

A review of Estonian wood gnats (Diptera: Anisopodidae)

Olavi Kurina

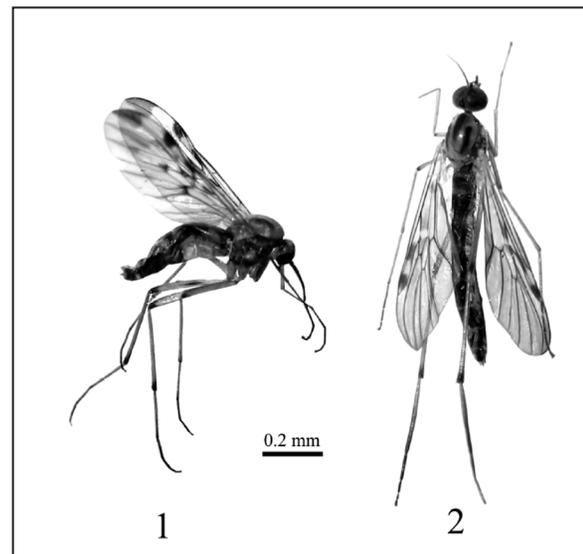
Kurina, O. 2006: A review of Estonian wood gnats (Diptera: Anisopodidae) — *Sahlbergia* 11: 18–22. Helsinki, Finland. ISSN 1237-3273.

Data on six species of wood gnats (Diptera: Anisopodidae) in Estonia are presented. Four of them – *Sylvicola fuscatoides* Michelsen, *S. fuscatus* (Fabricius), *S. stackelbergi* Krivosheina & Menzel, and *S. cinctus* (Fabricius) – are for the first time found in Estonia. The occurrence of *S. fenestralis* (Scopoli) in Estonia is confirmed on the basis of female specimens. The second report of *S. fuscatoides* in Europe is given.

Olavi Kurina, Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences, Riia st 181, 51014 Tartu, ESTONIA. E-mail: olavi@zbi.ee

Introduction

Wood gnats are medium sized slender nematoceros flies with long legs, rounded head and relatively stout body (see Figs 1-2). They are distinguishable from other Nematocera in having the following combination of characters: wings with pattern of dark spots, anal cell wide open, one anal vein reaching wing margin, discal cell present, mesonotum without V-shaped suture, ocelli present and tibiae with spur at tip (Krivosheina 1986). The family consisting of four genera is cosmopolitan, while only *Sylvicola* Harris, 1780 is represented by ten species in Europe (de Jong 2004). The systematics of the genus was recently discussed by Michelsen (1999) and the Palearctic species have been reviewed, keyed and figured by Krivosheina & Menzel (1998). In the European perspective, seven *Sylvicola* species are considerably widely distributed, while three others have restricted distribution in Europe: viz. *S. baechlii* Haenni, 1997 is found in French mainland and Switzerland; *S. oceanus* (Frey, 1949) in Madeira Island and *S. fuscatoides* Michelsen, 1999 in Sweden only (de Jong 2004). Data on wider distribution of



Figs. 1-2. 1, *Sylvicola (Sylvicola) cinctus* (Fabricius, 1787), ♀; 2, *Sylvicola (Anisopus) stackelbergi* Krivosheina & Menzel, 1998, ♂.

the last-mentioned species will be presented in the current communication.

In Estonia, there are published data on *S. punctatus* (Fabricius, 1787), consisting of one female specimen collected by A. Stackelberg at Peedu near Elva (Krivosheina & Menzel 1998). Data on *S. fenestralis* (Scopoli, 1763)

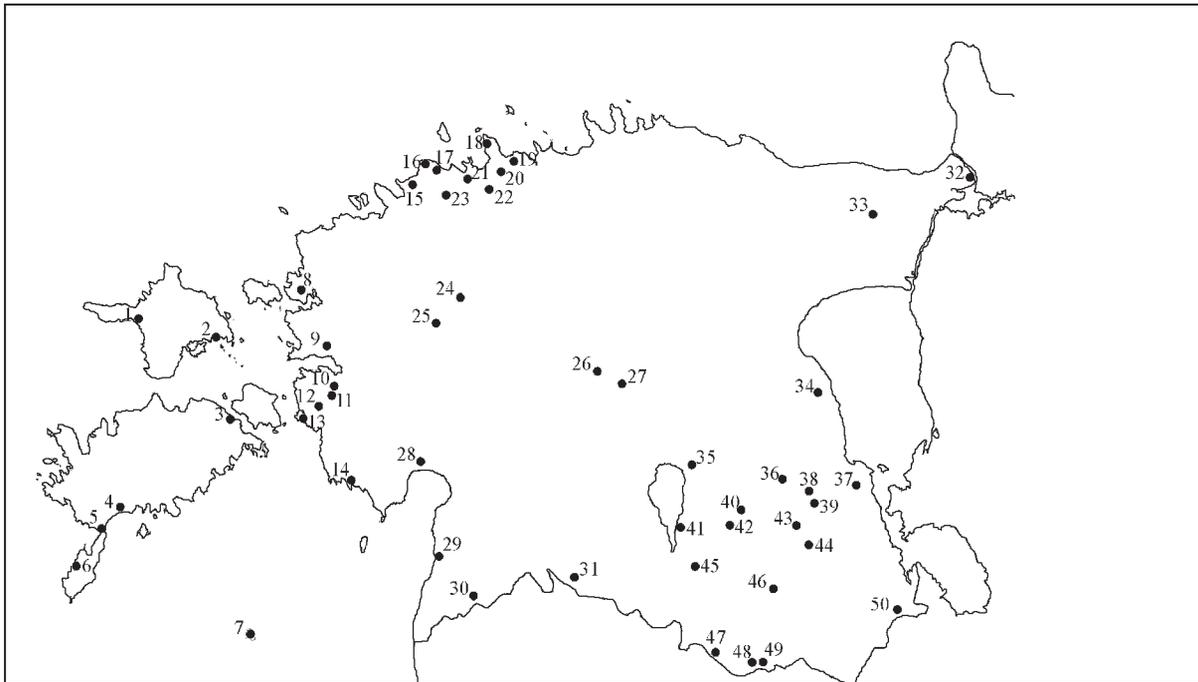


Fig. 3. Collecting localities of Estonian Anisopodidae (Diptera). Sites are listed in alphabetic order, while numbers on the map are allocated from west to east and from north to south. Some dots in the map represent more than one locality.

Ahunapalu – 37; Audru – 28; Elva – 42; Hargla – 47; Häädemeeste – 29; Illuka – 33; Iru – 20; Jalase – 24; Kanepi – 46; Karilatsi – 43; Karisöödi – 48; Kastna – 14; Kaunispe – 6; Keila-Joa – 15; Koigi – 27; Kokora – 34; Kunila – 11; Lehmja oak forest – 22; Lihula – 10; Limnological station near Rannu – 41; Lõo – 12; Maardu – 19; Mardi-hansu – 1; Matsuri – 50; Melliste – 38; Muraste – 16; mouth of the Mustjõgi – 47; Männaru near Paide – 26; Narva Siiversti – 32; Nasva – 4; Nigula Nature Reserve – 30; Oonga – 9; Orissaare – 3; Paide – 26; Palupõhja – 35; Puhtu near Virtsu – 13; Puka – 45; Pürksi – 8; Püünsi – 18; Rannamõisa – 17; Ruhnu Island – 7; Rõa – 26; Salinõmme – 2; Salme – 5; Saue – 23; Sõtko – 25; Taevaskoja – 44; Tartu – 36; Tsirgumäe – 47; Tämbälse – 48; Tüandre Lake near Taagepera – 31; Tõravere – 40; Vana-Mustamäe – 21; Vastse-Roosa – 49; Võnnu – 39.

in Estonia are provided in popular-scientific sources only, without referring to any material (cf. Remm 1956). According to Krivosheina (1997), *Sylvicola* species occur in a wide range of habitats containing decaying and fermenting organic matter (e.g. manure, rotten potatoes, decaying wood, fungi). The larvae could occasionally also be involved in human myiasis (op. cit.). Adults can frequently be found indoors on windows, which is reflected in their common names: e. g., “aknasäased” – in Estonian; “ikkunasäasket” – in Finnish; “fönstermyggor” – in Swedish; “vindusmygg” – in Norwegian; “Fenstermücken” – in German.

Recent years a relatively large amount of Estonian wood gnats has been accumulated in different collections. The current communication is resulted from the examination of these.

Material and methods

The material, 160 male and 133 female specimens of wood gnats, was collected from 55 localities (see Fig. 3) in Estonia. Some specimens were sweep-netted or collected from indoors windows, but most of the material was light-trapped or gathered by bait trap (see Fig. 4). The last-mentioned, operated on the basis of fermenting mixture of sugar and red

vine, proved to be the most effective method for collecting *Sylvicola* species. Using of bait for collecting Anisopodidae in the Nearctic region is described by Pratt & Pratt (1980), who found the “molasses traps” to be most effective.

The material studied is dry pinned and deposited in the collection of Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences (former Institute of Zoology and Botany) [IZBE] and in Mr. Allan Selin’s personal collection [ASPC].

For about half of the specimens terminalia were separated from the abdomen and treated with a standard method: heated in a solution of KOH for maceration, followed by washing the remaining chitinous parts with acetic acid and distilled water for neutralisation and inserting into glycerine. The terminalia were preserved as glycerine preparations or as permanent mounts using DMHF (dimethyl hydantoin formaldehyde).

List of species

Sylvicola (Anisopus) fuscatooides Michelsen, 1999

The species was described and figured by Krivosheina & Menzel (1998) as *S. fuscatus* (Fabricius). Michelsen (1999) corrected this misapplication and described a new species recognized by characters as follows: the absence of dark wing margins behind and distal to vein R2+3 and simple, acutely pointed male hypoproct. Having been described from Swedish material (Jämtland, Lycksele Lappmark), it has subsequently only been found from the Russian Far East (Michelsen 1999; Krivosheina & Menzel 1998). The occurrence in Finland is indicated as doubtful (de Jong 2004). In Estonia, one specimen was found in a bait trap sample from Taevaskoja.

Material: 1 ♂, Taevaskoja, bait trap, 03.-06.VIII.2005, E. Õunap leg. [IZBE].

Sylvicola (Anisopus) fuscatus (Fabricius, 1775)

Widely distributed in Europe: from France and Italy to southern Scandinavia and to Russian Transcaucasus (Michelsen 1999),



Fig. 4. Bait trap on a branch of tree.

found also in the Near East (de Jong 2004). According to Michelsen (1999) it has become a common species in gardens and parks in the Copenhagen area in recent years.

Material: 1 ♂, Saaremaa Nasva, 22.-28.X.2001, A. Selin leg. [ASPC]; 1 ♂, Tartu, on window, 01.XI.2004, O. Kurina leg.; 1 ♂, Tartu, bait trap, 25. – 30.X.2004, T. Tammaru leg. [IZBE].

Sylvicola (Anisopus) punctatus (Fabricius, 1787)

This is the most common *Anisopus* species being widely distributed in Europe and also found in the East Palaearctic areas (Krivosheina & Menzel 1998, de Jong 2004). Easy to distinguish from others by wing pattern: dark band under R2+3 as outlined by (Krivosheina & Menzel op. cit.).

Material: 35 ♂♂ 27 ♀♀, collected from May to October by light trap and bait trap from: Ahunapalu, Audru, Elva, Hargla, Häädemeeste, Iru, Jalase, Kanepi, Kaunispe, Koigi, Lihula, Limnological station near Rannu, Lõo,

Maardu, Männaru, Nasva, Nigula Nature Reserve, Paide, Ruhnu, Salme, Puka, Pürksi, Rõa, Sõtke, Taevaskoja, Tsirgumäe, Tüdre Lake near Taagepera, Tõravere, Tämlase, Võnnu.

Sylvicola (Anisopus) stackelbergi Krivosheina & Menzel, 1998

This species was originally described from Russian material, collected in districts of Murmansk, St Petersburg and Moscow, and has also been recorded from Sweden and Netherlands (de Jong 2004).

Within sg. *Anisopus* it shares the general pattern of wing with *S. fuscatooides* and *S. fuscatus*, but differs by the structure of male terminalia. Unlike other species *S. stackelbergi* has gonocoxite apically with sclerotized plate carrying long internal projection (Krivosheina & Menzel 1998).

Material: 21 ♂♂ 19 ♀♀, collected from May to October by light trap, bait trap, Malaise trap and at indoor windows from Audru, Elva, Illuka, Karilatsi, Kastna, Keila-Joa, Lõo, Maardu, Matsuri, Narva, Palupõhja, Rannamõisa Mka., Siivertsi, Sõtke, Puka, Taevaskoja, Tartu, Vana-Mustamäe.

Sylvicola (Sylvicola) cinctus (Fabricius, 1787)

A common and widespread species in Europe (Michelsen 1999, de Jong 2004). Very similar to *S. fenestralis* (Scopoli, 1763) from which it can reliably be separated by details in terminalia only (cf. Sõli 1992, Krivosheina & Menzel 1998). The most common wood gnat species in Estonia that can be found in hundreds in bait trap samples.

Material: 101 ♂♂ 83 ♀♀, collected from April to October by light trap, bait trap, sweep-netting or at indoor windows from Ahunapalu, Audru, Elva, Hargla, Jalase, Kanepi, Karilatsi, Karisõõdi, Kastna, Kaunispe, Keila-Joa, Koigi, Kokora, Kunila, Lehmja oak forest, Limnological station near Rannu, Maardu, Madihansu, Melliste, Muraste, mouth of the Mustjõe, Männaru, Narva Siivertsi, Nigula Nature Reserve, Oonga, Orissaare, Puhtu, Püünsi, Rannamõisa Mka., Ruhnu, Salinõmme, Saue, Sõtke, Taevaskoja, Tartu, Tsirgumäe, Tõravere, Tämlase, Vana-Mustamäe,

Lõo, Vastse-Roosa, Võnnu.

Sylvicola (Sylvicola) fenestralis (Scopoli, 1763)

In several popular-scientific sources (e. g. Remm 1956, Chinery 2005), there are notes about the occurrence of *S. fenestralis* in Estonia but without a reference to any material. I was also not able to find any old voucher specimens in collections. From new material I picked up four female specimens collected in Tartu area that proved different from *S. cinctus* as having very distinct wing pattern and terminalia without sclerotized rods. The latter is considered to be one of the main characters in distinguishing female specimens. Moreover, also the genital fork of these specimens is Y-shaped, not V-shaped, as in *S. cinctus* (cf. Sõli 1992). *S. fenestralis* is widely distributed in Europe including neighbouring areas to Estonia: viz. Finland, Latvia and northwestern part of Russia (de Jong 2004).

Material: 3 ♀♀, Tartu Marja 14, at window, 20.VIII.2004, 31.VII.2005 and 04.VIII.2005, O. Kurina leg. [IZBE]; 1 ♀, Tartu, bait trap, 25. – 30.X.2004, T. Tammaru leg. [IZBE].

Discussion

Five of the six species recorded in Estonia are widely distributed in Europe while *S. fuscatooides* was until present recorded from Sweden and Russian Far East only. The find indicates a wider distribution for this rare species in Europe.

Besides, the rare but quite widespread *S. zetterstedti* (Edwards, 1923) can possibly also occur in Estonia and the number of Estonian *Sylvicola* species could increase to seven in future. *S. fuscatooides*, *S. fuscatus* and *S. fenestralis* appear to be relatively scarce in Estonia while other species are quite common.

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