

First observation of another invasive mud dauber wasp in Belgium: *Sceliphron caementarium* (Drury, 1773) (Hymenoptera: Sphecidae)

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Abstract

In this article we present the observation of an exotic mud dauber wasp in Belgium, *Sceliphron caementarium* (Drury, 1773). With this observation, the occurrence of this sphecid wasp can be confirmed in Belgium. We also discuss the literature about this species and other invasive wasps in Belgium and the neighbouring countries.

Keywords: *Sceliphron caementarium*, Sphecidae, invasive wasps, Belgian fauna, Europe

Samenvatting

In dit artikel wordt de vondst van de exotische wesp *Sceliphron caementarium* (Drury, 1773) in België gemeld. Deze soort kan dus aan de Belgische soortenlijst worden toegevoegd. We bespreken ook de literatuur over deze soort en andere invasieve wespen in België en de omliggende landen.

Résumé

Sceliphron caementarium (Drury, 1773), une guêpe maçonne exotique, est observée pour la première fois en Belgique. Nous discutons sa présence et celle d'autres guêpes invasives en Belgique et dans les pays limitrophes.

Introduction

Sphecidae was formerly a large hymenopteran family, but is now limited to thread-waisted wasps like the genera *Ammophila* and *Podalonia*. These were the sole representatives for the Sphecidae *sensu stricto* in Belgium for a long time. However, within a decade some new species were discovered. Besides expanding native European species like *Sphex funerarius* Gussakovskij, 1934 (BARBIER & DEVALEZ, 2008), several exotic wasps were reported including a mud dauber wasp species (*Sceliphron* sp.) (SCHNEIDER *et al.*, 2014).

Mud dauber wasps are solitary wasps that build their nests out of mud, fixed against a support. Few species are native in southern Europe, namely *Sceliphron destillatorium* (Illiger, 1807), *Sceliphron funestum* Kohl, 1918, *Sceliphron madraspatanum* (Fabricius, 1781) and *Sceliphron spirifex* (Linnaeus, 1758). Some other species were imported in Europe from Africa, Asia or Northern America (SCHMID-EGGER, 2005). This led to the introduction of invasive species like *Sceliphron curvatum* (Smith, 1870) and *Sceliphron deforme* Smith, 1856. *S. curvatum* is an originally Asian species that has been found for the first time in Austria during the nineties. Since then it has been spreading throughout Europe and can be found in most countries (reviewed by ČETKOVIĆ *et al.*, 2011). This species was already known from most neighbouring countries and was recently also reported from Belgium (SCHNEIDER *et al.*, 2014). *S. deforme* is also an Asian species that strongly resembles *S. curvatum*. It was first detected in Montenegro in 2002 (ČETKOVIĆ *et al.*, 2004), but can nowadays be found in several European countries, but not (yet) in Belgium (ČETKOVIĆ *et al.*, 2011).

In this study we present another invasive mud dauber wasp in Belgium, *Sceliphron caementarium* (Drury, 1773) (Fig. 1). *S. caementarium* is an originally Northern American species, but can be found in other continents. A single female found in 1946 in France (BERLAND, 1946) was probably introduced by American soldiers. This species became established in France after a new introduction in 1970 in the more suitable Mediterranean region (BITSCH, 2010). Nowadays, *S. caementarium* can be found in the neighbouring countries of Belgium. In this article we also report this species from Belgium.



Fig. 1. *Sceliphron caementarium* (Drury, 1773) with a load of mud (Photo: Wikimedia under a CC BY-SA 3.0 licence by user Hlgu1, 10.II.2012).

Material and methods

When validating observations on the waarnemingen.be platform, the first author recognised a photo of a mud dauber wasp which was wrongly identified as an ichneumonid wasp (Hymenoptera: Ichneumonidae): 5.VIII.2015, Zaffelare (Belgium), 51.146 - 3.866, leg. L. De Geeter, <http://waarnemingen.be/waarneming/view/113070193>. Further information about this observation or its biotope (apparently a garden in a rural area) were not received, despite repeatedly insisting. The wasp was identified using a key for European species (SCHMID-EGGER, 2005). A literature search was conducted and additional observations were authenticated from the databases of GBIF (<http://www.gbif.org/>) and Observation (<http://observation.org/>). Both were last visited on 30 July 2016. Permission of Natuurpunt and Natagora was asked for the use of their data from waarnemingen.be and observations.be respectively.

Results and discussion

Despite the haziness of the photo, the wasp could be easily identified as *S. caementarium*. This identification was confirmed by Christian Schmid-Egger (pers. comm.). No previous observations in Belgium were known by the authors, although an importation in Belgium was mentioned in the Belgian catalogue of Aculeata (Hymenoptera) (PAULY, 1999). This refers to the detection of a nest of *S. caementarium* at an American army jeep, from which several males emerged. This importation was situated in a military area in the Grand Duchy of Luxembourg (SCHNEIDER & PELLE, 1988), which was probably confused with the Belgian province Luxembourg. Nevertheless, the discovery of this species in Belgium was expected as this species is observed in the neighbouring countries.

S. caementarium has been observed in Japan, Peru and South Africa (GBIF data) but becomes also a widespread species in Europe with records from France, Italy, Portugal, Spain, Ukraine (SCHMID-EGGER, 2005), Germany (SCHARDT *et al.*, 2012), the Netherlands (SCHMITZ, 2015), Austria, Croatia (GBIF data) and an old, single record in the Czech Republic (BOGUSCH & MACEK, 2005). By searching observations with photographic evidence on several platforms, we also found a record in Bosnia (24.VI.2011, Citluk, 43.196 - 17.693, leg. H. Alberts, <http://observation.org/waarneming/view/56087609>). Apparently, *S. caementarium* is another invasive mud dauber wasp in Europe but it is much slower invading compared to *S. curvatum*, as stated by (BOGUSCH & MACEK, 2005).

Although it will probably take some time before other mud dauber wasps invade Belgium, we will have to be cautious for importations. Some other exotic wasps have been observed, like accidental introductions of *Chalybion zimmermanni* (LECLERCQ, 1994) and *S. spirifex* (LECLERCQ, 1971). For the moment, only one male of the invasive Asian hornet *Vespa velutina* has been recorded in Belgium in 2011 (2.X.2011, Flobecq, 50.735 - 3.760, leg. M. Moncousin, <http://observations.be/waarneming/view/61168177>). This species is not yet established, but has spread rapidly throughout France since its first detection in 2005 (HAXAIRE *et al.*, 2006). Moreover, a *V. velutina* nest has been recently discovered nearby Tournai (18.XI.2016, Brunehaut, 50.542 - 3.362, leg. N. Dachy, <http://observations.be/waarneming/view/126748029>). Another exotic wasp follows the same pattern,

Isodontia mexicana (Saussure, 1867). This sphecid wasp is originally a Northern American species, but was established in France around 1961 (KELNER-PILLAULT, 1962) and has been expanding since then (BITSCH *et al.*, 1997). It has been observed in Belgium in 2010 (15.VII.2010, Oostrozebeke, 50.927 - 3.341, leg. F. Vandemaele, <http://waarnemingen.be/waarneming/view/49002033>) and in the Netherlands in the same year (SMIT & WIJNGAARD, 2010). No further observations were reported in both countries, so *I. mexicana* is not yet established in Belgium but it will be probably just a matter of time before one of these wasps will invade Belgium.

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