

# A proposal for the establishment of a red list of the Lycosid spiders in Flanders (Araneae, Lycosidae)

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## Summary

An analysis of the distribution data of the 37 lycosid species known to occur in Flanders, showed that a considerable part is clearly threatened and needs thorough protection. Therefore, we try to establish a red list of the threatened and endangered lycosid spiders in Flanders. These species occur in the following habitat types: coastal and inland dunes, heathland, chalk grassland, marshy areas and river banks with high water quality, saltmarshes and *Sphagnum* bogs. It is clear that priority should be given to efficient and long-term protection of these rare habitat types. Because we have shown in the past that wolf spiders are good ecological indicators which can be used efficiently in biomonitoring and site assessment studies, we believe that making up this type of red lists can be of great use in this context.

Key-words: distribution, wolf spiders, Flanders, red list, nature conservation.

## Samenvatting

Uit de analyse van de verspreidingsgegevens van de 37 wolfspinoorten die in Vlaanderen voorkomen, blijkt dat een aanzienlijk deel duidelijk bedreigd is en nood heeft aan beschermingsmaatregelen. Daarom proberen we in deze bijdrage een rode lijst op te stellen van de bedreigde Lycosidae van Vlaanderen. Deze soorten worden in de volgende habitattypes gevonden: duinen aan de kust en in het binnenland, heide, kalkgrasland, moerasgebieden en rivieroever met hoge waterkwaliteit, zoutmoerassen en laagveen. Het is duidelijk dat de bescherming van dit soort habitaten prioriteit moet krijgen. In het verleden hebben we reeds aangetoond dat wolfspinnen goede ecologische indicatoren zijn, en daarom menen we dat het opstellen van dergelijke rode lijsten in dit verband van groot nut is.

Sleutelwoorden: verspreiding, wolfspinnen, Vlaanderen, rode lijst, natuurbehoud.

## Introduction

In Flanders, wolf spiders are medium to large spiders which do not build a web to catch their prey (one exception: *Aulonia albimana* JOB, 1974). Instead they actively hunt for it. A striking characteristic of this spider family is that the egg sac is attached to the spinnerets and thus carried along by the female until the young emerge. These juveniles climb on the abdomen of the female and stay there for another week or two.

The life cycle of most species of Lycosidae occurring in Flanders can be summarized as follows (cf. ALDERWEIRELDT & MAELFAIT, 1988; SEGERS, 1989). They reach adulthood by the end of spring-beginning of summer. During that period adult males exhibit an extremely high ground surface activity in their search for females. After copulation two or three egg cocoons may be produced. The young grow, overwinter in the juvenile or subadult stage and get adult the next spring or the spring of the following year (second and third broods).

This kind of life cycle and behaviour make it very easy to trace these spiders on places where they are present. Their nice, often striking coloration, the often spectacular courtship behaviour of the

males and the maternal care for eggs and offspring offer possibilities for making these animals attractive to the general public.

We recently elaborated a catalogue dealing with the Lycosidae of our country (ALDERWEIRELDT & MAELFAIT, 1990a), in which we summarize all distribution data known by using the UTM grid. In Belgium 44 species were encountered; 37 of these are known to occur in Flanders. A considerable part of these 37 are clearly endangered or threatened and need thorough protection.

In this contribution, we therefore try to make up a red list of the threatened lycosid spiders in Flanders. Because we have shown in the past that wolf spiders are good ecological indicators (ALDERWEIRELDT & MAELFAIT, 1990b) which can be used efficiently in biomonitoring and site assessment studies, we believe that making up this type of red lists can be of great use and importance in this context.

### Lycosids of importance for nature conservation

The species which are of importance for nature conservation in Flanders are the following (distribution maps, Fig. 1-18):

#### *Alopecosa barbipes* (SUNDEVALL, 1832) - (Fig. 1)

This species has been recorded from several localities along the coastline where it occurs in dry dune habitats. In the north and east of Flanders, it has several well established populations in dry heathland.

#### *Alopecosa fabrilis* (CLERCK, 1758) - (Fig. 2)

This large species is confined to open, sandy places where a burrow can be excavated. It is known from only a few localities in the coastal dunes. In addition it occurs on inland dunes and in heathland with patches of bare soil (e.g. after burning) in the north and east of Flanders.

#### *Arctosa leopardus* (SUNDEVALL, 1832) - (Fig. 3)

Well established populations of this species are known from wet dune slacks, wet heathland and some wet grasslands.

#### *Arctosa perita* (LATREILLE, 1799) - (Fig. 4)

Records of this species are known along the whole coastline as well as in the north and east of Flanders. It is found in dry dunes, open heathland and in low productive grassland on dry sandy soil.

#### *Hygrolycosa rubrofasciata* (OHLERT, 1865) - (Fig. 5)

Except for one locality in West Flanders, this species is restricted to the north-east of Flanders where it occurs especially in bog and alder carr.

#### *Pardosa monticola* (CLERCK, 1758) - (Fig. 6)

In the north and east of Flanders, this species occurs in open heathland areas. Along the coast it is often numerous in rabbit-grazed dune grassland.

*Pardosa purbeckensis* F.O.P. CAMBRIDGE, 1895 - (Fig. 7)

Well established populations of this species are known from the few remaining, small saltmarsh areas along the coast and along the Scheldt. It rarely occurs more inland (some individual catches, mainly on arable land).

*Pardosa sphagnicola* (F. DAHL, 1908) - (Fig. 8)

A species exclusively known to occur in *Sphagnum*-bogs in the north and east of Flanders.

*Pirata piscatorius* (CLERCK, 1758) - (Fig. 9)

Known almost exclusively from the north and east of Flanders. It occurs in very wet habitats, mainly along open, oligotrophic water bodies with a good water quality.

*Pirata uliginosus* (THORELL, 1856) - (Fig. 10)

Except for one locality in West Flanders, this species is confined to the north and east of Flanders where it occurs in some heathland habitats.

*Pirata tenuitarsis* SIMON, 1876 - (Fig. 11)

This species is restricted to the Campine region where it is mainly found in wet heathland.

*Trochosa spinipalpis* (F.O.P. CAMBRIDGE, 1895) - (Fig. 12)

Records of this species are scattered over Flanders. The species prefers wet grasslands and marshes.

*Xerolycosa miniata* (C.L. KOCH, 1834) - (Fig. 13)

Well established populations are found along the coast. It is mainly a species of dry, open dunes. The species is only rarely encountered in sandy inland habitats. In open heathland, this species is replaced by *X. nemoralis* (WESTRING, 1861).

*Aulonia albigera* (WALCKENAER, 1805) - (Fig. 14)

In Flanders, there is only one older record (1936) from the coast where it now seems to have disappeared. It was however caught in large numbers in Dutch coastal dunes (WIEBES & DEN HOLLANDER, 1974). Well established populations can still be found in the south of Belgium. Its status in Flanders needs further investigation.

*Arctosa figurata* (SIMON, 1876) - (Fig. 15)

No well established populations of this species are known at present. Its status in Flanders needs further investigation.

*Pardosa agricola* (THORELL, 1856) - (Fig. 16)

Only known from two individual catches in Flanders. Its status first needs further investigation.

*Pardosa proxima* (C.L. KOCH, 1848) - (Fig. 17)

This species has been observed in low numbers in a few localities (wetlands and arable land). Flanders is clearly at the northern edge of its distribution area (ALDERWEIRELDT & DESENDER, 1989).

*Trochosa robusta* (SIMON, 1876) - (Fig. 18)

Only one recent capture in Flanders and no well established populations known. More information on its status is needed.

## A red list of the Lycosidae occurring in Flanders

Based on these data, a red list of the Lycosidae of Flanders could be elaborated (Tab. 1). The endangered and threatened wolf spider species occur in coastal and inland dunes, marshy areas, *Sphagnum* bogs, wet grasslands, dry and wet heathland, chalk grassland and saltmarshes. Legal protection of lycosid spiders would offer a powerful tool for the protection of these habitat types and the whole of their associated fauna and flora (MAELFAIT *et al.*, 1992).

Table 1. Red list of the Lycosidae occurring in Flanders.

ENDANGERED	THREATENED	TO BE INVESTIGATED
<i>Alopecosa fabrilis</i> <i>Hygrolycosa rubrofasciata</i> <i>Pardosa purbeckensis</i> <i>Pardosa sphagnicola</i>	<i>Alopecosa barbipes</i> <i>Arctosa leopardus</i> <i>Arctosa perita</i> <i>Pardosa monticola</i> <i>Pirata piscatorius</i> <i>Pirata tenuitarsis</i> <i>Pirata uliginosus</i> <i>Trochosa spinipalpis</i> <i>Xerolycosa miniata</i>	<i>Aulonia albimana</i> <i>Arctosa figurata</i> <i>Pardosa agricola</i> <i>Pardosa proxima</i> <i>Trochosa robusta</i>

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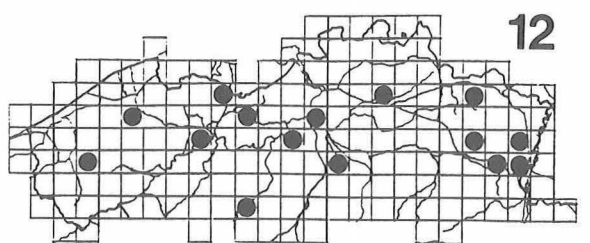
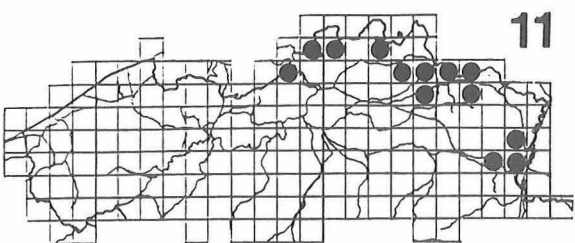
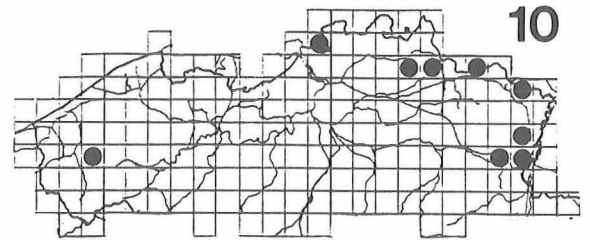
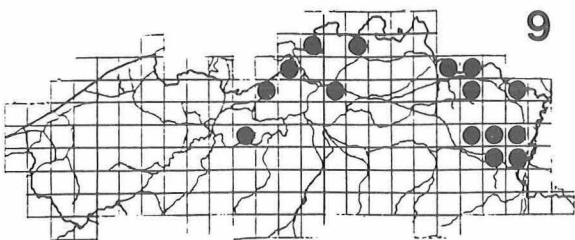
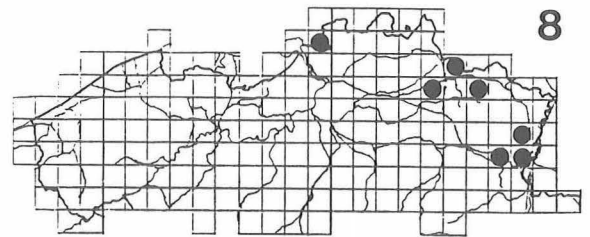
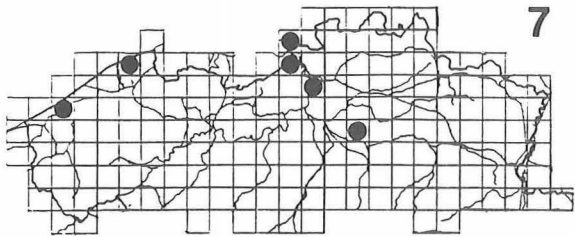
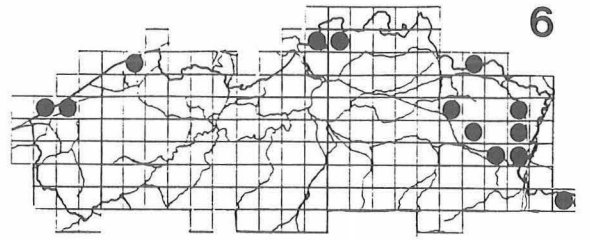
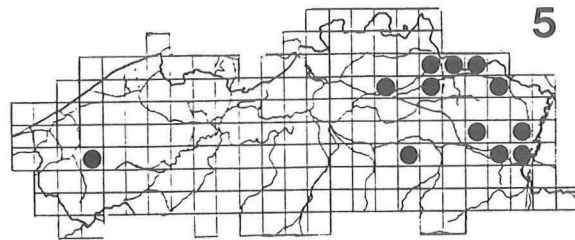
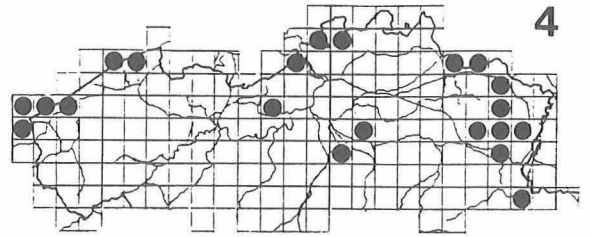
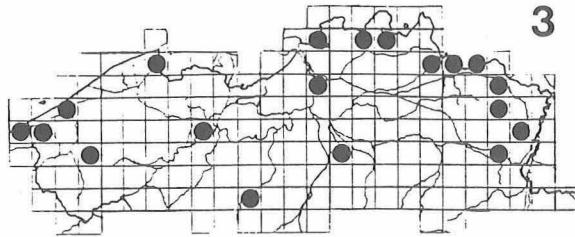
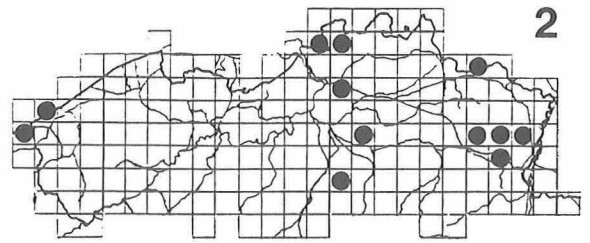
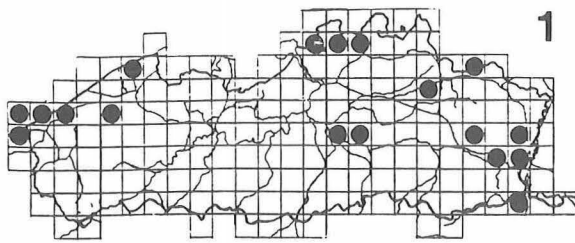
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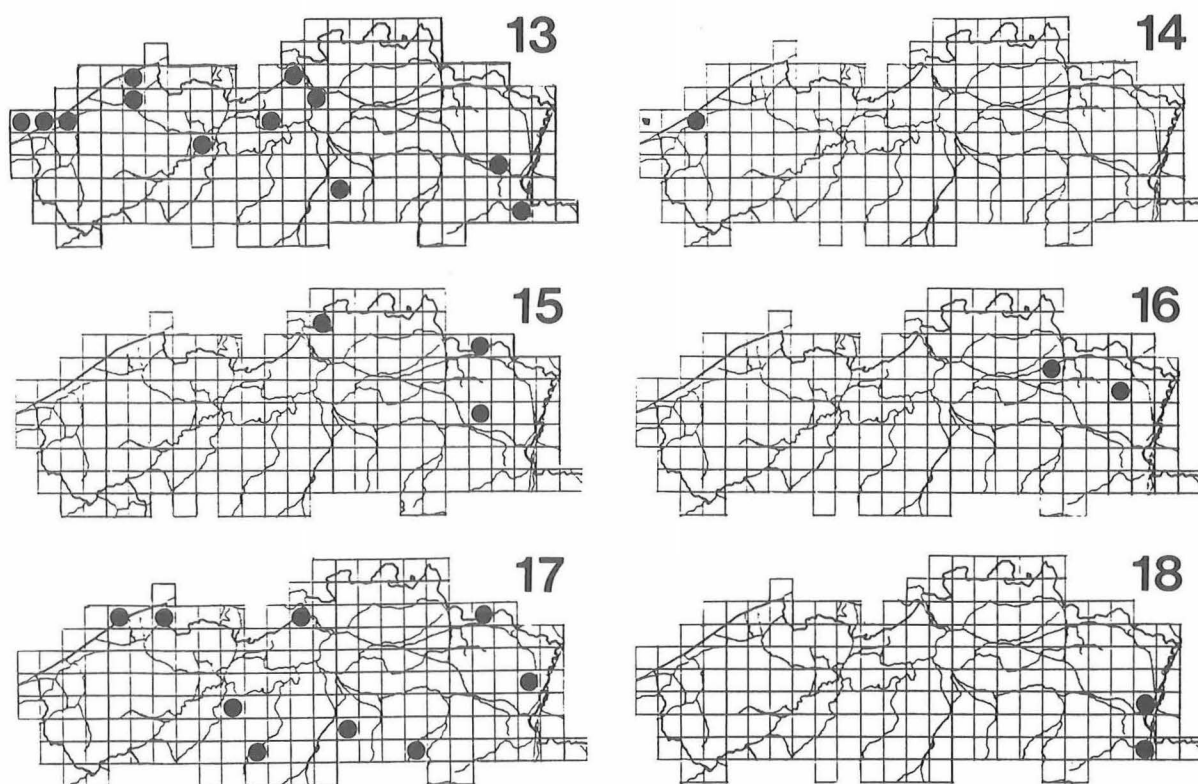


Fig. 1-18. Distribution in Flanders (UTM 10 x 10 km squares) of (1) *Alopecosa barbipes* (SUNDEVALL, 1832), (2) *Alopecosa fabrilis* (CLERCK, 1758), (3) *Arctosa leopardus* (SUNDEVALL, 1832), (4) *Arctosa perita* (LATREILLE, 1799), (5) *Hygrolycosa rubrofasciata* (OHLERT, 1865), (6) *Pardosa monticola* (CLERCK, 1758), (7) *Pardosa purbeckensis* F.O.P. CAMBRIDGE, 1895, (8) *Pardosa sphagnicola* (F. DAHL, 1908), (9) *Pirata piscatorius* (CLERCK, 1758), (10) *Pirata uliginosus* (THORELL, 1856), (11) *Pirata tenuitarsis* SIMON, 1876, (12) *Trochosa spinipalpis* (F.O.P. CAMBRIDGE, 1895), (13) *Xerolycosa miniata* (C.L. KOCH, 1834), (14) *Aulonia albimana* (WALCKENAER, 1805), (15) *Arctosa figurata* (SIMON, 1876), (16) *Pardosa agricola* (THORELL, 1856), (17) *Pardosa proxima* (C.L. KOCH, 1848), (18) *Trochosa robusta* (SIMON, 1876).

