

The Horse Flies (Diptera, Tabanidae) of Norway

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The Norwegian species are reviewed, and keys are supplied for all species. The following species are reported as new to Norway: *Chrysops viduatus* (Fabricius, 1794), *Atylotus latistriatus* Brauer, 1880, *Hybomitra aterrима* (Meigen, 1820), *Hybomitra solstitialis* (Meigen 1820), *Haematopota italica* Meigen, 1804, *Haematopota subcylindrica* Pandellé, 1883 and *Tabanus miki* Brauer, 1880. The finding of *Hybomitra aterrима* solves the question of whether this taxon is a southern form of *Hybomitra auripila* Meigen, 1820 or a good species, and the long standing controversies over this question. However, the identity of *Atylotus latistriatus* seems to offer an unresolved problem. Maps of distribution, and a check list to the Norwegian species are supplied, and new Norwegian names are proposed for each species.

Key words: Diptera, Tabanidae, *Chrysops*, *Atylotus*, *Hybomitra*, *Tabanus*, *Heptatoma*, *Haematopota*, *Atylotus latistriatus*, *Hybomitra aterrима*, Norway, identification keys, distribution maps.

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Introduction

Horse flies are big to medium-sized flies of the lower Brachycera, comprising an estimated 4500 species worldwide (Marshall 2012). Their size, abundance and the females' blood-sucking make them one of the groups that most people relate to, have names for and know. However, this taken into consideration, it is a curious fact that the Norwegian species have not been subject to any serious treatment in their entirety, though several papers have been published on parts of the family and on different aspects of their behaviour.

This paper treat all the Norwegian species, and presents keys, maps of distribution, and photographs of each species. Norwegian names for the different species are also proposed, and a checklist of the Norwegian species is provided.

History. Linnaeus made the first Norwegian record, with the description of *Hybomitra tarandina* (Linnaeus, 1758). Among his pupils, there were the Norwegian priest C. L. Strøm, who in 1768 described *Tabanus ferrugineus* Strøm, 1768, later synonymized with *T. glaucopis*

Meigen, 1820, and the danish priest O. Fr. Müller, who in 1764 described *Haematopota arcticus* (Müller, 1764), later synonymized with *H. pluvialis* (Linnaeus, 1758). As the northern parts of the country was researched by the pupils and heirs of Linnaeus, more species were named. I. C. Fabricius named *Hybomitra borealis* (Fabricius, 1781), and the great German dipterist J. W. Meigen described *Hybomitra auripila* (Meigen, 1820). The most active was however J. W. Zetterstedt, who described as many as six species, namely *Chrysops nigripes* Zetterstedt, [1838], *Atylotus sublunaticornis* (Zetterstedt, 1842), *Tabanus maculicornis* Zetterstedt, 1842, *H. lugubris* (Zetterstedt, [1838]), *H. flaviceps* (Zetterstedt, 1842), and *H. alpina* (Zetterstedt, [1838]) from Norwegian material, of which the first three are still valid.

After 1842, however, the Norwegian fauna has been mostly left to Norwegian dipterists. Many of them have been active in researching the fauna. J. H. H. Siebke described the species *Chrysops maurus* Siebke, 1864, from Laurgård in 1864, a name that has since been synonymized With

Fabricius' *C. sepulcralis* (Fabricius, 1794). For the next ninety years no one tried to describe new species from Norwegian material, until H. Kauri in 1951 described *Hybomitra anderi* (Kauri, 1951), and in 1976 *Hybomitra viddensis* Kauri, 1976. It must be seen as a sign of progress that both these names have later been synonymized.

Several workers have been writing about different aspects of the Tabanidae fauna, notably Knut Rognes, and Hans Kauri, who was an authority on this family, but curiously no one have tried to describe it in its entirety. The only effort that has been done in this way, is Kauri's list in "Limnofauna Norvegica" (1996). However, this is only a list of species covering the different Norwegian counties.

Material and methods

This review is based on the material in the author's private collection, kept in the Zoological museum, Natural History Museum of Oslo (NHMO), as well as the collection of NHMO. More than 2553 specimens of totally 42 species have been examined. They have all been determined using the work of Chvala *et al.* (1972), and the species concept is strictly the same as in this book, with one exception: *Hybomitra polaris* (Frey, 1915) has been sunk into synonymy under *Hybomitra astuta* (Osten-Sacken, 1876), and this has been followed here, to avoid adding to the confusion. Under every species, there follows first a paragraph on older records, then the new records, and then some points may be discussed.

All the records that are contained in the maps have been investigated and determined by the author. Due to the great number of errors, misidentifications, erroneous perceptions about the species of this family and insecurity in older days, the literary records given in the first paragraph beneath the species name, are given for the sake of historical overview and because there may be interesting biological information, as of the abundance of several species when first recorded. As several of the old collections have through the times been severely attacked by pests, and much of the material is missing, no attempts

to solve the questions of identity of the old specimens recorded in literature have been made. However, all specimens which can be identified, are enclosed in the material.

Of course, reviews written after the publication of Chvála *et al.* (1972) must be presumed to have the species right. However, only animals seen and determined by the autor has been included.

One exception to this is the treatise of Bergersen *et al.* (2004), which tries to solve the question of the identity of several species. However, they end up with the same amount of confusion that was as to the species treated. However, as the authors of that paper are careful to tell what species they are treating, the records from this treatise are thus accepted, though there may be some disagreement with the concept of some of the species. Other than this, no literary records are included.

In this way, there is less risk of errors, and at least, if there are errors in this material, they hopefully are consistent. The aim of the paper has been to give as full an account of the Norwegian species as possible, and to help dipterists to determine these fascinating and often enigmatic animals.

A note on morphology. Many of the species are very variable, and this has caused many problems through the time. However, there are no problems that can not be solved, following the keys strictly. One has, though, to be aware of the special features that are used to identify these flies. These are mainly (Figure 1): The notopleural lobe, the colour of which varies from one species to another. In addition, on the head: The median callus, and the lower callus. The subcallus is the area just above the antennae (not to be mistaken for the lower callus, with which it sometimes is connected). When possible, the mentioning of the bands and patterns of the eyes is avoided, as these disappear when the animal dies. As most of the horse flies one catches are females, the referring to the genitalia is also avoided. It is necessary to remember that both size and colouration are very variable characters, and it may be necessary to compare with other specimens.

A note on names. Hereby a complete list of Norwegian names for the family is proposed.

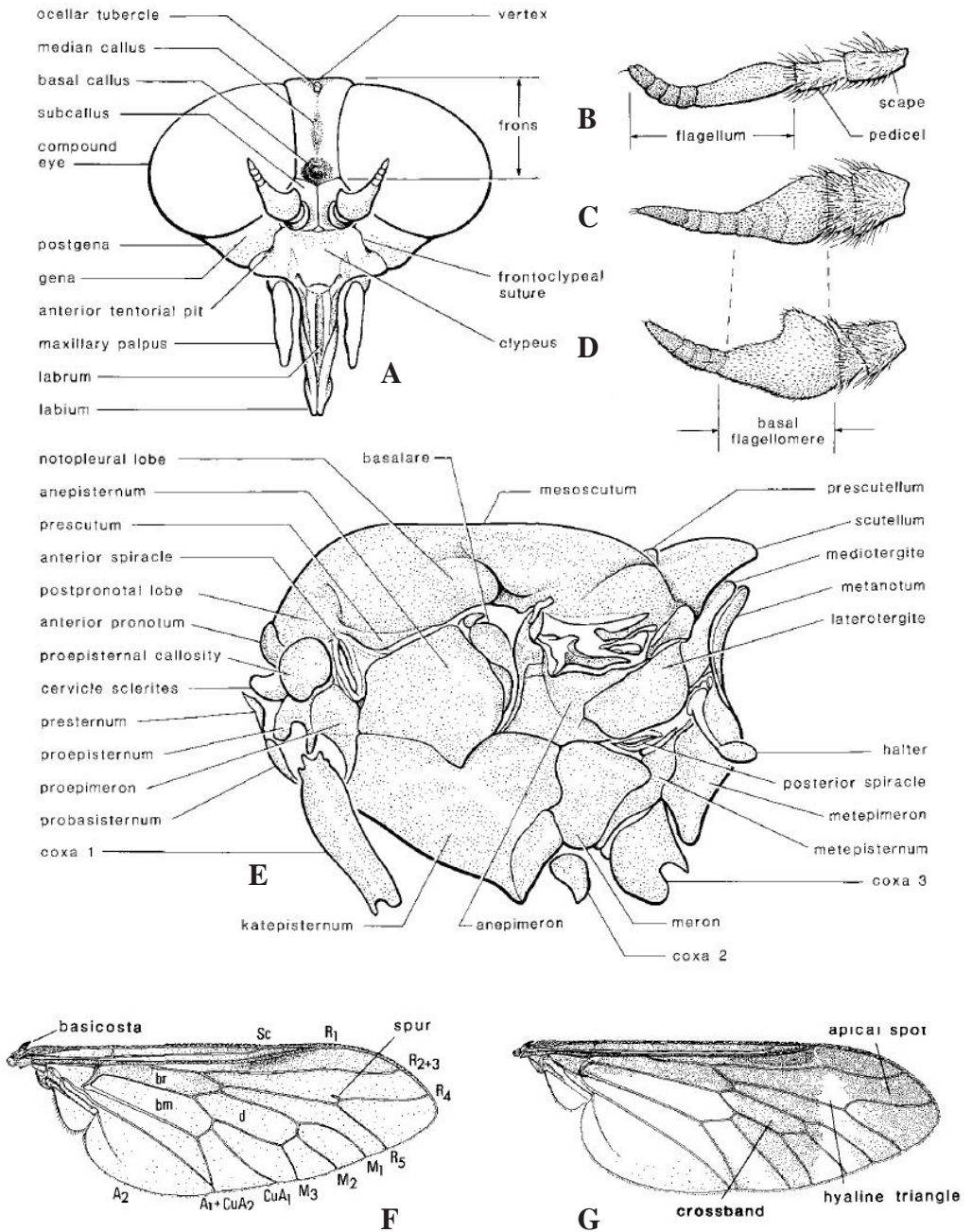


FIGURE 1. Morphological features of **A.** head, **B–D.** antenna, **E.** thorax and **F–G.** wing venation (After Teskey, 1990).

TABLE 1. Key to the genera of Tabanidae in Norway.

1.	Hind tibiae with apical spurs. Vertex usually with functional ocelli on a distinct tubercle [not in genus <i>Tabanus</i>]	2
-	No apical spurs on hind tibiae. No functional ocelli present, vertex at most with an ocellar swelling	5
2.	Wings with brown pattern. Antennal segments 1–2 long and narrow, nearly equal in length. Face with distinct facial and genal calli. Live specimens with shining, bright green eyes, which turn brown in death	<i>Chrysops</i> Meigen, 1803
-	Wings without brown pattern	3
3.	Eyes in living specimens light yellowish to pale green-grey, in dry specimens light to reddish brown. Frontal calli in females reduced, very small or absent. Generally smaller, light gray or yellowish-brown species. Head of males usually broader than thorax	<i>Atylotus</i> Osten-Sacken, 1876
-	Eyes in living specimens bright green to dark reddish brown, in dry specimens blackish. Frontal calli in females well developed. Males' heads not exceptionally broad	4
4.	Vertex with well developed, usually shining ocellar tubercle. Eyes more or less haired	<i>Hybomitra</i> Enderlein, 1922
-	Ocellar tubercle absent, eyes bare	<i>Tabanus</i> Linnaeus, 1758
5.	Wings with distinct grey-brown small spots and rosettes	<i>Haematopota</i> , Meigen, 1803
-	Wings clear, without any pattern	<i>Heptatoma</i> Meigen, 1803

Some of the species have more or less good names from older literature. As these names are not in use, and as some of them are not very good, it reasonable to propose a set of new names, rather than keeping all the old ones. Some of them are retained, some of them are not.

The Species

A key to genera is given in Table 1.

Subfamily CHRYSOPSINAE

Tribe Chrysopini

Genus *Chrysops* Meigen, 1803 (Table 2)

Records. While this genus is widespread and abundant all over the country, there are a great gap between the common species, like *C. relictus*, which is abundant everywhere, and the rarer species, like *C. rufipes*, *C. viduatus*, etc. Some of these are distinctly southern in their distribution, like *C. viduatus*, some are clearly northern, like *C. sepulcralis*. A special problem is posed by *C. rufipes*, which is really rare in Norwegian collections. According to the literature, this species does not attack humans, (Chvála *et al.* 1972, Olsufjev in Bei-Bienko 1989), but if that is the only reason it is seldom collected, remains to be seen.

Chrysops caecutiens (Linnaeus, 1758)

(Figure 2, Map 6)

Norwegian name: mørk v-blinding

Siebke (1877) records this species from Christiania (= Oslo) and Hof in Solør, from Sarpsborg, Odalen and Verdalen. Bidentkap (1892) says this species is numerous everywhere. Rognes (1980) reports it from Aust-Agder, Telemark and Nord-Trøndelag, and states that no previous records have been made in the last century.

Kauri (1996) lists this species from Vestfold, Telemark, Aust-Agder and Hordaland. In addition, there are the following records:

Material. Ø, Eidsberg: Mysen, Høytorp Fort (EIS 29), 1♀ 21 July 2010, leg. O. Sørlibråten; Råde: Tasken N (EIS 20), 1♀ 2–24 June 1995, in malaise trap, leg. J.I.I. Båtvik & O. Hanssen; Hvaler; Kirkøy, Arekilen (EIS 12), 1♀ 8 June 1994, leg. M. Falck; Aremark: Lindtjern (EIS 21), 1♀ July 1912, leg. Thor Jan Olsen; **AK**, Oslo: Sørkedalen, Gamlestua (EIS 36), 1♀ August–September 2007, leg. K.M. Olsen, in malaise trap; Oslo: Maridalen, Daujøen N (EIS 36), 1♀ 5 June–18 October 2010, leg. L.O. Hansen, in malaise trap; Lørenfallet, Knatten (EIS 37), 1♀ 1 July 200, leg. O. Sørlibråten; Sørkedalen, Gamlestua (EIS 36), 1♀ August–September 2007, leg. K.M. Olsen, in malaise trap; Maridalen, Daujøen N (EIS 36), 1♀ 5 June–8 October 2010, leg. L.O. Hansen, in malaise trap; Lørenfallet, Knatten (EIS 37), 1♀ 1 July 200, leg. O. Sørlibråten; Fet:

TABLE 2. Key to Norwegian species of *Chrysops* Meigen, 1803 (adapted from Chvála *et al.* 1972).

Females	
1.	Legs including tibiae all black (<i>sepulcralis</i> group) 2
-	Legs with at least four posterior tibiae brownish (yellow) 5
2.	Frons and face uniformly shining black, abdomen mostly black <i>C. sepulcralis</i> (Fabricius, 1794)
-	Frons and face yellow or grey in ground colour with distinctly marked polished black calli 3
3.	Frons and face grey to greyish yellow with enlarged shining black calli. Tergite 2 black, only slightly yellowish at sides. Sternite 2 blackish <i>C. nigripes</i> Zetterstedt, 1838
-	Frons and face yellow to yellowish grey. Tergite 2 yellow with distinct black design. Sternite 2 yellow, usually with only a small, dark patch 4
4.	Apical spot on wing very narrow, reaching only to vein R_4 . Tergite 2 with black design in the form of an inverted, widely open letter "V", not connected with tergite 3. Following tergites with distinct yellow hind margins <i>C. divaricatus</i> Loew, 1858
-	Apical spot on wing large, occupying nearly three quarters of vein R_4 . Black design on tergite 2 in the form of a narrow inverted letter "V", connected below with tergite 3. Following tergites mostly black, without pale borders <i>C. caecutiens</i> (Linnaeus, 1758)
5.	Tergite 2 yellow with a single or paired black spots at middle. Anal cell usually closed, wings clear with distinct brown pattern (<i>relictus</i> group) 6
-	Tergite 2 except for side markings black with greyish median triangle. Anal cell usually open, wings tinted brown with undefined brown pattern (<i>rufipes</i> group). Darker species with undefined, striped thorax and brownish legs, base of femora darkened. Facial and genal calli large, genal calli touching eye margins and usually connected with facial calli .. <i>C. rufipes</i> Meigen, 1820
6.	Tergite 2 with a small square or oval black spot at middle near anterior margin. Apical spot on wing large, occupying about three quarters of vein R_4 <i>C. viduatus</i> (Fabricius, 1794)
-	Tergite 2 with two black spots, which are connected anteriorly, reaching anterior margin of the tergite. Apical spot on wing large, occupying nearly all of vein R_4 <i>C. relictus</i> Meigen, 1820
Males	
1.	Legs unicolorous black (<i>sepulcralis</i> group) 2
-	Legs bicoloured, at least posterior four tibiae brownish 5
2.	Face entirely polished black, no trace of pale ground colour. Abdomen black <i>C. sepulcralis</i> (Fabricius, 1794)
-	Face with distinctly separated polished black calli on yellowish to greyish ground colour 3
3.	Tergite 2 yellow with a black design in the form of an inverted and widely open letter "V". Apical spot on wing very narrow, of the same width as cell R_1 and reaching only to vein R_4 <i>C. divaricatus</i> Loew, 1858
-	Abdomen black, anterior two tergites at most with small yellowish patches at sides. Apical spot on wing distinct, at least slightly broader than width of cell R_1 4
4.	All tergites with distinct, narrow greyish to greyish-yellow posterior margins and median triangles. Apical spot on wing narrow, occupying only one third of vein R_4 , outer margin of cross band with distinct projection towards base of vein R_4 <i>C. nigripes</i> Zetterstedt, 1838
-	Abdomen entirely black with (usually) only a small lateral patch on tergite 2. Apical spot on wing large, occupying three quarters of vein R_4 , and no projection to outer margin of median cross band <i>C. caecutiens</i> (Linnaeus, 1758)
5.	Eyes meeting on frons. Tergite 2 with large, black central patch. Anal cell usually closed (<i>relictus</i> group) 6
-	Eyes narrowly separated on frons. Abdomen predominantly black, all tergites with yellow posterior margins, tergites 1–2 with small yellowish patches at sides. Anal cell usually open (<i>rufipes</i> group) <i>C. rufipes</i> Meigen, 1820
6.	Palpi very short and blunt, shorter than half the length of proboscis. Tergite 2 with two black triangular spots broadly connected anteriorly <i>C. relictus</i> Meigen, 1820
-	Tergite 2 with large square central spot, which is only very narrowly separated from posterior margin. Tergite 3 and 4 black with yellow stripe at posterior margin <i>C. viduatus</i> (Fabricius, 1794)

Fetsund, Bjanes (EIS 29), 4♀♀ 19 August 1987, 2♀♀ 13 June 1997, leg. K.M. Olsen, in malaise trap; BØ, Ringerike: Tyrstrand (EIS 36), 1♀ 11

July 1990, leg. Anders Dahl; Hurum: Tofte, Rød (EIS 28), 1♀ 13 June 1989, leg. MF; OS, Lunner; Roa, Kruggerudtjern (EIS 36), 1♀ 1 August

1968, leg. M. Falck; Lunner: Grindvoll (EIS 36), 1♀ 7 July 1991, leg. O. Lønnve; **TEI**, Tokke: Krossli (EIS 17), 11 July 1986, 11♀♀, leg. R. Mehl; **HES**, Elverum: Starmoen (EIS 46), 1♀ 11 June–29 July 2003, leg. L.O. Hansen; **FØ**, Sør-Varanger: Pasvik, Ellenvann (EIS 160), 1♂ 3 July 1966, leg. R. Mehl. Not recorded in Bergersen *et al.* (2004).

Remarks. A widely distributed species, known from most of Europe, and Russia into East Asia. In Ireland it is not known from the western parts, and in Norway it seems to have a clearly southern distribution, just bordering the Oslofjord. There is one record from Finnmark: Sør-Varanger, Pasvik, which does in fact not contradict this, because this area has a tendency to have warm temperatures in summer, though very cold in winter. It is also known from the Murmansk region, and the record from Pasvik probably belongs to the Russian population.

One of the commonest species of the genus (Chvála *et al.* 1972). Females suck blood from man, cattle and horses.

Chrysops divaricatus Loew, 1858

(Figure 3, Map 7)

Norwegian name: lys v-blinding

Recorded as new to Norway by Andersen & Kauri (1977), on the basis of 12 females caught on several localities in Vestfold. Rognes (1980) adds records from Buskerud.

Records. **AK**, Oslo: Oslo (EIS 28), different localities, 34 specimens between May 1967 and July 1993, leg. M. Falck; Maridalen, Dausjøen N (EIS 36), 1♀ 5 June–16 October 2010, leg. L.O. Hansen, in malaise trap; **BV**, Rollag (EIS 35), 1♀ 5 July 1983, leg. Bjørn Sagvolden; **VE**, Borre: Adalstjern (EIS 19), 8♀♀, June 1994, leg. L.O. Hansen, in malaise trap; **VAY**, Nedre Timenes, 1♀ 7 July 2005; 1♀ 20 July 2005, leg. Kai Berggren; **OS**, Søndre Land: Dokkadeltaet, Bergsrønningen (EIS 45), 4♀♀, 25 June–29 July, leg. L.O. Hansen & Finn Audun Grøndahl, in malaise trap; **NSI**, Hemnes: Korgenfjellet (EIS 118), 2♀♀, 7 July 2005, leg. M. Falck.

Remarks. Not mentioned in Bergersen *et al.* (2004).

This species is connected with swampy

regions, and occurs especially on peat bogs near lakes and ponds (Chvála *et al.* 1972). In the North, it is connected with taiga, and especially forest taiga. Females attack man, cattle, horses and dogs.

Distributed in the northern parts of Europe and Asia. The western borders of the distribution area going between the western and eastern parts of southern Norway, though it is reaching close to the coast further north. It is very rare in Denmark, and does not occur in Great Britain.

Chrysops nigripes Zetterstedt, 1838

(Figure 4, Map 8)

Norwegian name: svartfotblinding

Siebke (1877) states that professor Zetterstedt found this species in Bossekop in the vicinity of Alta in Finnmark 8 August 1821 (the female type specimen), and that a single specimen has been found on the mountain Høvringen in Rondane in 1861. Bidenkap (1900) reports it from Tromsø, where Sparre Schneider collected a male. He also states that Storm has taken it near Trondheim. Storm (1895) notes that this species is probably arctic, and that he has observed it several times at the Fenstad bogs outside Trondheim. Davies *et al.* (1971) found it in Rendalen, and two specimens at Kjemsjøen, Koppang. Solem *et al.* (1990) found it at Høylandet in Nord-Trøndelag. Rognes (1980) records it from Nordland, Troms and Finnmark.

Records. **HEN**, Rendalen: Ytre Rendal, Renådalen seter (EIS 64), 3♀♀, 20–21 June 1988, leg. J.E. Raastad; **BV**, Ustaoset, (EIS 42), 1♀, 4 July 1928, leg. Quelprud; Hol, 15 July (without year), leg. Embrik Strand Ustaoset (EIS 43), 1♀ 16 July 1928, leg. Quelprud; Rollag: Vårviken (EIS 35), 2♀♀, July 1994, leg. L.O. Hansen & B. Sagvolden; **BØ**, Modum: Hovlandsfjellet (EIS 28), 2♀♀ 16 June 1990, leg. L.O. Hansen; **TEI**, Seljord: Kvambekk (EIS 26), 1♀, 17 July 1993; **VAI**, Åseral: Fiskardalen (EIS 9), 1♀, 1 July 2003, leg. Kai Berggren; **OS**, Etnedal: Lenningen (EIS 53), 1♀, 28 July 1981, leg. MF; **ON**, Vang: Slettefjellet (EIS 52), 2♀♀, 19 July 1994; Raudalen 2♀♀, 18 July 1994, leg. M. Falck; 1♀, 9 July 1981, leg. B.S.; **NNV**, Andøy: Andenes (EIS 152), 2♀♀, 22 July, leg. Soot-Ryen; Lonntjønn, (EIS 86?); Hadsel: Myrland



FIGURES 2–8. Species in the genus *Chrysops*. 2. *C. caecutiens* (Linnaeus, 1758). 3. *C. divaricatus* Loew, 1858. 4. *C. nigripes* Zetterstedt, 1838, 5. *C. relictus* Meigen, 1820, 6. *C. rufipes* Meigen, 1820, 7. *C. sepulcralis* (Fabricius, 1794). 8. *C. viduatus* (Fabricius, 1794). Photos: K. Sund (NHM, Oslo).

(EIS 138), 1♀, 31 July 2006; **NSI**, Hemnes: Korgenfjellet (EIS 118), 1♂5♀♀, 7 July 2005; **TRI**, Storfjord: Skibotn (EIS 163) 1♀, 28 July 2000; **FV**, Alta: Årøya, Langskar (EIS 173), 1♀ 6 July–2 August 1997, leg. Helge Rinden, in malaise trap in slope at sea shore; **FN**, Porsanger: Børselv, Børselvdeltaet (EIS 182), 2♀♀ 27 July 2000; Kistrand (EIS 181), 1♀ 13 July 1997; **FØ**, Sør-Varanger (EIS 160), 1♀ without further data, leg. Schøyen; Pasvik, Nedregard (EIS 169), 2♀♀ 15 July 1997; Gjøkåsen (EIS 160), 3♀♀ 16 July 1997; Ellenvann, 1♀ 6 July 1966; 5♀♀, 13 July 1966; Nyrud, 1♀ 13 June 1966; 14 July 1966; Ivargammevann, 4♀♀ 4 July 1966; Vaggatem, 1♀ 7 July 1966, leg. R. Mehl; Nyrud, 1♀ June–July 1966, leg. Mehl & Lillehammer; Neiden (EIS 168), 1♀ 16 July 1997; Sørvaranger: Pasvik, Nyrud (EIS 160), 8♀♀ 6 July 1997; Noatun, 4♀♀ 6 July 1997, leg. M. Falck; Jarfjord (EIS 169), 1♀ 1 July 1891; Kirkenes, 1♀ 3 August 1891, leg. Wessel; **FI**, Karasjøk: Valljåka, Smolo (EIS 167), 1♀ 14 July 1997; Buddasnjarga (EIS 167), 3♀♀ without date, leg. M. Falck; Kautokeino, Njulkseanian, (EIS 149), 1♂ 10 July 2008, leg. O. Sørlibråten.

A northern and very common species, occurring at swampy biotopes, “especially near rivers and brooks.” (Chvála *et al.* 1972) Not found in Denmark. In Southern Norway it seems to prefer higher altitudes. One of the three *Chrysops* species that is recorded by Bergersen *et al.* (2004).

Holarctic, found through Siberia to Sachalin, Alaska and Canada.

[*Chrysops quadratus* Meigen, 1820: This name has been synonymized with *C. viduatus* (Fabricius, 1749). As Siebke (1877) states that *C. quadratus* has been found in Nordland by professor Zetterstedt in 1840, and *C. viduatus* is a much more southern species, there seems to be a misunderstanding on Siebkes part here. According to Bergersen *et al.* (2004), North Norwegian records of *C. viduatus* should all refer to *C. relictus*.]

Chrysops relictus Meigen, 1820

(Figure 5, Map 9)

Norwegian name: vanlig blinding

Siebke (1877) reports this species as frequent in the whole of Norway, as far north as North Cape. Rognes (1980) records it from Østfold, Buskerud, Telemark, Rogaland, Møre og Romsdal, Nordland and Troms provinces. Davies *et al.* (1971) reports it from Rendalen, and a single specimen from “middle Norway”. Solem *et al.* (1990) found it at Høylandet (N. Trøndelag).

This species is so common, that it seems meaningless to list the records. It does occur from the Southern end of Norway to the Pasvik area in the North, abundant everywhere. In Finnmark county, it seems to prefer more inland localities. Districts where it has not yet been recorded (like some of the fjords in Western Norway, parts of Nordland county, etc.), will probably, if visited by collectors, show this species to be common there as well.

One of the most common species in Europe, “Adults are found most often near water, but also in forests”. (Chvala *et al.* 1972). Females attack man, cattle, horses, camels, deer and rodents, and are known as vectors of tularemia.

[*Chrysops melanopleurus* Wahlberg, 1848: This species was reported by Siebke (1877). The name has since been synonymized With *C. relictus*, and as such deleted from the Norwegian list.]

Chrysops rufipes Meigen 1820

(Figure 6, Map 10)

Norwegian Name: rødfoftblinding

Siebke (1877) reports this species from Christiania (= Oslo). It seems not to have been collected again in Norway until in 1966, when two specimens were collected in Oslo. Twenty years later, two specimens were collected, this time in Pasvik, as far from Oslo as it is possible to come on the Norwegian mainland.

Records. **AK**, Oslo, Nordmarka, Sognsvann (EIS 28), 27 June 1986, 2♀♀: **FØ**, Sør-Varanger: Pasvik, Ivargammevann (EIS 160), 2♀♀ 4 July 1966, leg. R. Mehl.

The old specimen collected by Siebke seems to be lost, and the species would have been deleted

from the Norwegian list, as so many years have passed since Siebke's time. But as the collection of NHMO holds the four "new" specimens from Oslo and Finmark, taken by Reidar Mehl, the species should be listed as "rediscovered." The records seem to show that there are two Norwegian populations, a question which is not pursued in the present article. However, both in Sweden and Finland this species is considered a rare species, found only in the southern parts of the country (Cederberg 2010). Chvála (1988) lists the species from all European countries except the British Isles and Ireland, which makes the Pasvik specimens the most northern record in the world. This record also makes invalid the statement of Bergersen *et al.* (2004), that "Former North Norwegian records of *C. rufipes* (...) should all refer to *C. relictus*."

According to Chvála *et al.* (1972) the species can be very common on peat bogs, wet meadows and along shores and lakes.

***Chrysops sepulcralis* (Fabricius, 1794)**

(Figure 7, Map 11)

Norwegian name: gravkammerblinding

Siebke reports this species from Christiania (= Oslo), from Aamot and Åset and Grundset, but not from Laurgård in the Gudbrandsdalen valley. It has been found in Næs in Verdalen. Davies *et al.* (1971) reports it from "middle Norway".

Very rare. It is not known from the South of Europe, and in the North it is seldom met. There are just ten new specimens: 2 females caught at **AK**, Fet: Fetsund, Bjanes (EIS 29), 19 July 1987, leg. M. Falck, and one from the same locality, 29 June 1986, leg. Reidar Mehl, 2 specimens from **HES**, the Kongsvinger area, (EIS 38), 28 June and 5 July 2005, leg. O. Sørlibråten, and 5 specimens caught in a malaise trap by L.O. Hansen and Finn Audun Grøndahl, **OS**, Søndre Land: Dokka-deltaet, Bergsrønningen, (EIS 45), 25 June–29 July 2009.

* ***Chrysops viduatus* (Fabricius, 1794)**

(Figure 8, Map 12)

Norwegian name: firkanthblinding

See above under *C. quadratus*. Kauri lists this species from Vestfold province (Kauri 1996), but

it has not been possible to track the documentation for this.

Records. **Ø**, Hvaler: Kjerkøy, Ørekroken (EIS 12), 1♀ 16. July–15. August 2003; 5♂♂3♀♀ 22. June–16 July 2003, in malaise trap, leg. L. O. Hansen; Arekilen, 1♀ 9 August 1998, leg. M. Falck; **HES**, Eidskog: Leirsjøen (EIS 38), 2♀♀ 19 June 1992, leg. L. O. Hansen; **TEY**, Drangedal: Skultrevassåsen (EIS 11) 1♀ 23. July–9 September 1996, in malaise trap, leg. Alf Bakke; **VE**, Borre: Adalstjern (EIS 19), 1♀ July 1997, leg. L.O. Hansen.

This is a rarely seen species, just caught in a few localities around the Oslofjord, with Norway's most warm and stable climate. In Denmark it is "about as common as *C. relictus*" (Lyneborg, 1960), and Chvála *et al.* (1972) says it prefers warmer climate. It is widespread in Europe, but not reported from Ireland.

Subfamily TABANINAE

Tribe Tabanini

Genus *Atylotus* Osten-Sacken, 1876 (Table 3)

***Atylotus fulvus* (Meigen, 1804)**

(Figure 9, Map 1)

Norwegian name: gulklegg

Siebke (1877) notes this species (under the genus name *Tabanus*) as found in Christiania (= Oslo). Bidenkap (1892) states that this is a rare species, and that he has two males and a female in his possession, but he gives no locality. Rognes (1980) adds a record from Aust-Agder.

Records. **VE**, Larvik: Hoffsetra (EIS 19), 1♂ 27 July 2008, leg. A. Fjellberg; **Ø**, Fredrikstad: Onsøy (EIS 20), 1♀ 23–29 July 2006, leg. O. Lønnve; **AK**, Kristiania (= Oslo) (EIS 28), 1♂1♀ without head, leg. Esmark; 1♀, leg. Siebke; **AAV**, Arendal (EIS 6) 1♂1♀, both without head, July 1838, leg. Esmark; **BØ**, Røyken: Hyggen, Kinnartangen (EIS 28), 1♀ 6 July–4 August 1991; Drammen: Underlia, 1♀ July 1995, leg. L. O. Hansen, in malaise trap; **FØ**, Sør-Varanger: Pasvik, Svartbrysttjørna (EIS160), 1♀ 23 July 200, leg. M. Falck.

Female attacks mammals (humans, horses,

TABLE 3. Key to the Norwegian species of genus *Atylotus* Osten-Sacken, 1876 (after Chvála *et al.* 1972).

Females	
1. Eyes distinctly pubescent, even if hairs are short	2
- Eyes naked	4
2. Small, greyish species, at most 11 mm	3
- Larger species, about 14 mm	5
3. Frons broad, index 1:2,3–2,5. Palpi stout, about 2,5 times as long as deep. Vertex with a row of black hairs	<i>A. sublunaticornis</i> (Zetterstedt, 1842)
- Frons narrower, index 1: 3–3.3, palpi more slender. Vertex with only fine, short, pale hairs	<i>A. plebejus</i> (Fallén, 1817)
4. Vertex with very short, pale hairs. Basal antennal segments with black hairs	<i>A. latistriatus</i> (Brauer, 1880)
- Vertex With only minute, pale hairs	5
5. Yellowish to yellowish-brown species with naked eyes. Frontal calli very small. Antennal segment 3 about as long as deep	<i>A. fulvus</i> (Meigen, 1820)
- Greyish species With silvery-grey pubescence. Femora entirely greyish-black, only apex yellowish. Frons rather broad	<i>A. rusticus</i> (Linnaeus, 1767)
Males	
1. Small species, 9.5–11 mm, long greyish haired. Venter of abdomen unicolor greyish	2
- Larger, yellowish to greyish coloured species. Venter of abdomen always at least somewhat yellowish anteriorly	3
2. Vertex with a row of very long, black hairs	<i>A. sublunaticornis</i> (Zetterstedt, 1842)
- Vertex with fine, short pale hairs	<i>A. plebejus</i> (Fallén, 1817)
3. Dorsum of abdomen with dark, black median stripe	<i>A. latistriatus</i> (Brauer, 1880)
- Dorsum of abdomen without black median stripe	4
4. Ocher-coloured, yellowish species with large, semiglobular head and greyish notopleural lobes	<i>A. fulvus</i> (Meigen, 1820)
- Abdomen mostly greyish pubescent. Femora grey, at most apical third yellowish	<i>A. rusticus</i> (Linnaeus, 1767)

cattle, dogs and moose). A typical forest species, but never common. (Chvála *et al.* 1972) Distributed all over Europe, Russia to East Siberia.

*** *Atylotus latistriatus* Brauer, 1880**

(Figure 13, Map 2)

Norwegian name: stripeklegg

This very rare species is here reported new to Fennoscandia. Collected by Ole Lønnve in Ø, Fredrikstad: Slevik (EIS 20), on 22–23 July 2000 in a single male specimen. However, this specimen, which in accordance with the description in Chvála *et al.* (1970) has a very narrow, dark stripe along the middle of the abdomen, does not correspond with the description in works like Stubbs & Drake (2000) and pictures on the internet. This suggest that there exists some misunderstanding of this species, and it is not well understood.

The species is distributed in southern Europe,

the Balkans and Russia, but has never been reporter from north of Lithuania, Germany and Southern England.

Unfortunately, the species is not available for photographing at the moment.

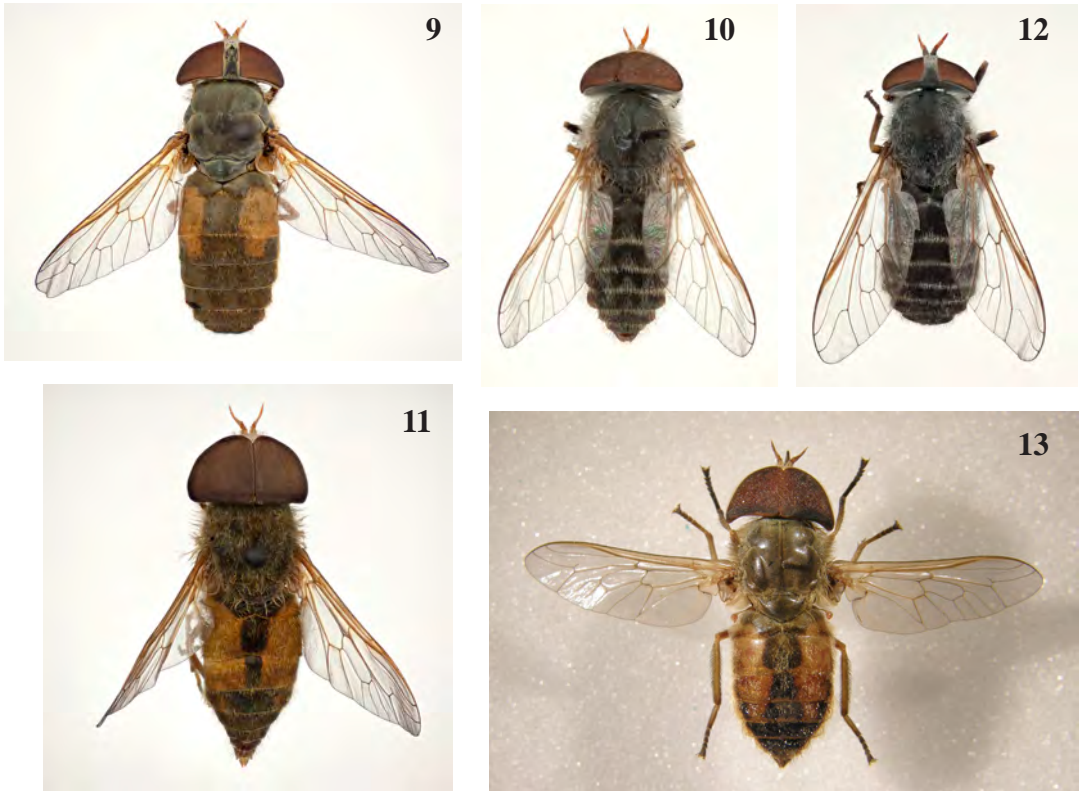
***Atylotus plebejus* (Fallén, 1817)**

(Figure 10, Map 3)

Norwegian name: plebeierklegg

Siebke (1877) found two specimens of this species (which he catalogues under the genus name *Tabanus*) at Dovre. Kauri (1968) reports it from Rogaland.

Records. ON, Dovre (EIS 71), 1♀ leg. Siebke; BØ, Lier: Garsjø, Grunnvann (EIS 28), 1♂ 9 July 1996, leg. L.O. Hansen; HES, Eidskog: Vestmarka (EIS 38), 1♀ 5 July 1997, leg. Heibo & Lønnve; VAI, Åseral: Fiskårdalen (EIS 9), 1♀ 1 July 2005, leg. K. Berggren; VE, Borre, Adalstjern (EIS 19), 1♀ July 1997, leg. L. O.



FIGURES 9–13. Species in the genus *Atylotus*. **9.** *A. fulvus* (Meigen, 1804). **10.** *A. plebejus* (Fallén, 1817). **11.** *A. rusticus* (Linnaeus, 1767). **12.** *A. sublunaticornis* (Zetterstedt, 1842). **13.** *A. latistriatus* Brauer, 1880 (The photo does not show the original Norwegian specimen). Photos 9–12: K. Sund (NHM, Oslo). Photo 13: Steven Falk.

Hansen.

A rare species that has never been observed sucking the blood of humans or other animals, and has only been collected on flowers. The larvae probably live in Sphagnum (Chvala *et al.* 1972). Distributed throughout North and Middle Europe, and Russia to Central Asia.

***Atylotus rusticus* (Linnaeus, 1767)**

(Figure 11, Map 4)

Norwegian name: bondeklegg

Siebke (1877) notes this species (under the genus name *Tabanus*) from Christiania (= Oslo), Sandefjord and Sarpsborg. Bidenkap (1892) reports two female specimens from Vestfold. Davies *et al.* (1971) reports it from “Middle Norway”.

Records. VE, Sandefjord (EIS 19), 1♂, leg. Siebke, without head; AK, Kristiania (= Oslo)(EIS

28), 3♀♀ leg Esmark; 2♀♀ leg. Siebke; Bærum: Borøy, 1♀ 26 June–9 September 1995, leg. L.O. Hansen, in malaise trap; BØ, Røyken: Hyggen, Kinnartangen (EIS 28), 1♂ 6 July–4 August 1991, in malaise trap; Drammen: Underlia, 1♀ June 1997, in malaise trap.

Female attacks humans, horses, horned cattle, moose and wild boars, and has been recorded as vector of tularaemia, trypanosomiasis and anthrax. Widely distributed from the British Isles, Scandinavia and Siberia, reaching south to north Africa and Turkey. (Chvála *et al.* 1972). In Norway this species seems to have a very limited distribution.

***Atylotus sublunaticornis* (Zetterstedt, 1842)**

(Figure 12, Map 5)

Norwegian name: retthornsklegg

Siebke (1877) notes that this species (under the

genus name *Tabanus*) has been found in Verdal by Zetterstedt, and on the island Smøla. Kauri (1968) reports it from Kongsvoll, Sør-Trøndelag.

Records. Ø, Trøgstad: Kalkmosen (EIS 29), 1♂1♀ 21 June 2007, leg. O. Sørlibråten; **BV**, Rollag (EIS 35), 1♀ 1984, leg. Sagvolden (ex pupa); Rollag: Vegglifjell (EIS 34), 1♀ 20 July 2002, leg. Devegg Ruud; **MRY**, Smøla (EIS 90), 1♂ leg. Siebke; **VAI**, Åseral: Fiskårdalen, (EIS 9), 1♂ 1 July 2005, leg. K. Berggren.

Female attacks humans, horses, horned cattle, moose and wild boars, and has been recorded as vector of tularaemia, trypanosomiasis and anthrax. Widely distributed from the British Isles, Scandinavia and Siberia, reaching south to north Africa and Turkey (Chvála *et al.* 1972). In Norway this species seems to have a very limited distribution.

A species with a Holarctic distribution, widely distributed from Alaska to Newfoundland, and into the northern parts of the US, and in the Palearctic, North and Central Europe.

Genus *Hybomitra* Enderlein, 1922 (Table 4)

Large to medium-sized flies that are notoriously difficult to determinate. There is a lot of intra-specific variation, which must take the blame for the problems in reaching a certain identification. Until 1922 these flies were considered as belonging to the genus *Tabanus*. The erection of the genus *Hybomitra* made things clearer, but still both *Hybomitra* and *Tabanus* are very large genera, containing more than 150 species (*Hybomitra*) and more than 1050 species (*Tabanus*) respectively. Further research will probably result in these genera being divided into several smaller ones, eventually corresponding with the “groups” of Chvála *et al.* (1972).

The most specious genus in the Norwegian fauna, comprising almost half the species of the family. Before trying to determine them, it is advisable to have as great a material as possible.

Hybomitra arpadii (Szilady, 1923)

(Figure 14, Map 18)

Norwegian name: gulfflekket klegg

A Holarctic species, found throughout Russia,

Siberia to the Bering coast, and widespread in Alaska, Canada and the North Eastern states and Minnesota of the USA.

Davies *et al.* (1971) found it in Rendalen, and Solem *et al.* (1990) found this species at Høylandet (Nord-Trøndelag). Bergersen *et al.* (2004) reported it as numerous in the inner regions of Finnmark.

Records. **VAY**, Kristiansand: Karlsmoen (EIS 2), 1♂ 11 July 2005, leg. Kai Berggren; **RY**, Karmøy: Midtstokke (EIS 13), 1♂ June 1995, leg. Magne-Henrik Velde; **TEI**, Tokke: Krossli, hytta (EIS 17), 1♀ 11 July 1985, leg. R. Mehl; **HOI**, Ulvik: Finse (EIS 42), 1♂ 24 July 1991, 1♂ 29 July 1991, O. Lønnve leg; **BV**, Haugastøl (EIS 42), 1♂ 9 July 1963, leg. N. Simonsen, small specimen; **HES**, Eidskog (EIS 38), 5♀♀ 23 June 1974, 3♀♀ 8 July 1974; 3♀♀ 9 July 1974, 4♀♀ 11–24 July 1974, leg. R. Mehl; Elverum: Kynnberget (EIS 46), 1♂ 7 August 1965, very big specimen; **FØ**, Sørvaranger: Pasvik (EIS 160), 1♀ 24 July 1995 leg. H. Rinden; Gjøkåsen, 1♀ 16 July 1997; Nyrud 1♀ 25 July 2000, leg. M. Falck; 2♀♀ 13 July 1966; 2♀♀ 14 July 1966, leg. R. Mehl; Ellenvann, 2♀♀ 12 June 1966, leg. R. Mehl; Sør. Varanger: Kirkenes (EIS 169), 1♀ 13 July 1966, leg. R. Mehl.

The species is not very common.

Hybomitra astuta (Osten-Sacken, 1876)

(Figure 15, Map 19)

Syn. *H. polaris* (Frey, 1915)

Norwegian name: polarklegg

A Holarctic species, known from Scandinavia through Siberia to Kamchatka, and with just two records from northern Alaska (Teskey 1990).

There is a certain degree of uncertainty concerning the conspecificity of *H. astuta* and *H. polaris*. Kauri (1964, but not in the 1998 list) regarded them as separate species, as did Teskey (1990). Here, they are treated as conspecific, like in Chvála (1988), which seems most reasonable.

Records. **HOI**, Ulvik: Finse (EIS 42), 1♀ 27 July 1991, leg. O. Lønnve; **FØ**, Sør-Varanger: Pasvik, Svartbrysttjørna (EIS 160), 1♀ 23 July 2000, leg. M. Falck.

There are only two new records, and these two specimens are quite unlike in several characters.

TABLE 4. Key to the Norwegian species of genus *Hybomitra* Enderlein, 1922 (after Chvála *et al.* 1972).

Females	
1.	Larger blackish species with broad, conspicuously whitish dusted and silvery-yellow to golden-yellow pubescent margins to all tergites. Legs extensively orange-yellow, palpi long and slender (<i>tarandina</i> group) <i>H. tarandina</i> (Linnaeus, 1758)
-	Not as above 2
2.	Legs unicolourous black. Medium-sized blackish species (<i>aterrima</i> group) 3
-	Legs bicoloured, at least posterior tibiae brownish. Reddish-brown or blackish-grey species 4
3.	Abdominal tergites more or less distinctly goldenyellow pubescent on posterior margins <i>H. auripila</i> (Meigen, 1820)
-	Abdomen entirely black with concolourous hairs, or with indistinctly greyish haired median triangles or posterior margins at sides. Palpi blackish <i>H. aterrima</i> (Meigen, 1820)
4.	Apical segment of palpi long and slender, more than 3.5 times as long as deep, distinctly brown, black haired (<i>borealis</i> group) 5
-	Apical segment of palpi distinctly stout at base, at most 3 times as long as deep, always whitish-yellow to light brown .. 9
5.	Conspicuously reddish-brown species on anterior three to four tergites at sides. Antennae chestnut-brown with segment 3 very broad. Frons narrow, index 1:4–4.5 <i>H. arpadi</i> (Szilády, 1923)
-	Blackish-grey species or anterior tergites chestnut-brown at sides and all tergites with whitish posterior margins 6
6.	Abdomen black with more or less distinct greyish pattern of sublateral spots, median triangles and indefinite paler borders on posterior margins to all tergites 7
-	Abdomen shining black with conspicuous, narrow whitish borders to all tergites posteriorly, at least tergite 2 at sides distinctly chestnut-brown coloured 8
7.	Frons broad, index about 1:2.5. Antennae mostly black, palpi lighter brown. Grey sublateral patches very distinct and rather light grey <i>H. astuta</i> (Osten-Sacken, 1876) [<i>polaris</i> (Frey, 1915)]
-	Frons narrower, index about 1:4. Antennae brown except on terminal flagellar segments, palpi dark brown. Greyish abdominal pattern rather indistinct <i>H. borealis</i> (Fabricius, 1781)
8.	Antennae extensively black, segment 3 rather slender, reddish-brown at most on basal half. Frons broader, index about 1:2.5. Generally darker and smaller species, usually only tergite 2 chestnut-brown at sides <i>H. sexfasciata</i> (Hine, 1923)
-	Antennae brown except for black terminal flagellar segments, segment 3 broader with rectangular dorsal tooth. Frons narrower, index about 1:3.5. Generally larger species, extensively lighter chestnut brown on anterior 3 tergites at sides <i>H. kaurii</i> (Chvála & Lyneborg, 1970)
9.	Frons broader, index 1:2.5–4, rather parallel-sided. Lower callus large, plain and polished (except <i>nitidifrons confiformis</i>) (<i>montana</i> group) 10
-	Frons narrower, index 1:4–6, usually distinctly widened above. Lower callus usually small and distinctly wrinkled, not polished (<i>bimaculata</i> group) 17
10.	Dorsum of abdomen entirely blackish-grey, without reddish-brown side markings 11
-	Abdomen largely reddish-brown at sides, brownish side markings at least on second tergite 12
11.	Subcallus low, not higher than frons is broad below, slightly convex. Frons broader, index 1:3–3.5. Antennal segment 3 very slender, dorsal tooth hardly visible <i>H. nigricornis</i> (Zetterstedt, 1842)
-	Subcallus rather high, of usual shape, not convex. Frons narrower, index 1:3.5–4. Antennal segment 3 not so slender, dorsal tooth more distinct <i>H. montana</i> var. <i>flaviceps</i> Meigen, 1820
12.	Subcallus at least at middle or on the upper part polished brown to black 13
-	Subcallus entirely dulled by greyish dust 14
13.	Subcallus distinctly convex and entirely polished black to blackish-brown. Lower callus plain, usually polished black. Generally smaller species, 11.5–15 mm <i>H. lurida</i> (Fallén, 1817)
-	Subcallus shining brown to blackish-brown at middle or on the upper part, not convex. Lower callus usually brownish, only slightly shining and distinctly wrinkled. Generally larger species, 14–18 mm <i>H. nitidifrons confiformis</i> (Chvála & Moucha, 1971)
14.	Apical segment of palpi very stout and rather short, less than 2.5 times as long as deep. Lower callus wrinkled <i>H. nitidifrons confiformis</i> Chvála & Moucha, 1971

TABLE 4. *continued*

-	Apical segment of palpi not so stout, almost 3 times as long as deep. Lower callus plain and polished	15
15.	Antennal segment 3 broad, mostly reddish-brown. Notopleural lobes blackish	<i>H. lundbecki</i> (Lyneborg, 1959)
-	Antennal segment 3 rather slender and more or less darkened. Notopleural lobes brown	16
16.	Antennal segment 3 rather slender, brownish at base. Thorax at sides and abdomen mostly golden-yellow haired. Generally larger species, 15.5–18 mm	<i>H. tropica</i> (Linnaeus, 1758)
-	Antennal segment 3 conspicuously slender, often slightly brownish at extreme base. Thorax at sides and abdomen with greyish and black hairs. Generally smaller species, 12.5–16 mm	<i>H. montana</i> (Meigen, 1820)
17.	Dorsum of abdomen unicolorous blackish-grey with greyish pattern, at most anterior two tergites with a trace of brown coloration	<i>H. bimaculata</i> var. <i>bisignata</i> (Jaenicke, 1866)
-	Abdomen with reddish-brown sidemarkings on at least two anterior tergites	18
18.	Reddish-brown sidemarkings on not more than anterior three tergites, or if small side markings also on tergite 4, then basal antennal segments distinctly grey dusted	19
-	Reddish-brown sidemarkings on anterior four tergites, or if only on anterior three, then basal antennal segments and notopleural lobes light brown	21
19.	Notopleural lobes brown	<i>H. muehlfeldi</i> (Brauer, 1880)
-	Notopleural lobes blackish	20
20.	Basal antennal segments greyish-black. The dark median stripe on abdomen broad, occupying more than 1/3 of tergites. Pleura mostly dark grey and black-haired	<i>H. bimaculata</i> (Macquart, 1826)
-	Basal antennal segments lighter, the brown ground colouration is shining through. Dark median stripe narrower, less than 1/3 of tergite. Sidemarkings light yellowish-brown (almost whitish). Pleura light grey haired	<i>H. solstitialis</i> (Meigen, 1820)
21.	Basal antennal segments and notopleural lobes yellowish-brown, lower frontal callus often brown	<i>H. ciureai</i> (Seguy, 1937)
-	Basal antennal segments greyish-black, notopleural lobes dark brown or blackish, lower callus black	<i>H. distinguenda</i> (Verrall, 1909)

Males

(The male of *H. astuta* is not known, and consequently not included in the key.)

1.	Larger, blackish species with broad and conspicuously silvery-yellow to golden yellow pubescent posterior margin to all tergites. Legs extensively orange-yellow	<i>H. tarandina</i> (Linnaeus, 1758)
-	Not as above	2
2.	Black species, with legs unicolorous black and venter of abdomen shining black in ground-colour. Anterior tergites often translucent dark brown at sides (<i>aterrima</i> group)	3
-	Reddish-brown to greyish-black species, legs brown at least on posterior tibiae. Venter brownish anteriorly, only exceptionally posterior margins distinctly whitish	4
3.	Abdomen with more or less distinctly golden-yellow pubescent posterior margins on tergites and sternites. Posterior tibiae rather shorthaired	<i>H. auripila</i> (Meigen, 1820)
-	Abdomen black haired with more or less distinct silvery/grey pubescent median triangles. Hind tibiae with longer black hairs anteriorly and posteroventrally	<i>H. aterrima</i> (Meigen, 1820)
4.	Apical segment of palpi slender, rather cylindrical in shape, blackish-brown to brown (<i>borealis</i> -group)	5
-	Apical segment of palpi very stout, or if elongated, then whitish-grey to yellowish-brown	7
5.	Palpi rather lighter brown. Facets almost equal in size, only indistinctly enlarged above. Reddish-brown sidemarkings on anterior three to five tergites, a dark median stripe occupying 1/4–1/3 of tergite 3	<i>H. arpadii</i> (Szilady, 1923)
-	Palpi blackish-brown to dark brown. Upper facets distinctly enlarged. Anterior three tergites darker brown at sides, dark median stripe occupying about 1/3 of tergite 3	6
6.	Facets on the upper part of eyes very large and sharply separated from small facets. All tergites with distinct, narrow, whitish-grey posterior borders, venter unicolorous blackish-grey. Larger species, 14–16 mm length	<i>H. kaurii</i> Chvala & Lyneborg, 1970
-	Facets on upper part of eyes enlarged, but not sharply separated from small facets. Tergites without conspicuous whitish posterior margins, venter yellowish-brown on anterior sternites. Smaller species, 11–13 mm	<i>H. borealis</i> (Fabricius, 1781)

TABLE 4. continued

7.	Eyes meeting in frons for a shorter distance, equal to one and a half times the height of subcallus	8
-	Eyes meeting in frons for a longer distance, equal to twice the height of subcallus	10
8.	Antennal segments 3 black, at most slightly brown at base	<i>H. nigricornis</i> (Zetterstedt, 1842)
-	Antennal segments 3 reddish-brown, at most terminal flagellar segments black. All facets almost equal in size	9
9.	Dark median stripe on abdomen broader, occupying 1/3–1/5 of tergite 3, slightly widened posteriorly or parallel. Scutellum With black hairs. Smaller species, 13–14 mm	<i>H. lurida</i> (Fallén, 1817)
-	Dark median stripe narrower, occupying 1/8–1/5 of tergite 3, posteriorly narrower. Scutellum apically with pale hairs. Larger species, 14–17 mm in length	<i>H. nitidifrons confiformis</i> Chvála & Moucha, 1971
10.	Antennal segment 1 above with long black hairs which are as long as or longer than basal two segments combined. Palpi distinctly stout, almost globular. Vertex with a tuft of long, black hairs behind ocellar tubercle. Antennal bows of equal width (<i>bimaculata</i> group)	13
-	Antennal segment 1 above with short, black hairs, which are much shorter than basal segments combined. Palpi rather oval, not very stout. Vertex at most with a few shorter hairs. Antennal bows broader in the middle (<i>montana</i> group) ...	11
11.	Antennal segment 3 reddish-brown except for the terminal flagellar segments, rather broad, with distinct dorsal tooth. Notopleural lobes blackish	<i>H. lundbecki</i> Lyneborg, 1959
-	Antennal segment 3 extensively blackish and rather slender, dorsal tooth slightly developed. Notopleural lobes brown	12
12.	Antennal segment 3 rather slender, at most slightly brownish on basal half, dorsal tooth slightly developed. Abdomen predominantly with golden-yellow hairs. Generally larger species, 15.5–17 mm	<i>H. tropica</i> (Linnaeus, 1758)
-	Antennal segment 3 very slender and almost black, dorsal tooth indistinct. Abdomen mostly greyish and black haired. Generally smaller species, 13–15 mm in length	<i>H. montana</i> (Meigen, 1820)
13.	Facets almost equal in size, median facets only slightly larger than lower facets. Notopleural lobes blackish. Brown side markings on anterior three tergites, dark median stripe broader, occupying 1/5–1/3 of tergite 3	14
-	Upper facets considerably enlarged. Brown side markings as a rule on anterior four tergites, or if only on three tergites, then notopleural lobes brownish; dark median stripe narrow, occupying about 1/8 of tergite 3	15
14.	Thorax, especially on pleura, light grey haired. Dark median stripe on abdomen rather narrow, occupying about 1/5 of tergite 3. Brown side markings very light, without greyish shadows	<i>H. solstitialis</i> (Meigen, 1820)
-	Thorax dark grey and black haired. Dark median stripe broader, occupying 1/4–1/3 of tergite 3. Brown sidemarkings with greyish shadows	<i>H. bimaculata</i> (Macquart, 1826)
15.	Upper facets very enlarged and sharply separated from the lower, small facets. Basal antennal segments brownish. Notopleural lobes brown	<i>H. ciureai</i> (Séguy, 1937)
-	Upper facets less strongly enlarged and gradually smaller downwards. Basal antennal segments grey or greyish-black ..	16
16.	Dark median stripe with broad and low whitish-grey median triangles, sharply separated from brown sidemarkings. Tergite 1 broadly goldenyellow haired on posterior margin. Notopleural lobes blackish, only occasionally brownish	<i>H. distinguenda</i> (Verrall, 1909)
-	Dark median stripe with less distinct and higher pale median triangles, not very sharply separated from brown sidemarkings. Tergite 1 at most with a narrow posterior border of goldenyellow hairs. Usually only anterior three tergites brown at sides, notopleural lobes usually brownish	<i>H. muehlfeldi</i> (Brauer, 1880)

However, the specimen from Pasvik, being newly hatched, is very typical regarding all the essential characters.

A very rare species in the far north of Europe, which is not by far as rare in the American range of distribution, where it reaches well into the USA (Teskey 1990).

* *Hybomitra aterrima* (Meigen, 1820)

(Figure 16, Map 20)

Norwegian name: svartklegg

Davies *et al.* (1971) reports this species from Rendalen, but says that “our specimens of *H. aterrima* may be var. *auripila* Meigen.” In addition they report a single specimen from “middle Norway”. This species is considered by many modern authors to be conspecific with the following one.

Bergersen *et al.* (2004) cites Andersson (1975), who shows that only *auripila* is found in Scandinavia. but he does not discuss the eventual conspecificity with *aterrima*, nor do the authors of Bergersen *et al.* (2004) say whether they are comparing with Scandinavian material or if they have got specimens of *aterrima* from Southern Europe. But accepting the results of Andersson (1975), of course render “Scandinavian” specimens determined as *aterrima* useless in a comparative analysis. Thus this question is not possible to solve, and raising it over and over again will just add to the confusion.

However, in the spring of 2014 Eva Songe Paulsen reported a male specimen of a very dark horsefly from **RI**, Suldal: Grunnvatnet, Kjetilstad (EIS 15), 5 August 2012 on the Norwegian internet page “Artsobservasjoner” (= Species observations). Another specimen, also that a male, was reported on the same internet page by Inge Flesjå, from **VA**, Lindesnes, Blørstad: Storbekken, EIS 1, photo taken 1 July 2013. These two specimens both corresponds to the description of *aterrima* in Chvála *et al.* (1970), and thus solves the question that Bergersen *et al.* (2004) battles with. That this species was not really known until now, also explains why Andersson (1975) could reach his conclusion. But if there really is a viable population of *aterrima* in this South-westerly corner of Norway, or these two specimens are migrants, remains to be seen.

Eva Songe Paulsen kindly loaned her specimen to the present author. It was clearly a specimen of *H. aterrima*, and is far too dark to be confused with *H. auripila*. The species is thus added to the Norwegian list, and the question of conspecificity is regarded as solved.

Hybomitra auripila (Meigen, 1820)

(Figure 17, Map 21)

Norwegian name: gullhårsklegg

Meigen (1820) described this species from Norwegian material. Siebke (1877) reports it (under the genus name *Tabanus*) from Christiania (= Oslo), Eidsberg, Odalen, Hoff in Solør, in all of the Gudbrandsdal valley and in Østerdalen, but not in the Dovre mountains, and in addition from Sarpsborg. He also reports *Tabanus lugubris*

(Zetterstedt, 1838), which Zetterstedt has found in Bjerkvik in Nordland, and he himself has taken in Hemsedalsfjellet, but not at Hjerkin in the Dovre mountains. This name has since been synonymized with *H. auripila*. Siebke also reports *Tabanus nigerrimus* Zetterstedt, 1842, which is now regarded another synonym of *Hybomitra auripila*. He records it from Verdal, where G. Dahlbom has collected it. Schneider has reported a single specimen from Bergen. Siebke then notes that *lugubris* and *nigerrimus* are synonyms for *auripila*. Bidenkap (1892) reports this species as common on umbellifers. He does not single out the different species, but treats both *auripilus*, *aterrimus* and *nigerrimus* as variations of the same species. Storm (1895) reports this species to be incomparably most abundant at the Fenstad bogs (under the name *Tabanus auripilus*) near Trondheim. Davies (1954) reports this species (as *H. aterrimus*, var. *auripilus* Meigen) as numerous at Holandsfjord. Rognes (1980) adds records from Vestfold, Telemark, Nord-Trøndelag, Nordland, Troms and Finnmark. Solem *et al.* (1990) found this species a very common one at Høylandet.

Bergersen *et al.* (2004) treats this as a northern form of *aterrima*, under that name.

Records. **TEY**, Drangedal: Skultrevassåsen (EIS 11), 1♀ 23 July–9 September 1996, Alf Bakke leg. in malaise trap; **TEI**, Tinn: Rjukan, Møsvatn (EIS 26), 1–17 July 1996, leg. B. Sagvolden; Tokke: Krossli (EIS 17), 12♀♀ 13 July 1985; 1♀ 14 July 1985, leg. R. Mehl; Seljord: Kvambekk (EIS 26), 2♀♀ 17 July 1993; Svartdal, 2♀♀ 28 June 2005, leg. M. Falck; **VE**, Larvik: Holtsetra (EIS 19), 1♀ 27 July 2008, leg. A. Fjellberg; Hedrum: Roppestad, 1♀ 11 June 1984, leg. K. Berggren; **AK**, Oslo (= Kristiania) (EIS 28), 1♀ leg Esmark, without date; Oslo: Østmarka, Sandbakken, 1♀ 30 June 1968, leg. M. Falck; Ås: Ås (EIS 28), 1♀ 18 June 1978; Nesodden: Skoklefall (EIS 28), 1♀ 27 June–9 July 2005; 1♀ leg. Ole Lønnve, malaise trap; Skotbu, Ski, 1♀ 8 July 1981, leg. M. Falck; **BV**, Rollag: Vegglifjell (EIS 34), 1♀ 20. July 2008; 1♀ 10 July 1997, leg. Devegg Ruud; Gvammen, 1♀ 10 July 1983, leg. J. Dammen; Ål: Langegård (EIS 45), 1♀ 16 July 2006, leg. Ole Lønnve; **BØ**, Sigdal: Fyrenvatnet (EIS 35), 1♀ 2 July 2008, leg.

A. Fjellberg; Nes i Hallingdal (EIS 44), 1♀; **OS**, Brandbu: Velmunden (EIS 45), 1♀ 16 July 1977, leg. T. Edland; Fosshheim (EIS 53), 1♀ 14 July 1873; Aurdal (EIS 53), 1♀ without further data and lacking head; Gausdal: Lenningen, Hasabekken (EIS 53), 1♀ 28 July 1981; Storefjellroa 1♀ 27 July 1984; 2♀♀ 27 July 1984, leg. M. Falck; Gausdal: Espedal (EIS 62), 1♀ 22 July 1984, leg. M. Falck; **ON**, Dovre (EIS 71), 1♀ July 1843 (leg. Siebke?); Dovrefjell (EIS 71), 1♀ leg. Siebke; Vågå: Vågå (EIS 61), 1♀ 3 July 1962, leg. M. Falck; Fåberg (EIS 63) 1♀ without data; Ringebru (EIS 63), 1♀ 3 July 1877; Laurgård (EIS 62) 1♀; Vang (EIS 52), 1♀ leg. Schøyen; Raudalen, 1♀ 18 July 1994, leg. M. Falck; Døtten, 1♀ 22 July 2004, leg. Kai Berggren; **HES**, Eidskog (EIS 38), 16♀♀ July 1974, leg. R. Mehl; Hof (EIS 46), 1♀ leg. Siebke; Åmot (EIS 55), 1♀ 8 July 1848; Grundset (EIS 55), 1♀; **HEN**: Tyldalen, 1♀ 24 July 1848; **SFI**, Aurland: Undredalen, Underkatt (EIS 50), 1♀ 9 June 2000, leg. T. Nagypal; Aurland: Vassbygd (EIS 51), 1♀ 28 June 1997, leg. Heibo & Lønnve; **MRI**, Mardøla (EIS 78), 2♀♀ 15 July 1939, leg. M. Opheim; **NTI**, Steinkjer: Sørensen av Snåsavatnet (EIS 101), 2♀♀ 15 July 1979, leg. R. Mehl; Grong: Grong (EIS 107), 1♀ 6 July 2005; **NSI**, Vefsn: Ømmervatnet (EIS 118), 3♀♀ 7 July 2005, leg. M. Falck; Hemnes: Korgenfjellet (EIS 118), 1♂4♀♀ 2 July 2011, leg. T.J. Olsen, (1 without label); 1♀ 7 July 2005, leg. M. Falck; Vestfjell, 3♀♀ 29 July 1979, leg. R. Mehl; Saltdal: Junkerdalsura (EIS 127), 2♀♀ 8 July 2005; **NNØ**, Narvik: Bjerkvik (EIS 146), 1♀ 28 June 1997; 1♀ 28. June 1997, leg. M. Falck; **NNV**, Hadsel: Myrland, Rydningen (EIS 138), 1♀ 30 June 2003; 2♀♀ 13 July 2003; 2♀♀ 30 July 2006; 2♀♀ primo August 2009, 1♀ 12 July 2005, leg. M. Falck; **NNØ**, Liland: Liland (EIS 139), 1♀ 27 June 2003, leg. M. Falck; **TRY** Tromsdal (EIS 162), 2♀♀ 22 July (without year), leg. Soot-Ryen; Karlsøy: Rinnøy, Stekkvik (EIS 171), 1♀ 27 June 2007, leg. Ove Sørlibråten; **TRI**, Målselv: Øverbygd, (EIS 154), 1♀ 29 June 1997; Målselv: Dividal, Frihetsli (EIS 147), 1♀ 29 June 1997, leg. M. Falck; Målselv: Takelvdeltaet (EIS 147), 1♀ 22 May 1916, leg. L. R. Natvig; Storfjord: Paras (EIS 155), 1♀ 19 July 1997, leg. M. Falck; Nordreisa: Tømmernes (EIS 164), 1♀

4 July 1995, leg. Berggren & Myhr; **FV**, Alta: Alta (EIS 173), 1♀ 18 July 2003; Alta: Gargia (EIS 165), 1♀ 12 July 1997; 1♀ 2 July 1997, leg. M. Falck; 1♀ 9 July 1995, leg. K. Berggren & K. Myhr; Grønnåsen 1♀ 26 July 1997, leg. O. Lønnve & L.O. Hansen; **FN**, Lebesby (EIS 182), 2♀♀ 8 July 1997; Tana: Smalfjord (EIS 183), 1♀ 17 July 1997; 1♀ 8 July 1997, leg. M. Falck; **FI**, Finnmark: Karasjok (EIS 159), 1♀ 5 July 1992, leg. K. Berggren; **FØ**, Sør-Varanger: Pasvik, Nordmo (EIS 168), 2♀♀ 2 July, leg. Schneider.

Hybomitra bimaculata (Maquart, 1826)

(Figure 18, Map 22)

Norwegian name: tomerket klegg

Kauri (1968) reports this species from Vestfold. Rognes (1980) adds a record from Aust-Agder. Solem *et al.* (1990) found it at Høylandet (N. Trøndelag).

Records. **VAY**, Kristiansand: Nedre Timenes (EIS 2), 1♀ 2 July 2005, leg. Kai Berggren; Flekkefjord: Hydra, Dragøy (EIS 4), 1♀ 26 June–3 July 1982, leg. A.J. Nilsen; **VE**; Larvik: Middags-kollen (EIS 19), 1♀ 6 July–20 August, leg. A. Fjellberg, in malaise trap; **TEI**, Tokke: Krossli (EIS 17), 1–11 July 1985; 1♀ 13 July 1995; 4♀♀ 14 July 1995, leg. R. Mehl; **AK**, Oslo: Østmarka, Sarabråten (EIS 28), 1♂ 26 June 2007; Nøkle vann 1♀ 1 July 1980, leg. M. Falck; Ås, 1♀ 18 June 1978, leg. R. Mehl; Ullensaker: Sessvollmoen, Aurtjernet (EIS 37), 1♀ 11–26 June 2007, leg. L.O. Hansen, in malaise trap; Nesodden: Skoklefall (EIS 28), 1♀ 27 June–9 July 2005, leg. O. Lønnve, in malaise trap; Fet: Øyeren (EIS 29) 1♀ 20 June 1978, leg. R. Mehl; **Ø**, Hvaler: Kirkøy, Ørekroken (EIS 12), 1♀ 22 June–16 July 2003, leg. L. O. Hansen, in malaise trap; Sarpsborg: Grimsøya (EIS 20), 1♀ 25 May 2002; Tomter: Hobøl (EIS 20), 1♀ June 2011, leg. T.J. Olsen; Aremark: Vestfjella (EIS 21), 1♀ 5 July 2012, leg. A. Høgenhall & T.J. Olsen; **BV**, Rollag: Vårviken (EIS 35), 1♀ July 1994, leg. L.O. Hansen & B. Sagvolden, in malaise trap; **OS**, Jevnaker: Velo (EIS 36), 1♀ 1 July 1989, leg. O. Lønnve; Søraurdal (EIS 44), 2♀♀ 23 July 1967, leg. A. Lillehammer; Søndre Land: Dokka-deltaet, Bergsrønningen (EIS 45), 2♀♀ 25 June–29 July 2009, leg. L.O. Hansen & F.A. Grøndahl,

malaise trap; **ON**, Vang: Lykkja (EIS 52), 1♀ 19 August 1994, leg. M. Falck; **HES** Eidskog (EIS 38), 5♀♀ 20 June 1974; 6♀♀ 23 June 1974; 4♀♀ 20 June 1978; 1♀ 24 June 1974, leg. R. Mehl; **STI**, Tydal: Stugudal (EIS 88), 2♀♀ 29 July 2005, leg. M. Falck; **TRI** Storfjord: Skibotn, 1♀ 28 July 2000; **FØ**, Sør-Varanger: Pasvik, Gjøkåsen (EIS 160), 1♀ 6 July 1997; 1♀ 16 July 1997; Svartbrysttjørna, 8♀♀ 23 July 2000; 96-høgda (EIS 168), 3♀♀ 23 July 2000; **FN**, Porsanger: Børselvdeltaet (EIS 182), 1♀ 18 July 1997; 1♀ 27 July 2000, leg. M. Falck.

Hybomitra borealis (Fabricius, 1781)

(Figure 19, Map 23)

Norwegian name: nordklegg

According to Siebke (1877) this species is found in the mountains in the interior of Nordland and Finnmark counties, but not at Garnes in Verdal. Grimsgaard collected it at Sarpsborg and Siebke at Kongsvinger and in Eidsberg. He further records it as *Tabanus albo-maculatus* Zetterstedt, 1838, and states that he has only caught two specimens, one at Fokkstua, the other at Hjerkin. Bidenkap (1900) records to have caught a female at Bjerkeng 13. June 1897. Bidenkap (1892) states that this species is to be found at the same localities as *auripilus*, but less commonly. He also does not separate between two different forms, namely *borealis* and *lateralis*. This gives reason to caution in treating his records, as *lateralis* has not been listed among the synonyms for this species.

Davies (1954) reports this species from Holandsfjord. Kauri (1968) reports it from Hedmark, under the name *H. lapponica*. Davies *et al.* (1971) reports it from Rendalen, Rognes (1980) adds records from Aust-Agder and Nord-Trøndelag, and Solem *et al.* (1990) found this species at Høylandet in Nord-Trøndelag

Records. **AK**, Oslo: Hovedøya, kommandantboligen (EIS 28), 1♂ 29 May–2 July 2005, leg. Ø. Gammelmo & O. Lønnve, in malaise trap; Eidsberg (EIS 29), 1♀ 29 June 1846; Nittedal, 1♀ 4 July 1865, leg. Siebke; **BV**, Ål: Hengsmyran (EIS 43), 1♂ 18 July 2006, leg. O. Lønnve; **HES**, Vinger (EIS 38), 1 spec. leg. Siebke; **HEN**: Åmot (EIS 55), 1♀ leg. Siebke; **FØ**; Sør-Varanger:

Pasvik, 96-høgda (EIS 168), 1♀ 23 July 2000; Nedregård (EIS 169), 1♀ 15 June 1997, leg. M. Falck; Varanger (EIS 185)(?), 1 spec. leg. Schøyen.

* *Hybomitra ciureai* (Seguy, 1937)

(Figure 20, Map 24)

Norwegian name: sørklegg

Records. **Ø**, Hvaler, Kirkøy, Ørekroken (EIS 12), 1♀ 16 July–15 August, leg. L.O. Hansen, in malaise trap; **AK**, Oslo: Østmarka, Sarabråten (EIS 28), 1♀ 12 July 1983; Østensjøvann: Manglerud, 3♀♀ July 1995, leg. L.O. Hansen & M. Falck, in malaise trap; **FØ**, Sør-Varanger: Pasvik, Svartbrysttjørna, 1♀ 23 July 2000, leg. M. Falck.

This seems to be the first Norwegian record, though Kauri (1996) mentions the species in his list.

Hybomitra distinguenda (Verrall, 1909)

(Figure 21, Map 25)

Norwegian name: lys klegg

Reported by Kauri as new to the Norwegian fauna (Kauri 1968).

Records. **TEI**, Tokke: Krossli (EIS 17), 1♀ 13 July 1986, leg. R. Mehl; **VE**, Horten: Adalstjern (EIS 19), 1♀ 8 July–12 August 2007, leg. E. Rindal, in malaise trap; **AK**, Oslo, Lutdalen (EIS 28), 1♀ 6–22 July 1990, in malaise trap; Fet: Fetsund, Bjanes (EIS 29), 1♀ 9 June 1994; **FØ**, Sørvaranger: Pasvik, Gjøkåsen (EIS 160), 1♀ 6 July 1997, leg. M. Falck.

Hybomitra kaurii Chvála & Lyneborg, 1970

(Figure 22, Map 26)

Norwegian name: blank svartklegg

Davies *et al.* (1971) reports this species from Rendalen, and a single specimen from “middle Norway.” Rognes gives further localities in Aust-Agder, Nordland and Troms, and Solem *et al.* (1990) found it at Høylandet (Nord-Trøndelag).

Records. **TEI**, Tokke: Krossli (EIS 17) 1♀ 12 July 1985; 8♀♀ 13 July 1985; 8♀♀ 14 July 1985; 1♀ 11 July 1985, leg. R. Mehl; **VE**, Sande, Skjølsetra (EIS 28), 1♀ June 2004, leg. L.O. Hansen; **BØ**, Drammen: Underlia (EIS 28), 1♀ July 1995; 1♀ June 1997, leg. L.O. Hansen, in malaise trap; **BV**, Ål: Trillhus (EIS 45), 1♀ 13 July 1996, leg. B. Sagvolden, car net; **ON**, Nord-Fron:

Hestekobakken (EIS 62), 1♀ 26 June 1992, leg. M. Falck; **HES**, Eidskog (EIS 38), 2♀♀ 21 June 1974; 2♀♀ 22 June 1974; 1♀ 23 June 1974; 1♀ 25 June 1974; 2♀♀ 10 July 1974; 5♀♀ 11 July 1974; 3♀♀ 21 July 1974; 10♀♀ 8 July 1974; 5♀♀ 9 July 1974; 5♀♀ 19 July 1974, leg. R. Mehl; **HEN**, Trysil: Ljørdal (EIS 65), 1♀ 13 July 1994, leg. Heibo & Lønnve; Rendalen: Ytre Rendal, Solbakken (EIS 64), 1♀ 13 July 1949, leg. L. R. Natvig; **NTI**, Lierne: Nordli, Skjelsted (EIS 108), 1♀ 3 July 2008, leg. L. Aarvik; **FV**, Alta: Gargia (EIS 165), 1♀ 12 July 1997, leg. M. Falck; **FI**, Karasjok: Buddasnjarga (EIS 159), 1♀ 14 July 1997; **FØ**, Sør-Varanger: Pasvik, 96-høgda (EIS 168), 1♀ 23 July 2000; 1♀ 25 July 2000; 3♀♀ 23 July 2000. Nedregård; 1♀ 16 July 1997; Svartbrysttjørna (EIS 160), 3♀♀ 23 July 1997; 3♀♀ 23 July 2000; 1♀ 27 July 2000; Gjøkåsen, 1♀ 16 July 1997; Nyrud, 3♀♀ 6 July 1997; Noatun, 1♀ 6 July 1997, leg. M. Falck.

Hybomitra lundbecki Lyneborg, 1959

(Figure 23, Map 27)

Norwegian name: Danmarksklegg

Kauri (1968) reports this species from Kongsvold, Gol, Østfold and Oslo, and states that it has earlier erroneously been reported under the name *fulvicornis* Meigen. Davies *et al.* (1971) reports it from Rendalen. Rognes (1980) reports this species from Finnmark, and points out that these are further north than any other Scandinavian records. Solem *et al.* (1990) found this species at Høylandet (N. Trøndelag).

Records. **TEI**, Tokke: Krossli (EIS 17), 1♀ 13 July 1985; 3♀♀ 14 July 1985, leg. R. Mehl; **AK**, Asker: Nesøya, Storenga (EIS 28), 1♀ ultimo May–ultimo July, leg. L.O. Hansen, malaise trap in forest; Oslo, 1♀ 23 June 1986; Fet: Fetsund, Bjanes, 1♂ 19 June 2005, leg. M. Falck. **BV**, Rollag: Vårviken (EIS 35) 1♂ July 1994, leg. L.O. Hansen & B. Sagvolden, malaise trap; **HES**, Elverum: Starmoen (EIS 46), 1♀ 11 June–29 July 2004, leg. L.O. Hansen & E. Rindal, malaise trap in sandy pine forest; **HEN**, Rendalen: Ytre Rendal (EIS 64), 2♀♀ 9 July 1944, leg. Natvig; **FI**, Karasjok: Buddasnjarga (EIS 159), 4♀♀ 5 July 1992, leg. K. Berggren & K. Myhr; 1♀ 4 July 1997, leg. M. Falck; **FØ**, Sørvaranger: Pasvik:

Noatun (EIS 160), 1♀ 6 July 1997; Gjøkåsen, 1♀ 16 July 1997; Nyrud, 2♀♀ 13 July 1966; 3♀♀ July 1966; Ellenvann, 3♀♀ 6 July 1966, leg. R. Mehl; 3♀♀ 6 July 1997; Svartbrysttjørna, 1♀ 23 July 1997; Pasvik: Nedregård (EIS 169), 1♀ 17 July 1997. Leg. M. Falck.

Hybomitra lurida (Fallén, 1817)

(Figure 24, Map 28)

Norwegian name: uhyggelegg

Siebke (1877) mention this species as observed in Christiania (= Oslo), in Sognedalen, at Hammermoen in Krødsherad and at the island of Smøla. Bidenkap (1892) found it in numbers on *Filipendula ulmaria*. Ringdahl (1954) reports it from Hjerkin. Davies *et al.* (1971) found it in Rendalen. Rognes (1980) adds records from Rogaland, Nord-Trøndelag, Nordland and Finnmark. Solem *et al.* (1990) found this species at Høylandet (Nord-Trøndelag).

Records. **Ø**, Aremark: Lindtjern (EIS 21), 1♀ May 2012, leg. T. J. Olsen; Rakkestad (EIS 20), 1♀ 2 June 1994, leg. M. Falck; **TEI**, Seljord: Kvambekk (EIS 26), 1♀ 17 July 1993, leg. M. Falck; Vinje: Rauland (EIS 25), 1♀ 14 July 1927; Notodden: Lisleherad (EIS 27), 1♂ 30 June–29 July 1994, leg. Alf Bakke, malaise trap in fire area; **AK**, Oslo: Østensjøvann (EIS 28), 1♂ June 1996, leg. M. Falck & L.O. Hansen, in malaise trap; **BV**, Rollag: Tråen saga (EIS 35), 1♀ June 1994, leg. B. Sagvolden, in malaise trap; **OS**, Sør-Aurdal, Leirvatnet (EIS 53), 1♀ 23 June 1969, leg. A. Lillehammer; **HEN**, Rendalen: Renådalen seter (EIS 64), 7♀♀ 20–21 June 1988, leg. J.E. Raastad; **RY**, Karmøy: Midtstokke (EIS 13), 1♀ June 1995, leg. M.H. Velde, in malaise trap; **HOI**, Ulvik (EIS 42), 1♀ 18 July 1991, leg. O. Lønnve; **MR**, Surnadal: Taløyan (EIS 85), 1♀ 13 July 1995, leg. Berggren & Myhr; **NNI**, Saltdalen, (EIS 127), 1♀ without date, leg. Hagemann; **FN**, Porsanger: Børselvdeltaet (EIS 182), 1♀ 8 July 1997; **FØ**, Sør-Varanger: Pasvik, Nyrud (EIS 160), leg. M. Falck, 1♀ 13 July 1966, leg. R. Mehl.

A Holarctic species, with a range from Scandinavia and Great Britain through Siberia to the Bering Coast, and on through Alaska, Canada, and along the Rocky mountains and into the



FIGURES 14–20. Species in the genus *Hybomitra*. 14. *H. arpadii* (Szilády, 1923). 15. *H. astuta* (Osten-Sacken, 1876) = *polaris* (Frey, 1915). 16. *H. aterrima* (Meigen, 1820). 17. *H. auripila* (Meigen, 1820). 18. *H. bimaculata* (Macquart, 1826). 19. *H. borealis* (Fabricius, 1781). 20. *H. ciureai* Séguy, 1937). Photos: K. Sund (NHM, Oslo).



FIGURES 21–27. Species in the genus *Hybomitra*. 21. *H. distinguenda* (Verrall, 1909). 22. *H. kaurii* Chvála & Lyneborg, 1970. 23. *H. lundbeckii* Lyneborg, 1959. 24. *H. lurida* (Fallén, 1817). 25. *H. montana* (Meigen, 1820). 26. *H. muehlfeldi* (Brauer, 1880). 27. *H. nigricornis* Zetterstedt, 1842). Photos: K. Sund (NHM, Oslo).



FIGURES 28–32. Species in the genus *Hybomitra*. 28. *H. nitidifrons confiformis* Chvála & Moucha, 1971. 29. *H. sexfasciata* (Hine, 1923). 30. *H. solstitialis* (Meigen, 1820). 31. *H. tarandina* (Linnaeus, 1758). 32. *H. tropica* (Linnaeus, 1758). Photos: K. Sund (NHM, Oslo).

Midwestern states and eastern USA.

Teskey (1990) reports the larvae of this species to be most commonly found in sphagnum bogs.

***Hybomitra montana* (Meigen, 1820)**

(Figure 25, Map 29)

Norwegian name: fjellklegg

Reported from Norway by Siebke (1877) as *Tabanus flaviceps* (Zetterstedt, 1842). Siebke states that Zetterstedt has found this species at

Østre Næs in Verdal, which is in accordance with Zetterstedts description of the species. It has later been synonymized under *H. montana* (Meigen, 1820). Kauri (1968) reports this species from southern Norway, and states that older material must be revised, as it has often been misidentified as *lundbecki*, *montana flaviceps* and *tropica*. Davies *et al.* (1971) reports this species (as *H. montana flaviceps*) from Rendalen, Rognes (1980) reports it from Rogaland, Aust-Agder, Nordland,

Troms and Finnmark. Solem *et al.* (1990) reported this species from Høylandet, Nord-Trøndelag.

Records. **TEI**, Tokke: Krossli (EIS 17), 2♀♀ 14 July 1985, leg. R. Mehl; Seljord: Kvambekk (EIS 26), 1♀ 17 July 1993, leg. M. Falck; **OS**, Etnedal: Fjelltun (EIS 53), 2♀♀ 27 July 1991, 950 m a.s.l., leg. M. Falck; **MRI**, Kammen (EIS 86), 1♀ leg. 1985, collector not given; **MRY**, Haram: Skår (EIS 76), 1♀ 24 June 1992, leg. K. Myhr; **ON**, Laurgård (EIS 62), 1♀ leg. Siebke, determined as *Tabanus tropicus*; **OS**, Nordre Land: Etnedal, Lenningen (EIS 53), 2♀♀ 7 July 1986; Hasabekken, 2♀♀ 28 July 1981, leg. M. Falck; **NNV**, Andenes (EIS 152), 5♀♀ 22 July 1941; **TRY**, Skjåvikør (EIS 164), 1♀ 26 July 1941, leg. Soot-Ryen; **FN**, Porsanger: Børselv (EIS 182), 2♀♀ 18 July 1997; **FØ**, Sør-Varanger: Pasvik, Gjøkåsen (EIS 160), 2♀♀ 16 July 1997, leg. M. Falck; Sør-Varanger, 1♀ without further data, leg. R. Mehl; Nyrud, 1♀ leg. Lillehammer, without further data. In addition, there are 2♂♂ 1♀ with unreadable labels.

Hybomitra muehlfeldi (Brauer, 1880)

(Figure 26, Map 30)

Norwegian name: solklegg

Andersen & Kauri (1977) reported this species as new to Norway, based on 5 females collected by Andersen in Vestfold. Rognes (1980) adds a record from Aust-Agder.

Records. **VE**, Horten: Adalstjern (EIS 19), 1♀ 8 July–12 August 2003, leg. E. Rindal, in malaise trap; Larvik: Holtsetra, 1♀ 27 July 2008, leg. A. Fjellberg; **Ø**, Hvaler: Kirkøy, Ørekroken (EIS 12), 2♀♀ 22 June–16 July 2003, leg. L. O. Hansen, in malaise trap; Asmaløy, Huser, 1♀ 4 August 2006, leg. O. Sørlibråten; Sarpsborg: Børtervann (EIS 20), 1♀ 16 June 2012; Halden: Vesttorp 1♀ 4 July 2006; Aremark, Lindtjørn, Årbu (EIS 21), 1♀ 1–21 June 2012, leg. T.J. Olsen; **TEY**, Kragerø: Barlandskilen (EIS 11), 1♀ 5 June 1990, leg. M. Falck; **TEI**, Tokke: Krossli (EIS 17), 1♀ 13 July 1985; 1♀ 14 July 1985, leg. R. Mehl; Notodden: Lisleherad (EIS 27), 1♂ 13–30 June 1994; 1♂ 30 June–29 July 1994, leg. A. Bakke, in malaise trap in fire area; **BØ**, Drammen: Underlia (EIS 28), 1♀ May 1995, leg. L.O. Hansen, in malaise trap; **BV**, Rollag: Tråen Saga (EIS 35), 2♀♀ June

1994, leg. B. Sagvolden, in malaise trap; **AK**, Nesodden: Skoklefall (EIS 28), 1♀ 27 June–19 July 2005, leg. O. Lønnve; Oslo: Østensjøvann, 1♀ 20 July 1985, leg. M. Falck; 1♀ 24 June–9 July 1995, leg. M. Falck & L.O. Hansen, in malaise trap; **OS**, Sør-Aurdal: Leirvatnet (EIS 44), 1♀ 23 June 1967, leg. A. Lillehammer.

The species has a clearly southern distribution.

Hybomitra nigricornis (Zetterstedt, 1842)

(Figure 27, Map 31)

Norwegian name: svarthornsklegg

Siebke (1877) records this species under the name *Tabanus alpinus* Zetterstedt, 1838, which was a junior homonym known to both Zetterstedt and Siebke. He reports it from Tronfjell and Fokkstua, Hjerkin and Kongsvold, Raschtind in Nordland and Tynes in Levanger. Davies (1954) reports it from Holandsfjord, and Davies *et al.* (1971) reports it from “middle Norway”. Kauri (1968) reports it from Sør-Trøndelag and Hedmark. Rognes (1980) adds a record from Hordaland, and clarifies a nomenclatorial question.

Records. **NNV**, Hadsel: Myrland, Rydningen (EIS 137), 1♀ 2 August 2006; **TRY**, Storfjord: Skibotn (EIS 155), 1♂ 14 July 1997; **FI** Karasjok: Skarfjanjuni (EIS 159), 1♂ 14 July 1997; **FØ**, Sørvaranger: Pasvik, Svartbrysttjørna (EIS 160), 1♀ 23 July 2000; **FN**, Porsanger: Børselv (EIS 182), 1♀ 18 July 1997, leg. M. Falck.

Hybomitra nitidifrons confiformis Chvála & Moucha, 1971 (Figure 28, Map 32)

Norwegian name: vårklegg

Ringdahl (1954) reports this species, as *Tabanus conformis* Frey, as new to Norway, having collected it at Hjerkin. Kauri (1964) reports it from Altafjordbotn, and later from Vestfold (Kauri 1968), and states that it certainly has a much wider distribution. Davies *et al.* (1971) records it from Rendalen (as *H. conformis* Frey). Rognes (1980) adds records from Aust-Agder and Finnmark.

Records. **Ø**, Sarpsborg: Kjerringåsen (EIS 20), 1♀ 27 June 1994; Tune; Råkil, 1♀ 25 June 1994, leg. T.J. Olsen; **AK**, Asker: Sem, 1♂ 16 June 1981, leg. JHS; Oslo: Østmarka, Ødegården (EIS

28), 1♀ 6 June 1968; Østensjøvann, 2♂♂ 18 June 1985; 1♂ 16 June 2006; 1♂ 18 June 2006; Frog: Bonn, 1♀ 8 July 1988; Fet: Fetsund, Bjanes (EIS 29), 1♂ 9 June 1994; 2♂♂ 13 June 1997, 1♀ 6 July 1996; 2♂♂ 22 June 2005, leg. M. Falck; Aurskog-Høland, 2♀♀ without data, leg. Soot-Ryen; Ullensaker: Sessvollmoen (EIS 37), 1♀ 1 June 1999, leg. E. Rindal; 1♀ 11–26 June 2007, leg. L.O. Hansen, in malaise trap in sandy pine forest; **BØ**, Nedre Eiker: Mjøndalen, Hagatjern, Ryggsetra (EIS 28), 2♂♂ July 1994, leg. Ø. Berg & L.O. Hansen, in malaise trap; Rollag: Vårviken (EIS 35), 1♀ July 1994, leg. B. Sagvolden; **OS**, Jevnaker: Velo (EIS 36), 1♂ 1 July 1989; Lunner: Grindvold, 1♂ 10 June 1990, leg. O. Lønnve; **HEN**, Trysil: Ljørdal (EIS 65), 1♀ 13 July 1997, leg. Heibo & Lønnve; Follidal: Streitlia (EIS 71), 1♂ 8 July 1998, leg. G.E.E. Søli; **NNV**, Hadsel: Myrland, Rydningen (EIS 138), 1♀ 30 July 2006, leg. M. Falck; **FI**, Karasjok: Buddasnjarga (EIS 159), 1♀ 5 June 1995, leg. Berggren & Myhr; **FV**, Alta: Bossekop (EIS 173), 1♀ leg. Schøyen; **FØ**, Sørvaranger: Pasvik, Ellenvann (EIS 160), 1♀ 24 June 1966; Vaggatem, 1♀ without date, leg. R. Mehl.

This is a species with a Holarctic distribution, the North American population consisting the subspecies *nuda* (McDunnough 1921).

According to Teskey (1990) it is abundant through much of Canada and Alaska. The larvae have been found in saturated moss in woodland swamps, and the margins of deep rocky pools.

This species seems to be flying early in the summer. There is an extreme occurrence of males in the material, which may be an accident.

Hybomitra sexfasciata (Hine, 1923)

(Figure 29, Map 33)

Norwegian name: seksbåndsklegg

Kauri (1968) reports this species from Bossekop and Varanger in Finnmark, and from Tromsø. Rognes (1980) adds records from Troms and Finnmark and maps the distribution.

Records. **HEN**, Rendalen: Ytre Rendalen, Renådalen seter (EIS 64), 1♀ 20–21 June 1988,

leg. J.E. Raastad; Solbakken, 1♀ without further data, leg. Natvig; **MRI** Surnadal, Taløy (EIS 85), 1♀ 13 June 1995, leg. Berggren & Myhr; **TRY**, Skjåvikør, 2♀♀ 26 July 1941, leg. Soot-Ryen; **FØ**, Sør-Varanger: Pasvik, Svanvik (EIS 169), 1♂ 27 July 1997, leg. H. Rinden; Svartbrysttjørna (EIS 160), 1 f. 23 July 2000. Pasvik, 96-høgda, 1♀ 23 July 2000, leg. M. Falck; Sør-Varanger, Pasvik (EIS 160), 7♀♀ leg. Esmark; 1♀ leg. Schøyen; 1♀ leg. Sommerfedt, all without further data; Kirkenes (EIS 169), 2♀♀ 18 July 1891, leg. A. Wessel.

Teskey (1990) states that this is one of the most northerly distributed of all the *Tabanidae* species, and this seems to be the case in Europe as well. Distributed throughout Scandinavia, Siberia, Mongolia and North America.

* *Hybomitra solstitialis* (Meigen, 1820)

(Figure 30, Map 34)

Norwegian name: midtsommerklegg

Records. **Ø**, Sarpsborg: Tune, Råkil (EIS 20), 1♀ 30 June 2005, Leg. T.J. Olsen; **TEI**, Tokke: Krossli (EIS 17), 1♀ 13 July 1985, leg. R. Mehl; Tinn: Rjukan (EIS 26), 1♀ 10 June 1996, leg. B. Sagvolden, in car net; **VE**, Horten: Adalstjern (EIS 19), 1♀ 8 July–12 August 2003, leg. E. Rindal, in malaise trap; **AK**, Nesodden. Skoklefall (EIS 28), 1♀ 7–8 July 2006, leg. O. Lønnve; Oslo: Østmarka, Lutdalen, 1♀ 5 July 1990; 1♂ 5 July 1970, leg. M. Falck; **BØ**, Sigdal: Fyranvatnet (EIS 35), 1♀ 2 July 2008, leg. A. Fjellberg; **BV**, Rollag: Tråen saga (EIS 35), 1♀ June 1994, leg. B. Sagvolden; **FØ**, Sør-Varanger: Pasvik, Nyrud (EIS 160), 2♀♀ 6 July 1997; Noatun, 1♀ 6 July 1997; Gjøkåsen, 1♀ 6 July 1997; Neiden (EIS 168), 1♀ 16 July 1997, leg. M. Falck.

New to Norway. An early species, distributed through northern Europe.

Hybomitra tarandina (Linnaeus, 1758)

(Figure 31, Map 35)

Norwegian name: reinsdyrklegg¹

Reported by Siebke (1877) (under the genus name *Tabanus*) from Christiania (= Oslo),

¹ To avoid confusion between this species and the genus *Haematopota* ("regnklegg"), I propose to name this species with the fuller name "reinsdyr" (*Rangifer tarandus*). The best solution would have been to propose a wholly new name, but the scientific name "*tarandina*" makes it difficult to avoid the naming after the reindeer, though the distribution of this fly shows clearly that it has no connection whatsoever with the mammal Linnaeus named it after.

Eidsvold, Sognedalen, Odalen, at Åset and in the Dovre mountains, but not in Ålesund. Davies *et al.* (1971) reports this species from Rendalen. Rognes (1980) records it from Telemark: Drangedal, EIS 18. Solem *et al.* (1990) records it from Høylandet, Nord-Trøndelag.

Records. **HES**, Kongsvinger: Møkeren, Tråssholmen (EIS 38), 1♀ 23 June 2001, leg. Karsten Sund; Eidskog (EIS 38), 1♀ 15 June 1976, leg. Alf Bakke; **HEN**, Trysil: Lutnes, 1♀ 15 June 2000, leg. E. Heibo; Trysil: Støa (EIS 56), 1♀ 13 June 1997, leg. Heibo & Lønnve; **BØ**, Ringerike: Oppkuven (EIS 36), 1♀ 12 August 1996, leg. L. Aarvik; **BV**, Rollag: Vårviken (EIS 35), 1♀ July 1994, leg. B. Sagvolden; Modum, Hovlandsfjd. (EIS 36) 1 spec. 1836, leg. Esmark; Lier: Gjellebekk (EIS 28) 1 spec. 1838, leg. Esmark; **ON**, Dovre (EIS 71), 1 spec. without data, leg. J. Bergli, eaten by pests; **OS**, Brandbu: Vemunden (EIS 35), 1♀ 9 July 1977, leg. T. Edland; **TEI**, Seljord: Svartdal, Blika (EIS 26), 1♀ 26 June 1995, leg. Berggren & Falck; **AAV**, Ø. Kalvvann (EIS 10) 2♀♀ 17 June 1975, leg. SHS; **AK**, Fetsund: Fetsund, Bjanes (EIS 29), 1♂ 19 June 2005; 1♂1♀ 22 June 2005, 1♀, leg. M. Falck; Oslo: Ljabru (EIS 28), 1 spec. 21 June 1838, without further data. In addition, there are 6 specs. totally eaten and destroyed in the NHMO collection.

This great and magnificent fly can hardly be mistaken for anything else, with its bright orange legs and antennae, and the light borders on every tergite. Described from “Lapponia, Norvegia”, it is widely distributed from Scandinavia to Siberia and Japan. Recorded from Germany, Poland and Austria, but not from Denmark, Benelux and France or the British isles (Chvála 1988). It seems not to have been caught in the northern parts of Norway since Linnaeus named it.

Hybomitra tropica (Linnaeus, 1758)

(Figure 32, Map 36)

Norwegian name: St.Hansklegg

Siebke (1877) reports this species (as member of the genus *Tabanus*) as living frequently in Christiania (= Oslo), in Smålenene, Sarpsborg, Ringerike, Krødsherad in Hemsedalsfjellet, Valdres, Gudbrandsdalen, Østerdalen, Odalen

and in the Dovre mountains. Bidenkap (1892) found it in Vestfold, and reports it to be at least as numerous as *lurida*. Kauri (1968) reports it from Vestfold and Rogaland, and Davies *et al.* (1971) found it in Rendalen.

Records. **Ø**, Hvaler Vesterøy, Vauer (EIS 20), 1♀ 9 July 1998, leg. M. Falck; **TEI**, Tokke: Krossli (EIS 17), 3♀♀ 14 July 1985, leg. R. Mehl; **BØ**, Øvre Eiker, Kolbræk (EIS 28), leg. Audun Ekeland; **HEN**, Rendalen: Ytre Rendal (EIS 64), 1♀ without date; Solbakken, 1♀ 16 July 1949, leg. Natvig; **TRI**, Storfjord: Skibotn (EIS 155), 2♀♀ 19 July 1997; **FN**, Porsanger: Børselv (EIS 182), 1♀ 18 July 1997; **FØ**: Sørvaranger: Pasvik, Svartbrysttjørna (EIS 160), 1♀ 23 July 2000, leg. M. Falck.

Distributed from Fennoscandia into southern Europe. Female attacks horses, humans, and horned cattle (Chvála *et al.* 1972), and probably moose, deer, wild boar etc.

Genus *Tabanus* Linnaeus, 1758 (Table 5)

This genus holds the largest specimens of Diptera in the Norwegian fauna, but is for the most part restricted to southern districts.

Tabanus autumnalis Linnaeus, 1758

(Figure 33, Map 37)

Norwegian name: høstklegg

Siebke (1877) states that Schøyen has collected this species in Odalen. Not mentioned by Kauri (1996). According to Chvála (1988) recorded from “all parts of Europe except Ireland and Finland”. According to Lyneborg (1960) it is found commonly all over Denmark, and in the middle and south parts of Sweden.

No new Norwegian specimens seen by the present autor.

Tabanus bovinus Linnaeus, 1758

(Figure 34, Map 38)

Norwegian name: kuklegg

Siebke (1877) records this species from Christiania (= Oslo), Asker, Tønsberg, but not Eidsberg. He states that Grimsgaard has taken it in Sarpsborg. Bidenkap (1892) says this species is common everywhere.

TABLE 5. Key to the Norwegian species of genus *Tabanus* Linnaeus, 1758 (after Chvála *et al.*, 1972).

Females	
1.	Smaller species, or species of more normal size 2
-	Very large species 7
2.	Median callus oval or transverse, separated from lower callus. Subcallus dusted. Notopleural lobes yellowish-brown <i>T. cordiger</i> Meigen, 1820
-	Median callus either higher than broad and separated from lower callus, or more or less linear, connected with lower callus 3
3.	Median callus higher than broad, distinctly separated from lower callus. Lower callus separated from both subcallus and eye margin. Subcallus naked in upper part (at least), brownish black, and wrinkled. Notopleural lobes usually brownish. Larger species <i>T. glaucopsis</i> Meigen 1820
-	Frons narrower, Median callus more or less linear, connected with lower callus. Smaller species, at most 15 millimeters in length (<i>bromius</i> -group) 4
4.	Abdomen usually reddish-brown at sides and on venter. Postocular margin with long, black and pale hairs <i>T. miki</i> Brauer, 1880
-	Postocular margin without black hairs 5
5.	Postocular margin on vertex narrow and only short pale haired. Notopleural lobes brownish, antennae brownish black .. <i>T. bromius</i> Linnaeus, 1758
-	Postocular margin on vertex with longer hairs 6
6.	Postocular margin on vertex conspicuously broad, and with a row of longer, pale hairs. A small patch of black hairs beside the base of the antennae. Notopleural lobes greyish black, antennae yellowish <i>T. maculicornis</i> Zetterstedt, 1842
-	Larger species, 17–22 mm Abdominal pattern greyish, sublateral oval patches not reaching posterior margins. Notopleural lobes yellowish-brown <i>T. autumnalis</i> Linnaeus, 1758
7.	Notopleural lobes densely blackish haired beneath <i>T. sudeticus</i> Zeller, 1842
-	Notopleural lobes brownish, pleura more greyish dusted and long yellowish-brown haired <i>T. bovinus</i> Linnaeus, 1758
Males	
1.	Large species, more than 15 mm long. Subcallus entirely polished black or dark brown <i>T. glaucopsis</i> Meigen, 1829
-	Smaller species, less than 14 mm, or very large species, more than 20 mm 2
2.	Very large species or more normal sized ones 3
-	Smaller species. Head very large, semiglobular. Palpi very stout, nearly globular <i>T. cordiger</i> Meigen 1820
3.	Head not broader than thorax. Vertex With black and pale hairs. Rather brownish species <i>T. miki</i> Brauer, 1880
-	Head at least as broad as thorax 4
4.	Head distinctly broader than thorax. Vertex with pale hairs <i>T. maculicornis</i> Zetterstedt, 1842
-	Head at mostly slightly broader than thorax 5
5.	Vertex With minute dark hairs. Abdominal pattern greyish, rather indefinite, anterior side markings brown <i>T. bromius</i> Linnaeus, 1758
-	Posterior tibiae brown, at least on basal half 6
6.	Abdomen brownish at sides. Pattern greyish, sublateral oval patches not reaching posterior margin of tergites. Notopleural lobes yellowish-brown <i>T. autumnalis</i> Linnaeus, 1758
-	Very large species 7
7.	Venter of abdomen blackish-brown, with more or less distinct yellowish to whitish posterior margins to all sternites. Posterior femora black <i>T. sudeticus</i> Zeller, 1842
-	Abdomen yellowish-brown at sides. Pale, median triangles rather slender, with more or less concave sides. Venter brownish to yellowish brown, median stripe dark brown. Legs and hairs on pleura lighter than on the foregoing species <i>T. bovinus</i> Linnaeus, 1758

Records. **AA**Y, Arendal (EIS 6) 1♂ July 1838, leg. Esmark; **VE**, Tønsberg (EIS 19), 1♀ leg Siebke; 1 spec. destroyed by pests; 7 July 1852, further data unreadable, by Siebke; **AK**, Bærum (EIS 28), 1♀ leg. Schøyen, lacking head and abdomen; Oslo: Ormøya (EIS 28), 1♀ leg. Haanshus.

A rare species in Norway. Female attacks horses, cattle and deer (Lyneborg 1960). According to Chvála (1988) it is distributed all over Europe. According to Lyneborg (1960) it goes as far north as Lapland in Sweden.

Tabanus bromius Linnaeus, 1758

(Figure 35, Map 39)

Norwegian name: gråklegg

Siebke (1877) states that this species lives “everywhere” in the southern and central parts of Norway. Bidenkap (1892) also says that this species is numerous everywhere. Davies et al. (1971) reports it from Bø in Telemark. Rognes (1980) adds a record from Akershus.

Records. **Ø**, Hvaler: Kirkøy, Ørekroken (EIS 12), 1♀ 16 July–15 August 2003, leg. L.O. Hansen, in malaise trap; Moss: Jeløy, Alby (EIS 19), 1♀ 2 August 1980, leg. M. Falck; Ekeby: Gunarsbybekken (EIS 28), 1♀ 17 June–21 July 1992, leg. L.O. Hansen & O. Hanssen; **AK**, Nesodden (EIS 28), 1♀ 21 June 1981, leg. J.H. Simonsen; Oslo: Østmarka, Lutdalen (EIS 28), 1♀ 6–22 July 1990, leg. M. Falck in malaise trap; Oslo: Alunsjøen (EIS 36), 1♂1♀ 9 July 1982, leg. J.H. Simonsen; Hurum: Verven (EIS 28), 1♀ 6 July–19 August 1995, leg. L.O. Hansen & O. Hanssen, in malaise trap; Asker: Bjørkås (EIS 28), 1♀ 2 July–24 August 1995, leg. L.O. Hansen & O. Hanssen, in malaise trap; Sørums: Lørenfallet (EIS 37), 1♀ June 1994; 2♀♀ July 1994, leg. L.O. Hansen & O. Sørlibråten, in malaise trap; **BV**, Kongsberg (EIS 27), 1♀ 7 June 1986; **BØ**, Røyken: Hyggen, Kinnartangen (EIS 28), 2♀♀ 6 July–4 August 1991, leg. L.O. Hansen, malaise trap; 1♀ 22 July 1991, sweep net; Rollag: Vårviken (EIS 35) 2♀♀ July 1994, leg. L.O. Hansen & B. Sagvolden. Modum: Drolsum (EIS 36), 1♀ 31 July 1982, leg. .M. Falck; Drammen: Underlia (EIS 28), 2♀♀ July 1993; 1♀ August 1995, leg. L.O. Hansen, in

malaise trap; Nedre Eiker: Mjøndalen, Ryggsetra (EIS 28), 1♀ July 1994, leg. L.O. Hansen & Y. Berg, in malaise trap; Hole: Røysehalvøya, Søhol (EIS 36), 2♀♀ 14 June–23 July, leg. L.O. Hansen, in malaise trap; **VE**, Brunlanes, Bøvre (EIS 19), 3♀♀ 7 July 1979, leg. M. Falck; Borre: Adalstjern (EIS 19), 1♀ June 1997, leg. L.O. Hansen, in malaise trap; Våle: Langøya, 1♀ 8 July–2 August 1991, leg. L.O. Hansen, in malaise trap; Nøtterøy: Bolærne, 1♀ 4–6 July 1995, leg. L.O. Hansen & A. Fjellberg, in malaise trap; Sande: Sjølsetra (EIS 28), 1♀ July 2004; Kommersøya 1♀ 7 July–2 August 1991, leg. L.O. Hansen; **TEI**, Tokke: Krossli (EIS 17), 9♀♀ 14 July 1986; 2♀♀ 13 July 1986, leg. R. Mehl; Notodden: Lisleherad (EIS 27), 1♀ 27 May–21 June 1993; 2♀♀ 30 June–29 July 1994, leg. Alf Bakke, malaise trap in fire area; **HES**, Eidskog (EIS 38), 1♀ 1 July 1975; 4♀♀ 8 July 1974; 3♀♀ 9 July 1974; 1♀ 10 July 1974; 4♀♀ 11 July 1974; 4♀♀ 19 July 1974; 1♀ 20 July 1974; 2♀♀ 25 July 1974, leg. R. Mehl; **OS**, Lunner: Roa: Knarud (EIS 36), 1♀ 17 August 1968, leg. M. Falck.

A species which is not widely distributed in Norway, but abundant within its distributional area. Distributed through the palearctic region from Scandinavia to Kazakhstan and Afghanistan. According to Chvála *et al.* (1972) it is a vector of tularaemia and anthrax. Females attack both domestic and wild animals, as well as humans.

Tabanus cordiger Meigen, 1820

(Figure 36, Map 40)

Norwegian name: gråflekket klegg

Siebke (1877) records this species (under the name *Tabanus latifrons* Zetterstedt, 1842) from Christiania (= Oslo), Hønefoss and Ådalen, but he says that it “mas rarus occurit”. He also notes the synonym *Tabanus atricornis* Meigen, 1838. Both *latifrons* and *atricornis* today is synonymized under *cordiger*. Rognes (1980) records this species from Aust-Agder.

Records. **AK**, Oslo: Maridalen, Dausjøen (EIS 36), 1♀ 23 June–19 July 2002, leg. K.M. Olsen & Sigve Reiso, in malaise trap; Lørenfallet (EIS 37), 1♀ June 1994, leg. L.O. Hansen & O. Sørlibråten, in malaise trap; **VE**, Sande: Kudalsdammen (EIS 28), 1♀ June 2004; Larvik: Middagskollen (EIS



FIGURES 33–40. Species in the genus *Tabanus*. **33.** *T. autumnalis* Linnaeus, 1761. **34.** *T. bovinus* Linnaeus, 1758. **35.** *T. bromius* Linnaeus, 1758. **35.** *T. cordiger* Meigen, 1820. **36.** *T. glaucopsis* Meigen, 1820. **37.** *T. maculicornis* Zetterstedt, 1842. **38.** *Tabanus miki* Brauer, 1880. **39.** *T. sudeticus* Zeller, 1842 Linnaeus, 1758 Photos: K. Sund (NHM, Oslo).

19), 1♂ 6 July–20 August 1997, leg. A. Fjellberg, in malaise trap.

According to Chvála *et al.* (1972), it has a wide distribution, from the Atlantic coast to the Ural mountains. Female attacks humans, horses and cattle.

***Tabanus glaucopsis* Meigen, 1820**

(Figure 37, Map 41)

Norwegian name: liten høstkegg

Kauri (1968) reports this species from Vestfold, Oslo and from Østfold as new to the Norwegian fauna. He states that it is a southern species, and rare in Scandinavia.

Records. Ø, Hvaler: Kirkøy, Ørekroken; **VE**, Våle: Langøya (EIS 19), 1♀ 8 July–2 August 1991, leg. L.O. Hansen; **TEI**, Tokke, Krossli (EIS 17), 7♀ 13–14 July 1986, leg. R. Mehl; Notodden: Lisleherad (EIS 27), 1♀ 6 August–11 October 1993; **TEY**, Drangedal: Skultrevassåsen (EIS 11), 1♀ 23 June–9 September 1996, leg. Alf Bakke, in malaise trap; **BØ**, Drammen: Underlia (EIS 28) 1♀ August 1995, leg. L.O. Hansen, in malaise trap; Rollag: Tråen Saga (EIS 35), 1♀ leg. B. Sagvolden, in malaise trap; **AK**, Bærum: Borøya (EIS 28), 1♀ 26 June–9 September.

The species has a wide distribution in Europe, but is rare.

***Tabanus maculicornis* Zetterstedt, 1842**

(Figure 38, Map 42)

Norwegian name: småkegg

Siebke (1877) notes that Zetterstedt found this species several places in Verdalen in July 1840, and that he himself has caught a female at Grefsenåsen in Christiania (= Oslo). Kauri (1968) reports it from Hordaland, and (erroneously) from Østfold. The last record should be changed to Vestfold. Davies *et al.* (1971) reports this species from “middle Norway”.

Records: Ø, Tune, (EIS 20), 1♀ 1 July 1993, leg. T.J. Olsen; Rygge: Ekeby, Telemarkslunden (EIS 19), 1♀ 17 June–21 July 1992, leg. L.O. Hansen & G. Warberg, in malaise trap; **VE**, Larvik: Holtsetra (EIS 19), 1♀ 27 July 2008, leg. A. Fjellberg; Borre: Adalstjern (EIS 19), 2♀ July 1997, leg. L.O. Hansen, in malaise trap; **TEI**, Tokke: Krossli (EIS 17), 13♀ leg.

R. Mehl; Notodden: Lisleherad (EIS 27), 1♀ 27 June–6 August 1993, 1♀ 30 June–29 July 1994, leg. A. Bakke, in malaise trap; **AK**, Fet: Fetsund, Bjanes (EIS 29), 1♀ 6 July 1996, leg. M. Falck; Ullensaker: Sessvollmoen (EIS 37), 1♀ 26 June–25 August, leg. L.O. Hansen, malaise trap in sandy pine forest; **BØ**, Drammen: Underlia (EIS 28), 1♀ July 1993; 3♀ June–July 1998, leg. L.O. Hansen, in malaise trap; Rollag: Vårviken (EIS 35), 4♀ July 1994, leg. L.O. Hansen & B. Sagvolden, in malaise trap; **OS** Søndre Land: Dokkadeltaet, Bergsrønningen (EIS 45), 1♀ 25 June–29 July 2009, leg. L.O. Hansen, in malaise trap; **HES**, Eidskog: Ingelsrud (EIS 38), 1♀ 10 July 1995, leg. L.O. Hansen, in malaise trap; Eidskog, 1♀ 10 July 1974; 1♀ 20 June 1974; 12♀ 11 July 1974; 50♀ July 1974, leg. R. Mehl; **NTI**, Grong: Grong (EIS 107), 1♀ 6 July 2005; **FN**, Porsanger: Børselv (EIS 182), 1♀ 18 July 1997, leg. M. Falck.

The last two records indicates a much wider distribution than any other species of the genus has got, and it poses the question of why this fly, being of a considerable size, has not been captured by other collectors further north than Trøndelag.

*** *Tabanus miki* Brauer, 1880**

(Figure 39, Map 43)

Norwegian name: glattøykegg

Record: **TEY**, Kragerø: Øytangen N, Jomfruland (EIS 11), 1♀ 21 June–28 July 2009, leg. F. Ødegaard & O. Hanssen.

New to Norway. The species is considered extinct in Sweden.

***Tabanus sudeticus* Zeller, 1842**

(Figure 40, Map 44)

Norwegian name: grå kjempekegg

Kauri (1968) reports this species from Vestfold, Østfold (erroneously), Akershus, Aust-Agder, Rogaland and Hordaland. Davies *et al.* (1971) reports it from “middle Norway”.

Records. Ø, Hvaler: Kirkøy, Arekilen (EIS 12), 8 July 1984, leg. M. Falck; Rygge: Halmstad (EIS 20), 1♀ 1 July 2011; Sarpsborg: Råkil, Tune, 1♀ 15 July 1996; 1♀ 15 August (without year); Rakkestad: Degernes, Munkebråten, 1♀ 28 July 2010; 1♀ 20 July 2010, leg. T.J. Olsen;



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FIGURE 41. *Heptatoma pellucens* (Fabricius, 1776). Photo: K. Sund (NHM, Oslo).

Moss: Jeløya (EIS 19), 1 ♀ 2 August 1998, leg. Leif Aarvik; Rygge: Sildebauen (EIS 19), 23 July 2006, leg. Nini Aarvik; 1 ♀ 24 July 1985, leg. Leif Aarvik; Fredrikstad: Onsøy, Slevik (EIS 20), 1 ♀ 31 July 2004, leg. O. Lønnve; **VE**, Nøtterøy (EIS 19), 1 ♀ 26 July 1983, leg. E. Luthen; Larvik, Holtsetra S (EIS 19), 1 ♀ 27 July 2008, leg. Leif Aarvik; 1 ♀ 27 July 2008, leg. A. Fjellberg; Tjøme: Gon, 1 ♀ 8 July 1991, Ormelet, 1 m 27 June 1991, leg. A. Fjellberg. **AK**, Ski: Kontra, (EIS 28), 1 f 26 July 2001, leg. F. Johansen. 1 f without date, leg. Helge Bø. Nesodden: Berger, 1 ♂ 5 August 1961, leg. J.H. Simonsen; Bærum: Fornebu: Lilløyplassen, 1 ♀ June–July 2007, leg. J. Pedersen, in malaise trap; 1 ♂ 6 July 2007, leg. J.R. Pedersen; **TEY**, Kragerø: Tåtøy (EIS 11), 1 ♀ 21 July 1963, leg. M. Opheim; **AAY**, Risør, 1 ♀ 18 June 1906, leg. Thorstensen; 1 ♂ 25 June 1911, leg. Warloe; Tromøy (EIS 6), 1 ♀ 18 July 1978, leg. K. Berggren; Bjelland, 1 ♀ 10 July 1955, leg. A. Bakke; Kristiansand: Gimle (EIS 2), 1 ♀ August 1976, leg. K. Berggren; Birkenes: Flaksvann Nord, 1 ♂ 18 June 2004; **BØ**, Drammen (EIS28), 1 ♂ 11 July 1924, leg. Warloe.

This is the largest Norwegian dipteran, which may be the reason why it has been collected so frequently. However, all the records are from the coastal areas around the Oslofjord. It seems to have a relatively restricted occurrence. It seldom attacks humans, but concentrates on cattle and horses (Lyneborg 1960). According to Chvála (1988) it is widespread in Europe.

Tribus Haematopotini

Genus *Heptatoma* Meigen, 1803

Only one widespread species in the Palearctic region, including the extreme north (Chvála *et al.* 1972). In Norway this species is widespread, but not common.

Heptatoma pellucens (Fabricius, 1776)

(Figure 41, Map 17)

Norwegian name: vannklegg

Kauri (1968) reports it from Vestfold. A single specimen found in Nord-Trøndelag by Solem *et al.* (1990)

Records. **Ø**, Halden: Prestebakke (EIS 20), 1 ♀ 20 June 1965, leg. S. Tvermyr; **AK**, Oslo: Østensjøvann (EIS 28), 1 ♀ 4 June 1967, leg. M. Falck; Frogn, Bekkevoll, 1 ♀ 28 July 2002, leg. Harald Hjelde; Bærum: Kjøglidalen, 1 ♀ 3 June 2011, leg. L. Aarvik; Høvik, 1 ♀ 5 July 1980; Oslo: Østmarka: Sarabråten, 1 ♀ 16 July 1981, leg. M. Falck; **BØ**, Nedre Eiker: Mjøndalen: Miletjern (EIS 28), 1 ♀ 16 July 1983, leg. D.W.B. Johansen; Drammen: Underlia, 1 ♀ 1–31 July 1992, leg. L.O. Hansen, in malaise trap; 1 ♀ June 1999, malaise trap, leg. L.O. Hansen. Oslo: Maridalen, Dausjøen (EIS 36), 2 ♀♀ 23 June–19 July malaise trap at river outlet, leg. K.M. Olsen & S. Reiso; **OS**, Jevnaker: Velo (EIS 37), 1 ♀ 13 June 2011, leg. O. Lønnve; Sørurum: Egner (EIS 37), 1 ♀ 27 June 1998, leg. O. Sørli; **HEN**, Åmot: Deset (EIS 55), 1 ♀ 28 June 2002, labelled: “dødisgrop”, leg. L.O. Hansen; Sjømoen, 1 ♀ 9 July 2009, leg. M. Falck; **TEI**, Tokke: Krossli (EIS 17), 3 ♀♀ 14 July 1986, leg. R. Mehl, labelled: bog at water; Kviteseid: Grågåsi, 1 ♀ 9 July 1983, leg. G.E.E. Søli; **VAY**, Kristiansand: Nedre Timenes (EIS 2), 1 ♀ 23 July 2005, leg. K. Berggren.

The species is not common, but widely distributed in Southern Norway. Kauri (1996) records it from Trøndelag and Nordland. Bergersen *et al.* (2004) has records from NSI (EIS 123 and 114). It is very seldom collected in more than one specimen, and according to Chvála *et al.* (1972) never occurs in large numbers. However, In the collection of NHM there is a box containing 58 specimens labelled Eidskog and dated from 12

TABLE 6. Key to the Norwegian species of genus *Haematopota* Meigen, 1803 (after Chvála *et al.* 1972).

Females	
1.	Antennal segment 1 long, cylindrical and rather slender, at least 4 times as long as deep. Always entirely greyish dusted (<i>italica</i> group) 2
-	Antennal segment 1 shorter, usually conical to oval, at most 3 times as long as deep, more or less polished, only seldom entirely dusted (<i>pluvialis</i> group) 3
2.	Antennal segment 3 rather slender, about as broad as segment 1. Larger species, 11.5–13.5 mm <i>H. grandis</i> Meigen, 1820
-	Antennal segment 1 blackish-grey. With more or less distinct subapical constriction. Frons only slightly higher than broad, paired velvety black spots large, circular. Antennal segment 1 about 4 times as long as deep, segment 3 more or less brownish at base <i>H. italica</i> Meigen, 1804
3.	Antennal segment 1 polished black, at least distinctly so on apical quarter. Antennal segment 1 of irregular shape, With a deep constriction before tip. Femora blackish-grey. Generally olive-grey dusted species <i>H. pluvialis</i> (Linnaeus, 1758)
-	Antennal segment 1 without deep constriction before tip 4
4.	Antennal segment 1 black, all femora blackish-grey. Abdomen with distinct, but rather small grey sublateral spots on tergite 3 to 7, sometimes small spots also on tergite 2 <i>H. subcylindrica</i> Pandellé, 1883
-	Frons always higher than broad, antennal segment 1 not constricted, antennae polished 5
5.	Antennal segment 1 more or less brownish at base, femora extensively yellowish-brown <i>H. bigoti</i> Gobert, 1881
-	Antennae entirely black. Wings dark brown, posterior margin clouded. All femora blackish-grey, anterior two tergites without sublateral spots <i>H. crassicornis</i> Wahlberg, 1848
Males	
1.	Antennal segment 1 more than twice as long as deep, black in ground colour, oblong oval. Generally larger species <i>H. grandis</i> Meigen, 1820
-	Antennal segment 1 polished black, at least on apical third 2
2.	Antennal segment 1 mostly polished black, densely whitish-grey dusted on basal third above. Wings brownish-grey <i>H. italica</i> Meigen, 1804
-	Antennal segment 1 elongated, oblong oval, more than twice as long as deep 3
3.	Antennal segment 1 densely whitish-grey dusted on more than basal half. Wings light grey <i>H. subcylindrica</i> Pandellé, 1883
-	Antennal segment 1 shorter, more egg-shaped, at most twice as long as deep 4
4.	Antennae entirely black, including segment 3, segment 1 entirely polished without any grey dust. Wings darker brown <i>H. crassicornis</i> Wahlberg, 1848
-	Antennae at least slightly brownish on base of segment 3 5
5.	Femora blackish-grey <i>H. pluvialis</i> (Linnaeus, 1758)
-	Femora extensively yellowish-brown <i>H. bigoti</i> Gobert, 1881

June till 2 August 1974. Most of them are females, a few have been determined by H. Kauri, and are so labelled. Mostly there are one to two specimens from each day, but then there seems to have been a peak on 7 July (14 specimens, including one that obviously is mislabelled “1964”) and again on July 19, (11 specimens).

Genus *Haematopota* Meigen, 1803 (Table 6)

This genus consists of small, greyish looking flies, with mottled wings that are held along the

body when at rest, making the flies look very slim. Four species in Norway, of which one is extremely common and numerous everywhere, and three are very rare, and should be placed on the red list. In addition, the keys include two species that is recorded from Sweden, which may occur in Norway.

Haematopota bigoti Gobert, 1881

Norwegian name: kystregnklegg

Not yet found in Norway. In England regarded as a coastal species. (Stubbs & Drake 2001).



FIGURES 42–45. Species in the genus *Haematopota*. **42.** *H. crassicornis* Wahlberg, 1848. **43.** *H. italica* Meigen, 1804. **44.** *H. pluvialis* (Linnaeus, 1758). **45.** *H. subcylindrica* Pandellé 1883. Photos: K. Sund (NHM, Oslo).

***Haematopota crassicornis* Wahlberg, 1848**

(Figure 42, Map 13)

Norwegian name: svarthornregnklegg

Bidenkap (1900) records this species (as a variety of *pluvialis*) as found by Sparre Schneider at Svendborg.

Record. **AK**, Sørur, Lørenfallet, Egner (EIS 37), 1 ♀ June 1994, leg. L.O. Hansen & O. Sørlibråten; **BV**, Drammen: Underlia (EIS 28), 1 ♀ 1–30 June 1992, leg. L.O. Hansen, both in malaise traps.

***Haematopota grandis* Meigen, 1820**

Norwegian name: stor regnklegg

Not yet found in Norway. Rare in Denmark, regarded as extinct in Sweden (Chvála 1988, Bohman 2008.)

*** *Haematopota italica* Meigen, 1804**

(Figure 43, Map 14)

Norwegian name: tynnhornregnklegg

Records. **AAY**, Kristiansand: Nedre Timenes (EIS 2), 1 ♂ 15 July 2005; 1 ♀ 18 June 2005, leg. K. Berggren; **AK**, Bærum: Borøya (EIS 28), 1 ♀

28 June–9 September 1995, leg. L.O. Hansen, in malaise trap; **OS**, Søndre land: Dokkadeltaet, Bergsrønningen (EIS 45), 2 ♂♂ 25 June–29 July 2009, leg. L.O. Hansen & F.A. Grøndahl.

New to Norway. According to Chvála (1988) this species is distributed in “all parts of Europe north to 60 degrees”, but “absent in Norway and Finland.” Thus it is of interest that it also showed up in the material from Bergsrønningen, which is situated north of 60 degrees, though it was only a single male specimen, among a myriad of *H. pluvialis*. Further collecting may give more records of this very rare species.

***Haematopota pluvialis* (Linnaeus, 1758)**

(Figure 44, Map 15)

Norwegian name: vanlig regnklegg

Siebke (1877) record this species as living all over Norway and everywhere frequent. Bidenkap (1892) says it is to be found “everywhere on moist meadows.” Storm (1895) notes it as a common prey for *Empis tessellata*. Davies (1954) found it at Holandsfjord in Nordland, Davies *et al.* (1971) reports it from Bø in Telemark, Rognes

(1980) adds records from Telemark, Aust-Agder, Rogaland, Nord-Trøndelag, Nordland, and Troms, and 250 specimens were caught at Høylandet by Solem *et al.* (1990)

The species is undoubtedly one of the most common species of Tabanidae in Norway, and a major pest all over the country. Extremely variable, both in size, colouration, pilosity, pattern and proportions. The author has studied material from Pasvik and Varanger in the North to Hvaler and Kristiansand in the South, from Karmøy in the West to Trysil in the East, and from sea level to the highest mountain habitats of more than 1000 m a.s.l.. To avoid burdening this article with page after page of more or less unreadable information, it is sufficient to state that if a fly species is to be found in every EIS square of the Norwegian mainland, this must be it. Not only does it everywhere come in numbers, but there are a stupendous majority of females in the material, probably both meaning that the female is very effective in its hunt for blood, and that the males are by far less common than the females. The details can be seen from the map, and by conferring with the map in Bergersen *et al.* (2004).

* ***Haematopota subcylindrica* Pandellé, 1883**

(Figure 45, Map 16)

Norwegian name: gråhornregnklegg

Record. Ø, Hvaler: Kjerkøy, Ørekroken (EIS 12), 1♀ 16 July–15 August 2003, leg. L.O. Hansen; OS, Søndre Land: Dokka-deltaet, Bergsrønningen (EIS 45), 1♀ 25 June–29 July, leg. L.O. Hansen & F.A. Grøndahl; 1♀, leg. L.R. Natvig, labelled 1451; NNV, Hadsel: Myrland, Rydningen (EIS 137), 1♀ 5–7 July 2007, leg. M. Falck.

New to Norway. According to Chvála (1988) it is distributed over North and Central Europe and eastward into Central Asia.

Check list of the Norwegian Tabanidae-species

Family TABANIDAE

Chrysops caecutiens (Linnaeus, 1758)

C. divaricatus Loew, 1858

C. nigripes Zetterstedt, 1838

C. relictus Meigen, 1820

C. rufipes Meigen, 1820

C. sepulcralis (Fabricius, 1794)

C. viduatus (Fabricius, 1794)

Hybomitra arpadi (Szilády, 1923)

H. astuta (Osten-Saxcken, 1876)

= *polaris* (Frey, 1915)

H. aterrima (Meigen, 1820)

H. auripila (Meigen, 1820)

H. bimaculata (Macquart, 1826)

H. borealis (Fabricius, 1781)

H. ciureai Séguy, 1937)

H. distinguenda (Verrall, 1909)

H. kaurii Chvála & Lyneborg, 1970

H. lundbeckii Lyneborg, 1959

H. lurida (Fallén, 1817)

H. montana (Meigen, 1820)

H. muehlfeldi (Brauer, 1880)

H. nigricornis Zetterstedt, 1842)

H. nitidifrons confiformis Chvála & Moucha, 1971

H. sexfasciata (Hine, 1923)

H. solstitialis (Meigen, 1820)

H. tarandina (Linnaeus, 1758)

H. tropica (Linnaeus, 1758)

Atylotus fulvus (Meigen, 1820)

A. latistriatus (Brauer, 1880)

A. rustibus (Linnaeus, 1767)

A. plebejus (Fallén, 1817)

A. sublunaticornis (Zetterstedt, 1842)

Tabanus autumnalis Linnaeus, 1761

T. bovinus Linnaeus, 1758

T. bromius Linnaeus, 1758

T. cordiger Meigen, 1820

T. glaucopis Meigen, 1820

T. maculicornis Zetterstedt, 1842

Tabanus miki Brauer, 1880

T. sudeticus Zeller, 1842

Heptatoma pellucens (Fabricius, 1776)

Haematopota crassicornis Wahlberg, 1848

H. italica Meigen, 1804

H. pluvialis (Linnaeus, 1758)

H. subcylindrica Pandellé 1883

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Postscript. After this paper was submitted to publication, part of the material was sent to analyses for DNA-barcoding. The result showed a mix of misidentification, confusing mixing of species and other errors that was quite discouraging. However, this shows that while DNA-barcoding seems to hold a key for reliable identification, it is not a magic wand to be trusted wholly and fully. It will not be possible to solve every question with the use of this method for identifying species, but it will of course be possible to see new species different from others. And, in the view of the present autor, the Tabanidae may be in need of a new thorough revision on a greater scale, as some of the errors and misidentifications corresponded to errors made earlier by other researchers. However one thing is perfectly clear: the method of DNA-bar coding is totally dependent of what is put into the “library” from the start. The most uncertain species will be those that are only found once or twice, and the most secure thing will be to map the common and numerous specimens.

October 2014 MF

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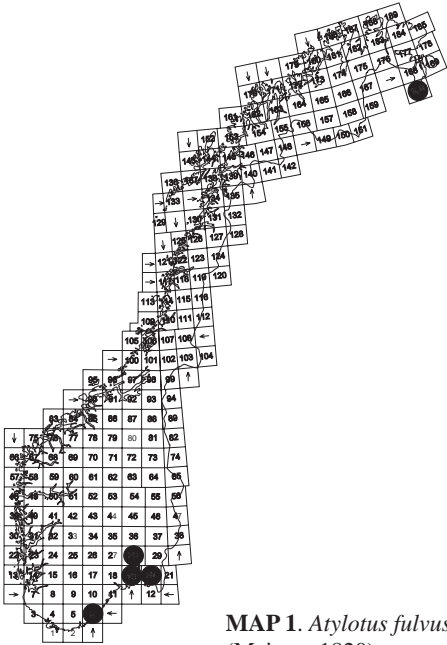
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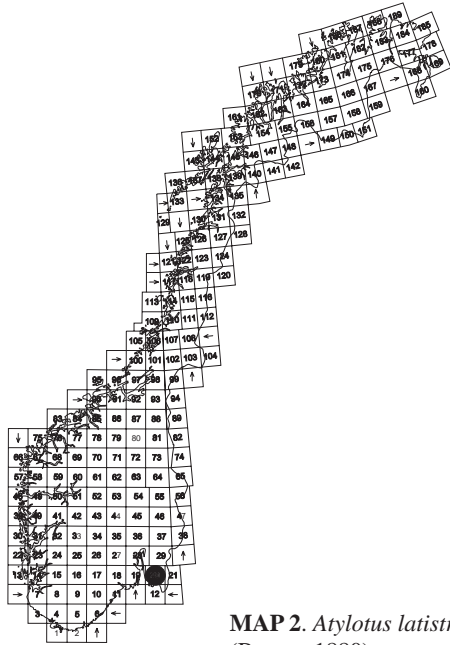
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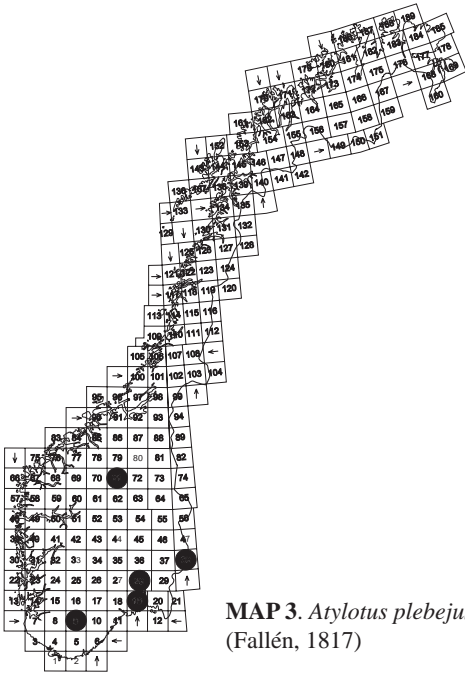
Appendix. Distribution maps of 44 species of Tabanidae from Norway. The distribution is given as EIS-grid maps (European Invertebrate Survey).



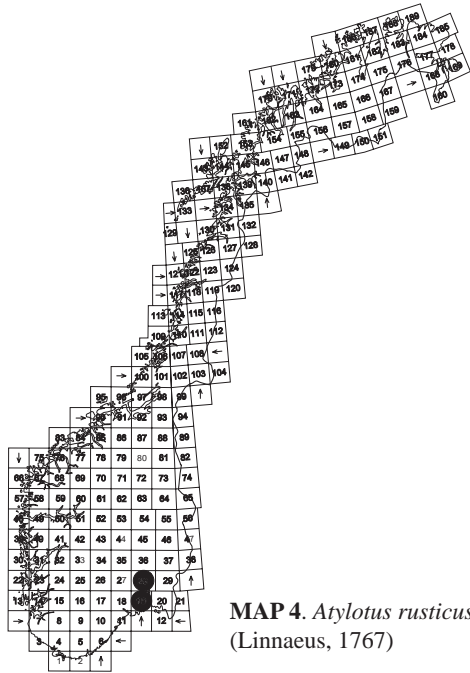
MAP 1. *Atylotus fulvus* (Meigen, 1820).



MAP 2. *Atylotus latistriatus* (Brauer, 1880)

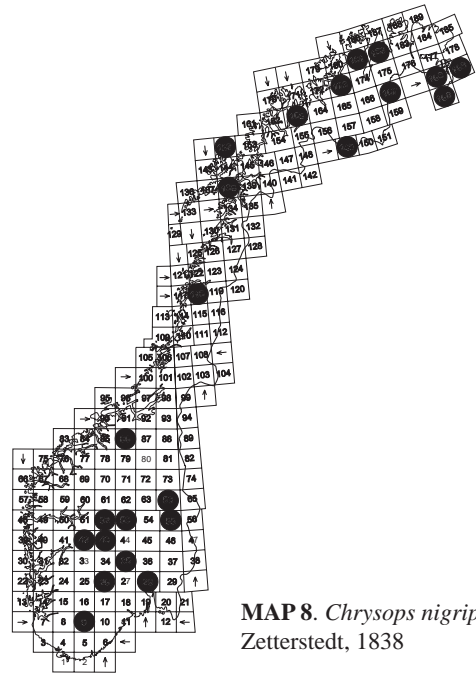
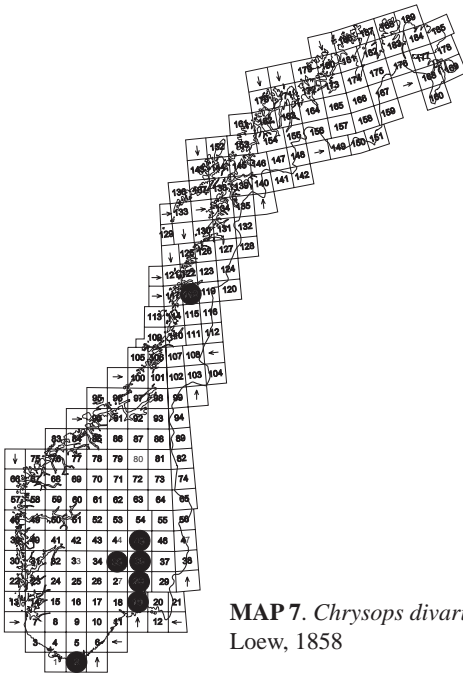
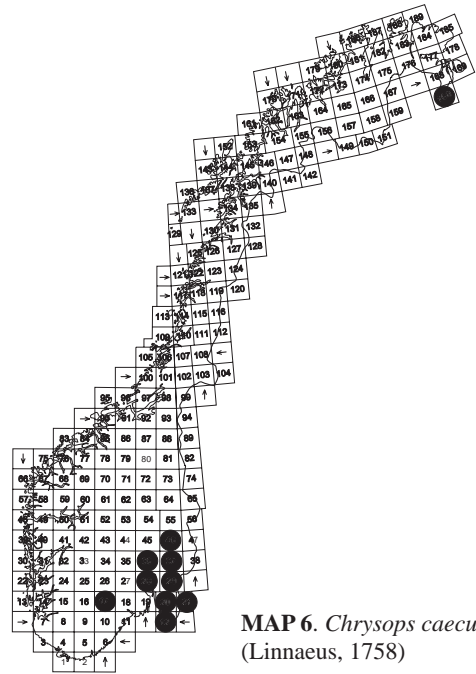
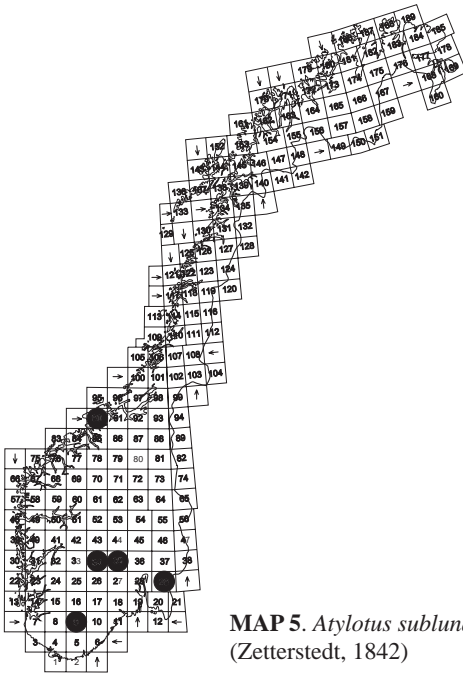


MAP 3. *Atylotus plebejus* (Fallén, 1817)

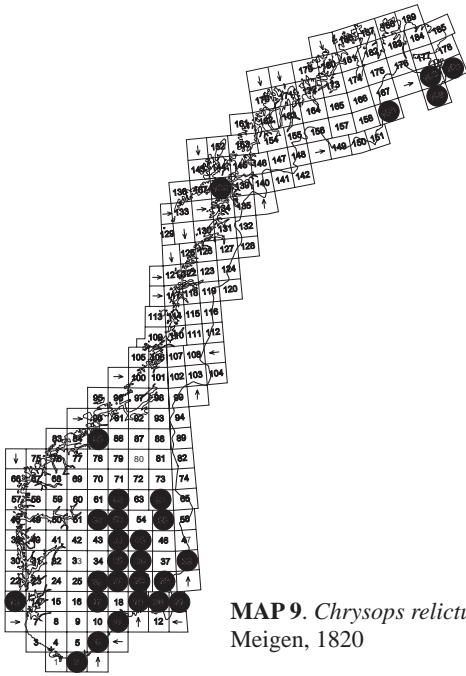


MAP 4. *Atylotus rusticus* (Linnaeus, 1767)

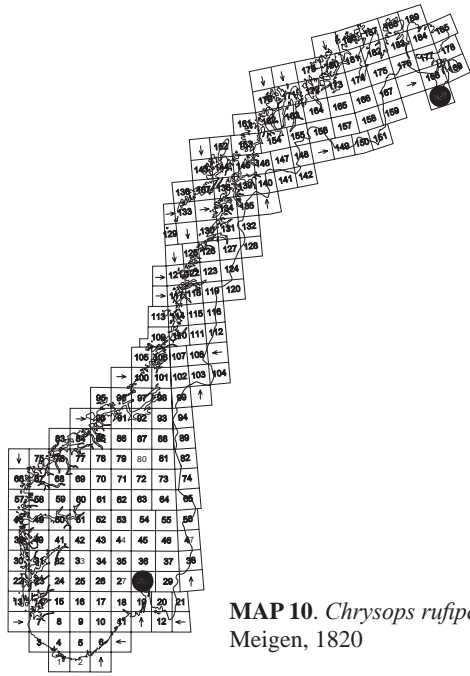
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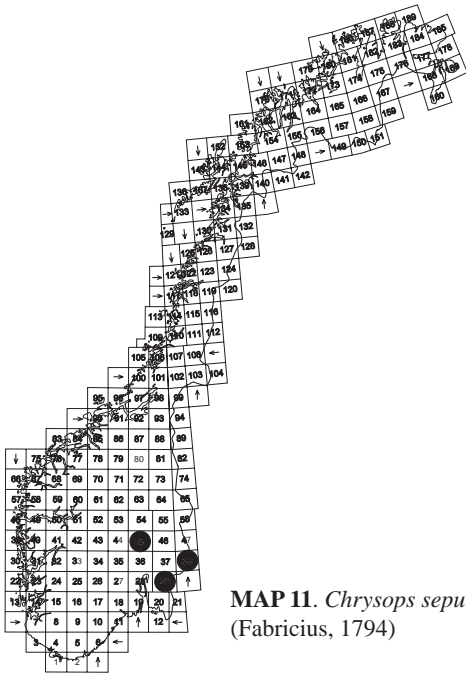
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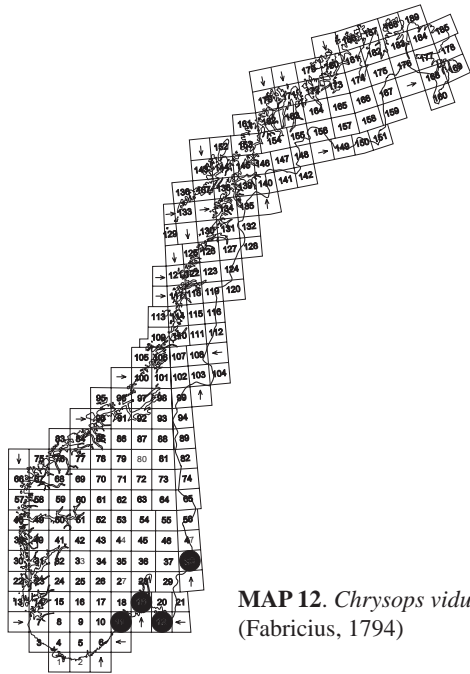
MAP 9. *Chrysops relictus*
Meigen, 1820



MAP 10. *Chrysops rufipes*
Meigen, 1820

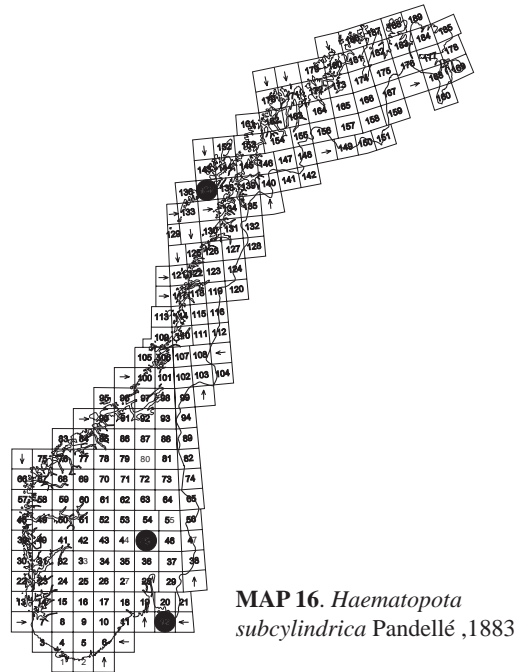
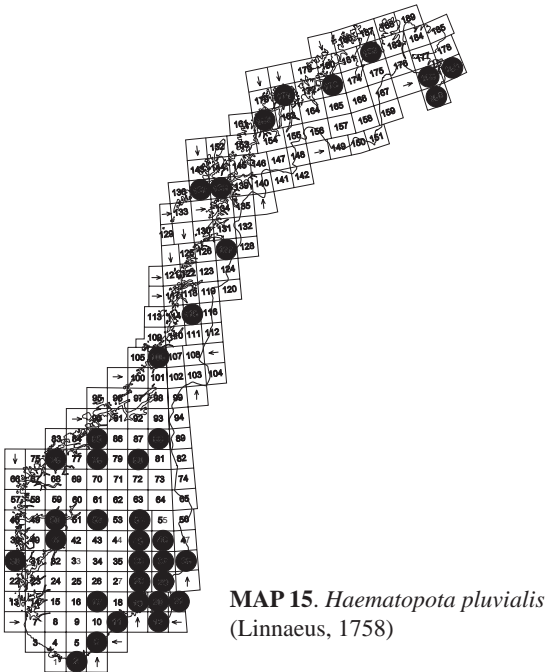
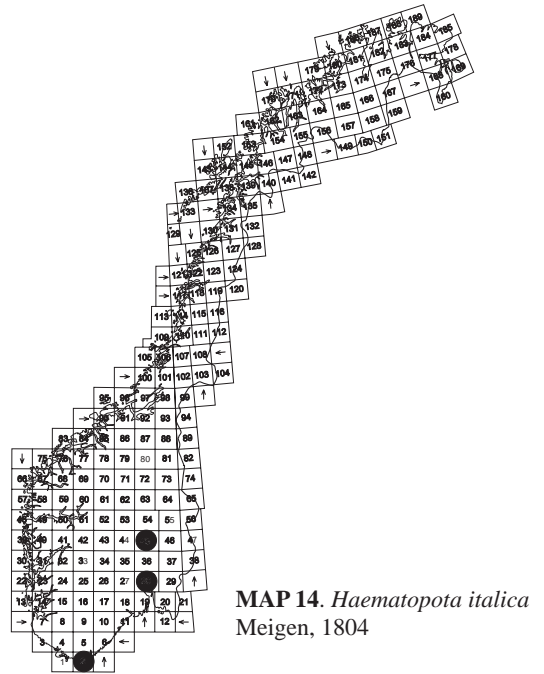
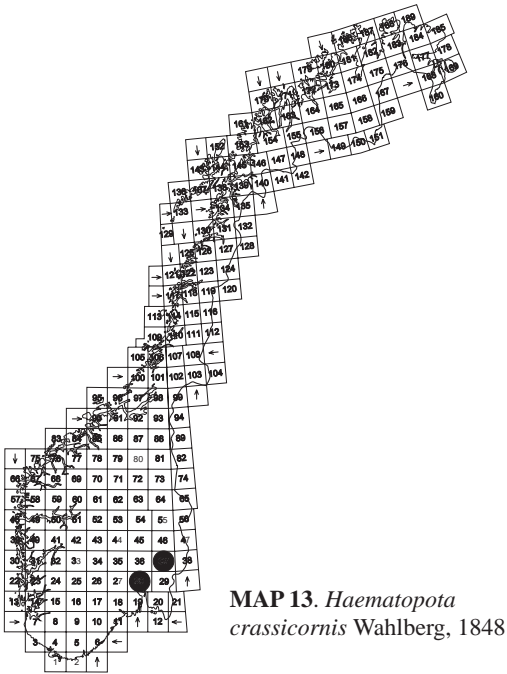


MAP 11. *Chrysops sepulcralis*
(Fabricius, 1794)

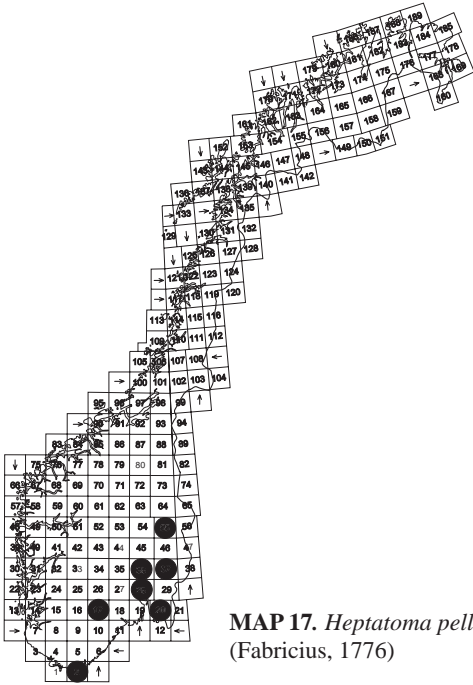


MAP 12. *Chrysops viduatus*
(Fabricius, 1794)

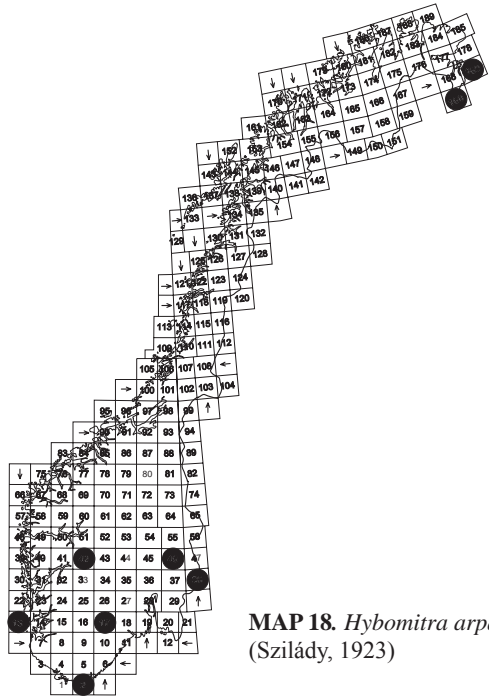
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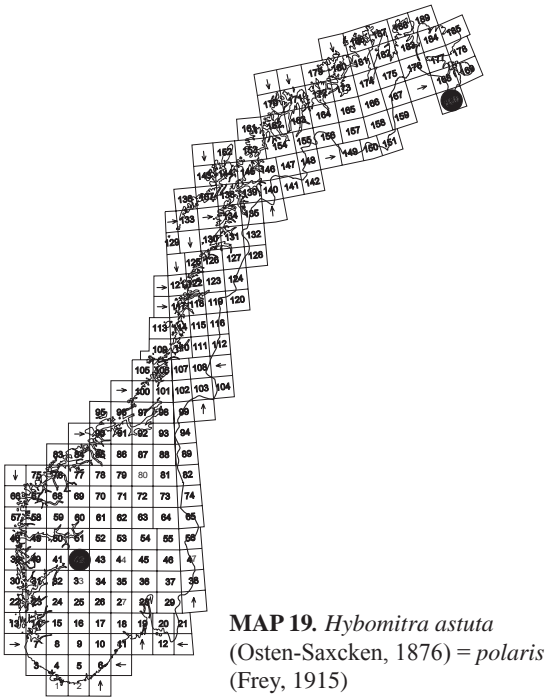
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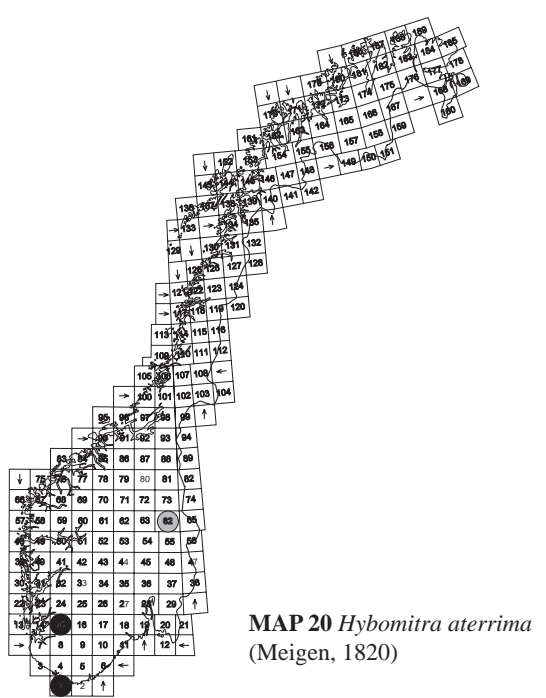
MAP 17. *Heptatoma pellucens*
(Fabricius, 1776)



MAP 18. *Hybomitra arpadi*
(Szilády, 1923)

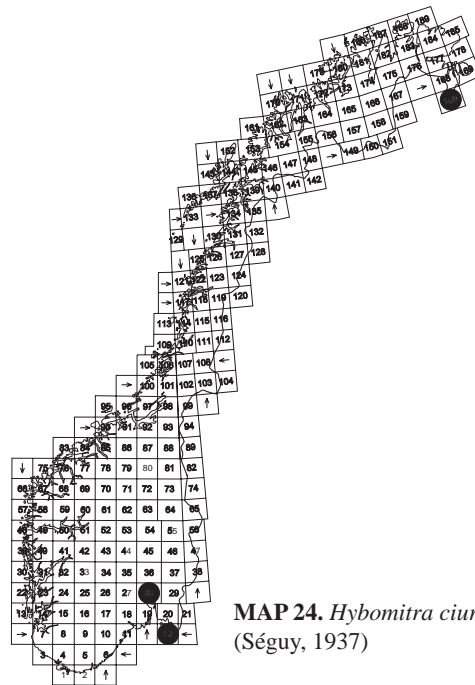
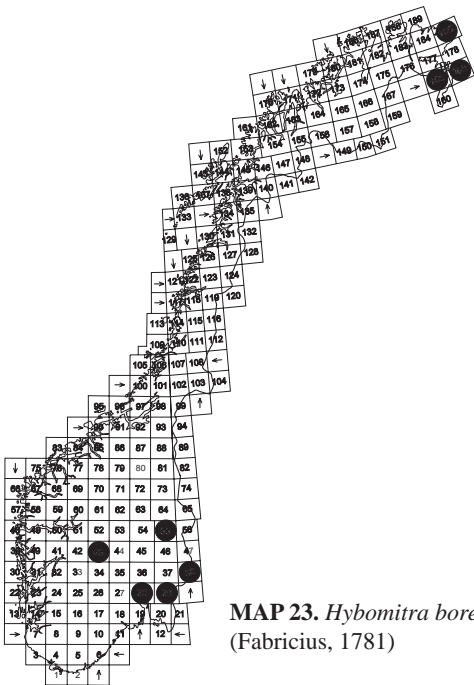
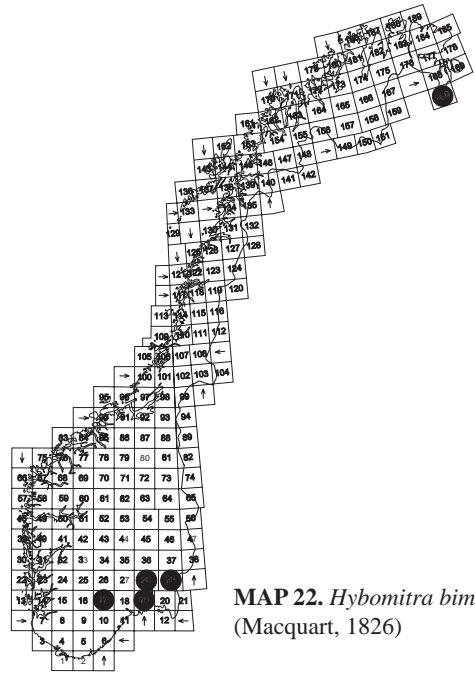
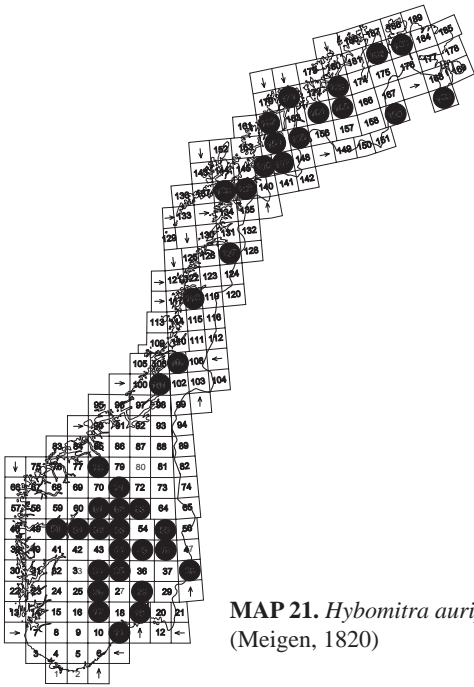


MAP 19. *Hybomitra astuta*
(Osten-Saxcken, 1876) = *polaris*
(Frey, 1915)

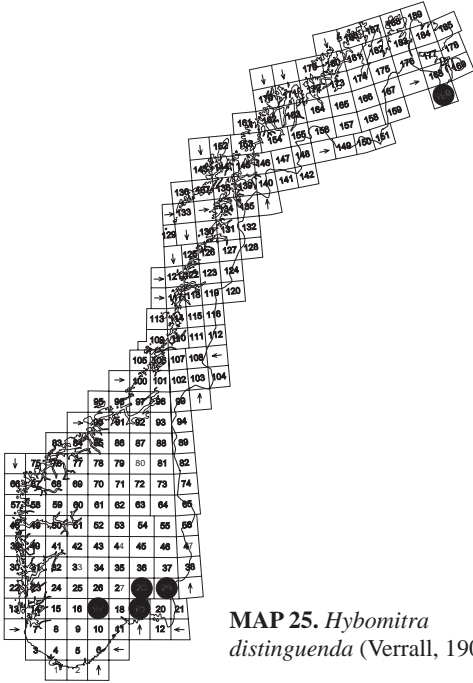


MAP 20 *Hybomitra aterrima*
(Meigen, 1820)

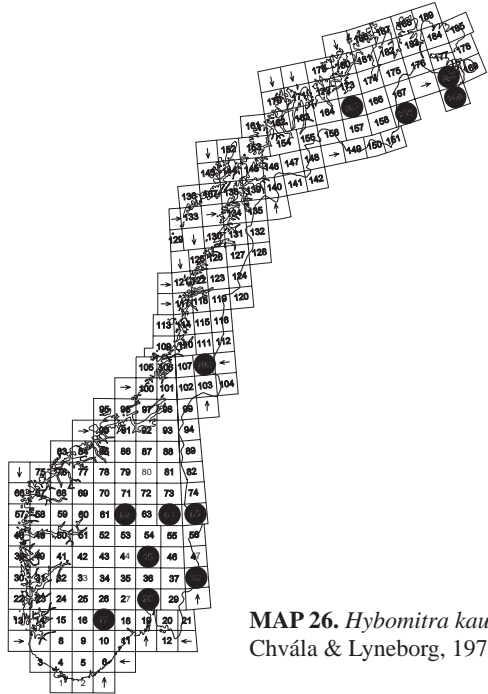
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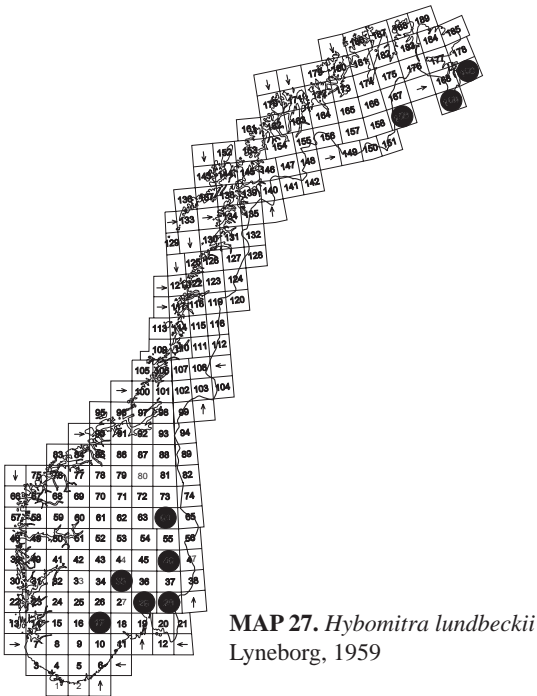
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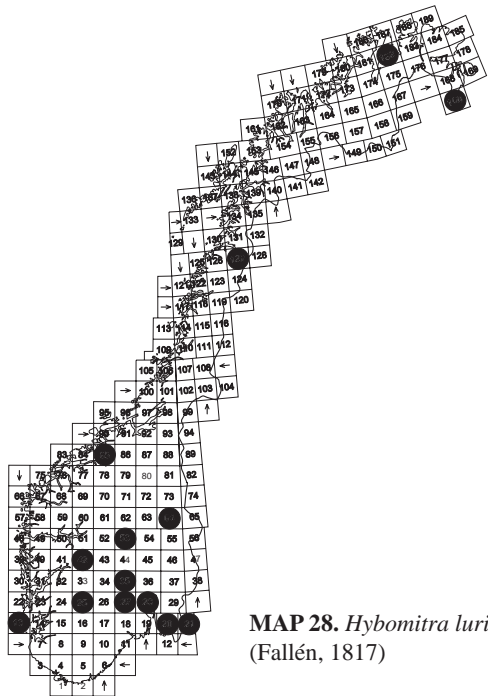
MAP 25. *Hybomitra distinguenda* (Verrall, 1909)



MAP 26. *Hybomitra kaurii* Chvála & Lyneborg, 1970

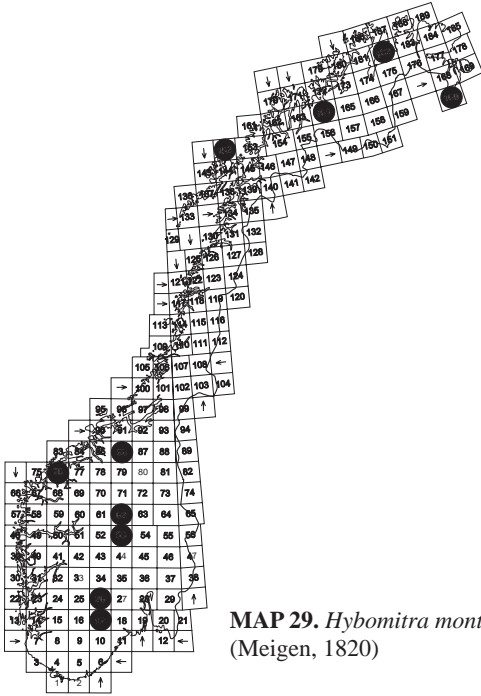


MAP 27. *Hybomitra lundbeckii* Lyneborg, 1959

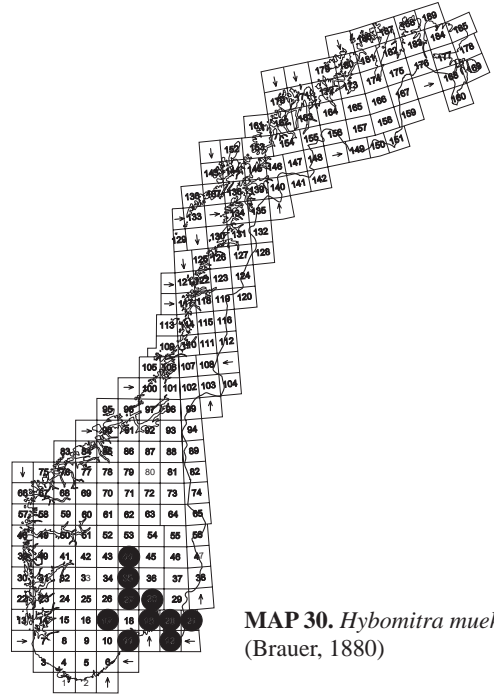


MAP 28. *Hybomitra lurida* (Fallén, 1817)

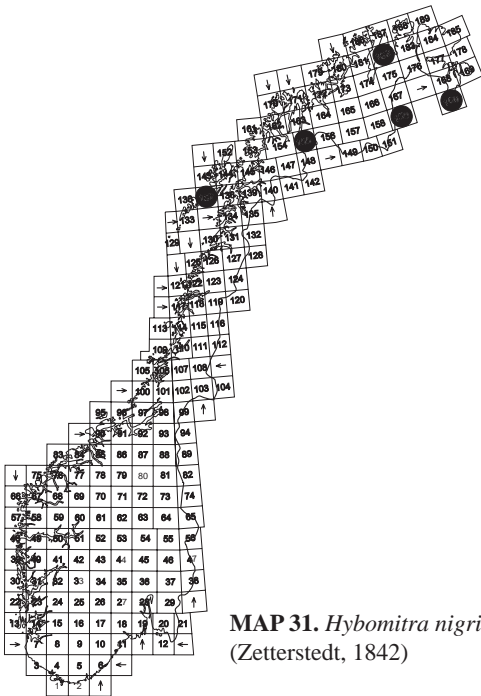
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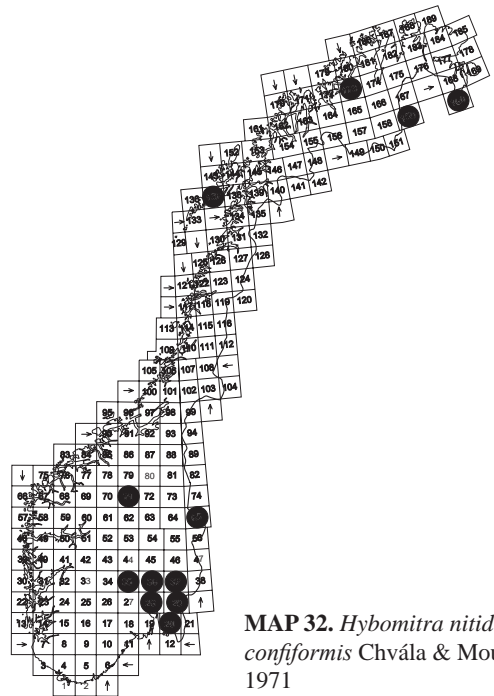
MAP 29. *Hybomitra montana*
(Meigen, 1820)



MAP 30. *Hybomitra muehlfeldi*
(Brauer, 1880)

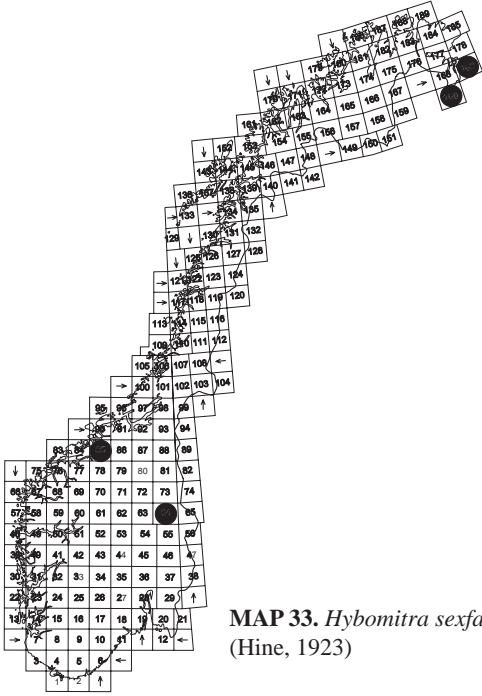


MAP 31. *Hybomitra nigricornis*
(Zetterstedt, 1842)

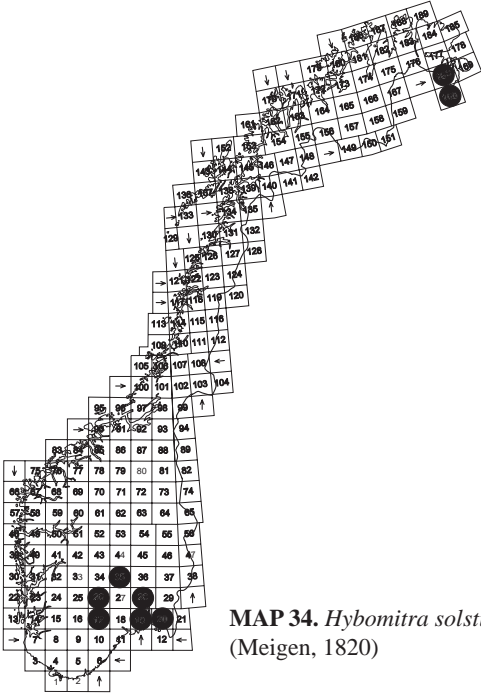


MAP 32. *Hybomitra nitidifrons*
confiformis Chvála & Moucha,
1971

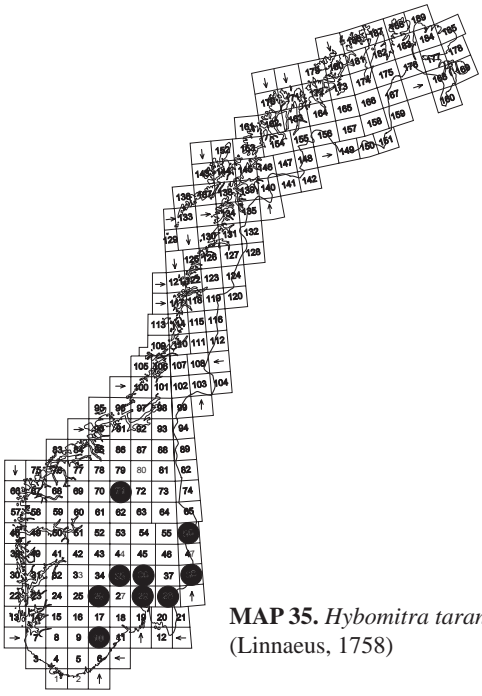
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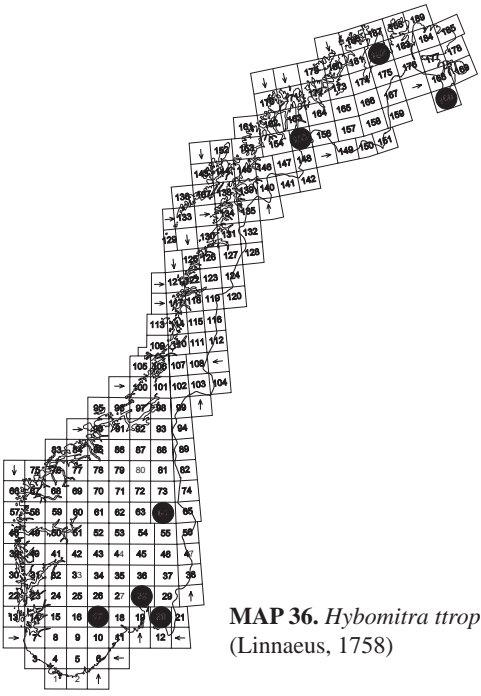
MAP 33. *Hybomitra sexfasciata* (Hine, 1923)



MAP 34. *Hybomitra solstitialis* (Meigen, 1820)

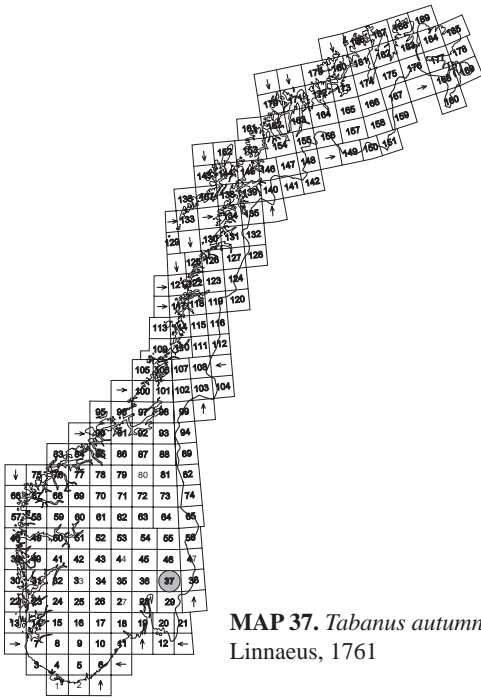


MAP 35. *Hybomitra tarandina* (Linnaeus, 1758)

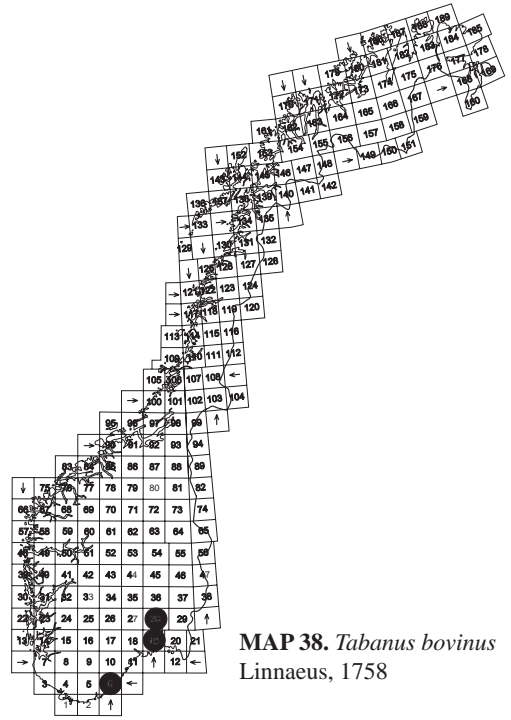


MAP 36. *Hybomitra tropica* (Linnaeus, 1758)

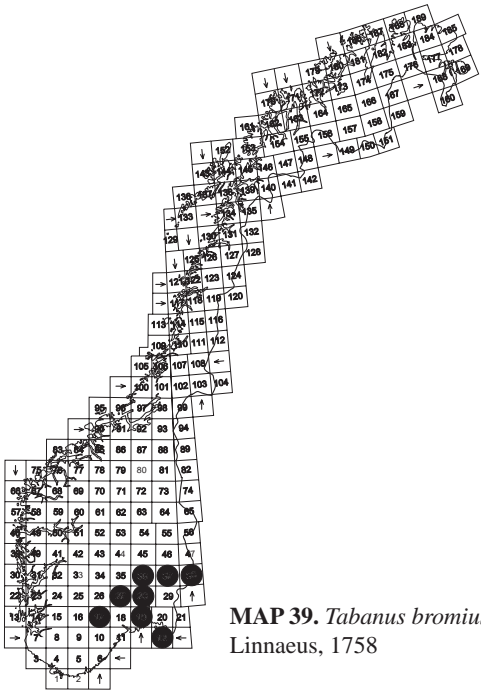
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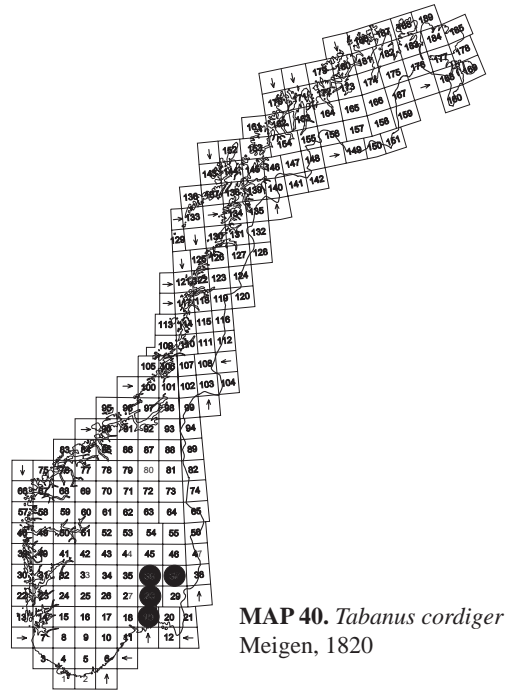
MAP 37. *Tabanus autumnalis*
Linnaeus, 1761



MAP 38. *Tabanus bovinus*
Linnaeus, 1758

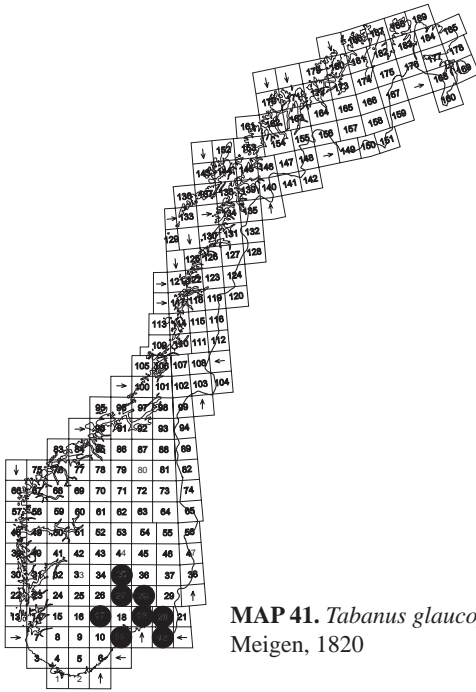


MAP 39. *Tabanus bromius*
Linnaeus, 1758

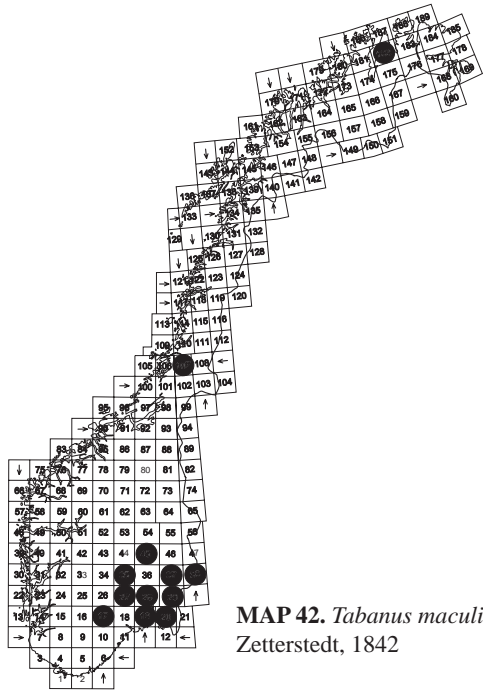


MAP 40. *Tabanus cordiger*
Meigen, 1820

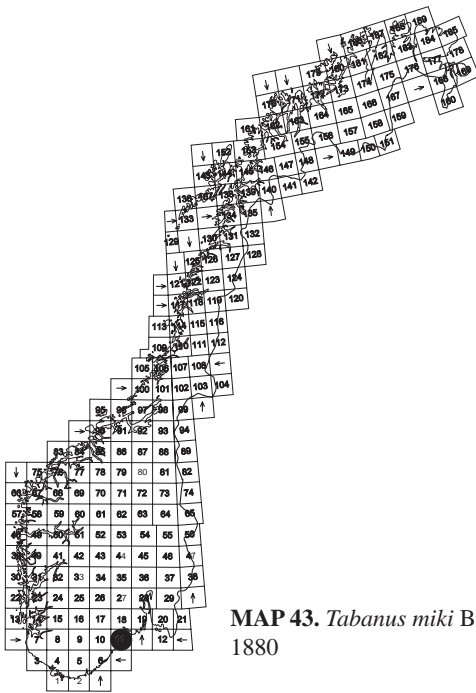
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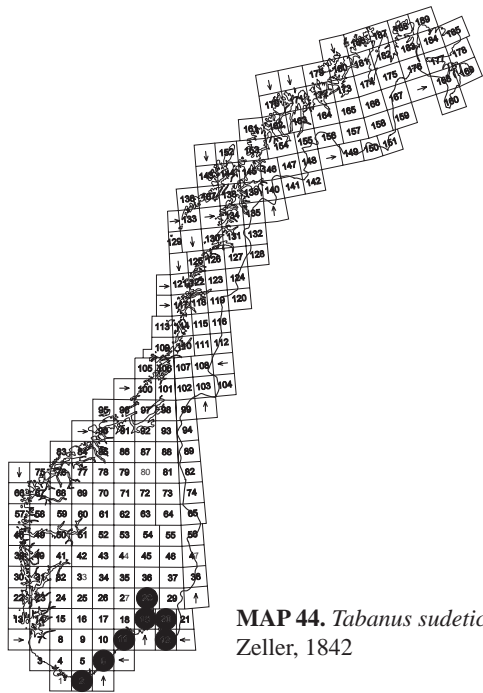
MAP 41. *Tabanus glaucopsis*
Meigen, 1820



MAP 42. *Tabanus maculicornis*
Zetterstedt, 1842



MAP 43. *Tabanus miki* Brauer,
1880



MAP 44. *Tabanus sudeticus*
Zeller, 1842