

Nineta principiae Monserrat 1980 (Neuroptera: Chrysopidae) new to the Belgian fauna

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Reçu le 28 avril 2009, accepté le 20 août 2009

The first finding of the lacewing *Nineta principiae* Monserrat 1980 in Belgium is presented and discussed. Relevant information on its identification including a key of determination, European distribution, development and ecological demands are shown. The genus *Nineta* and its European distribution are also briefly considered.

Mots-clés: Neuroptera, Chrysopidae, *Nineta*, *Nineta principiae*, region paléarctique, Belgique.

La première observation en Belgique de la chrysope *Nineta principiae* Monserrat 1980 est ici présentée et discutée. Les informations pertinentes pour son identification, y compris une clé de détermination sont fournies. La distribution européenne de l'espèce, son développement et ses exigences écologiques sont également présentés. Le genre *Nineta* et la distribution européenne de ses espèces sont aussi brièvement considérés.

Keywords: Neuroptera, Chrysopidae, *Nineta*, *Nineta principiae*, Palaearctic Region, Belgium.

1. INTRODUCTION

The genus *Nineta* belongs to Chrysopina subfamily of the family Chrysopidae. It was formed by Navás in 1912 when he separated three species from the *Chrysopa* Leach, 1810 genus. Species of the *Nineta* genus can be recognised mainly by their large size, light green body colour, prominent yellow median thoracic stripe, the 16–22 mm fore wing length of adults. There are no spots or any pattern on their heads. Their mandibles are symmetrical, and a small tooth can be found on their base. Claws are characterized with a basal rectangular dilatation. The males' 8th and 9th abdominal sternites are not fused. The 9th sternite of males elongates in a dorsally curved apex, trimmed apically with a tuft of brush-like setae (Aspöck *et al.*, 1980; Canard *et al.*, 1998; Canard, 2004). Male genitalia are characteristic for the species but the female genitalia are not absolutely specific. In case of some species (e.g. *Nineta flava* (Scopoli 1763), *Nineta gadarramensis* (Pictet 1865), *Nineta principiae* (Monserrat 1980)) the female genitalia often cannot be clearly distinguishable (Aspöck *et al.*, 1980). The genus *Nineta* includes 17 Holarctic species of which seven (*N. flava*, *N. vittata* (Wesmael 1841), *N. pallida* (Schneider 1846), *N. gadarramensis*, *N. principiae*, *N. in punctata*

(Reuter 1894), *N. carinthiaca* (Hölzel 1965)) are distributed in Europe. As to Belgium, according to recent reports, *N. flava*, *N. pallida* and *N. vittata* have been observed (Bozsik *et al.*, 2002). Regarding other European countries, the number of *Nineta* species ever captured in Belgium is indisputably low (Table 1).

Present contribution describes the first capture of *Nineta principiae* Monserrat 1980 and discusses its identification, taxonomic position as well as its distribution and ecology.

2. DATA OF THE RECORD

The author collected lacewing adults by sweep net (40 cm diameter) at the territory of the University of Agricultural Sciences of Gembloux (Gembloux, Belgium; latitude: 50°33' 40,35", longitude: 4°41' 37.50"; altitude 161 m) on 25th June 2001. The sampling place was an area grown over with native and exotic (mainly South American) deciduous trees around a pond. Characteristic plants of the site were *Acer negundo* Linné 1753, *Acer saccharinum* Linné 1753, *Acer saccharum* Marshall 1785, *Alnus glutinosa* (Linné 1753), *Betula lenta* Linné 1753, *Betula populifolia* Marshall 1785, *Carya ovata* K. Koch 1869, *Cornus alba* Linné 1753, *Corylus*

avellana Linné 1753, *Fraxinus excelsior* Linné 1753, *Fraxinus americana* Linné 1753, *Juglans cinerea* Linné 1753, *Juglans nigra* Linné 1753, *Liquidambar styraciflua* Linné 1753, *Liriodendron tulipifera* Linné 1753, *Magnolia grandiflora* Linné 1753, *Metasequoia glyptostroboides* Hu et W.C. Cheng 1948, *Phragmites communis* (Cavanilles) Steudel 1841, *Philadelphus coronarius* Linné 1753, *Quercus coccinea* Münchhausen 1770, *Quercus robur* Linné 1753, *Quercus velutina* L'Héritier ex A. de Candolle 1864, *Salix babilonica* Linné 1753, *Salix* sp., *Sorbus* × *thuringiaca* (Nyman) Schonach 1896, *Spirea salicifolia* Linné 1753, *Tilia americana* Linné 1753. Two hundred sweeps have been made on the leaves of trees and bushes at a height of 80-250 cm. The *N. principiae* female was capered on one of the listed trees.

3. IDENTIFICATION

Regarding the taxonomic consideration of *Nineta* species there are disagreement only in the status of *N. principiae*, because it is thought by some as a subspecies of *N. gadarramensis* (as *Nineta gadarramensis principiae* (Monserrat 1980) and not as an independent species. The taxonomic status as subspecies of *N. gadarramensis* was by Canard *et al.* (1998) revised, and the taxon was considered as a *bona fide species*. Identification of *Nineta* species is possible fast always without the examination of the genitalia. However, regarding *N. gadarramensis* and *N. principiae* the structure of male genitalia differ remarkably of each other (Canard *et al.*, 1998).

The *Nineta* individual was identified according to the description of Aspöck *et al.*, (1980) and Canard *et al.*, (1998) and its geographical occurrence.

Key of determination (females and males without genitalia) according to Aspöck *et al.*, (1980), Canard *et al.*, (1998), Plant (1997):

1. Costal margin of fore wing distal from the basal enlargement narrows abrupt..... 2
- Costal margin of fore wing distal from the basal enlargement narrows continually 3
2. Costal cross-veins of fore wing near Sc darkened, other cross veins more or less entirely darkened or at least darkened at the ends.....*N. gadarramensis* and *N. principiae*

- All the veins more or less entirely green
.....*N. flava*
- 3. Scapus about double as long as large.....
.....*N. vittata*
- Scapus only a bit longer as large 4
- 4. Pro-, meso- and metanotum laterally reddish brown, long veins green, pseudo-median vein of fore wing black*N. pallida*
- Pro-, meso- and metanotum green with yellow median thoracic stripe, pseudo-median vein not black..... 5
- 5. Cross-veins of fore wing more or less entirely green, in the fore wing the radial sector and the zig-zag longitudinal vein in the space between the radial sector and the pseudo-median vein run parallel to each other to the wing tip
.....*N. carinthiaca*
- Cross-veins more or less entirely darkened, in the fore wing the radial sector and the zig-zag longitudinal vein in the space between the radial sector and the pseudo-median vein converge towards the wing tip *N. impunctata*

Regarding male terminalia of *Nineta*, illustrations of Canard *et al.* (1998) can help in the identification.

4. DISTRIBUTION IN EUROPE

Considering the occurrence of *N. principiae* individuals it can be classified temporarily as a western Palearctic species (Canard, 2004). *N. principiae* was not distinguished from *N. gadarramensis* for a long time, thus many data concerning *N. gadarramensis sensu lato* can be dubious. However, according to some part of the references, the distribution itself provides essential information for the identification, because it seems that *N. gadarramensis* or *N. gadarramensis sensu stricto* can be found only in the Iberian Peninsula and in some parts of Northern Africa (Canard *et al.*, 1998; Canard, 2004; Aspöck *et al.*, 2001). As to *N. principiae*, it was first captured in Italy (Monserrat, 1980) and it has been reported from different European countries (France, Germany, Czech Republic (Aspöck *et al.*, 2001), Hungary, Slovenia, Greece (Aspöck *et al.*, 2001) and Turkey (Dobosz unpubl. in Canard *et al.*, 2004)) but not from Spain (Table 1.). Identification of individuals assigned to *N. gadarramensis* in other countries than Spain

Species	A	B	CH	D	E	F	FL	GB	H	I	SLO
<i>carinthiaca</i>	X								9		15
<i>flava</i>	X	2	X	X	X	X	7	X	X	X	X
<i>guadarramensis</i>	X?				X	X?			10?	X?	16?
<i>inpunctata</i>	X		X	X		5		8		X	16
<i>pallida</i>	X	2	X	X	4	X	7	8	X	12	X
<i>principiae</i>	1			3		6			11	13	1
<i>vittata</i>	X	X	X	X	X	X	7	X	X	14	17

Table 1: *Nineta* species observed in some European countries (X: according to Aspöck *et al.*, 1980; **1:** Aspöck *et al.*, 2001; **2:** Bozsik, 2000; **3:** Saure, 1997; **4:** Monserrat, 1984; **5:** Cloupeau & Thierry, 1989; **6:** Canard *et al.*, 1998; **7:** Gepp, 1986; **8:** Plant, 2007; **9:** Sziráki, 1990; **10:** Sziráki *et al.*, 1992; **11:** Canard *et al.*, 1998; **12:** Navás, 1915; **13:** Monserrat, 1980; **14:** Iori *et al.*, 1995; **15:** Saure, 1989; **16:** Devetak, 1984a; **17:** Devetak, 1984b; **?:** dubious data) (Abbreviations: A: Austria, B: Belgium, CH: Switzerland, D: Germany, E: Spain, F: France, FL: Liechtenstein, GB: Great-Britain, H: Hungary, I: Italy, SLO: Slovenia).

France		Germany	
Region	Département ¹	Region (Bundesstaat)	Locality
Midi-Pyrénées	12 44° 13' 04" N 6 ° 14' 15" E	Baden-Württemberg	Tübingen 48°31' 12" N 9°03' 21" E
Bourgogne	21 47° 30' 45" N 4 ° 38' 07" E	Reinland-Pfalz	-
Aquitaine	24 45° 08' 49" N 0 ° 45' 25" E	Bayern	Kehlheim 48° 42' 26" N 12° 08' 03" E Feuchtwangen 49° 10' 03" N 10° 19' 49" E Uffenheim 49° 32' 44" N 10° 13' 52" E Ebrach 49° 50' 53" N 10° 29' 17" E Werneck 49° 58' 56" N 10° 05' 57" E
Centre	36 46° 39' 41" N 1 ° 26' 53" E 37 47° 17' 22" N 0 ° 48' 57" E		
Pays de la Loire	49 47° 17' 28" N 0 ° 29' 16" E		
Île de France	77 48° 50' 27" N 2 ° 59' 57" E		
Provence-Alpes-Cote-d'Azur	83 43° 28' 03" N 6 ° 14' 15" E		

Table 2: Occurrence of *Nineta principiae* in France and Germany (Canard *et al.*, 2006; Gruppe, 2005) (Abbreviations: ¹ GIS data on French departments (territorial and administrative division of France) concern only the centre of the departments and not the sites where the lacewings have been collected; - no data were published).

must be dubious, their status needs revision (Table 1).

5. ECOLOGY

Associated probably with deciduous trees in the canopy and bush stripes. It prefers sites grown over with oak forests (Aspöck *et al.*, 1980; Gruppe, 2005). Perhaps a tree-top inhabitant (Canard, 2004). It can be found probably in hilly and mountainous area to about 1500 m above sea-level. Population density is quite low. Overwintering form or number of generations are unknown. Adults have been observed from June to September (Canard *et al.*, 1998). Generally, the European species of *Nineta* have one generation a year (Aspöck *et al.*, 1980). Their adults are glycino-palynophag making use of nectar and pollen. Larvae are predators of soft bodied arthropods (Canard, 2001; Bozsik, 2000).

6. CONCLUSIONS

Regarding the occurrence of *N. principiae* in Europe, especially in France and Germany (Table 2) it was probable to capture it also in Belgium. The geographical position of Gembloux (latitude: 50°33' 40.35", longitude: 4°41' 37.50") is near to the French and German sites where the *N. principiae* individuals were collected. Ecological conditions of the site of collection are also adequate to the species demands. On the basis of the observed morphological characters and the fact that the female individual has been captured outside of the Iberian Peninsula *N. principiae* belongs to the Belgian lacewing fauna. It is highly probable that intensive future collection work in the territory of Belgium will provide the finding of not only new *N. principiae* individuals but also those of many additional lacewing species already observed in neighbouring countries.

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