

Idiotypa species of Finland and Sweden (Hymenoptera: Diapriidae)

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All available specimens of *Idiotypa maritima* Haliday, 1857 and *I. mariae* Gregor, 1939 from Finland and Sweden are studied and listed. *Idiotypa maritima* is also recorded from the Netherlands. The type species of *Idiotypa* Förster is shown to be *Diapria maritima* Haliday, 1857, not *Psilus maritimus* Haliday, 1833.

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Introduction

The Palaearctic species of *Idiotypa* Förster (Diapriidae) have recently been revised (ChemYROVA *et al.* 2021). Before the revision, four species of *Idiotypa* were listed from Palaearctic region by Johnson (1992): *Idiotypa maritima* (Haliday, 1833), *I. rufiventris* (Thomson, 1859), *I. nigriceps* Kieffer, 1909, and *I. marii* Gregor, 1939. Following the designation of a lectotype for *Idiotypa maritima*, *I. rufiventris* and *I. nigriceps* were synonymized with it. In association with the designation of the lectotype of *Idiotypa marii/mariae* Gregor, the spelling *I. mariae* was chosen as the valid spelling. Currently only two species, *I. maritima* and *I. mariae*, are known from North Europe. All available material of *I. maritima* and *I. mariae* from Finland and Sweden is studied in this paper.

Material and Methods

The specimens of *Idiotypa* were identified by using the key and figures in ChemYROVA *et al.* (2021).

Abbreviations of studied collections: FMNH = Finnish Museum of Natural History, University of Helsinki, Helsinki; NHMD = Natural History Museum of Denmark, Copenhagen; NHRS = Naturhistoriska Riksmuseet, Stockholm; MZLU = Biological Museum, Lund University, Lund; SVH = private collection of Simo Väänänen, Helsinki; VVT = private collection of Veli Vikberg, Turenki.

Two types of grid coordinates are common on Finnish insect labels. If the longitude (east) value starts with a number eight (8), the system used is ETRS-TM35FIN with an extra leading 8. If the longitude starts with a number three (3) and the coordinates are equal in length, the system used is the Finnish Uniform Grid System (Grid 27°E). If the longitude is one digit shorter than the latitude (north), the system is likely also Grid 27°E but with the leading 3 omitted for brevity.

The publication year of Thomson (1858) is in accordance with Notton (2005).

Results

Notes on the type species of *Idiotypa* Förster and *Mionopria* Haliday

Idiotypa Förster, 1856: 122, 125. Type species: *Diapria maritima* Haliday, 1857. *Psilus maritimus* Haliday was erroneously designated as the type species by Ashmead (1893), see below.

Mionopria Haliday 1857: 170, 172. Type species: *Diapria maritima* Haliday by monotypy.

Haliday (1833: 275) described a new species as *Psilus maritimus* and, in a key, gave some characters: male with 14-jointed antennae, antenna of the female with an abrupt, four-segmented clava. These characters do not fit a species of *Idiotypa*, but possibly a species of *Basalys*.

Later Haliday (1857: 170, 172) described a new subgenus *Mionopria* in genus *Diapria* Latreille with one British species, *Diapria (Mionopria) maritima* n. = nova (new). The description of the subgenus begins: male with 13 antennal segments, female with 12 antennal segments. The other given characters also fit *Idiotypa*.

Ashmead (1893: 403) obviously thought that *Psilus maritimus* and *Diapria maritima* are synonyms and erroneously designated the earlier of them, *Psilus maritimus* (not *Diapria maritima*), as the type species of *Idiotypa* Förster.

Later authors, e.g. Johnson (1992) and ChemYROVA *et al.* (2021), followed Ashmead and gave the wrong type species for *Idiotypa*, and Johnson (1992: 173) treated *Psilus maritimus* and *Diapria (Mionopria) maritima* as synonyms.

Specimens studied

Idiotypa maritima (Haliday, 1857)

Diapria (Mionopria) maritima Haliday, 1857: 172 ♂, ♀ (not studied). ChemYROVA *et al.* (2021) designated the lectotype male and studied three paralectotype females of *Psilus*

maritimus (Haliday, 1833), but in fact the correct name of the species they studied was *Diapria (Mionopria) maritima* Haliday, 1857.

Mionopria rufiventris Thomson, 1858: 373. ♀. (lectotype in NHRS studied)

Idiotypa nigriceps Kieffer, 1909: 386, ♀. Lectotype designation by Notton, 2014: 52 (not studied)

Idiotypa nigriceps Kieffer, 1911: 814, ♀. Syn. of *I. nigriceps* Kieffer, 1909 by Notton 2014: 57–58.

The lectotype of *Mionopria rufiventris* Thomson

Thomson (1858) described the female of *Mionopria rufiventris* found by C. Roth from near Ilstorp in Skåne, Sweden. The number of specimens was not given. The lectotype was designated by Chemyrova *et al.* (2021), but the type locality was misinterpreted as Jkp (Jönköping in Småland).

The lectotype of *Mionopria rufiventris* is labelled: Ils (rest not readable) 27/7; Sc [= Scania]; 30; Type [printed label]; Riksmuseum Stockholm; Lectotypus [Mionopria] rufiventris Th. J. Macek det. 1990 [red label]; *Idiotypa rufiventris* Th. J. Macek det. 1990; *Idiotypa maritima* (Haliday, 1833 [!]) V. Chemyrova det. 2017; NHRS-HEVA 000002297.

Originally the specimen was pinned, but it is now glued to the apex of a cardboard triangle. Some characters of the type: Body length (with ovipositor sheath) 1.95 mm, head width 0.42 mm. Pronotum, mesoscutum, and mesopleuron black. Posterior rim of mesepisternum entirely foveate. Fore wing with marginal 2.4–2.7 times as long as wide, postmarginal vein as long as marginal vein. Median spine of propodeum in lateral view erect, sharp and narrowly conical. Petiolus broadest at anterior margin, its length/width index 0.81. Tergum 2 mediobasally with furrow which is one fourth of the length of tergum, on both sides of furrow with 4 shorter striae.

Other studied specimens of *Idiotypa maritima*

Finland. Uusimaa: Helsinge, Degerö, 8.VI-12.VI.1915 1 ♂ (Fig. 1), W. Hellén leg. (727), labelled "Idiotypa rufiventris Thomson ♂ det M. Koponen 2012" (FMNH). Helsinki 6682:3382, 18.VII.1979 1 ♀ (Fig.2). M. Koponen leg., labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012" (FMNH). Snappertuna, 2.IX. 1925 1 ♀ (head and fore wings missing), W. Hellén leg. (311), labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012" (FMNH).

Sweden. Skåne. Skogshäjden, 26.VIII.1973 1 ♀, L. Huggert leg., labelled *Idiotypa rufiventris* Thomson det. L. Huggert (NHRS). Blekinge: Asarum, 5.VIII.1956 1 ♀, coll. A. Sundholm. Karlskrona, V. M., 25.VIII.1955 1 ♂, labelled "Idiotypa rufiventris ♀ det. V. Vikberg 2020", coll. A. Sundholm (MZLU). Småland. 2 ♀ ♀, leg. Boheman, both labelled "Idiotypa rufiventris Th. Macek det. 1990" (NHRS). Västergöt-

land. Dala, 29.VII.1973 1 ♀, leg. L. Huggert, labelled *Idiotypa rufiventris* Thomson det. L. Huggert (NHRS). Närke, Örebro, Oset, VII.1995, 1 ♂, A. Jansson leg., labelled *Idiotypa rufiventris* Thomson det. L. Huggert (NHRS). Dalarna: Lima, 3.VIII.1958 1 ♀, labelled "Idiotypa rufiventris ♀ det. V. Vikberg 2020", Axel Olsson leg. (MZLU). Jämtland: Ragunda, 2.-8.IX.1946 1 ♀, labelled "Idiotypa rufiventris ♀ det. V. Vikberg 2020", Palm leg. (MZLU).

The length of females from Sweden is 1.60 to 2.50 mm (mean 1.97 mm, n=8); length of females from Finland is 1.60 to ca. 1.85 mm. Females from Sweden have a black mesonotum while females from Finland have a brown mesonotum. Males from both countries have black flagellum and black gaster.

Extralimital specimens of *Idiotypa maritima* studied

Denmark: East Jutland, Randers, III.1880 1 ♂, V.1883, 3 ♀♀, mounted with phorid puparia, coll. R. W. Schlick (NHMD), all labelled "Idiotypa maritima (Hal.) det. D. Notton, 2016". Netherlands: Lienden, VIII.1977, 2 ♂♂, leg. L. Huggert, labelled *Idiotypa rufiventris* Thomson det. L. Huggert (NHRS). This is a new record for the Netherlands.

The reared Danish females are coloured rather like the Swedish females of *Idiotypa rufiventris*. Their body length is 1.5–1.9 mm and head width is 0.38–0.42 mm. Marginal vein is 2.8 times as long as wide (width measured in basal half). Petiolus is 0.7–0.8 times as long as wide. Median fovea on tergum 2 is strong and on both sides with 6–7 carinae.

The reared Danish male has a reddish gaster, its body is 1.55 mm long, and its head width is 0.38 mm. The flagellum is reddish.

The fly puparia are 2.5–2.65 mm long, their width is 1.0–1.1 mm, and they have black protuberances at the caudal end of abdominal segment 7. The parasitoids made exit holes near the caudal third of the host body.

One examined female, previously identified as *Idiotypa rufiventris*, belongs to *Spilomicrus*. The female was only labelled "L. ovata 78 97" (NHRS). According to Nilsson (1981) it was taken in Uppland, Häverö, near Hallstavik in 1978 and identified by K.-J. Hedqvist as *Idiotypa rufiventris*. Using the keys of Diapriinae in Nixon (1980) it runs to *Spilomicrus abnormis* Marshall.

Idiotypa mariae Gregor, 1939

Idiotypa Mariae Gregor, 1939: 133, ♀. (not studied)

Specimens studied

Finland. Åland: Jomala 1 ♀, W. Hellén leg. labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012" (FMNH).



Fig. 1. The male of *Idiotypa maritima* from Degerö (specimen <http://id.luomus.fi/NK.57248>), dorsal and lateral views. Photographs by Pekka Malinen.



Fig. 2. The female of *Idiotypa maritima* from Helsinki (specimen <http://id.luomus.fi/NK.57250>), dorsal and lateral views. Photographs by Pekka Malinen.



Fig. 3. The female of *Idiotypa mariae* from Mikkeli (specimen <http://id.luomus.fi/NK.57240>), dorsal and lateral views. Photographs by Pekka Malinen.



Fig. 4. The male of *Idiotypa mariae* from Kitee (specimen <http://id.luomus.fi/NK.57247>), dorsal and lateral views. Photographs by Pekka Malinen.

Varsinais-Suomi: Vichtis, Päivölä, sand pit, 8.VIII.1956 1 ♂, W. Hellén leg. (779) labelled "Idiotypa rufiventris Thomson ♂ det M. Koponen 2012" (FMNH). Uusimaa: Vantaa, Hämevaara 6684:3378 7.VII.-11.VII.2018 2 ♀♀. S. Väänänen leg (SVH). South Häme: Janakkala, Kalpalinna 6757:8370, 12.VII.2014 1 ♀, V. Vikberg leg.; Janakkala, Koveronkulma 6755:8367, 8.VIII.1997 1 ♀, V. Vikberg leg., labelled "Idiotypa nigriceps ♀ det. V. Vikberg 2019; Idiotypa marii ♀ V. Vikberg det. 2020", Janakkala, Räikälä river, strand 6752:8369, 3.VII.2002 1 ♂, leg. V. Vikberg (VVT). South Savo: Mikkeli, Ristiina 6826:3501 14.VIII.1976 1 ♀ (Fig. 3), M. Koponen leg. labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012" (FMNH). Ladoga Karelia: Parikkala, Laurila, on Angelica, 4. VIII.1942 1 ♂, W. Hellén leg. (4893), labelled "Idiotypa rufiventris Thomson ♂ det M. Koponen 2012", Parikkala, station, birch bog, 13.VIII.1942 1 ♀, W. Hellén leg. (5569), labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012" (FMNH). North Häme: Keuru 3.VIII. 1928 1 ♀, W. Hellén leg. (246), labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012", Keuru, 18.VIII. 1928 1 ♀, W. Hellén leg. (315), labelled "Idiotypa rufiventris Thomson ♀ det M. Koponen 2012" (FMNH). North Karelia: Joensuu, Nepenmäki 6942:8642, 13.VII.1963 1 ♀, V. Vikberg leg. (VVT). Kitee 6908:3659 19.VII.1982 1 ♂ (Fig. 4), M. Koponen leg., labelled "Idiotypa rufiventris Thomson ♂ det M. Koponen 2012" (FMNH). South Ostrobothnia: Lapua 6984:3310, 22.VII.1980, 1 ♂, 2 ♀♀. M. Koponen leg., all labelled "Idiotypa rufiventris Thomson ♂/♀ det M. Koponen 2012" (FMNH).

Sweden. Skåne, Yddinge?, 2 ♂♂, coll. C. G. Thomson; one bearing handwritten label by Thomson: "rufiventris", both labelled "Idiotypa nigriceps ♂ det. V. Vikberg 2020", (MZLU). Blekinge: Rödeby, 1.VIII.1969 1 ♂, labelled "Idiotypa nigriceps ♂ det. V. Vikberg 2020", coll. A. Sundholm (MZLU). Öland: Halltorp, 19.VIII.1956 1 ♀, coll. A. Sundholm, labelled "Idiotypa nigriceps ♀ det. V. Vikberg 2020" (MZLU). Småland: Torsås, 25.VII.1992 1 ♂, leg. R. Daniesson, labelled "Idiotypa rufiventris Th., Macek det. 1996", "Idiotypa nigriceps ♂ det. V. Vikberg 2020" (MZLU). Växjö S. Åreda, 4.VII.1992 1 ♀, labelled "Idiotypa nigriceps ♀ det. V. Vikberg 2020", leg. R. Danielsson (MZLU). Närke: Örebro, ?Markk., 5.VII.1947 1 ♀, A. J. = A. Jansson leg., Örebro, ?Oset, 15.VII.1949 1 ♀, A. J. leg., Örebro, ?Adborg 20.VII.1958 1 ♂, A. J. leg. Örebro, ?Merv 30.VI.1959 1 ♀, all labelled "Idiotypa nigriceps ♀/♂ det. V. Vikberg 2020", A. J. leg (MZLU). Södermanland: Julita, 29.VII.1970 1 ♂, labelled "Idiotypa nigriceps ♂ det. V. Vikberg 2020", coll. A. Sundholm (MZLU). Västerbotten, Hällnäs, 10.VII-13.VII.1972 1 ♀, labelled "Idiotypa rufiventris A.S." (= A. Sundholm det.); "Idiotypa rufiventris Thomson det. L. Huggert", L. Huggert leg. (NHRS)

The size of females from Finland varied from 1.20 to 1.75 mm (mean 1.49 mm, n=11). The size of females from Sweden was 1.60–2.15 mm.

Extralimital specimens studied

Denmark. 16.VIII.1885, coll. R. W. Schlick, 1 ♂, labelled "Idiotypa marii Gregor det. D. Notton, 2016" (NHMD). Denmark. Egholm Skov, Horns Herred, 30.VI. 1985, 1 ♀, labelled "Idiotypa marii Gregor det. D. Notton, 2016" (NHMD).

Discussion

Hellén (1963) treated specimens of *Idiotypa* from seven localities in Finland as *I. rufiventris*, but only the specimens from Uusimaa: Helsinge and Snappertuna are *Idiotypa maritima*. The other specimens belong to *I. mariae* (the specimen from Nilsjä was not found, but most probably it also belonged to *I. mariae*). Since Hellén's work only one female of *I. maritima* has been found from Uusimaa: Helsinki. All three Finnish specimens are from the coast of the Gulf of Finland. *Idiotypa mariae* was recorded formally as new for Finland by Chemyrova *et al.* (2021) from Uusimaa: Helsinki, Uutela, where one female was taken on 13.VIII.1998 by N. Laurene. Subsequently this species has been recorded from nine biogeographical provinces of Finland, the northernmost of them are South Bothnia, North Häme, and North Karelia in central Finland.

Hedqvist (2007) reported Swedish records of *Idiotypa nigriceps* from Uppland and *I. rufiventris* from Skåne, Blekinge, Västergötland and Västerbotten. Species of *Idiotypa* have been found in many southern Swedish faunal provinces, *I. maritima* also in Dalarna and Jämtland in central Sweden, and *I. mariae* in Västerbotten in northern Sweden. Three Swedish specimens of *I. mariae*, including a female from Uppsala province, Uppsala, Lunsen were recorded by Chemyrova *et al.* (2021), as were two males of *Idiotypa maritima* from Skåne, Ringsjö, and one *I. maritima* female from Småland, Älmhult. These specimens were not studied in this study.

From neighbouring areas *Idiotypa maritima* has been recorded from Denmark (Buhl 1994, Chemyrova *et al.* 2021), South Norway: Akershus and Buskerud fylke (Chemyrova *et al.* 2021), Russia, Leningrad district (Chemyrova *et al.* 2021) and *I. mariae* from Denmark (Chemyrova *et al.* 2021). No specimens of *Idiotypa* have apparently been recorded from the Baltic countries.

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MZLU, including specimens from C. G. Thomson's collection. Hege Vårdal sent specimens of *Idiotype* from coll. NHRS, including the lectotype of *Mionopria rufiventris* Thomson. Pekka Malinen (FMNH) took photographs of the Finnish specimens of *Idiotype maritima* and *mariae*.

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