New faunistic data on the Cerambycidae of Luxembourg (Insecta, Coleoptera)

Francesco Vitali[1], Julien Reiners[2] & Josy Cungs[3]

[1] Musée national d'histoire naturelle de Luxembourg, 24, rue Münster, L-2160 Luxembourg (fvitali@mnhn.lu · https://orcid.org/0000-0003-3052-2910)

[2] Service of Plant Protection, Administration of Technical Agricultural Services, Ministry of Agriculture, Viticulture and Rural Development, route d'Esch 16, L-1470 Luxembourg (julien.reiners@asta.etat.lu)

[3] 347, rue des Genêts, L-3482 Dudelange (cungs.josy@mails.lu)

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Abstract. *Ropalopus varini* (Bedel, 1870), *Purpuricenus budensis* (Götz, 1783), *Acanthocinus griseus* (Fabricius, 1793) and *Monochamus galloprovincialis* (Olivier, 1800) are recorded in Luxembourg for the first time. New records of *Phytoecia icterica* (Schaller, 1783), *Stictoleptura scutellata* (Fabricius, 1781) and *Calamobius filum* (Rossi, 1790) are presented. The checklist of the Cerambycidae (Coleoptera) of Luxembourg, as well as the biogeographical cerambycid affinities between Luxembourg and the neighbouring regions, are updated. The known cerambycid fauna of Luxembourg presently comprises 101 species.

1. Introduction

A faunal synopsis of the Cerambycidae of Luxembourg was recently published by the first of the present authors (Vitali 2018). The study of the existing collections and a triennial field research throughout the country allowed the updating of the checklist of the Luxembourgish cerambycids, so that currently 96 species (present and extinct together) may be considered as constituting the local fauna. Moreover, the local cerambycid fauna was compared to those of the neighbouring regions with the double objective of identifying biogeographical affinities between Luxembourg and the neighbouring regions and identifying common faunistic tendencies.

The interest caused by the topics allowed further research and the publication of a recent faunistic note (Burton 2020). A number of new species and data were discovered during these last two years, giving the opportunity to correct some mistakes and to update the cerambycid fauna of Luxembourg.

2. Materials and Methods

The specimens of *Acanthocinus griseus* and *Monochamus galloprovincialis* were collected by employees of the service of plant protection of the Administration of Technical Agricultural Services (Administration des services techniques de l'agriculture, ASTA), to detect or confirm the absence of species of the genus *Monochamus*, a vector for the harmful pine wood nematode (PWN) *Bursaphelenchus xylophilus*. This annual survey is an obligation according to the specific emergency control measures to prevent the spread of this nematode (European Commission Implementing Decision 2012/535/EU).

Cross panel traps (CROSSTRAP®, Sanidad agrícola Econex, Spain) with a dry or wet collection cup were used (Fig. 15). A set of pheromone (2-undecyloxy-1-ethanol) and kairomonal attractants (α-pinene, ipsenol, 2-methyl-3-buten-1-ol) were attached to the traps, which were placed in defined pinewood stands in the territory of Luxembourg. The survey period started mid-May of 2020

and after 25 days, the collection cups were checked and specimens sampled. After the replacement of the lure dispensers in mid-July and an additional collecting, the traps were dismantled at the end of September 2020.

The remaining specimens reported here were collected with other methods, i.e. net, beating, hand-picking, etc.

The examined specimens are deposited in the collection of the National Museum of Natural History, Luxembourg (MNHNL), and in the private collections of J. Cungs (CPJC), R. Gerend (CPRG), J. Thoma (CPJT) and F. Vitali (CPFV).

Photographs of the specimens were taken with a CMOS Camera mounted on a Keyence VHX 6000 digital microscope equipped with a VHX–S660E free-angle observation system, a VH-ZST 20–2000x double zoom objective, 2D/3D image stitching system and stacking system taking 200 images at 2 million pixels of resolution, owned by the MNHNL. The scale bars represent 1 mm.

The used bibliography concerning the biological data was quoted in Vitali (2018) and multivariate cluster analyses were performed using the PAST (Hammer et al. 2006).



Fig. 1. *Ropalopus varini* (Bedel, 1870), male, Lellingen. Photo: F. Vitali.

3. Results

Ropalopus varini (Bedel, 1870) (Figs 1-2)

Ropalopus clavipes – Vitali 2018: 33, Fig. 30 (misapplied)

Kiischpelt, Lellingen (49°59' N, 6°01' E), 3.VII.1987, C. Braunert leg., *Ropalopus femoratus* L. det. A. Mousset, ex coll. C. Braunert, 1♂ (MNHNL).

R. varini is here reported for the first time from Luxembourg. Thanks to its accurate preparation, a small photo of this specimen was used by Vitali (2018: Fig. 30) for representing *Ropalopus femoratus* (Linnaeus, 1758), a species already recorded from Luxembourg on the basis of specimens collected before WWI (Vitali 2011). Due to a blunder, the specimen was also mentioned therein as "*Ropalopus clavipes*".

The species is new for Luxembourg, implying to modify the data concerning *R. femoratus*. A new data sheet concerning *R. varini*, as well some updates concerning phenology and distributional data of *R. femoratus* is presented here below.

Body size 10–14 mm. Flat, completely dull black, except for the red club-shaped femora. Stable.

This species nearly shows the same size and pattern than *Ropalopus femoratus*, from which it can be distinguished through its spined antennas and the hairless elytral base.

The life cycle lasts two years. Larvae bore under bark of dry thin branches of oaks. Pupation occurs in wood in spring. Adults can be observed during the day climbing

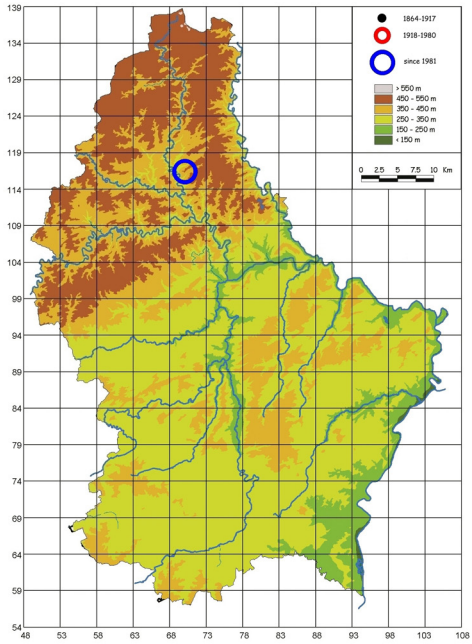


Fig. 2. Distribution of *Ropalopus varini* (Bedel, 1870) in Luxembourg.

on the host plants, occasionally on flowers. Being nonetheless acrodendric, they are difficult to be observed. The best method to collect this species is the rearing of attacked branches or the use of sweet traps.

Host plants: *Quercus petraea* (Matt.) Liebl., *Q. pubescens* Willd.

Parasitoids: *Dolichomitus mesocentrus* (Gravenhorst, 1829); *Xorides corcyrensis* (Kriechbaumer, 1894) (Ichneumonidae).

European mesophilic species, marginally present in southern Europe, possibly in regression from north-western Europe and absent from the British Isles and Scandinavia (Bense 1995).

In the areas neighbouring Luxembourg, the species is extremely rare being only present in the plains of Alsace (Matter 1998) and Rhineland-Palatinate (Niehuis 2001), where it is considered as possibly threatened due to the reduction of suitable habitats (Niehuis 2001). In Belgium, the species is known from two specimens collected near Brussels and Liège before 1950 (Drumont & Grootaert 2011) whereas it was never recorded from Saarland, northern Lorraine, French Ardennes and the Netherlands (Fournel & Gehin 1846, Godron 1866, Everts 1903, Colson 1980, Ligeron 2005, Zeegers & Heijerman 2008).

In Luxembourg, *R. varini* is so far only known from a single specimen collected in the Oesling (see above), where its presence seems to be connected with the German populations. The species was recently recorded from North Rhine-Westphalia as well (Reissmann 2008).

Ropalopus femoratus (Linnaeus, 1758) (Figs 3-5)

The data sheet concerning this species does not need to be modified except for its distribution and phenology.

The species is unknown from the Oesling and it seems to show a tendency to regress south-eastwards (Vitali 2018), as observed for the following cerambycid species: *Prionus coriarius* (Linnaeus, 1758), *Pyrrhidium sanguineum* (Linnaeus, 1758), *Stenocorus meridianus* (Linnaeus, 1758), *Paracorymbia fulva* (DeGeer, 1775), *Stenurella bifasciata* (Müller, 1776), *Phytoecia cylindrica* (Linnaeus, 1758) and *Tetrops praeustus* (Linnaeus, 1758).



Fig. 3. *Ropalopus femoratus* (Linnaeus, 1758), male, Mamer. Photo: F. Vitali.



Fig. 4. *Ropalopus femoratus* (Linnaeus, 1758), female, Mamer. Photo: F. Vitali.

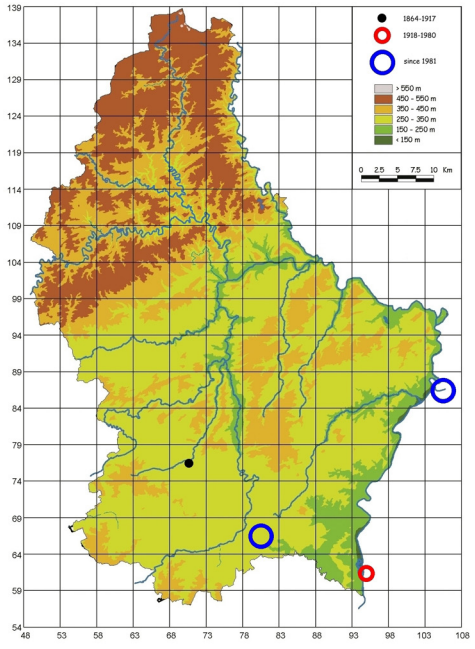


Fig. 5. Distribution of *Ropalopus femoratus* (Linnaeus, 1758) in Luxembourg.

Purpuricenus budensis (Götz, 1783) (Fig. 6)

Dudelange, Nature Conservation Area Haardt (49°28'30" N, 6°3'47" E), 12.VI.2020 J. Cungs leg., 1♂ (CPJC).

The finding of this Mediterranean longicorn, whose closest populations are located in the French department of Vaucluse (Provence), about 600 km away (Villiers 1978), is exceptional. Consequently, this species should be considered as intercepted and without acclimatisation possibility in Luxembourg.



Fig. 6. *Purpuricenus budensis* (Götz, 1783), male, Haardt. Photo: F. Vitali.

Stictoleptura scutellata (Fabricius, 1781)

Luxembourg City, av. Monterey (49°36'38.2" N, 6°07'32.1" E), 5.VI.2019, F. Vitali leg., 1 ♀ (CPFV).

A dead specimen of this rare species has been found in the city during the warm summer of 2019. It was found at the base of a building, possibly attracted and killed by the strong reflections of the large windows covering the walls.

Calamobius filum (Rossi, 1790) (Fig. 7)

Esch-sur-Alzette (49°30' N, 5°59' E), 17.VI.2005, J. Thoma leg., 1 ex. (CPJT); Esch-sur-Alzette, Nature Conservation Area Haardt (49°28'30" N, 6°3'47" E), sifted from moss, 31.XII.2006, R. Gerend leg., 1 ex. (CPRG); Bous, Wangertsbierg (GL 90000, 69200), beaten from a fruit tree, 13.VI.2007, R. Gerend leg., 1 ex. (CPRG); Flaxweiler (49°39'58" N, 06°20'34" E), 28.VII.2007, C. Braunert leg., 1 ex. (MNHNL); Kehlen, rue de Kopstal (49°40'00.5" N 6°02'44.4" E), 24.V.2019, G. Brisinger, 1 ♀ (CPFV).

Though the unusual collecting methods (tree beating and sifting), both data mentioned in Gerend (2008) have to be deemed as valid. The specimen mentioned by Vitali (2018) was erroneously considered as coming from a rearing.

Apparently, the species arrived in Luxembourg in 2005, coming from Meurthe-et-Moselle, but possibly, it was present already since the late 1990s. Currently, it is apparently widespread, though uncommonly observed, in the whole Gutland.

In the areas neighbouring Luxembourg, it is in expansion for some years. In Rhineland-Palatinate, it has spread westwards since 1961, while it reached the Saarland only in 1995 (Niehuis 2001). In France, the species has begun spreading in eastern Alsace since the 1960s (Matter 1998) but it remained for a long time unknown in Lorraine (Fournel & Gehin 1846, Godron 1866, Colson 1981), until it was found in Meurthe-et-Moselle in 2004 (Péru 2009). It was recently recorded from Wallonia (Rouard 2001), Flanders (Stassen 2007) and the Netherlands (Belgers 2012).

Phytoecia icterica (Schaller, 1783) (Fig. 8)

Dudelange, Nature Conservation Area Haardt (49°28'30" N, 6°3'47" E), 26.VI.2018 J. Cungs leg., 1 ♂ (CPJC), ditto; 12.VI.2020 J. Cungs leg., 1 ♂ (CPJC).

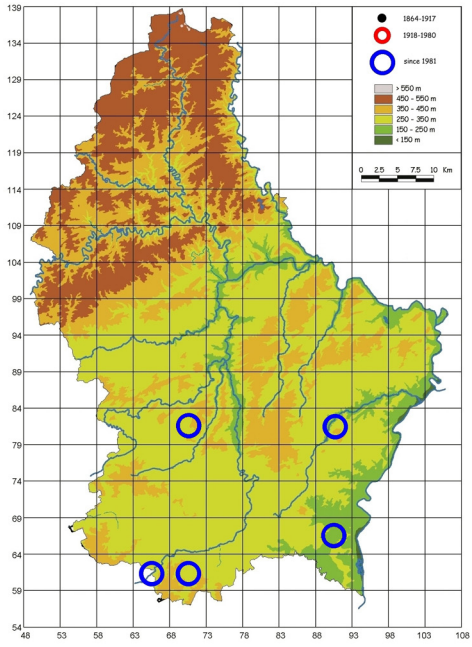


Fig. 7. Distribution of *Calamobius filum* (Rossi, 1790) in Luxembourg.

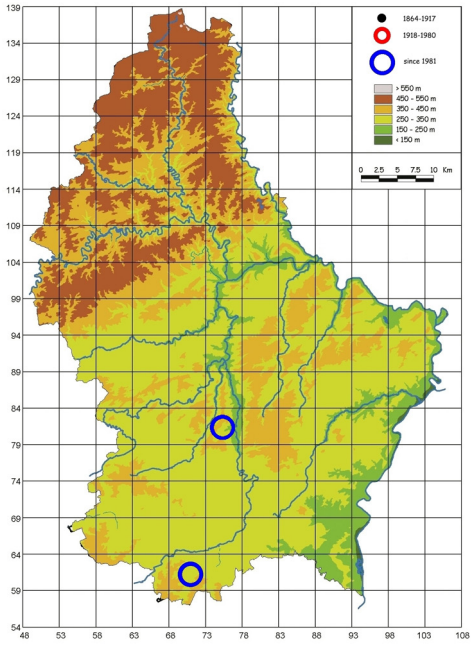


Fig. 8. Distribution of *Phytoecia icterica* (Schaller, 1783) in Luxembourg.

This rare species was known from only one single male collected by J. Thoma in Bridel in 1987 (Vitali 2018). Larvae develop in stems of living Apiaceae, especially the wild parsnip (*Pastinaca sativa* L.), sometimes recorded as a pest for cultivated parsnips.

Acanthocinus griseus (Fabricius, 1793) (Figs 9-11)

Grevenmacher, Kleng Härdchen / Munschecker (49°41'40.38" N, 6°25'56.88" E), in a pheromone trap, 9.VII.2020, J. Reiners leg., 1 ♀ (MNHNL).

The species is new for Luxembourg, implying to modify the biogeographical affinities between this country and the neighbouring regions. A data sheet concerning this species is presented afterwards.

Body size 8–13 mm. Elongate, flattened; dark brown, mottled with greyish variable spots forming three wide irregular bands, the median ones being usually more distinct; antennomeres black at the apex; legs ringed with greyish pubescence; pronotal spines perpendicularly directed.

The species may be confused with some species of the genus *Leiopus*, from which it principally differs in the larger body size, the longer antennae and the perpendicularly directed pronotal spines. Analogously to *Acanthocinus aedilis*, the female shows a long ovipositor.

The life cycle lasts one year. Larvae bore under bark of dead small branches of pines of the subsection *Pinus* (*P. sylvestris* L. and *P. nigra*-complex), showing scarce adaptability to other conifers. Pupation occurs under barks in spring. Adults are crepuscular and especially, nocturnal, from mid-spring to mid-summer, sometimes also attracted by lights.

Host plants: *Abies*, *Picea*, *Pinus*.

Parasitoids: *Vipio nominator* (Fabricius, 1793) (Brachonidae).

A Euro-Turanian species, widespread from the Iberian System to Turkey, Cyprus and Lebanon (Cocquempot et al. 2020), reaching eastwards the western Siberia, where it is substituted by the sibling *A. sachalinensis* Matsushita, 1933. In this area, it follows the distribution of its hosts, sometimes showing relict populations, as well as introduced ones related to artificial plantations of conifers. Due to the cryptical behaviour, the relative rarity and the possibility to be introduced, its original geonemy is difficult to trace.

A. griseus is known from the Vosges for a long time thanks to an old record (Kampmann 1860) considered as doubtful but confirmed by another specimen collected in 1949 (Matter 1998). The species was unknown in Lorraine (Fournel & Gehin 1846, Godron 1866, Colson 1981) until a single female was collected in Meurthe-et-Moselle in summer 2020 (Bracquart 2020). It is known from Belgium as well, where it is in expansion through anthropic pinewoods (Warzee & Drumont 2004, Drumont et al. 2019). A male was recently intercepted in the Netherlands (Heijerman & Noordijk 2016). Finally, the species is known in Saarland as well for two specimens collected in 2004 and 2016 (Eisinger 2016).



Fig. 9. *Acanthocinus griseus* (Fabricius, 1793) living female, Munschecker. Photo: F. Vitali.



Fig. 10. *Acanthocinus griseus* (Fabricius, 1793) female, Munschecker. Photo: F. Vitali.

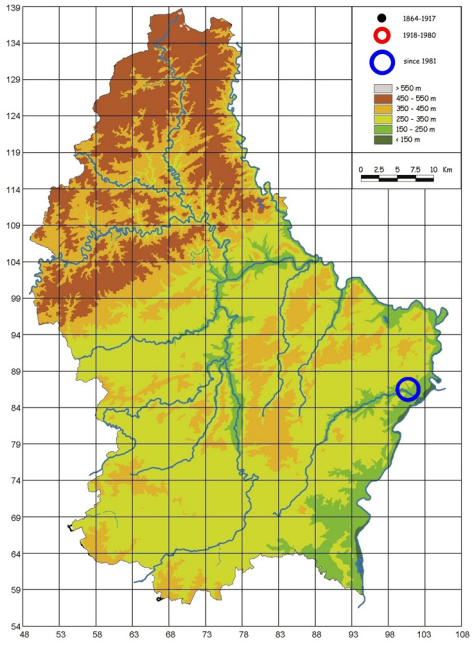


Fig. 11. Distribution of *Acanthocinus griseus* (Fabricius, 1793) in Luxembourg.

Monochamus galloprovincialis (Olivier, 1800) (Figs 12-15)

Manternach, Berbourg, Kalebierg (GL 87328, 97201), in a pheromone trap, 29.IX.2020, J. Reiners leg., 1♀ (MNHNL); Esch-sur-Alzette, Am Huesegrond, rue de Rumelange (GL 61937, 67578), in a pheromone trap, 22.IX.2020, J. Reiners leg., 1♂, 1♀ (MNHNL).

The species is new for Luxembourg; thus, a data sheet concerning this cerambycid is presented here below.

Body size 12–26 mm. Elongate, cylindrical, dull brown; elytra mottled with ochreous variable spots, sometimes forming a wide transversal band on the middle; scutellum posteriorly boarded with ochreous pubescence forming a more or less visible v-shaped pattern. The typical form, widespread in southern Europe, shows bicolour (white and ochreous) pubescence and reddish head, pronotum and limbs.

The species may be confused with no other local cerambycid but with other congeners, which have sometimes been intercepted or introduced in north-western Europe, notably *M. sutor* (Linnaeus, 1758) and *M. sartor* (Fabricius, 1787). The former shows dull black integuments, elytra covered with yellowish irregular spots and scutellum covered with yellow pubescence, except for a longitudinal smooth line. The latter is medially larger



Fig. 12. *Monochamus galloprovincialis* (Olivier, 1800), male, Am Huesegrond. Photo: F. Vitali.

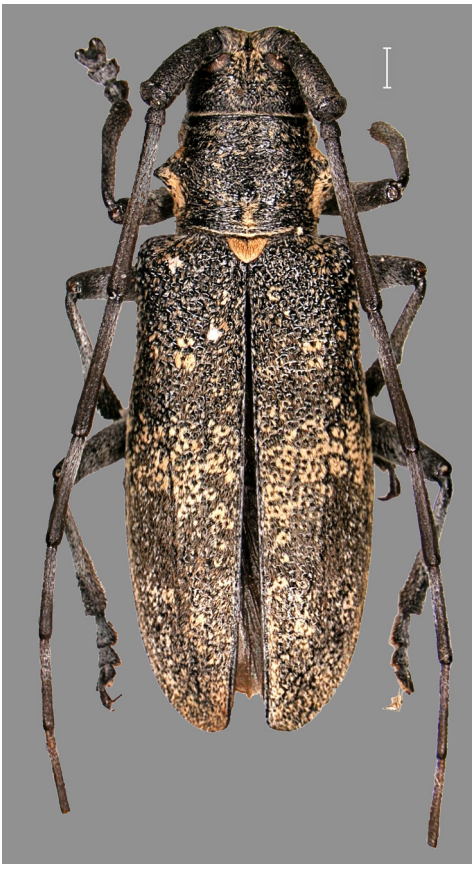


Fig. 13. *Monochamus galloprovincialis* (Olivier, 1800), female, Am Huesegrond. Photo: F. Vitali.

(19–35 mm), shining black, with the scutellum completely covered with whitish pubescence; males are nearly deprived of dorsal spots, while females show large white spots.

The life cycle lasts one year. The larvae bore under bark and then in wood of dead branches or trunks of Pinaceae, especially pines of the subsection *Pinus* (*P. sylvestris* L. and *P. nigra*-complex). Pupation occurs under barks in spring. Adults are diurnal and especially active in late summer, climbing on trunks of the host plants.

Host plants: *Pinus*, *Picea*.

Parasitoids: *Dolichomitus tuberculatus* (Geoffroy, 1785) (Ichneumonidae).

A West-Palaearctic species, widespread with five more or less clearly distinct subspecies (Lazarev 2017) from North Africa to western Siberia. Intercepted or introduced in the Canarias and in the Northern Europe through anthropic pinewoods, the species causes concerns since it can be vector of the pinewood nematode *Bursaphelenchus xylophilus* (Steiner & Buhrer, 1934).

In Luxembourg and in the neighbouring countries, this longhorn should be considered as passively introduced, except for the Vosges and the Palatinate Forest.

Already intercepted in the Rotterdam harbour at the beginning of the 20th century (Everts 1903, 1922), it is acclimated in the North Holland since at least 1949 (Heijer-

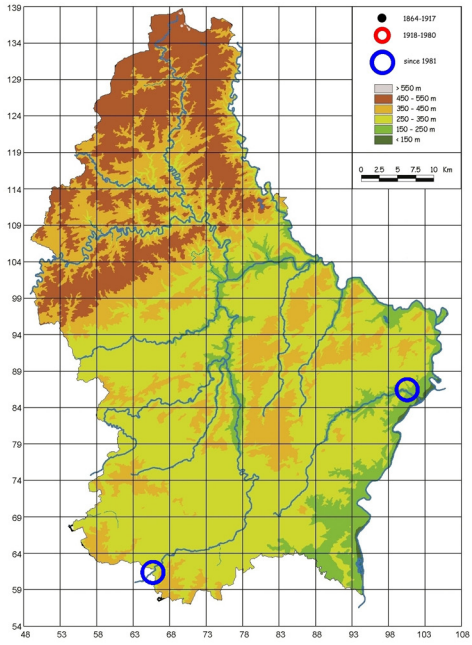


Fig. 14. Distribution of *Monochamus galloprovincialis* (Olivier, 1800) in Luxembourg.

man et al. 2009, Heijerman & Noordijk 2016). In Belgium, the species is known only from three old specimens, two of which were collected near Brussels and Liège in 1870 and 1940, respectively (Drumont in litt.), while recent investigations did not evidence its presence (Boone et al. 2015). Known from an old specimen (1934) in the French Ardennes (Ligeron 2005) and for a more recent one (1973) in Meurthe-et-Moselle (Colson 1981), *M. galloprovincialis* is widespread, though rare, in the North Vosges and in the Alsatian plains (Matter 1998). Absent from Saarland, it is extremely rare and in regression in the Palatinate Forest and in the Upper Rhine Plain (Niehuis 2001). For that reason, it was inserted in the Red List of Rhineland-Palatinate (Niehuis 2000).

4. Discussion

After the recent records of two autochthonous species, i.e. *Leptura quadrifasciata* Linnaeus, 1758 (Burton 2020) and *Ropalopus varini*, two introduced ones, i.e. *Acanthocinus griseus* and *Monochamus galloprovincialis*, and one intercepted, i.e., *Purpuricenus budensis*, a total of 101 species of cerambycids are presently in full recorded from Luxembourg, 99 of which are reasonably supported (Vitali 2018; as updated here).



Fig. 15. Cross panel trap CROSSTRAP® in action. Photo J. Reiners.

Among the 99 supported species, three were intercepted, 15 have been more or less stably introduced (one of them synanthropic) and 81 are autochthonous.

Examining the faunal elements of the autochthonous species, they globally show the following distributions: West-Palaearctic (15 species = 18.5%), European (11 species = 13.6%), Euro-Anatolian (18 species = 22.2%), Euro-Turanian (15 species = 18.5%), Euro- Siberian (6 species = 7.4%), Euro-Manchurian (1 species = 1.2%), Eurasian (9 species = 11.1%), Palaearctic (4 species =

4.9%) and Holarctic (2 species = 2.5%). In comparison with that shown previously, the faunal composition remains substantially unvaried (Vitali 2018).

The statistical data concerning the biogeographical classification of Luxembourg have been corrected accordingly. The cluster analyses based on the Euclidean, Jaccard and Simpson similarity coefficients modifies the data previously showed: Alsace (1), and Rhineland-Palatinate (2) and Luxembourg + Saarland + Belgium + Netherlands (3) form three different biogeographical regions. This corresponds to the biogeographical regionalisation proposed Heiser & Schmitt (2010) for the Western Palaearctic Odonata and by Vitali & Schmitt (2016) for the Western Palaearctic Cerambycoidea.

In addition, the analyses more strongly support (from 62 to 88 unbiased bootstraps) that Luxembourg is biogeographically more related to Belgium than to other sub-regions. The southwestern part of Belgium has been colonised by thermophilic species coming from the Paris Basin, which mostly reached Luxembourg as well. A proof of this fact is that the Luxembourgish extinct population of *Purpuricenus kaehleri* (Linnaeus, 1758) belonged exclusively to the variety *ruber*, the only one collected in Belgium and dominant in the Paris Basin and in Brittany (Picard 1929, Villiers 1978, Gouverneur & Guérard 2011). This colonisation is less visible in northern Lorraine due to longstanding intensive cultivations, which impoverished the local fauna. In contrast, the connection with the Saarland results even weaker (from 39 to 33 unbiased bootstraps), increasing the importance of geographical barriers like Moselle.

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References

Eisinger, D., 2016. Teilverzeichnis *Acanthocinus griseus*. In: Bleich, O., Gürlich, S. & F. Köhler, Verzeichnis und Verbreitungsatlas der Käfer Deutschlands. http://www.coleokat.de (accessed 18/11/2020).

Everts, J. E., 1903. Coleoptera Neerlandica: de schildvleugelige insecten van Nederland en het aangrenzend gebied, vol. 2. M. Nijhoff, The Hague, I + 798 pp. + VIII Tab.

Everts, J. E., 1922. Coleoptera Neerlandica: de schildvleugelige insecten van Nederland en het aangrenzend gebied, vol. 3. M. Nijhoff, The Hague, XVIII + 668 pp.

Belgers, J. D. M., 2012. De zuidelijke halmboktor *Calamobius filum* (Coleoptera: Cerambycidae) nu ook in Nederland aangetroffen. Entomologische Berichten, 72 (4): 228–230.

Bense, U., 1995. Longhorn beetles. Illustrated key to the Cerambycidae and Vesperidae of Europe. Margraf Verlag, Weikersheim, 512 pp.

Boone, C. K., J.-C. Grégoire & A. Drumont, 2015. Cerambycidae attracted to semiochemicals used as lures for *Monochamus* spp. in the Sonian Forest, Brussels-Capital Region, Belgium (Insecta: Coleoptera). *Bulletin de la Société royale belge d'Entomologie* 151: 122-133.

Bracquart, P., 2020. Web'Obs - SLE/SLE - Bracquart - 17/07/2020. Portail entomologique de Lorraine, Société Lorraine d'Entomologie, http://lorraine-entomologie.org

Burton, L., 2020. Une nouvelle espèce de longicorne pour la faune du Luxembourg: *Leptura quadrifasciata* Linnaeus, 1758 (Insecta, Coleoptera, Cerambycidae). *Bulletin de la Société des naturalistes luxembourgeois* 122: 127–129.

Cocquempot, C., N. M. Nemer & S. Kyrk, 2020. Nouvelle contribution à la connaissance des Cerambycidae du Liban (Coleoptera). *L'Entomologiste* 76 (5): 281-284.

Colson, A., 1981. Répertoire des Coléoptères Cerambycidae (Longicornes) capturés en Meurthe-et-Moselle (Région de Nancy), 3ème et dernière partie. *Alast, Bulletin de liaison entomologique* 13: 5–11.

Drumont, A. & P. Grootaert, 2011. Saproxylic beetles from Belgium, online distribution

maps of species (Coleoptera). http://projects.biodiversity.be/beetles

Drumont, A., P. Limbourg & M. Paquay, 2019. Confirmation de l'implantation *d'Acanthocinus griseus* (Fabricius, 1792) en Belgique (Coleoptera, Cerambycidae, Lamiinae). *Lambillionea* CXIX (1): 47-53.

Fournel, D. H. L. & J. P. J. Géhin, 1846. Catalogue des insectes coléoptères des environs de Metz. Imprimerie, librairie et lithographie de Verronnais, Metz, 110 pp.

Gerend, R., 2008. Nachweise neuer und bemerkenswerter Käfer für die Fauna Luxemburgs (Insecta, Coleoptera). *Bulletin de la Société des naturalistes luxembourgeois* 109: 107–131

Godron, D. A., 1866. Zoologie de Lorraine ou catalogue des animaux sauvages observés jusqu'ici dans cette ancienne province. Ve Raybois, Nancy, 283 pp.

Gouverneur, X. & P. Guérard, 2011. Les longicornes armoricains. – Atlas des coléoptères Cerambycidae des départements du Massif armoricain. Invertébrés armoricains, les Cahiers du GRETIA, 7, 224 pp.

Hammer, Ø., D. A. T. Harper & P. D. Ryan, 2001. PAST: Paleontological Statistics Software Package for Education and Data Analysis. *Palaeontologia Electronica* 4 (1), 9 pp.

Heiser, M. & T. Schmitt, 2010. Do different dispersal capacities influence the biogeography of the western Palearctic dragonflies (Odonata)? *Biological Journal of the Linnean Society* 99: 177–195.

Heijerman, T., G. O. Keijl & V. J. Kalkman, 2009. *Monochamus* in Nederland: voorkomen en vangmethoden. EIS Kenniscentrum Insecten, Leiden: 18 pp.

Heijerman, T. & J. Noordijk, 2016. *Monochamus*–monitoring 2015: inventarisatie van zwarte den-opstanden in Noord-Holland. EIS Kenniscentrum Insecten, Leiden, 28 pp.

Kampmann, F. E., 1860. Catalogus Coleopterorum vallis rhenanae alsatico-badensis. *Bulletin de la Société d'Histoire naturelle de Colmar* 1: 1-47.

Lazarev, M., 2017. New subspecies of *Monochamus galloprovincialis* (Olivier, 1795) from Caucasus (Coleoptera: Cerambycidae). *Munis Entomology and Zoology Journal* 12 (2): 365-367.

Ligeron, J.-M., 2005. Catalogue des coléoptères des Ardennes françaises. Société d'histoire naturelle des Ardennes, Aiglemont, 103 pp.

Matter, J., 1998. Cerambycidae. Catalogue et atlas des coléoptères d'Alsace, 1, Musée Zoologique de l'Université et de la Ville de Strasbourg, 101 pp.

Niehuis, M., 2000. Rote Liste der ausgestorbenen, verschollenen und gefährdeten Bockkäfer in Rheinland-Pfalz. Ministerium für Umwelt und Forsten Rheinland-Pfalz, Mainz, 32 pp.

Niehuis, M., 2001. Die Bockkäfer in Rheinland-Pfalz und im Saarland. Gesellschaft für Naturschutz und Ornithologie Rheinland-Pfalz e. V., Mainz, 604 pp.

Péru, L., 2009. Décharge interdite… (Coleoptera, Cerambycidae). *L'Entomologiste* 65 (6): 345-346.

Picard, F., 1929. Coléoptères Cerambycidae. Faune de France 20, Lechevalier P., Paris, VII + 167 pp.

Reissmann, K., 2008. Bemerkenswerte Käfernachweise am Niederrhein (Insecta, Coleoptera). *Mitteilungen der Arbeitsgemeinschaft Rheinischer Koleopterologen* 18 (1-4): 37-40.

Rouard, M., 2001. Insectes intéressants pour la faune Belge. *Bulletin de la Société royale belge d'Entomologie* 137 (7–12): 106.

Stassen, E., 2007. *Calamobius filum*, een nieuwe boktor voor Vlaanderen. *Orchis* 33: 66–67.

Villiers, A., 1978. Faune des Coléoptères de France 1, Cerambycidae. Encyclopédie Entomologique 42, Lechevalier P., Paris, 611 pp.

Vitali, F., 2011. Observations faunistiques sur les Cérambycidés luxembourgeois conservés dans la collection du Musée national d'histoire naturelle de Luxembourg (Coleoptera, Cerambycidae). *Lambillionea* CXI (3): 278–284.

Vitali, F., 2018. Atlas of the Insects of the Grand-Duchy of Luxembourg. Coleoptera Cerambycidae. *Ferrantia* 79: 1–212.

Vitali, F. & T. Schmitt, 2016. Ecological patterns strongly impact the biogeography of western Palaearctic longhorn beetles (Coleoptera: Cerambycoidea). *Organisms Diversity & Evolution* 17 (1): 163–180.

Warzee, N. & A. Drumont, 2004. Contribution à l'étude des longicornes de l'Ardenne avec la découverte d'une nouvelle espèce pour la Belgique : *Acanthocinus griseus* (Fabricius) (Coleoptera, Cerambycidae). *Lambillionea* 104 (1) : 45-57.

Zeegers, T. W. P. & T. Heijerman, 2008. De Nederlandse boktorren (Cerambycidae). Entomologische Tabellen 2, Nederlandse Entomologische Vereniging, Leiden, 120 pp.

2012/535/EU: Commission Implementing Decision of 26 September 2012 on emergency measures to prevent the spread within the Union of *Bursaphelenchus xylophilus* (Steiner et Buhrer) Nickle et al. (the pine wood nematode) (notified under document C(2012) 6543). Official Journal L 266, 2.10.2012: 42–52.