

**The *Fucellia maritima*-group in North Europe,
with description of a new species
(Dipt., Anthomyiidae).**

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Introduction.

Collin (1931, p. 88), and also Hennig (1955, p. 24), pointed out that two species are mixed up in Northern and Western Europe under the name of *Fucellia maritima* Hal. in the sense of Stein (1910, p. 18), Seguy (1937, p. 43), and others. The two species involved are *maritima* Haliday (1838) and *tergina* Zetterstedt (1845) (= *intermedia* Lundbeck (1900)). During the past ten years these species have been dealt with by several authors working on the ecology of sea shore Diptera. Of these, Remmert (1956, 1958 and 1960), and Strenzke (1962), make separate mention of both species, while Ardö (1957) and Brauns (1959) treat them both under the name of *maritima* Hal. It is the aim of this paper to elucidate the distribution of the two species in Northern Europe, which for the present purpose includes Finland, Sweden, Norway, Denmark, the Baltic coast of U.S.S.R., Poland and Germany, and the North Sea coast of Germany. All available material from this region has been borrowed and identified. During the course of the study an undescribed species was found. It is described below as *Fucellia baltica* n. sp. The sources from which the material originate are given on p. 28.

**The specific separation of species of the
Fucellia maritima-group.**

When the new species described in this paper is included, six species of *Fucellia* are known from Northern Europe. They can be divided into two groups, according to the coloration of the

tibiae. In the three species of the *maritima*-group the tibiae are more or less brownish, while in the other three species (*fucorum* Fall., *griseola* Fall., and *signata* Zett.), they are blackish or greyish. In the males of the *maritima*-group there is also a distinct knob at the base of the hind femora (figs. 7—9). This knob is not found in *griseola* and *signata*, but in *fucorum* there is a long, narrow knob, and next to it, an isolated group of long setae.

Key to species of the *maritima*-group.

♂♂.

1. Submentum of the proboscis short and broad, nearly circular. Genae very broad, about 0.8 times the height of the eye. Many smaller hairs present between the two rows of presutural acr setae. The knob at the base of hind femora evenly rounded; its setae short and scattered (fig. 7). Genitalia as shown in figs. 1—2 and 10 **baltica** n. sp.
- Submentum of the proboscis 2—3 times longer than broad. Genae narrower, 0.5—0.7 times the height of the eye. Fewer hairs present between the two rows of presutural acr setae 2.
2. The knob at the base of hind femora evenly rounded; its setae longer and arranged in a row (fig. 8). A single or no hairs present between the two rows of presutural acr setae. Genae rather narrow, 0.5—0.65 times the height of the eye. Genitalia as shown in figs. 5—6 and 12 **tergina** Zett.
- The knob at the base of hind femora ending in a distinct tip (fig. 9). Several hairs present between the two rows of presutural acr setae. Genae broad, 0.6—0.7 times the height of the eye. Genitalia as shown in figs. 3—4 and 11 **maritima** Hal.

♀♀.

♀ to **baltica** n. sp. unknown.

1. Some of the posteroventral hairs of f_3 longer than width of t_3 . Several hairs present between the two rows of presutural acr setae. Genae broad, 0.6—0.7 times the height of the eye **maritima** Hal.
- None of the posteroventral hairs of f_3 longer than width of t_3 . No hairs present between the two rows of presutural acr setae. Genae narrower, 0.5—0.65 times the height of the eye **tergina** Zett.

Fucellia baltica n. sp.

Four male specimens of this new species were found in Prof. Stein's collection in the Berlin Museum under the name of *Fucellia maritima* Hal.

Description.

♂.

H e a d. Frons about half as wide as the total width of the head. 3 ors setae + 3—4 ori setae. Third antennal joint nearly twice as long as broad. Arista comparatively short, i.e., 1.5 times longer than third antennal joint. Genae very broad, $3/4$ — $4/5$ of the height of the eye. Proboscis with a broad and short, nearly circular submentum, and stout and broad labellae. — The head, including antennae and proboscis, greyish dusted. Frons and parafacialia with a distinct brownish tinge, and occiput dusted with a bluish tinge. A very faint trace of darker band is present from antennal base to eye margin.

T h o r a x. 3 pairs of short presutural acr setae are found. Between the acr setae many shorter hairs are present. Chaetotaxy of thorax as in *maritima* and *tergina*, but mesonotum with more hairs than in these species and the two lower st setae seem shorter. — On mesonotum five brownish stripes, e.g., one median stripe, a pair in the dc region and a more lateral pair. The areas between the brownish stripes, and also the pleura are greyish with a bluish tinge. — Wings narrower than in related species and more brownish. Squamae and halteres whitish.

A b d o m e n. Upper side greyish with only very faint traces of a dark, median stripe and darker, shifting spots on the sides of the tergites. Hypopygium and 5th sternite as shown in figs. 1—2 and 10.

L e g s. t_1 with 1 ad and 2 pv setae. f_2 with a row of short hairs on the underside. t_2 with 1 ad and 3 pd setae. f_3 with a distinct, rounded knob at the base (fig. 7). The hairs of the knob short and scattered, not arranged in a row as in *tergina*; on the anteroventral side of the knob some longer setae. f_3 also with some av setae in the apical half, and a single pv seta near the tip. t_3 with 3 ad, 4 pd and 3 av setae. — Femora greyish, tibiae mainly greyish, but distinctly yellowish-brown in basal fourth. Tarsi greyish on upper side, brownish on under side.

L e n g t h: 5 — 5.5 mm.

H o l o t y p e: ♂ labeled "Pommern/Treptow a.d.R./Prof. P. Stein S.". In the Zoological Museum, Berlin.

P a r a t y p e s: 3 ♂♂ labeled as the holotype. One of the paratypes is in the Zoological Museum of Copenhagen, the others in the Berlin Museum.

Fucellia maritima Haliday, 1838

The types of Haliday's species cannot be located in the Dublin Museum, according to Dr. J. S. Jackson (in litt. 24.3.1961). The name is used here in the sense of Collin (l.c.).

Records from North Europe:

Germany

- North Sea coast. Borkum, ♂, 8.45 (DEI),
 Memmert, ♂♀, J. D. Alfken (DEI),
 Mellum, ♂♀, 24.6.1926, J. D. Alfken (DEI),
 Helgoland, ♂♀, Coll. Lichtwardt (DEI),
 Helgoland, 10 ♂♂ 2 ♀♀, 12.6.1964, H. Remmert
 (ZMC).
 Remmert (1956, p. 49) also mentions it from Amrum
 and Wilhelmshaven.
- Baltic coast. Warnemünde Strand, ♂♀, 28.6.08, Grünberg S. (ZMB),
 Graal O. See, ♀, 8.08 (DEI),
 Fehmarn, Orth, 2 ♂♂, 20.5.1964, H. Remmert (ZMC).

Denmark

- W. Jutland. Skallingen, ♂, 22.7.1932, E. Bro Larsen (ZMC).
 N. Jutland. Klitmøller, 2 ♂♂ 2 ♀♀, 23.7.1953, Ardö (ZIL),
 Lønstrup, ♂, 12.8.1906, Lundbeck (ZMC),
 Frederikshavn, 2 ♀♀, 7.1881, H. J. Hansen (ZMC).
 E. Jutland. Grenå, ♂, 23.7.1953, Ardö (ZIL).

Norway

- Rogaland. Jæren, Orre, 8 ♂♂ 56 ♀♀, 11.7.1953, Ardö (ZIL).
 Finnmark. Vardö, ♂, 7.7.1956, H. Andersson (ZIL).

Distribution.

F. maritima Hal. has been recorded only from the western part of the European continent. Hennig (l.c.) mentions it from Southern Spain (Algeciras); but if the record is based on the pair from this locality from the Zoological Museum in Berlin, this identification is not correct, as these two specimens are *tergina* Zett.. In Spain, Portugal and France the species will probably be found in many places along the Atlantic coast, but the author has only seen a single female specimen from Portugal (Algarvia) in the Zoological Museum in Berlin. In DEI in Berlin there is a male specimen from Holland. In Great Britain it seems to be a widely spread species, as I have seen material from Essex, S. Devon, Merioneth, N. Wales, Sutherland, and Caithness, in the Hope Department, Oxford. Mr. E. A. Fonseca (in litt. 16.4.1964) informs that in his

experience, *maritima* occurs on the coast throughout the whole of the British Isles (incl. Ireland).

In addition the species also occurs along the German and Danish North Sea coast. The records from Grenå in the western part of the Kattegat, and from Warnemünde and Fehmarn in the western part of the Baltic Sea, are interesting, as they are the only records from the inner regions of the Northern European Seas. The two Norwegian records (from near the southernmost and northernmost point of this extensive country), give only little idea of the total distribution in Norway, but owing to the lack of open, sandy shores (see p. 27), it may have a rather restricted occurrence. The species has not been recorded from Sweden, but probably it occurs on the Swedish Kattegat coast. However, it was not found during the intensive collecting activity of Dr. Ardö and others in Halland. The species has not yet been found outside Europe.

***Fucellia tergina* Zetterstedt, 1845**
(*intermedia* Lundbeck, 1900)

F. intermedia Lundb. was described from material from Greenland. Later on, Henriksen and Lundbeck (1917, p. 648) followed Stein (l.c.) and sunk *intermedia* as a synonym to *maritima*. Consequently, the present author found, that Lundbeck identified all the Danish specimens (of *tergina*) in his collection "maritima Hal.", while a single male specimen of the true *maritima* (from Lønstrup) was labeled "Fucellia n. sp.". A male specimen from Kristianshaab, 28. 7. 1890, has been selected as the **lectotype** of Lundbeck's species. The genitalia of this specimen are shown in figs. 5—6 and 12.

Recently, Prof. W. Hennig has informed (in litt. 1. 3. 1965) the author that there are several older synonyms to *intermedia* Lundb. One of these is *tergina* Zett., under which name the species will be treated in "Lindner".

Records from North Europe:

Germany

North Sea coast. Borkum, ♀, 22.7.1909 (ZMB); ♀, 8.95 (DEI),
Wilhelmshaven (Remmert 1956, p. 49).

Baltic coast. Vossbrook b. Kiel, ♂, 29.5.07, Kuhlitz S.G. (ZMB),
Schleimünde, 2 ♂♂ 3 ♀♀, 4.6.1964, H. Remmert (ZMC),
Schleimünde, 2 ♂♂ 3 ♀♀, 8.7.1964, H. Remmert (ZMC),
Bülk, Kiel, 5 ♂♂ 5 ♀♀, 16.5.1964, H. Remmert (ZMC),

Heiligenhafen, 4 ♂♂ 3 ♀♀, 3.6.1964, H. Remmert (ZMC),
 Fehmarn, Orth, 2 ♂♂ 4 ♀♀, 20.5.1964, H. Remmert (ZMC),
 Warnemünde Strand, ♂, 28.6.1908, Grünberg S. (ZMB),
 Warnemünde Strand, ♀, Coll. Lichtwardt (DEI),
 Graal (near Warnemünde), ♂, Aug. 1908 (DEI),
 Rügen, 2 ♀♀, 7.91, Prof. P. Stein S. (ZMB),
 Sassnitz, ♀, (DEI).

Poland

Pomorania. Usedom, ♀, Aug. 1926, Coll. Lichtwardt (DEI),
 Deep bei Treptow, ♂, 4.7.07, Prof. P. Stein S. (ZMB),
 Rügenwalde, ♂♀, Coll. Oldenberg (DEI),
 Stolp, ♂, 2.7.1928 (MZP); ♂, 18.7.1928 (MZP) and
 ♂, 4.7.1941 (DEI), O. Karl,
 Stolp, Stolpmünde, ♂, 20.7.1913; ♂, 4.7.1914; ♀, 31.8.
 1914; ♂, 18.7.1928, O. Karl (MZP),
 Hidden See, 3 ♂♂ 3 ♀♀, 6.9.1917;
 ♀, 9.9.1917, E. Hanau (MZP),
 I. Wellin, 2 ♀♀, 5.8.1916, E. Hanau (MZP).

Denmark

W. Jutland. Struer, ♀♂, August 1882, H. J. Hansen (ZMC),
 Struer, 2 ♂♂ 11 ♀♀, Coll. Jacobsen (ZMC),
 N. Jutland. Klitmøller, 2 ♂♂ 2 ♀♀, 23.7.1953, Ardö (ZIL),
 Lyngby, ♀, 21.6.1953, Ardö (ZIL),
 Svinkløv klit, ♀, 25.6.1928, Lundbeck (ZMC),
 Skagen, ♂♀, June 1919 (ZMC),
 Skagen, 8 ♂♂, Coll. Stæger (ZMC),
 Frederikshavn, 4 ♂♂ 5 ♀♀, 7.1881, H. J. Hansen
 (ZMC).
 E. Jutland. Hou, 3 ♂♂, 12.7.1922, Lundbeck (ZMC),
 Grenå, ♂ 25 ♀♀, 23.7.1953, Ardö (ZIL),
 Aarøsund, 6 ♂♂ 2 ♀♀, 19.7.1959, E. Torp Pedersen
 (ZMC).
 S. Jutland. Sønderborg, 3 ♂♂ 6 ♀♀, 10.10.1890, Coll. Wüstnei
 (ZMC),
 Høruphav, ♂, 7.6.1896, Coll. Wüstnei (ZMC).
 Anholt. ♀, Klefbeck (ZIL),
 ♂ 2 ♀♀, 9.-18.7.1953, Meurling-Ardö (ZIL),
 ♀, 9.7.1905, Th. Mortensen (ZMC).
 Langeland. Lohals, 11 ♂♂ 8 ♀♀, 23.7.1914, Lundbeck (ZMC),
 Zealand. Springforbi, ♂, 19.3.1959, Lyneborg (ZMC),
 Charlottenlund, ♂, Coll. Stæger,
 Roskilde, 4 ♂♂ 2 ♀♀, 6.9.1958, Lyneborg (ZMC),
 Damhusso, 2 ♂♂, 15.10.1907, Lundbeck (ZMC),
 Vester Fælled, ♂, 4.4.1906, Lundbeck (ZMC),
 Skælskør, 2 ♂♂ ♀, H. J. Hansen (ZMC).

- Mon. Møens Fyr, pr. Borre, 8 ♂♂ 17 ♀♀, 10.8.1934, Tide-
mand (ZMC),
Møns Klint, 3 ♂♂ 3 ♀♀, 10.8.1962, L. Hedström (ZIU).
Falster. Mellemkov, 3 ♂♂ ♀, 11.8.1962, L. Hedström (ZIU).
Bornholm. Hammeren, 6 ♂♂ 5 ♀♀, 14.8.1911, Lundbeck (ZMC),
♀, 7.11. (ZMB).

Sweden

- Halland. Snapparp, 16 ♂♂ 9 ♀♀, 1.8.1953, Ardö (ZIL),
Halmstad, ♀, 5.8.1952, Ardö & Persson (ZIL),
Trönninge, Laxvik, ♂ 2 ♀♀, 20.7.1952, Ardö & Pers-
son (ZIL),
Trönninge, Grusvik, 2 ♂♂ 3 ♀♀, 1.7.1953, Ardö &
Persson (ZIL),
Trönninge, Grusvik, ♂ 6 ♀♀, 12.8.1953, Ardö & Pers-
son (ZIL),
Trönninge, 2 ♂♂ ♀, 26.6.1959, L. Hedström (ZIU),
Eldsberga, 2 ♂♂, 23.7.1952, Ardö & Persson (ZIL).
Scania. Falsterbo, Nabben, ♂ 2 ♀♀, 7.8.1953, Ardö (ZIL),
Äspö, Äspöholm, 2 ♀♀, 2.8.1952, Ardö & Persson
(ZIL),
Ystad, ♂, 7.6.1912; ♂, 14.8.1912; 3 ♂♂ ♀, 5.6.1915;
♂, 5.7.1915; ♀, 5.6.1916; ♀, 30.6.1916; ♀, 5.9.1916;
♂, 25.5.1917; ♀, 28.5.1917; ♀, 11.7.1917; Coll. I. Am-
mitsböhl (ZIL),
Ystad, 2 ♂♂ ♀, 8.7.1954; 4 ♂♂ 4 ♀♀, 27.7.1954,
♂, 28.7.1954, R. Dahl (ZIL).
Gotland. 4 ♂♂ 6 ♀♀ labelled "Gl" and "Bhm" in Nat. Riks-
mus., Stockholm.
Södermanland. Västerljung, 2 ♂♂, 13.7.1956, L. Hedström (ZIU).
Hälsingland. Söderhamn, ♀, 19.8.1959, L. Hedström (ZIU).

Finland

- Uleåborgs Län. Hailuoto, ♀, 8.7.1927, Krogerus (ZMH).
Åland. Lemland, 2 ♂♂ ♀, R. Frey (ZMH),
Föglö, ♀, 14.7.1934, R. Forsius (ZMH).
Nylands Län. Hangö, ♂, 25.7.1927, Krogerus (ZMH),
Tvärminne, 2 ♀♀, A. Wegelius (ZMH),
Tvärminne, 2 ♂♂, H. Lindberg (ZMH),
Tvärminne, Henriksberg, 2 ♀♀, 27.7.1923, R. Frey
(ZMH),
Tvärminne, Syndalen, ♂♀, 18.6.1921, R. Frey (ZMH).
Lappvik, ♂, 22.7.1927, Krogerus (ZMH),
Kyrklätt, ♂, Coll. Haglund (ZMH).

U. S. S. R.

- Karelen. Kuolemajärvi, ♂♀, Krogerus (ZMH),
Ino, ♀, 8.8.1924, Krogerus (ZMH),

Shelenogorsk (Terijoki), some specimens taken 16.7. 1938, L. Tiensuu in litt. 31.1.1963. The material is now lost. Krogerus (1932, p. 257 and 264) mentions also his *maritima* from Kuokkala and Muurila. The first locality is near Shelenogorsk, the second near Kuolemajärvi. There are no specimens in the Helsingfors Museum from these two localities.

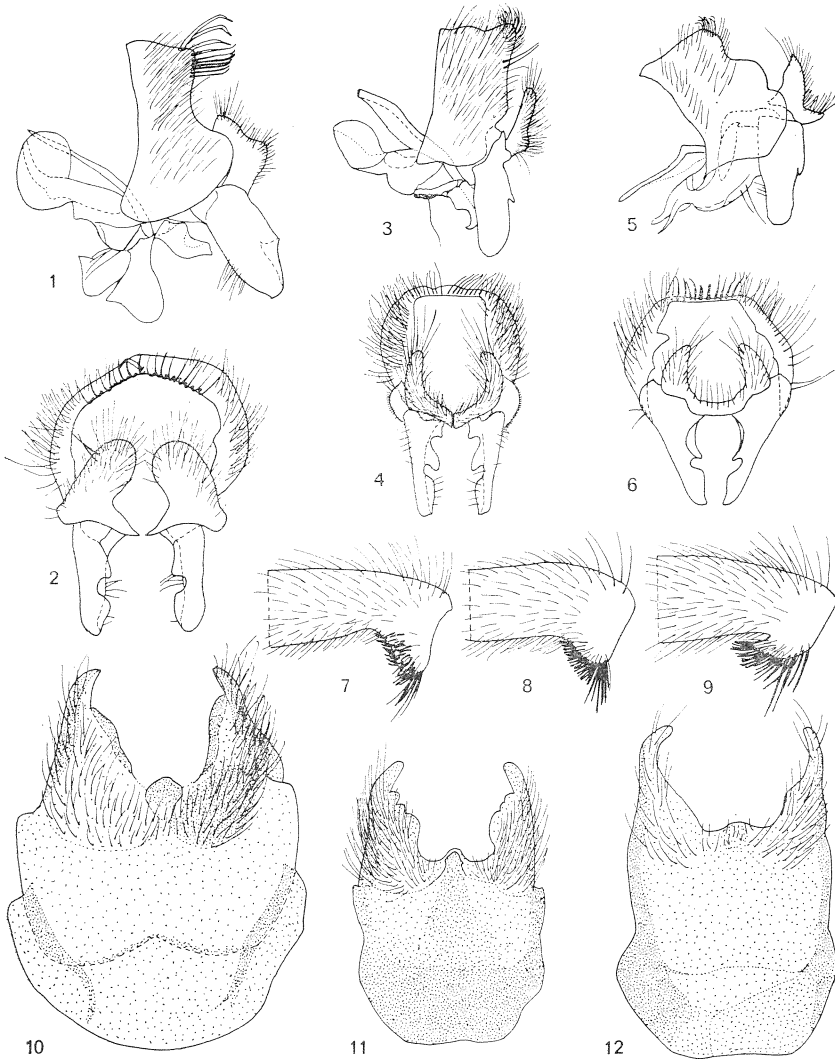
Letland. Libau (Liepāja), ♂♀, Dr. C. Siebert (DEI).

Distribution.

F. tergina can be regarded as an almost cosmopolitan species, which is not only confined to the sea coast, but can also be found in inland localities. Brauns (1959, p. 593), shows the total distribution of his *maritima* in a map. With some corrections and additions this map can be applied to *tergina*. However, *tergina* has not yet been found in Norway and the occurrence in Greenland is on the West coast, and not on the East coast. The present author has seen only two specimens from North America (♀ Tifton, Ga., and ♂ New Bedford, Mass., both in ZMB), and they are identical with the Greenland and Palaearctic material of *tergina*. This fact indicates that the *maritima* of Aldrich (1918, pr. 164) is actually *tergina*, and that true *maritima* does not occur in the New World. Brauns (l.c.), shows its distribution in the New World from the coast of Labrador to the southern tip of Patagonia. Hennig (l.c.), records *tergina* (as *intermedia*) from the Juan Fernandez Islands in the Southeastern Pacific.

F. tergina seems in the Old World to be a widely spread species along the coasts of the Mediterranean. Hennig (l.c.), records it from several localities in Italy, Yugoslavia and Greece. In ZMB there is material from Varna on the Bulgarian coast of the Black Sea, from Trieste and Venice in Italy, and from Algeciras in Southern Spain. From Great Britain the author has seen material from the following counties: S. Devon, Dorset, Kent, Essex, Suffolk, Pembrokeshire and Sutherland. Mr. E. A. Fonseca states (in litt. 16. 4. 1964), that *tergina* in Great Britain is much more local than *maritima*, though still fairly widely distributed.

On the West coast of the European continent from Southern Spain to Northern Denmark a more thorough investigation is needed before the distribution of *tergina* can be given in detail. Remmert (1958, p. 43), points out that *tergina* is found on the more sheltered places on the German North Sea coast (i.e. on the mainland), while *maritima* occurs on the shores of the Frisian



Figs. 1—2. Hypopygium of *Fucellia baltica* n. sp.; figs. 3—4. Hypopygium of *F. maritima* Hal.; figs. 5—6. Hypopygium of *F. tergina* Zett. (lectotype to *intermedia* Lundb.); figs. 7—9. Knob at base of hind femora seen from inside of 7. *F. baltica* n. sp., 8. *F. tergina* Zett., and 9. *F. maritima* Hal.; figs. 10—12. 5th sternite of 10. *F. baltica* n. sp., 11. *F. maritima* Hal., and 12. *F. tergina* Zett. (lectotype to *intermedia* Lundb.).

Islands bordering the coast. *Tergina* has not been found on Heligoland and Amrum. In fact, both species can be taken in the same locality, as it has been done in Denmark (at Klitmøller and Grenå), in Germany (at Warnemünde, Fehmarn and Wilhelmshaven), and in Great Britain (at Dawlish (S. Devon), W. Mersea (Essex) and Brora (Sutherland)). It would be of great interest to know whether the two species are ecologically separated or not.

Apart from the Danish North Sea coast, *tergina* in Denmark has been found on the shores of all other seas, belts, sounds and fjords surrounding the country. Along the Baltic Sea it is a widely spread species, and has also been recorded from the northern part of Botten Bay and the eastern part of the Gulf of Finland. In Norway it has not yet been found, and in all probability does not occur here. In this connection, it would be of value to establish its northern limit on the west coast of Sweden. Up to the present, it has not been taken north of Halland. However, Backlund (1945, p. 223), records "*maritima Hal*" from Syd-koster in Bohuslän near the Norwegian limit, but unfortunately his material is inaccessible.

Acknowledgements

The author is most grateful to the following persons who kindly provided material from their respective museums and institutions: Amanuens Hugo Andersson, Zoological Institute, University of Lund, Sweden (ZIL); Dr. W. Hackman, Universitetets Zoologiska Museum, Helsingfors, Finland (ZMH); Amanuens K. J. Hedqvist, Naturhistoriska Riksmuseum, Stockholm, Sweden; Assistent Lars Hedström, Zoological Institute, University of Uppsala, Sweden (ZIU); Prof. W. Hennig, formerly of the Deutsches Entomologisches Institut, Berlin, Germany (DEI); Cand. J. Moeller, Max-Planck-Institut, Wilhelmshaven, Germany; Dr. A. Monko, Institute of Zoology, Warszawa, Poland (MZP); Dr. H. Remmert, Zoologisches Institut und Museum des Universität, Kiel, Germany; Dr. H. Schumann, Zoologisches Museum, Berlin, Germany (ZMB) and Mr. K. G. V. Smith, formerly of the Hope Dept. of Entomology, Oxford, England.

Thanks are also due to the following persons for valuable information and advice: Dr. A. Brauns, Staatliches Naturhistorisches Museum, Braunschweig, Germany; Mr. E. A. Fonseca, Bristol, England; Dr. T. S. Jackson, National Museum of Ireland, Dublin,

Ireland; Mr. S. Panelius, Helsingfors, Finland and Dr. L. Tiensuu, Hamina, Finland.

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