

The Flemish legislation on the protection of Coleoptera in the European perspective

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Abstract

The Flemish legislation on the protection of invertebrates is out of date and should be adapted. This can be shown by considering the beetles that are protected by law. An alternative approach (i.e. the protection of ecological indicator species) is proposed.

Key-words: nature conservation, species protection, Flemish legislation, Coleoptera.

Introduction

In our opinion a well constructed and good functioning legislation giving protection to insects can be a powerful tool for nature conservation. A comparison of the existing Flemish legislation on insect protection with recent European developments within that context (for instance the inclusion of 51 species of insects in appendix 2 of the Convention on the Conservation of European Wildlife and Natural Habitats, known as the Bern Convention) shows that the Flemish legislation will have to be adapted.

This is why we discuss the current Flemish legislation, show its shortcomings and propose an alternative approach. The goal would be a law on insect protection that is not merely defensive (habitat protection and acquisition) but also provides possibilities for funding of:

- habitat management in order to maintain or obtain the proper habitat requirements,
- conservation agreements between landowners and conservation agencies,
- research on the ecology of endangered and threatened species.

The Decree of 22.09.1980 and beetle protection

The shortcomings of the Decree of 22.09.1980 and its being out of date can easily be illustrated by considering the beetles protected according to that law. These are:

- all *Calosoma* and *Carabus* species as ground beetles (Carabidae),
- all tiger beetles (Cicindelidae),
- *Cerambyx scopolii* and *Prionus coriarius* as longhorns (Cerambycidae),
- *Cetonia aurata*, *Cetonia (Potosia) cuprea*, *Osmoderma eremita* and *Oxythyrea funesta* (Cetoniinae),
- *Odontaeus armiger* and *Typhaeus typhoeus* (Geotrupinae),
- the Stag Beetle (*Lucanus cervus*, Lucanidae),
- *Polyphylla fullo* (Melolonthinae),
- all *Donacia* and *Plateumaris* species (Chrysomelidae),
- all ladybirds (Coccinellidae),
- all *Cybister* and *Dytiscus* species (Dytiscidae) and the Great Silver Beetle (*Hydrous* or *Hydrophilus piceus*, Hydrophilidae) as water beetles.

It is immediately clear that this list is very heterogeneous and does not fulfil the requirements of a modern legislation on species protection; especially because the list contains higher taxa and consequently a lot of species which are not threatened at all. There are also several species for which the status is badly known. Mostly, large and spectacular species are represented.

Carabus species of Flanders

The limited applicability of the law can be further illustrated by considering the Flemish species of the genus *Carabus*.

There are fourteen species of *Carabus* which have been found in Flanders. These are: *Carabus arvensis*, *C. auratus*, *C. auronitens*, *C. cancellatus*, *C. clathratus*, *C. convexus*, *C. coriaceus*, *C. granulatus*, *C. intricatus*, *C. monilis*, *C. nemoralis*, *C. nitens*, *C. problematicus* and *C. violaceus*. Based on the maps of DESENDER (1986a) the status of these insects in Flanders can be characterized as follows.

Carabus arvensis (Fig. 1) is a species living in dry habitats which are not too shady like dry heathland and dry open forests. It is declining in its occurrence and has become really rare with very few localized populations. It is endangered.

Carabus auratus (Fig. 2) is a species of open ground that can also occur on agricultural land. It decreased during recent decades. It is threatened or vulnerable.

Carabus auronitens (Fig. 3) is a woodland species with a Mideuropean distribution pattern. In Flanders it is known to occur only in a few well established populations like the ones of the Zoniën forest near Brussels. It is a rare and endangered species.

Carabus cancellatus (Fig. 4) is a carabid beetle which was not rare on arable land before 1950. During recent decades however it has been only rarely encountered. It is threatened.

Carabus clathratus (Fig. 5) is a hygrophilous species bound to oligotrophic riparian habitats. This species decreased drastically and by now, is only known to occur in a few remaining populations. It is very rare and therefore endangered.

Carabus convexus (Fig. 6) is a species mainly found on chalk grassland. It has not been recorded after 1950.

Carabus coriaceus (Fig. 7) was - before 1950 - often found in open woodland and on agricultural land. During recent decades it has become quite rare. It does not seem to be really endangered but is vulnerable.

Carabus granulatus (Fig. 8) is a eurotopic species of wet habitats which may vary from meadows with some hedgerows to wet open forests. It is still widely distributed and not really threatened.

Carabus intricatus (Fig. 9) can occur in moist woodlands with a well developed litter layer. It was - before 1950 - found in a few forests. No more recent records of that species in Flanders are known to us.

Carabus monilis (Fig. 10) and *Carabus nemoralis* (Fig. 11) are both quite eurotopic species which have not declined during recent decades. No special protection seems to be needed.

Carabus nitens (Fig. 12) is a species of particular heathland habitats, both wet and dry. It is an endangered species because of the drastic decrease of its habitat.

Carabus problematicus (Fig. 13) and *Carabus violaceus* (Fig. 14) are widely distributed and neither they nor their habitats are generally threatened.

Considering those fourteen species we can conclude (Tab. 1) that two are probably extinct, four are endangered, three are vulnerable and five are not threatened or not yet threatened.

Table 1. Red list of the *Carabus* species in Flanders.

	Extinct	Endangered	Threatened	Not threatened
<i>C. arvensis</i>		+		
<i>C. auratus</i>			+	
<i>C. auronitens</i>		+		
<i>C. cancellatus</i>			+	
<i>C. clathratus</i>		+		
<i>C. convexus</i>	+			
<i>C. coriaceus</i>			+	
<i>C. granulatus</i>				+
<i>C. intricatus</i>	+			
<i>C. monilis</i>				+
<i>C. nemoralis</i>				+
<i>C. problematicus</i>				+
<i>C. violaceus</i>				+
<i>C. nitens</i>		+		

An alternative approach

Instead of protecting all of the *Carabus* species in an unspecified way, we think it would be much better that:

- a site supporting a population of one or several of these threatened species should be regarded as a site to be included on a list of sites recommended for protection,
- a site supporting a population of at least one endangered species should be recognized as a priority site for protection.

A lot of other beetle and other invertebrate species (other carabid beetles) should be added to such a list in order to cover all the threatened habitat types within the region. Hereafter, we give some examples, based on DESENDER (1986b) :

- *Bembidion lunatum* (Fig. 15) can only be found, in our region, on not too brackish mud flats along the banks of tidal rivers;
- *Bembidion nigricorne* (Fig. 16) only occurs on the open dry sandy soil between young *Calluna* heathland;
- *Bembidion normannum* (Fig. 17) can only be found in saltmarshes.

We deliberately give these examples of small carabid species because we think that not only spectacular or especially beautiful species should be protected. Other species which are good

indicators for threatened particular environmental conditions should also be considered as candidates for listing. There is indeed a serious danger linked to the inclusion of large and attractive invertebrates to lists of species to be protected. By including them, their commercial value often increases and they may even become more endangered. This is not the case for less spectacular species. The last strategy will however require qualified specialists to identify these animals. At first sight this may seem to be a drawback, because for an effective species and habitat protection it is not sufficient to have persons being able to recognize or to identify a protected species. Specialists are needed who can recommend measures to be taken to again obtain well thriving populations of threatened or endangered species. So specialists are needed anyhow. A corollary of this is that groups of indicator species to be protected in any given region will depend on the specialists available. It also implies that agencies responsible for nature conservation not only have to make sure that endangered and threatened species are preserved but also will have to support the specialists knowing and studying the ecology of these species.

Acknowledgements

The authors are much indebted to D. PAELINCKX (Instituut voor Natuurbehoud) for his help in preparing the map of Flanders and M. BRUYNEEL for the photographs. We acknowledge the Belgian National Fund for Scientific Research (NFWO) for financial support of our recent studies (FJBR-projects 2.9008.89 and 2.9014.91).

References

- DESENDER, K., 1986a. Distribution and ecology of carabid beetles in Belgium (Coleoptera, Carabidae). Part 1. *Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen*, 26: 1-30.
- DESENDER, K., 1986b. Distribution and ecology of carabid beetles in Belgium (Coleoptera, Carabidae). Part 2. *Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen*, 27: 1-24.

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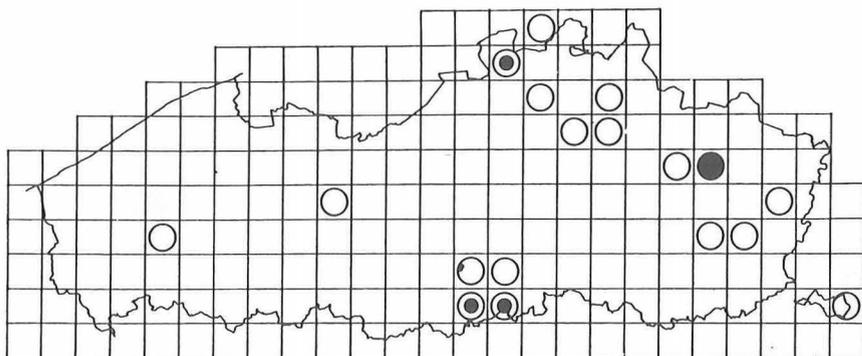


Fig. 1. *Carabus arvensis*.

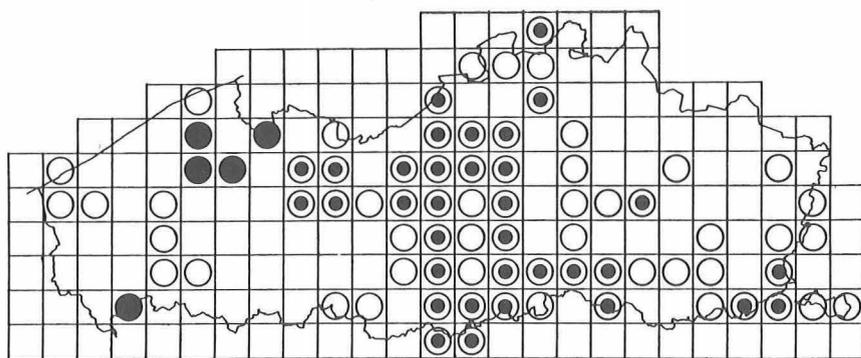


Fig. 2. *Carabus auratus*.

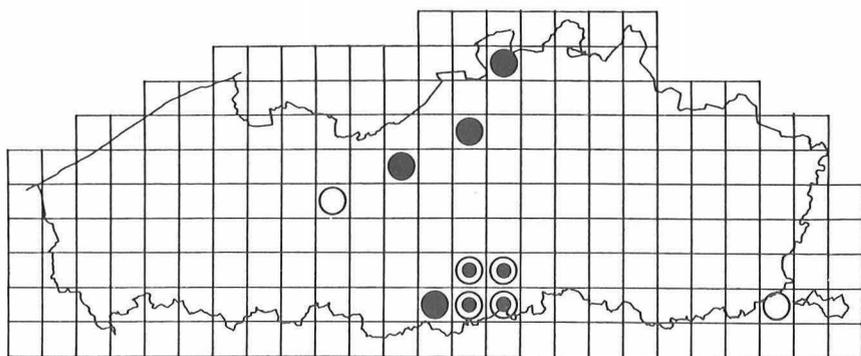
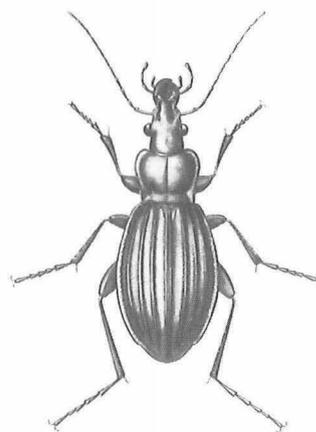


Fig. 3. *Carabus auronitens*.



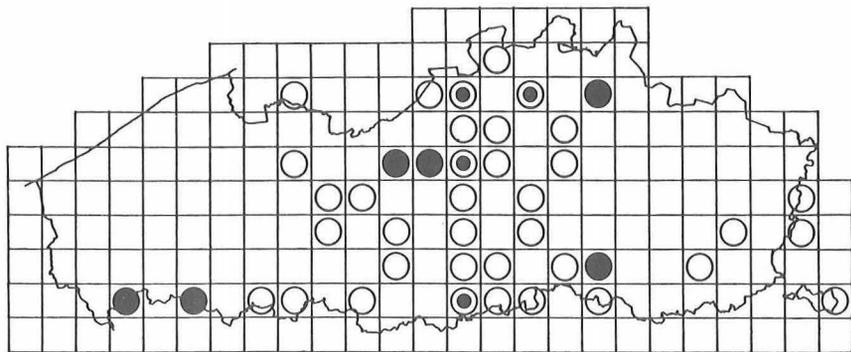


Fig. 4. *Carabus cancellatus*.

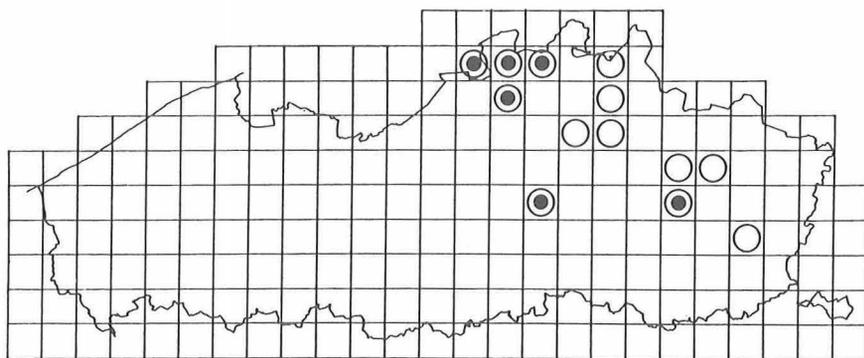
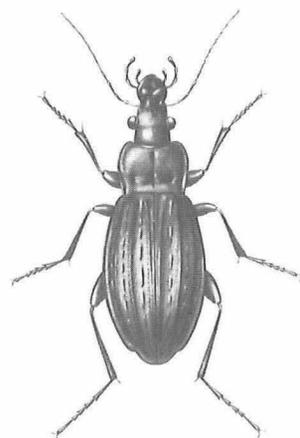


Fig. 5. *Carabus clathratus*.

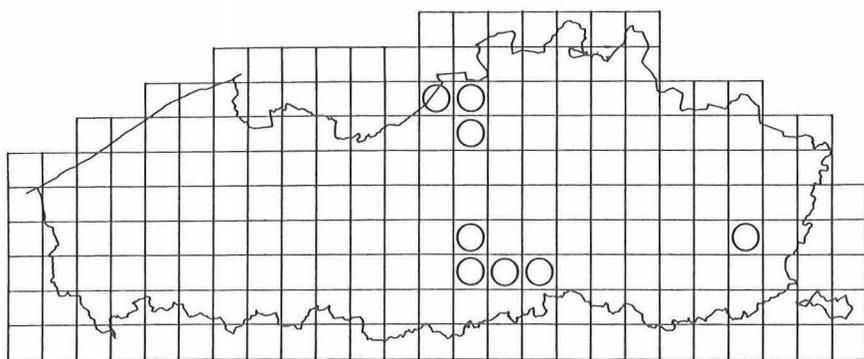
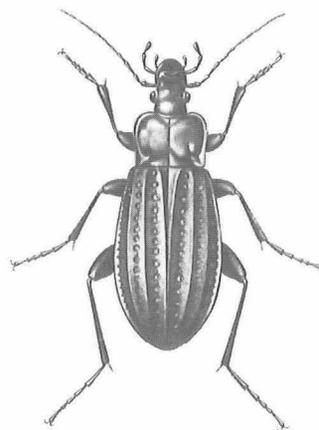
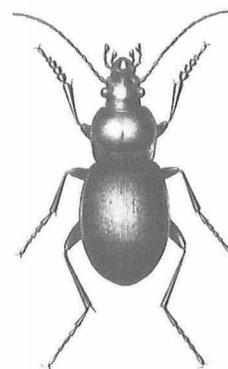


Fig. 6. *Carabus convexus*.



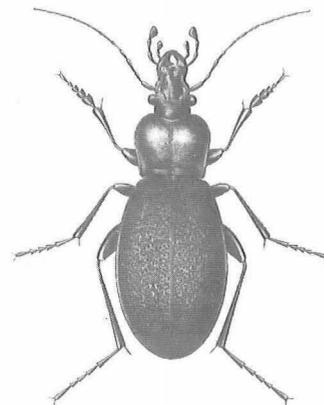
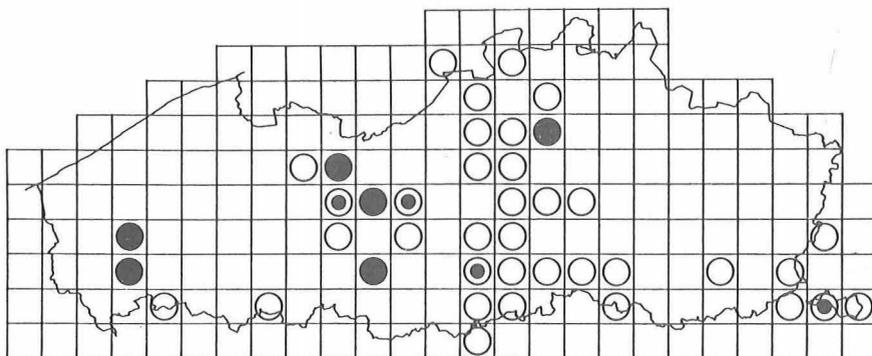


Fig. 7. *Carabus coriaceus*.

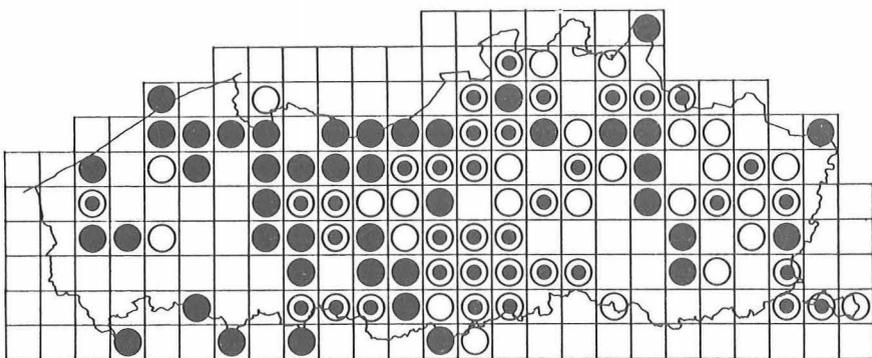


Fig. 8. *Carabus granulatus*.

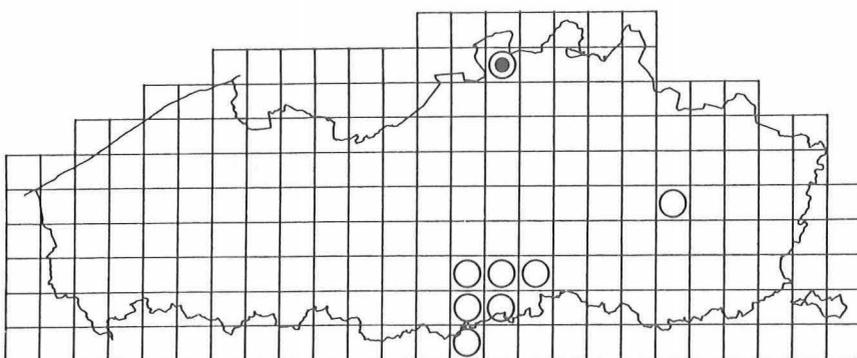
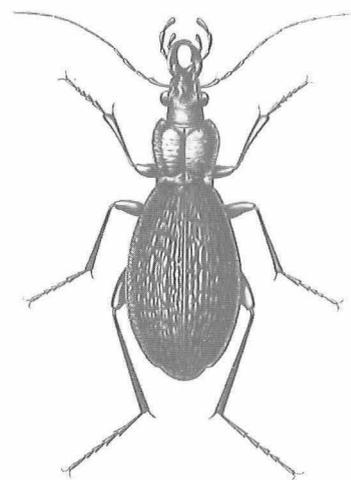


Fig. 9. *Carabus intricatus*.



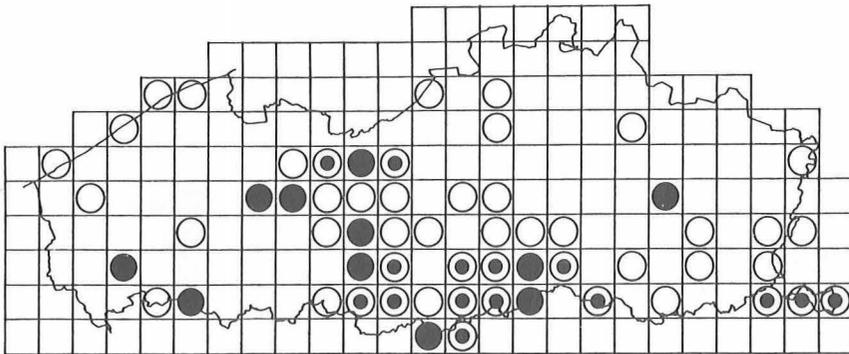


Fig. 10. *Carabus monilis*.

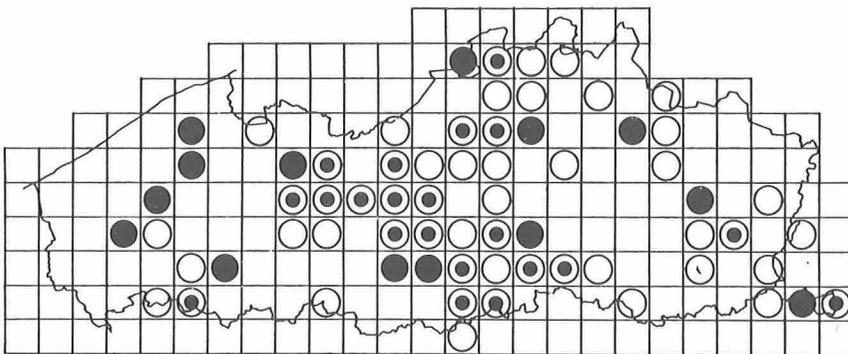


Fig. 11. *Carabus nemoralis*.

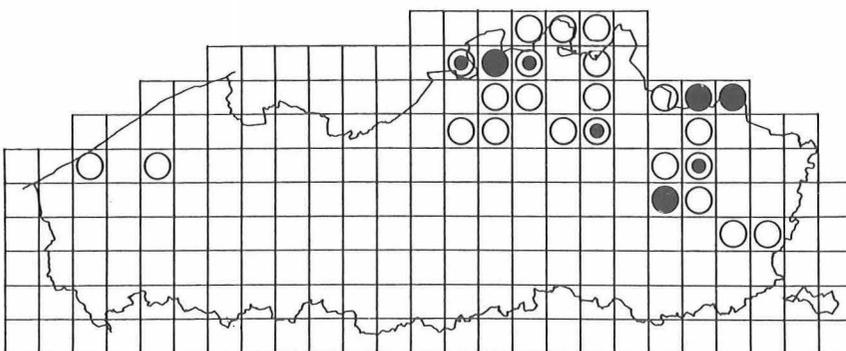


Fig. 12. *Carabus nitens*.

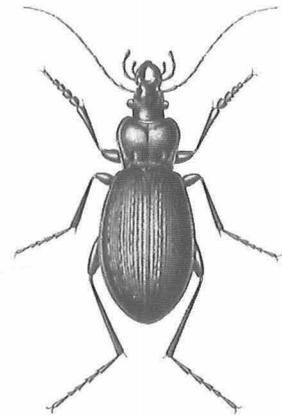
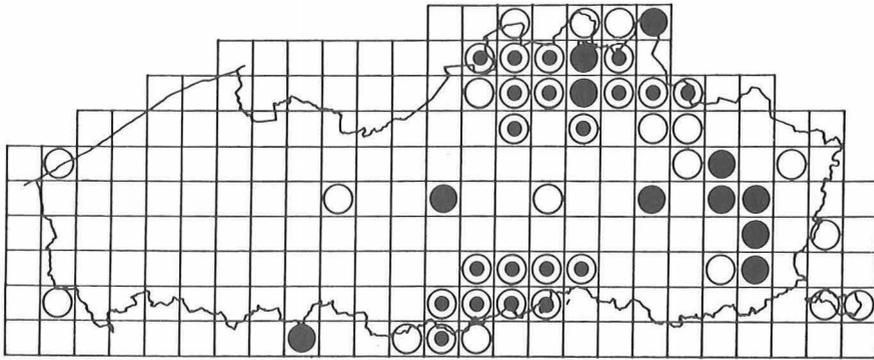


Fig. 13. *Carabus problematicus*.

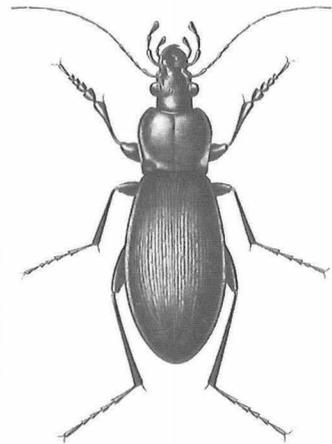
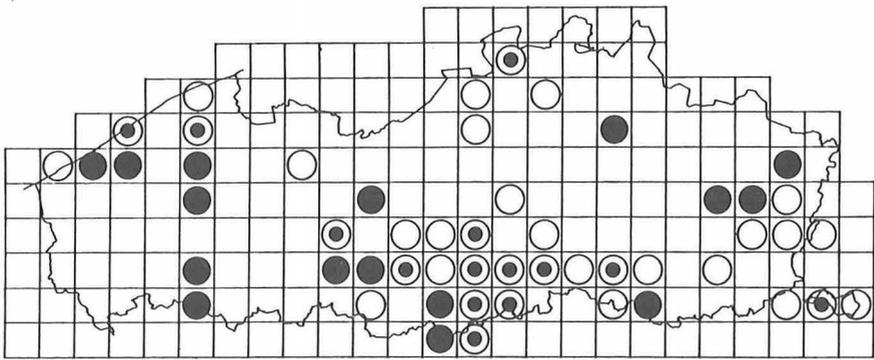


Fig. 14. *Carabus violaceus*.

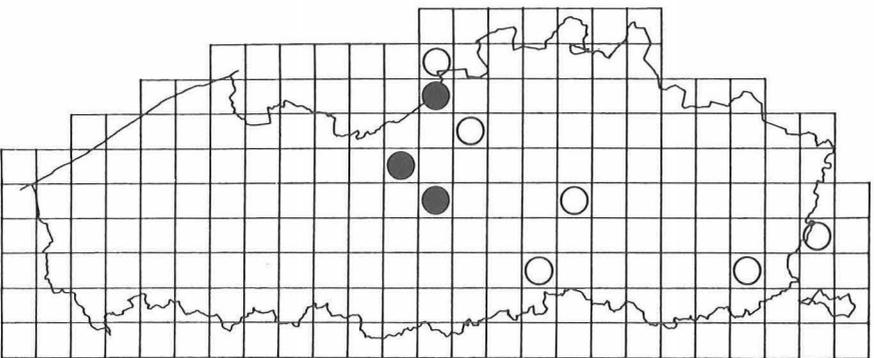


Fig. 15. *Bembidion lunatum*.

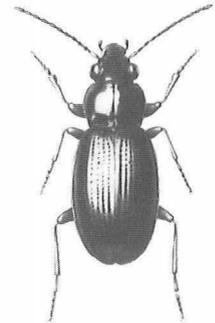
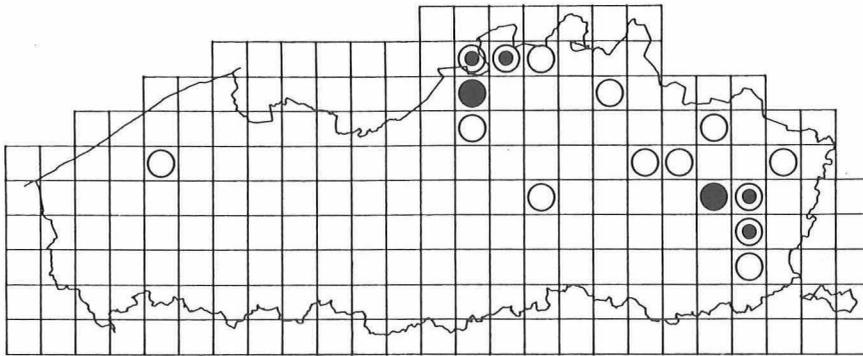


Fig. 16. *Bembidion nigricorne*.

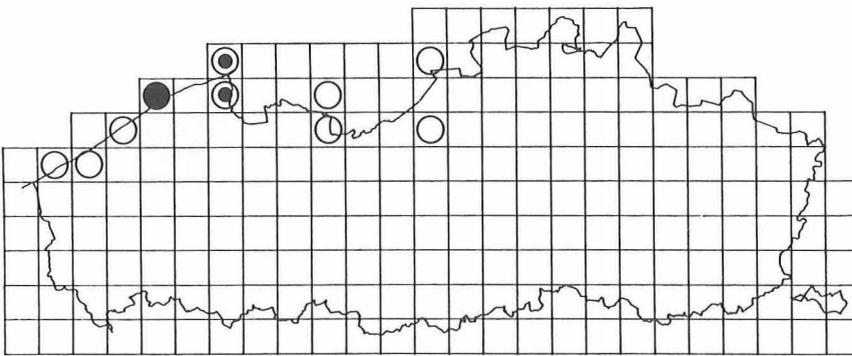


Fig. 17. *Bembidion normannum*.

Figs. 1-17. Distribution in Flanders of the observations of the species discussed in the text following a 10x10 km UTM-grid (hollow circle: observations before 1950; filled circle: after 1950; half-filled circle: before and after 1950).