast England and East Anglia, further west it is mostly found on dunes. In Dorset it is widespread on the Poole Basin heaths with scattered sites along the coast.

*Tachysphex pompiliformis* (Panzer, 1805)

Adult, West Knighton Heath, J.C. Dale, 3-vi-1842

1 ♀ West Knighton Heath, Aerodrome, C.D. Day, 13-vii-1950

1 ♀ West Knighton Heath, Aerodrome, C.D. Day, 26-vi-1956

1 ♀ swept from Creeping Cinquefoil flowers along the northern footpath, 8-vi-2020

A small black and red wasp which predaes Orthoptera and is found mainly on heathland, or very occasionally other dry habitats, especially along the coast. It is widely distributed over much of England, becoming mainly coastal in Wales and Scotland.

## CRABRONIDAE; CRABRONINAE

*Crabro cribrarius* (Linnaeus, 1758)

**Slender Bodied Digger Wasp**

Adult, Empool Heath. G.M. Spooner, 1926

1 adult, Empool Heath. G.M. Spooner, 24-vii-1946

1 ♂ swept from flowers on the bank west of Beaumont Village, 27-vii-2019

A large and distinctive black and yellow digger-wasp much more frequent than the next species found mainly in sandy habitats on heaths and dunes but occasionally elsewhere in open woodland and chalk grassland. It predaes a wide variety of flies and can be found on umbellifer flowers.

*Crabro scutellatus* (Scheven, 1781)

Nationally Notable NS(A)

Several ♂♂ on bare clayey ground near ditch on the eastern side of 'Lobelia Heath', 17-vii-2019

1 ♀ over sandy ground by Beaumont Lake, 8-vii-2021



A small black and yellow wasp restricted to heathland areas of central southern England. It predated Dolichopid flies in wetter areas of the heath but nests on drier ground. It is widespread on the Dorset heaths which is one of its national strongholds.

***Crossocerus megacephalus*** (Rossi, 1790)

1 ♀ swept from edge of Bramble patch along the eastern footpath, 8-vii-2021

A small black wasp widely distributed over England and found in a variety of habitats, nesting in cavities in dead wood, it predated small flies. Local in Dorset across the Poole Basin heaths and along the coast.

***Ectemnius cavifrons*** (Thomson, 1870)

1 ♂ West Knighton Heath, G.M. Spooner, 2-viii-1951

1 ♀ West Knighton Heath, G.M. Spooner, 5-ix-1954

1 ♀ West Knighton Heath, G.M. Spooner, 8-viii-1956

1 ♀ West Knighton Heath, G.M. Spooner, 9-viii-1956

1 ♀ hunting along edge of Bramble patch in the Anglers Car Park, 13-ix-2019

One of the more widespread of the *Ectemnius* wasps found in hedgerow, scrub and in woodland clearings and rides, often seen on the flowers of umbellifer species. It hunts various flies specialising in hoverflies (Syrphidae).

***Ectemnius continuus*** (Fabricius, 1804)

Adult, Empool Heath. G.M. Spooner, 1927

Adult, Empool Heath. G.M. Spooner, 27-vii-1948

1 ♂ West Knighton Heath. C.D. Day, 25-vii-1956

2 ♀♀ on Hogweed flowers on the verge of the entrance road, 27-vi-2019

1 ♀ on Hemlock Water-dropwort flowers near Heath Hide in the south of the site, 27-vi-2019

A widespread wasp very similar to the last species it predated a range of middle-sized flies from several different families and is found in a number of different habitats and, like the last species, can often be found at the flowers of umbellifers.

***Mellinus arvensis*** (Linnaeus, 1758)

1 ♀ Empool Heath, C.D. Day, 4-ix-1923

2 ♀♀ Empool Heath, C.D. Day, 11-ix-1923

♂ West Knighton Heath, Aerodrome, G.M. Spooner, 30-vii-1947

♂ West Knighton Heath, Aerodrome, G.M. Spooner, 1-viii-1947

1 ♂ West Knighton Heath, C.D. Day, 5-ix-1954

1 ♀ West Knighton Heath, C.D. Day, 12-ix-1954

Adult, West Knighton Heath, C.D. Day, 15-vii-1956

Several ♀♀ swept from flowering heather clumps on Woodlark Heath, 3-ix-2021

A medium-sized black and yellow wasp found in sandy habitats usually seen hunting its fly prey over vegetation, it is found widely over much of Britain, becoming mainly coastal in the north and west. In Dorset it is widespread on the Poole Basin heaths, rare elsewhere on the Greensand in the west and on sandy coastal cliffs.

**CRABRONIDAE; NYSSONINAE**

***Gorytes quadrifasciatus*** (Fabricius, 1804)

3 ♂ & 3 ♀ Empool Heath, G.M. Spooner, 30-vii & 27-vii-1948

2 ♂ & 1 ♀ West Knighton Heath. C.D. Day, 28-vii-1950

1 ♂ West Knighton Heath. C.D. Day, 31-vii-1950

1 ♀ West Knighton Heath. C.D. Day, 4-viii-1956

1 ♂ & 1 ♀ West Knighton Heath. C.D. Day, 5-viii-1956

1 ♀ on the flowers of *Heracleum sphondylium* along the entrance road, 20-vi-2020

A large black and yellow wasp which is widely but thinly distributed over much of England, becoming rare in the north and west. It predates adult spittle-bugs (Homoptera) and is found in a variety of habitat and nests in sandy ground. In Dorset it is local in the Poole Basin with a few records along the coast.

*Argogorytes fargei* (Shuckard, 1837)

1 ♂ on the flowers of *Heracleum sphondylium* along the public footpath between Woodlark Heath and the entrance road, 27-vi-2019.

This medium-sized wasp has had mixed fortunes in Britain. Up until the 1960s it was found at a number of sites in southern and southeast England, but very rare elsewhere. For many years there were few records but since 1990 there have been a good number of records from central England, East Anglia and northeast England, and there are signs it is spreading back to some of its old haunts in the south. This record is the first for this part of Dorset (VC9) since the 1950s, it has recently been recorded from Hengistbury Head (VC11).

## CRABRONIDAE; PHILANTINAE

*Cerceris arenaria* (Linnaeus, 1758)

**Sand Tailed Digger Wasp**

Occasional ♀ West Knighton Heath, G.M. Spooner, 2-viii-1951

Many ♀♀ at extensive nesting aggregation in bare ground in developing heathland, Woodlark Heath 17-vii-2019

A large black and yellow wasp predated weevils in sandy habitats such as heathland, old sand pits and coastal dunes, where it can form large nesting aggregations and is targeted by the jewel-wasp *Hedychrum nobile*. Widespread in Dorset on the sandy heath and very locally along the coast on cliffs.

*Cerceris quinquefasciata* (Rossi, 1792)

**Five-banded Weevil-Wasp**

1 ♀ West Knighton Heath, C.D. Day, 21-vii-1946

1 ♂ West Knighton Heath, C.D. Day, 24-vii-1946

2 ♀♀ West Knighton Heath, Aerodrome, G.M. Spooner, 1-viii-1947

1 ♂ West Knighton Heath, C.D. Day, 28-vi-1949

1 ♂ West Knighton Heath, C.D. Day, 29-vii-1950

1 ♂ on the flowers of Hogweed along the entrance road, 20-vi-2020

One of the rarer *Cerceris* species found in acid grassland or heathland edge found mainly in East Anglica and around the Thames Estuary. Dorset lies at the southwest limit of its UK distribution, it has always been rare only recorded from old sand pits along the Puddletown Road, Binnegar and now here at Silverlake. This species is included on Section 41 of the NERC Act 2006.

*Cerceris rybyensis* (Linnaeus, 1771)

**Ornate Tailed Digger Wasp**

1 ♂ West Knighton Heath, C.D. Day, 24-vii-1946

1 ♂ West Knighton Heath, C.D. Day, 29-vii-1950

1 ♂ West Knighton Heath, C.D. Day, 31-vii-1950

Many ♀♀ in mixed aggregation with *Cerceris arenaria*, Woodlark Heath 17-vii-2019

The smallest and most widespread of our *Cerceris* species found south of the Humber, becoming mainly coastal in the southwest and in south Wales. Found in a wide variety of habitats where it predates small bees and nests in bare sandy ground; it can sometimes be seen at the flowers of umbellifers.

## Sphecidae

*Ammophila pubescens* Curtis, 1836

### Heath Sand Wasp

Adult, West Knighton Heath, G.M. Spooner, 1-viii-1947

1 ♀ on bare ground in developing dry heath in the southeast of Woodlark Heath 17-vii-2019

The smaller of our two *Ammophila* sand wasps and the less common being confined to the heathland districts of central southern England, with scattered in East Anglia and the West Midlands. It is found in dry heath where it is a predator of small Lepidoptera larvae with which it stocks its nest burrows, made in bare compacted sandy ground often along tracks and paths. Its nests are targeted by the rare Mottled Bee-fly *Thyridanthrax fenestratus*, one of which was seen on Woodlark Heath.

*Ammophila sabulosa* (Linnaeus, 1758)

### Red Banded Sand Wasp

Adult, West Knighton Heath, J.C. Dale, 28-vii-1841

Adult, West Knighton Heath, J.C. Dale, 19-ix-1841

♂ & ♀ West Knighton Heath, G.M. Spooner, 21-vii-1946

Several adults, West Knighton Heath, G.M. Spooner, 24-vii-1946

1 ♀ West Knighton Heath, G.M. Spooner, 30-vii-1950

1 ♀ with large Geometrid moth larvae and another with smaller Geometrid moth larvae, West Knighton Heath, G.M. Spooner, 30-vii-1950

1 ♂ & 2 ♀ West Knighton Heath, C.D. Day, 14-vii-1954

3 ♂♂ West Knighton Heath, C.D. Day, 26-vi-1956

5+ ♀♀ in open dry heath, Woodlark Heath, 27-vi-2019

1 ♀ flying around sandy bank west of Beaumont Village, 17-vii-2019

Many ♀♀ in open dry heath, Woodlark Heath, 17-vii-2019

This large slender sand-wasp is a characteristic species of dry heaths in lowland Britain often seen flying along paths and over bare ground, and sometimes dragging large caterpillars to its nest burrows. Widespread throughout the Dorset Heaths, with scattered records on sand and clay cliffs along the coast.

*Podalonia hirsuta* (Scopoli, 1763)

### Hairy Sand Wasp

Adult, West Knighton Heath, J.C. Dale, 1-v-1921

1 ♂ West Knighton Heath, G.M. Spooner, 30-vii-1947

1 ♂ West Knighton Heath, Aerodrome, G.M. Spooner, 30-vii-1947

2 ♀♀ on flowers of Fleabane in developing damp acid grassland, east of Beaumont Lake, 7-viii-2020

1 ♀ along east-west footpath towards Knighton Heath Wood, 22-iv-2021

1 ♀ along east-west footpath towards Knighton Heath Wood, 22-iv-2021

A large sand wasp, stouter and more hairy than the similar sized *Ammophila sabulosa*, found on sand dunes around the coast to Lancashire and more rarely inland on sandy heaths. It predated the larvae of moths, the females are unusual in over-wintering as adults and can sometimes be seen on very warm days during the winter. In Dorset it is widespread on the southern and central heaths in Poole Basin, but rare elsewhere on sandy coastal undercliffs.

## APPENDIX II: Heathland & sandy ground bee and wasp indicator species for Dorset

The lists are split between those that are most strictly associated with heaths in Britain (A), including those reliant on the heather plants themselves, and a longer list (B) of those that are associated with sandy ground and in lowland Britain are most frequent in the heathland districts of southern and southeast England and the Brecklands and coastal Sandlings of East Anglia.

### Bees

	Species	Common Name	Status	List
1	<i>Andrena argentata</i>	Small Sandpit Mining Bee	NS(A)	A
2	<i>Andrena fuscipes</i>	Heather Mining Bee		A
3	<i>Andrena lapponica</i>	Bilberry Mining Bee	DR	A
4	<i>Bombus jonellus</i>	Heath Bumble Bee		A
5	<i>Bombus magnus</i>	Northern White-tailed Bumble Bee		A
6	<i>Colletes succinctus</i>	Heather Colletes		A
7	<i>Epeolus cruciger*</i>	Red-thighed Epeolus		A
8	<i>Halictus confusus</i>	Southern Bronze Furrow Bee	RDB3	A
9	<i>Lasioglossum prasinum</i>	Grey-tailed Furrow Bee		A
10	<i>Nomada baccata*</i>	Bear-clawed Nomad Bee	NS(A)	A
1	<i>Andrena barbilabris</i>	Sandpit Mining Bee		B
2	<i>Andrena bimaculata</i>	Large Gorse Mining Bee	NS(B)	B
3	<i>Andrena clarkella</i>	Clarke's Mining Bee		B
4	<i>Andrena denticulata</i>	Grey-banded Mining Bee		B
5	<i>Andrena falsifica</i>	Thick-margined Mini Miner	NS(A)	B
6	<i>Andrena humilis</i>	Buff-tailed Mining Bee	NS(B)	B
7	<i>Andrena labiata</i>	Red-girdled Mining Bee		B
8	<i>Andrena marginata</i>	Small Scabious Mining Bee	NS(A)	B
9	<i>Andrena ovatula</i>	Small Gorse Mining Bee		B
10	<i>Andrena praecox</i>	Small Sallow Mining Bee		B
11	<i>Andrena tarsata</i>	Tormentil Mining Bee	BAP; S41	B
12	<i>Andrena thoracica</i>	Cliff Mining Bee		B
13	<i>Anthophora bimaculata</i>	Green-eyed Flower Bee		B
14	<i>Anthophora retusa</i>	Potter Flower Bee	EN	B
15	<i>Bombus humilis</i>	Brown-banded Carder Bee	BAP; S41	B
16	<i>Bombus muscorum</i>	Moss Carder Bee	BAP; S41	B
17	<i>Coelioxys conoidea*</i>	Large Sharp-tail Bee		B
18	<i>Coelioxys rufescens*</i>	Rufescent Sharp-tail Bee		B
19	<i>Colletes fodiens</i>	Hairy-saddled Colletes		B
20	<i>Dasypoda hirtipes</i>	Hairy Legged Mining Bee	NS(B)	B
21	<i>Epeolus variegatus*</i>	Black-thighed Epeolus		B
22	<i>Halictus rubicundus</i>	Orange-legged Furrow Bee		B
23	<i>Hylaeus incongruus</i>	White-lipped Yellow-face Bee	NR	B
24	<i>Lasioglossum brevicorne</i>	Short-horned Furrow Bee	RDB3	B
25	<i>Lasioglossum fratellum</i>	Smooth-faced Furrow Bee		B
26	<i>Lasioglossum punctatissimum</i>	Long-faced Furrow Bee		B
27	<i>Lasioglossum quadrinotatum</i>	Four-spotted Furrow Bee	NS(A)	B
28	<i>Megachile circumcincta</i>	Black-headed Leafcutter Bee		B

	Species	Common Name	Status	List
29	<i>Megachile leachella</i>	Silvery Leafcutter Bee		B
30	<i>Megachile maritima</i>	Coast Leafcutter Bee		B
31	<i>Nomada argentata</i> *	Silver-sided Nomad Bee	NR	B
32	<i>Nomada fulvicornis</i> *	Orange-horned Mining Bee		B
33	<i>Nomada guttulata</i> *	Short-spined Nomad Bee		B
34	<i>Nomada integra</i> *	Cat's-ear Nomad Bee	NS(A)	B
35	<i>Nomada leucophthalma</i> *	Early Mining Bee		B
36	<i>Nomada rufipes</i> *	Black-horned Nomad Bee		B
37	<i>Panurgus banksianus</i>	Large Shaggy Bee		B
38	<i>Panurgus calcaratus</i>	Small Shaggy Bee		B
39	<i>Sphecodes gibbus</i> *	Dark-winged Blood Bee		B
40	<i>Sphecodes longulus</i> *	Little Sickle-jawed Blood Bee	NS(A)	B
41	<i>Sphecodes pellucidus</i> *	Sandpit Blood Bee		B
42	<i>Sphecodes reticulatus</i> *	Reticulate Blood Bee	NS(A)	B

\* cleptoparasites of other bees (cuckoo bees)

## Wasps

	Species	Common Name	Status	
1	<i>Ammophila pubescens</i>	Heath Sand Wasp		A
2	<i>Cerceris ruficornis</i>			A
3	<i>Crabro scutellatus</i>		NS(A)	A
4	<i>Diodontus insidiosus</i>		RDB3	A
5	<i>Elampus panzeri</i> *			A
6	<i>Episyron rufipes</i>	Red Legged Spider Wasp		A
7	<i>Eumenes coarctatus</i>	Heath Potter Wasp	NS(A)	A
8	<i>Evagetes dubius</i>		NS(B)	A
9	<i>Hedychridium niemelai</i> *		pRDB3	A
10	<i>Homonotus sanguinolentus</i>		RDB1	A
11	<i>Mimesa bicolor</i>		VU	A
12	<i>Mimumesa spooneri</i>		RDB3	A
13	<i>Miscophus concolor</i>			A
14	<i>Mutilla europaea</i>	Large Velvet Ant	NS(B)	A
15	<i>Oxybelus mandibularis</i>	Pale Jawed Spiny Digger Wasp	NS(A)	A
16	<i>Podalonia affinis</i>		RDB3	A
17	<i>Pompilus cinereus</i>	Leaden Spider Wasp		A
18	<i>Pseudepipona herrichii</i>		RDB1	A
1	<i>Agenioideus cinctellus</i>			B
2	<i>Ammophila sabulosa</i>	Red Banded Sand Wasp		B
3	<i>Anoplius infuscatus</i>			B
4	<i>Anoplius viaticus</i>	Black Banded Spider Wasp		B
5	<i>Aporus unicolor</i>			B
6	<i>Arachnospila minutula</i>			B
7	<i>Arachnospila trivialis</i>			B
8	<i>Arachnospila wesmaelii</i>			B
9	<i>Argogorytes fargeii</i>			B

	Species	Common Name	Status	
10	<i>Astata boops</i>			B
11	<i>Caliadurgus fasciatellus</i>			B
12	<i>Cerceris arenaria</i>	Sand Tailed Digger Wasp		B
13	<i>Cerceris quadrifasciatus</i>			B
14	<i>Ceropales maculata</i>			B
15	<i>Chrysis illigeri</i>			B
16	<i>Cleptes nitidulus</i>			B
17	<i>Crabro cribrarius</i>	Slender Bodied Digger Wasp		B
18	<i>Crabro peltarius</i>			B
19	<i>Crossocerus quadrimaculatus</i>	Four-spotted Digger Wasp		B
20	<i>Crossocerus wesmaeli</i>	Wesmael's Digger Wasp		B
21	<i>Cryptocheilus notatus</i>		RDB2	B
22	<i>Diodontus tristis</i>			B
23	<i>Dryudella pinguis</i>			B
24	<i>Evagetes crassicornis</i>			B
25	<i>Entomognathus brevis</i>			B
26	<i>Gorytes laticinctus</i>		RDB3	B
27	<i>Gorytes quadrifasciatus</i>			B
28	<i>Harpactus tumidus</i>			B
29	<i>Hedychridium ardens*</i>			B
30	<i>Hedychridium coriaceum*</i>			B
31	<i>Hedychridium roseum*</i>			B
32	<i>Hedychridium nobile*</i>			B
33	<i>Lindenius albilabris</i>			B
34	<i>Lindenius panzeri</i>			B
35	<i>Mellinus arvensis</i>			B
36	<i>Methocha articulata</i>		NS(B)	B
37	<i>Mimesa bruxellensis</i>		NS(A)	B
38	<i>Mimesa equestris</i>			B
39	<i>Mimesa lutaria</i>			B
40	<i>Nysson dimidiatus*</i>		NS(B)	B
41	<i>Nysson trimaculatus*</i>			B
42	<i>Odynerus spinipes</i>	Spiny Mason Wasp		B
43	<i>Philanthus triangulum</i>	Bee Wolf	RDB2	B
44	<i>Podalonia hirsuta</i>	Hairy Sand Wasp	NS(B)	B
45	<i>Smicromyrne rufipes</i>	Small Velvet Ant	NS(B)	B
46	<i>Tiphia femorata</i>			B
47	<i>Tachysphex nitidulus</i>			B
48	<i>Tachysphex pompiliformis</i>			B

\* species parasitic on other bees or wasps