

THE DROSOPHILIDAE (DIPTERA) OF LITHUANIA

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Abstract. The Baltic countries represent a veritable *terra incognita* on the Drosophilidae map of Europe. To remedy the situation we arranged two collecting trips across the three Baltic countries in the summer of 2000. The first trip was made in early summer to get spring species such as *Chymomyza* and the second one – in late August to get the mushroom-feeding species. In general the drosophilid fauna of the Baltic resembles the well-known fauna of the Nordic countries. The most interesting result is that *Chymomyza amoena* was found in Estonia and Lithuania. This American species is a recent invader of central Europe. Another interesting finding was relative rarity of *Drosophila subobscura* and virtual absence of the *D. virilis* group species. The latter have become uncommon in Sweden and Finland in recent years as well.

Key words: Drosophilidae, *Chymomyza*, *Drosophila*, *Gitona*, *Leucophenga*, *Scaptomyza*, *Cacoxenus*, *Stegana*, Lithuania, new records

INTRODUCTION

Almost nothing has been published on the drosophilid fauna of the Baltic countries so far. For example, while *D. subobscura* has been known to occur in the St. Petersburg area and all the way to Moscow (Saura *et al.* 1998) and Kazakhstan (Gornostaev 1997) as well as all over the rest of Europe, all attempts to describe the situation in the Baltic countries have been just pure speculation (Krimbas 1993).

Kunberg (1981) has compiled a species list for Estonia. It is a work of a skilled entomologist, but it has remained as an unpublished Master's thesis written in Estonian. The museums in Tartu, Riga and Vilnius contain drosophilid specimens that are identified using Stackelberg's (1970) key. This key and figures are reliable but some common European species are missing in it. In collaboration with Dr Gerhard Bächli, University of Zürich, Switzerland, the authors Escher, Ekenstedt and Saura are involved in a project that describes the drosophilid fauna of Northern Europe (Bächli *et al.* 2004). We strove to gather as extensive collection records as possible so as to eventually fill the existing gaps in the knowledge of the drosophilid fauna.

Drosophila melanogaster is a model organism of the Human Genome project and there are many sound rea-

sons to know the biology of drosophilids. Herein we are presenting the description of the drosophilid fauna of Lithuania.

MATERIAL AND METHODS

The authors collected the material for this report in June and August 2000. Additional records were added from the collections of the authors from Vilnius. The geographical coordinates of localities were fixed with GPS and rounded off to minutes.

Flies were collected from as many habitats as possible, including dustbins, mushrooms, felled logs etc. either by sweep-netting or suction in fermenting baits using rotting bananas and other fruits. Depending on weather conditions and other factors, traps were checked after at least an hour. After the preliminary examination in the field, flies were put in ethanol, further identification taking place in the laboratory.

We made a special effort to get the *Drosophila virilis* group species placing baits for them along the banks of small and large rivers.

Localities investigated:

Antanai, 55°15'N 26°41'E, Švenčionys district
Bilšiai, 55°08'N 25°16'E, Molėtai district

Brinkiškės, 54°49'N 25°06'E, Vilnius district
 Burūnai, 55°32'N 23°34'E, Radviliškis district
 Čepkeliai Strict Nature Reserve (SNR), 54°02'N 24°24'E, Varėna district
 Čižiūnai, 54°37'N 24°34'E, Trakai district
 Drąseikiai, 56°15'N 24°47'E, Biržai district
 Dukstyna, 55°17'N 24°51'E, Ukmergė district
 Dūkštos, 54°50'N 24°57'E, Vilnius district
 Juodeikiai, 56°15'N 23°13'E, Joniškis district
 Juodeliai, 54°22'N 23°07'E, Kalvarija municipality
 Juodkrantė, 55°33'N 21°07'E, Neringa municipality
 Kalno Griekštai, 55°51'N 21°24'E, Kretinga district
 Kalviai, 55°05'N 23°21'E, Jurbarkas district
 Kareivonys, 54°24'N 24°37'E, Varėna district
 Karoliniškės, 54°42'N 25°13'E, Vilnius municipality
 Kaukolikai, 56°14'N 21°43'E, Skuodas district
 Kaunas, 54°57'N 23°56'E, Kaunas municipality
 Labanoras, 55°15'N 25°48'E, Švenčionys district
 Lebedžiai, 55°10'N 23°43'E, Kaunas district
 Lukna, 55°13'N 25°53'E, Švenčionys district
 Maskauka, 54°17'N 24°37'E, Varėna district
 Merkinė, 54°09'N 24°12'E, Varėna district
 Meteliai, 54°16'N 23°48'E, Lazdijai district
 Mikašiūnai, 54°29'N 25°09'E, Vilnius district
 Naujaneriai, 54°49'N 25°21'E, Vilnius municipality
 Opšrūtai, 54°36'N 23°32'E, Marijampolė district
 Pabradė, 54°59'N 25°46'E, Švenčionys district
 Pajuodžiai, 54°54'N 24°58'E, Širvintos district
 Panevėžys, 55°51'N 24°21'E, Panevėžys municipality
 Pavejuonis, 55°00'N 23°44'E, Kaunas district
 Petrežeris, 55°11'N 25°52'E, Švenčionys district
 Ringovė, 55°03'N 23°31'E, Kaunas district
 Rokiškis, 55°58'N 25°35'E, Rokiškis district
 Ropidai, 55°50'N 24°37'E, Panevėžys district
 Smiltynė, 55°39'N 21°07'E, Klaipėda municipality
 Stanuliškės, 54°33'N 24°18'E, Prienai district
 Starka, 54°12'N 24°55'E, Šalčininkai district
 Strošiūnai, 54°48'N 24°32'E, Elektrėnai municipality
 Sužionys, 55°00'N 25°27'E, Vilnius district
 Šeškinė, 54°43'N 25°15'E, Vilnius municipality
 Šilas, 54°27'N 55°00'E, Vilnius municipality
 Šimkaičiai, 55°14'N 23°00'E, Jurbarkas district
 Tabokinė, 56°24'N 24°50'E, Biržai district
 Ukmergė, 55°23'N 24°54'E, Ukmergė district
 Utena, 55°30'N 25°36'E, Utena district
 Užkaniaviai, 55°59'N 21°06'E, Palanga municipality
 Ūbiškės, 54°36'N 24°33'E, Trakai district
 Vaigeliškės, 54°24'N 24°37'E, Vilnius district
 Varnupys, 55°49'N 25°00'E, Anykščiai district
 Verkiai, 54°45'N 25°17'E, Vilnius municipality
 Veržuva, 54°46'N 25°18'E, Vilnius municipality
 Viduklė, 55°24'N 22°56'E, Raseiniai district
 Vidzgiris, 54°23'N 24°01'E, Alytus municipality

Viešvilė, 55°05'N 22°23'E, Jurbarkas district
 Vijoliai, 55°59'N 23°16'E, Šiauliai district
 Vilkuriai, 55°54'N 23°15'E, Šiauliai district
 Vilnius (no exact locality recorded), Vilnius municipality
 Visoriai, 54°45'N 25°16'E, Vilnius municipality
 Žuvintai, 54°27'N 23°38'E, Alytus district
 Žvyriai, 55°09'N 26°25'E, Švenčionys district

SPECIES

The results are presented in the accompanying species list. In general, there was nothing completely unexpected if we compare the results with the well-known drosophilid fauna of the Nordic countries. The northern and alpine species were of course missing. Bächli *et al.* (2004) covers the existing literature on North European drosophilids in detail. Therefore, we have included only the most relevant references here.

We found some specimens of *Chymomyza amoena*. This must be one of the northernmost record of this North American species which has immigrated to Central and Southern Europe (Band *et al.* 1998). Another remarkable result is virtual absence of the *Drosophila virilis* group species. The riverside habitats yielded mainly domestic species, *D. melanogaster* being particularly abundant. *D. subobscura* was also remarkably uncommon. In the habitats where we expected it, we detected mainly *D. obscura* in very large numbers.

The *D. virilis* group includes four common and widespread species in Sweden and Finland: *D. ezoana*, *D. littoralis*, *D. lummei* and *D. montana*. *D. lummei* and *D. ezoana* have virtually disappeared from Finland and Sweden and, *D. littoralis* and *D. montana* have also become uncommon. *D. subobscura* disappeared from the sites in Sweden and Finland in 1994 although earlier it was very common and abundant. Its partial regeneration is being recorded currently. It would be interesting to know what happened to these common species. Laboratory strains are available from the period preceding the sudden population decrease. Apart from that, there is also a vast amount of unpublished data about enzyme allele frequencies from Norway, Sweden and Finland from the mid 1970s. This material will enable us to compare allele frequencies before and after the population decrease and also to make DNA comparisons.

Genus *Chymomyza* Czerny, 1903

This genus comprises four European species. Adults congregate in spring and early summer over felled trees in places where fresh bark is exposed. They engage in lengthy courtship behaviour and are easily collected

when so occupied. They also come to fermenting bait; they can be cultured on *Drosophila* medium. In addition to *C. costata* and *C. fuscimana*, we expect that *C. distincta* (Egger, 1862) and *C. caudatula* Oldenburg, 1914, will be found in Lithuania. The latter species was found in Estonia (Escher *et al.* 2004).

C. amoena (Loew, 1862)

This American species was first found in Bohemia in the early 1980s. It used to live in North America on nuts but experienced a niche shift and at present lives on unripe fruits in Europe (Band 1996; Band *et al.* 1998). We found it also in Estonia (Escher *et al.* 2004). That and the record from Lithuania are by far the northernmost ones, indicating that these flies are spreading fast.

Utena, 15 June 2000, leg. A. Saura, fermenting bait, woods on the outskirts of the town.

C. costata (Zetterstedt, 1838)

This is one of the most common wild drosophilids in Northern Europe (Hackman *et al.* 1970). Its larvae go into diapause (Riihimaa *et al.* 1996).

Sužionys, 15 June 2000, leg. A. Saura, suction over felled logs.

C. fuscimana (Zetterstedt, 1838)

This species is somewhat less common than *C. costata*. Sužionys, 15 June 2000, leg. A. Saura, suction over felled logs.

Genus *Drosophila* Fallén, 1823

Subgenus *Dorsilopha* Sturtevant, 1942

D. busckii Coquillett, 1901

Čižiūnai, 23 June 2000, leg. P. Ivinskis, larvae in *Coprinus* sp., adults emerged on 14 July 2000. Varnupys, 2 September 2000, leg. E. Budrys, larvae in *Tricholoma album*, emerged on 4 October 2000.

Subgenus *Drosophila* Fallén, 1823

***funnebris* species group**

These flies come to fermenting bait and are easily cultured.

D. funnebris (Fabricius, 1787)

This is a commensal of human culture and therefore it is seldom seen far away from houses. Larvae live in garbage, but are, in particular, common in pickled cucumbers and are called 'vinegar fly'. We attracted imagines with fermenting bait and collected larvae in mushrooms as well.

Čižiūnai, 23 June 2000, leg. P. Ivinskis, larvae in *Russula delica*, adults emerged on 4 July 2000. Kaunas,

23 August 2000, leg. A. Saura, riverbank. Panevėžys, 15 June 2000, leg. A. Saura, abandoned collective farm. Utena, 15 June 2000, leg. A. Saura, on the outskirts of the town. Vaigeliškės, 16 July 2000, leg. S. Pakalniškis, larvae in *Lactarius deterrimus*, emerged on 8 August 2000.

***histrion* species group**

D. histrion Meigen, 1830

This mushroom-breeding species was earlier recorded in Žuvintai (Pakalniškis *et al.* 2000).

Antanai, 20 June 2001, leg. J. Rimšaitė, larvae in *Megacollybia platyphylla*, adults emerged on 3 July 2001. Labanoras, 27 June 2001, leg. J. Rimšaitė, larvae in *M. platyphylla*, emerged on 16 July 2001.

***immigrans* species group**

D. immigrans Sturtevant, 1921

A widespread, cosmopolitan synanthropic species that comes to fermenting bait and is easy to culture. Larvae live in compost heaps. We collected our flies with fermenting bait.

Juodkrantė, 24 August 2000, leg. A. Saura, seashore wood. Kaunas, 23 August 2000, leg. A. Saura, riverbank. Panevėžys, 15 June 2000, leg. A. Saura, abandoned collective farm. Vilnius, 23 August 2000, leg. A. Saura, city park.

***quinaria* species subgroup**

These small yellow flies breed in mushrooms and can be easily caught around them either with a sweep-net or by suction. They come also to fermenting baits and can be cultured on *Drosophila* medium.

D. kuntzei Duda, 1924

This is a southern species that we also caught in Estonia (Escher *et al.* 2004).

Viduklė, 24 August 2000, leg. A. Saura, deciduous forest, suction.

D. limbata von Roser, 1840

A geographically widespread and common species, has been earlier recorded in Ringovė (Pakalniškis *et al.* 2000).

Juodeikiai, 7 July 1998, leg. J. Rimšaitė, larvae in *Paxillus involutus*, adults emerged on 24 July 1998. Juodeliai, 11 August 2000, leg. J. Rimšaitė, larvae in *Suillus granulatus*, emerged on 23 August 2000. Kalno Grikštai, 27 July 2001, leg. J. Rimšaitė, larvae in *Boletus luridus*, emerged on 6 August 2001. Kaukolikai, 14 July 1998, leg. J. Rimšaitė, larvae in *Amanita rubescens*, emerged on 5 August 1998. Lukna, 27 June 2001, leg. J. Rimšaitė, larvae in *Russula* sp., emerged

during 10–20 July 2001. Naujaneriai, 7 September 2000, leg. J. Rimšaitė, larvae in *Russula* sp., emerged on 27 September 2000. Užkaniaviai, 5 September 2001, leg. J. Rimšaitė, larvae in *Russula* sp., emerged on 22 September 2001. Varnupys, 2 September 2000, leg. E. Budrys, larvae in *Tricholoma album*, emerged on 4 October 2000. Vilnius, 4 July 2000, leg. P. Ivinskis, larvae in *B. luridus*, emerged on 20 December 2000; 23 August 2000, leg. A. Saura, city woods, fermenting bait.

D. phalerata Meigen, 1830

These flies have a photoperiodic diapause, described by Geyspits and Simonenko (1970) and by Muona and Lumme (1981).

Antanai, 10 June 2001, leg. J. Rimšaitė, larvae in *Megacollybia platyphylla*, adults emerged on 20 July 2001; 30 June 2001, leg. J. Rimšaitė, larvae in *Pleurotus* sp., emerged during 15–23 July 2001. Čepkeliai SNR, 17 August 2000, leg. J. Rimšaitė, larvae in *Coprinus* sp., emerged on 6 September 2000. Čižiūnai, 23 June 2000, leg. P. Ivinskis, larvae in *Coprinus* sp., emerged on 14 July 2000. Dūkštos, 27 June 1997, leg. J. Rimšaitė, larvae in *Agaricales s. l.*, emerged on 12 July 1997. Kalno Grikštai, 26 July 2001, leg. J. Rimšaitė, larvae in *Xerocomus* sp., emerged during 2–18 August 2001; 27 July 2001, leg. J. Rimšaitė, larvae in *Boletus luridus*, emerged on 14 August 2001. Lukna, 27 June 2001, leg. J. Rimšaitė, larvae in *Russula* sp., emerged during 7–16 August 2001. Meteliai, 19 July 2001, leg. J. Rimšaitė, larvae in *Psathyrella* sp., emerged on 1 August 2001. Naujaneriai, 7 September 2000, leg. J. Rimšaitė, larvae in *Russula* sp., emerged on 27 September 2000. Ringovė, 24 July 2001, leg. J. Rimšaitė, larvae in *Boletus* sp. and *Russula emetica*, emerged during 6–30 August 2001. Rokiškis, 23 August 2000, leg. A. Saura, pine forest, suction. Strošiūnai, 10 August 2000, leg. J. Rimšaitė, larvae in *Stropharia aeruginosa*, emerged on 24 August 2000; 18 August 2000, leg. J. Rimšaitė, larvae in *Lactarius deterrimus*, emerged on 24 August 2000. Šimkaičiai, 26 August 1999, leg. J. Rimšaitė, larvae in *Mycena* sp., emerged on 9 September 1999. Ukmergė, 23 August 2000, leg. A. Saura, mixed forest, suction. Užkaniaviai, 24 July 2001, leg. J. Rimšaitė, larvae in *Suillus granulatus*, emerged during 3–17 August 2001. Viduklė, 24 August 2000, leg. A. Saura, deciduous forest, suction. Vidzgiris, 12 August 2000, leg. J. Rimšaitė, larvae in *Russula* sp., emerged on 31 August 2000. Viešvilė, 27 August 1999, leg. J. Rimšaitė, larvae in *Xerocomus* sp., emerged on 3 September 1999; 24 July 2001, leg. J. Rimšaitė, larvae in *Russula* sp., emerged on 6 August 2001. Vijoliai,

24 July 1999, leg. J. Rimšaitė, larvae in *M. platyphylla*, emerged on 9 August 1999. Vilkuriai, 4 August 1999, leg. J. Rimšaitė, larvae in *Leccinum* sp., emerged on 17 August 1999.

D. transversa Fallén, 1823

These flies can often be caught over the same mushroom rooms as *D. phalerata*, as was the case in Drąseikiai (Pakalniškis *et al.* 2000).

Čižiūnai, 19 June 2000, leg. P. Ivinskis, larvae in *Russula* sp., adults emerged during July to August 2000. Opšrūtai, 9 August 2000, leg. J. Rimšaitė, larvae in *Suillus* sp., emerged on 24 August 2000. Pajuodžiai, 9 June 1997, leg. J. Rimšaitė, larvae in *Lactarius* sp., emerged on 7 July 1997. Rokiškis, 23 August 2000, leg. A. Saura, pine forest, suction. Strošiūnai, 9 August 2000, leg. J. Rimšaitė, larvae in *Lactarius deterrimus*, emerged on 24 August 2000. Sužionys, 28 August 1999, leg. P. Ivinskis, larvae in *Russula delica*, emerged on 10 September 1999. Šilas, 7 September 1998, leg. J. Rimšaitė, larvae in *Pleurotus ostreatus*, emerged on 18 September 1998. Ukmergė, 23 August 2000, leg. A. Saura, mixed forest, suction. Utena, 15 June 2000, leg. A. Saura, woods on the outskirts of the town, fermenting bait. Užkaniaviai, 26 July 2001, leg. J. Rimšaitė, larvae in *Suillus granulatus*, emerged in August 2001; 3 September 2001, leg. J. Rimšaitė, larvae in *Chroogomphus rutilus*, emerged on 12 October 2001. Ūbiškės, 25 August 1999, leg. P. Ivinskis, larvae in *Lepiota* sp., emerged during August and September 1999. Visoriai, 6 May 1998, leg. J. Rimšaitė, larvae in *Ptychoverpa bohemica*, emerged during 18–21 May 1998. Žvyriai, 8 July 1999, leg. J. Rimšaitė, larvae in *Russula* sp., emerged on 16 July 1999.

repleta species group

These large, grey and stippled flies are commensals of human culture, but have quite different ecological requirements in comparison with the majority of *Drosophila* species. They come to fermenting bait and can be cultured on *Drosophila* medium. We caught our specimens with fermenting bait.

D. hydei Sturtevant, 1921

A widespread, synanthropic species that breeds in garbage, compost etc.

Kaunas, 23 August 2000, leg. A. Saura, river shore.

D. repleta Wollaston, 1858

A widespread, synanthropic species that breeds in urinals, urine wells of farms etc.

Panevėžys, 15 June 2000, leg. A. Saura, abandoned collective farm.

testacea species group

These small flies are yellow in summer, but the overwintered generation is black. Together with the *quinaria* group flies, they belong, to the mushroom-breeding *Drosophila* community (Courtney *et al.* 1990). They come to fermenting bait and can be cultured. Handling of these flies is difficult, since they are very sensitive to ether. We caught our flies mostly by suction over mushrooms or rearing from them.

D. testacea von Roser, 1840

Burūnai, 3 August 2000, leg. J. Rimšaitė, larvae in *Chroogomphus rutilus*, adults emerged on 23 August 2000. Čepkeliai SNR, 17 August 2000, leg. J. Rimšaitė, larvae in *Coprinus* sp., emerged on 3 September 2000. Dukstyna, 26 June 2001, leg. J. Rimšaitė, larvae in *Agaricales s. l.*, emerged on 10 July 2001. Kalno Grikštai, 27 July 2001, leg. J. Rimšaitė, larvae in *Boletus luridus*, emerged on 6 August 2001. Kalviai, 20 July 1999, leg. J. Rimšaitė, larvae in *Lactarius vellereus*, emerged on 17 August 1999. Lebedžiai, 24 August 2000, leg. A. Saura, deciduous forest, suction. Petrežeris, 29 August 2000, leg. J. Rimšaitė, larvae in *Leccinum* sp., emerged in September 2000. Ringovė, 24 July 2001, leg. J. Rimšaitė, larvae in *Boletus* sp., emerged on 7 August 2001. Rokiškis, 23 August 2000, leg. A. Saura, pine forest, suction. Smiltynė, 24 August 2000, leg. A. Saura, pine forest, fermenting bait. Strošiūnai, 18 August 2000, leg. J. Rimšaitė, larvae in *Lactarius deterrimus*, emerged on 24 August 2000. Ukmergė, 23 August 2000, leg. A. Saura, mixed forest, suction. Užkaniaviai, 24 July 2001, leg. J. Rimšaitė, larvae in *Suillus granulatus*, emerged on 4 August 2001. Viduklė, 24 August 2000, leg. A. Saura, deciduous forest, suction. Vilkuriai, 4 August 1999, leg. J. Rimšaitė, larvae in *Leccinum* sp., emerged on 17 August 1999.

virilis species group

We made an effort to collect flies of four species of this group. They are always found close to the bank line of lakes and rivers. Attempts to collect them on the shores of the Curonian Spit or banks of the Nemunas River did not yield a single *virilis* group fly. We collected hundreds of *D. melanogaster* in the localities where we expected to catch *virilis* flies. This was unexpected, since river shores are not a natural habitat for *D. melanogaster*. We shall strive to find out what happened; i.e. has a domestic species experienced a niche shift and driven out the wild species or have the wild species died out and left the niche vacant?

Subgenus *Hirtodrosophila* Duda, 1938***melanderi* species group**

D. cameraria Haliday, 1833

The species was earlier recorded in Ropidai and Verkiiai (Pakalniškis *et al.* 2000).

Čepkeliai SNR, 17 August 2000, leg. J. Rimšaitė, larvae in *Coprinus* sp., adults emerged in September 2000. Viešvilė, 2 August 2000, leg. J. Rimšaitė, larvae in *Collybia confluens*, emerged on 23 August 2000.

D. trivittata Strobl, 1893

Antanai, 31 June 2001, leg. J. Rimšaitė, larvae in *Pleurotus* sp., adults emerged on 13 July 2001.

Subgenus *Lordiphosa* Basden, 1916*D. fenestrarum* Fallén, 1823

These flies are common (Escher *et al.* 2002, 2004) but they are seldom attracted to fermenting bait. Karoliniškės, 19 April 2000, leg. V. Jonaitis, city woods.

Subgenus *Scaptodrosophila* Duda, 1924

We found two species of this group in Estonia and Latvia: *D. deflexa* and *D. rufifrons* Loew, 1873. In Lithuania we recorded *D. deflexa*. These flies come to fermenting bait but are difficult to culture, since they have a larval diapause. The details of this diapause are unknown.

D. deflexa Duda, 1924

Juodkrantė, 24 August 2000, leg. A. Saura, seashore forest, fermenting bait. Vilnius, 23 August 2000, leg. A. Saura, city woods, fermenting bait.

Subgenus *Sophophora* Sturtevant, 1939

This subgenus, called 'bearer of wisdom' contains the best-known species of *Drosophila*.

melanogaster* species groupD. melanogaster* Meigen, 1830

The best-known insect. A cosmopolitan domestic species that breeds in rotting fruits, garbage etc. and is widespread throughout Lithuania (Pakalniškis *et al.* 2000). They come to fermenting bait and are easily cultured. They seem to breed all the year round inside stores. We obtained flies with fermenting bait.

Juodkrantė, 24 August 2000, leg. A. Saura, seashore forest, fermenting bait.

Kaunas, 23 August 2000, leg. A. Saura, riverbank. We caught some 800 flies in this environment that was far away from any garbage. The main vegetation was reeds (*Phragmites*) and willows. Here *D. melanogaster* should be independent of human culture.

Smiltynė, 24 August 2000, leg. A. Saura, pine forest, fermenting bait. Vilnius, 23 August 2000, leg. A. Saura, city woods.

obscura species group

These flies are medium-sized and range from sepia brown (*D. ambigua*) to shiny black (*D. bifasciata* and *D. subobscura*) in colour. The underside of female abdomen is white and that of males is red. All come readily to fermenting bait and can be cultured (*D. subsilvestris* needs conditioning). With the exception of *D. ambigua*, they are indifferent to human culture. Interestingly, very little or nothing is known about the breeding sites of these often very abundant flies. We caught our flies with fermenting bait.

We found *D. tristis*, Fallén 1823 in Latvia (Escher *et al.* 2002). Since this species has a southern distribution, we expect it to be found in Lithuania.

D. ambigua Pomini, 1940

This species is a commensal of human culture in northern Europe.

Juodkrantė, 24 August 2000, leg. A. Saura, seashore forest.

D. bifasciata Pomini, 1940

This is a very widespread species, found from western Europe across Asia to Japan. It is most common in northernmost Europe (Saura 1974).

Kaunas, 23 August 2000, leg. A. Saura, riverbank. Smiltynė, 24 August 2000, leg. A. Saura, pine forest.

D. obscura Fallén, 1823

These flies are typical forest dwellers and can be found in a variety of habitats.

Juodkrantė, 24 August 2000, leg. A. Saura, seashore forest. Kaunas, 23 August 2000, leg. A. Saura, riverbank. Pabradė, 15 June 2000, leg. A. Saura, deciduous forest. Panevėžys, 15 June 2000, leg. A. Saura, abandoned collective farm. Utena, 15 June 2000, leg. A. Saura, woods on the outskirts of the town. Vilnius, 23 August 2000, leg. A. Saura, city woods.

D. subobscura Collin, 1936

There is a monograph on this species (Krimbas 1993), which has been studied very intensively in many European countries. There is also a study on the effect of the Chernobyl incident on the genetic load (Saura *et al.* 1998). Juodkrantė, 24 August 2000, leg. A. Saura, seashore forest. Pabradė, 15 June 2000, leg. A. Saura, deciduous forest. Panevėžys, 15 June 2000, leg. A. Saura, abandoned collective farm. Smiltynė, 24 August 2000, leg. A. Saura, pine forest. Utena, 15 June 2000, leg. A. Saura, woods on the outskirts of the town. Vilnius, 23 August 2000, leg. A. Saura, city woods.

D. subsilvestris Hardy and Kaneshiro, 1968

These widespread flies may be common in certain forest habitats.

Utena, 15 June 2000, leg. A. Saura, woods on the outskirts of the town. Vilnius, 23 August 2000, leg. A. Saura, city woods.

Genus *Leucophenga* Mik, 1886

This is a large and widespread genus comprising four European species. The flies breed in mushrooms. They come to fermenting bait as well.

We did not find *L. maculata* (Dufour, 1839) in Lithuania, but there is a record from Latvia (Escher *et al.* 2002). *L. quinque maculata* Strobl, 1893

These flies are seldom abundant in any locality.

Sužionys, 15 June 2000, leg. A. Saura, suction on mushrooms. Tabokinė, 14 August 1998, leg. J. Rimšaitė, larvae in *Phellinus tremulae*, emerged on 28 August 1998. Viduklė, 24 August 2000, leg. A. Saura, deciduous forest, suction on mushroom. Vilnius, 23 August 2000, leg. A. Saura, city woods.

Genus *Scaptomyza* Hardy, 1849

Hackman (1959) has written a monograph on this large genus. The larvae of most species mine in leaves of plants belonging to the families Caryophyllaceae or Brassicaceae. Quite a lot of such species were recorded in Latvia (Escher *et al.* 2002), namely *S. flava* (Fallén, 1823), *S. graminum* (Fallén, 1823), *S. teinoptera* (Hackman, 1955) and *S. griseola* (Zetterstedt, 1847).

Subgenus *Scaptomyza* Hardy, 1850

S. consimilis Hackman, 1955

Kareivonys, 28 July 1995, leg. S. Pakalniškis.

S. flava (Fallén, 1823)

Widespread throughout Lithuania (Pakalniškis *et al.* 2000).

Brinkiškės, 16 May 1999, leg. S. Pakalniškis, larvae in *Brassica napus* mines, adults emerged on 31 May 1999. Merkinė, 2 July 1994, leg. S. Pakalniškis, larvae in *B. napus* mines, emerged on 12 July 1994; 8 June 1995, leg. S. Pakalniškis, larvae in *Sinapis alba* mines, emerged on 6 July 1995; 12 August 1995, leg. S. Pakalniškis, larvae in *Cardamine amara* mines, emerged on 25 August 1995. Starka, 5 September 1997, leg. S. Pakalniškis, larvae in *Rorippa amphibia* mines, emerged on 30 September 1997.

S. graminum (Fallén, 1823)

Widespread throughout Lithuania (Pakalniškis *et al.* 2000).

Brinkiškės, 17 July 1993, leg. S. Pakalniškis, larvae in *Spinacia oleracea* mines, adults emerged on 8 August 1993. Čižiūnai, 6 July 1991, leg. S. Pakalniškis, larvae

in *Lychnis chalconica* mines, emerged on 16 July 1991. Dūkštos, 11 June 1997, leg. S. Pakalniškis, larvae in *Anthyllis vulneraria* mines, emerged on 25 June 1997. Maskauka, 10 April 1994, leg. S. Pakalniškis, larvae in *Silene pratensis* mines, emerged on 5 May 1994.

S. griseola (Zetterstedt, 1847)

Widespread throughout Lithuania (Pakalniškis *et al.* 2000).

Mikašiūnai, 10 July 1996, leg. S. Pakalniškis, det. G. Bächli, larvae in *Polemonium caeruleum* mines, adults emerged on 26 July 1996. Stanuliškės, 10 July 1997, leg. S. Pakalniškis, det. G. Bächli, larvae in *P. caeruleum* mines, emerged on 21 July 1997.

S. montana Wheeler, 1949

Flies of this little known species were earlier found in Merkinė (Pakalniškis 1992).

Subgenus *Parascaptomyza* Duda, 1924

S. pallida (Zetterstedt, 1847)

Widespread throughout Lithuania (Pakalniškis *et al.* 2000).

Merkinė, 12 June 1995, leg. S. Pakalniškis. Larvae in mines of *Chromatomyia horicola* (Agromyzidae) in *Sisymbrium officinale*. Adults emerged on 5 July 1995. Juodkrantė, 24 August 2000, leg. A. Saura, seashore forest, fermenting bait. This species naturally breeding as an inquiline by various mining insects is also a commensal of human culture and breeds in rotting plant material. It can be cultivated on *Drosophila* medium.

Genus *Cacoxenus* Loew, 1858

Subgenus *Cacoxenus* Loew, 1858

C. indagator Loew, 1858

Bilšiai, 18–30 May 2003, leg. E. Budrys, larvae in nests of *Osmia rufa* (Apidae, Megachilinae). Šeškinė, 15 June 2001, leg. E. Lutovinovas. Veržuva, 12 May to 13 June 2003, leg. S. Pakalniškis, larvae in nests of *O. rufa*.

Genus *Stegana* Meigen, 1830

Subgenus *Stegana* Meigen, 1830

S. furta (Linnaeus, 1767)

Flies of this species were earlier found in Pavejuonis (Pakalniškis *et al.* 2000).

ACKNOWLEDGEMENTS

We thank Dr Kaupo Elberg from the University of Tartu and Dr Aina Karpa from the University of Latvia for their hospitality and help. We are grateful to Dr Gerhard

Bächli for sharing his knowledge and helpful advice on the manuscript, as well as to Mrs. Laima Monkienė for editing parts of text.

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- LIETUVOS DROZOFILOS (DIPTERA: DROSOPHILIDAE)**
S.A. Escher, J. Ekenstedt,
S. Pakalniškis, J. Rimšaitė, A. Saura
- SANTRAUKA**
- 2000 metų vasarą buvo surengtos dvi kelionės per Baltijos šalis, kurios Europos Drosophilidae (Diptera) žemėlapyje iki šiol buvo tikra *terra incognita*. Svarbiausias radinys – *Chymomyza amoena* – amerikinė rūšis, aptikta Estijoje ir Lietuvoje. Įdomus yra ir santykinis *Drosophila subrostrata* retumas bei visiškai *D. virilis* grupės rūšių nebuvimas tirtoje teritorijoje. Straipsnyje pateikiami duomenys apie Lietuvos Drosophilidae – 33 rūšių sąrašas, 23 iš jų šalyje aptiktos pirmą kartą. Išplėstos žinios apie daugelio micetofagų bei fitofagų trofinius ryšius jų natūraliose buveinėse.
- Received: 27 November 2002
 Accepted: 21 June 2004