

The genus *Sylvicola* Harris, 1780 (Diptera, Anisopodidae) in Norway – with a key to the North European species

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Three species of *Sylvicola* Harris, 1780 are reported from Norway for the first time: *S. stackelbergi* Krivosheina & Menzel, 1998 from N and SE Norway; *S. fuscatus* (Fabricius, 1775) from Southeastern Norway; and *S. fuscatooides* Michelsen, 1999 from Finnmark, Hedmark and Oppland. By this, all seven species of *Sylvicola* known from Fennoscandia have been recorded from Norway. An illustrated key for the North European species is provided, and the internal female genitalia of *S. stackelbergi*, *S. fuscatus* and *S. fuscatooides* are illustrated for the first time. Females of *S. stackelbergi* and *S. fuscatus* were associated by use of DNA barcodes. The Norwegian distribution for all known species is commented on.

Key words: Diptera, Anisopodidae, *Sylvicola*, Norway.

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Introduction

In Fennoscandia, the most common species in the family Anisopodidae belong to the genus *Sylvicola* Harris, 1780. They are of moderate size and rather robust nematoceros Diptera, brown to reddish brown in colour, with spotted wings.

Species of *Sylvicola* are fairly common, and adults can be found almost throughout the year. Their larvae are saprophagous and develop in nearly all kinds of wet, fermenting plant material from rotting vegetables to decaying bast fibers in logs, and in droppings from large herbivores. Several species are common inhabitants in household compost bins. From Scotland, one species, *Sylvicola cinctus* (Fabricius, 1787), has also been reported feeding on a decaying carcass of a sheep (Hancock 1990). As indicated by one of their trivial names, wood gnats and window gnats,

they are common, but accidental visitors indoors.

Up to present, four species of *Sylvicola* have been reported from Norway, *S. cinctus* (Fabricius, 1787), *S. fenestralis* (Scopoli, 1763), *S. punctatus* (Fabricius, 1787) and *S. zetterstedti* (Edwards, 1923). Examination of material collected over the last four years has revealed the Norwegian fauna to hold another three species of the genus. Here we present these new findings, comments on the distribution of the remaining species, and a key for the identification of both sexes for all species occurring in Norway and Northern Europe.

Systematics

The family Anisopodidae is by most authors regarded as a monophyletic entity, but in a broader view, their systematical position is still unclear

and much discussed (e.g. Amorim & Tozoni 1994, Michelsen 1999, Thompson 2006, Bertone *et al.* 2008). They have been proposed to form the sister group to all Brachycera (Oosterbroek & Courtney 1995), or the sister group to Bibionomorpha (Bertone *et al.* 2008, Wiegmann *et al.* 2011). Traditionally, the family is regarded to include the genera *Sylvicola* Harris, 1780, *Olbiogaster* Osten-Sacken, 1886, *Mycetobia* Meigen, 1818, *Trichomycetobia* Mamaev, 1987, and a number of smaller, mostly tropical genera (Hennig 1973, Wood & Borkent 1989, Oosterbroek & Courtney 1995). Some authors, however, prefer to treat it as a superfamily, Anisopodoidea, with at least two families, Anisopodidae and Mycetobidae, but sometimes also including Olbiogastridae and Valseguyidae (e.g. Amorim & Tozoni 1994, Amorim & Grimaldi 2006). The latter interpretation, however, entails serious systematical problems as the phylogenetic relationship between the genera included is far from resolved (Bertone *et al.* 2008). The genus *Sylvicola* is still frequently divided into two subgenera, *Sylvicola* s.str. and *Anisopus* Meigen, 1803, but such a division probably leaves the former paraphyletic in terms of the latter (Amorim & Tozoni 1994), and will not be followed here. A thorough and detailed review of the systematics and taxonomy of the family up to 1998 is provided by Michelsen (1999).

In Europe the family Anisopodidae is represented by the three genera *Sylvicola* (10 species), *Mycetobia* (3 species) and *Trichomycetobia* Mamaev, 1987 (1 species). Some regard the latter to be a junior synonym of *Mycetobia*.

The 10 European species of *Sylvicola* are: *S. baechlii* Haenni, 1997, *S. cinctus* (Fabricius, 1787), *S. fenestralis* (Scopoli, 1763), *S. fuscatooides* Michelsen, 1999, *S. fuscatus* (Fabricius, 1775), *S. limpidus* (Edwards, 1923), *Sylvicola oceanus* (Frey, 1949), *S. punctatus* (Fabricius, 1787), *S. stackelbergi* Krivosheina & Menzel, 1998 and *S. zetterstedti* (Edwards, 1923). With the exception of *S. baechlii*, *S. limpidus*, and *S. oceanus* these species are all recorded from Fennoscandia. In addition to the European species, 3 more Palaearctic species are known, all from Japan,

S. japonicus (Matsumura, 1915), *S. matsumurai* (Okada, 1935) and *S. suzukii* (Matsumura, 1916).

Identification

An updated key for the Palaearctic species of *Sylvicola* (except *S. oceanus*, endemic to Madeira), can be found on the internet (Beuk 2007). The key is based on papers by Haenni (1997), Krivosheina & Menzel (1998) and Söli (1992).

Species in the ‘*punctatus*-group’ (previously considered to constitute the nominotypical subgenus), can all be sorted out in having veins M1 and M2 branching out from one point or at least very close together; if not branching out from one point, the distance between vein M2 and M3 is 4–6 times as long as that between M1 and M2. Within this group, good genital characters serve to identify the males, see e.g. Beuk (2007) and Haarto (2011). One should be aware, however, that despite distinct genital characters, confusions between males of *S. fuscatus* and *S. stackelbergi* might easily occur, in particular in dry specimens with a more or less contracted abdomen. The identification of females, however, is more troublesome. Haarto (2011) in his treatment of the European species provided a key based on external examination of the terminalia. These characters, however, are highly dependent on the preservation and condition of the specimen, as the abdomen tends to shrink or contract in both dry and alcohol preserved specimens. Moreover, as will be demonstrated, our findings were not fully compatible with those presented by of Haarto.

To meet these challenges, we have prepared a new identification key covering both males and females of the North European species of *Sylvicola* (Table 1).

Material and methods

A large proportion of the material referred to in this study originates from the projects “Study of selected insect groups in the Oslofjord area” (Project no. 70184216) (see Gammelmo & Söli 2011) and “Insects inhabiting freshwater and

TABLE 1. Key to the North European species of *Sylvicola* Harris, 1780

1.	Vein M1 and M2 branch out from one point or very close, distance between proximal part of veins markedly shorter than between proximal parts of veins M2 and M3 (Figure 1). Males with holoptic eyes	2
-	Proximal parts of M1 and M2 well apart, distance between them about the same or somewhat shorter than between M2 and M3. Males not holoptic, but in <i>S. zetterstedti</i> eyes nearly touching medially	8
2.	Wings with brownish spot or band continuing below the point where R1 meets costa, across cell r2+3, and often even into cell r4+5. Distal half of male paramere spatel-shaped (Figure 8). Female with distal portion of hypogynal valves well demarked, ending straight (Figure 12)	<i>S. punctatus</i> (Meigen, 1818)
-	Wings without brownish spot or band below the point where R1 meets costa. Distal half of male paramere whip-shaped. Females with hypogynal valves more tapered or evenly rounded (Figures 15, 18, 21)	3
3.	Males	4
-	Females	6
4.	Hypoproct medially acute with indistinct incision; gonocoxites each with a rounded inner pillow-like structure, bearing short setae (Figure 6)	<i>S. fuscatooides</i> Michelsen, 1999
-	Hypoproct evenly tapered medially with deep incision; gonocoxites each with an ample inner fringe, bearing numerous long setae (Figures 7, 9)	5
5.	Inner setose fringe of gonocoxite with distinct, narrow hairy, finger-like outgrowth dorsally, ventrally with numerous very long and curved setae; area between them without long setae (Figure 9)	<i>S. stackelbergi</i> Krivosheina & Menzel, 1998
-	Inner setose fringe of gonocoxite without narrow, finger-like outgrowth; fringe with a continuous row of setae, length of setae increasing ventrally (Figure 7)	<i>S. fuscatus</i> (Fabricius, 1787)
6.	Basal half of antennae very broad, first flagellomeres 3–4 times as broad as apical (Figure 5). Cercus elongate, ovate (Figure 20). Genital fork with well demarked and sharply pointed end; lateral corners well sclerotized (Figure 19)	<i>S. fuscatooides</i> Michelsen, 1999
-	Antenna normal, first flagellomeres about two times as broad as apical (Figures 2–4). Cercus subtriangular, broadest basally (Figures 14, 17). Genital fork evenly tapered, not sharply pointed; lateral corners not distinctly sclerotized (Figures 13, 16)	5
7.	Hypoproct medially pointed with sharp and narrow incision; genital fork with well demarked, but somewhat irregular point (Figure 16). Hypogynal valves broad, ending straight (Figure 18)	<i>S. stackelbergi</i> Krivosheina & Menzel, 1998
-	Hypoproct more evenly rounded medially with broad incision; genital fork with well-demarked and evenly tapered point (Figure 13). Hypogynal valves acute (Figure 15)	<i>S. fuscatus</i> (Fabricius, 1787)
8.	Males	9
-	Females	11
9.	Eyes almost touching, at its narrowest barely one facet width apart. Gonostylus nearly triangular with a broad, rounded base (Figure 26)	<i>S. zetterstedti</i> (Edwards, 1923)
-	Eyes widely apart. Gonostylus slender, not with broad, rounded base (Figures 22, 24)	10
10.	Gonostylus long and slender, evenly tapered, with small basal tooth (Figure 24)	<i>S. fenestralis</i> (Scopoli, 1763)
-	Gonostylus more blunt, basal half much wider than distal half (Figure 22)	<i>S. cinctus</i> (Fabricius, 1787)
11.	Genital fork with two median, well sclerotized rods; hypoproct with distinct median incision (Figures 23, 27)	12
-	Genital fork without median sclerotized rods; hypoproct medially prolonged but without distinct median incision (Figure 25)	<i>S. fenestralis</i> (Scopoli, 1763)
12.	Genital fork with sclerotized rods parallel (Figure 23)	<i>S. cinctus</i> (Fabricius, 1787)
-	Genital fork with sclerotized rods distinctly converging posteriorly (Figure 27)	<i>S. zetterstedti</i> (Edwards, 1923)

humid habitats in Finnmark, northern Norway” (Project no. 70184216) (Ekrem *et al.* 2012). Both projects were part of the Norwegian Taxonomy Initiative (Artsdatabanken 2014). The studied specimens were pinned or kept in alcohol. For numerous specimens, the genitalia were cleared in hot lactic acid (using a microwave oven), studied in glycerol, and placed in microvials and stored together with the specimen. The specimens are all kept in the collection of the Natural History Museum, Oslo (NHMO).

COI-sequences of 15 specimens were used to associate the females of *S. fuscatus* and *S. stackelbergi*. The sequences were produced at the sequencing facility of the Canadian Centre for DNA barcoding in Guelph and retrieved from the Barcode of Life Data System (BOLD) (Ratnisingham & Herbert 2007, 2013). All data are available through the public project “Norwegian Anisopodidae” (NOANI), and the voucher specimens are listed with BOLD Sample IDs in the material part. In the case of *S. fuscatooides*, the association of the sexes was primarily based on their common presence in a single, large sample.

New records for the previously recorded species are included only where they represent new regional findings according to the revised Strand-system (Økland 1981).

The species

Sylvicola fuscatooides Michelsen, 1999

Sylvicola fuscatus (Fabricius, 1775): Andersson 1967: 121, fig. 1; Krivosheina & Menzel 1998: 202, 215, figs. 1, 5–6. [Misidentifications, see Michelsen 1999.]

Material. HES, Våler: Nordre Bølsjøen, Gjerdåskoia (60.85139°N 12.10317°E, 396 masl) 6 May–7 June 2009 2♂♂, 6 August–28 October 2009 1♂1♀ [in alcohol], 7 June–6 August 2009 1♀ [in alcohol], leg. G. Søli & E. Rindal (Malaise trap). ON, Vestre Slidre: Vaset, Vaset senter, June 1999 1♀, Leg. O. Sørlibråten. FØ, Porsanger: Baukop, river from Vuolit Gealbbotjavri (70.20469°N 24.90605°E, 26 masl), 25 August–3 September 2010 17♂♂11♀♀ [10♂♂8♀♀ in alcohol], leg. Finnmarksprosjektet (Malaise trap).

Biology. The larvae of *S. fuscatooides* have been reported to breed in cow dung (Krivosheina

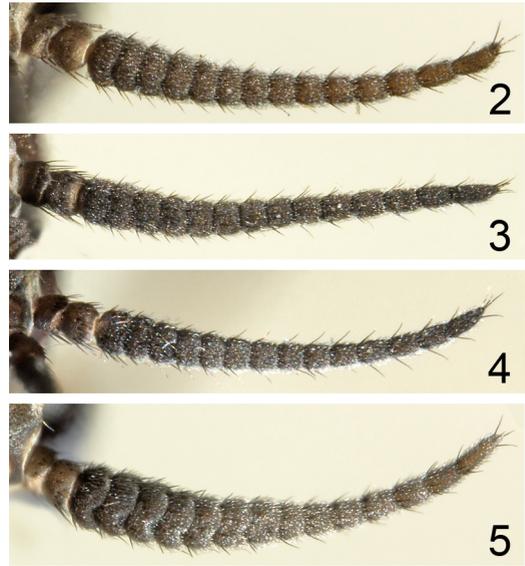
TABLE 2. Distribution of *Sylvicola* Harris, 1780, in Norway based on the revised Strand system (Økland 1981). Crosses in **bold** indicate new regional findings.

	<i>S. punctatus</i> (Fabricius, 1787)	<i>S. fuscatus</i> (Fabricius, 1775)	<i>S. fuscatooides</i> Michelsen, 1999	<i>S. stackelbergi</i> Krivosheina & Menzel, 1998	<i>S. cinctus</i> (Fabricius, 1787)	<i>S. fenestratis</i> (Scopoli, 1763)	<i>S. zetterstedti</i> (Edwards, 1923)
Ø	x			X	x		
AK	x	X		X	x	x	
HES	x		X		x		
HEN	X						
OS	X				x		
ON	x		X		x	X	X
BØ	x				x	x	
BV	x				X		
VE					x	x	
TEY	x	X			x		
TEI					x		
AAV	x			X	x	x	
AAI					x		
VAY	x				x	x	x
VAI	x						
RY	x				x		
RI					x		
HOY	x				x	x	x
HOI	x				x	x	
SFY	x				x	x	
SFI	x				x		x
MRY	x				x		x
MRI					X		
STY							
STI					x	X	
NTY							
NTI	x				x		
NSY				X	x		x
NSI	x						
NNØ	x						
NNV					x		
TRY					x		x
TRI	x					x	x
FV							x
FI				X			
FN							X
FØ			X		X		

& Menzel 1998). If solely coprophagous, dung of other herbivores, like European elk or reindeer, are more probable at these particular locations.



FIGURE 1. *Sylvicola stackelbergi* Krivosheina & Menzel, 1998, female, from Oslo, Ljanselva. Photo: Karsten Sund, Natural History Museum, Oslo.



FIGURES 2–5. *Sylvicola*, female antenna of 2. *S. punctatus* (Fabricius, 1787), 3. *S. fuscatus* (Fabricius, 1775), 4. *S. stackelbergi* Krivosheina & Menzel, 1998, 5. *S. fuscatooides* Michelsen, 1999.

Similar considerations were also made by Haarto (2011) based on Finnish records.

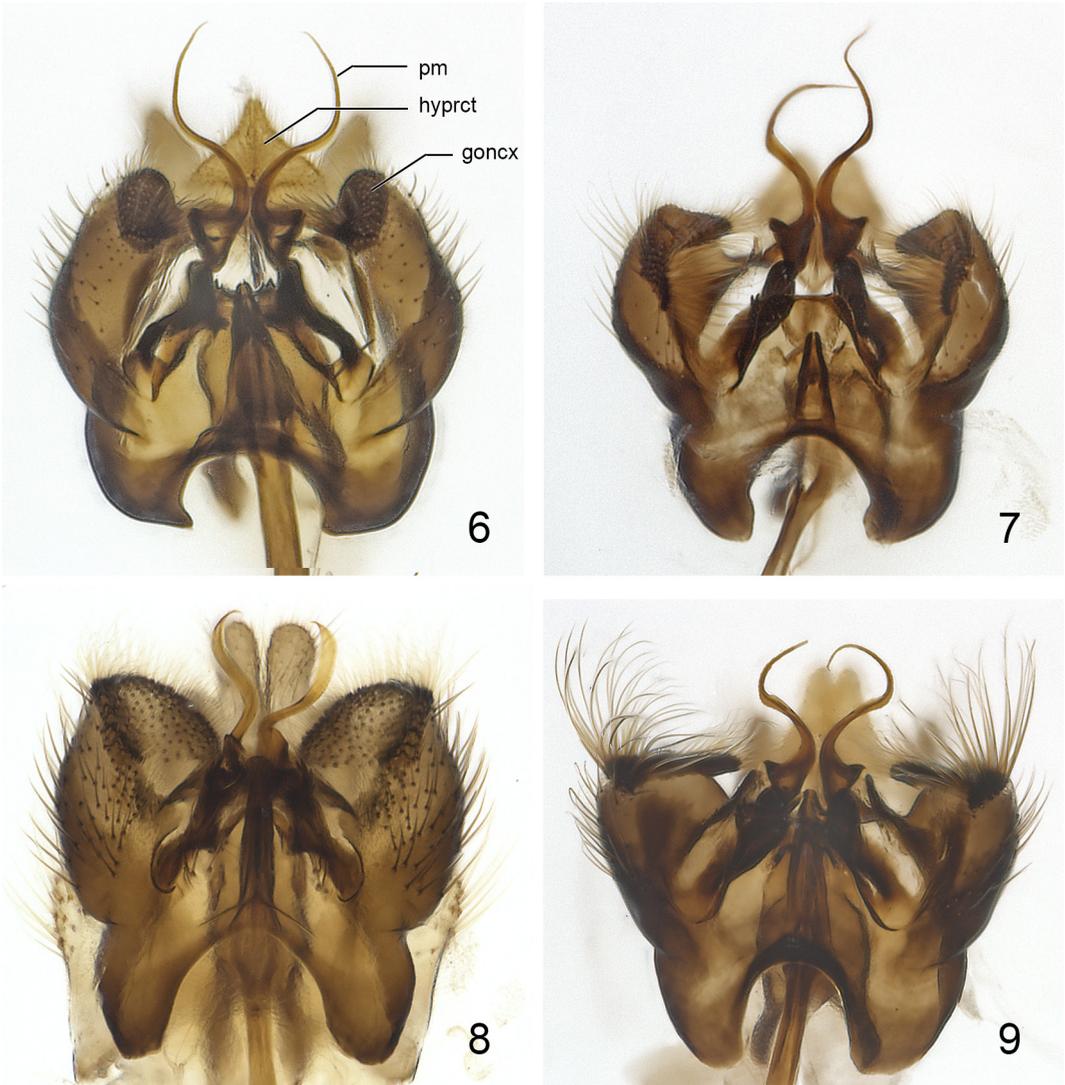
Distribution. The species seemingly is a typical eastern boreal species, confined to coniferous forests in the eastern part of the country (Table 2). This rare species was first reported from Northern Sweden by Anderson (1967) (as *S. fuscatus*), and later correctly designated a new species by Michelsen (1999). More recently, the species has been recorded from several localities in Finland (Haarto 2011). Outside Fennoscandia, the species is only known from Estonia (Kurina 2006) and from Primorskiy Krai in Far East Russia (Krivosheina & Menzel 1998).

Identification (Figure 2). Based on the outline of the genitalia, males of *S. fuscatooides* can hardly be confused with any other species. As the female genitalia are rather similar to those in *S. stackelbergi* and *S. fuscatus*, the outline of the antennae offer a valuable character for identification. The female antennae are strikingly broad basally, first flagellomeres about four times as broad as the distal flagellomere, as opposed to about two times as broad in females of the other species in the genus (Figures 2–5). Furthermore,

the female of *S. fuscatooides* has elongate, ovate cerci (Figure 20), not subtriangular and with a broad base as in *S. stackelbergi* and *S. fuscatus* (Figures 14, 17).

***Sylvicola stackelbergi* Krivosheina & Menzel, 1998**

Material. Ø, Kråkerøy: Nygård, Strålsund (59.1730034°N 10.9227150°E) 6 May 2006 1♂, leg. O. Sørlibråten; Eidsberg: Mysen, Åsen, (59.5182873°N 11.3398467°E) 2 September 2011 1♂, leg. O. Sørlibråten & S.E. Eriksen (Light trap); Sarpsborg: Tune, Råkil 10 July 2002 1♀, leg. T.J. Olsen. AK, Asker: Nesøya, Storenga (East), ultimo July–primo August 2003 1♂3♀♀ [in alcohol], leg. L.O. Hansen (Malaise trap); Oslo: Ekebergskråningen (NW) (59.8941415°N 10.7595624°E ±25m) 9 May–17 June 2008 1♀, leg. A. Endrestøl (Malaise trap); Oslo: Østmarka, Rundtjern (59.90436°N 10.86986°E ±25m) 22 May 2010 1♀, leg. G. Søli; Oslo: Nordstrand, Ljanselva, «Urskogen» (59.8552°N 10.8169°E) 24 April–12 May 2009 2♂♂6♀♀ [in alcohol], 12 May–13 June 2009 1♂6♀♀ [in alcohol], 1 August–11 September 2009 2♀♀ [in alcohol],



FIGURES 6–9. *Sylvicola*, male terminalia, ventral view, of 6. *S. fuscatooides* Michelsen, 1999, 7. *S. fuscatus* (Fabricius, 1775), 8. *S. punctatus* (Fabricius, 1787), 9. *S. stackelbergi* Krivosheina & Menzel, 1998. Abbreviations: goncx=gonocoxite, hypcrct=hypoproct, pm=paramere.

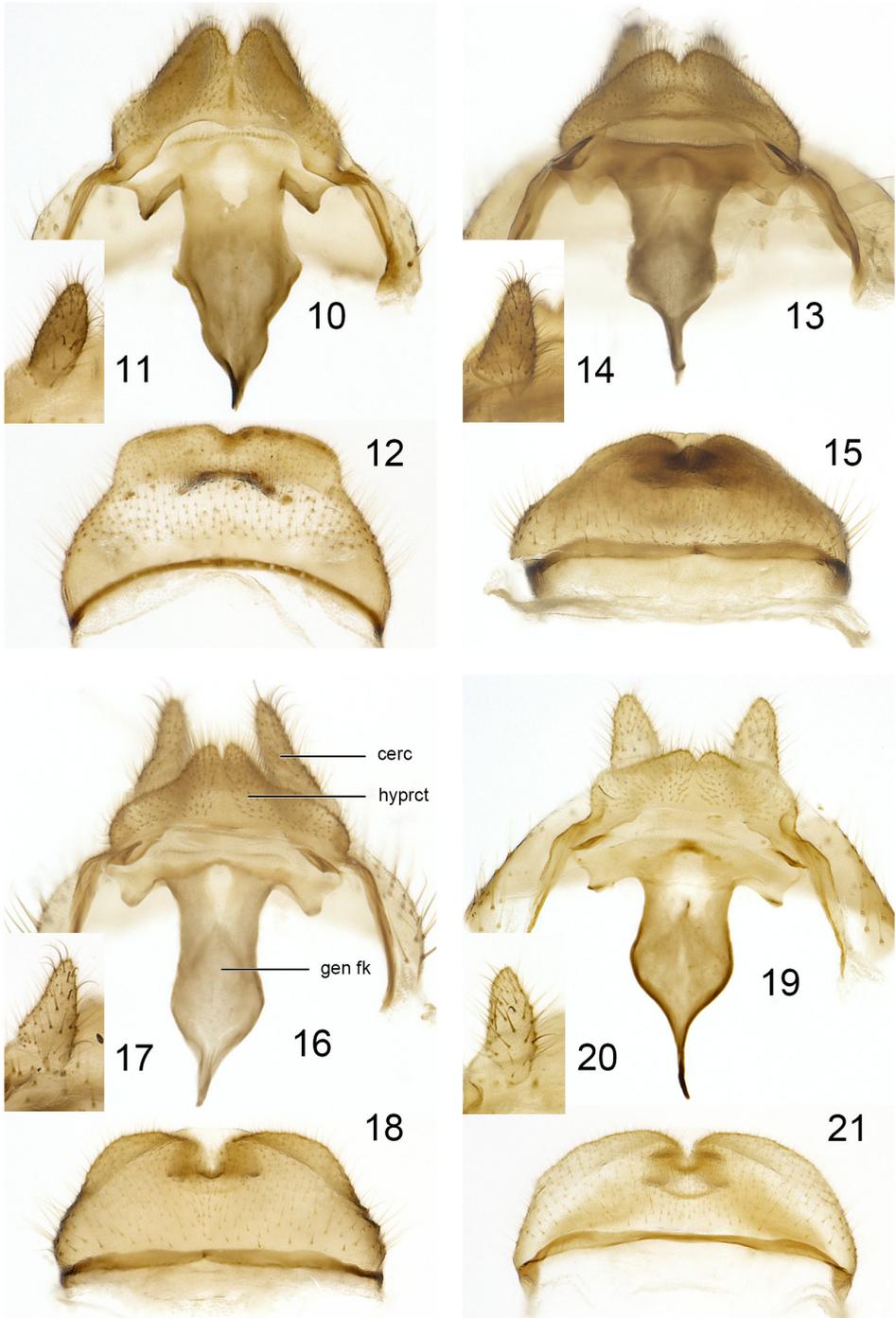
leg. G. Søli & E. Rindal (Malaise trap). **AAV**, Birkenes: Nordåsen (58.3326746°N 8.2400856°E) June 2006 1♀, leg. S. Svendsen (Malaise trap). **FI**, Sør-Varanger: Pasvik, Svanhovd (69.45403°N 30.04057°E) 1–7 September 2010 24♂♂11♀♀, (BOLD Sample IDs: NoAni001-NoAni006), 1–30 September 2010 2♂♂2♀♀, leg. R. Voith & P. Aspheim (Light trap).

Other records. **NSY**, Bodø: 20 May 2012, reported by ‘geir79’ to Dipterist Forum (Diptera

info 2013) (documented by detailed photo).

Distribution. The species appears to be widely distributed in Norway, but possibly absent from the western parts (Table 2). In Europe, the species has a restricted distribution, confined to the northeastern parts, recorded from Sweden, Finland (Haarto 2011), Estonia (Kurina 2006), The Netherlands and Russia (de Jong 2013).

Identification. The distinction between the male genitalia in *S. stackelbergi* and the



FIGURES 10–21. *Sylvicola*, female terminalia of 10–12. *S. punctatus* (Fabricius, 1787), 13–15. *S. fuscatus* (Fabricius, 1775), 16–18. *S. stackelbergi* Krivosheina & Menzel, 1998, 19–21. *S. fuscatooides* Michelsen, 1999. 10, 13, 16, 19: Hypoproct and genital fork (hypogynal valves removed), ventral view; 11, 14, 17, 20: right cercus, dorsal view; 12, 15, 18, 21: hypogynal valves, ventral view. Abbreviations: cerc=cercus, gen fk=genital fork, hyprct=hypoproct.

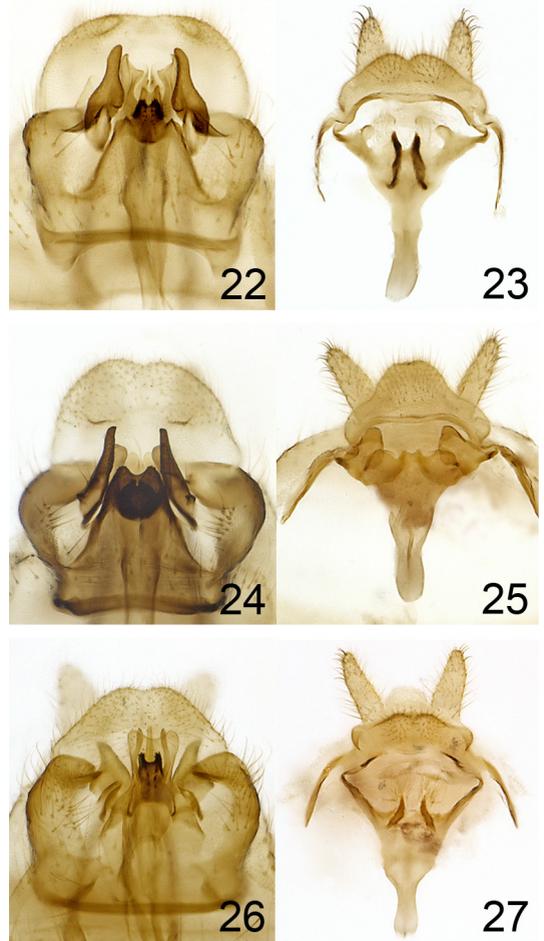
following species, *S. fuscatus*, might appear less clear-cut than one might get the impression of from illustrations in e.g. Krivosheina & Menzel (1998) and Haarto (2011). This applies in particular to the outline of the upper, inner lobe of the male gonocoxite, being narrow and finger-like in *S. stackelbergi* (Figure 9), broad and shorter in *S. fuscatus* (Figure 7). Despite being less pronounced in the latter, viewed in certain angles the outline may appear rather similar in the two species. Consequently, in addition to this particular structure, one should check possible *S. stackelbergi* for also having the ventral part of gonocoxite bordered by numerous long and delicate, curved setae, and having a very narrow and tapered hypoproct, protruding well beyond the tip of the cerci (Figure 9).

As *S. stackelbergi* and *S. fuscatus* can be found together, one should pay close attention to females of the two species. They are very similar in both external and internal genital characters. In *S. stackelbergi* the hypogynal valves are ending truncate and the hypoproct are distinctly pointed medially (Figures 16, 18), as opposed to *S. fuscatus* with more rounded hypogynal valves and a less pointed hypoproct (Figures 13, 15). Moreover, the genital fork in *S. stackelbergi* is evenly tapered distally (Figure 16), while being more abruptly and sharply pointed in *S. fuscatus* (Figure 13).

Sylvicola fuscatus (Fabricius, 1775)

Sylvicola (Anisopus) subfuscatus Krivosheina & Menzel, 1998: 206, 215, figs. 3, 12–15. *Sylvicola subfuscatus* Krivosheina & Menzel: Haenni 1998: 148.

Material. AK, Oslo: Østensjø, Bogerudmyra (59.87736°N 10.83727°E ±100m) 10 September 2009 1♀; Bogerudmyra (59.87696°N 10.83727°E ±3m) 19 September 2009 3♂♂ [BOLD Sample IDs: NoAni009; NoAni012;] 4♀♀, leg. G. Søli; Bogerudmyra (59.87699°N 10.83760°E ±5m) 20 August 2009 1♂1♀; 28 August 2009 2♀♀; 5.05.2010 1♂ [BOLD Sample ID: NoAni008], leg. G. Søli (in garden compost); Oslo: Nordstrand, Ljanselva, «Urskog» (59.8552°N 10.8169°E), 12 May–13 June 2009 2♂♂ [in alcohol], 1 August–11 September 2009 1♀ [in alcohol], leg. G. Søli & E. Rindal (Malaise trap).



FIGURES 22–27. *Sylvicola*, male and female terminalia of 22–23. *S. cinctus* (Fabricius, 1787), 24–25. *S. fenestralis* (Scopoli, 1763), 26–27. *S. zetterstedti* (Edwards, 1923). 22, 24, 26: male terminalia, ventral view; 23, 25, 27: female hypoproct and genital fork (hypogynal valves removed), ventral view.

TEY, Bamble: Langesundstangen (58.99092°N 10.74837°E ± 5m) 27 August–30 September 2010 1♀ [BOLD Sample ID: NoAni012], leg. G. Søli (Malaise trap).

Distribution. The species appears to be rare in Norway (Table 2), but more collecting will undoubtedly reveal a broader distribution in SE Norway. In Europe, the species is widely distributed, recorded from Sweden, Denmark, Germany, Belgium, The Netherlands, France, the Czech Republic, Slovakia, Switzerland, Austria,

Italy (de Jong 2013), Estonia (Kurina 2006), and Finland (Haarto 2011).

Identification. For separating males and females of *S. fuscatus* from those of *S. stackelbergi*, see *S. stackelbergi*.

Sylvicola punctatus (Fabricius, 1787)

New records. HEN, Tynset: Tyldal, 1♀, leg. J. S. Siebke. OS, Øyer: 14 July 1850 1♂, leg. J. S. Siebke; Fron, 1♀, leg. J. S. Siebke.

Other material. TEY, Kragerø: Jomfruland, Øytangen (58.881443N 9.610771 ±10m) 28 July–15 August 2009 1♂ [BOLD Sample ID: NoAni007], leg. H. Holtung (Malaise trap).

Remarks. The records from Tyldal and Fron were originally published by Siebke (1877) (as “*Ryphus punctatus*”), but not included in Søli (1992).

Distribution. The species is probably widespread and common in most parts of Norway, but no records exist from Finnmark (Table 2).

Sylvicola cinctus (Fabricius, 1787)

New records. BV, Hol: Geilo, Kikut (60.49514°N 08.23554°E) Primo September 2003 1♂1♀, leg. E. Rindal. MRI, Norddal: Valldal, 1♂, Leg. J. S. Siebke. FØ, Sør-Varanger, Pasvik, Noatun, 26 June–1 July 1990 1ad., leg. T. R. Nilsen (wet *Betula* patch).

Remarks. The specimens from Valldal was misidentified, and published as “*Ryphus fenestralis*” by Siebke (1877).

Distribution. The species is probably the most common and widespread representative of the genus in Norway (Table 2).

Sylvicola zetterstedti (Edwards, 1923)

New Record. FN, Gamvik: Slettnes fyr (71.0884186°N 28.2164254°E) 22 June 2011 1♂, leg. S. Svendsen. ON, Vang: Filefjell, Nystuen, 1♀, leg. J. S. Siebke; Dovre, 1♀, leg. J. S. Siebke.

Remarks. The two specimens from Nystuen and Dovre were misidentified, and published as “*Ryphus fenestralis*” by Siebke (1877).

Distribution. The species is known from several localities between Flekkefjord and Gamvik (Table 2), but has never been recorded in high number. The species appears to be more

common at higher altitudes.

Sylvicola fenestralis (Scopoli, 1763)

New records. ON, Vang: Filefjell, Nystuen, 1♂1♀, leg. J. S. Siebke. STI, Trondheim July 1844 1♀, leg. J. S. Siebke.

Remarks. The records from Nystuen and Trondheim were originally published by Siebke (1877) (as “*Ryphus fenestralis*”).

Distribution. The species is known from several localities between Flekkefjord and Balsford (Table 2), but rarely recorded in high number.

Discussion

Features in the female genitalia of *S. fuscatoides* and *S. fuscatus*, as described by Haarto (2011), differ in several respects markedly from those presented here, while those of *S. stackelbergi* are more accordant. The outline of the hypoproct in Haarto’s interpretation of *S. fuscatus* (Haarto 2011: Figure 7C) is more in accordance with *S. fuscatoides* as presented here. Neither, do we find the head characters suggested by Haarto adequate to separate satisfactorily between the females. It is also interesting that the author does not comment on the strikingly broad flagellomeres in *S. fuscatoides*.

In commenting on the distribution and occurrence of *S. fuscatus* in Denmark, Michelsen (1999) states that “based on own observations I consider that *S. fuscatus* in recent years has become a fairly common insect in gardens and parks in the Copenhagen area (NE Zealand), where from I first discovered it in April 1990.” In Denmark, the species was unknown at least up to 1968 (Michelsen 1999). A much similar tendency may be found in Norway, as we find it striking that the two species *S. stackelbergi* and *S. fuscatus* have not been recorded previously; e.g. they were not present among the 1 300 specimens that formed the basis of a rather extensive review more than 20 years ago (Søli 1992), whereas now both species are commonly found close to Oslo.

The new findings bring the number of Norwegian species of *Sylvicola* up to seven, the

same species recorded also from Sweden and Finland. None of the remaining European species is likely candidates to be found in Norway. *S. oceanus* is endemic to Madeira (Portugal) (Frey 1949), and *S. baechlii* has only been recorded from France and Switzerland (Haenni 1997, de Jong 2013). The last species, *S. limpidus*, has a more central or southern European distribution, recorded from Germany, Poland, Slovakia, Switzerland, Austria, Italy (de Jong 2013), and the Czech Republic (Ševčík 2012). On the other hand, one should not exclude the possibility that molecular data will reveal new, cryptic species among those already present in our fauna.

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