

CHECK-LIST OF EUMENINAE WASPS (HYMENOPTERA: VESPIDAE) COLLECTED IN LITHUANIA USING TRAP-NESTS

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Introduction

The Vespidae wasps are widely distributed and abundant, however, the knowledge of distribution and abundance of these insects in the Lithuanian fauna is limited. First three species (*Vespula germanica*, *Ancistrocerus antilope* and *Eumenes coarctatus*) were listed by Strand (1918). Wengris (1962) supplemented the check-list with 18 species. Five new species were recorded by Budrys (1997). Finally, our earlier studies of prey (Budrienė, 2003), nesting cavity choice (Budrienė *et al.*, 2004) and population size (Budrys *et al.*, 2004) included four additional species, though the accurate species distribution data were not presented. The Fauna Europaea database (Gusenleitner, 2004) contains 24 species that are supposed to be present in Lithuania; however, it is not supported by collection data or references where the records may be found. In total, the current check-list of Vespidae of the Lithuanian fauna included 36 species.

The aim of this contribution is to provide precise distribution data on the Eumeninae wasps collected using trap-nests in 1988–2008, including those used in our earlier studies of wasp ecology and behaviour, and supplementing the local species check-list with one new species.

Material and methods

We reared the wasps from their nests which were collected using small trap-nests. The latter were built of 20–35 randomly selected reed (*Phragmites australis*) internodes of natural width (internal diameter 1.9–8.6 mm) and length (19–322 mm), wrapped in a plastic or Tetrapack carton tube. The trap-nests were exposed for the whole summer season (May–August) on old style buildings, tree trunks or, in some cases, on sticks in meadows (Budrienė, 2003; Budrys *et al.*, in press).

The material was sampled in 52 localities and 85 sites (Fig. 1). Part of the reared specimens is preserved in the collection of the Institute of Ecology of Vilnius University.

List of localities

Alytus district	Daugai	54°21'42"N, 24°17'07"E
	Punios Šilas f. (1)	54°32'14"N, 24°05'24"E
	Punios Šilas f. (2)	54°32'31"N, 24°05'12"E
	Punios Šilas f. (3)	54°32'20"N, 24°02'52"E
	Punios Šilas f. (4)	54°30'52"N, 24°02'02"E
	Vidzgiris	54°22'55"N, 24°00'47"E

Anykščiai district	Šimonių Giria f. (1)	55°41'17"N, 25°16'08"E
	Šimonių Giria f. (2)	55°42'11"N, 25°14'29"E
	Šimonių Giria f. (3)	55°42'27"N, 25°14'14"E
	Varnupys	55°23'38"N, 25°16'20"E
	Želtiškių Miškas f. (1)	55°23'44"N, 25°16'07"E
	Želtiškių Miškas f. (2)	55°23'41"N, 25°16'05"E
	Želtiškių Miškas f. (3)	55°23'37"N, 25°16'28"E
	Želtiškių Miškas f. (4)	55°23'39"N, 25°16'19"E
	Želtiškių Miškas f. (5)	55°23'45"N, 25°16'16"E
	Ignalina district	Antagavė
Ažvinčiai		55°26'52"N, 26°04'16"E
Daniūnai		55°19'03"N, 26°18'21"E
Ginučiai		55°22'16"N, 26°00'03"E
Jurbarkas district	Išdagai	55°03'54"N, 22°25'00"E
	Šilinė	55°05'22"N, 22°56'58"E
	Viešvilė (1)	55°05'17"N, 22°24'17"E
	Viešvilė (2)	55°05'41"N, 22°24'00"E
	Viešvilė (3)	55°07'27"N, 22°24'41"E
Kaunas city	Kaunas	54°54'15"N, 23°54'14"E
Kaunas district	Dubravai	54°51'15"N, 24°04'28"E
Molėtai district	Bilšiai	55°08'02"N, 25°16'15"E
	Kartuvėlė	55°05'58"N, 25°21'23"E
	Kazokų Miškas f.	55°07'55"N, 25°23'15"E
	Smailiai	55°04'57"N, 25°20'59"E
	Vilkaraisčiai	55°08'13"N, 25°21'23"E
	Vilkiškės	55°11'10"N, 25°25'32"E
Pasvalys district	Papiškiai	55°55'59"N, 24°16'35"E

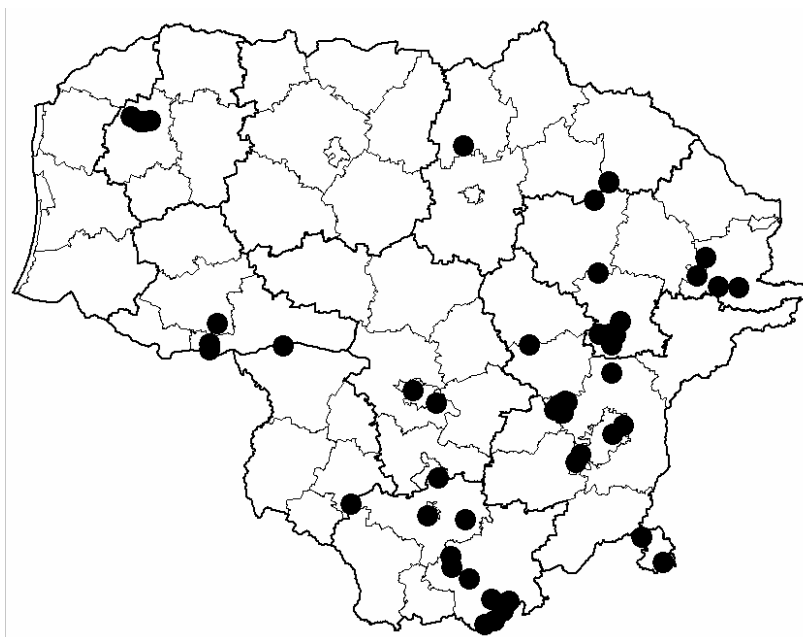


Figure 1. Collection sites of Eumeninae wasps in Lithuania using trap-nests in 1988–2008.

Plungė district	Liepija	56°01'59"N, 21°47'10"E	
	Paburgė	56°01'20"N, 21°56'00"E	
	Plateliai (1)	56°00'43"N, 21°50'43"E	
	Plateliai (2)	56°01'45"N, 21°50'23"E	
	Plokštinė	56°00'56"N, 21°53'10"E	
Rokiškis district	Naujasodė	55°46'27"N, 25°21'56"E	
	Taraldžiai	55°46'11"N, 25°21'49"E	
Šalčininkai district	Pagaujėnai	54°10'20"N, 25°42'02"E	
	Stakai (1)	54°16'52"N, 25°32'52"E	
	Stakai (2)	54°16'53"N, 25°32'43"E	
Širvintos district	Dūdai	55°05'44"N, 24°45'25"E	
Tauragė district	Eičiai	55°10'38"N, 22°28'00"E	
Varėna district	Čepkeliai Nat. R.	54°01'41"N, 24°28'07"E	
	Katra (1)	53°59'18"N, 24°33'20"E	
	Katra (2)	53°58'51"N, 24°32'47"E	
	Krokšlys	54°01'33"N, 24°35'45"E	
	Merkinė	54°09'45"N, 24°11'08"E	
	Musteika (1)	53°55'22"N, 24°24'55"E	
	Musteika (2)	53°54'29"N, 24°24'34"E	
	Musteika (3)	53°59'22"N, 24°25'51"E	
	Pogarenda (1)	53°56'17"N, 24°29'10"E	
	Pogarenda (2)	53°55'50"N, 24°28'06"E	
	Pogarenda (3)	53°56'14"N, 24°29'06"E	
	Pogarenda (4)	53°57'02"N, 24°27'45"E	
	Pogarenda (5)	53°55'59"N, 24°26'28"E	
	Pogarenda (6)	53°57'57"N, 24°28'37"E	
	Pogarenda (7)	53°55'11"N, 24°27'35"E	
	Pogarenda (8)	53°56'09"N, 24°28'35"E	
	Puvočiai (1)	54°05'22"N, 24°18'59"E	
	Puvočiai (2)	54°06'14"N, 24°18'21"E	
	Puvočiai (3)	54°05'46"N, 24°19'28"E	
	Puvočiai (4)	54°06'00"N, 24°19'25"E	
	Puvočiai (5)	54°06'57"N, 24°17'31"E	
	Puvočiai (6)	54°07'07"N, 24°17'17"E	
	Puvočiai (7)	54°06'32"N, 24°18'37"E	
	Puvočiai (8)	54°06'21"N, 24°19'05"E	
	Puvočiai (9)	54°06'01"N, 24°18'39"E	
	Puvočiai (10)	54°06'58"N, 24°19'41"E	
	Subartonys	54°12'29"N, 24°10'36"E	
	Vilnius district	Arliškės	54°58'20"N, 25°21'25"E
		Dūkštų Ažuolynas f. (1)	54°50'21"N, 24°57'47"E
		Dūkštų Ažuolynas f. (2)	54°50'44"N, 24°58'20"E
Dūkštų Ažuolynas f. (3)		54°49'50"N, 24°57'40"E	
Dūkštų Miškas f.		54°48'37"N, 25°00'10"E	
Guobų Miškas f.		54°36'05"N, 25°05'00"E	
Karmazinai		54°49'08"N, 24°55'58"E	
Kiemeliai	54°51'30"N, 25°01'00"E		

Pietušķiai	54°50'29"N, 25°00'00"E
Pylimėliai	54°42'52"N, 25°21'06"E
Saugūniškės	54°51'00"N, 25°01'50"E
Trakų Vokė	54°37'52"N, 25°07'06"E
Trečiokiškės	54°49'59"N, 24°58'53"E

Results

The species records include locality and period of trap-nest application during the summer season (May–August), the number of nests and brood cells built by the wasp species in trap-nests, and the number of female and male wasps that have hatched from these nests. The species new to the Lithuanian fauna is marked with an asterisk (*).

***Ancistrocerus antilope* (Panzer, 1798)**

(Strand, 1918: 32; Wengris, 1962: 12; Budrienė et al., 2004: 22; Budrys et al., 2004: 37; Gusenleitner, 2004)

Trap-nests on buildings: Bilšiai, 2001–2008, 82 nests, 190 cells (51♀, 51♂); Dūdai, 2008, 8 nests, 36 cells (2♀, 9♂); Kiemeliai, 2007–2008, 15 nests, 33 cells (2♀, 8♂); Papiškiai, 2003–2008, 12 nests, 32 cells (2♀, 14♂); Taraldžiai, 2003, 1 nest, 2 cells; Trečiokiškės, 2007, 5 nests, 13 cells; Varnupys, 1988–2007, 302 nests, 640 cells (227♀, 214♂). Trap-nests on trees: Ažvinčiai, 2006, 1 nest, 2 cells (1♂); Dūkštų Ažuolynas f. (1), 2006, 2 nests, 5 cells (2♀, 3♂); Pietušķiai, 2006, 4 nests, 17 cells (5♀, 8♂); Punios Šilas f. (1), 2006, 2 nests, 3 cells; Želtišķių Miškas f. (1), 2006–2007, 6 nests, 22 cells (4♀, 4♂).

***Ancistrocerus claripennis* Thomson, 1874**

(Gusenleitner, 2004)

Trap-nests on buildings: Bilšiai, 2003, 4 nests, 15 cells (9♀); Paburgė, 2007, 5 nests, 20 cells (5♀).

***Ancistrocerus gazella* (Panzer, 1798)**

(Budrienė et al., 2004: 22)

Trap-nests on buildings: Dūdai, 2008, 5 nests, 29 cells (2♀, 12♂); Kiemeliai, 2008, 1 nest, 8 cells (6♂); Papiškiai, 2003, 2 nests, 15 cells (8♀, 2♂); Trap-nests on trees: Saugūniškės, 2007, 7 nests, 33 cells (5♀, 1♂); Smailiai, 2008, 12 nests, 50 cells (8♀, 33♂).

***Ancistrocerus ichneumonideus* (Ratzeburg, 1844)**

(Gusenleitner, 2004)

Trap-nests on trees: Puvočiai (3), 2005, 2 nests, 26 cells (20♀, 5♂); Puvočiai (4), 2006, 2 nests, 12 cells (10♀).

***Ancistrocerus nigricornis* (Curtis, 1826)**

(Budrys, 1997: 146; Budrienė et al., 2004: 22; Gusenleitner, 2004)

Trap-nests on buildings: Bilšiai, 2003, 3 nests, 14 cells (14♀); Kaunas, 1989–1990, 2 nests, 7 cells (1♀); Merkinė, 1991–2000, 3 nests, 9 cells (7♀, 1♂); Papiškiai, 2003–2003, 3 nests, 20 cells (9♀, 8♂); Pylimėliai, 2003, 1 nest, 3 cells (3♂); Varnupys, 1989–2004, 13 nests, 40 cells (15♀, 4♂). Trap-nests on trees: Šimonių Giria f. (3), 2006, 8 nests, 33 cells (1♀).

***Ancistrocerus parietinus* (Linnaeus, 1761)**

(Wengris, 1962: 12; Budrys, 1997: 146; Budrienė et al., 2004: 22; Gusenleitner, 2004)

Trap-nests on buildings: Bilšiai, 2002, 1 nest, 5 cells (1♀); Kiemeliai, 2008, 2 nests, 9 cells (3♀, 4♂); Varnupys, 1989–2004, 3 nests, 11 cells (1♀, 8♂). Trap-nests on trees: Dūkštų Ažuolynas f. (1), 2005, 2 nests, 3 cells (3♂); Dūkštų Ažuolynas f. (2), 2006–2008, 5 nests, 26 cells (8♀, 9♂); Dūkštų Miškas f., 2005, 1 nest, 2 cells (1♂); Eičiai, 2004, 2 nests, 8 cells (2♀, 5♂); Plateliai (2), 2006, 2 nests, 13 cells (1♀, 1♂); Stakai (2), 2005, 3 nests, 16 cells (1♀, 14♂); Viešvilė (3), 2005, 3 nests, 6 cells (1♀, 3♂); Želtiškių Miškas f. (1), 2003–2008, 8 nests, 32 cells (3♀, 18♂); Želtiškių Miškas f. (3), 2003, 1 nest, 2 cells (1♂).

***Ancistrocerus parietum* (Linnaeus, 1758)**

(Wengris, 1962: 12; Budrienė *et al.*, 2004: 22; Gusenleitner, 2004)

Trap-nests on buildings: Varnupys, 1992, 1 nest, 1 cell (1♂).

***Ancistrocerus trifasciatus* (Mueller, 1776)**

(Budrys, 1997: 146; Budrienė *et al.*, 2004: 22; Gusenleitner, 2004)

Trap-nests on buildings: Antagavė, 1989, 1 nest, 2 cells (2♀); Bilšiai, 2001–2005, 28 nests, 91 cells (21♀, 25♂); Kaunas, 1989, 1 nest, 2 cells (1♂); Paburgė, 2007, 5 nests, 32 cells (19♀, 3♂); Papiškiai, 2004, 5 nests, 14 cells (3♀); Pylimėliai, 2003, 2 nests, 4 cells (1♀); Taraldžiai, 2003–2004, 10 nests, 36 cells (6♀, 4♂); Varnupys, 1988–2008, 62 nests, 195 cells (100♀, 28♂). Trap-nests on trees: Arliškės, 2008, 21 nests, 102 cells (45♀, 38♂); Ažvinčiai, 2006, 6 nests, 32 cells (13♀, 11♂); Bilšiai, 2005–2008, 46 nests, 204 cells (84♀, 35♂); Čepkeliai Nat. R., 2006, 3 nests, 8 cells (1♀); Daugai, 2006, 1 nest, 7 cells (4♀); Dūkštų Ažuolynas f. (1–3) 2004–2008, 69 nests, 260 cells (87♀, 57♂); Eičiai, 2003, 12 nests, 72 cells (22♀, 25♂); Ginučiai, 2006, 13 nests, 76 cells (4♀, 24♂); Išdagai, 2004–2005, 10 nests, 34 cells (12♀, 10♂); Karmazinai, 2006, 14 nests, 39 cells (10♀, 20♂); Kartuvėlė, 2008, 2 nests, 4 cells (2♀); Katra, 2004, 1 nest, 15 cells (11♂); Kazokų Miškas f., 2006–2008, 14 nests, 64 cells (15♀, 23♂); Kiemeliai, 2006–2008, 59 nests, 279 cells (76♀, 152♂); Krokšlys, 2006–2007, 14 nests, 45 cells (8♀, 14♂); Liepija, 2006–2007, 4 nests, 25 cells (14♀, 4♂); Musteika (1–3), 2004–2007, 9 nests, 31 cell (6♀, 7♂); Naujasodė, 2006, 18 nests, 35 cells (6♀, 14♂); Paburgė, 2007, 20 nests, 52 cells (9♀, 7♂); Pagaujėnai, 2005, 30 nests, 143 cells (35♀, 20♂); Pietušiai, 2006, 3 nests, 21 cells (17♀); Plateliai (1, 2), 2006, 6 nests, 27 cells (11♀, 2♂); Plokštinė, 2006, 2 nests, 12 cells (5♀, 7♂); Pogarenda (1–8), 2004–2007, 26 nests, 105 cells (41♀, 10♂); Punios Šilas f. (1–3), 2005, 8 nests, 33 cells (22♀, 1♂); Puvočiai (1, 3, 5–8), 2004–2007, 48 nests, 260 cells (73♀, 58♂); Saugūniškės, 2007, 9 nests, 33 cells (1♀, 5♂); Šilinė, 2004, 14 nests, 67 cells (29♀, 18♂); Šimonių Giria f. (1–3), 2006, 9 nests, 47 cells (31♀, 9♂); Smailiai, 2008, 5 nests, 25 cells (15♀, 9♂); Stakai, 2005, 6 nests, 28 cells (21♀, 3♂); Trakų Vokė, 2006, 1 nest, 5 cells (4♀); Vidzgiris, 2006, 2 nests, 18 cells (11♂); Viešvilė (1–3), 2004, 15 nests, 57 cells (12♀, 17♂); Želtiškių Miškas f. (1, 3–5), 2003–2007, 40 nests, 150 cells (49♀, 49♂).

***Discoelius dufourii* Lepeletier, 1841**

(Budrienė *et al.*, 2004: 22)

Trap-nests on buildings: Bilšiai, 2003–2007, 5 nests, 23 cells (2♀, 4♂); Varnupys, 1996–2008, 24 nests, 116 cells (36♀, 42♂). Trap-nests on trees: Čepkeliai Nat. R., 2006, 4 nests, 23 cells (10♀, 6♂); Katra (1), 2004, 1 nest, 3 cells (2♀); Kiemeliai, 2008, 4 nests, 15 cells (6♀, 4♂); Musteika (2), 2007, 6 nests, 18 cells (7♀, 5♂); Pogarenda (5), 2005, 6 nests, 19 cells (9♀, 6♂); Pogarenda (7), 2007, 3 nests, 9 cells

(2♀, 4♂); Punios Šilas f. (1), 2005, 2 nests, 9 cells (6♀, 2♂); Želtiškių Miškas f. (3), 2003, 5 nests, 20 cells (4♀, 3♂).

***Discoelius zonalis* (Panzer, 1801)**

(Budrienė *et al.*, 2004: 22)

Trap-nests on buildings: Bilšiai, 2002–2008, 14 nests, 60 cells (8♀, 26♂); Papiškiai, 2003–2008, 15 nests, 65 cells (7♀, 19♂); Varnupys, 1989–2007, 153 nests, 536 cells (104♀, 231♂). Trap-nests on trees: Čepkeliai Nat. R., 2006, 1 nest, 4 cells (3♀); Dubravai, 2007, 5 nests, 18 cells (1♀, 8♂); Dūkštų Ažuolynas f. (1), 2006, 6 nests, 30 cells (11♀, 15♂); Dūkštų Ažuolynas f. (2), 2008, 1 nest, 1 cell (1♂); Ginučiai, 2006, 2 nests, 4 cells (1♂); Kiemeliai, 2008, 2 nests, 14 cells (1♀, 13♂); Plokštinė, 2006, 2 nests, 5 cells (1♂); Pogarenda (4), 2004, 5 nests, 33 cells (5♀, 10♂); Pogarenda (8), 2007, 3 nests, 13 cells (4♀, 3♂); Puvočiai (4), 2005–2006, 3 nests, 16 cells (6♀, 3♂); Puvočiai (9), 2007, 2 nests, 11 cells (2♀, 7♂); Saugūniškės, 2008, 4 nests, 30 cells (4♀, 3♂); Želtiškių Miškas f. (1), 2005–2008, 16 nests, 43 cells (12♀, 19♂); Želtiškių Miškas f. (4), 2004–2007, 11 nests, 20 cells (1♀, 8♂).

***Euodynerus notatus* (Jurine, 1807)**

(Wengris, 1962: 12 (as *Euodynerus nigripes*); Budrys, 1997: 146; Budrienė *et al.*, 2004: 22; Gusenleitner, 2004.

Trap-nests on buildings: Bilšiai, 2002–2008, 8 nests, 41 cells (14♀, 10♂); Kiemeliai, 2008, 4 nests, 19 cells (10♀, 7♂); Papiškiai, 2003–2008, 11 nests, 30 cells (5♀, 17♂); Varnupys, 1992–2006, 3 nests, 10 cells (5♀, 5♂).

***Euodynerus quadrifasciatus* (Fabricius, 1793)**

Wengris, 1962: 12; Gusenleitner, 2004.

Trap-nest in a meadow: Želtiškių Miškas f. (5), 2008, 3 nests, 25 cells (9♀, 14♂).

***Symmorphus allobrogus* (Saussure, 1856)**

(Wengris, 1962: 12; Budrienė, 2003: 308; Budrienė *et al.*, 2004: 22; Budrys *et al.*, 2004: 37)

Trap-nests on buildings: Antagavė, 1989, 3 nests, 7 cells (3♀, 2♂); Bilšiai, 2001–2008, 354 nests, 1016 cells (258♀, 205♂); Dūdai, 2008, 9 nests, 18 cells (10♀, 6♂); Kaunas, 2000–2008, 9 nests, 22 cells (2♀, 9♂); Kiemeliai, 2007–2008, 36 nests, 78 cells (10♀, 27♂); Papiškiai, 2003–2008, 233 nests, 574 cells (125♀, 146♂); Trečiokiškės, 2007, 2 nests, 5 cells (1♂); Varnupys, 1988–2008, 2342 nests, 7406 cells (3033♀, 2053♂).

***Symmorphus angustatus* (Zetterstedt, 1838)**

(Gusenleitner, 2004)

Trap-nests on buildings: Varnupys, 2003–2004, 4 nests, 6 cells (3♀). Trap-nests on trees: Želtiškių Miškas f. (1), 2003, 6 nests, 17 cells (5♀); Želtiškių Miškas f. (3), 2006, 2 nests, 6 cells (2♀).

***Symmorphus bifasciatus* (Linnaeus, 1761)**

(Wengris, 1962: 12; Budrys, 1997: 146; Budrienė, 2003: 308; Budrienė *et al.*, 2004: 22; Gusenleitner, 2004)

Trap-nests on buildings: Bilšiai, 2003–2004, 10 nests, 16 cells (4♀, 1♂); Paburgė, 2007, 9 nests, 18 cells (6♀, 4♂); Papiškiai, 2003–2004, 3 nests, 4 cells (1♀, 1♂); Pylimėliai, 2003, 13 nests, 59 cells (4♀, 10♂); Subartonys, 2003, 21 nests, 46 cells (21♀, 10♂); Taraldžiai, 2002–2003, 5 nests, 7 cells (5♀, 2♂); Trečiokiškės, 2007, 1 nest, 3 cells; Varnupys, 1988–2007, 120 nests, 263 cells (79♀, 44♂). Trap-nests on trees: Arliškės, 2008, 3 nests, 5 cells (3♀); Bilšiai, 2005–2006, 9 nests, 25 cells (11♀,

6♂); Daniūnai, 2006, 29 nests, 100 cells (26♀, 19♂); Daugai, 2006, 23 nests, 38 cells (11♀, 9♂); Dubravai, 2007, 5 nests, 9 cells (1♀, 2♂); Dūkštų Ažuolynas f. (1), 2004–2006, 77 nests, 307 cells (83♀, 85♂); Dūkštų Ažuolynas f. (2), 2006, 7 nests, 16 cells (7♀, 1♂); Dūkštų Ažuolynas f. (3), 2007, 1 nest, 6 cells (1♀, 4♂); Dūkštų Miškas f., 2005, 15 nests, 80 cells (32♀, 13♂); Eičiai, 2003, 10 nests, 45 cells (8♀, 11♂); Ginučiai, 2006, 11 nests, 29 cells (3♂); Guobų Miškas f., 2005, 4 nests, 28 cells (8♀, 5♂); Išdagai, 2004, 5 nests, 11 cells (4♀, 1♂); Karmazinai, 2006, 5 nests, 12 cells (2♀, 2♂); Kartuvėlė, 2008, 7 nests, 14 cells (1♀); Katra (2), 2005, 8 nests, 29 cells (10♀, 6♂); Kazokų Miškas f., 2006, 7 nests, 25 cells (6♀, 5♂); Kiemeliai, 2006–2008, 8 nests, 43 cells (3♀, 7♂); Krokšlys, 2005, 4 nests, 31 cell (11♀, 10♂); Liepija, 2006, 12 nests, 40 cells (21♀, 11♂); Musteika (2), 2007, 1 nest, 8 cells; Naujasodė, 2006, 22 nests, 81 cell (18♀, 23♂); Paburgė (1), 2007, 2 nests, 10 cells (6♀, 3♂); Pagaujėnai, 2005, 5 nests, 26 cells (7♀, 12♂); Pietuškiei, 2006, 10 nests, 21 cell (2♀, 8♂); Pogarenda (1), 2004, 2 nests, 14 cells (4♀); Pogarenda (2), 2004–2006, 39 nests, 111 cells (51♀, 27♂); Pogarenda (4), 2004–2007, 7 nests, 19 cells (4♀, 5♂); Pogarenda (6), 2007, 1 nest, 5 cells (1♀, 3♂); Pogarenda (7), 2007, 2 nests, 12 cells (3♀, 6♂); Pogarenda (8), 2007, 1 nest, 1 cell; Punios Šilas f. (4), 2005, 1 nest, 5 cells (2♂); Puvočiai (2), 2004, 7 nests, 12 cells (6♀, 1♂); Puvočiai (5), 2006, 4 nests, 19 cells (8♀, 4♂); Puvočiai (6), 2006, 1 nest, 2 cells (2♀); Puvočiai (8), 2006, 2 nests, 9 cells (1♀, 2♂); Puvočiai (10), 2007, 2 nests, 3 cells (1♀); Saugūniškės, 2007–2008, 7 nests, 23 cells (4♀, 9♂); Šimonių Giria f. (3), 2006, 4 nests, 22 cells (2♀, 5♂); Stakai (1), 2005, 1 nest, 8 cells (1♀, 4♂); Stakai (2), 2005, 6 nests, 30 cells (7♀, 3♂); Trakų Vokė (1), 2006, 1 nest, 7 cells (3♀, 1♂); Vilkaraisčiai, 2008, 3 nests, 12 cells (1♀, 2♂); Vilkiškės, 2005, 16 nests, 71 cell (21♀, 28♂); Želtiškių Miškas f. (1), 2004–2007, 21 nest, 53 cells (16♀, 17♂); Želtiškių Miškas f. (2), 2005, 6 nests, 37 cells (23♀, 5♂); Želtiškių Miškas f. (3), 2003–2007, 16 nests, 46 cells (7♀, 10♂).

****Symmorphus connexus* (Curtis, 1826)**

Trap-nests on trees: Musteika (1), 2006, 1 nest, 1 cell (1♂); Pietuškiei, 2006, 2 nests, 6 cells (2♀, 4♂); Puvočiai (4), 2006, 1 nest, 1 cell (1♀); Stakai (2), 2005, 3 nests, 11 cells (3♀, 4♂).

***Symmorphus crassicornis* (Panzer, 1798)**

(Wengris, 1962: 12; Budrienė, 2003: 308; Budrienė *et al.*, 2004: 22; Gusenleitner, 2004)
 Trap-nests on buildings: Bilšiai, 2001–2004, 19 nests, 57 cells (20♀, 3♂); Papiškiai, 2007, 1 nest, 3 cells (2♂); Pylimėliai, 2003, 4 nests, 18 cells (3♀, 8♂); Subartonys, 2003, 3 nests, 11 cells (1♂); Varnupys, 1989–2008, 28 nests, 89 cells (30♀, 22♂).
 Trap-nests on trees: Dūkštų Miškas f., 2005, 1 nest, 3 cells (1♀); Guobų Miškas f., 2005, 1 nest, 2 cells (2♀); Išdagai, 2004, 1 nest, 7 cells (1♂); Kartuvėlė (2), 2008, 2 nests, 4 cells (1♂); Kiemeliai, 2006, 2 nests, 4 cells (2♂); Liepija, 2006, 4 nests, 13 cells (1♀, 3♂); Pietuškiei, 2006, 7 nests, 24 cells (2♀, 10♂); Puvočiai (9), 2007, 1 nest, 3 cells (2♂); Šimonių Giria f. (1), 2006, 1 nest, 2 cells; Želtiškių Miškas f. (1), 2007, 2 nests, 6 cells (1♂).

***Symmorphus debilitatus* (Saussure, 1855)**

(Wengris, 1962: 12; Budrienė, 2003: 308; Budrienė *et al.*, 2004: 22; Budrys *et al.*, 2004: 37)

Trap-nests on buildings: Bilšiai, 2001–2008, 7 nests, 23 cells (10♀, 6♂); Kaunas, 1990–1991, 11 nests, 40 cells (13♀, 7♂); Kiemeliai, 2008, 1 nest, 7 cells (1♂); Merkinė, 1989–1992, 15 nests, 31 cell (8♀, 15♂); Paburgė, 2007, 2 nests, 8 cells

(2♀, 2♂); Papiškiai, 2002, 1 nest, 5 cells (1♀, 2♂); Taraldžiai, 2002–2003, 3 nests, 7 cells (7♀); Varnupys, 1991–2006, 21 nests, 55 cells (29♀, 19♂). Trap-nests on trees: Daniūnai, 2006, 1 nest, 9 cells (4♀, 2♂).

***Symmorphus gracilis* (Brulle, 1832)**

(Budrys, 1997: 146; Budrienė, 2003: 308; Budrienė *et al.*, 2004: 22; Gusenleitner, 2004) Trap-nests on buildings: Bilšiai, 2002–2004, 8 nests, 29 cells (6♀); Kiemeliai, 2008, 1 nest, 1 cell (1♀); Papiškiai, 2002–2004, 11 nests, 44 cells (19♀, 8♂); Taraldžiai, 2004, 1 nest, 3 cells; Trečiokiškės, 2007, 1 nest, 3 cells (1♀, 1♂); Varnupys, 2000–2002, 16 nests, 42 cells (22♀, 3♂). Trap-nests on trees: Dūkštų Ažuolynas f. (1), 2004, 4 nests, 10 cells (8♀); Kiemeliai, 2006, 7 nests, 24 cells (9♀, 7♂); Saugūniškės, 2007, 12 nests, 20 cells (7♀, 5♂); Vilkaraisčiai, 2008, 3 nests, 7 cells (3♀, 2♂).

***Symmorphus murarius* (Linnaeus, 1758)**

(Budrys, 1997: 146; Budrienė, 2003: 308; Budrienė *et al.*, 2004: 22)

Trap-nests on buildings: Bilšiai, 2001–2007, 55 nests, 138 cells (25♀, 50♂); Kiemeliai, 2007, 1 nest, 5 cells (2♀, 2♂); Merkinė, 1992, 13 nests, 26 cells (7♀, 15♂); Papiškiai, 2002–2008, 199 nests, 595 cells (102♀, 131♂); Taraldžiai, 2003, 2 nests, 6 cells (1♀); Trečiokiškės, 2007, 2 nests, 4 cells (1♀, 2♂); Varnupys, 1989–2008, 162 nests, 449 cells (150♀, 187♂). Trap-nests on trees: Plokštinė, 2006, 3 nests, 16 cells (1♀, 5♂); Pogarenda (4), 2004, 2 nests, 14 cells (13♂); Šilinė, 2004, 1 nest, 2 cells; Želtiškių Miškas f. (4), 2007, 1 nest, 3 cells (1♀, 1♂).

Discussion

The results of this study demonstrate that 20 species of Eumeninae wasps nesting in the reed trap-nests represent four genera: *Ancistrocerus*, *Discoelius*, *Euodynerus* and *Symmorphus*. This list includes both species of *Discoelius* and all species of *Symmorphus* present in the region (except *S. fuscipes* (Herrich-Schaeffer, 1838) that is present in some neighbouring countries but not yet found in Lithuania). Among *Ancistrocerus*, only *A. scoticus* is not yet registered as a trap-nest inhabitant.

Although the trap-nests were exposed in a variety of landscapes and habitats, they were standardised, thus we may consider some conclusions about the relative abundance of trap-nesting species. *Symmorphus allobrogus* is the most common eumenine wasp in the trap-nests exposed on buildings (more than 3200 nests with 9500 brood cells). Interestingly, it was never found in the trap-nests exposed on tree trunks. Among the inhabitants of the latter type of trap-nests, ubiquitous species are *Ancistrocerus trifasciatus* (770 nests, 3000 cells) and *S. bifasciatus* (730 nests, 2170 cells). They were found also in the trap-nests on buildings. *S. murarius* (460 nests, 1280 cells), *A. antilope* (470 nests, 1040 cells) and *Discoelius zonalis* (250 nests, 900 cells) are the other common species. They all were found in the trap-nests on both buildings and trees.

Symmorphus angustatus, *S. connexus*, *Ancistrocerus claripennis*, *A. ichneumonideus*, *A. parietum* and *Euodynerus quadrifasciatus* are the scarcest trap-nesting Eumeninae species of the Lithuanian fauna (less than 20 nests, less than 50 cells found). The latter two wasps are not very rare when collected e.g., on flowers. It is possible that their typical nesting cavities are of other kind than those provided by the reed trap-nests.

Some of the wasp species found in the trap-nests are protected in Scandinavia and Germany (Artdatabanken...; Artsdatabanken...; Hirneisen, 2003): *Ancistrocerus gazella*

(Norway: cat. RE), *A. ichneumonideus* (Norway: cat. RE; Germany: cat 3), *Discoelius dufourii* (Germany: cat 3), *D. zonalis* (Norway: cat. VU; Germany: cat 3), *Euodynerus notatus* (Norway: cat. DD; Germany: cat G), *Symmorphus angustatus* (Sweden: cat. DD; Norway: cat. EN; Germany: cat G), *S. connexus* (Norway: cat. NT), *S. murarius* (Sweden: cat. NT; Norway: cat. RE; Germany: cat 2).

Considering the extreme relative rarity in Lithuania and the protection status in other countries, the eumenine wasp species *Ancistrocerus ichneumonideus*, *Symmorphus angustatus* and *S. connexus* should be included into the Red List of Lithuania, category 3 (R), and their abundance trends must be monitored.

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References

- Artdatabanken. Rödlistade arter i Sverige. Available from <http://www.artdata.slu.se/rodlista/>. Accessed 10 10 2009.
- Artdatabanken. The 2006 Norwegian Red List. Available from <http://www.biodiversity.no/Article.aspx?m=39&amid=1864>. Accessed 10 10 2009.
- Budrienė A. 2003. Prey of *Symmorphus* wasps (Hymenoptera: Eumeninae) in Lithuania. *Acta Zoologica Lituanica* 13 (3): 306–310.
- Budrienė A., Budrys E., Nevronytė Ž. 2004. Solitary Hymenoptera Aculeata inhabiting trap-nests in Lithuania: nesting cavity choice and niche overlap. *Latvijas Entomologs* 41: 19–31.
- Budrys E. 1997. *Vapsvos*. In M. Lapelė (ed.). Lietuvos valstybinių rezervatų flora ir fauna. AAM, Vilnius, 146–147.
- Budrys E., Andreu Ureta J., Briliūtė A., Cetkovic A., Heinrich S., Kroel-Dulay G., Moora M., Potts S.G., Rortais A., Sjödin E., Szentgyörgyi H., Torres I., Vighi M., Westphal C., Budrienė A. *Cavity-nesting Hymenoptera across Europe: a study in ALARM project field site network sites using small trap-nests on trees and buildings*. In J. Settele et al. (eds.) *Atlas of Biodiversity Risk*. Sofia & Moscow: Pensoft (in press).
- Budrys E., Budrienė A., Pakalniškis S. 2004. Population size assessment using mark-release-recapture of 12 species of Orthoptera, Diptera and Hymenoptera: a comparison of methods. *Latvijas Entomologs* 41: 32–43.
- Gusenleitner J. 2004. Fauna Europaea: Vespidae. In Noyes J. (ed.) *Fauna Europaea: Hymenoptera*. Fauna Europaea version 1.3. Available from <http://www.faunaeur.org>. Accessed 05 10 2009.
- Hirneisen N. 2003. Rote Listen online. Science4you-Home v.1.9. Available from

<http://www.science4you.org/platform/redlists/index.do>. Accessed 10 10 2009.

Strand E. 1918. Über W. Horns litauische entomologische Kriegsausbeute 1916 (besonders Trichoptera, Lepidoptera und Hymenoptera). *Entomologische Mitteilungen* 7 (1/3): 30–32.

Wengris J. 1962. Materialy do fauny blonkoskrzydlych (Hymenoptera) najblizszych okolic Wilna. *Studia societatis scientiarum Torunensis. Sectio E (Zoologia)* 6 (10): 1–19.

Eumeninae pošeimio klosčiavapsvių (Hymenoptera: Vespidae), surinktų Lietuvoje lizdaviečių-gaudyklių pagalba, sąrašas

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Santrauka

Pateikti duomenys apie 20 klosčiavapsvių rūšių, surinktų Lietuvoje iš nendrių stiebų padarytų lizdaviečių-gaudyklių. Viena iš šių rūšių (*Symmorphus connexus*) pirmą kartą aptikta Lietuvoje. Gausiausios lizdavietyse-gaudyklėse apsigyvenančios rūšys yra *Symmorphus allobrogus*, *S. bifasciatus*, *S. murarius*, *Ancistrocerus trifasciatus*, *A. antilope* ir *Discoelius zonalis*. Rečiausiai lizdavietyse gaudyklėse aptinkamos *S. angustatus*, *S. connexus*, *A. claripennis*, *A. ichneumonideus*, *A. parietum* ir *Euodynerus quadrifasciatus*. Pastarosios dvi rūšys nėra retai aptinkamos, jas gaudant kitais metodais, tačiau jos, matyt, lizdus daro kitokiose erdmėse, negu esančios lizdavietyse-gaudyklėse. Kiekvienai aptariamai rūšiai pateiktos lizdaviečių-gaudyklių eksponavimo vietos, metai, surinktų lizdų ir juose esančių akelių, taip pat išsiritusių patelių ir patinų skaičiai. Trys rūšys (*Ancistrocerus ichneumonideus*, *Symmorphus angustatus* ir *S. connexus*) yra labai retos Lietuvoje ir saugomos kitose Šiaurės Europos šalyse, todėl siūlomos įtraukti į Lietuvos raudonąją knygą, 3 (R) kategoriją.

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