

***Geophilus easoni* Arthur *et al.*, 2001 new to Belgium**

(Myriapoda: Chilopoda: Geophilidae)

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Abstract

During a pitfall sampling campaign in some heathland relicts in the vicinity of the city of Bruges (West Flanders), the centipede *Geophilus easoni* Arthur *et al.*, 2001 was found at several locations. These are the first records of this species in Belgium.

Keywords: Chilopoda, *Geophilus easoni*, Geophilidae, Geophilomorpha, Myriapoda

Samenvatting

Tijdens een inventarisatie met bodemvallen in enkele heiderelicten in de buurt van Brugge (West-Vlaanderen) werd de duizendpoot *Geophilus easoni* Arthur *et al.*, 2001 in enkele gebieden gevonden. Dit zijn de eerste waarnemingen van deze soort in België.

Résumé

Pendant un inventaire avec des pièges à fosse dans des landes reliques près de Bruges (Flandre Occidentale), le centipède *Geophilus easoni* Arthur *et al.*, 2001 a été trouvé dans plusieurs localités. Ce sont les premières observations de cette espèce pour la Belgique.

Introduction

In an update of the Belgian checklist, 37 centipede species were reported (LOCK, 2010). Since then, only *Stenotaenia linearis* (CL. Koch, 1835) was added to the Belgian fauna (LOCK, 2009). Recently, *Geophilus easoni* Arthur *et al.*, 2001, a cryptic species closely related to *Geophilus carpophagus* Leach, 1815, was discovered in Britain (ARTHUR *et al.*, 2001). Therefore, the material identified as *G. carpophagus* that was present in the collection of the Royal Belgian Institute of Natural Sciences was re-identified, however, *G. easoni* was not found. Yet, in France, the species was found in littoral regions along the Atlantic Ocean (IORIO & LABROCHE, 2015). Here, *G. easoni* is reported for the first time for the Belgian fauna. This brings the total number of centipede species in Belgium to 39.

Material and methods

Study area

In four heathland relicts in the neighbourhood of the city of Bruges (West Flanders), the recently described *Geophilus easoni* Arthur *et al.*, 2001 was captured with pitfalls. These pitfall traps were installed in 15 heathland sites from 2014 onwards (Table 1), to discover if these small heathland relicts still contain typical species for heathlands, dunes and dry oligothropic grasslands. So far, several very interesting insect species have been collected (amongst others DEKONINCK *et al.*, 2015). Material of *G. easoni* has been deposited to the collection of the Royal Belgian Institute of Natural Sciences.

Table 1. Overview of the sampled heathland relicts near Bruge.

Site	Code	Management	Dominant vegetation	Latitude (N)	Longitude (E)
Chartreuzinnenheide A, heathland in forest	BH	Smallscale sod removal	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°10'26.27"	3°9'45.30"
Chartreuzinnenheide B, heathland in forest	BL	Smallscale sod removal	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°10'26.64"	3°9'45.04"
Heathland Beisbroek A	PH	Seasonal grazing sheep	<i>C. vulgaris</i> (<i>E. cinerea</i>)	51°10'18.70"	3°9'32.23"
Heathland Beisbroek B	PL	Seasonal grazing sheep	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°10'17.32"	3°9'35.89"
Excavated area Beisbroek with lichen vegetation	KM	Seasonal grazing sheep	<i>E. cinerea</i> , lichens	51°10'24.79"	3°9'29.27"
Rode Dopheidereservaat, water extraction area	WW	Smallscale mowing	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°10'11.51"	3°9'20.26"
Zevenkerken Rode dopheidereservaat near parking area	ZP	Seasonal grazing sheep	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°9'10.32"	3°9'2.24"
Zevenkerken Rode dopheidereservaat excavated area Life project	ZK	Seasonal grazing sheep	<i>C. vulgaris</i> , bare sand	51°9'10.32"	3°9'2.24"
Excavated former corn field Beisbroek, bare area	KK	Seasonal grazing sheep	<i>C. vulgaris</i> , <i>E. cinerea</i> , bare sand	51°10'21.05"	3°9'29.44"
Excavated former corn field Beisbroek, open area	KO	Seasonal grazing sheep	<i>C. vulgaris</i> , <i>E. cinerea</i> , bare sand	51°10'22.20"	3°9'29.23"
Heathland Beisbroek C, near pool	PO	Seasonal grazing sheep	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°10'16.54"	3°9'34.95"
Heathland Beisbroek B, near former Douglas forest	PP	Seasonal grazing sheep	<i>C. vulgaris</i> , <i>E. cinerea</i>	51°10'17.39"	3°9'38.85"
Heathland Tillegembos	TH	Yearround grazing	<i>C. vulgaris</i>	51°10'39.22"	3°11'10.88"
Heathland Kruis der gefusilieerden, near grassland	TG	Smallscale mowing	<i>C. vulgaris</i> , <i>E. tetralix</i>	51°10'3.17"	3°11'0.98"
Heathland Kruis der gefusilieerden, near pool	TP	Smallscale mowing	<i>C. vulgaris</i> , <i>E. tetralix</i>	51°10'3.01"	3°10'56.95"

Identification

The species was identified with the recent key developed by IORIO & LABROCHE (2015), which contains all centipedes occurring in Belgium except *Henia (Chaetechelyne) montana* (Meinert, 1870). In addition, the remark that it is *Henia (Pseudochaetechelyne) brevis* (Silvestri, 1896) and not *H. montana* that occurs in Belgium and Great Britain is wrong and it is actually *H. montana* that occurs there, as was already explained previously by LOCK (2010). It should also be noted that *Geophilus insculptus* Attems, 1895, which was listed for Belgium (LOCK, 2010), is now considered as a junior synonym of *Geophilus alpinus* Meinert, 1870 (BONATO & MINELLI, 2014).

Results

Just like in *Geophilus carpophagus*, the carpophagal fossae of *Geophilus easoni* occupy less than half of the width of the anterior edge of the sternite (Fig. 1) and the last pair of the legs of the males is swollen compared to those of the females. However, males of *G. easoni* have only 45-49 and females 47-51 pairs of legs, whereas males of *G. carpophagus* have 51-57 and females 53-59 pairs of legs. In addition, *G. easoni* has a chestnut colour (Fig. 2) and can reach a maximum length of 40 mm, whereas *G. carpophagus* is grey-brown and can reach a maximum length of 60 mm.

One female of *G. easoni* was found on 16.V.2014 and one male on 21.V.2014 in the nature reserve 'Rode Dopheidereservaat' in Sint-Andries (site WW), which contains a lot of *Erica cinerea*, but also *Calluna vulgaris* and some *Erica tetralix*. Two females were found on 17.IV.2015 and one on 30.IV.2015, 17.V.2015, 25.VII.2014 and 1.XI.2014 in the Nature Reserve 'Rode Dopheide Zevenkerke' in Sint-Andries (site ZP) in a patch with old *Erica cinerea* and *Calluna vulgaris*. On 17.IV.2015, one female was found in 'Heideveld Tillegem' (site TH) on dry heathland dominated by *Calluna vulgaris* (no *Erica cinerea*). On 17.IV.2015 and 26.VI.2015, one male was found in Sint-Andries 'Beisbroek Rode Dopheide' (Diksmuidse Heirweg) in Sint-Andries (site PP), on a patch bordering a large heathland of mainly *Erica cinerea* with some mosses, grass and *Juncus effuses* (Fig. 3). This site was deforested in 2006 (former stand of *Pseudotsuga menziesii*).



Fig. 1. Ventral view of sternite 10 of *Geophilus easoni* Arthur *et al.*, 2001 (Photograph: Koen Lock).



Fig. 2. Dorsal view of the head and the first tergites of *Geophilus easoni* Arthur *et al.*, 2001 (Photograph: Koen Lock).



Fig. 3. Overview of one of the sites where *Geophilus easoni* was collected: Beisbroek Rode Dopheidereservaat in Sint-Andries (PP).

Discussion

ARTHUR *et al.* (2001) indicated that in Great Britain, *Geophilus carpophagus* can not only be found in urban and domestic localities, but also on cliff sites and arboreal microhabitats, while *Geophilus easoni* is usually found on forest-floor and moorland microhabitats. More recently, BARBER (2009) concluded that *G. easoni* is especially common on acid heathland in Great Britain. Also in Belgium, the species was found in heathlands. The species has a littoral distribution in France (IORIO & LABROCHE, 2015). Furthermore, the species was found close to the coast as all locations were located less than 20 km from the North Sea. This can be seen as a logical extension of its distribution to the northeast. In this respect, it can also be expected that the species will be found in coastal heathlands in the Netherlands.

Acknowledgements

We would like to thank all conservators and managers of the different sampled nature reserves: Yan Verschueren, Luc Maene and Hilde De Nolf (city of Bruges, Natuureducatief Centrum Beisbroek); Stefaan Verplancke and Karim Neirynek (conservators 'Rode Dopheide' en 'Rode dopheide Zevenkerken'), Abbey Zevenkerken, Georgette Aeck and Olivier Dochy (West Flanders Province, 'Heideveld Tillegem').

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