

## ***STELIS ODONTOPYGA* NOSKIEWICZ (HYMENOPTERA: MEGACHILINAE) NEW TO BRITAIN**

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### ABSTRACT

*Stelis odontopyga* (Noskiewicz) is formally recorded as new to Britain based on two specimens, one from Kent and one from Oxfordshire. Both were collected in the summer of 2018. Subsequent to this discovery, more examples of *Stelis* have been re-examined and a further British example from 2017 has been found in a collection. Morphological characters are given and an amendment to the key to *Stelis* in Else & Edwards (2018) is included to assist in its identification. Notes are provided on the bee's distribution and ecology.

### INTRODUCTION

The recording of British bees provides not just a useful index of the status of the specific species and the quality of habitat, it also provides an insight into how Britain's fauna is changing as it responds to changes in climate and land-use. Whilst many resident bee species are declining significantly and becoming more restricted, other new species are arriving, presumably enabled by increasing temperatures (Else & Edwards, 2018). Several bee species have been added to the British list in recent years including *Nomada alboguttata* Herrich-Schaffer and *Nomada zonata* Panzer (Kirby-Lambert, 2016) and *Heriades rubicola* Pérez (Cross & Notton, 2017). This paper formally adds a further new species to the British bee fauna – *Stelis odontopyga*.

### METHODS AND RESULTS

#### **Sampling**

The Kent specimen was caught by Grant Hazlehurst by hand net and identified as a probable *Stelis* species in the field, being a small dark Megachiline bee, but identification to species level required further analysis. The Oxfordshire specimen was caught by Ivan Wright in a yellow pan trap and found to be sufficiently different from reference specimens of British *Stelis* to warrant further investigation.

#### **Identification**

The Kent specimen, a male, did not satisfactorily key out in the UK bee keys (Falk & Lewington 2015; Else & Richards 2018), coming out as *Stelis phaeoptera* (based on the absence of white spots on the abdomen, and absence of translucent hind margins or hair fringes on the tergites), but it was otherwise not a good match, most obviously because of its small size. However identification was readily revealed using the Western Palearctic key to *Stelis* (Kasperek, 2015). The Oxfordshire specimen, a female, keyed to either *S. phaeoptera* (Kirby) or *S. breviscula* (Kirby) using the characters of British keys alone, but comparison with reference material showed

significant differences of surface structure and indicated the possibility of a wholly melanic *S. ornatula* Klug. Confirmation of the identification of both specimens as *S. odontopyga* was provided by Mike Edwards.

Once this discovery had been made, several other hymenopterists were informed and a further specimen was identified as *S. odontopyga*, having previously been identified as *S. phaeoptera*. This specimen had also been caught at Pegwell Bay Hoverport on 20.vi.2017 by Pete Meiners (Geoff Allen, pers. comm.). The British *S. phaeoptera* specimens in the Natural History Museum have been checked and no examples of *S. odontopyga* found (David Notton, pers. comm.).

### Material Examined

UK: Kent: Pegwell Bay Hoverport: TR 35117 64163 : 29.vi.2018: male : caught in flight: G A Hazlehurst. Oxfordshire: Radley Ash Disposal Site: SU 5252 9781: 27.vi.2018: female: pan trap: I R Wright.

### Key to British *Stelis*

The following update is provided to the key published in Else & Edwards (2018) to incorporate *Stelis odontopyga*:

- 3 Females 4
  - Males 6
- 4 Propodeal triangle dull, strongly reticulated and punctured throughout (Fig.1). *S. phaeoptera*.
  - Propodeal triangle polished, at least medially impunctate (Figs 2 and 3) 5.
- 5 Propodeal triangle centrally impunctate, with large punctures laterally. Metasomal tergites with obvious apical hair bands (Fig.2) *S. breviscula*.
  - Propodeal triangle with both central and lateral areas polished and impunctate (Fig.3). Metasomal tergites without obvious apical hair bands *S. odontopyga*.
- 6 Apex of tergite 7 with a small, but distinct point (Fig. 4) (this segment is often curved round under the rest of the metasoma). *S. odontopyga*.
  - Apex of tergite 7 without a small, distinct point. 7.
- 7 Metasomal tergites with obvious apical hair bands *S. breviscula*.
  - Metasomal tergites without obvious hair bands *S. phaeoptera*

### Distribution

To date *S. odontopyga* has only been found at the aforementioned two sites in Britain. However, the wide separation of these two locations strongly suggests that it is widely distributed across at least the south-east of England. *Stelis* bees generally occur at low density, and Kasperek (2015) notes that across its European range this species is quite local and not as well distributed as its host, being restricted to warmer locations. It is perhaps surprising that it has spread so far in England without having been detected previously.

In Europe *S. odontopyga* is widely distributed across southern and central Europe, extending from Spain in the south, to Belgium and Germany in the north, to Poland,



Fig. 1. Propodeal triangle of female *Stelis phaeoptera*.



Fig. 2. Propodeal triangle of female *Stelis breviuscula*.

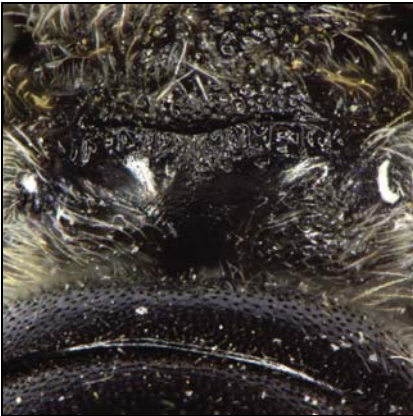


Fig. 3. Propodeal triangle of female *Stelis odontopyga*.



Fig. 4. Tergite 7 of male *Stelis odontopyga*.

Romania, Ukraine and Russia in the east, and Turkey in the south-east (Kasperek, 2015).

### Habitat

Pegwell Bay Hoverport is a brownfield site, the abandoned ramps and parking area for the giant hovercraft once used to transport people and vehicles across the channel. The site is an excellent one for aculeate Hymenoptera, combining dry, light soils and sandy cliffs facing south-east with a warm microclimate due to the extensive concrete, and with extensive and diverse areas of ruderal vegetation. The site itself has many interesting aculeate species including the Philanthine wasp *Cerceris*

*quadricincta* (Panzer) and the ruby-tailed wasp *Hedychrum niemelai* Linsenmaier, the latter often being notably abundant. The site's location and the habitat would appear to lend itself as a point of arrival and establishment for continental aculeates.

Radley Ash Disposal Site is also a brownfield site and part of a more extensive gravel extraction complex. Many of the old flooded gravel pits have been used for power station fuel-ash disposal, and the area surveyed for Hymenoptera in 2018 comprised three filled pits with a total area of about 250 hectares. Ash disposal ceased in these pits in 2006–2007, followed by capping with local clay in some areas and three years of flushing with natural water in others. Since then the site has been allowed to settle and succeed naturally, and is now managed for wildlife. A rich aculeate fauna appears to be developing with similarities to other fuel-ash disposal sites in south-east England.

### Flight Period

*Stelis odontopyga* is a univoltine species, flying from June to August (Kasperek, 2015). The UK specimens fall within this period.

### Biology

*Stelis* bees are cleptoparasites of other Megachilinae bees. *Stelis odontopyga* is a parasite of the similar-sized *Osmia spinulosa* (Kirby) (Kasperek, 2015). *Osmia spinulosa* nests in empty snail shells, and collects pollen from composite flowers such as oxeye daisies (*Leucanthemum* spp.) and hawkbits (*Leontodon* spp.). In both Kent and Oxfordshire this species is widely distributed but local, and has been recorded in the same areas as *S. odontopyga* (Allen, 2009; Else & Edwards, 2018).

*Stelis odontopyga* has been reported visiting blooms of various species of Apiaceae, Asteraceae and Boraginaceae. Noskiewicz (1926) reported the species feeding on *Inula* spp., *Jacobaea vulgaris* and *Tanacetum vulgare* (Asteraceae); Westrich (1989) reported *Bupthalmum salicifolium* and *Senecio jacobaea* (Asteraceae) as nectar sources; Schmalz (1998) reported visits to *Hieracium* spp. and *Leontodon autumnalis* (Asteraceae); and Celary & Wisniowski (2007) additionally reported visits to *Echium vulgare* (Boraginaceae) and *Daucus carota* (Apiaceae).

### Status

Bees of the genus *Stelis* are elusive and seem to occur at low population densities in the UK, and this is likely to be the same for *S. odontopyga*. Its host, *Osmia spinulosa*, is widely distributed in southern England, mainly south of a line joining the Wash to the Severn. The wide separation of the two recorded UK locations for *S. odontopyga* suggests that it is already widely, and probably locally, distributed across south-eastern England. It should be looked for in locations supporting its host.

The mainland continent has a more diverse *Stelis* fauna than the UK, and some of these might similarly colonise the UK. *Stelis minuta* Lepeletier & Serville is a good candidate since it is widespread, occurs in Belgium and France, and its hosts (various small species of *Hoplitis*, *Heriades*, *Osmia* and *Chelostoma*) occur here.

### ACKNOWLEDGEMENTS

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