

**European *Atrichopogon* biting midges of the subgenus *Meloehalea*  
(Diptera: Ceratopogonidae)**

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**ABSTRACT.** The following six species of the subgenus *Meloehalea* WIRTH of *Atrichopogon* KIEFFER are recognised in Europe: *A. atriscapulus* KIEFFER, 1918; *A. orbicularis* KIEFFER, 1919; *A. oedemerarum* STORÅ, 1939; *A. lucorum* (MEIGEN, 1818); *A. meloesugans* KIEFFER, 1922; *A. winnertzi* GOETGHEBUER, 1922. They are diagnosed, interpreted, illustrated and placed in the *atriscapulus* or *lucorum* species groups. *A. meloesugans* is restored from synonymy. *Forcipomyia setosipennis* KIEFFER, 1911 is considered as a new junior synonym of *A. lucorum* and *A. torgnyensis* GOETGHEBUER, 1949 as a new synonym of *A. winnertzi*. **New synonymy.** Keys for identification of females and males of the subgenus are also provided. *A. atriscapulus* is reported for the first time in Europe.

**KEY WORDS:** Diptera, Ceratopogonidae, *Atrichopogon*, *Meloehalea*, Europe, key, synonymy.

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INTRODUCTION

*Meloehalea* as a distinct subgenus within *Atrichopogon* was proposed by WIRTH (1956) for those species parasiting on beetles. Females of the subgenus feed on haemolymph of beetles from the families Meloidae and Oedemeridae (HAVEKKA 1979, WIRTH 1980, FRENZEL et al. 1991, SZADZIEWSKI et al. 1995). Our field experiments with live and dried *Meloe violaceus* beetles carried out in Poland yielded, in addition to both sexes of the *Meloehalea*

biting midges (*A. lucorum*, *A. meloesugans*, *A. oedemerarum*, *A. orbicularis*, *A. winnertzi*), also *Atrichopogon brunnipes* (MEIGEN) (subg. *Atrichopogon* s.str.), *A. muelleri* MÜLLER (subg. *Psammopogon*), *Anthomyia pluvialis* (LINNAEUS) (Anthomyiidae) and *Notoxus monoceros* (LINNAEUS) (Anthicidae). We still do not know why the *Anthomyia* flies and antlike flower beetles are attracted to meloids. The phoretic hypothesis proposed by THÉODORIDÈS & DEWAILLY (1951) to explain why the Anthicidae visit meloids is not ecologically plausible.

Biting midges of the subgenus *Atrichopogon* (*Meloehalea*) are common in moist terrestrial habitats in Europe, but they are still poorly known and difficult to identify. This paper reviews six European species of the subgenus and provides revised diagnoses and keys to their identification. Other three specific names included in the subgenus *Meloehalea* by REMM (1988): *A. atribarbus* KIEFFER, 1922 from Germany, *serrulatus* KIEFFER, 1924 from France and *cretensis* KIEFFER, 1919 from Greece are nomina dubia. The paper is a part in a series on taxonomy of the European *Atrichopogon* (SZADZIEWSKI et al. 1995, SZADZIEWSKI et al. 1996, SZADZIEWSKI 2001a,b).

## MATERIALS

The present study is based on specimens, mounted on microscope slides, from the following collections: Department of Invertebrate Zoology, University of Gdańsk; Institut Royal des Sciences Naturelles de Belgique, Bruxelles (RScNB); P. HAVELKA (Karlsruhe) and A. TÓTHOVÁ (Brno). The terminology used in the descriptions follows that of SZADZIEWSKI (1986).

## SYSTEMATICS

### **Genus *Atrichopogon* KIEFFER, 1906**

### **Subgenus *Meloehalea* WIRTH, 1956**

Type species *Atrichopogon meloesugans* KIEFFER (misidentified, =*Atrichopogon winnertzi* GOETGHEBUER, 1922), by original designation.

References: WIRTH 1956, 1980, SZADZIEWSKI et al. 1995.

### **Diagnosis**

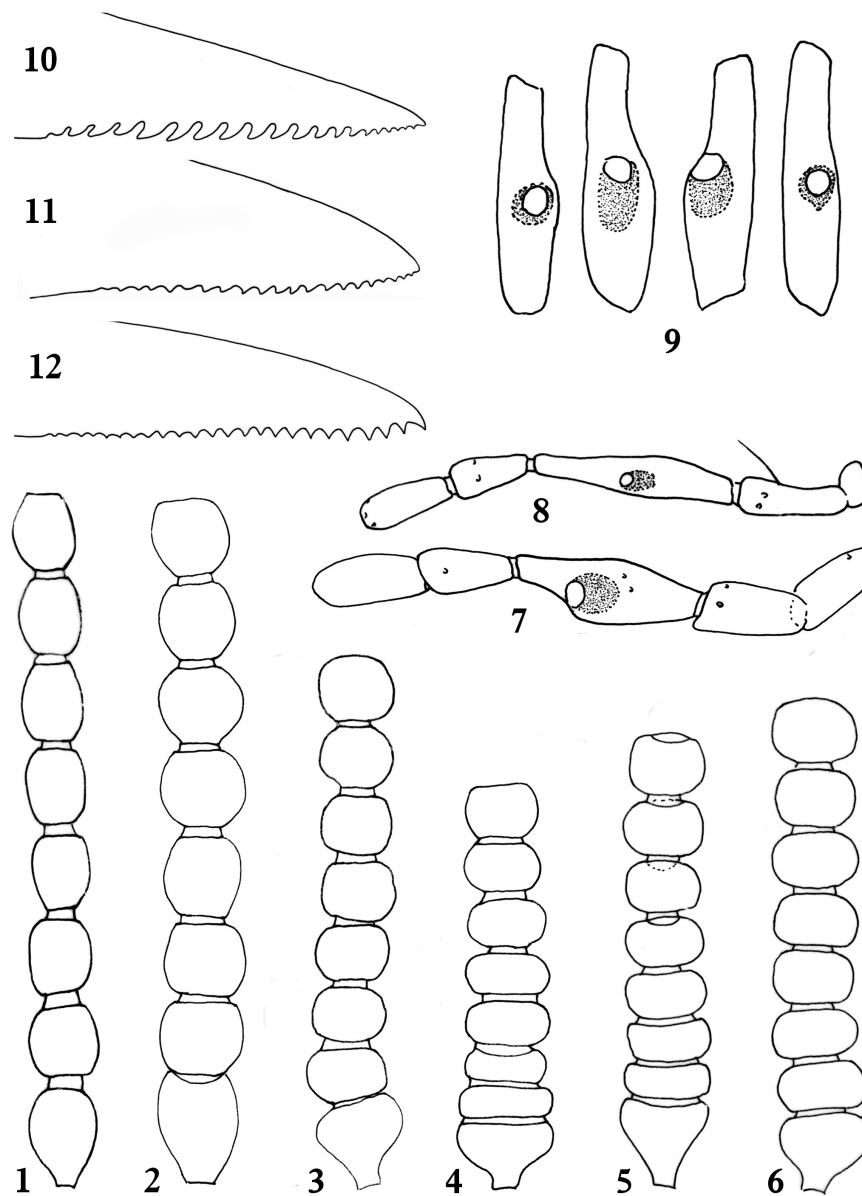
Adults of the subgenus can be distinguished by the following combination of characters: sensory pit located at midlength of third palpal segment, eyes bare, wing membrane with macrotrichia in both sexes, two seminal capsules. Female laciniae smooth (*A. orbicularis*) or with 6-15 teeth (other species).

The species examined form two distinct groups differing in morphology of proboscis and are named here the *atriscapulus* and *lucorum* species groups (see below key and diagnoses).

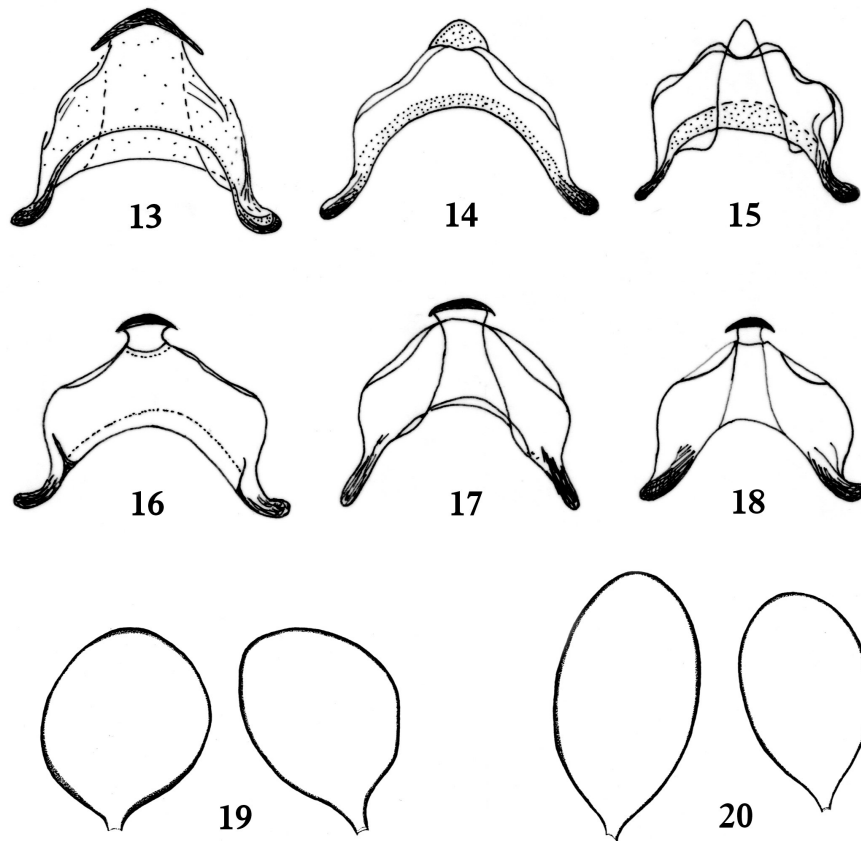
### Keys to determination

#### Females

1. Proboscis straight. Proximal flagellomeres spherical (moniliform) to subcylindrical (Figs 1-3). Teeth of mandible largest at apex, their size gradually increasing distad in series (Fig. 12). Lacinia smooth or with weak indistinct teeth (*atriscapulus* group) ..... **2**
- Proboscis upcurved. Proximal flagellomeres disciform (transverse) to spherical (Figs 4-6). Teeth of mandibles largest at midportion (Figs. 10, 11). Lacinia armed with distinct teeth (*lucorum* group) ..... **4**
2. Seminal capsules unequal (Fig. 20). Paratergite usually with 2 setae. Flagellomeres 5-8 subcylindrical (Fig. 1) ..... *A. atriscapulus* KIEFFER, 1918
- Seminal capsules equal (Fig. 19). Paratergite usually with 1 seta. Flagellomeres 5-8 spherical (Figs 2, 3) ..... **3**
3. Large species, wing length 1.8-2.1 mm. Lacinia without teeth. Wing membrane below basal radial cell with numerous macrotrichia in 3-4 rows ..... *A. orbicularis* KIEFFER, 1919
- Small species, wing length 1.1-1.5 mm. Lacinia with pale indistinct teeth. Wing membrane below basal radial cell with few macrotrichia in 1-2 rows ..... *A. oedemerarum* STORÅ, 1939
4. Teeth of mandible large, number 19-24 (Fig. 10). Legs usually dark brown to black. Proximal flagellomeres disciform (appressed or flattened) (Fig. 5) ..... *A. lucorum* (MEIGEN, 1818)
- Teeth of mandibles small, number 26-36 (Fig. 11). Legs black, dark brown or yellowish. Proximal flagellomeres moniliform or disciform (Figs 4, 6) ..... **5**
5. Legs yellowish. Proximal flagellomeres disciform (Fig. 4), AR 2.4-2.9. Palpus slender (Fig. 8), PR(III) 4.3-5.0 ..... *A. winnertzi* GOETGHEBUER, 1922
- Legs dark brown or black. Proximal flagellomeres spherical to slightly disciform (Fig. 6), AR 1.5-2.1. Palpus stout (Fig. 9), PR(III) 3.1-4.0. In May and June on *Meloe* ..... *A. meloesugans* KIEFFER, 1922



**Figs 1-12.** Female of *Atrichopogon* (*Meloehalea*). Proximal flagellomeres (1-6): 1 - *A. atriscapulus*, 2 - *A. orbicularis*, 3 - *A. oedemerarum*, 4 - *A. winnertzi*, 5 - *A. lucorum*, 6 - *A. meloesugans*. Palpus (7-8): 7 - *A. orbicularis*, 8 - *A. winnertzi*. Third palpal segment: 9 - *A. meloesugans*. Teeth of mandible (10-12): 10 - *A. lucorum*, 11 - *A. meloesugans*, 12 - *A. atriscapulus*.



**Figs 13-20.** Aedeagus and seminal capsules of *Atrichopogon* (Melochelela): 13 - *A. orbicularis*, 14 - *A. atriscapulus*, 15 - *A. oedemerarum*, 16 - *A. lucorum*, 17 - *A. meloesugans*, 18 - *A. winnertzi*, 19 - *A. orbicularis*, 20 - *A. atriscapulus*.

**Males**

- 1. Apicomedian process of aedeagus rounded or conical (Figs 14, 15). Proboscis straight ..... 2
- Apicomedian process of aedeagus with expanded apex (Figs 13, 16-18). Proboscis straight or upcurved ..... 3

2. Paratergite with 2 setae. Apicomedian process of aedeagus evenly rounded (Fig. 14) ..... *A. atriscapulus* KIEFFER, 1918
- Paratergite with 1 seta. Apicomedian process of aedeagus conical, pointed (Fig. 15) ..... *A. oedemerarum* STORÅ, 1939
3. Apicomedian process of aedeagus with broad apex (Fig. 13). Proboscis straight. Wing vein M1 with setae from base to apex ..... *A. orbicularis* KIEFFER, 1919
- Apicomedian process of aedeagus with slender cap (Figs 16-18). Proboscis upcurved. Wing vein M1 with setae on distal half ..... 4
4. Third palpal segment slender, PR(III) 4.4-4.8. Legs usually pale ..... *A. winnertzi* GOETGHEBUER, 1922
- Third palpal segment stout, PR(III) 3.1-4.5. Legs usually dark..... 5
5. FR(11/10) 1.5-1.7; PR(III) 3.1-3.5 ..... *A. lucorum* (MEIGEN, 1818)
- FR(11/10) 1.3-1.5; PR(III) 3.5-4.5 ..... *A. meloesugans* KIEFFER, 1922

### Review of species

#### Species group *atriscapulus*

The group includes species with straight proboscis and females with mandible teeth growing distad in series. The species group includes: *A. atriscapulus*, *A. orbicularis* and *A. oedemerarum*.

#### *Atrichopogon atriscapulus* KIEFFER, 1918

Figs 1, 12, 14, 20, Tables 1, 2

*Atrichopogon atriscapula* KIEFFER, 1918: 45 (Tunisia, female).

*Atrichopogon atriscapula*: REMM 1988: 91 (in subg. *Psammopogon* REMM).

*Atrichopogon atriscapulus*: BORKENT & WIRTH 1997: 18 (in catalogue, Tunisia).

#### Diagnosis

Legs pale brown, scutellum paler than scutum. Paratergite usually with 2 setae. Proximal female flagellomeres slightly subcylindrical (Fig. 1), AR 1.6-1.8. Mandible (Fig. 12) and lacinia armed with teeth (Table 1). Seminal capsules unequal (Fig. 20), 104 and 80 µm long. Aedeagus with weakly sclerotised and evenly rounded apical prolongation (Fig. 14).

#### Material examined

**Algeria.** Kabylie, Tazmalt 14 May 1981, 2 females, R. SZADZIEWSKI. Akbou, 18 May 1981, 3 males, R. SZADZIEWSKI. **Lithuania.** Varena d. Purgeiai, 26 August 2001, 1 female, R. SPRANG. **Poland.** Starogard Gdański, 19 July 2004, 1 female, M. GWIZDALSKA. Wyskok n. Kętrzyn, light trap, 8-14 August 1993, 2 females, R. SZADZIEWSKI.

**Table 1.** Numerical characters of female *Atrichopogon* (*Meloehalea*).

	<i>A. atriscapulus</i>	<i>A. orbicularis</i>	<i>A. oedemerarum</i>	<i>A. wimmertzi</i>	<i>A. lucorum</i>	<i>A. meloesugans</i>
Wing length [mm]	1.45-1.68	1.76-2.10	1.05-1.51	1.32-1.61	1.25-1.60	1.38-1.69
Costal ratio CR	0.70-0.71	0.74-0.77	0.67-0.71	0.69-0.72	0.70-0.72	0.68-0.72
Antennal ratio AR	1.6-1.8	2.3-2.4	1.8-2.5	2.4-2.9	2.3-2.5	1.5-2.1
Palpal ratio PR(III)	3.4-3.7	3.0-3.4	2.6-3.0	4.3-5.0	3.0-3.2	3.1-4.0
Teeth mandible	25-31	28-37	21-29	31-36	19-24	26-31
Teeth of lacinia	9-11	0	6-10	11-15	11-13	10-11
Tarsal ratio TR(III)	2.1-2.2	2.2-2.3	2.3-2.4	2.2-2.5	2.1-2.3	2.2-2.6
Setae on paratergite	2(1)	1(2)	1	1	1	1
Colour of legs	pale	pale	pale	pale	dark	dark
Seminal capsules	unequal	equal	equal	equal	equal	equal

**Table 2.** Numerical characters of male *Atrichopogon* (*Meloehalea*).

	<i>A. atriscapulus</i>	<i>A. orbicularis</i>	<i>A. oedemerarum</i>	<i>A. wimmertzi</i>	<i>A. lucorum</i>	<i>A. meloesugans</i>
Wing length [mm]	1.58-1.65	1.54-1.93	1.05-1.41	1.40-1.68	1.36-1.40	1.37-1.51
Costal ratio CR	0.65-0.66	0.69-0.70	0.64-0.65	0.65-0.68	0.64-0.65	0.63-0.66
Antennal ratio AR	1.1-1.1	1.0-1.1	0.9-1.1	1.0-1.1	1.1-1.2	0.9-1.2
Flagellar ratio PR(III)	1.7	1.6-1.8	1.4-1.7	1.5-1.7	1.5-1.7	1.3-1.5
Palpal ratio PR(III)	4.0	3.7-3.8	2.9-3.7	4.4-4.8	3.1-3.5	3.5-4.5
Tarsal ratio TR(III)	2.2	2.1-2.3	2.1-2.4	2.2-2.4	2.1-2.2	2.1-2.5
Setae on paratergite	2	1	1	1	1	1

### Distribution

Tunisia, Algeria, Lithuania, Poland. The species is rare, collected with an entomological net only. This is the first European record of the species.

### Discussion

Types of *A. atriscapulus* (2 females) housed in the Budapest Museum of Natural History were lost in the fire in 1956. The specimens from Algeria, collected near the type locality in Tunisia, now examined, fit well the original description of the species by KIEFFER (1918) which suggests that our interpretation of the species is geographically and morphologically reasonable.

### *Atrichopogon oedemerarum* STORÅ, 1939

Figs 3, 15, Tables 1, 2

*Atrichopogon oedemerarum* STORÅ, 1939: 16 (Finland, female); WIRTH 1980: 137 (male, female, England, Estonia, Germany, North America); SZADZIEWSKI et al. 1995: 187 (larva, pupa, female, male, Poland).

### Diagnosis

Small species (Tables 1, 2). Proximal female flagellomeres moniliform (Fig. 3); mandible armed with 21-29 small teeth increasing distad in size; lacinia with indistinct pale small teeth difficult to discern. Aedeagus characteristic in having cone-like apicolateral prolongation (Fig. 15).

### Material examined

**Lithuania.** Plateliai, 14-21 August 2000, 1 female. **NW Poland.** Gdańsk, Dolina Radości, 5 August 1980, 2 females, R. SZADZIEWSKI; net, 24 May 2005, 1 male, P. DOMINIAK. Gdańsk-Oliwa, at light, 30 July 1978, R. SZADZIEWSKI. Kierzkowo n. Barcin, lake Ostrowieckie, 25 July 1993, J. KRZYWIŃSKI. Krzeszna n. Kartuzy, 14 July 2003, 1 male, M. GWIZDALSKA. Kurze Grzędy Reserve, n. Mirachowo, Lake Wielkie, o. 119, 120, dried *Meloe violaceus*, 10 June 2005, 2 males, P. DOMINIAK; 6 September 2005, 1 male, 2 females, P. DOMINIAK; o. 102, dried *Meloe* sp., 18 May 2005, 2 males, P. DOMINIAK; o. 189, 209, net, 9 June 2005, 1 male, P. DOMINIAK. Łączyno n. Kartuzy, dried *Meloe* sp., 8-30 July 2003, 1 male, 3 females, E. SONTAG. Miastko, Apiales, 27-28 July 1990, 2 males, A. WARZOCHA; 23 June - 17 August 1991, 3 males, 4 females, A. WARZOCHA. Raciąż n. Tuchola, under bark of *Pinus silvestris*, 5 October 1991, ex cult., 5 males, 3 females, W. GIŁKA. Staniszewskie Błota Reserve, n. Mirachowo, o. 227, 209, dried *Meloe* sp., 8 June 2005, 1 female, P. DOMINIAK. Wysocki Młyn n. Tuchola, under stump of *Pinus silvestris*, 16 October 1991, ex cult., 3 males, 5 females, W. GIŁKA. Żarnowiec, 11 October 1988, 1 female, R. SZADZIEWSKI. Żukowo n. Gdańsk, 9 June 2005, 1 female, E. SONTAG.

**NE Poland.** Białowieża Primeval Forest, o. 212, 21 August 1985, 1 male, 7 females, J.M. GUTOWSKI; o. 538 Bf, 27 August 1987, 1 female; o. 668c, 14 August 1987, 1 male, R. SZADZIEWSKI; Białowieża National Park, 5 June 1981, 2 males, 1 female, R. SZADZIEWSKI. Czarny Las n. Sztabin, 22 June 1985, 1 male, J. KRZYWIŃSKI;



13 August 1985, 1 female, J. KRZYWIŃSKI. Giby n. Augustów, 3 June 1981, 1 male, 1 female, R. SZADZIEWSKI. Goldap, 2 June 1981, 1 female, R. SZADZIEWSKI. Iława, lake Jeziorak, 10 July 1981, 1 male, 1 female, R. SZADZIEWSKI. Kadyny n. Elbląg, 10 July 1993, 2 males, J. KRZYWIŃSKI. Kunicha n. Sztabin, *Conium maculatum*, 7 July 1985, 1 male, J. KRZYWIŃSKI. Łęknica n. Kętrzyn, near the forest, 16 July 1981, 1 male, R. SZADZIEWSKI. Mazurki n. Augustów, marsh, net, 28 June 2005, 1 female, P. DOMINIAK. Olsztyn, Apiaceae, 13 July 1990, 1 female, K. ZADROGA; 18 August 1990, 1 male, 1 female, K. ZADROGA. Pagórki n. Elbląg, 10 July 1993, 1 male, J. KRZYWIŃSKI. Puszcza Biała, o. 38 b, 21 May 1986, 1 female, IZ PAN. Silec n. Kętrzyn, net, 3-14 August 1979, 1 male, R. SZADZIEWSKI; Apiales, 16 August 1980, 1 male, 1 female, R. SZADZIEWSKI; 5 July 1981, 2 males, 1 female, R. SZADZIEWSKI. Solanka, near lake, 15 August 1980, 1 female, R. SZADZIEWSKI. Szczebra n. Augustów, sticky trap, 23 June 1990, 2 females, D. ANUSZKIEWICZ. Sztabin n. Elk, 24 August 1984, 1 male, J. KRZYWIŃSKI. Wigry National Park: n. Słupie, near Czarna Hańcza river, dried *Meloe* sp., 1 female, P. DOMINIAK; Suchar IV, net, 18 August 2005, 1 female, P. DOMINIAK; dried *Meloe* sp., 26 May 2006, 1 male, P. DOMINIAK. Wysok n. Kętrzyn, light trap, September 1991, 1 male, R. SZADZIEWSKI; 25-26 July 1993, 2 males, R. SZADZIEWSKI; 8-14 August 1993, 9 males, 14 females, R. SZADZIEWSKI; 27 July 1996, 1 female, R. SZADZIEWSKI; 20 August 1997, 1 female, R. SZADZIEWSKI; dried *Meloe violaceus*, 10 May 1998, 2 females, R. SZADZIEWSKI; netting near the lake, 5 June 1999, 1 male, W. GIŁKA. **SW Poland.** Babimost n. Zielona Góra, Moericke trap, 21 June 1987, 1 female, IZ PAN; 18 September 1987, 1 female, IZ PAN. Gołysz n. Skoczów, 15 August 1983, 1 male, W. KRZEMIŃSKI. Karkonosze Mts.: near „domek Myśliwski”, near Łomnica river, net, 22 July 2006, 1 female, P. DOMINIAK; Hala Szrenicka, 1191 m asl, dried *Meloe* sp., 20 July 2006, 2 females, P. DOMINIAK; Karpacz, near Dziki Potok, dried *Meloe violaceus*, 8 July 2004, 2 males, 6 females, M. GWIZDALSKA; Karpacz - Wilcza Poręba, 11 July 2004, 2 females, M. GWIZDALSKA; Mały Staw, net, 11 July 2004, 9 males, 6 females, M. GWIZDALSKA; Sosnówka Dolna, netting in the forest, 3 August 1982, 1 male, R. SZADZIEWSKI; at light, 5 August 1982, 1 male, R. SZADZIEWSKI; Zielony Klin peat-bog, 1143 m asl, net, 20 July 2006, 1 female, P. DOMINIAK. Stołowe Mts.: Batorówek, 644 m asl, net, 26 July 2006, 1 female, P. DOMINIAK; Karlów, 779 m asl, net, 26 July 2006, 2 females, P. DOMINIAK; near Pośny waterfall, 646 m asl, net, 26 July 2006, 1 female, P. DOMINIAK; 641 m asl, 26 July 2006, 1 male, P. DOMINIAK; Pasterka, 717 m asl, net, 25 July 2006, 1 female, P. DOMINIAK. **SE Poland.** Bieszczady Mts.: Moczarnie Reserve, net, 11 July 2005, 1 male, P. DOMINIAK; Tarnawa Reserve, peat-bog, dried *Meloe* sp., 13 July 2005, 3 females, P. DOMINIAK; Ustrzyki Górne, net, 23-30 July 1980, 9 females, R. SZADZIEWSKI; Apiales, net, 12 July 2005, 1 male, P. DOMINIAK; Wołosate Reserve, n. Wołosate, peat-bog, net, 10 August 2006, 1 female, P. DOMINIAK. Dolina Będkowska n. Kraków, 9 July 1983, 1 female, W. KRZEMIŃSKI. Kotlina Orawsko-Nowotarska: Czarny Dunajec, meadow, net, 26 June 2006, 1 female, P. DOMINIAK; Czarny Dunajec-Baligówka, at light, 13 August 2006, 1 male, A. KLASA; Baligówka peat-bog, dried *Meloe* sp., 26-28 June 2006, 3 females, P. DOMINIAK; Las Hamrzyska, net, 29 July 2006, 1 female, P. DOMINIAK; Puścizna Wielka peat-bog, net, 27 June 2006, 1 female, P. DOMINIAK. Kraków, on the window, 24 July 1980, 1 male. Ojców National Park, Ojców, at light, 24 July 1988, 2 females, R. SZADZIEWSKI. Pieniny Mts.: Czertezik, 22 June 1988, 3 males, 1 female, R. SZADZIEWSKI; Przełom Dunajca, 23 June 2003, 1 male, M. GWIZDALSKA; Szafranówka, 27 June 2003, 1 female, M. GWIZDALSKA; Wąwóz Homole, 27 June 2003, 1 male, M. GWIZDALSKA; Wyrobek, 22 June 1988, 1 female, R. SZADZIEWSKI. Rogów n. Koluszki, dried *Meloe* sp., 5 September 2003, 1 female, E. SONTAG. Roztocze: Guciów, near Wieprz river, net, 5 July 2006, 1 female, P. DOMINIAK; Zwierzyniec, *Meloe* sp., 4 July 2006, 1 male, 3 females, P. DOMINIAK. Tatra Mts.: Dolina Małej Łąki, Apiaceae, 21 July 1993, 1 female, J. KRZYWIŃSKI; net, 11 July 2003, 1 male, M. GWIZDALSKA; Miętusi Potok n. Krowi Żleb, 21 July 1993, 1 male,

J. KRZYWIŃSKI; Miętusi Przysłop, 21 July 1993, 1 female, J. KRZYWIŃSKI; Wąwóz Kraków, 21 July 1993, 1 male, J. KRZYWIŃSKI; Zakopane Jaszczurówka, 8 August 1981, 1 female, R. SZADZIEWSKI; Zakopane, Pod Regłami, dried *Meloe violaceus*, 5 August 2004, 9 females, M. GWIZDALSKA; near Giewont, dried *Meloe violaceus*, 5 August 2004, 1 female, M. GWIZDALSKA. Włodzimierzów n. Piotrków Trybunalski, dried *Meloe* sp., 19 May 2005, 2 females, P. DOMINIAK. Wojtkowa n. Przemyśl, netting, 3 June 1993, 1 female, J. KRZYWIŃSKI.

### Distribution, biology

Holarctic. Common. Females feed on *Meloe*. Larvae live under rotting bark and wood of *Pinus silvestris* (SZADZIEWSKI et al. 1995).

### *Atrichopogon orbicularis* KIEFFER, 1919

Figs 2, 7, 13, 19, Tables 1, 2

*Atrichopogon orbicularis* KIEFFER, 1919: 28 (Romania, female).

*Atrichopogon (Meloehalea) orbicularis*: REMM 1988: 86 (distribution, Czech Republic, Romania, Germany, France, Estonia, Ukraine, Russia: European part., Far East, Georgia).

*Atrichopogon setosipennis* auct.: HAVELKA & CASPERS 1981: 9 (male, female, misidentified and redescribed from Germany); SZADZIEWSKI 1991: 106 (records from Poland).

### Diagnosis

Large species with female and male wings 1.8-2.1 and 1.5-1.9 mm long, respectively. Paratergite with 1-2 setae; scutellum often paler than rest of thorax. Proximal female flagellomeres moniliform (Fig. 2); mandible armed with 28-37 small teeth increasing distad in size; third palpal segment relatively stout (Fig. 7); seminal capsules equal in size (Fig. 19). Aedeagus with unique broad roof-like apicomedian process (Fig. 13); wing vein M1 with setae from base to apex.

### Material examined

**Czech Republic.** Moravia, Lednice, 15 May 1984, 1 female; 29 June 1985, 1 female, J. VANHARA. **France.** Alps n. Geneva, Sixt Fer á Cheval, 1000 m asl, 11 June 1994, 1 male, R. SZADZIEWSKI. **Germany.** 21 May 1975, C88, Kochelsee, 1 female, P. HAVELKA. **Poland.** Białowieża Primeval Forest: o. 599 b, 17 June 1991, IZ PAN; Białowieża National Park, 5 June 1981, R. SZADZIEWSKI. Kadyny n. Elbląg, 10 July 1993, 1 male, J. KRZYWIŃSKI. Bieszczady Mts.: Brzegi Górne, Apiales, net, 11 July 2005, 1 female, P. DOMINIAK; Moczarnie n. Wetlina, net, 22 June 2004, 4 males, 2 females, M. GWIZDALSKA; Moczarnie Reserve, net, 11 July 2005, 1 female, P. DOMINIAK; Ustrzyki Górne, 23-30 July 1980, 4 females, R. SZADZIEWSKI.

### Distribution

The species probably represents a boreal faunal element in the Palaearctic Region. Reported from Europe and the Russian Far East. Recorded in north Poland and mountains in the south.

### Discussion

Types of *A. orbicularis* housed in the Budapest Museum of Natural History were lost in the fire in 1956. The species was treated as a junior synonym of *A. setosipennis* s. auct. by REMM (1981). Subsequently REMM (1988) recognised it again as a valid species. This interpretation is being followed here.

### Species group *lucorum*

#### Diagnosis

Proboscis upcurved. Female mandible with teeth largest at midportion (see the key). The group includes three species: *A. lucorum*, *A. meloesugans* and *A. winnertzi* diagnosed below.

#### *Atrichopogon lucorum* (MEIGEN, 1818)

Figs 5, 10, 16, Tables 1, 2

*Ceratopogon lucorum* MEIGEN, 1818: 72 (Europe, male, female).

*Ceratopogon sylvaticus* WINNERTZ, 1852 (Germany, male).

*Forcipomyia setosipennis* KIEFFER, 1911: 3 (Germany, female), **syn. n.**

*Atrichopogon winnertzi* var. *bidentatus* KIEFFER, 1924: 399 (France, male).

*Atrichopogon epicautae*: TÓTHOVÁ et al. 2003: 34 (misidentified, Czech Republic).

#### Diagnosis

Proboscis upcurved. Paratergite with 1 seta. Scutellum and legs usually dark brown or black. Proximal female flagellomeres disciform (Fig. 5); mandible with 19-24 large teeth (Fig. 10). Third palpal segment relatively stout (Tables 1, 2). Males of *A. lucorum* are very close to those of *A. meloesugans* (Figs 16, 17) with only small differences noted in FR and PR ratios (see key). Male FR(11/10) 1.5-1.7; PR(III) 3.1-3.5.

#### Material examined

**Holotype** female of *Forcipomyia setosipennis* KIEFFER labelled as follows: [original name hand written by KIEFFER - *Ceratopogon setosipennis* K.], Type de KIEFFER, R.I.Sc.N.B. I.G.26.900, Bruxelles.

#### Other materials

**Bulgaria.** Pančarevo, 8 June 1984, 1 female, W. KRZEMIŃSKI. Pirin Mts: Poping Lake, 24 June 1982, 5 males, 1 female, W. KRZEMIŃSKI; Sandanski, 12 June 1984, 1 male, 2 females, W. KRZEMIŃSKI. **France.** Alps near Geneva, Sixt Fer á Cheval, 1000 m asl, 11 June 2004, 1 male, 5 females, R. SZADZIEWSKI. **Norway.** Sigdal, Buskerud County, pyrethroid fog, *Pinus*, 5 June 1998 - 8 July 1999, 4 males, 4 females, SKARVEIT & THUNES.

**Sweden.** Johanniosfors, 18 July 2003, 2 males, 3 females, W. GIŁKA. **Switzerland.** Geneve, Chene Bougeries, garden, net, 7 June 1994, 4 males, R. SZADZIEWSKI. **North Korea.** Miohjang-san, 22 June 1981, 1 male, W. KRZEMIŃSKI.

**NW Poland.** Babi Dół n. Gdańsk, 15 June 1985, 1 male, J. KRZYWIŃSKI; 13 May 1989, 2 females, 1 male, R. SZADZIEWSKI. Borucino, 29 June 2001, 1 male, P. DOMINIAK. Brzyno, at lake, 3 females, R. SZADZIEWSKI. Chałupy, Hel Peninsula, 10 July 1979, 2 females, R. SZADZIEWSKI. Gdańsk: edge of meadow and forest, 5 June 1980, 2 females, R. SZADZIEWSKI; 18 June 1980, 5 females, R. SZADZIEWSKI; Gdańsk-Oliwa, forest, April 1979, 1 female, R. SZADZIEWSKI; 28 June 1980, 1 male, R. SZADZIEWSKI; Dolina Ewy, 10 June 2003, 2 males, 1 female, M. GWIZDALSKA; Dolina Radości, 24 May 2005, 4 females, P. DOMINIAK; 23 June 2005, 1 female, A. DAMPS. Gdynia-Redłowo, forest near beach, net, 26 May 2004, 1 female, P. DOMINIAK; 28 May 2004, 1 female, P. DOMINIAK. Gdynia-Wzgórze św. Maksymiliana, net, 15 May 2002, 1 female, E. KACZOROWSKA; 22 May 2002, 1 female, E. KACZOROWSKA; 30 May 2002, 2 females, E. KACZOROWSKA; 31 May 2002, 1 female, E. KACZOROWSKA. Godętowo n. Gdańsk, 22 June 1978, 1 female, R. SZADZIEWSKI. Kurze Grzędy Reserve n. Mirachowo, net, 18-27 May 2005, 11 females, P. DOMINIAK. Las Piwnicki n. Toruń, soil trap emerging, May 1973, 2 males, R. SZADZIEWSKI. Lisewo n. Tczew, near Vistula river, 28 May 1987, 1 male, 2 females, R. SZADZIEWSKI. Łęczyno n. Kartuzy, *Meloe violaceus*, 8 July 2003, 1 male, E. SONTAG. Miastko, 19 June - 19 July 1991, 18 males, 15 females, A. WARZOCHA. Mirachowo n. Kartuzy, Apiales, 9 June 2005, 3 males, 6 females, P. DOMINIAK. Puck, net, 21 June 2005, 1 female, E. KACZOROWSKA. Okole n. Starogard Gdański: 7 June 2003, 1 female, M. GWIZDALSKA; 15 June 2004, 2 males, M. GWIZDALSKA. Staniszewskie Błota Reserve, n. Mirachowo, o. 209-227, net, 8 June 2005, 2 females, P. DOMINIAK. Swaróżyn, 16 May 1998, 2 males, M. MARKIEWICZ. Uznam n. Świnoujście, 9 June 1975, 1 female, R. SZADZIEWSKI. Władysławowo, 4 July 2001, 1 female, E. KACZOROWSKA. Żukowo n. Gdańsk, 13 July 1994, 1 female, E. KACZOROWSKA. **NE Poland.** Augustów, sticky trap, 26 May 1989, 1 female, D. ANUSZKIEWICZ. Baranowo n. Rutka-Tartak, 3 June 1981, 1 female, R. SZADZIEWSKI. Białowieża National Park: 4, 5 June 1981, 1 male, 1 female, R. SZADZIEWSKI; Park Pałacowy, 4 June 1981, 3 females, R. SZADZIEWSKI. Dalny Las, peat-bog, 3 June 1981, R. SZADZIEWSKI. Gołdap, garden, 2 June 1981, 2 males, 1 female, R. SZADZIEWSKI. Gietrzwałd: 8-16 July 1991, 8 males, 8 females, K. PODBIELSKA. Iława, at lake Jeziorak, 10 July 1981, 2 females, R. SZADZIEWSKI. Jurówce n. Białystok, 9 June 1981, 1 female, R. SZADZIEWSKI. Kunicha n. Sztabin, 7 July 1985, 1 female, J. KRZYWIŃSKI. Młochów, Moericke trap, 30 April - 13 May 1991, 1 female, IZ PAN. Nadole, 2 June 1982, 4 females, R. SZADZIEWSKI. Puszcza Biała, 2 July 1986, 1 female, IZ PAN. Pagórki n. Elbląg, 10 July 1993, 10 females, J. KRZYWIŃSKI. Pogorzelce n. Białowieża, 4 June 1981, 10 males, R. SZADZIEWSKI. Przystań n. Węgorzewo, 12 July 1981, 1 female, R. SZADZIEWSKI. Ryn n. Giżycko, 2 June 1981, 1 female, R. SZADZIEWSKI. Silec n. Kętrzyn: 3-14 August 1979, 1 female, R. SZADZIEWSKI; 5-6 February 1980, 2 males, R. SZADZIEWSKI; 5 July 1981, 1 female, R. SZADZIEWSKI. Smolany n. Sejny, 3 June 1981, 1 female, R. SZADZIEWSKI. Szczebra n. Augustów, sticky trap, 23-28 June 1990, 1 male, 2 females, D. ANUSZKIEWICZ. Wigry National Park: o. 111, 112, 113, 24 May 2006, 2 females, P. DOMINIAK; Krzywe 1 July 2005, 1 male, P. DOMINIAK; Słupie, near Czarna Hańcza river, 24 May 2006, 1 female, P. DOMINIAK; Wiatrołūza, 2 July 2005, 1 female, P. DOMINIAK. Wyskok, dried *Meloe violaceus*, net, 14 May 1992 - 10 May 2005, 4 males, 39 females, R. SZADZIEWSKI & W. GIŁKA. **SW Poland.** Stołowe Mts.: near waterfall Pośny, 26 July 2006, 3 females, P. DOMINIAK; Pasterka, net, 25 July 2006, 2 females, P. DOMINIAK. Tatry Mts: Polana Olczyska, 20 July 1993, 1 female, J. KRZYWIŃSKI; Wywierzyisko Olczyskie, net, 24 May 2004, 1 male, W. GIŁKA. **SE Poland.** Babia Góra Mts: Markowe Szczawiny, 3 July 1989, 1 male, R. SZADZIEWSKI; Markowy Stawek, on Apiaceae, 3

July 1989, 1 male, 3 females, R. SZADZIEWSKI; Zawoja Barańcowa, 26 June 1989, 1 female, R. SZADZIEWSKI. Bieszczady Mts.: Chyżne, 29 June 2006, 1 female, P. DOMINIAK; Jawornik, 24 June 2004, 1 male, M. GWIZDALSKA; Moczarnie, n. Wetlina, 22 June 2004, 1 female, 4 male, M. GWIZDALSKA; Rabia Skała, 24 June 2004, 1 male, M. GWIZDALSKA; Smerek mt, 23 June 2004, 1 female, M. GWIZDALSKA; Tarnawa, peat-bog, net, 13 July 2005, 2 females, P. DOMINIAK; Ustrzyki Górne, 12 July 2005, 2 females, P. DOMINIAK; Wetlina, net, 21 June 2004, 2 male, M. GWIZDALSKA; Wołosate Reserve, n. Ustrzyki Górne, net, 12 July 2005, 1 female, P. DOMINIAK. Karkonosze Mts.: Karpacz n. Dziki Potok, dried *Meloe violaceus*, 8 July 2004, 1 female, M. GWIZDALSKA; Karpacz, near Łomniczka, 11 July 2004, 1 male, M. GWIZDALSKA; Mały Staw, net, 11 July 2004, 2 females, M. GWIZDALSKA. Ojców, Ojców National Park, light trap, 24 June 1988, 8 females, 1 male, R. SZADZIEWSKI. Osuchy, 17 May 1988, 1 female. Pieniny Mts.: Czertezik, 22 June 1981, 6 males, R. SZADZIEWSKI; 22 June 1988, 3 females, R. SZADZIEWSKI; Krościenko, 21 June 1988, 1 females, R. SZADZIEWSKI; Polana pod Sokolicą, 28 June 2003, 1 female, M. GWIZDALSKA; Wąwóz Sobczański, 22 June 1988, 2 females, R. SZADZIEWSKI. Kotlina Orawsko-Nowotarska: Czarny Dunajec-Baligówka, Baligówka peat-bog, dried *Meloe violaceus*, net, 26 June 2006, 1 female, P. DOMINIAK; Czarny Dunajec, meadow, net, 26 June 2006, 1 male, P. DOMINIAK; Puścizna Mała, peat-bog, 27 June 2006, P. DOMINIAK; Puścizna Wielka, peat-bog, 27 June, 2006, 1 male, P. DOMINIAK. Tuszyn n. Piotrków Trybunalski, 20 July 1980, 1 male, B. SOSZYNSKI. Włodzimierzów n. Piotrków Trybunalski, 19 May 2005, 11 females, P. DOMINIAK. Zwierzyniec, 4 July 2006, 1 female, P. DOMINIAK.

### Distribution, biology

Holarctic. Common. Attacks *Meloe*.

### Discussion

The holotype female of *Forcipomyia setosipennis* with wing length 1.48 mm, CR 0.71, TR III 2.2 has no head and accurate identification is not certain. The wing length is identical to that of both *A. lucorum* and *A. winnertzi*, and the species cannot be treated as a senior synonym of large *A. orbicularis* as suggested by HAVELKA & CASPERS (1981: 9). The pinned specimen had relatively pale legs like *A. winnertzi*, however, its whole body was pale (now mounted in Canada balsam). According to our observations small biting midges in old collections are usually paler. According to the original description, the body was black (KIEFFER, 1911) and legs were brown (KIEFFER, 1925). This indicates that the species is a junior synonym of dark *A. lucorum*. It cannot be synonymous with *A. winnertzi* having terrestrial larvae living under the bark of trees (SZADZIEWSKI et al. 1995) because it was reared from larvae found in water of a stream (KIEFFER 1911).

### *Atrichopogon meloesugans* KIEFFER, 1922 (restored from synonymy)

Figs 6, 9, 11, 17, Tables 1, 2

*Atrichopogon meloesugans* KIEFFER, 1922: 495 (Algeria, female).

### Diagnosis

Body, including legs, black to dark brown. Proboscis upcurved. Female mandible with 26-31 small teeth, largest at midportion (Fig. 11); proximal flagellomeres moniliform to slightly appressed (Fig. 6); sensory pit small, shallow, indistinct to deeper and distinct (Fig. 9), female PR(III) 3.1-4.0; only few, or none, macrotrichia below basal radial cell. Male is very similar to that of *A. lucorum*; it has somewhat lower flagellar ratio FR(11/10) (1.3-1.5) and higher PR(III) (3.5-4.5) (Table 2).

### Material examined

**NW Poland.** Kurze Grzędy Reserve, n. Mirachowo, o. 119, dried *Meloe violaceus*, 27 May 2005, 2 females, P. DOMINIAK; o. 120, Lake Wielkie, dried *Meloe violaceus*, 10 June 2005, 1 female, P. DOMINIAK. Mirachowo n. Kartuzy, Apiales, net, 9 June 2005, 1 female, P. DOMINIAK. Mirachowska Struga n. Kartuzy, *Meloe violaceus* bait, 8 May 1998, 4 females, D. GRACZYK. Sopot, Kamienny Potok, dried *Meloe violaceus*, 8 May 2004, M. GWIZDALSKA. **NE Poland.** Silec n. Kętrzyn, mixed forest, second half of May 1980, 1 female, R. SZADZIEWSKI. Wyskok n. Kętrzyn: *Meloe violaceus*, 14 May 1992, 49 females, SZADZIEWSKI & GILKA; 10 May 1998, 51 females, R. SZADZIEWSKI; 5 May 2001, 13 females, R. SZADZIEWSKI; 1 June 2003, 2 females, R. SZADZIEWSKI; Malaise trap, 14 May 1992, 3 females, R. SZADZIEWSKI. **SE Poland.** Bieszczady Mts., Moczarnie n. Wetlina, 22 June 2004, 1 female, M. GWIZDALSKA. Włodzimierzów n. Piotrków Trybunalski, dried *Meloe* sp., 19 May 2005, 1 female, P. DOMINIAK.

### Distribution, biology

Algeria, Poland. In early spring (5 May to 1 June) feeding on *Meloe* beetles. Collected mostly from beetles, much seldom with an entomological net or Malaise trap. In experiments conducted in summer from 12 June to 31 August in Germany absent at cantharidin bait (FRENZEL et al. 1992).

### Discussion

The species is close to *A. winnertzi* and *A. lucorum*. It differs from *A. winnertzi* by having much darker legs, stouter palps, proximal female flagellomeres almost spherical; macrotrichia are usually absent below basal radial cell. However, some females collected from meloid beetles have slightly appressed proximal flagellomeres and few macrotrichia below basal radial cell, and palps with shallow indistinct sensory pit like those in *A. winnertzi*. The hypothesis that the dark *A. meloesugans* feeding on meloid beetles is an early spring population of *A. winnertzi* is not plausible as in Wyskok (Poland) both species occurred in spring and only those dark specimens attacked meloids. Males of *A. meloesugans* only slightly differ from those of *A. lucorum* in having lower FR11/10 ratio 1.3-1.5 and usually more slender palpus with PR(III) 3.5-4.5.

***Atrichopogon winnertzi* GOETGHEBUER, 1922**

Figs 4, 8, 18, Tables 1, 2

*Atrichopogon winnertzi* GOETGHEBUER, 1922: 51 (new name for *Ceratopogon lucorum* auct., nec MEIGEN, Belgium).

*Atrichopogon winnertzi*: SZADZIEWSKI et al. 1995 (all stages, =*A. meloesugans* auct. nec KIEFFER, Poland, Denmark, Bulgaria, general distribution).

*Atrichopogon meloesugans* auct.: EWEN & SAUNDERS 1958: 701 (all stages, England); WIRTH 1980: 135 (male, female, figs., England, Slovenia).

*Atrichopogon torgnyensis* GOETGHEBUER, 1949: 2 (male, Belgium), **syn. n.**

**Diagnosis**

Legs more or less yellowish; proboscis slender, upcurved. Female wing with macrotrichia below basal radial cell; mandible with 31-36 small teeth. Proximal female flagellomeres disciform (Fig. 4). Third palpal segment long and slender, with small sensory pit, PR(III) 4.3-5.0 in female and 4.4-4.8 in male (Tables 1, 2).

**Material examined**

**Holotype** male of *A. torgnyensis* GOETGHEBUER labelled: Torgny-lez-Virton 12.7.48. *A. torgnyensis* n. sp. male, type [yellow label] *Atrichopogon torgnyensis* Gtgh., R.I.Sc.N.B. 18.073. coll. et det. M. GOETGHEBUER. Mounted on microscope slide by dr. P. HAVELKA in 1996.

**Other materials**

**Bulgaria.** Rilski Monastyr, 26 June 1982, 1 female, W. KRZEMIŃSKI. **Czech Republic.** NP Podyjí: Havraníky: Malaise trap, 27 May - 7 June 2001, 3 females; 26 June - 24 July 2001, 2 females. Hnanice: Malaise trap, 27 May - 26 June 2001, 8 females, 7 males; 26 June - 24 July 2001, 9 females, 25 males; 29 July - 29 August 2001, 1 female. Horní Břečkov, Malaise trap, 26 June - 24 July 2001, 1 female. Čížovský rybník pond, Malaise trap, 27 May - 7 June 2001, 1 female; 22 June - 24 July 2001, 1 female; pan trap, 24-26 July 2001, 1 female. Liščí skála, Malaise trap, 17 May - 26 June, 2001, 1 female; 27 May - 7 June 2001, 1 female; 26 June - 24 July 2001, 3 females; 24 July - 24 August 2001, 1 female. Brajtava, sweeping, 25 July 2001, 1 female; car net, 31 May - 2 June 2002, 36 females, 9 males. Brajtava - Letohrádek, emergence trap, 13 May - 1 June 2002, 6 females, 2 males. Zadní Hamry, pan trap, 31 May - 1 June, 2001, 1 female; emergence trap, 13 May - 1 June 2002, 1 female; 26 June - 31 July 2002, 27 females. Ledové Sluje, Malaise trap, 13 May - 1 June 2002, 1 female. Pod Šóbesem, sweeping, 25 July 2001, 3 females, M. BARTÁK. **France.** Sixt Fer á Cheval, 11 June 1994, 1 female, R. SZADZIEWSKI. **Lithuania.** Varenas d. Margionys, 8 August 2000, 1 female, R. SPRANG. Ukmerged. Rugsteliskis, 23-30 July 2000, 2 females, R. BERNOTIENE. **Macedonia.** Struga n. Ohrid, 19 June 1974, R. SZADZIEWSKI.

**NW Poland.** Brzyno n. Żarnowiec, at light, 2 June and 8 July 1980, 2 females, R. SZADZIEWSKI. Chałupy n. Władysławowo, net, second half of June, 1 female, R. SZADZIEWSKI. Gdańsk, light trap, in garden, 23 May 1979, R. SZADZIEWSKI. Gdynia, Kacze Buki, net, 18 June 2004, 1 male, M. GWIZDALSKA. Jażwiny n. Choszczno, Korytnica river, net, 12 June 2004, 1 female, P. DOMINIĄK. Kurze Grzędy Reserve, n. Mirachowo, o. 120, dried

*Meloe* sp., 10 June 2005, 1 female, P. DOMINIAK. Łą-czyno n. Kartuzy, dried *Meloe violaceus*, 1-3 August 2003, 7 females, E. SONTAG. Miastko, Apiaceae, 19 June - 6 July 1991, 5 females, A. WARZOCHA. Nadole n. Żarnowiec, 2 June 1982, 1 female, R. SZADZIEWSKI. Okole n. Starogard Gdański, near Wierzyca river, net, 15 June 2004, 1 female, M. GWIZDALSKA. Sopot, net, 29 July 2003, 1 female, E. KACZOROWSKA. Staniszewskie Błota Reserve n. Mirachowo, o. 209, 210, net, 9 July 2006, 3 females, P. DOMINIAK. Starogard Gdański, net, 19 July 2004, 1 male, M. GWIZDALSKA. Szubin n. Bydgoszcz, 26 July 1993, 1 female, J. KRZYWIŃSKI. Toruń-Barbarka, 3 July 1981, 1 female, R. SZADZIEWSKI. Toruń-Bielany, light trap, 17 July 1974, 1 female, R. SZADZIEWSKI. Władysławowo n. Gdańsk, net, 13 July 2001, 1 female, E. KACZOROWSKA. Żukowo n. Gdańsk 13 July 1994, 2 females, E. KACZOROWSKA. **NE Poland.** Białowieża Primeval Forest, Moericke trap, 17 June 1987, 1 female, IZ PAN. Gietrzwałd n. Olsztyn, 16 July 1991, Apiaceae, 1 female, K. PODBIELSKA. Kunicha n. Sztabin, *Conium maculatum*, 22 June 1985, 1 female, J. KRZYWIŃSKI. Przasnysz, 16 June 1993, 3 females, K. GRĘDZIŃSKA. Szczebra n. Augustów, sticky trap, 28 June 1990, D. ANUSZKIEWICZ. Wigry National Park: Krzywe, Apiales, net, 1 July 2005, 1 female; Samle, net, 18 August 2005, 1 female, P. DOMINIAK. Wyskok: light trap, 10 July 1994, 1 female, R. SZADZIEWSKI; 19 August 1995, 1 female, R. SZADZIEWSKI; 28 June - 13 July 1997, 7 females, R. SZADZIEWSKI; 4 July 1998, 1 female, R. SZADZIEWSKI; net, 5 June 1999, 1 female, W. GIŁKA. **SE Poland.** Bieszczady Mts., Moczarnie n. Wetlina, 22 June 2004, 2 males, M. GWIZDALSKA. Dolina Będkowska n. Kraków, netting, 3.07. 83, 1 female, W. KRZEMIŃSKI. Kotlina Orawsko-Nowotarska, Czarny Dunajec-Baligówka, Malaise trap, 27, 29 June 2006, 1 female, P. DOMINIAK. Ojców National Park, Ojców, light trap, 24 June 1988, R. SZADZIEWSKI. Pieniny Mts, Krościenko, at light, 22 June 1988, 1 female, R. SZADZIEWSKI. Roztocze: Międzyrzeki Reserve, net, 5 July 2006, 1 female; Zwierzyniec, dried *Meloe* sp., 3 July 2006, 1 female, P. DOMINIAK; near Wieprz river, net, 5 July 2006, 1 female, P. DOMINIAK. Świętokrzyskie Mts., Święty Krzyż, light trap, 17 June 1968, 2 females, Z. BILIŃSKI.

**Sweden.** Johannisfors, 18 July 2003, 1 female, W. GIŁKA. Mälaren n. Strangnas, 11 August 2003, W. GIŁKA.

**Turkey.** 25 km NW Erdemli, 9-12 June 2000, 1 female, R. DOBOSZ.

### Distribution, biology

An European faunal element common in Europe and Western Asia (Turkey, Armenia, Kirghizia, West Siberia). In Europe reported from the following countries: Italy, Slovenia, Macedonia, Bulgaria, England, Belgium, France, Austria, Hungary, Germany, Poland, Czech Republic, Slovakia, Denmark, Finland, Sweden, Estonia, Lithuania, and Ukraine. Larvae live under rotting wood (WINNERTZ 1852, SPEISER 1910, EWEN & SAUNDERS 1958, SZADZIEWSKI et al. 1995). Females do not attack *Meloe* beetles. Previous records of females feeding on meloids were actually based on specimens of *A. lucorum* and *A. oedemerarum* or misidentified *A. meloesugans* (WIRTH 1980, SZADZIEWSKI et al. 1995). In Poland, imagines recorded from 23 May to 19 August. Adults were collected at light, from the umbelliferous flowers (*Conium maculatum*), or dried *Meloe violaceus* bait in late summer.

### Discussion

Holotype male of *A. torngyensis* with yellow legs and slender palps, now examined, cannot be treated as a synonym of *A. lucorum* as suggested by BORKENT & WIRTH (1997)



and HAVELKA & AGUILAR (1999). It is recognised here as a new junior synonym of *A. winnertzi*.

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