

***LASIOGLOSSUM SEXSTRIGATUM* (HYMENOPTERA:  
APIDAE, HALICTINAE) NEW TO BRITAIN**

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ABSTRACT

A female *Lasioglossum sexstrigatum* (Schenck), a species not previously known in Britain, was found in a sandpit near Merstham in Surrey in June 2008. Despite several searches, no further specimens of this bee have been recorded from this site. Recent evidence shows this species is widely distributed in central mainland Europe.

INTRODUCTION AND DISCOVERY

Small black bees, particularly those in the genus *Lasioglossum*, form a difficult area of study for the student of aculeate Hymenoptera, but can be identified with some confidence by careful use of a key and with reference to a reliably named collection.

One such insect, a female bee taken at a flooded sandpit near Merstham in east Surrey, caused particular difficulty. This bee was small (6mm long) and black, the angles of the propodeum were rounded, and the marginal area of tergite 1 was shining, almost smooth, and without punctures. The specimen had one very distinctive feature: there was a narrow band of dense white hairs towards each side of the apical margin of each of tergites 2 to 4 (Plate 7, Fig. 2). The bee was given several different provisional names before being identified conclusively as *Lasioglossum sexstrigatum* (Schenck), a European species not previously recorded in Britain.

The site is owned by WBB Minerals, part of the Sibelco Group, and since 2002 has been managed as a nature reserve by the Surrey Wildlife Trust under the name of Spynes Mere. Beside the north-eastern corner of a large lake, a steep south-facing exposure of sand forms a low cliff about four metres high. This cliff diminishes towards the east and merges gradually with the gentle slope of the eastern shore, where the sand has become largely covered by moss over the last few years.

The reserve wardens had identified this sandy cliff as a habitat of particular interest, and had asked me to record invertebrates there. Access was difficult at first. A malfunctioning lock forced me to climb a barbed-wire fence, and I then had to squirm on my belly below a thicket of hawthorn and blackthorn before reaching the north-eastern corner of the lake. On my next visit, the stiff lock had been freed, and I took loppers and secateurs to clear a narrow path through the thorny thicket and also free the base of the cliff from a luxuriant growth of bramble.

The bee in question was taken on 5 June 2008 as it landed on the mossy bank at the head of the eastern shore. The first indication that this specimen was out of the ordinary was when it came to a contradiction in the published key of Perkins (1922). This suggested that it might be *L. semilucens* (Alfken), a species not known from Britain when Perkins wrote his key. Turning to a draft key to *Lasioglossum* by G. R. Else, the specimen came to the couplet separating *semilucens* from *rufitarse* (Zetterstedt), but was of intermediate size and a poor match for both species, especially since a female *semilucens* was available for comparison. Next, a European key was tried, that to the *Halictus* and *Lasioglossum* of Switzerland by Amiet *et al.* (2001), in which the specimen came directly to the species-pair *sexstrigatum* and

*sabulosum* (Warncke). At various times, it became labelled with all four of the above names, with an ever-increasing number of question-marks!

Fortunately, some female *L. sexstrigatum* were also available, collected in Slovakia by C. W. Plant and identified by Zsolt Józán. These appeared identical to the British specimen. My identification was confirmed at the Natural History Museum in London by Michael Kuhlmann who had encountered this species in Germany. The European literature and specimens were provided by David Baldock, who also arranged this visit to the museum with an urgency that soon became apparent. The species was added to his *Bees of Surrey*, with my full agreement, on the day before the book went to press (Baldock, 2008).

There is a complication in that the species long known as *L. sexstrigatum* has recently been split, although the British specimen is *sexstrigatum sensu stricto*, and the other segregate, *sabulosum* (Warncke, 1986), is unlikely to occur in Britain. Warncke's proposal was initially rejected by other authors, such as Ebmer (1988) and Westrich (1989), who found that the characters listed did not give a consistent and convincing separation into two taxa when applied to the specimens they examined. However, a large-scale study of the problem was made by Herrmann & Doczkal (1999), who examined 695 specimens from public and private collections from Switzerland and Germany. They concluded that *L. sabulosum* was indeed a valid species. Some of the characters put forward by Warncke proved unreliable when applied to a larger sample, but Herrmann & Doczkal added further characters for separating the two species. *Lasioglossum sexstrigatum* was by far the commoner species in northern Germany, while both species were equally common in southern Germany and Switzerland. There was a strong preference in *L. sexstrigatum* for sites on sandy soil, such as sandpits, dunes, and woods on sandy ground, while *L. sabulosum* was found in a variety of habitats. This division into two species, *sexstrigatum* and *sabulosum*, is now widely accepted, for example in Poland (Pesenko *et al.*, 2000; Celary & Wisniewski, 2003).

Once its importance was recognised, the site was visited several times in the late summer and autumn, in order to try and confirm the presence of a colony and to collect a male, but without success. A further visit on 2 August 2009 was similarly unsuccessful. The number of *Lasioglossum* species recorded for the reserve was increased to nine, five as single specimens, including the female *sexstrigatum*.

Any description of the male, in the absence of a British specimen, must necessarily be both tentative and secondhand, being based on Continental literature and on examination of the few male specimens from Europe in the collections of the Natural History Museum. This male is small (length 5–7mm) and wholly black or, in part, dark brown (except for tip of clypeus, labrum, mandibles, tarsi, extreme base of tibiae, and underside of antennae, which are all at least partially yellowish). Two distinctive characters are that the face is rounded (very slightly broader than long), and that the antennae are short, with segments 5 to 11 only a little longer than broad (not more than 1.25 times). Tergite 1 is shining, with very fine and well-scattered punctures, and there are no spots or bands of hairs at the base of tergites 2 and 3, but just a trace of the hair bands on the apical margins that distinguish the female.

As I write, one male specimen of *L. sexstrigatum s. lato* is available for examination. It was collected at Debrecen in eastern Hungary by C. W. Plant, and has two very striking features. The mandibles are long and narrow, reaching the bottom of the opposite eye, and are crossed when at rest. This is, however, a character of the sibling species *sabulosum*. Herrmann & Doczkal state that the mandibles are normal in length in *sexstrigatum*, and normal to very long in *sabulosum*.

The second distinctive feature of this specimen is the shape of the back of the head when viewed from the side. This area, the gena, is drawn out into a broad tooth, which is another character of *sabulosum*. The tooth is variable in size and may be absent in both species, particularly in *sexstrigatum*. Where present, it is broad in *sabulosum*, but short and narrow in *sexstrigatum*. However, even in the absence of this tooth, there is almost always a distinct angle behind the base of the eye when the head is viewed in profile, and this is a good character for separating *sexstrigatum* from all other British species of *Lasioglossum* (G. R. Else and M. Kuhlmann, *pers. comm.*).

The discovery of a single female *Lasioglossum sexstrigatum*, in characteristic habitat and far from the coast, suggests that the species is already established and breeding in Britain, but this needs to be confirmed. This species should be searched for, or considered as a possibility, whenever recording the Hymenoptera of any site on sandy soil in south-east England. Natural migration is possible, for the species is common in the Netherlands (Peeters, Raemakers & Smit, 1999).

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#### REFERENCES

- Amiet, F., Herrmann, M., Müller, A. & Neumeyer, R. 2001. *Fauna Helvetica*, 6: *Apidae*, 3: *Halictus, Lasioglossum*. Schweizerische Entomologische Gesellschaft, Neuchâtel.
- Baldock, D. W. 2008. *Bees of Surrey*. Surrey Wildlife Trust, Pirbright.
- Celary, W. & Wisniowski, B. 2003. *Evylaeus sabulosus* (Warncke, 1986) (Hymenoptera: Apoidea: Halictidae) – a wild bee species new for the Polish fauna. *Polskie Pismo Entomologiczne* 72: 323–329.
- Ebmer, A. W. 1988. Kritische Liste der nicht-parasitischen Halictidae Österreichs mit Berücksichtigung aller mitteleuropäischen Arten (Insecta: Hymenoptera: Apoidea: Halictidae). *Linzer biologische Beiträge* 20: 527–711.
- Herrmann, M. & Doczkal, D. 1999. Schlüssel zur Trennung der Zwillingarten *Lasioglossum sexstrigatum* (Schenck, 1870) und *Lasioglossum sabulosum* (Warncke, 1986) (Hym., Apidae). *Entomologische Nachrichten und Berichte* 43: 33–40.
- Peeters, T. M. J., Raemakers, I. P. & Smit, J. 1999. *Voorlopige atlas van de Nederlandse bijen (Apidae)*. EIS-Nederland, Leiden.
- Perkins, R. C. L. 1922. The British species of *Halictus* and *Sphecodes*. *Entomologist's Monthly Magazine* 58: 46–52, 94–101, 167–174.
- Pesenko, Yu. A., Banaszak, J., Radchenko, V. G. & Cierzniak, T. 2000. *Bees of the family Halictidae (excluding Sphecodes) of Poland: taxonomy, ecology, bionomics*. Bydgoszcz.
- Warncke, K. R. 1986. Die Wildbienen Mitteleuropas, ihre gültigen Namen und ihre Verbreitung (Insecta: Hymenoptera). *Entomofauna*, Suppl. 3, 128pp.
- Westrich, P. 1989. *Die Wildbienen Baden-Württembergs*, II. Ulmer, Stuttgart.