

1908): a new species for the fauna of Belgium (Isopoda Trichoniscidae). *Bulletin et Annales de la Société royale belge d'Entomologie*. 137 : 29-31.  
SHMALFUSS H., 2003. - *World catalog of terrestrial isopods (Isopoda : Oniscidea)*. Stuttgarter Beiträge zur Naturkunde, Seria A, Nr. 654.

TAVERNIER J.M. & WOUTERS K., 1989. - *Check-list of the terrestrial Isopoda (Crustacea) of Belgium*. In: WOUTERS K. & L. BAERT (Ed.), *Verhandelingen van het symposium "Invertebraten van België"*, KBIN, Brussel, 169-172.

*Bulletin S.R.B.E./K.B.V.E.*, 143 (2007) : 25-29

## Distribution of the Belgian earwigs (Dermaptera)

by Koen LOCK

Merelstraat 27, B-9000 Gent (e-mail : Koen\_Lock@hotmail.com).

### Abstract

Seven species of Dermaptera occur in Belgium, three of which are new for the Belgian fauna: *Euborellia moesta* (GENE 1839), *Labidura riparia* (PALLAS 1773) and *Forficula decipiens* GENE 1832. All published records of *Chelidura acanthopygia* (GENE 1832) in Belgium actually belong to the recently described species *C. guentheri* (GALVAGNI 1994). The three remaining species had already been reported previously: *Labia minor* (LINNAEUS 1758), *Apterygida media* (HAGENBACH 1822) and *Forficula auricularia* LINNAEUS 1758. An overview was made of the literature about the Belgian earwigs, a checklist for the species occurring in Belgium is given and distribution maps of all the species are presented.

**Keywords** : distribution maps, checklist, Belgium.

### Samenvatting

In België komen zeven soorten Dermaptera voor waarvan drie soorten nieuw zijn voor de Belgische fauna: *Euborellia moesta* (GENE 1839), *Labidura riparia* (PALLAS 1773) en *Forficula decipiens* GENE 1832. Alle gepubliceerde waarnemingen van *Chelidura acanthopygia* (GENE 1832) in België behoren eigenlijk tot de recent beschreven soort *C. guentheri* (GALVAGNI 1994). De drie overige soorten werden vroeger al gemeld: *Labia minor* (LINNAEUS 1758), *Apterygida media* (HAGENBACH 1822) en *Forficula auricularia* LINNAEUS 1758. Een overzicht werd gemaakt van de literatuur over de Belgische oorwormen, een soortenlijst met de soorten die in België voorkomen wordt gegeven en verspreidingskaartjes voor alle soorten worden gepresenteerd.

### Résumé

Sept espèces de Dermaptera sont présentes en Belgique, dont trois sont nouvelles pour sa faune: *Euborellia moesta* (GENE 1839), *Labidura riparia* (PALLAS 1773) et *Forficula decipiens* GENE 1832. Toutes les observations publiées de *Chelidura acanthopygia* (GENE 1832) pour la Belgique concernent en effet l'espèce *C. guentheri* (GALVAGNI 1994) qui a été décrite récemment. Les trois autres espèces ont déjà été répertoriées antérieurement: *Labia minor* (LINNAEUS 1758), *Apterygida media* (HAGENBACH 1822) et *Forficula auricularia* LINNAEUS 1758. La littérature concernant les perce-oreilles de la Belgique est résumée, une liste d'espèces présentes en Belgique est présentée et les cartes de distribution pour toutes les espèces sont figurées.

### Introduction

DE SELYS-LONGCHAMPS (1868) already listed four species of Dermaptera for Belgium, however, no additional species were reported

since. No recent publications summarizing the knowledge about the Belgian earwigs are available at the moment. The aim of this paper was to fill this gap by presenting an updated

checklist and distribution maps of all the species occurring in Belgium.

### Material and methods

A databank with all the observations of earwigs in Belgium was developed, which presently contains 2658 records. Most of the studied material belongs to the collection of the Gembloux Agricultural University and a smaller collection is present in the Royal Belgian Institute for Natural Sciences. In addition, Nobby THYS, Vic NAVEAU, Bruno GOBIN and Maarten JACOBS sent some observations and the Werkgroep Invertebraten Denderstreek (WID) delivered some unidentified earwigs.

All available material was identified according to ALBOUY & CAUSSANEL (1990) (in French). However, *Chelidura guentheri* (GALVAGNI, 1994) was not described at that time and will therefore key out as *C. acanthopygia* (GENE 1832). Species of the genus *Chelidura* can be identified with the key of GALVAGNI (1997) (in Italian). NAVEAU (2004) made a compact identification key in Dutch, however, no drawings are included in this key and *C. guentheri* was not included either.

### Results

#### Literature overview

In his checklist of the Belgian earwigs, cockroaches, crickets and grasshoppers, Wesmael (1838) listed *Forficula auricularia* LINNAEUS 1758 and *Labia minor* (LINNAEUS 1758). The same two species were reported by DE SELYS-LONGCHAMPS (1862). A few years later, DE SELYS-LONGCHAMPS (1868) added *Apterygida media* (HAGENBACH 1822) and *Chelidura acanthopygia* (GENE 1832) to the Belgian fauna and since then, no additional species have been reported for Belgium. All four species were also found in the Sonian Forest by DE BORMANS (1883). The same species were also reported by DE SELYS-LONGCHAMPS (1888), by this time all species were known from several localities. *L. minor*, *F. auricularia* and *A. media* were recorded from Limburg by BAMPs (1889). All four species were again listed for Belgium by DE SELYS-LONGCHAMPS (1899), LAMEERE (1900), BURR (1913) and LESTAGE (1922) and since then, only a few scattered records have been published. MULLER (1936) found *L. minor* on a dung hill in Dalhem and DEHOUSE (1970,

1971) found a gynandromorphous specimen of *F. auricularia* with a male right forceps and a female left forceps. *Chelidura guentheri* (GALVAGNI 1994) was recently described and after checking the historical records of which material was luckily conserved in the collection of the Royal Belgian Institute for Natural Sciences, it was found that all historical records of *C. acanthopygia* actually belonged to this species. GROOTAERT *et al.* (2005) counted 136 and 73 specimens of *F. auricularia* during two tree canopy foggings in the Sonian Forest.

#### Recorded species

Seven species of earwigs have been found in Belgium. A checklist of the Belgian species is given in Table 1. The distribution of all the species is discussed below.

Table 1. Species list of the Belgian Dermaptera.

Order Dermaptera
Family Anisolabididae
1. <i>Euborellia moesta</i> (GENE 1839)
Family Spongiphoridae
2. <i>Labia minor</i> (LINNAEUS 1758)
Family Labiduridae
3. <i>Labidura riparia</i> (PALLAS 1773)
Family Forficulidae
4. <i>Chelidura guentheri</i> (GALVAGNI 1994)
5. <i>Apterygida media</i> (HAGENBACH 1822)
6. <i>Forficula auricularia</i> LINNAEUS 1758
7. <i>Forficula decipiens</i> GENE 1832

#### *Euborellia moesta* (GENE 1839)

This species was observed in Macquenoise in 2001 and in Olne in 2003 (Fig. 1A). Both specimens were collected by inexperienced students from the Gembloux Agricultural University (where the material is deposited) and the occurrence of *E. moesta* in Belgium therefore needs confirmation. The limited distribution of this species in Belgium might also suggest that it concerns a recently introduced species. In France, the species occurs in all kind of habitats such as beaches, cultivated areas, gardens and orchards, where it can be found under stones, litter and fallen fruit; especially in warm and humid areas (ALBOUY & CAUSSANEL, 1990).

#### *Labia minor* (LINNAEUS 1758)

*L. minor* is widely distributed in Belgium but not very common (Fig. 1B). It is the only species in Belgium that flies frequently, especially

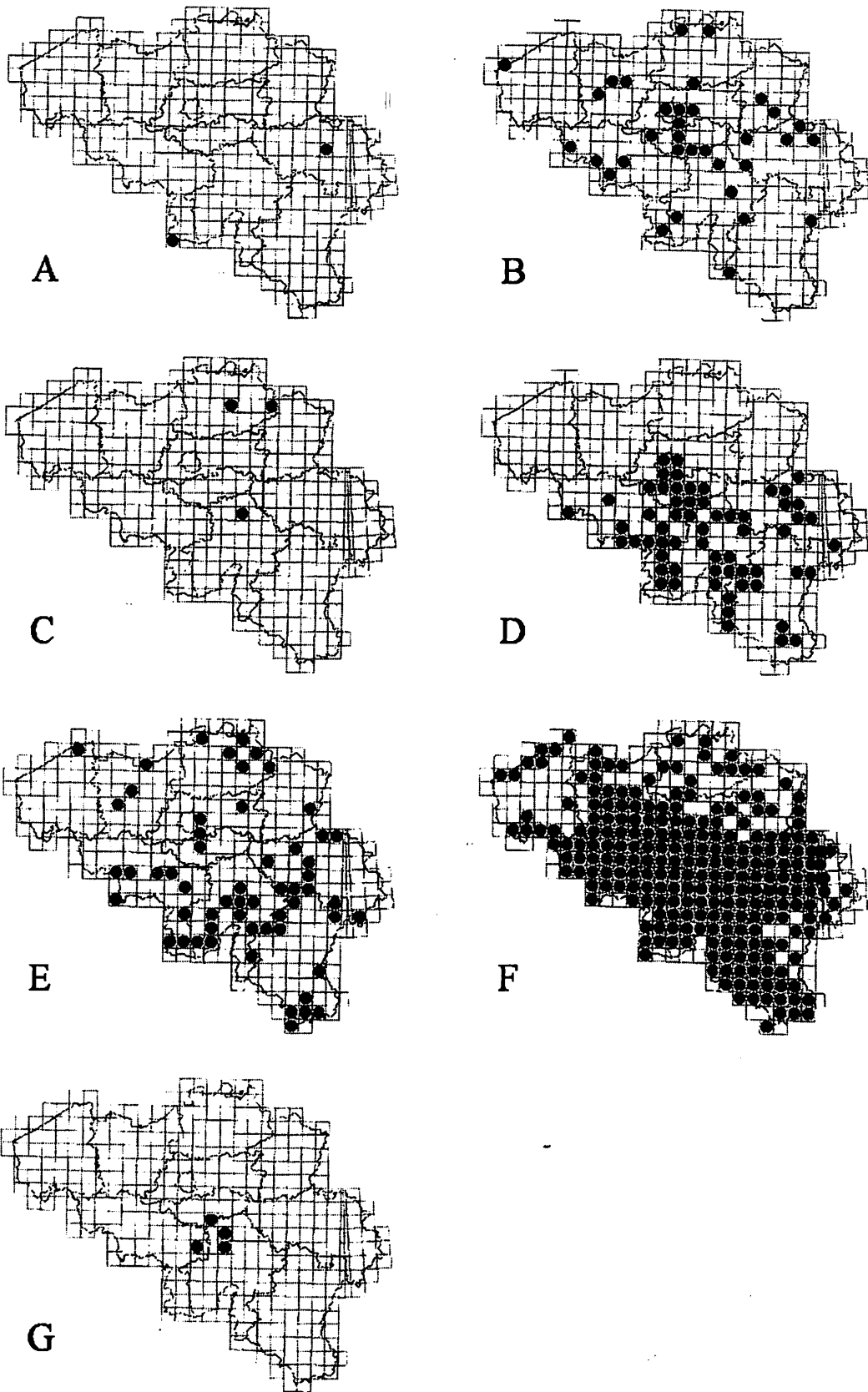


Fig. 1. Distribution maps of the Belgian Dermaptera: *Euborellia moesta* (A), *Labia minor* (B), *Lacidura riparia* (C), *Chelidura guentheri* (D), *Apterygida media* (E), *Forficula auricularia* (F) and *Forficula decipiens* (G).

during warm summer evenings. As it is attracted to light, it can sometimes be observed in light traps and in illuminated buildings. The species can be found under stones, in leaf litter, in compost heaps and in dung hills, especially by sifting older parts of horse manure.

#### ***Labidura riparia* (PALLAS 1773)**

Already in 1945, this species was collected in Balen-Wezel by N. LELEUP (7 specimens deposited in the R.B.I.N.S.) and more recently, the species was also found on two other occasions: in 1999, C. ALBERT collected the species in Dassoulx and in 2005, M. JACOBS photographed the species in Malle along the airstrip (Fig. 1C). Despite the fact that *L. riparia* was correctly identified by N. LELEUP and M. JACOBS, the species has, as far as I know, never been reported for Belgium. The specimen from Dassoulx was recorded by an inexperienced student from the Gembloux Agricultural University (where the specimen is deposited) and therefore, the occurrence of *L. riparia* in Wallony needs to be confirmed. The animals have a very specific habitat as they are restricted to loose sand. In Belgium, the species has not yet been found in coastal dunes and river banks but only on inland sand dunes. Animals can be found under stones and logs where they dig tunnels in the sand.

#### ***Chelidura guentheri* (GALVAGNI 1994)**

This species is quite common in the southern part of Belgium (Fig. 1D). *C. guentheri* was recently described from Germany and southern Norway and can be easily distinguished on the basis of the morphology of the male pygidium (GALVAGNI, 1994). As *C. guentheri* was previously not recognised as a separate species, the distribution of *Chelidura acanthopygia* (GENE 1832) is probably overestimated. In the Netherlands for example, all specimens of the genus belong to the species *C. guentheri* while the species also seems to occur in France and Italy (GALVAGNI, 1997). It is essentially a woodland species that lives in litter, under stones and in mosses on tree trunks.

#### ***Apterygida media* (HAGENBACH 1822)**

*A. media* is fairly common in Belgium (Fig. 1E). The species occurs in forests, hedges, fallowland and brushwood where it lives on trees

and bushes, in litter, under bark and under stones (ALBOUY & CAUSSANEL, 1990). It can be easily found by batting overhanging branches.

#### ***Forficula auricularia* LINNAEUS 1758**

This is by far the most common species in Belgium: it occurs almost everywhere and its current distribution only reflects where earwigs were collected (Fig. 1F). Most of the earwigs were collected by students of the Gembloux Agricultural University and therefore, Wallony has been sampled much better. However, the species is probably just as common in Flanders. Gynandromorphous animals were collected in Gembloux, Moha, Sirault, Leuze-en-Hainaut and Sirault and a female with the parasitic nematode *Mermis* species was found in Vierves-sur-Viroin. *F. auricularia* lives in all kind of habitats: forests, gardens, orchards, greenhouses and in houses. It can be found in litter, under bark, in flowers, under stones and logs, under mosses and by batting overhanging branches.

#### ***Forficula decipiens* GENE 1832**

This species has been found in Gembloux in 2000, in Charleroi in 2002, in Fosses-la-Ville and Bossière in 2003 (Fig. 1G). All specimens were collected by inexperienced students from the Gembloux Agricultural University (where the material is deposited) and the occurrence of *F. decipiens* in Belgium therefore needs confirmation. The limited distribution of this species in Belgium might also suggest that this species is a recently introduced species. In France, the species is found in bushes, in flowers, under stones and in gardens (ALBOUY & CAUSSANEL, 1990).

### **Discussion**

The same five species of Dermaptera that are indigenous in the Netherlands (WILLEMSE, 1971; WIERINGA, 1990), were also found in Belgium. In addition, *E. moesta* and *F. decipiens* were also collected in Belgium, however, as no populations of these species were found, it might concern introduced individuals and therefore, their occurrence in Belgium needs to be confirmed. Based on the distribution of the earwigs in the surrounding countries, no further species are expected for the Belgian fauna.

### Acknowledgements

I would like to thank Jeannine BORTELS for her hospitality and her help during the study of the collection present in the Gembloux Agricultural University. Jérôme CONSTANT and Pol LIMBOURG are acknowledged for their help during the study of the collection in the Royal Belgian Institute for Natural Sciences in Brussels. I would like to thank Nobby THYS, Vic NAVEAU and Maarten JACOBS for sending some observations of earwigs and the Werkgroep Invertebraten Denderstreek (WID) for delivering some unidentified specimens. Bruno GOBIN is currently making a PhD (Flanders Agricultural research project IWT040667) about the population dynamics of earwigs in orchards and the optimization of the presence of an essential predator and he kindly sent some observations. Jos BRUERS helped with finding some of the literature. I'm grateful to Tim ADRIAENS from the Research Institute for Nature and Forest for plotting the distribution maps. Finally, I would like to thank Roy KLEUKERS and Hendrik DEVRIESE for critically reading the draft version of this manuscript.

### Literature

- ALBOUY V. & CAUSSANEL C., 1990. - *Dermatères ou perce-oreilles*. Faune de France, 75, Paris, 245pp.
- BAMPS C., 1889. - *Faune des insectes de l'ordre des Orthoptères de la province de Limbourg*. Hasselt, 36pp.
- BURR M., 1913. - *Orthoptères. Collections zoologiques de Baron Edm. De Selys-Longchamps*. Catalogue systématique et descriptif. Fasc. 2, 35pp.
- DE BORMANS A., 1883. - Un été a Rouge-Cloître. *Annales de la Société Entomologique de Belgique*, 27 : 18-39.
- DEHOUSSE M.M., 1970. - Un exemplaire vivant, vraisemblablement gynandromorphe, de *Forficula auricularia* L. (Dermaptera). *Bulletin et Annales de la Société Entomologique de Belgique*, 106 : 311.
- DEHOUSSE M.M., 1971. - Photographie de l'exemplaire gynandromorphe de *Forficula auricularia* L. (Derm. Forficulidae). *Bulletin et Annales de la Société Entomologique de Belgique*, 107 : 25.
- DE SELYS-LONGCHAMPS E., 1862. - Catalogue raisonné des orthoptères de Belgique. *Annales de la Société Entomologique de Belgique*, 6 : 130-153.
- DE SELYS-LONGCHAMPS E., 1868. - Additions et corrections au catalogue raisonné des Orthoptères de Belgique. *Annales de la Société Entomologique de Belgique*, 11 : 23-42.
- DE SELYS-LONGCHAMPS E., 1888. - Catalogue raisonné des Orthoptères et des Nevroptères de Belgique. *Annales de la Société Entomologique de Belgique*, 32 : 103-203.
- DE SELYS-LONGCHAMPS E., 1899. - Note comparative sur la distribution géographique des orthoptères en Belgique, en Angleterre et en Hollande. *Annales de la Société Entomologique de Belgique*, 43 : 447-451.
- GALVAGNIA A., 1994. - *Chelidurella guentheri* specie nuova dell'Europa centrale e della Norvegia Sud-orientale (Insecta Dermaptera Forficulidae). *Atti della Accademia Roveretana degli Agiati*, 243, ser. 7, vol. 3B, 347-370.
- GALVAGNIA A., 1997. - Contributo alla conoscenza del genere *Chelidurella* Verhoeff, 1902, in Italia e territori limitrofi (Insecta Dermaptera). *Atti della Accademia Roveretana degli Agiati*, 247, ser. 7, vol. 7B, 5-61.
- GROOTAERT P., DESENDER K., VERSTEIRT V., DEKONINCK W., DE BAKKER D., VAN DER WIJDEN B. & VERLINDE R., 2005. - Pilot study on tree canopy fogging in an ancient oak-beech plot of the Sonian forest (Brussels, Belgium). *Bulletin de la Société royale Belge d'Entomologie*, 141 : 73-80.
- LAMEERE A., 1900. - *Manuel de la faune de Belgique. Tome 2*. Bruxelles, 858 pp.
- LESTAGE J.A., 1922. - Liste synonymique des orthoptères et dermatères indigènes et accidentels de Belgique. *Bulletin de la Société Entomologique de Belgique*, 4 : 120-122.
- MULLER J., 1936. - Liste d'insectes intéressants capturés surtout aux environs de Visé. *Annales de la Société Entomologique de Belgique* 76 : 161-163.
- NAVEAU V.F., 2000. - Determinatiesleutel voor de Dermaptera (oorwormen) van België en West-Europa. *Entomo-info*, 15 (2) : 1-3.
- WESMAEL C., 1838. - Enumeratio methodica Orthopterorum Belgii. *Bull. Acad. R. Bruxelles*, 5 : 587-597.
- WIERINGA J.J., 1990. - De vergeten rechtvleugeligen. *Saltabel*, 4 : 4-6.
- WILLEMSE C., 1971. - *De in Nederland voorkomende oorwormen*. Koninklijke Nederlandse Natuurhistorische Vereniging, Wetenschappelijke Mededeling No. 4, 4<sup>e</sup> druk, Amsterdam, 8pp.