

Comments on rare and doubtful Belgian ant species and rediscovery of *Myrmica lobicornis* NYLANDER, 1846 (Formicidae, Hymenoptera)

DEKONINCK W.^{1,2}, DE KONINCK H.³, GASPARD C.⁴, GROOTAERT P.¹,
GODEAU J.-F.⁵ & MAELFAIT J.-P.^{2,6}

¹ Royal Belgian Institute of Natural Sciences, Department Entomology, Vautierstraat 29, B-1000 Brussels
(e-mail: wouter.dekoninck@natuurwetenschappen.be or wouterdekoninck@hotmail.com).

² Terrestrial ecology unit, Ghent University, K.L. Ledeganckstraat 35, B-9000 Ghent.

³ Smalvoortstraat 47/2, B-2300 Turnhout.

⁴ Zoologie générale et appliquée, Faculté universitaire des Sciences Agronomiques, Passage des Déportés 2,
B-5030 Gembloux.

⁵ Rue des Grands Prés, 71, B-7000 Mons.

⁶ Institute of Nature Conservation, Kliniekstraat 25, B-1070 Brussels.

Summary

Three recent records of the rare and hidden living ant *Myrmica lobicornis* NYLANDER 1846, are reported. The last Belgian records go back to 1910-1924 and are from the Hautes Fagnes. *M. lobicornis* is now again reported from the Hautes Fagnes and the adjacent Voeren region. Possibilities to find other *M. lobicornis* populations are discussed. Also comments on other rare and assumed extinct ant species in Belgium are given.

Introduction

Ant species, which have not been found during the last 50 years in our country, are considered to be extinct. *Camponotus herculeanus* (LINNAEUS, 1758), *Formica exsecta* NYLANDER 1846, *Formica pressilabris* NYLANDER 1846, *Lasius bicornis* (FÖRSTER, 1850), are only known from the Hautes Fagnes (VAN BOVEN, 1949) and supposed to be extinct. These four species were until recently considered as being doubtful members for the Belgian ant fauna (DEKONINCK & VANKERKHOVEN, 2001a) since they were found on one or only a few occasions a long time ago and their persistent existence is uncertain. Also *Symbiomyrma*

karavajevi ARNOLDI 1930 was found only once (in 1951) at the Baraque Michel in the Hautes Fagnes (VAN BOVEN 1970).

The Hautes Fagnes is however not the only region where very rare and doubtful species were found. Records from *Messor structor* (LATREILLE, 1798) and *Dolichoderus quadripunctatus* (LINNAEUS, 1771) are from the beginning of the 20th century and *Manica rubida* (LATREILLE, 1802) was found once in Belgium in 1918 in Liège and mentioned as a possible introduction (BONDROIT, 1918). A list of these old and very rare records of doubtful and extinct Belgian ant species is given in table 1.

Table 1. Collection dates, collection places and references of rare species with doubtful status.

Species	Locality, year, reference
<i>Manica rubida</i> (Latreille, 1802)	Liège, 1918 (BONDROIT, 1918)
<i>Messor structor</i> (Latreille, 1798)	Waulsort, before 1918 (BONDROIT, 1918)
<i>Symbiomyrma karavajevi</i> Arnoldi, 1930	Baraque Michel, 1951 (VAN BOVEN, 1970)
<i>Myrmica lobicornis</i> Nylander, 1846	Hockai, 1910,1920; Chaudfontaine, 1920,1924 (collection BONDROIT at RINSB)
<i>Camponotus herculeanus</i> (Linnaeus, 1758)	Hockai, 1911 (BONDROIT, 1911); Rocher Frédéricq, 1938 (VAN BOVEN, 1970)
<i>Lasius bicornis</i> (Förster, 1850)	Hautes Fagnes, 1912 (BONDROIT, 1912)
<i>Lasius citrinus</i> Emery, 1922	Chèvremont Liège, 1920 (Collection BONDROIT at RINSB)
<i>Formica exsecta</i> Nylander, 1846	Hautes Fagnes, 1912 (BONDROIT, 1912)
<i>Formica pressilabris</i> Nylander, 1846	Hautes Fagnes, 1912 (BONDROIT, 1912)
<i>Dolichoderus quadripunctatus</i> (Linnaeus, 1771)	Profondeville, 1899 and Brussels, before 1918 (BONDROIT, 1918)

Although it is a very interesting region for ants, reports on the ant fauna of the Hautes Fagnes are rather scarce (VAN BOVEN, 1949, 1970). A doubtful species (Table 1) which was only found in the Hautes Fagnes is *M. lobicornis* (VAN BOVEN & MABELIS, 1986). The last record of the species was made in 1924 in Chaudfontaine (collection BONDROIT at the Royal Belgian Institute of Natural Sciences, RBINS); hence, the species was considered as extinct in Belgium. The widespread occurrence of the species in Europe and the hidden living habitats of the species let us suspect that this status in Belgium might be a recording artefact. *M. lobicornis* is indeed a widespread Eurasian ant-species (from Portugal unto Central Siberia) and can be found from 40° until 70° north (COLLINGWOOD, 1979; RADCHENKO *et al.*, 1997). In Germany, the species is known from woodland, heathland, grasslands and mountainous pastures (SEIFERT, 1996), where it lives in small colonies and where the population densities are low when not occurring in its characteristic habitat. *M. lobicornis* and its nests are reported to be difficult to be observed in the field. Recently the species was recorded for the first time in the Netherlands during a pitfall-sampling at the Balloerveld in Drenthe (BOER, 2003) in a habitat with wet and dry heathland vegetation with shrubs and fogs. In Great Britain the species is rare but widespread over the country; it lives in upland acid moorland, bogs and cool pastures (WARDLAW *et al.*, 1998). In Poland the species can be found almost everywhere but it prefers pinewoods (RADCHENKO *et al.*, 1997). In Belgium all those possible habitats are present and are in fact not restricted to the Hautes Fagnes.

Nowadays pitfall trapping is more often used than before to make inventories of the ant fauna of particular areas and regions. This led already to a large number of new records. Furthermore, using pitfalls during a complete year cycle can learn us a lot about the period of mating flights, activity and exact ecological preferences of several ant species (DEKONINCK & VANKERKHOVEN, 2001b). Pitfall sampling in the Hautes Fagnes and also other regions from where information on the ant-fauna is scarce, should have our special attention. For example, in the Voeren region, a relatively unexplored region, an interesting and rare ant-species was recently recorded (DEKONINCK *et al.*, 2003). It is evident that when new pitfall sampling campaigns in the

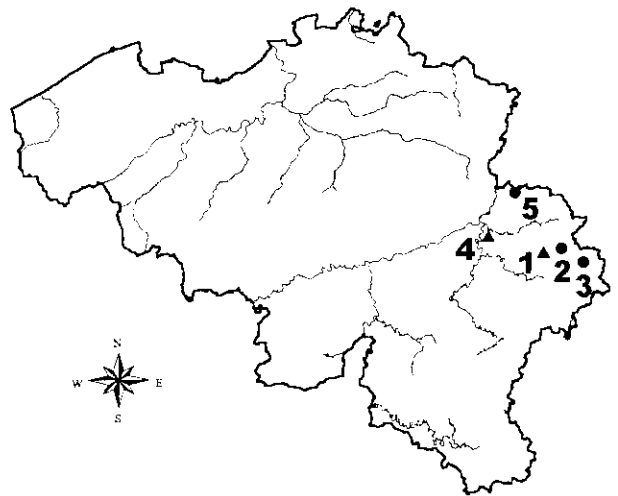


Fig. 1. Distribution map of *Myrmica lobicornis* in Belgium (Hautes Fagnes 1: Hockai, 2: Botrange, 3: Elsenborn, 4: Chaudfontaine and Voeren region 5: Alserbos in Sint-Pieters-Voeren and ▲ record before 1925 ● record after 1925).

Hautes Fagnes (coll. H. DE KONINCK) and the Voeren region were started, a number of so-called extinct and rare species were expected.

Results: three recent records of *Myrmica lobicornis* in Belgium

The first '*M. lobicornis*-site' where the species was rediscovered by Jean-François Godeau was the Military Camp in Roderhöhe at Elsenborn (hand sampling, UTM code: LA0491, summer 2000). The specimens were collected in a heathland-vegetation with *Molinia caerulea* (L.) MOENCH, *Calluna vulgaris* (L.) HULL, *Deschampsia flexuosa* (L.) TRIN., *Anthoxanthum odoratum* L., *Festuca* spp., *Leontodon autumnalis* L., *Hieracium umbellatum* L., *Potentilla erecta* (L.) RAUSCH. and *Euphrasia* sp.

The second site was at Longfaye in the Hautes Fagnes (pitfall trap, UTM code: KA9297, summer 2002) an upland bog with various *Sphagnum* and *Carex*-species, *Molinia caerulea* and *Vaccinium uliginosum* L. and could indeed be catalogued as a typical Belgian *M. lobicornis* site and seems very similar to some of the locations where it was recorded 80-90 years ago (old records of *M. lobicornis* from Belgium found in the BONDROIT collection of the RBINS are: Hockai 1910 and 1920 and Chaudfontaine 1920 and 1924).

The third site in the Voeren region (Alserbos in Sint-Pieters-Voeren, UTM code: FS9823 summer 2003) is an abandoned pasture that was planted with *Prunus avium* L. at the end of the

80s of last century. Now the site consists of a rather closed *P. avium*-vegetation with some isolated *Calluna*-shrubs on a rocky soil with a lot of mosses. This is a habitat so far unknown for Belgian *M. lobicornis* and totally different from the other "typical" Belgian *M. lobicornis* sites.

Conclusion

Although *M. lobicornis* remained unrecorded for a long time, it can not be considered anymore as extinct in Belgium. This is probably also the case for other species mentioned in table 1. Perhaps pitfall sampling or other intensive inventory works in the Hautes Fagnes region and other sites with old records will reveal other ant species rediscoveries.

M. lobicornis can be found in the Hautes Fagnes and surroundings and perhaps also in grasslands, woodlands and cold, wet heathland elsewhere in Belgium. Although *M. lobicornis* has a rather wide habitat range in Europe, SEIFERT (1988, 1998) considers it as a threatened and rare ant-species in Germany and we suspect this to be the same in Belgium.

Acknowledgements

We would like to thank AMINAL afdeling Bos & Groen for the financial support (project: AMINAL/B&G/30/2002), Mr. Thunus from Longfaye and Alex Zeevaart of the Alserbos in Sint-Pieters-Voeren for the authorisation for the sampling campaign.

References

- BOER P., 2003. - De kalme steekmier *Myrmica lobicornis* nieuw voor Nederland (Hymenoptera: Formicidae). *Nederlandse Faunistische Mededelingen*, 19 : 69-72.
- BONDROIT J., 1911. - Contribution à la faune de Belgique. Notes diverses. *Annales de la Société royale belge d'Entomologie* 55 : 8-13.
- BONDROIT J., 1912. - Fourmis des Hautes Fagnes. *Annales de la Société royale belge d'Entomologie* 56 : 351-352.
- BONDROIT J., 1918. - Les Fourmis de France et de Belgique. *Annales de la Société d'Entomologie de France* 87: 1-174.
- COLLINGWOOD C.A., 1979. - The Formicidae (Hymenoptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* 8: 1-175.
- DEKONINCK W. & F. VANKERKHOVEN, 2001a. - Checklist of the Belgian ant-fauna (Formicidae, Hymenoptera). *Bulletin van het Koninklijk Belgisch Instituut voor Natuurwetenschappen*, *Entomologie* 71: 263-266.
- DEKONINCK W. & F. VANKERKHOVEN, 2001b. - Eight new species for the Belgian ant fauna and other remarkable recent records (Hymenoptera, Formicidae). *Bulletin de la Société royale belge d'Entomologie* 137: 36-43.
- DEKONINCK W., VANKERKHOVEN F. & J.-P. MAELFAIT, 2003. - First observations of *Leptothorax affinis* Mayr 1855 (Formicidae Hymenoptera) in Belgium. *Bulletin de la Société royale belge d'Entomologie*, 139: 39-40.
- GASPAR C., 1970. - Hymenoptera Formicidae: cartes 15-30. In: *Atlas Provisoire des Insectes de Belgique*, cartes 1-100. Edité par J. LECLERCQ. Faculté des Sciences Agronomiques de l'Etat, Zoologie générale et Faunistique, Gembloux.
- GASPAR C., 1970. - Hymenoptera Formicidae: cartes 143-164. In: *Atlas Provisoire des Insectes de Belgique*, cartes 101-200. Edité par J. LECLERCQ. Faculté des Sciences Agronomiques de l'Etat, Zoologie générale et Faunistique, Gembloux.
- GASPAR C., 1971. - Hymenoptera Formicidae: cartes 203-216. In: *Atlas Provisoire des Insectes de Belgique*, cartes 201-300. Edité par J. LECLERCQ. Faculté des Sciences Agronomiques de l'Etat, Zoologie générale et Faunistique, Gembloux.
- RADCHENKO A., CZECHOWSKI W. & W. CZECHOWSKA, 1997. - The genus *Myrmica* Latr. (Hymenoptera, Formicidae) in Poland. A survey of species and a key for their identification. *Annales Zoologici, Warszawa* 47: 481-500.
- SEIFERT B., 1988. - A revision of the European species of the ant subgenus *Chthonolasius* (Insecta, Hymenoptera, Formicidae). *Entomologischen Abhandlungen Staatkundiges Museum Tierkunde, Dresden* 51 (8): 143-180.
- SEIFERT B., 1996. - Ameisen bestimmen und beobachten. Naturbuch Verlag, Augsburg, 352 pp.
- SEIFERT B., 1998. - A taxonomic revision of the *Myrmica* species of Europe, Asia minor and Caucasia (Hymenoptera, Formicidae). *Abhandlungen und Berichten des Naturkundemuseum Görlitz* 62 (3): 1-75.
- VAN BOVEN, J.K.A., 1949. - Notes sur la faune des Hautes-Fagnes en Belgique. *Bulletin de la Société royale belge d'Entomologie* 85: 135-143.
- VAN BOVEN, J.K.A., 1970. - *Myrmica faniensis*, une nouvelle espèce parasite (Hymenoptera, Formicidae). *Bulletin de la Société royale belge d'Entomologie* 106:127-132.
- VAN BOVEN J.K.A. & A.A. MABELIS, 1986. - De mieren van de Benelux. *Wetenschappelijke Mededelingen van de KNNV* 173, 64 pp.
- WARDLAW J.C., ELMES G.W. & J.A. Thomas, 1998. - Techniques for studying *Maculinea* butterflies. II. Identification guide to *Myrmica* ants found on *Maculinea* sites in Europe. *Journal of Insect Conservation* 2: 119-127.