

Studies on the Danish Anisopodidae (Diptera Nematocera).

By

Bo Vest Pedersen

Zoological Museum, Copenhagen.

Of the few Scandinavian investigations on the Anisopodidae, the oldest are the works of Fabricius (1775, 1787) and Zetterstedt (1850, 1855). Wahlgren (1905) published a key to the Swedish species and the present author (1965) recorded *Sylvicola punctatus* (F.) and *S. fenestralis* (Scopoli) from the Hansted-Reserve in Northern Jutland. Andersson (1967) recorded *S. fuscatus* (F.) and *S. zetterstedti* (Edwards) from Sweden.

For studies on the systematics and the distribution outside Scandinavia see Edwards (1916, 1923, 1926, 1928) and Lindner (1930).

The present paper, which is based on material from various Danish collections (Zoological Museum, Copenhagen, 454 specimens, coll. R. C. Stæger, W. Lundbeck, Peder Nielsen and many others; Naturhistorisk Museum, Århus, 18 specimens, coll. A. Pedersen and C. C. R. Larsen; Landbohøjskolen, Copenhagen, 52 specimens, coll. R. W. Schlick, and the private collection of B. Overgaard Nielsen, Århus, 18 specimens), gives keys, distribution and biological notes on the Danish Anisopodidae.

It is difficult to identify females of the genus *Sylvicola* with certainty, but the author has found that the vaginal apodeme possesses characters which can be used. The females of the genus *Mycetobia* has no distinct vaginal apodeme.

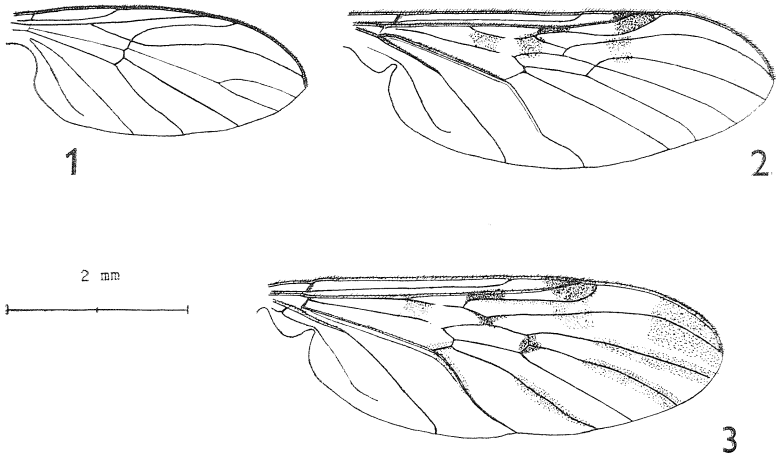
The family is represented in Denmark by four species: *Mycetobia pallipes* Meigen, 1818 (Mycetobiinae) and *Sylvicola punctatus* (Fabricius, 1787), *S. fenestralis* (Scopoli, 1763) and *S. cinctus* (Fabricius, 1787) (Anisopodinae).

Key to Danish species of *Anisopodidae*.

1. Discal cell absent; media 3-branched; wing without dark markings; macrotrichia not present on wing membrane (fig. 1); wing length 3—4 mm; male genitalia as in fig. 4 *Mycetobia pallipes* Meig.
- Discal cell present; media 4-branched; wing with dark markings; macrotrichia present on wing membrane (figs. 2 and 3) genus *Sylvicola* 2
2. Cell M_1 pointed at base; wing tip clear (fig. 2); wing length 4—6 mm; male and female genitalia as in figs. 5 and 6 *S. punctatus* (F.)
- Cell M_1 broad at base; wing tip with distinct markings (fig. 3) 3
3. ♂♂ 4
- ♀♀ 5
4. Style of male genitalia slender, with a basal tooth; median part of ninth sternite without lateral tooth (fig. 7); wing length 4.5—7 mm *S. fenestralis* (Scopoli)
- Style stout, without basal tooth; median part of ninth sternite with a lateral tooth (fig. 9); wing length 4—6.5 mm *S. cinctus* (F.)
5. Vaginal apodeme long, with two sclerotized rods at the distal part (fig. 10); wing length 4.5—7 mm *S. cinctus* (F.)
- Vaginal apodeme stouter and shorter, without the two sclerotized rods (fig. 8); wing length 5—7.5 mm *S. fenestralis* (Scopoli)

***Mycetobia pallipes* Meigen, 1818.**

Occurrence in Denmark: *S. Jutland*: Als, Sønderborg, 2 ♂, 1 May 1895 (Wüstnei). — *Zealand*: NE Zealand, 2 ♂, 2 ♀ (Schlick); Copenhagen, Jagtvejen, 1 ♂, 1 ♀ (Schlick); Copen-



Figs. 1—3. Wings of (1) *Mycetobia pallipes* Mg., (2) *Sylvicola punctatus* (F.), (3) *S. cinctus* (F.).

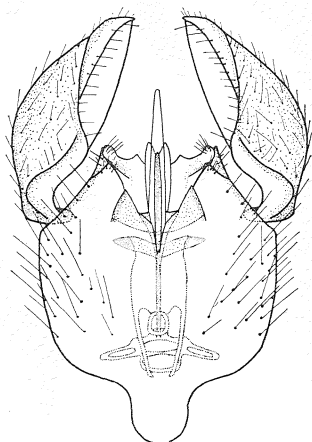


Fig. 4. *Mycetobia pallipes* Mg., ♂ genitalia. (Scale as in figs. 5 — 10).

hagen 1 ♂ (Lundbeck); Slagelse-Sorø 1 ♂, 1 ♀ (Schlick) — *Falster*: 2 ♂, 3 ♀ (Stæger). — Unlabelled: 3 ♂, 8 ♀ (Schlick).

Distribution. Most parts of Europe except Iceland and Northern Fennoscandia.

Biology. The adult has mainly been observed in neighbourhood of the breeding-places, which are tree holes with rainwater and decaying plants, or especially in fermenting sap. Pupation takes place in the larval habitat.

***Sylvicola punctatus* (Fabricius, 1787).**

Occurrence in Denmark: *N. Jutland*: Kandestederne, 1 ♀; Frederikshavn, 2 ♀; Bangsbo, 1 ♂; Grindsted, 1 ♀; Vors å, 1 ♂; Tved plantage near Bagsø, 1 ♀; Nors, 2 ♂ (Pedersen, 1965). — *Læsø*: Nordmarken, 2 ♀. — *W. Jutland*: Humlum, 1 ♀; Holtum å, 1 ♂; Vedersø klit, 8 ♂, 10 ♀; Tipperne, 7 ♂, 10 ♀; Vejen, 1 ♀; Skallingen, 3 ♂, 1 ♀; Esbjerg, 5 ♂, 4 ♀; Fanø, 1 ♂, 1 ♀. — *E. Jutland*: Hadsund, 4 ♂, 1 ♀; Lemming bæk, 1 ♀; Svostrup, 1 ♂, 1 ♀; Vandskov, 10 ♂; Tovstrup, 1 ♂; Silkeborg, 1 ♂, 1 ♀; Svejbæk 2 ♂, 4 ♀; Vejlbø mose, 1 ♀; Elbæk, 1 ♀; Horsens, 1 ♂; Grejsdalen, 2 ♀; Klakring, 2 ♂. — *Samsø*: Ørby, 3 ♂, 2 ♀. — *S. Jutland*: Villebøl, 1 ♀; Stensbæk plantage, 1 ♂, 3 ♀; Arnum, 1 ♂; Draved, 26 ♂, 29 ♀; Højer, 2 ♀; Sottrup skov, 1 ♀; Kliplev, 1 ♀; Rinkenæs, 1 ♂; Frøslev, 1 ♂. — *Als*: Sønderborg, 1 ♂, 1 ♀. — *Funen*: Æbelø, 1 ♂, 1 ♀; Sandum, 2 ♀; Falsted strand, 1 ♂,

4 ♀; Arreskov sø, 12 ♂, 9 ♀; Knagebjerg skov, 2 ♂, 2 ♀. — *Langeland*: Humble, 1 ♂, 2 ♀; Ristinge klint, 1 ♀; Hellenor, 1 ♂; Sædballe skov, 1 ♂, 1 ♀; Keldsnor, 1 ♀. — *Zealand*: Hornbæk, 1 ♀; Havreholm, 1 ♀; Tisvilde, 1 ♂; Tibirke, 3 ♀; Lersø, 5 ♂; Geelsskov, 1 ♂; Farum, Vanddammegård, 1 ♂; Strandvejen, 1 ♂, 1 ♀; Østerholms fæled, 1 ♀; Lyngby, Prinsessehøj, 1 ♀; Bagsværd, 1 ♀; Frederiksberg, 4 ♂; Rødovre, 1 ♂, 1 ♀; Hvalsø, 1 ♂; Brørdrup, 7 ♂, 5 ♀; Kærehave, 1 ♀; Næstved, 1 ♀; Jungshoved, 3 ♂, 2 ♀. — *Møen*: Ulfshale, 1 ♂, 1 ♀. — *Falster*: Vejringe, 2 ♀; Hanneov skov, 3 ♂; Marielyst, 1 ♂. — *Lolland*: Soesmarke, 1 ♂, 1 ♀; Knuthenborg, 2 ♂; Sakskøbing, 1 ♂, 1 ♀; Lysemose, 1 ♀; Maribo, 1 ♀; Engestofte, 1 ♂; Strandby, 1 ♂; Nysted, 1 ♂. — *Bornholm*: Bølvhavn, 2 ♂, 4 ♀; Bagå, 1 ♂; Sose, 1 ♀; Læså, 2 ♂, 3 ♀. Unlabelled: 11 ♂, 18 ♀.

Collecting period: 28 April — 2 November.

Distribution. All parts of Europe.

Biology. The early stages of this species are most often found in cow dung and decaying plants. Adults, which are common in the summer months, are found in forests, meadows, and frequently in gardens and near houses.

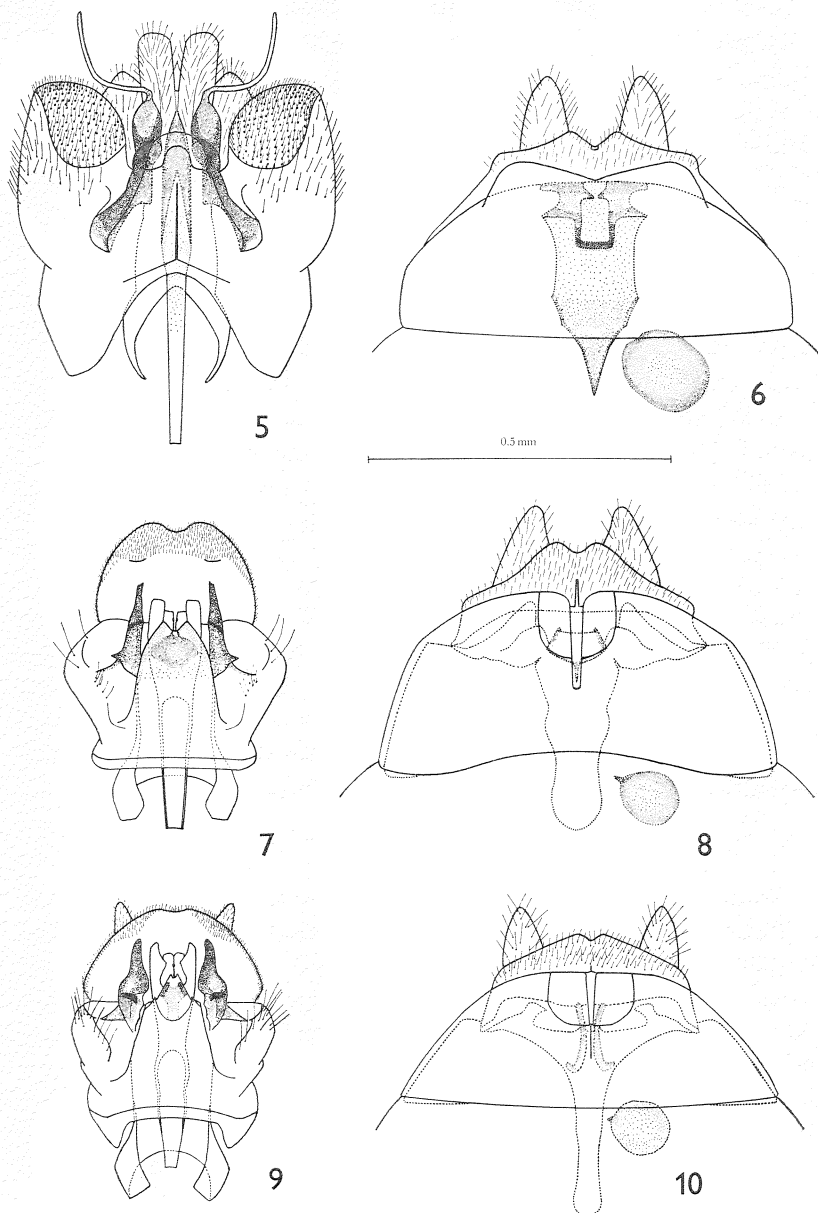
Sylvicola fenestralis (Scopoli, 1763).

Occurrence in Denmark: *N. Jutland*: Thy, Nors, Ørgård, 2 ♀ and Tved plantage near Tormål, 2 ♂, 1 ♀ (Pedersen, 1965); Thisted, 1 ♂. — *W. Jutland*: Esbjerg, 1 ♂. — *E. Jutland*: Hadsund, 1 ♂; Galten, 1 ♂; Silkeborg, 5 ♀; Århus, 1 ♀; Risskov, 1 ♀; Skanderborg, Rye, 1 ♂; Vorsø, 2 ♀; Fredericia, 1 ♀. — *Funen*: Veflinge, Vissenbjerg, 1 ♀; Fåborg, 1 ♂. — *Zealand*: 2 ♀; Tisvilde, 1 ♀; Esbønderup, 1 ♀; Freerslev hegn, 1 ♀; Jonstrup vang, 1 ♀; Rungsted, 1 ♂, 5 ♀; Bagsværd, 3 ♀; Copenhagen, 12 ♂, 23 ♀; Roskilde, Rye, 2 ♀. — *Amager*: Sundby, 1 ♀. — *Møen*: 1 ♀. — *Falster*: Vejringe, 1 ♂. — Unlabelled: 5 ♂, 12 ♀.

Collecting period: 28 April — 15 November.

Distribution. All of Europe and the greater part of North America.

Biology. The larvae of this species live in decaying plants, specially in rotten vegetables, e. g., potatoes. The adults have very often been found near houses, frequently on windows. Very common in the summer months.



Figs. 5, 7, 9, ♂ genitalia. Figs. 6, 8, 10, ♀ genitalia. (5—6) *Sylvicola punctatus* (F.), (7—8) *S. fenestralis* (Scopoli), (9—10) *S. cinctus* (F.).

***Sylvicola cinctus* (Fabricius, 1787).**

Occurrence in Denmark: *N. Jutland*: Mors, Ø. Assels, 1 ♀. — *W. Jutland*: Tipperne, 1 ♂; Esbjerg, 2 ♂, 3 ♀. — *E. Jutland*: Randers, Støvring, 1 ♀; Silkeborg, 13 ♂, 7 ♀; Gedsø, 1 ♂; Virklund, 2 ♂, 1 ♀; Århus, Rye, 1 ♂; Lisbjerg skov, 1 ♂; Risskov, 1 ♀; Emborg, 2 ♂, 1 ♀; Vorsø, 1 ♀. — *S. Jutland*: Draved skov, 1 ♀. — *Als*: Sønderborg, 2 ♀. — *Funen*: Æbelø, 1 ♀; Arreskov sø, 1 ♀; Knagebjerg skov, 1 ♀. — *Zealand*: Tisvilde, 1 ♀; Hillerød, 2 ♂; Klampenborg, 1 ♂; Fortunen, 1 ♂; Hareskov, 1 ♀; Jonstrup vang, 5 ♂, 1 ♀; Frederiksdal skov, 1 ♀; Bondedammen, 3 ♂, 3 ♀; Bagsværd, 6 ♀; Herlev, 7 ♀; Copenhagen, 2 ♂, 4 ♀; Rødovre, 1 ♀; Hvalsø, 1 ♀; Jungshoved, 1 ♂. — *Møen*: Ulfshale, 1 ♀. — *Lolland*: Maribo, 1 ♀; Hydeskov, 2 ♀. — *Bornholm*: Vallensgård mose, 1 ♂; Åker, 1 ♀; Læså, 1 ♂. — Unlabelled: 4 ♂, 5 ♀.

Collecting period: 22 April — 19 January.

Distribution. All parts of Europe.

Biology. As *S. fenestralis*.

Two other species, *S. zetterstedti* (Edwards, 1923) and *S. fuscatus* (Fabricius, 1775) have been recorded from Northern Europe, *S. zetterstedti* from Great Britain, Norway and Sweden (Andersson, 1967) and *S. fuscatus* from Germany and Sweden (Andersson, 1967). Neither of these two species have so far been collected in Denmark, but they may occur there (especially *S. fuscatus*).

Acknowledgments.

The author wishes to express his sincere appreciation to Dr. S. L. Tuxen of the Zoological Museum, Copenhagen for providing excellent working conditions, to Professor N. Haarløv, Landbohøjskolen, Copenhagen and cand. mag. B. Overgaard Nielsen, Naturhistorisk Museum, Århus for loan of material, and to Mr. Peder Nielsen, Silkeborg who at the beginning of this investigation presented his excellent collection of Anisopodidae to the Zoological Museum, Copenhagen.

Summary.

In this paper there are distributional lists and biological notes for the four species of Anisopodidae (*Mycetobia pallipes* Meigen, 1818; *Sylvicola punctatus* (Fabricius, 1787); *S. fenestralis* (Scopoli, 1763); *S. cinctus* (Fabricius, 1787)) found in Denmark. In addition there is a key based on male, and for the first time female, genitalia.

Literature.

- Alexander, C. P., 1965: Superfamily Anisopodoidea. *In*: A Catalog of the Diptera of American North of Mexico. Agricultural Research Service. No. 276. Washington, D. C.
- Andersson, H., 1967: Notes on Swedish Diptera. — *Opusc. Ent.*, 32: 121—122.
- Edwards, F. W., 1916: On the Systematic Position of the Genus *Mycetobia* Mg. (Diptera Nematocera). — *Ann. Mag. nat. Hist.*, Ser. VIII, 17: 108—115.
- , 1923: Notes on the Dipterous Family Anisopodidae. — *Ann. Mag. nat. Hist.*, Ser. IX, 12: 475—493.
- , 1926: A melanic variety of a common fly (*Anisopus cinctus* F.) — *Entomologist's mon. Mag.*, 62: 113—114.
- , 1928: Diptera. Fam. Protorhaphidae, Anisopodidae, Pachyneuridae, Trichoceridae. Fasc. 190. *In*: Wytzman, P., ed., *Genera Insectorum*. Bruxelles.
- Fabricius, J. C., 1775: *Syst. Ent.*, 755. Flensburgi et Lipsiae.
- , 1787: *Mantissa Ins.*, II, 333. Hafniae.
- Lindner, E., 1930: Phryneidae. *In*: Lindner, E., ed. *Die Fliegen der Palaearktischen Region*. Vol. II, 1: 1—10.
- Pedersen, Bo Vest, 1965: Myg (Diptera Nematocera) fra Hansted-reservatet. — *Ent. Meddr.*, 30: 263—267.
- Wahlgren, E., 1905—1922: Rhyphidae. — *Svensk Insektfauna*, 11 *Tvåvingar. Diptera*. 1. Orthorapha: 67—68.
- Zetterstedt, J. W., 1850: *Diptera Scandinaviae*, 9: 3433 — 3438, 3645 — 3646. Lundae.
- , 1855: *Ibid.*, 12: 4832 — 4834. Lundae.
-