

World distribution of the genus *Nineta* NAVÁS 1912 (Neuroptera: Chrysopidae), with some taxonomic notes¹

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Abstract: The world distribution of 17 species of the genus *Nineta* is given. Eight of them are eastern Palaearctic, two occurring in Central Asia (*N. afghanica*, *N. pomacea*), four localised in China (*N. abunda*, *N. dolichoptera*, *N. grandis*, *N. shaanxiensis*), and two in the far eastern part of Asia (*N. alpicola*, *N. itoi*). Two species (*N. carinthiaca*, *N. vitata*) are both eastern- and western Palaearctic. Two species are extensive west-Palaearctic, one of them (*N. flava*) reaching eastwards Iran and Bachkiria, the other one (*N. guadarramensis* sensu lato), not well defined in literature, extends eastwards up to Caucasus and southwards to North-Africa. Three species (*N. impunctata*, *N. pallida*, *N. principiae*) only occur in the west Palaearctic. Two species (*N. gravida*, *N. nanina*) are western Nearctic. In addition, a Tropical Asian *Nineta* is yet undescribed. The differences between *N. alpicola* and *N. carinthiaca* are discussed.

Key words: Chrysopidae, green lacewing, *Nineta*, geographic distribution.

Pattern of the genus and affinities

Among Chrysopinae Chrysopini, the genus *Nineta* NAVÁS, 1912 is characterized by:

- a large or medium size, wing span being wider than 30 mm;
- symmetrical mandibles with small basal tooth on each;
- claws with basal rectangular dilation;
- abdominal sternites 8 and 9 of the male not fused;
- ectoprocts elongate apically;
- sternite 9 of the male elongate in an apex more or less acute, curved dorsally and more often apically trimmed with a tuft of short brush-like setae;
- larva fusiform, naked.

The genus *Tumeochrysa* NEEDHAM, 1909 is phylogenetically close to *Nineta*. It is very similar, especially in the symmetrically toothed mandibles, in the male genitalia and abdominal apex structure. However, *Tumeochrysa* differs by the grossly enlarged scapes, the short distal cubital cell in forewing closed before posterior margin, numerous gradates shared out in three or four irregular series (BROOKS & BARNARD 1990).

Geographic distribution

The genus *Nineta* includes presently 17 species, all distributed in the Holarctic zone. The data hereunder given concern their occurrence with respect to political countries or smaller territorial units (state, republic, province) in the case of federate and/or very large countries. Citations are the earliest known by the author. The Alps harbours the greatest number of sympatric species: six are found in Austria and Slovenia.

The genus *Tumeochrysa* includes 7 species, the distributions of which are central- and eastern Palaearctic, occurring from the Himalayan zone (Nepal) to Taiwan.

Nineta flava (SCOPOLI 1763)

Western Palaearctic extensive (Fig. 1), common. Of note it is absent (lack of information?) from Albania and Mediterranean islands except Sicily (ASPOCK & al. 1980).

Austria: BRAUER & LÖW 1857, erroneously as *Chrysopa vitata* WESMAEL 1841; — Azerbaijan: ZAKHARENKO & KRIVOKHATSKY 1993; — Belgium: WESMAEL 1841, as *Chrysopa perla* BURMEISTER 1839, nec LINNAEUS 1758; — Bulgaria: POPOV 1977; — ex-Czechoslovakia: KLAPÁLEK 1895; — Denmark: WÜSTNEI 1901; — Finland: HELLÉN 1926; — France: McLACHLAN 1893; — Georgia: ZAKHARENKO & KRIVOKHATSKY 1993; — Germany: SCHNEIDER 1851a, erroneously as *Chrysopa vitata* WESMAEL

¹ This contribution is friendly dedicated to Univ.-Prof. Dr. Horst Aspöck to do honour to his 65th anniversary. We met for the first time in 1980, our research activity on Neuropterida — mine only was beginning — taking us to Graz in the First International Symposium of Neuropterology. From that time, regular meetings allowed me to keep contact and to make him a colleague model. Of our collaboration in proceedings' edition, I retain a high idea of his authority, his efficiency, his prodigious working ability together with his amiableness.

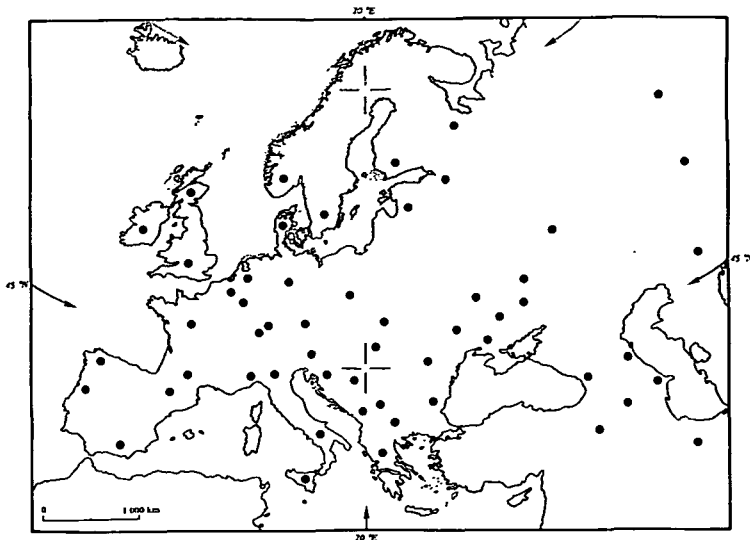


Fig. 1: Distribution of *Nineta flava*.

1841, see McLACHLAN 1883; — Greece: SAURE 1989; — Hungary: MOCSÁRY 1900; — Iran: ASPÖCK & al. 1980; — Ireland: KING 1889; — Italy: McLACHLAN 1883; — Liechtenstein: GEPP 1986; — Luxembourg: HOFFMANN 1962; — Netherlands: ALBARDIA 1889; — Norway: WALLENGREN 1871; — Poland: BRAUER 1876; — Portugal: ASPÖCK & al. 2001; — Romania: MOCSÁRY 1900; — Russia, Bachkiria: ZAKHARENKO & KRIVOKHATSKY 1993; Carelia: ZAKHARENKO unpubl. data; Central Ural part: ZAKHARENKO unpubl. data; Daghestan: ZAKHARENKO & KRIVOKHATSKY 1993; — Slovakia: SZENTKIRÁLYI & KRISTÍN 2002; — Spain: NAVÁS 1901; — Sweden: WALLENGREN 1871; — Switzerland: EGLIN 1940; — Turkey: ASPÖCK & ASPÖCK 1969; — United Kingdom: STEPHENS 1836, as *Chrysopa subfalcata* STEPHENS, 1836; — ex-USSR, Armenia: ASPÖCK & al. 1980; Baltic republics: LACKSCHEWITZ 1922; Moldavia: ZELENÝ & TALITZKY 1966; Russian European part: DOROKHOVA 1973; Ukraine: TSIBULSKAYA & al. 1977; — Yugoslavia (Federal Republic of), Kosovo: DEVETAK & JAKŠIĆ 2003; — ex-Yugoslavia, Bosnia-Herzegovina: DEVETAK 1992b; Croatia: MOCSÁRY 1900; Slovenia: O. D. (original description); Macedonia: DEVETAK 1992b; Montenegro: DEVETAK 1991.

Fig. 2: Distribution of *N. carinthiaca* (O) and *N. vittata* (●).

Nineta vittata (WESMAEL 1841)

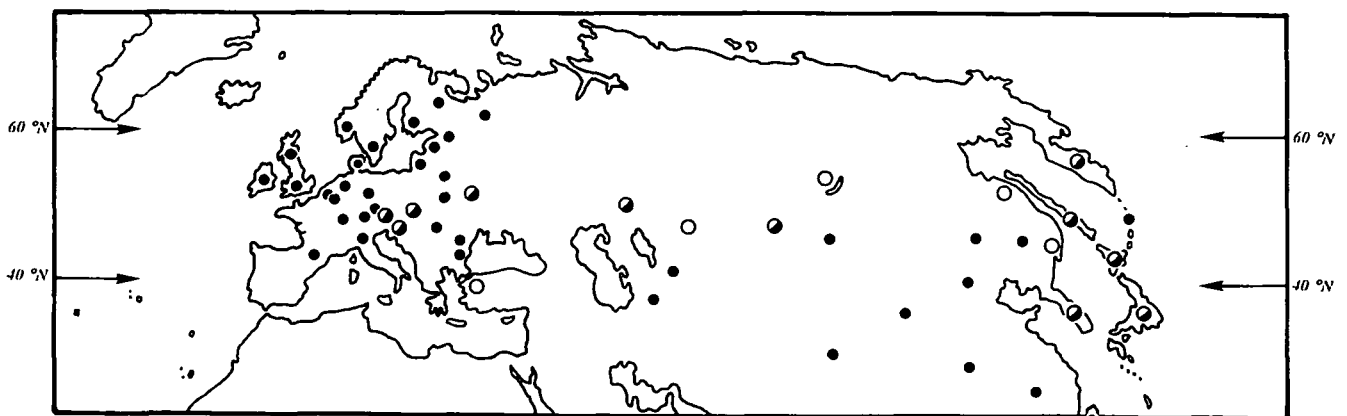
Holopalaeartic, Eurasian (Fig. 2).

Austria: BRAUER & LÖW 1857, as *Chrysopa integra* HAGEN, 1852; — Belgium: O. D.; — Belarus: ZAKHARENKO unpubl. data; — Bulgaria: POPOV 1990; — China, Nei Mongol Autonomous Region: YANG & YANG 1990; Manchouria: FAN & YANG 1995; Heilongjiang Province, Shaanxi Province, Ningxia Province, Hubei Province, Hunan Province, Sichuan Province: DONG in lit.; — ex-Czechoslovakia: KLAPÁLEK 1895; — Denmark: ESBEN-PETERSEN 1906; — Finland: KILJANDER 1881; — France: RAMBUR 1842, as *Hemerobius proximus* RAMBUR, 1842; — Germany: ROSTOCK & KOLBE 1888; — Hungary: ÚJHELYI 1968; — Ireland: KING 1889; — Italy: PONGRÁZ 1912; — Japan: PONGRÁZ 1912; — Korea: DONG in lit.; — Liechtenstein: GEPP 1986; — Litva: ZAKHARENKO unpubl. data; — Luxembourg: HOFFMANN 1962; — Mongolia: STEINMANN 1971; — Netherlands: ALBARDIA 1889; — Norway: SCHØYEN 1888; — Poland: SCHNEIDER 1851b; — Romania: MOCSÁRY 1900; — Russia: Bachkiria: ZAKHARENKO & KRIVOKHATSKY 1993; Central Asian part (Altai): ZAKHARENKO & KRIVOKHATSKY 1993; — Slovakia: SZENTKIRÁLYI & KRISTÍN 2002; — Spain: NAVÁS 1916 and 1923 for northern Spain; however previously recorded in southern Spain by WALKER (1853), but erroneously after McLACHLAN (1867); — Sweden: WALLENGREN 1871; — Switzerland: PONGRÁZ 1912; — Taiwan: DONG in lit.; — United Kingdom: STEPHENS 1836, as *Chrysopa perla* STEPHENS, 1836, nec LINNAEUS, 1758; — ex-USSR, Baltic republics: LACKSCHEWITZ 1922; Carelia: KILJANDER 1881; Far eastern part (Kuriles, Sakhalin, Kamchatka): KUWAYAMA 1962; Komi ASSR: ZAKHARENKO & SEDYKH 1981; Russian European part: HAGEN 1858; Ukraine: DRAGOMIRIV 1927; Uzbekistan: ADASHKEVICH & al. 1981; Siberian part: KILLINGTON 1937; Turkmenistan: HAGEN 1858b; — ex-Yugoslavia, Slovenia: DEVETAK 1984b.

Nineta pallida (SCHNEIDER 1846)

Western Palaeartic (Fig. 3). Associated with conifers.

Austria: BRAUER 1854; — Belgium: BOZSIK & al. 2002; — Bulgaria: POPOV 1991; — ex-Czechoslovakia: KLAPÁLEK 1895; — Denmark: POPOV 2002; — France: SÉMÉRIA 1977; — Germany: SCHNEIDER 1846; — Hungary: PONGRÁZ 1912; — Italy: NAVÁS 1913; — Liechtenstein: GEPP 1986; — Poland: O. D.; — Romania: KIS 1959; — Russia, Caucasus part: ZAKHARENKO & KRIVOKHATSKY 1993 — Slovakia: SZENTKIRÁLYI & KRISTÍN 2002;



— Spain: MONSERRAT 1984; — Switzerland: PONGRÁZ 1912; — Turkey: CANBULAT & KIYAK 2002; — ex-USSR, Carpathians part: DOROKHOVA 1987; Russian European part: DOROKHOVA 1973; Ukraina: SHUVAKHINA 1974; — ex-Yugoslavia: ASPÖCK & al. 1980; Slovenia: DEVETAK 1984a.

Nineta gadarramensis (PICTET 1865)

Western Palaearctic extensive, Mediterranean (northwestern Africa) (Fig. 4).

Nineta gadarramensis was described from Spain in the middle of the nineteenth century and was found later (1883) in Italy by MCLACHLAN. Only hundred years later, it was collected in Central Europe and in other extramediterranean European countries. MONSERRAT (1980) observed the diversity in the relevant morphs. He introduced the sub-species *N. principiae* to characterise the Italian specimens, afterwards erected as a bona fide species by CANARD et al. (1998). Thus part of the data given hereunder as sensu lato is dubious and needs revision.

Nineta gadarramensis sensu lato

Armenia: ZAKHARENKO unpubl. data; — Austria: ASPÖCK & ASPÖCK 1969; — ex-Czechoslovakia: JEDLIČKA & JEDLIČKOVÁ 1973; — France: HÖLZEL & OHM 1972; — Greece: ASPÖCK & al. 1980; — Hungary: SZIRÁKI & al. 1992; — Italy: MCLACHLAN 1893; — Morocco: ASPÖCK & al. 1980; — Slovakia: SAURE 1997; — Spain: O. D.; — Turkey: ASPÖCK & al. 1980; — ex-USSR, Russian European part: DOROKHOVA 1987; — ex-Yugoslavia, Slovenia: DEVETAK 1984a.

Nineta gadarramensis sensu stricto

Morocco: ASPÖCK & al. 2001; — Spain: MONSERRAT & RODRIGO 1992.

Nineta inpunctata (REUTER 1894)

Western Palaearctic (Fig. 3).

Austria: ASPÖCK & ASPÖCK 1964; — Finland: O. D.; — France: CLOUPEAU & THIERRY 1989; — Germany: SCHMID 1972; — Hungary: ÚJHELYI 1974; — Italy: HÖLZEL 1965b; — Norway: GREVE 1984; — Poland: ASPÖCK & al. 1980; — Romania: PAULIAN & al. 2001; — Sweden: TJEDER 1938; — Switzerland: EGLIN-DEDERDING & LAUBER 1966; — Ukraina: ZAKHARENKO unpubl. data; — United Kingdom: PLANT 1995; — ex-USSR, Russian European part: DOROKHOVA 1987; — ex-Yugoslavia, Slovenia: DEVETAK 1984a.

Nineta dolichoptera (NAVÁS 1910)

Eastern Palaearctic (fig 5).

China, Sichuan Province: O. D.

Nineta gravaida (BANKS 1911)

Western Nearctic (Fig. 6).

Canada, British Columbia: SMITH 1932; — USA, California: O. D.

Nineta nanina (BANKS 1911)

Western Nearctic (Fig. 6).

USA, Arizona: O. D.; Utah: PENNY & al. 1997.

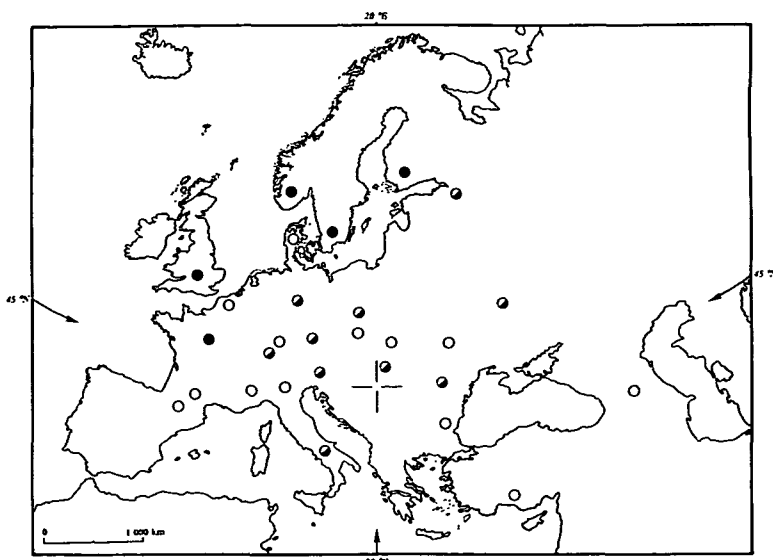


Fig. 3: Distribution of *N. pallida* (O) and *N. inpunctata* (●).

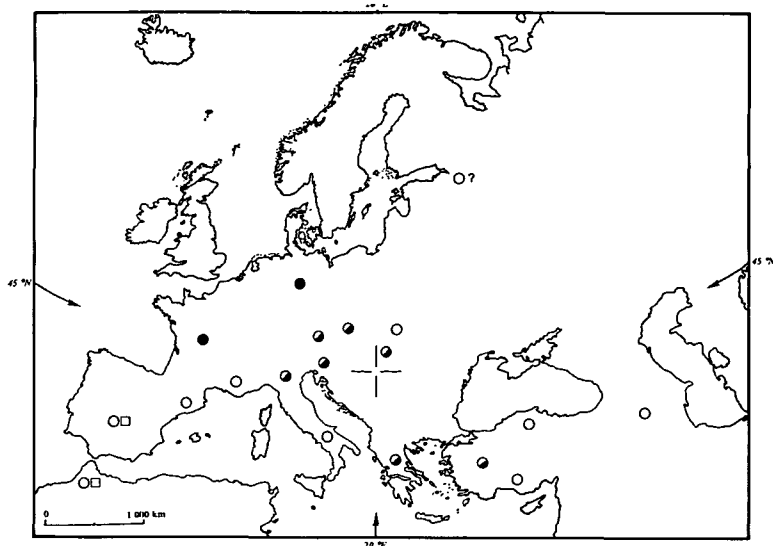


Fig. 4: Distribution of *N. gadarramensis sensu lato* (O), *N. gadarramensis sensu stricto* (□) and *N. principiae* (●).

Nineta grandis NAVÁS 1915

Eastern Palaearctic (Fig. 5). Male undescribed?

China, Mandchuria: O. D.; Jilin Province: DONG in lit.

Nineta alpicola (KUWAYAMA 1956)

Eastern Palaearctic, possibly Japanese endemic (Fig. 5) as expected below in Taxonomic remarks.

Japan, Hokkaido, Honshu: O. D.

Nineta carinthiaca (HÖLZEL 1965)

Holopalaearctic, from the Alps to Far-eastern Asia (Fig. 2). The actual eastern extension of *N. carinthiaca* needs to be checked due to a possible synonymy with *N. alpicola* and/or overlap of their respective distributions.

Austria: O. D.; — Hungary: SZIRÁKI 1990, one single dubious observation (SZIRÁKI in lit.); — Japan: ZAKHARENKO unpubl.

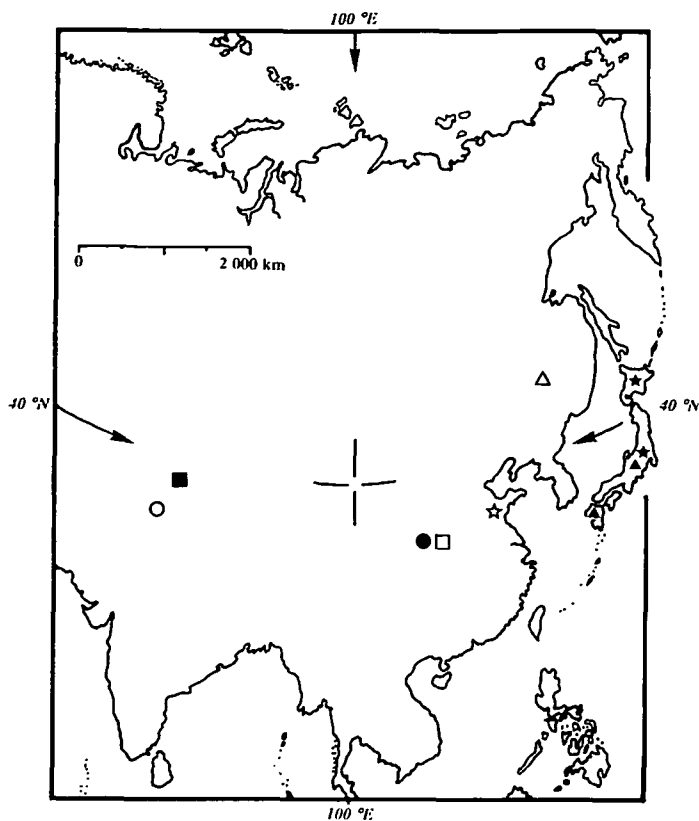


Fig. 5: Distribution of *N. abunda* (●), *N. afghanica* (○), *N. alpicola* (★), *N. dolichoptera* (☆), *N. grandis* (△), *N. itoi* (▲), *N. pomacea* (■) and *N. shaanxiensis* (□).

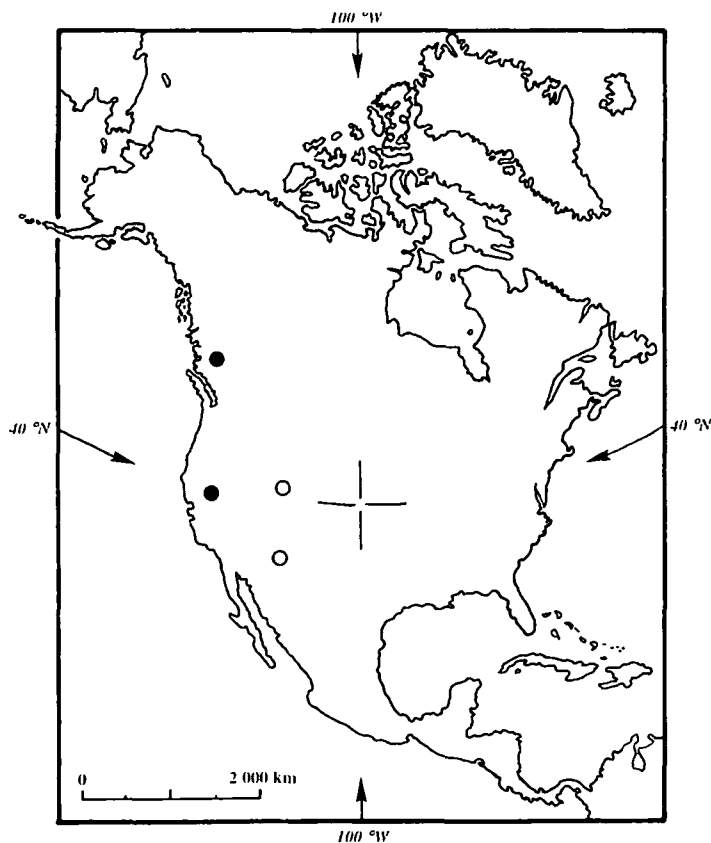


Fig. 6: Distribution of *N. gravida* (●) and *N. nanina* (○).

data (see Taxonomic remarks); — Kazakhstan: ZAKHARENKO unpubl. data; — Korea: ZAKHARENKO unpubl. data; — Russia, Bachkiria: ZAKHARENKO unpubl. data; Central Asian part (Altai, Baikal) ZAKHARENKO unpubl. data — Turkey: HÖLZEL 1973; — Ukraine: ZAKHARENKO unpubl. data; — ex-USSR, Far eastern part (Amour, Primoriye, Sakhalin, Kamchatka): MAKARKIN 1985; — ex-Yugoslavia, Slovenia: SAURE 1989.

Nineta principiae MONSERRAT 1980

The distribution of *N. principiae* is probably much wider than appearing in the literature, because of possible confusion with *N. gadarramensis* (see above). The citations given hereunder are those in which *N. principiae* is formally identified as species or sub-species. The provisional distribution thus manifested is western Palearctic (Fig. 4). Probably a tree-top inhabiting lacewing.

Austria: ASPÖCK & al. 2001; — France: CANARD & al. 1998; — Germany: SAURE 1997 and in lit.; — Greece: ASPÖCK & al. 2001; — Hungary: CANARD & al. 1998; — Italy: O. D.; — Republic Czech: ASPÖCK & al. 2001; — Turkey: DOBOSZ unpubl. data; — Slovenia: ASPÖCK & al. 2001.

Nineta afghanica HÖLZEL 1982

Palearctic, Central Asia (Fig. 5). Montane habitat. Male undescribed. Afghanistan: O. D.

Nineta pomacea ZAKHARENKO 1983

Palearctic, Central Asia (Fig. 5). Montane habitat. ex-USSR Tadjikistan: O. D.

Nineta abunda YANG & YANG 1989

Eastern Palearctic (Fig. 5). China, Shaanxi Province: O. D.

Nineta shaanxiensis YANG & YANG 1989

Eastern Palearctic (Fig. 5). China, Shaanxi Province: O. D.

Nineta itoi TSUKAGUCHI 1995

Far-eastern Palearctic, possibly Japanese endemic (Fig. 5). Japan, Honshu, Kyushu: O. D.

Taxonomic remarks

In their review of the green lacewing genera of the world, BROOKS & BARNARD (1990) pointed out a *Nineta* found long ago (end of the nineteenth century?) in the Nilgiri Hills, southern India, at a latitude of about 12 °N. The three specimens kept in the British Museum's collection pertain to a taxon which has still not been described (BROOKS, in lit.). The occurrence of this new species in the tropical zone extends the distribution of the genus further southward than is otherwise the case. For instance, DONG (in lit.) reports *N. vittata* occurring in Taiwan at 22 °N and all other species were recorded north of this.

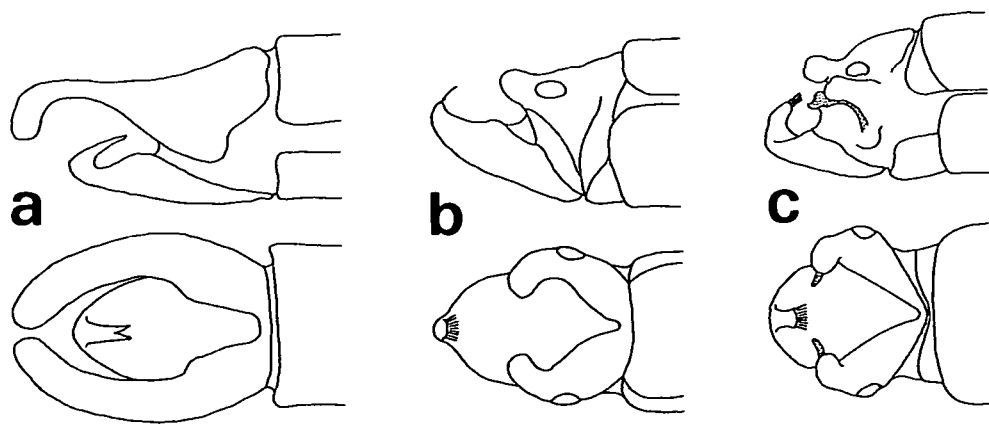


Fig. 7: Genital segments of the male of *N. alvesi* (a), *N. alpicola* (b) and *N. carinthiaca* (c).

Besides, a single male specimen of *Nineta* was described as *N. alvesi* by NAVÁS in 1917 from Pontevedra, in northwestern Spain. Its status remains dubious, for lack of available specimens other than the type (not seen) now housed in the Museo de Zoología in Barcelona (MONSERRAT 1985). *Nineta alvesi* was synonymized with *N. guadarramensis* by HÖLZEL (1965b). However, the original description indeed shows some traits common with *N. guadarramensis* and *N. principiae*, such as black outer gradates and ectoprocts extending off sternite 9; but it is of smaller size and it has a reduce number of inner gradates (< 10) which are green (vs black) in the hindwing; dorsally, the prothorax has some brown markings, the ectoprocts are curved downwards, and sternite 9 is elongate and bifid, turned up forwards at acute angle (Fig. 7a).

In his monograph devoted to "Chrysopidae of Japan", TSUKAGUCHI (1995) considers *N. carinthiaca* as a junior synonym of *N. alpicola*. However, original descriptions together with illustration of adults [e.g. in ASPÖCK & al. (1980) for *N. carinthiaca* and in TSUKAGUCHI (1995) for *N. alpicola*] do not support this synonymy. The male of *N. alpicola* has the apex of sternite 9 slightly curved and not expending forwards and incidentally, closer to the outline of *N. flava* (Fig. 7b), (shape confirmed by pinned specimen). Conversely, the male of *N. carinthiaca* is drawn turned up angularly and slightly forwards and so, much closer to *N. vittata* (Fig. 7c). As far as described and illustrated, the third instar larvae look different. That of *N. carinthiaca* pictured in GEPP (1983b) and that of *N. alpicola* in TSUKAGUCHI (1995) show conspicuous differences. In *N. alpicola* larvae, the head markings and the coloration of palpi and flagellum of antennae are brown vs fuscous in those of *N. carinthiaca* (Fig. 8); the prothorax of *N. alpicola* larvae has two straight brown longitudinal spots, meso- and metathorax each have a small round brown spot, the pygidial coloration is of small size, whereas all marks of those of *N. carinthiaca* are larger. We may consider the two species separate. But in any case, the specimens caught in far eastern Russia (Primoriye, Sakhalin, Kamchatka) and Korea could be re-examined in order to clarify their actual status and to assert a possible Japanese endemism of *N. alpicola* sensu stricto.

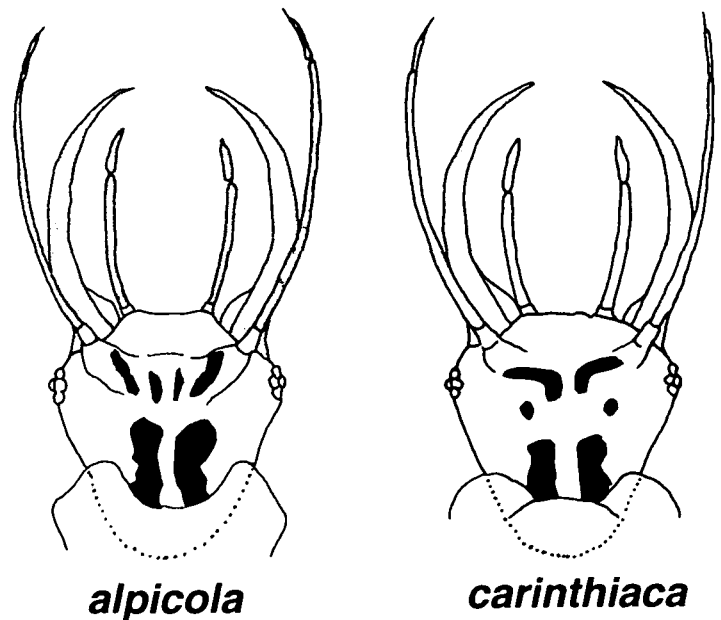


Fig. 8: Outline of the cephalic markings of *N. alpicola* (left) and *N. carinthiaca* (right).

Endangered species

In the countries where endangered Neuroptera have been surveyed, some green lacewing species of the genus *Nineta* appear among them: GEPP (1983a, 1994) for Austria, OHM (1984), SAURE & GRETSBERGER (1991) and RÖHRICHT & TRÖGER (1998) for Germany, GROPPALI & PRIANO (1992) for Italy, DEVETAK (1992a) for Slovenia, DUELLI (1994) for Switzerland.

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I wish to express my grateful thanks to Prof. S. Tsukaguchi (Hyogo, Japan) for providing specimens of *Nineta alpicola*. Thanks also are due to the colleagues who kindly gave or confirmed information on earliest quoted occurrences and status of some species: Dr S.J. Brooks (London, UK), Dr R. Dobosz (Bytom, Poland), Dr Dong KangZhen (Beijing, China), Dr P. Duelli (Birmensdorf, Switzerland), Dr L. Greve Jensen (Bergen, Norway), H. Hölzel (Brückl, Austria), Dr A. Letardi (Roma, Italy), Pr. V.

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