Russian Entomol. J. 31(3): 297–311

Faunistic and taxonomic remarks on European *Allotrichoma* Becker, 1896 (Diptera: Ephydridae) with the description of a new species from Georgia

Заметки по фауне и таксономии европейских видов *Allotrichoma* Becker, 1896 (Diptera: Ephydridae) с описанием нового вида из Грузии

Jens-Hermann Stuke
Йенс-Герман Штюке

Roter Weg 22, 26789 Leer, Germany, E-mail: jstuke@zfn.uni-bremen.de

KEY WORDS: Ephydridae, *Allotrichoma*, Europe, Croatia, Cyprus, France, Georgia, Germany, Greece, Kyrgyzstan, Switzerland, new species, new synonym, key, distribution map.

КЛЮЧЕВЫЕ СЛОВА: Ephydridae, *Allotrichoma*, Европа, Хорватия, Кипр, Франция, Грузия, Германия, Греция, Киргизия, Швейцария, новый вид, новый синоним, определитель, карта распространенитя.

ABSTRACT. *Allotrichoma tskarishdidae* **sp.n.** is described from Georgia. Examination of type specimens showed that *A. filiforme* Becker is a valid species with *A. dahli* Beschovski, **syn.n.** its junior synonym; *A. sicanum* Canzoneri, *A. strandi* Duda and *A. trispinum* Becker are valid species. *Allotrichoma pseudolaterale* Raffone, **syn.n.** is a junior synonym of *A. laterale* Loew. *Allotrichoma leotoni* Vitte is recorded from Europe (Cyprus, France) for the first time. Additional faunistic records and distribution maps are presented for *A. bifidum* Papp, *A. filiforme* Becker, *A. picenum* Canzoneri et Rampini, *A. quadripectinatum* (Becker), *A. strandi* Duda and *A. trispinum* Becker. An illustrated key for the European species of *Allotrichoma* based on the male terminalia is included.

РЕЗЮМЕ. Новый вид *Allotrichoma tskarishdidae* **sp.n.** описывается с территории Грузии. Изучение типовых экземпляров рода Allotrichoma Becker, 1896 показало, что *A. filiforme* Becker является валидным видом, а *Allotrichoma dahli* Beschovski, **syn.n.** – его младшим синонимом. *A. sicanum* Canzoneri, *A. strandi* Duda и *A. trispinum* Becker валидные виды. *Allotrichoma pseudolaterale* Raffone, **syn.n.** — младший синоним *A. laterale* Loew. *Allotrichoma leotoni* Vitte впервые регистрируется в Европе (Кипр, Франция). Представлены дополнительные данные по фаунистическим находкам и карты распространения для *A. bifidum* Papp, *A. filiforme* Becker, *A. picenum* Canzoneri et Rampini, *A. quadripectinatum* (Becker), *A. strandi* Duda и *A. trispinum* Becker. Составлена иллюстрированная определительная таблица для европейских видов рода *Allotrichoma* по терминалиям самцов.

Introduction

The genus *Allotrichoma* Becker, 1896 consists of about 61 valid species worldwide and is one of the larger genera of Ephydridae. There are records from the Afrotropics (16 species), Nearctic (19 species), Neotropics (11 species), Palaearctic (21 species), Oriental (four species) and Australasian (one species). Ten of these species have been reported from Europe so far. The genus is divided into three subgenera with only *Allotrichoma* s. str. occurring in the Palaearctic. Within the Ephydridae, *Allotrichoma* belongs to the Hecamedini (Gymnomyzinae). Its phylogenetic position was recently discussed by Mathis and Zatwarnicki [2012] and *Eremotrichoma* was proposed as its sister group.

The larval biology of *Allotrichoma* is hardly known [Mathis, Zatwarnicki, 2012]. Bohart and Gressitt [1951] at first reported about larvae of *Allotrichoma* while researching the filth inhabiting flies of Guam. They found larvae at excrements of pigs. Runyan and Deonier [1979] reared Nearctic *A. simplex* (Loew, 1861) from racoon faeces and crayfish carcass. Finally Thier and Foote [1980] mentioned larvae of an unidentified *Allotrichoma* in Ohio to be “found repeatedly in muskrat feces and decaying snails that were scattered over the mud surface”.

How to cite this article: Stuke J.-H. 2022. Faunistic and taxonomic remarks on European *Allotrichoma* Becker, 1896 (Diptera: Ephydridae) with the description of a new species from Georgia // Russian Entomol. J. Vol.31. No.3. P.297–311. doi: 10.15298/rusentj.31.3.12

At least in Europe, adults of *Allotrichoma* have a strong preference for river ecosystems and a less strong preference for inland still-water ecosystems. *Allotrichoma* can typically be found at places free of vegetation or places with only scant vegetation with at least some muddy microhabitats and some decaying material. On the coast *Allotrichoma* is observed only rarely although at least a few species might be observed at inland saline localities.

When trying to identify European specimens of *Allotrichoma* it became obvious that the distinction of males by the male terminalia was easy, but the lack of proper identification literature for identification made naming the species difficult. While working with the original descriptions and the few published taxonomic works about European Ephydridae an undescribed species came to light. This is described in this paper and a key with illustrations of male terminalia is presented.

Material and methods

Terminology is adopted from Cumming and Wood [2017] and genus specific interpretations from Mathis and Zatwarnicki [2012] as documented in Figs 1, 13, 15, 19. Numbers of setae refer to one side of the body only. Indices are defined in the text below. To describe the orientation of the postabdomen I use the term "dorsal view" when looking at the outer surface of the epandrium with the cerci at top. The identification of previously described species follows Krivosheina and Zatwarnicki [1997] and Zatwarnicki [1991] and the original descriptions of Beschovski [1966], Canzoneri and Rampini [1990], Papp [1974] and Vitte [1992]. The studied primary types are listed below. Nomenclature was checked with the original descriptions. Labels of holotypes are listed and numbered in the order found, commencing with the uppermost. Line-breaks on labels are indicated by backslashes. If not mentioned otherwise all specimens were collected by the author, air dried, pinned on minuten and deposited in the author´s private collection (PJHS). To investigate the male terminalia, the abdomen was dissected, macerated for about three hours in the aqueous solution of sodium hydroxide $NaOH_{(aq)}$, neutralized with acetic acid CH_3–COOH and stored in a microvial filled with glycerine $C_3H_5(OH)_3$. Decimal degree is used for coordinates if not sexagesimal degree is printed on the labels. Distribution maps were generated with QGis 3.16.

Results

Allotrichoma bezzi Becker, 1896
Figs 1, 13.

Allotrichoma Bezzi Becker, 1896: 123; type-locality: „Sweden. Norrbotten: Edefors (66°13´N, 20°54´E)"; neotype ♂, des. by Mathis et Zatwarnicki [2012] (Germany, Berlin, Museum für Naturkunde der Humboldt-Universität, Mathis et Zatwarnicki [2012].

MATERIAL EXAMINED: 66 ♂♂ from Germany and Finland.

DISTRIBUTION: *Allotrichoma bezzi* is widely distributed in Europe: Austria [Canzoneri, Rampini, 1990 as *A. pedemontanum*; Krivosheina, Zatwarnicki, 1997; Zatwarnicki, 1991), Britain [Drake, 2000], Bulgaria [Beschovski, Zatwarnicki, 2002; Krivosheina, Zatwarnicki, 1997; Zatwarnicki, 1991], Croatia [Canzoneri, Rampini, 1990 as *A. pedemontanum*], Czech Republic [Kubátová-Hiršová, 2006], Finland [Kahanpää, Zatwarnicki, 2015], France [Becker et al., 1910], Germany [Krivosheina, Zatwarnicki, 1997; Stuke, 2011; Zatwarnicki, 1991b], Italy [Canzoneri, Rampini, 1990 as *A. pedemontanum*], Lithuania [Krivosheina, Zatwarnicki, 1997; Zatwarnicki, 1991], Poland [Krivosheina, Zatwarnicki, 1997; Zatwarnicki, 1991], European Russia [Canzoneri, Rampini, 1990 as *A. pedemontanum*; Krivosheina, Zatwarnicki, 1997], Slovenia [Canzoneri, Rampini, 1990 as *A. pedemontanum*], Spain [Zatwarnicki, 1991], Sweden [Krivosheina, Zatwarnicki, 1997; Mathis, Zatwarnicki, 2012; Zatwarnicki, 1991]. It is probably a boreo-montane species and the most common *Allotrichoma*-species in Scandinavia and in the Alps. Beside Europe *A. bezzi* is found in Asian Russia [Krivosheina, Zatwarnicki, 1997] and Afghanistan [Dahl, 1973, as *A. lena*] and its distribution covers a wide area of Northern America [Mathis, Zatwarnicki, 2012].

Allotrichoma bifidum Papp, 1974
Figs 2, 14.

Allotrichoma bifidum Papp, 1974: 405; type-locality: „Gyón" [Hungary]; holotype ♂ (Hungary, Budapest, Hungarian Natural History Museum [Papp, 1974]).

MATERIAL EXAMINED: CROATIA: 1♂, 13.vii.2018, Čikola in Drniš [43.857°N 16.160°E]; 2♂♂, 14.vii.2018, dito; 1♂, 25.vi.2017, fishponds 2 km S Oriovac [45.147°N 17.747°E]; 4♂♂, 27.vi.2017, floodplain Danube 0.6 km S Podunavlje [45.625°N 18.813°E]; 3♂♂, 27.vi.2017, floodplain Danube 1 km SE Tikveš [45.668°N 18.853°E]; 1♂, 27.vi.2017, floodplain Danube 2.5 km N Batina [45.864°N 18.837°E]; 1♂, 28.vi.2017, floodplain Danube 3.5 km NE Sarvaš [45.551°N 18.862°E]; 1♂, 29.vi.2017, floodplain Danube N Ilok [45.230°N 19.380°E]; 1♂, 29.vi.2017, floodplain Danube N Opatovac [45.264°N 19.172°E]; 1♂, 27.vi.2017, floodplain Danube NE Batina [45.852°N 18.853°E]; 2♂♂, 26.vi.2017, floodplain Drava N Bistrinci [45.699°N 18.393°E]; 1♂, 28.vi.2017, floodplain Drava N Kopačevo [45.608°N 18.789°E]; 1♂, 25.vi.2017, floodplain Sava S Pričac [45.134°N 17.672°E]; 1♂, 23.vi.2017, Lonjsko polje 2.8 km E Čigoć [45.410°N 16.664°E]; RUSSIA: 1♂, 30.vii.2016, river Temnik 5 km SSW Selenduma [50°57´60´´N 106°15´31´´E], leg. M. v. Tschirnhaus.

DISTRIBUTION: *Allotrichoma bifidum* was described from Hungary and Romania [Papp, 1974] and later reported from Bulgaria [Beschovski, Zatwarnicki, 2002], Serbia [Canzoneri, Rampini, 1990] and Slovakia [Zatwarnicki, 1996]. The records are summarised in Fig. 25. *A. bifidum* is a southeast species with an obvious concentration of records in the northern region of the Balkan peninsula and an isolated record from East Russia.

Allotrichoma filiforme Becker, 1896
Figs 3, 15.

Allotrichoma filiforme Becker, 1896: 123; type-locality: „Sarepta" [Russia, Europe]; lectotype ♂, des. by Papp [1979] (Germany, Berlin, Museum für Naturkunde der Humboldt-Universität [Papp, 1979]).

= *Allotrichoma dahli* Beschovski, 1966: 937–939; type-locality: „Kap Galata an einer Waldquelle" [Bulgaria]; holotype ♂ (Bulgaria, Sofia, National Museum of Natural History [Beschovski, 1966]).

TYPE MATERIAL EXAMINED: Lectotype (♂) of *Allotrichoma filiforme* Becker, 1896: (1) "Sarepta / Christoph"; (2) "4/4"; (3) "lateralis ?"; (4) "Coll. / H. Loew"; (5) "14391"; (6) "*Allotrichoma / filiformis* [sic!] / Becker."; (7) "Type"; (8) "Lectotypus"; (9) "Zool. Mus. / Berlin". Lectotype is deposited in ZMHB. The type specimen was double pinned and this part of the type is lost. Abdomen had

been previously removed, macerated and dissected but was dried out. I placed the abdomen in a microvial filled with glycerine.

ADDITIONAL MATERIAL EXAMINED: CROATIA: 1♂, 6.vii.2018, beach 2.5 km SW Sonković [43.836°N 15.859°E]; 3♂♂, 14.vii.2018, Čikola 1.2 km WSW Gradac [43.817°N 16.268°E]; 9♂♂, 5.vii.2018, Čikola 1.4 km SE Ključ [43.838°N 16.049°E]; 11♂♂, 5.vii.2018, Čikola 2.5 km SSW Drniš [43.845°N 16.178°E]; 9♂♂, 5.vii.2018, Čikola 2.8 km ESE Drniš [43.852°N 16.120°E]; 4♂♂, 14.vii.2018, Čikola in Drniš [43.857°N 16.160°E]; 5♂♂, 24.vi.2017, fisdhponds NW Hrastovac [45.561°N 16.973°E]; 1♂, 26.vi.2017, fishpond 1.8 km NW Sveti Đurađ [45.754°N 18.231°E]; 1♂, 24.vi.2017, fishponds 1.2 km NE Boriš [45.654°N 17.134°E]; 1♂, 25.vi.2017, fishponds 2 km S Oriovac [45.147°N 17.747°E]; 2♂♂, 27.vi.2017, floodplain Danube 0.6 km S Podunavlje [45.625°N 18.813°E]; 4♂♂, 27.vi.2017, floodplain Danube 1 km SE Tikveš [45.668°N 18.853°E]; 1♂, 27.vi.2017, floodplain Danube 1.5 km NE Zmajevac [45.809°N 18.817°E]; 3♂♂, 27.vi.2017, floodplain Danube 2.5 km N Batina [45.864°N 18.837°E]; 1♂, 28.vi.2017, floodplain Danube 3.5 km NE Sarvaš [45.551°N 18.862°E]; 2♂♂, 29.vi.2017, floodplain Danube 4.3 km ESE Vukovar [45.337°N 19.059°E]; 2♂♂, 28.vi.2017, floodplain Danube N Bijelo Brdo [45.524°N 18.874°E]; 6♂♂, 29.vi.2017, floodplain Danube N Borovo [45.432°N 18.984°E]; 2♂♂, 29.vi.2017, floodplain Danube N Ilok [45.230°N 19.380°E]; 1♂, 29.vi.2017, floodplain Danube N Opatovac [45.264°N 19.172°E]; 1♂, 26.vi.2017, floodplain Drava 3 km N Petrijevci [45.638°N 18.542°E]; 1♂, 26.vi.2017, floodplain Drava N Bistrinci [45.699°N 18.393°E]; 8♂♂, 28.vi.2017, floodplain Drava N Kopačevo [45.608°N 18.789°E]; 1♂, 23.vi.2017, floodplain Sava 2 km E Sonja [45.365°N 16.726°E]; 1♂, 25.vi.2017, floodplain Sava 3 km NE Zbjeg [45.090°N 17.931°E]; 1♂, 23.vi.2017, floodplain Sava S Kratečko [45.393°N 16.629°E]; 1♂, 25.vi.2017, floodplain Sava S Pričac [45.134°N 17.672°E]; 1♂, 19.vii.2018, Krka 3.9 km NW Ljubotić [44,009°N 16.036°E]; 3♂♂, 8.vii.2018, Lake Vrana, lakeside 4.1 km NW Pirovac [43.848°N 15.637°E]; 6♂♂, 8.vii.2018, Lake Vrana, lakeside N Pakoštane [43.924°N 15.506°E]; 7♂♂, 8.vii.2018, Lake Vrana, marsh 3.4 km N Pakoštane [43.939°N 15.516°E]; 4♂♂, 10.vii.2018, Lake Vrana, marsh 4 km NNE Pakoštane [43.945°N 15.527°E]; 3♂♂, 10.vii.2018, Lake Vrana, marsh 4.5 km NNE Pakoštane [43.939°N 15.548°E]; 1♂, 23.vi.2017, Lonjsko polje 1.2 km NE Mužilovčica [45.397°N 16,691°E]; 2♂♂, 23.vi.2017, oxbow lake between Plesmo and Krapje [45.306°N 16.836°E]; 5♂♂, 19.vii.2018, Šarena Jezero near Knin [44,027°N 16.223°E]; GERMANY: 1♂, 29.v.2011, Baden-Württemberg, floodplain Rhine NW Wyhl [48°10.64´N 7°37.83´E]; 1♂, 26.v.2011, Baden-Württemberg, floodplain Rhine NW Wintersdorf [48°51.08´N 8°07.81´E]; 2♂♂, 28.v.2011, Baden-Württemberg, Rhine W Steinenstadt [47°46.09´N 7°32.04´E]; 1♂, 13.viii.2015, Brandenburg, fishpond 2,2 km S Lenzen [53.080°N 11.465°E]; 1♂, 13.viii.2015, Brandenburg, fishpond Cumlosen [53.027°N 11.651°E]; 1♂, 13.viii.2015, Brandenburg, Mödlich, fishpond close „Alte Fischerkate" [53.078°N 11.390°E]; 2♂♂, 10.viii.2014, Brandenburg, Schiasser See [52,263°N 13.140°E]; 5♂♂, 1.viii.2013, Brandenburg, floodplain Oder, Gieshof Zelliner Loose [52,720°N 14.379°E]; 6♂♂, 1.viii.2013, Brandenburg, floodplain Oder, Güstebieser Loose [52,756°N 14.310°E]; 6♂♂, 1.viii.2013, Brandenburg, floodplain Oder, Kienitz [52,669°N 14.457°E]; 2♂♂, 1.viii.2013, Brandenburg, floodplain Oder, Reitwein [52,499°N 14.630°E]; 4♂♂, 31.vii.2013, Brandenburg, Oder at bridge to Krajnik Dolny [53.036°N 14.311°E]; 3♂♂, 1.viii.2013, Brandenburg, Oder, Zollbrücke [52,789°N 14.251°E]; 1♂, 7.v.2016, Brandenburg, Oder, Hohensaaten [52,864°N 14.140°E]; 3♂♂, 1.viii.2013, Brandenburg, Oder, Hohenwutzen [52,846°N 14.122°E]; 2♂♂, 1.viii.2013, Brandenburg, Oder, bridge close Christiansaue [52,812°N 14.220°E]; 1♂, 24.vii.2015, Mecklenburg-Vorpommern, beach Spitzenhorner Bucht, Wolgast [54.065°N 13.788°E]; 2♂♂, 23.vii.2015, Mecklenburg-Vorpommern, beach Grambin [53.760°N 14.011°E]; 1♂, 6.vi.2018, Lower Saxony, Driever, wetland 150 m W church [53.194°N 7.416°E]; 1♂, 7.viii.2008, Lower Saxony, floodplain Elbe E Dömitzer Brücke [53.137°N 11.230°E]; 1♂, 8.vi.2018, Lower Saxony, floodplain Elbe E Tießau [53.183°N 10.995°E]; 1♂, 7.viii.2008, Lower Saxony, floodplain Elbe, Vietze [53.070°N 11.402°E]; 1♂, 9.v.2004, Lower Saxony, ponds 2 km ENE Wilsum [52.553°N 6.866°E]; 1♂, 7.iv.2020, Lower Saxony, Weser, 1,5 km N Gimte [51.451°N 9.643°E]; 1♂, 6.iv.2020, Lower Saxony, Weser W Meinbrexen [51.689°N 9.389°E]; 1♂, 25.vii.2010, Saxony-Anhalt, harbour Arneburg NE Stendal [52.673°N 12.008°E]; 1♂, 3.vi.2011, Saxony-Anhalt, Salza valley between Langenbogen and Köllme [51.492°N 11.784°E]; 1♂, 2.vi.2011, Saxony-Anhalt, Salziger See N Unterröblingen [51.471°N 11.668°E]; FRANCE: 1♂, 5.viii.2019, beach E Valras Plage [43.251°N 3.299°E]; 1♂, 28.vii.2019, beach NE Gruissan Plage [43.115°N 3.128°E]; 1♂, 7.viii.2019, beach S Port-la-Nouvelle [42,997°N 3.050°E]; 1♂, 1.viii.2019, Etang de Gruissan [43.117°N 3.082°E]; 1♂, 25.vii.2019, L´Aude 2.7 km NE Moussan [43.249°N 2.976°E]; 2♂♂, 3.viii.2019, L' Orbieu, Fabrezan [43.135°N 2.700°E]; 1♂, 22.vii.2019, Rhone 1.8 km E Saint-Maurice-de-Gourdans [45.824°N 5.218°E]; 5♂♂, 5.viii.2019, rice field 2.8 km NW Les Cabanes de Fleury [43.231°N 3.205°E]; 5♂♂, 25.vii.2019, wetland 1.5 km NW Péričs [43.282°N 3.059°E]; 1♂, 30.vii.2019, wetland S Salleles d´Aude [43.248°N 2.955°E]; GEORGIA: 1♂, 7.vii.2019, Aragvi River W Bulachauri [42.036°N 44.746°E]; 1♂, 7.vii.2019, Aragvi River W Choporti [41.973°N 44.756°E]; 4♂♂, 1.vii.2019, Iori River N Qaracop [41.613°N 45.539°E]; 6♂♂, 2.vii.2019, Jandara Reservoir 1.6 km SE Jandari [41.435°N 45.187°E]; 3♂♂, 2.vii.2019, Jandara Reservoir 4.7 km SE Mzianeti [41.440°N 45.228°E]; 2♂♂, 2.vii.2019, Mariini Canal 3.4 km N Jandari [41.473°N 45.167°E]; 2♂♂, 11.vii.2019, small lake N Sulda [41.282°N 43.372°E]; 1♂, 1.vii.2019, small valley 4.8 km SE Giorgitsminda [41.696°N 45.383°E]; 1♂, 8.vii.2019, Soramula River 1.7 km ENE Agara [42.047°N 43.841°E]; 2♂♂, 1.vii.2019, Teliankhevi River W Paldo [41.611°N 45.494°E]; 1♂, 11.vii.2019, Vachiani Lake [41.360°N 43.439°E]; GREECE: 1♂, 26.iv.2011, Präfektur Rodopi, salt lake Fanari [40°57,47´N 25°08,33´E]; 3♂♂, 26.iv.2011, Präfektur Rodopi, pond E Lagos [41°00.17´N 25°10.51´E]; 1♂, 26.iv.2011, Präfektur Rodopi, beach SE Lagos [40°59.39´N 25°09.48´E]; 2♂♂, 23.iv.2011, Präfektur Thessaloniki, lake Volvi [40°41.09´N 23°21.25´E]; 7♂♂, 25.iv.2011, Präfektur Xanthi, floodplain Nestos W Kyrnos [40°58.98´N 24°44.87´E]; 6♂♂, 25.iv.2011, Präfektur Xanthi, floodplain Nestos W Mikrochori [40°58.49´N 24°45.20´E]; 3♂♂, 25.iv.2011, Präfektur Xanthi, floodplain Nestos W von Iliokentima [40°56.42´N 24°45.84´E]; 3♂♂, 24.iv.2011, Präfektur Xanthi, Nestos, Elekto [41°05.11´N 24°46.26´E]; KYRGYZSTAN: 2♂♂, 3.vi.2019, fish ponds ca 20 NNW Bischkek [43.027°N 74.546°E]; PORTUGAL: 1♂, 26.iii.2018, Faro, marsh 3.9 km S Azinhal [37.249°N 7.464°W].

TAXONOMIC REMARK: *Allotrichoma filiforme* was synonymised by Papp [1979], this synonymy can be confirmed herewith. Stuke [2013] showed that there are two similar species occurring sympatrically in southwest Germany. One species was identified as *A. dahli* and the other incorrectly as *A. filiforme*. In fact, all records of *A. filiforme* sensu Stuke belong to *A. trispinum*.

DISTRIBUTION: Because the distinction of *A. filiforme* and *A. trispinum* had not been clearly pointed out, older faunistic records of *A. filiforme* are difficult to judge. The type material of *A. filiforme* and *A. dahli* originated from "Kap Galata" (Bulgaria) and "Sarepta" (Volgograd, Russia, Volgograd Oblast). Papp [1974], who compared his specimens with material identified by Beschovski as *A. dahli*, mentioned that the species is the most common *Allotrichoma* species in Hungary. Stuke [2014] found *A. filiforme* (as *A. dahli*) to be quite common in Greece and later there have been more northern finds from Germany [Stuke, 2013; Stuke, Bährmann, 2013; Stuke et al., 2020; all as *A. dahli*]. However, in Central Europe *A. filiforme* is at least in some areas less common than *A. trispinum*. The data presented here show that *A. filiforme* is widely distributed in Europe with only one record outside Europe, from Kyrghystan (Fig. 26). Probably several or most records published as *A. filiforme* will turn out to belong to this species.

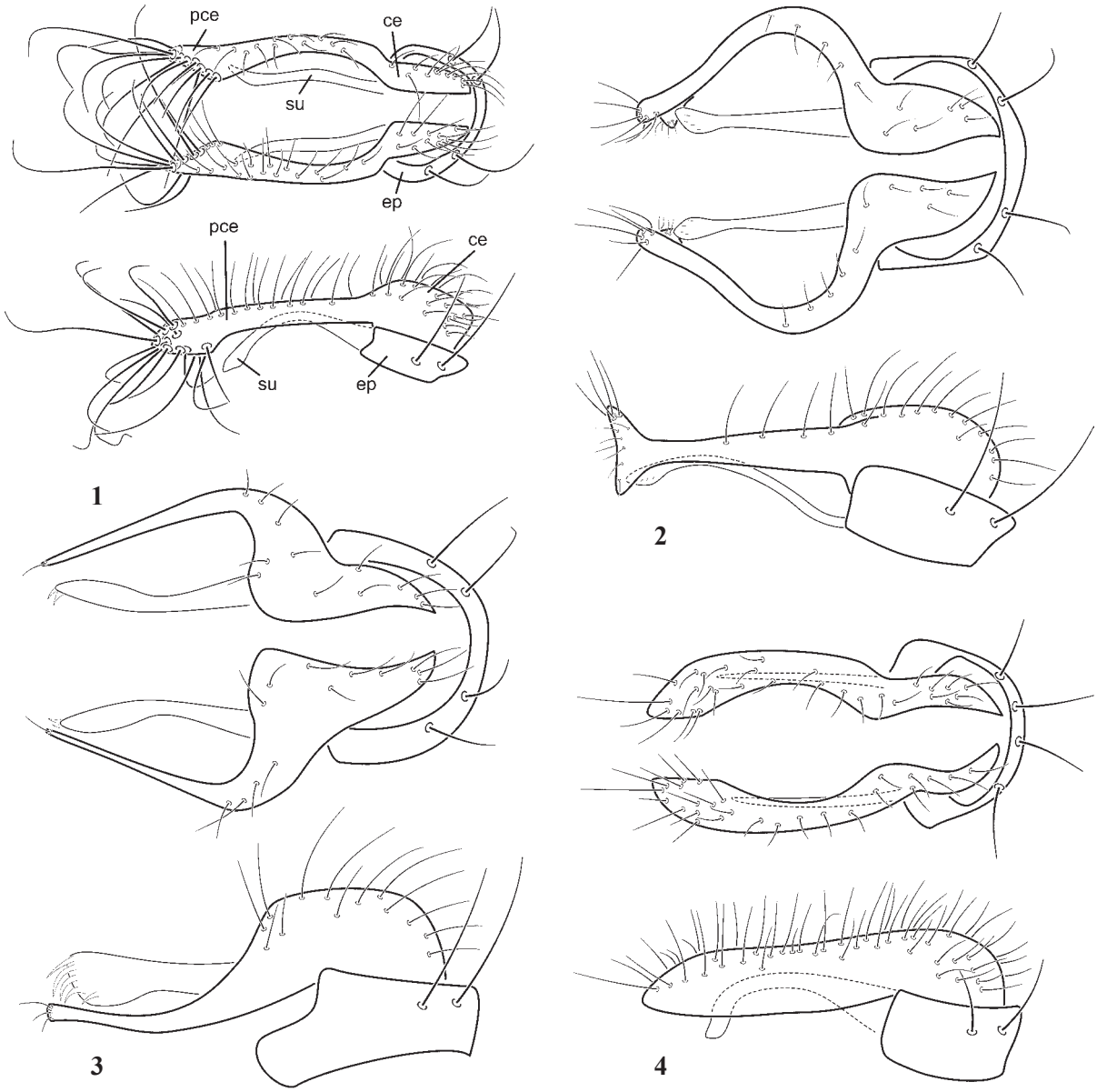
Allotrichoma laterale [Loew, 1860]
Figs 4, 16.

Hecamede lateralis Loew, 1860: 13–14; type-locality: „Süditalien und Sicilien"; lectotype ♂, des. by Papp [1979] (Germany, Berlin, Museum für Naturkunde der Humboldt-Universität [Papp, 1979]).

= *Allotrichoma pseudolaterale* Raffone, 2001: 21–23; type-locality: „Isola Lipari, Sorgente Lace, Terreno nudo" [Italy]; holotype ♂ (Italy, Venice, Museo Civico di Storia Naturale [Raffone 2001]); **syn.n.**

MATERIAL EXAMINED: 945 ♂♂ from Croatia, Cyprus, Germany, France, Georgia, Greece, Jordan, Moroc, Portugal.

TAXONOMIC REMARK: *Allotrichoma pseudolaterale* was distinguished from *A. laterale* in the original description only by two characters: "*Allotrichoma* (*Allotrichoma*) *pseudolaterale* n. sp., affine a *A.* (*Allotrichoma*) *laterale* (Loew, 1860), differisce principalmente per i tarsi uniformemente gialli (grigi in *A. laterale*), nonché per i caratteri genitali". The colouration of the tarsi of *A. laterale* is variable and not suitable to distinguish any *Allotrichoma* species. The illustrations of the elongated cercus of *A. pseudolaterale* are within the variation of *A. laterale* using the right orientation. Therefore, *A. pseudolaterale* cannot be separated using the described characters. 4 ♂♂ paratypes (two of these with macerated terminalia) and 3 ♀♀ paratypes, all from the Museo Civico di Storia Naturale Venice, were examined and these showed no differences compared with *A. laterale*. *A. pseudolaterale* (**syn.n.**) is therefore proposed as a junior synonym to *A. laterale* (Loew, 1860).



Figs 1–4. Epandrium, cercus, surstylus of European *Allotrichoma*, dorsal view (above) and lateral view (below): 1 — *bezzii* Becker, 1896; 2 — *bifidum* Papp, 1974; 3 — *filiforme* Becker, 1896; 4 — *laterale* (Loew, 1860); ce — cercus; ep — epandrium; pce — protruding part of cercus; su — surstylus.

Рис. 1—12. Эпандрий, церки и сурстили европейских видов *Allotrichoma*, сверху (верхний рис.) и сбоку (нижний рис.): 1 — *bezzii* Becker, 1896; 2 — *bifidum* Papp, 1974; 3 — *filiforme* Becker, 1896; 4 — *laterale* (Loew, 1860); ce — церк; ep — эпандрий; pce — выступающая часть церка; su — сурстиль.

DISTRIBUTION: *Allotrichoma laterale* is the most common *Allotrichoma* species all over southern Europe and it is widely distributed in central Europe. The northern distribution of this species is marked by records from Britain at 52°N [Gibbs, 2006], northern Germany at 53°N [Cresson, 1929; Stuke, 2010], and Poland at 51° [Krivosheina, Zatwarnicki, 1997]. Additionally, *A. laterale* is widespread across North Africa, the Arabian peninsula, Afghanistan, Turkey, Tadzhikistan, Turkmenistan, Uzbekistan [Krivosheina, Zatwarnicki, 1997].

Allotrichoma leotoni Vitte, 1992
Figs 5, 17.

Allotrichoma leotoni Vitte, 1992: 255–257; type-locality: „Boured (Rif Central)" [Morocco]; holotype ♂ (private collection of Bernard Vitte, France, Bordeaux [Vitte, 1992]).

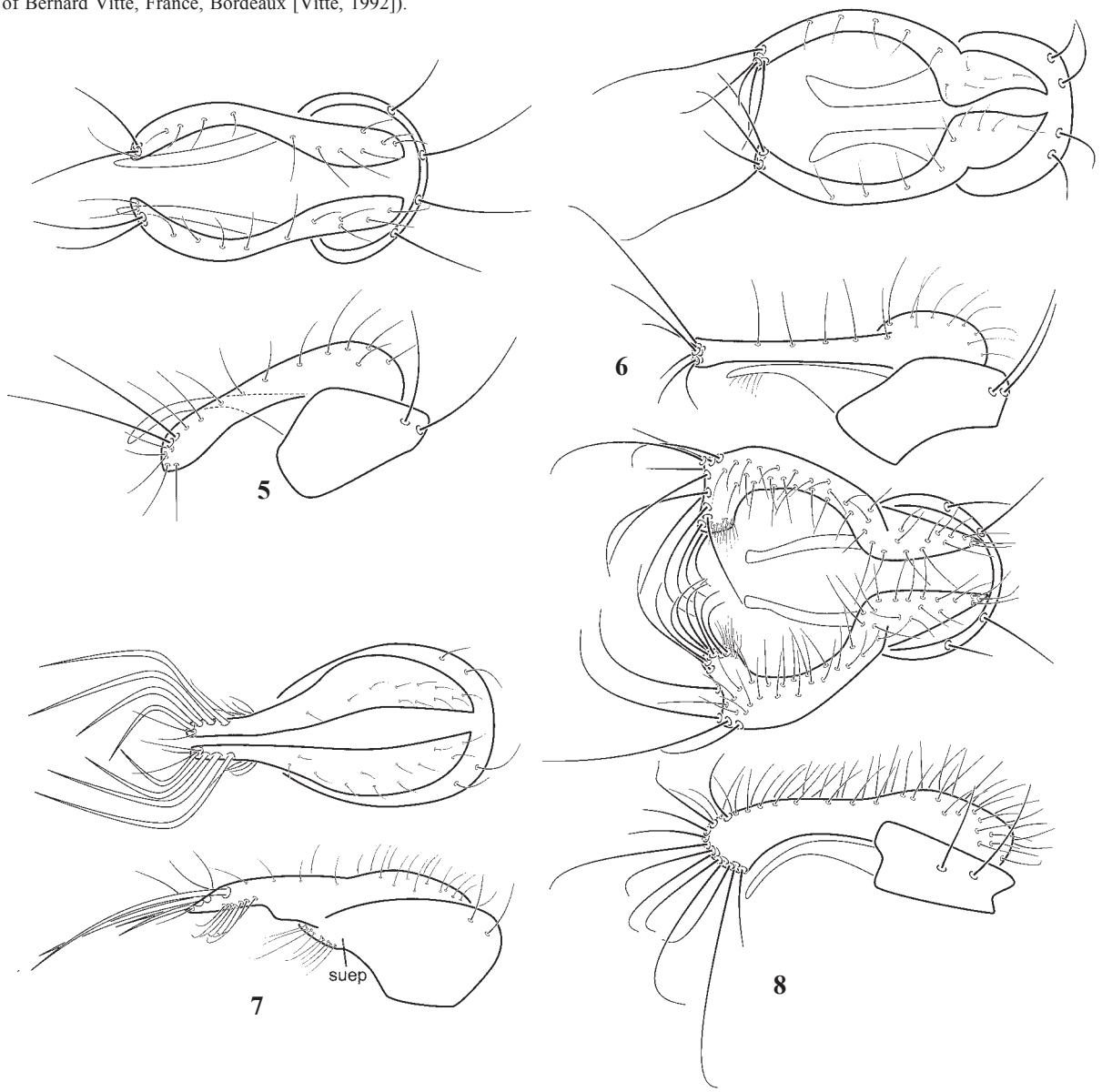
MATERIAL EXAMINED: CYPRUS: 1♂, 30.iii.2015, river Dhiarizos N Souskiou [34,741°N 32,605°E]. FRANCE: 1♂, 1.viii.2019, salt swamp 4 km nwn Gruissan [43.129°N 3,047°E].

DISTRIBUTION: Surprisingly, this species has been known previously only from the type material collected in Morocco. The two new records show that *A. leotoni* is widely distributed in the Mediterranean Region (Fig. 27).

Allotrichoma picenum Canzoneri et Rampini, 1990
Figs 6, 18.

Allotrichoma picenum Canzoneri et Rampini, 1990b: 44–45; type-locality: „F. Tronto alla S.S. Adriatica"; holotype ♂ (Italy, Venice, Museo Civico di Storia Naturale [Canzoneri, Rampini, 1990]).

MATERIAL EXAMINED: SWITZERLAND: 2♂♂, 17.vi.1995, Biasca [46,36°N 8,97°E], leg. B. Merz & G. Bächli.



Figs 5–8. Epandrium, cercus, surstylus of European *Allotrichoma*, dorsal view (above) and lateral view (below): 5 — *leotoni* Vitte, 1992; 6 — *picenum* Canzoneri, Rampini, 1990; 7 — *quadripectinatum* (Becker, 1903); 8 — *schumanni* Papp, 1974; suep — surstylus-epandrium complex.

Рис. 5—8. Эпандрий, церки и сурстили европейских видов *Allotrichoma*, сверху (верхний рис.) и сбоку (нижний рис.): 5 — *leotoni* Vitte, 1992; 6 — *picenum* Canzoneri, Rampini, 1990; 7 — *quadripectinatum* (Becker, 1903); 8 — *schumanni* Papp, 1974; suep — комплекс эпандрий + сурстиль.

DISTRIBUTION: *Allotrichoma picenum* has been reported from Central Europe only twice: Canzoneri and Rampini [1990] described the species from material that originated from Austria, France and Italy and Hollmann-Schirrmacher, Zatwarnicki [1997] added a record from Switzerland. *Allotrichoma picenum*is is to date only known from a small area in Central Europe (Fig. 28).

Allotrichoma quadripectinatum (Becker, 1903)
Figs 7, 19.

Clasiopa quadripectinata Becker, 1903: 161; type-locality: „Alexandrien" [Egypt]; lectotype ♂, des. by Zatwarnicki, 1991 (Germany, Berlin, Museum für Naturkunde der Humboldt-Universität [Zatwarnicki, 1991]).

= *Allotrichoma bellicosum* Giordani Soika, 1956: 103–104; type-locality: „Colomb Bechar" [Algeria]; holotype ♂ (Italy, Venice, Museo Civico di Storia Naturale [Mathis, Zatwarnicki 1995]).

MATERIAL EXAMINED: GEORGIA: 1♂, 30.vi.2019, Debeda River N Khanji-Gazlo [41.357°N 45.005°E]; 1♂, 30.vi.2019, Debeda River N Kirach-Mughanlo [41.340°N 45.051°E].

DISTRIBUTION: *A. quadripectinatum* was previously recorded in Europe only from Bulgaria [Beschovski, Zatwarnicki, 2002]. Additionally it is reported by Becker [1903], El-Hawagry et al. [2018], Giordani Soika [1956, as *A. bellicosum*], Stuke [2012] and Vite [1991, as *A. bellicosum*] to be distributed from Morocco to Jordan (Fig. 29).

Allotrichoma schumanni Papp, 1974
Figs 8, 20.

Allotrichoma schumanni Papp, 1974: 405–406; type-locality: „Gyón" [Hungary]; holotype ♂ (Hungary, Budapest, Hungarian Natural History Museum [Papp, 1974]).

MATERIAL EXAMINED: 45 ♂♂ from Germany.

DISTRIBUTION: *Allotrichoma schumanni* is widely distributed in Central Europe: Belgium [Canzoneri, Rampini, 1990], Czech Republic [Karnecká, 1980; Zatwarnicki et al., 2001], Germany [Stuke, 2010, 2013; Stuke, Bährmann, 2013; Zatwarnicki, Hollmann-Schirrmacher 1997], Hungary [Papp, 1974], Italy [Canzoneri, Vienna 2000; Zatwarnicki, 2008], Poland [Papp, 1974; Zatwarnicki, 1984], Switzerland [Zatwarnicki, Hollmann-Schirrmacher, 1995]. It has so far not been recorded from Scandinavia, the British Isles, Iberian Peninsula or the Balkan. Beside these European records *A. schumanni* is elsewhere known only from Colorado in the USA [Mathis, Zatwarnicki, 2012].

Allotrichoma sicanum Canzoneri, 1980
Figs 9, 21.

Allotrichoma sicanum Canzoneri, 1980: 10–11; type-locality: „torrente Margi alla SS. Corleonese-Agrigentina" [Italy]; holotype ♂ (private collection Silvano Canzoneri, Italy, Venecia [Canzoneri, 1980]); the holotype could not be found in the Museo Civico di Storia Naturale in Venice but it may be deposited in the Museo Regionale di Scienze Naturali, Torino].

MATERIAL EXAMINED: ITALY: 1♂, 22.viii.1978, torrente Margi alla SS. Corleonese-Agrigentina, paratype, leg. S. Canzoneri, coll. Museo Civico di Storia Naturale, Venice.

DISTRIBUTION: To date, the species is only reported from Sicily [Canzoneri, 1980] and Tunisia [Canzoneri, Rampini, 1990].

Allotrichoma strandi Duda, 1942
Figs 10, 22.

Allotrichoma strandi Duda, 1942: 7–9; type-locality: „bei Nidden am Strande des Kurischen Haffs" [Lithuania]; lectotype ♂, des. by Papp [1979] (Germany, Berlin, Museum für Naturkunde der Humboldt-Universität [Papp, 1979])

LECTOTYPE EXAMINED: (1) "Nidden / 7.6.40"; (2) "A. Strandi / [illegible signs]"; (3) "Typus"; (4) "Lectotypus"; (5) "Zool. Mus. / Berlin"; (6) "Hypopyg. / gen. 9.5.91"; (7) "*Allotrichoma* / *filiforme* / Beck. ♂ / det. / M. Krivosheina, 1994". Lectotype is deposited in ZMHB. The type is double pinned and in an acceptable state. Abdomen was removed, macerated and dissected but was dried out. I placed the remains of the abdomen in a microvial filled with gylcerine.

ADDITIONAL MATERIAL EXAMINED: GERMANY: 1♂, 23.v.2015, Brandenburg, Talsperre Spremberg [51.653°N 14,381°E]; 1♂, 23.vii.2015, Mecklenburg-Vorpommern, beach Mönkebude [53.773°N 13,969°E].

TAXONOMIC REMARK: Examination of the lectotype of *A. strandi* confirmed the interpretation of the species given in Stuke [2011] that had been based only on a paralectotype. *Allotrichoma strandi* is a rare species, but has probably been widely overlooked.

DISTRIBUTION: Besides the two records presented here the species is known from the type material which originated from „bei Nidden am Strande des Kurischen Haffs" (Lithuania). Zatwarnicki and Hollmann-Schirrmacher [1997] report the species from Berlin (Germany) and, without any sources, from Poland, Hungary and Macedonia. Therefore, the species is hitherto only confirmed from Lithuania and Germany (Fig. 30).

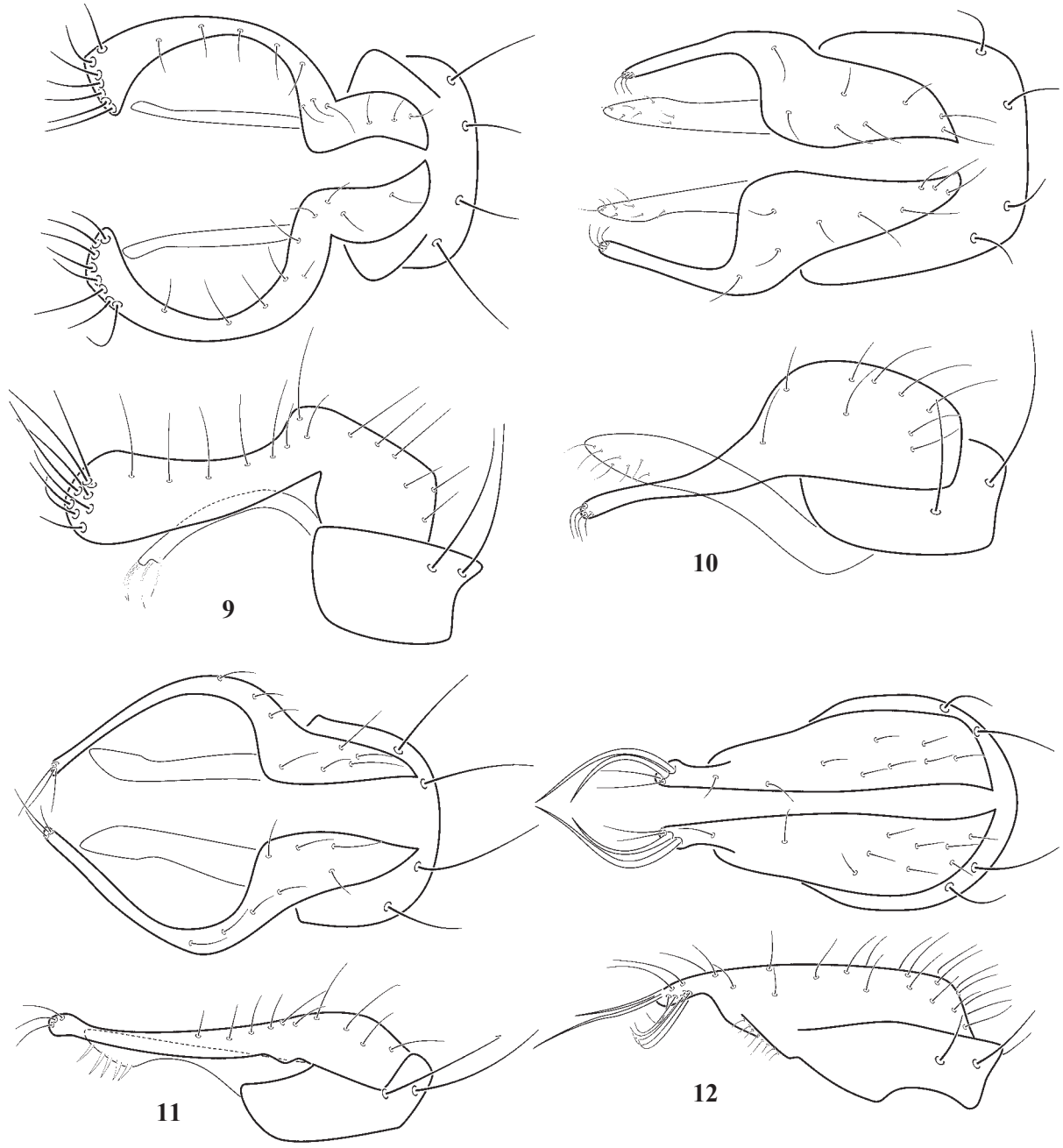
Allotrichoma trispinum Becker, 1896
Figs 11, 23.

Allotrichoma trispinum Becker, 1896: 124; type-locality: „aus dem Oderwalde bei Maltsch, Schlesien" [Poland]; lectotype ♂, des. by Papp [1979] (Germany, Berlin, Museum für Naturkunde der Humboldt-Universität [Papp, 1979].

TYPE MATERIAL EXAMINED: Lectotype (♂) of *Allotrichoma trispinum* Becker, 1896: (1) "Oderwald / 18/8. 39244."; (2) "*trispina* / Beck."; (3) "Lectotypus"; (4) "Zool. Mus. / Berlin"; (5) "*Allotrichoma* / *filiforme* / Becker ♂ / det. / M. Krivosheina, 1994". Lectotype is deposited in ZMHB. The type is double pinned and in an acceptable state. Abdomen had beens removed, strongly macerated and dissected but was dried out. I put the remains of the abdomen in a microvial filled with gylcerine. Sternite 5 is missing.

ADDITIONAL MATERIAL EXAMINED: GERMANY: 1♂, 28.v.2011, Baden-Württemberg, beach at Rhine S Istein [47°39.00´N 7°32.33´E]; 2♂♂, 29.v.2011, Baden-Württemberg, floodplain Rhine NW Wyhl [48°10.64´N 7°37.83´E]; 2♂♂, 5.v.2016, Brandenburg, beach Gartz, Oder [53.210°N 14.401°E]; 3♂♂, 13.viii.2015, Brandenburg, floodplain Elbe NW Cumlosen [53.039°N 11.652°E]; 1♂, 13.viii.2015, Brandenburg, Elbe, pier Lütkenwisch [53.041°N 11.572°E]; 1♂, 13.viii.2015, Brandenburg, floodplain Elbe S Wootz [53.058°N 11.352°E]; 1♂, 13.viii.2015, Brandenburg, ponds 2,2 km S Lenzen [53.080°N 11.465°E]; 7♂♂, 13.viii.2015, Brandenburg, ponds Cumlosen [53.027°N 11.651°E]; 9♂♂, 13.viii.2015, Brandenburg, pond 0,5 km NNW Anleger Lütkenwisch [53.044°N 11.567°E]; 6♂♂, 7.v.2016, Brandenburg, Lunow Stolper Polder, Stützkow [52,990°N 14.174°E]; 3♂♂, 13.viii.2015, Brandenburg, Mödlich, pond at „Alte Fischerkate" [53.078°N 11.390°E]; 1♂, 22.v.2015, Brandenburg, Oder NE Aurith [52,255°N 14,676°E]; 3♂♂, 7.v.2016, Brandenburg, floodplain Oder, close Stolpe [52,962°N 14.143°E]; 1♂, 1.viii.2013, Brandenburg, floodplain Oder, Gieshof Zelliner Loose [52,720°N 14.379°E]; 1♂, 1.viii.2013, Brandenburg, floodplain Oder, Güstebieser Loose [52.756°N 14.310°E]; 3♂♂, 1.viii.2013, Brandenburg, floodplain Oder, Kienitz [52.669°N 14.457°E]; 1♂, 1.viii.2013, Brandenburg, floodplain Oder, Reitwein [52.499°N 14.630°E]; 1♂, 6.v.2016, Brandenburg, floodplain Oder SE Kienitz [52.658°N 14.446°E]; 5♂♂, 31.vii.2013, Brandenburg, Oder, bridge to Krajnik Dolny [53.036°N 14.311°E]; 13♂♂, 7.v.2016, Brandenburg, Oder, Hohensaaten [52.864°N 14.140°E]; 15♂♂, 6.v.2016, Brandenburg, floodplain Oder, Groß Neuendorf [52.700°N 14.413°E]; 1♂, 6.v.2016, Brandenburg, floodplain Oder, Zäckericker Loose [52.796°N 14.238°E]; 26♂♂, 23.v.2015, Brandenburg, dam Spremberg [51.626°N 14.401°E]; 3♂♂, 23.v.2015, Brandenburg, Spree W Sellessen [51.606°N 14.390°E]; 10♂♂, 23.v.2015, Brandenburg, dam Spremberg [51.653°N 14.381°E]; 1♂, 12.viii.2015, Mecklenburg-Vorpom-

mern, Elbe 0,5 km W Festung Dömitz [53.142°N 11.237°E]; 1♂, 12.viii.2015, Mecklenburg-Vorpommern, Elbe, Gothmann [53.360°N 10.735°E]; 2♂♂, 15.vii.2009, Lower Saxony, Alter Fähranleger Drethem [53.203°N 10.955°E]; 3♂♂, 15.vii.2009, Lower Saxony, beach Radegast [53.343°N 10.735°E]; 1♂, 20.iv.2018, Lower Saxony, floodplain Elbe N Katemin bei Neu Darchau [53.236°N 10.876°E]; 1♂, 7.viii.2008, Lower Saxony, floodplain Elbe 2 km N Alt Garge [53.285°N 10.791°E]; 2♂♂, 6.viii.2008, Lower Saxony, floodplain Elbe, Damnatz [53.136°N 11.179°E]; 14♂♂, 7.viii.2008, Lower Saxony, floodplain Elbe E Dömitzer Brücke [53.137°N 11.230°E]; 10♂♂, 6.viii.2008, Lower Saxony, Elbe, Pevestorf [53.076°N 11.451°E]; 7♂♂, 6.viii.2008, Lower Saxony, floodplain Elbe, Gorleben [53.052°N 11.354°E]; 1♂, 16.vii.2009, dito ; 20♂♂, 7.viii.2008, Lower Saxony, floodplain Elbe, Grippel [53.076°N 11.304°E]; 3♂♂, 6.viii.2008, Lower Saxony, floodplain Elbe, Jasebeck [53.163°N 11.135°E]; 4♂♂, 16.vii.2009, Lower Saxony, floodplain Elbe, Lasse [53.068°N 11.317°E]; 1♂, 15.vii.2009, Lower Saxony, floodplain Elbe N Sassendorf [53.358°N 10.571°E]; 1♂, 17.v.2020, Lower Saxony, floodplain Elbe E Wussegel [53.136°N 11.080°E]; 1♂, 15.vii.2009, Lower Saxony, floodplain Elbe S Drage [53.414°N 10.258°E]; 1♂, 7.viii.2008, Lower Saxony, floodplain Elbe, Schnakenburg [53.038°N 11.566°E]; 1♂, 27.v.2017, dito; 2♂♂, 7.viii.2008, Lower Saxony, floodplain Elbe, Tiemesland [53.190°N 10.981°E]; 4♂♂, 7.viii.2008, Lower Saxony, floodplain Elbe, Vietze [53.070°N 11.402°E]; 8♂♂, 16.vii.2009, Lower Saxony, floodplain Elbe W



Figs 9–12. Epandrium, cercus, surstylus of European *Allotrichoma*, dorsal view (above) and lateral view (below): 9 — *sicanum* Canzoneri, 1980; 10 — *strandi* Duda, 1942; 11 — *trispinum* Becker, 1896; 12 — *tskarishdidae* **sp.n.**

Рис. 1—12. Эпандрий, церки и сурстили европейских видов *Allotrichoma*, сверху (верхний рис.) и сбоку(нижний рис.): 9 — *sicanum* Canzoneri, 1980; 10 — *strandi* Duda, 1942; 11 — *trispinum* Becker, 1896; 12 — *tskarishdidae* **sp.n.**

Dömitzer Brücke [53.137°N 11.235°E]; 1♂, 10.vi.2018, Lower Saxony, floodplain Elbe between Hitzacker and Wussegel [53.143°N 11.069°E]; 7♂♂, 15.vii.2009, Lower Saxony, pier Neu Darchau [53.233°N 10.891°E]; 6♂♂, 16.vii.2009, Lower Saxony, pier Schnakenburg [53.038°N 11.567°E]; 2♂♂, 16.vii.2009, Lower Saxony, Gartower See, [53.035°N 11.447°E]; 5♂♂, 16.vii.2009, Lower Saxony, gravel pit S Gummern [53.014°N 11.557°E]; 3♂♂, 15.vii.2009, Lower Saxony, Niedermarschachter Werder [53.421°N 10.359°E]; 1♂, 6.iv.2020, Lower Saxony, Weser, Lauenförde [51.666°N 9.380°E]; 6♂♂, 25.vii.2010, Saxony-Anhalt, Elbe, historic pier W Hohengöhren close Stendal [52.610°N 12.005°E]; 13♂♂, 24.vii.2010, Saxony-Anhalt, floodplain Elbe 1 km SE Wahrenberg, Wittenberge [52,976°N 11.688°E]; 18♂♂, 24.vii.2010, Saxony-Anhalt, floodplain Elbe, Steinfelde SE Losenrade [52.962°N 11.778°E]; 9♂♂, 24.vii.2010, Saxony-Anhalt, floodplain Elbe E Schönberg-Deich bei Seehausen [52.901°N 11.855°E]; 7♂♂, 24.vii.2010, Saxony-Anhalt, floodplain Elbe S Scharpenlohe close Beuster [52.933°N 11.830°E]; 7♂♂, 25.vii.2010, Saxony-Anhalt, floodplain Elbe SE Schelldorf, Tangermünde [52.461°N 11.988°E]; 5♂♂, 24.vii.2010, Saxony-Anhalt, pier Sandau SSW Havelberg [52.786°N 12.034°E]; 8♂♂, 25.vii.2010, Saxony-Anhalt, harbour Arneburg NE Stendal [52.673°N 12.008°E]; 1♂, 25.vii.2010, Saxony-Anhalt, pond in Elbaue W Hohengöhren close Stendahl [52.614°N 12.025°E].

DISTRIBUTION: As discussed under *A. filiforme* these two species previously confused with each other and resulted in *A. trispinum* being ignored by previous authors. Fig. 31 gives an impression of the distribution of *A. trispinum* based on the records known to the author and the type material from "Oderwald".

Allotrichoma tskarishdidae Stuke, **sp.n.**
Figs 12, 24.

HOLOTYPE. Male: (1) "Georgia, Mariini Canal / 3.4 km N Jandari / (41.473°N 45.167°E) / 2.07.2019, Stuke leg. / 2473 [cross written]"; (2) "Holotypus / *Allotrichoma tskarishdidae* / sp.n. ♂ / Stuke det. 2021". The specimen is pinned using a minuten and is in excellent condition. The abdomen is dissected, macerated and stored in a glycerine microvial pinned underneath the specimen. The holotype will be preserved in the collection of the Museum für Naturkunde – Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany (ZMB).

PARATYPES: GEORGIA: 1♂, 30.vi.2019, Debeda River N Kirach-Mughanlo [41.340°N 45.051°E]; 1♂, 30.vi.2019, Debeda River W Didi Mughanlo [41.389°N 44,943°E]; 1♂, 30.vi.2019, Kura River 1.9 km ESE Ilmazo [41.418°N 45.042°E].

DESCRIPTION HOLOTYPE (♂). Length about 1.4 mm. Wing length = 1.2 mm. Head height = 0.4 mm.

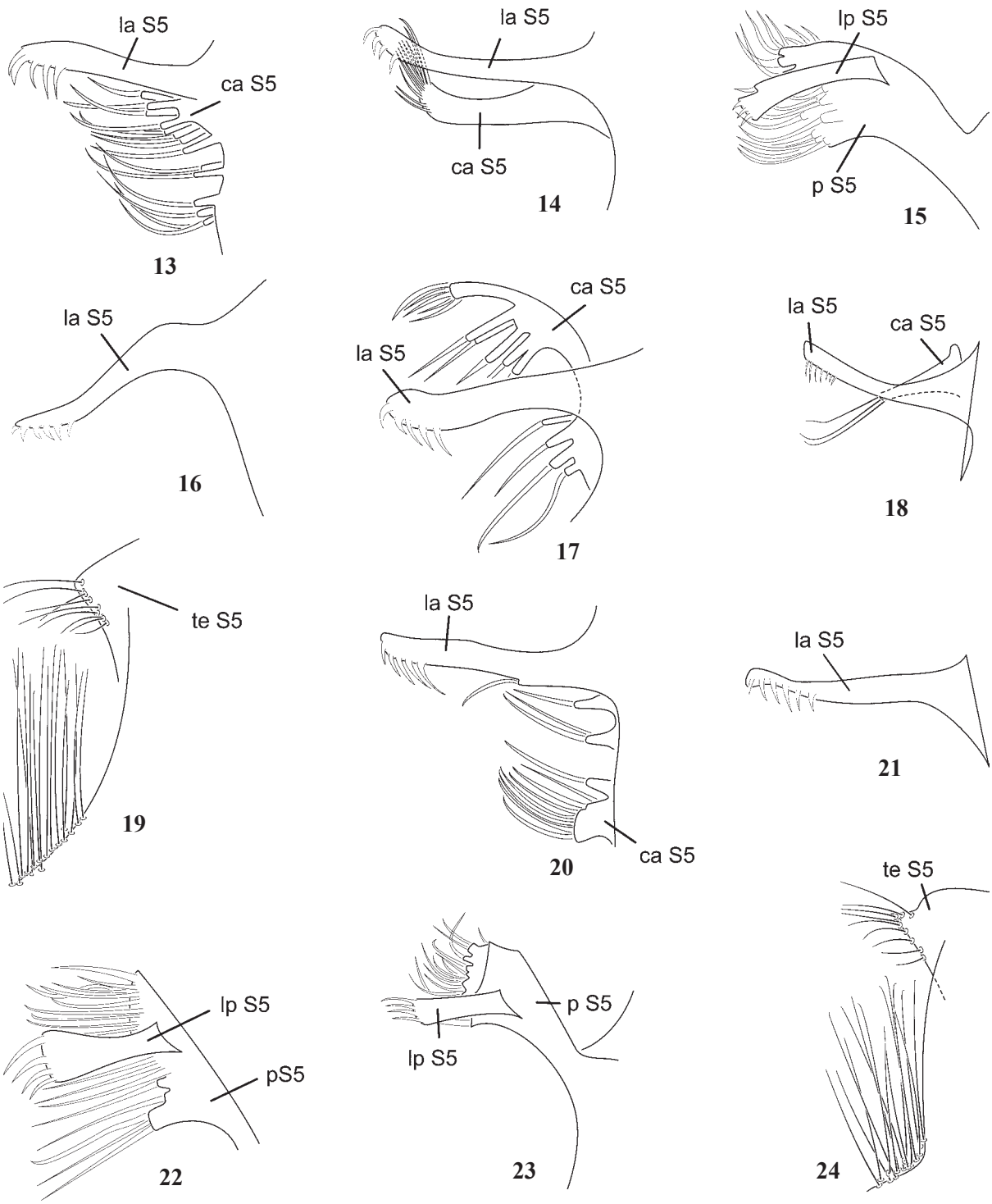
Head black. Gena-eye-ratio (in lateral view genal height measured at the maximum eye height : eye height) = 0.2. Antenna black, slightly silver dusted. Arista black, with 4 long branches. Eye red brown, all ommatidia about same size, no ommatrichia recognized. Eye height-length-ratio (in lateral view maximum eye height : maximum eye length) = 1.3. Ocelli forming an almost isosceles triangle. Frons silver grey to brown dusted with fronto-orbital plate and lunule densely silver dusted. Frontal triangle indistinct, large, reaching to ptilinal suture. Face not protruding, silver dusted. Facial ratio (distance between the oral margin and the dorsum of the ptilinal fissure : narrowest distance between the compound eyes across the face) = 1.0. Clypeus black, short, slightly silver grey dusted. Gena silver dusted Occiput silver grey dusted. Palpus black. Proboscis inconspicuous. Chaetotaxy: large ocellar seta inserted lateral to anterior ocellus; no setulae between ocelli; 1 large proclinate postocellar seta; 1 outer and 1 inner vertical seta of about the same size; no paravertical seta; regularly arranged line of postocular setae; 1 proclinate and 1 reclinate fronto-orbital setae; no frontal setulae; 2 large inclinate facial setae and 2 minute facial setulae; 1 prominent genal seta and 3–4 genal setulae.

Thorax covered with brown to silver grey dusting. Scutum with lines of short black setulae. Scutum and scutellum grey dusted; scutum with a central stripe and 2 sublateral stripes of distinct brown dusting. Anepisternum and katepisternum with scattered setulae. Pleura silver grey dusted with a brown spot dorsally at the anepisternum and dorsally at the notopleuron. Chaetotaxy: 2–4 lines of acrostichal setae; 0+1 dorsocentral setae; 1 prescutellar seta; 1 presutural supra alar seta; 1 postpronotal seta; 2 notopleural seta, posterior inserted above level of anterior; 1 postalar seta; 1 large apical, 1 large lateral, 1 small lateral and 2 small central scutellar setae; 1 posterodorsal katepisternal seta; 2 setae at posterior margin of anepisternum. Wing hyaline, completely covered with microtrichia. Veins light brown. Costa without seta between subcostal break and R_{4+5}. Alula small, with long brown setulae at its hind margin. Costal index I (straight line distance between the apices of R_1 and R_{2+3} [section 2 of Costa] : straight line distance between the apices of R_{2+3} and R_{4+5} [section 3 of Costa]) = 2.6. Costal index II (straight line distance between the apices of R_{4+5} and R_{2+3} [section 3 of Costa] : straight line distance between the apices of Media and R_{4+5} [section 4 of Costa]) = 2.5. R_{4+5} vein-ratio (straight line distance along vein R_{4+5} between crossvein r-m and branch of R_{4+5} and R_{2+3} [section 1 of R_{4+5}]: distance apicad of r-m [section 2 of R_{4+5}]) = 0.1. M vein-ratio (straight line distance along vein M between crossveins dm-cu and r-m [section 1 of M] : distance apicad of dm-cu [section 2 of M]) = 0.4. Costa reaching apex of media. Radial vein R_{4+5} almost straight. Haltere whitish with light brown base. Legs black to brown with bases and apices of tibiae yellow brown and three basal tarsomeres yellow. Legs silver grey dusted with the exception of hind side of shining hind femur and hind tibia. Legs covered with short black setulae. Hind metatarsus ventrally with dense golden setulae. Fore femur posterodorsally with 5–6 black setae; middle femur anterodorsally with 4 setae. Metatarsus II-tibia II-ratio (length metatarsus 2 : length tibia 2) = 0.4.

Abdomen black. Tergites grey dusted and covered with black setulae. Tergite III-IV-ratio (length tergite 3 medially : length tergite 4 medially) = 0.8. Tergite IV-V-ratio (length tergite 4 medially : length tergite 5 medially) = 0.5. Sternites 2–5 each with 2–5 black setulae. No process of sternite 5 ("medial process at 5th sternal flap" sensu Mathis and Zatwarnicki 2012) but with a pair of triangular extensions and base of sternite 5 with long posterior directed setae (Fig. 24). Cercus-epandrium-surstylus-complex as shown in Fig. 12. Epandrium with 2 strong setae. Cercus with 2 large apical inwards curved setae and 3 smaller, subapical, ventral, upwards curved setae. Surstylus completely fused with epandrium and not distinct. Its position might be marked by a row of ventrally directed setulae (Fig. 12). Postgonite long, straight, with broad base, with two lateral directed small setulae and no obvious seta at its base. Phallus apodeme triangular with the muscle attachment slightly backwards directed. Phallus elongated and without any obvious characters.

Female: Females cannot currently be identified.

DIAGNOSIS: *Allotrichoma tskarishdidae* **sp.n.** belongs to a group of *Allotrichoma* species that is easily recognised by this set of characters: (i) face only shallowly convex and not protruding nor with a tubercle; (ii) sternite 5 without distinct process (Fig. 24); (iii) surstylus, cercus and epandrium fused. Four *Allotrichoma* species are known from the Palaearctic and from the Arabian Peninsula to belong to this *quadripectinatum*-species group: *A. choanum* Mathis et Zatwarnicki, 2017 (United Arabian Emirates), A. *hatta* Mathis et Zatwarnicki, 2017 (United Arabian Emirates), *tuareg* Giordani Soika, 1956 (Algeria, Morocco) and *A. quadripectinatum* (Becker, 1903) [Fig. 29]. This *quadripectinatum* species group shares impor-



Figs 13–24. Male process of sternite 5 of European *Allotrichoma*, lateral view: 13 — *bezzii* Becker, 1896; 14 — *bifidum* Papp, 1974; 15 — *filiforme* Becker, 1896; 16 — *laterale* (Loew, 1860); 17 — *leotoni* Vitte, 1992; 18 — *picenum* Canzoneri, Rampini, 1990; 19 — *quadripectinatum* (Becker, 1903); 20 — *schumanni* Papp, 1974; 21 — *sicanum* Canzoneri, 1980; 22 — *strandi* Duda, 1942; 23 — *trispinum* Becker, 1896; 24 — *tskarishdidae* **sp.n.**; ca S5 — central arm of process of sternite 5; la S5 — lateral arm of process of sternite 5; lp S5 — lateral plate of process of sternite 5**;** p S5 — process of sternite 5; te S5 — tringular extension of sternite 5.

Рис. 13–24. Отростки 5 стернита самцов европейских видов *Allotrichoma*, сбоку: 13 — *bezzii* Becker, 1896; 14 — *bifidum* Papp, 1974; 15 — *filiforme* Becker, 1896; 16 — *laterale* (Loew, 1860); 17 — *leotoni* Vitte, 1992; 18 — *picenum* Canzoneri, Rampini, 1990; 19 — *quadripectinatum* (Becker, 1903); 20 — *schumanni* Papp, 1974; 21 — *sicanum* Canzoneri, 1980; 22 — *strandi* Duda, 1942; 23 — *trispinum* Becker, 1896; 24 — *tskarishdidae* **sp.n.**; ca S5 — центральный выступ отростка 5-го стернита; la S5 — латеральный выступ отростка 5-го стернита; lp S5 — латеральная пластинка отростка 5-го стернита; p S5 — отросток 5-го стернита; te S5 — треугольное расширение 5-го стернита.

tant characters with the *dyna* species-group as defined by Mathis and Zatwarnicki [2012]. With the set of characters given in their cladogram [Mathis, Zatwarnicki, 2012: 10, Figure 2] an assignment to one of their species-groups is not possible. To distinguish the species of the *quadripectinatum* species group the shape and setulation of the terminalia has to be taken into account. *Allotrichoma tskarishdidae* **sp.n.** is distinguished from all other species by (iv) the presence of 2 dominant, moderately long and (in dorsal view) medially curved setae at the tip of the cercus and additional upcurved setae ventrally to these (Fig. 12), (v) the lack of obvious setae at the postgonite and (vi) a finger like tip of cercus (Fig. 12).

ETYMOLOGY: *Allotrichoma tskarishdidae* **sp.n.** is dedicated to Tskarishdida (-). In Georgian myths Tskarishdida is a half-fish and half-woman deity of rivers and lakes.

DISTRIBUTION: The records of this species are confined to a small area of the Kura river and its tributary. All locations are situated in Georgia close to the border with Azerbaijan (Fig. 32).

ECOLOGY: All specimens were collected at the sparsely vegetated shores of rivers.

KEY: EUROPEAN SPECIES OF *ALLOTRICHOMA* (♂ ONLY)

1. Face only shallowly convex and without a tubercle; sternite 5 without distinct process but with a pair of triangular extensions only and base of sternite 5 with long posteriorly directed setae (Figs 19, 24); surstylus and epandrium completely fused (Figs 7, 12), surstylus not distinct but probably marked by a row of ventrally directed setulae (Figs 7, 12); cercus apically with medial margin straight and lateral margin concave (Figs 7, 12) 2
— Face with tubercle; sternite 5 with distinct process (Figs 13–6, 8–11), base of sternite 5 without long seta; surstylus fused with epandrium only basally (Figs 1–6, 8–11); shape of cercus different (Figs 1–6, 8–11) 3
2. Cercus apically with 2 obvious setae and apically with ventrally directed setae (Fig. 12) ..... *tskarishdidae* **sp.n.**
— Cercus apically with 4–5 obvious setae and subapically with ventrally directed setae (Fig. 7) .... *quadripectinatum* (Becker)
3. Protruding cercus convex to straight, apically not widened and beside few setulae basally only apically with less than 5 short setae (Figs 3, 10–11); process of sternite 5 broad and with a pair of ventrally directed, lateral plates and without lateral arms (Figs 15, 22–23) 4
— Protruding cercus different: it may be broad, may be apically widened and may be obviously setulose all over and with dense apical setae (Figs 1–2, 4, 6, 8– 9); process of sternite 5 without lateral plates, and with lateral arms (Figs 13–14,16, 18, 20–21) 6
4. Maximum distance of protruding cerci at maximum slightly longer than width of epandrium (Fig. 10); process of sternite 5 less protruding, setulose tip longer, slightly concave and with several setae in front of lateral plate (Fig. 22) ..... *strandi* Duda
— Maximum distance of protruding cerci distinctly longer than wide of epandrium (Figs 3, 11); process of sternite 5 more protruding, setulose tip shorter, convex and with only few setae in front of lateral plate (Figs 15, 23) 5
5. Protruding cercus curved in more than the basal half and therefore apically both cerci close together (Fig. 11); base of protruding cercus only slightly broader than its apex (Fig. 11); tip of protruding cercus slightly enlarged and with 3–5 setae almost as strong as those at the base of protruding cercus (Fig. 11); dorsal surface of process of sternite 5 almost straight (Fig. 23) ..... *trispinum* Becker
— Protruding cercus straight in apical half and therefore distinctly separated apically (Fig. 3); base of protruding cercus distinctly broader than its apex (Fig. 3); tip of protruding cercus not enlarged and with 1–3 setae that are much smaller than those setae at the base of protruding cercus (Fig. 3); dorsal surface of process of sternite 5 distinctly convex (Fig. 15) ..... *filiforme* Becker
6. Process of sternite 5 with two lateral arms and without a central arm (Figs 16, 21) 7
— Process of sternite 5 with two lateral arms and with a central arm (Figs 13–14, 17–18, 20) 8
7. Protruding cercus all over with several irregularly arranged setae (Fig. 4), apically about as high as basally (Fig. 4), and its medial margin only slightly concave (Fig. 4); lateral arms of process of sternite 5 slightly s-shaped (Fig. 16) ..... *laterale* (Loew)
— Base of protruding cercus with 4–5 regularly arranged setae and only its tip with several long setae (Fig. 9), apically much higher than basally (Fig. 9), and its medial margin obviously concave (Fig. 9); lateral arms of process of sternite 5 straight (Fig. 21) ..... *sicanum* Canzoneri
8. Cercus apically obviously widened horizontally (Fig. 8) or vertically (Fig. 2) 9
— Cercus apically at maximum slightly widened (Figs 1, 5, 6) 10
9. Widening of cercus vertically, visible in lateral view (Fig. 2); tip of protruding cercus with setae less than half as long as protruding cercus (Fig. 2); protruding cercus with setulae in apical half only (Fig. 2); process of sternite 5 with one central and two lateral arms of about the same length (Fig. 14) ..... *bifidum* Papp
— Widening of cercus horizontally, visible in dorsal view (Fig. 8); tip of protruding cercus with longest setae longer than protruding cercus (Fig. 8); protruding cercus with dorsal setulae at its whole length (Fig. 8); process of sternite 5 with two lateral arms and a very short central arm (Fig. 20) ..... *schumanni* Papp
10. Protruding cercus almost straight with a subapical shoulder at its inner margin (Fig. 1); protruding cercus with several long, curled setae, the longest of these setae almost as long as protruding cercus (Fig. 1); process of sternite 5 with two lateral arms and a very short central arm (Fig. 13) ..... *bezzii* Becker
— Protruding cercus curved or if straight without a subapical shoulder at its inner margin (Figs 5–6); protruding cercus at maximum with long apical setae that are almost straight (Figs 5– 6); process of sternite 5 with two lateral arms and with a long central arm (Figs 17–18). 11
11. Protruding cercus with 2 anterior directed subapical long setae and no inward directed strong apical seta (Fig. 5); central arm of process of sternite 5 with several strong setae at its whole length (Fig. 17). ..... *leotoni* Vitte
— Protruding cercus with 1 forward directed apical long seta and 4–5 inward directed strong apical setae (Fig. 6); central arm of process of sternite 5 with 3 strong apical setae (Fig. 18). ..... *picenum* Canzoneri et Rampini

Acknowledgements. Gerhard Bächli (Zürich) and Michael von Tschirnhaus (Bielefeld) kindly sent me important material of *Allotrichoma*. Jenny Pohl (Museum für Naturkunde der Humboldt-Universität Berlin) and Marco Uliana (Museo di Storia Naturale Venezia) helped with the loans of type material. Neal Evenhuis (Bishop Museum Honululu) discussed questions about nomenclature. Martin Ebejer (Cowbridge, UK) checked the English of an earlier version of this manuscript.

Fig. 25. Records of *Allotrichoma bifidum* Papp, 1974 (based on the data presented in this paper and data from Beschovski, Zatwarnicki [2002], Papp [1974], Canzoneri, Rampini [1990], Zatwarnick [1996]).

Рис. 25. Распространение *Allotrichoma bifidum* Papp, 1974 (по данным из представленной статьи и работ Beschovski, Zatwarnicki [2002], Papp [1974], Canzoneri, Rampini [1990], Zatwarnick [1996]).

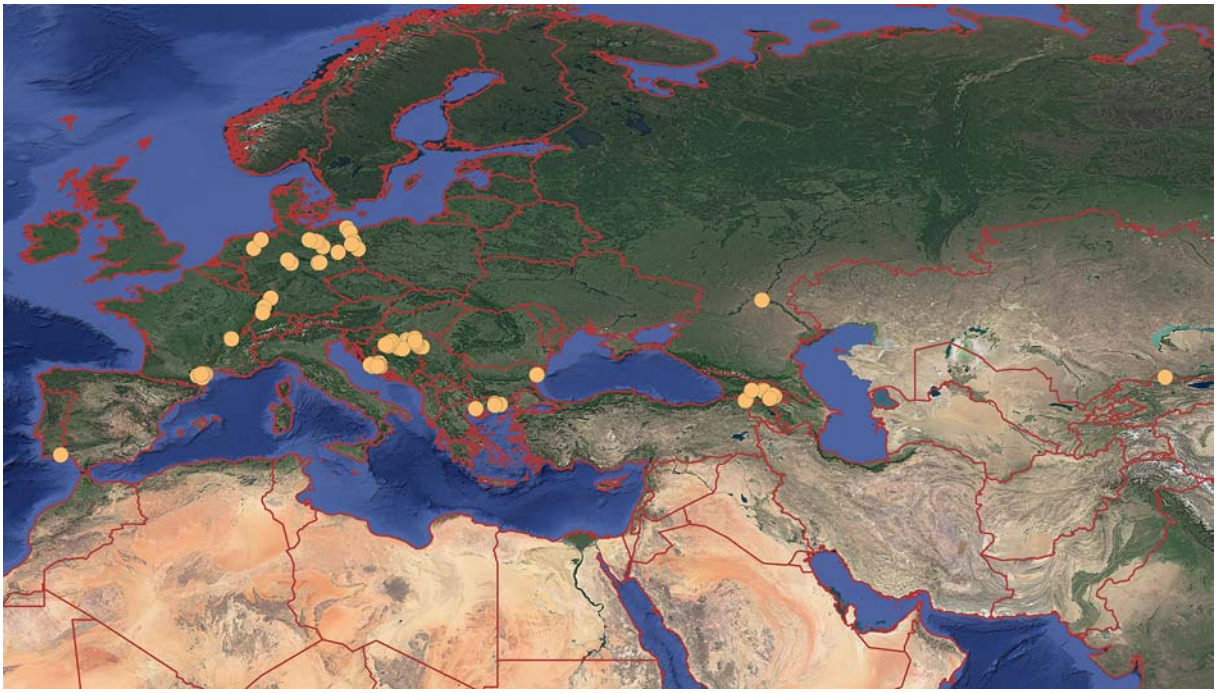


Fig. 26. Records of *Allotrichoma filiforme* Becker, 1896 (based only on the data presented in this paper and the dates of primary types of *A. filiforme* and *A. dahli*).

Рис. 26. Распространение *Allotrichoma filiforme* Becker, 1896 (только по данным представленной статьи и данным для номенклатурных типов *A. filiforme* и *A. dahli*).

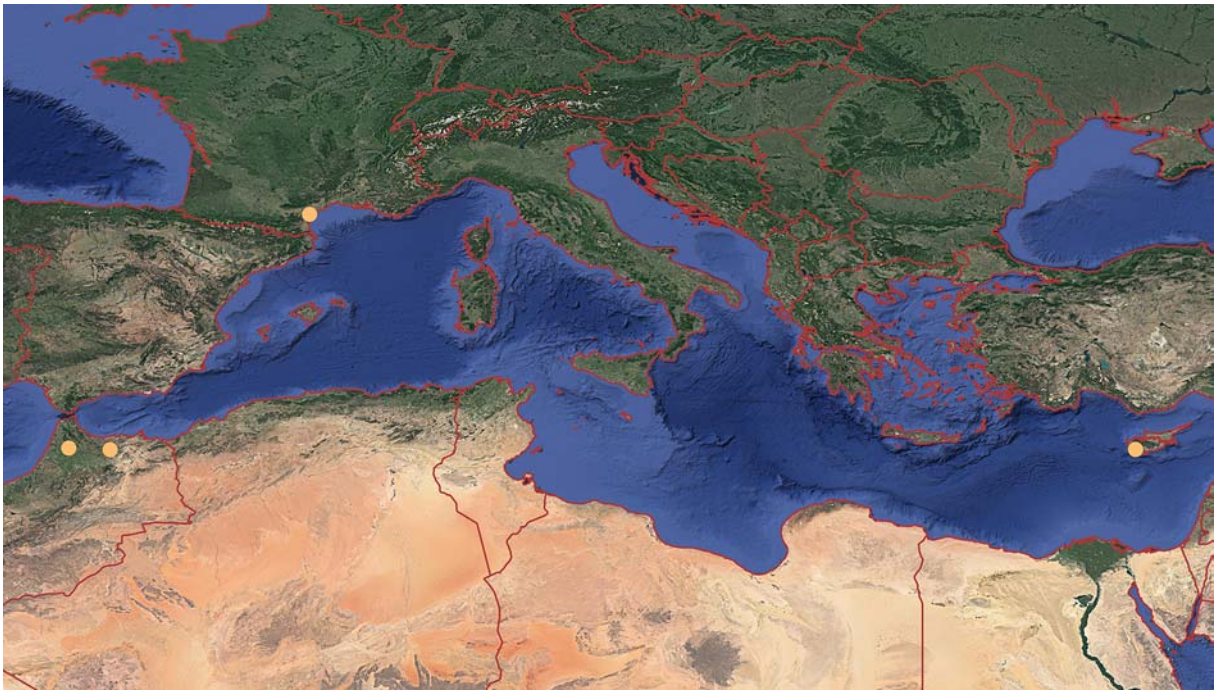


Fig. 27. Records of *Allotrichoma leotoni* Vitte, 1992 (based on the data presented in this paper and data from Vitte [1992]).
Рис. 27. Распространение *Allotrichoma leotoni* Vitte, 1992 (по данным представленной статьи и работы Vitte [1992]).

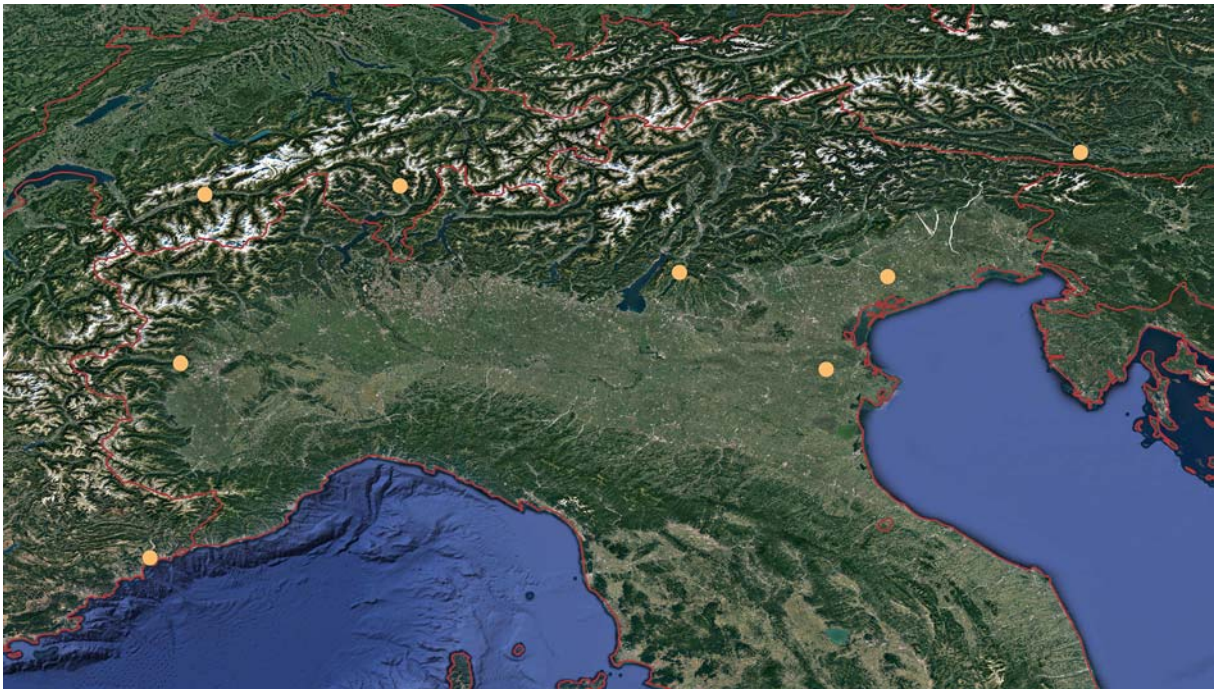


Fig. 28. Records of *Allotrichoma picenum* Canzoneri, Rampini, 1990 (based on the data presented in this paper and data from Canzoneri, Rampini [1990], Hollmann-Schirrmacher, Zatwarnicki [1997]).
Рис. 28. Распространение *Allotrichoma picenum* Canzoneri, Rampini, 1990 (по данным представленной статьи и работ Canzoneri, Rampini [1990], Hollmann-Schirrmacher, Zatwarnicki [1997]).

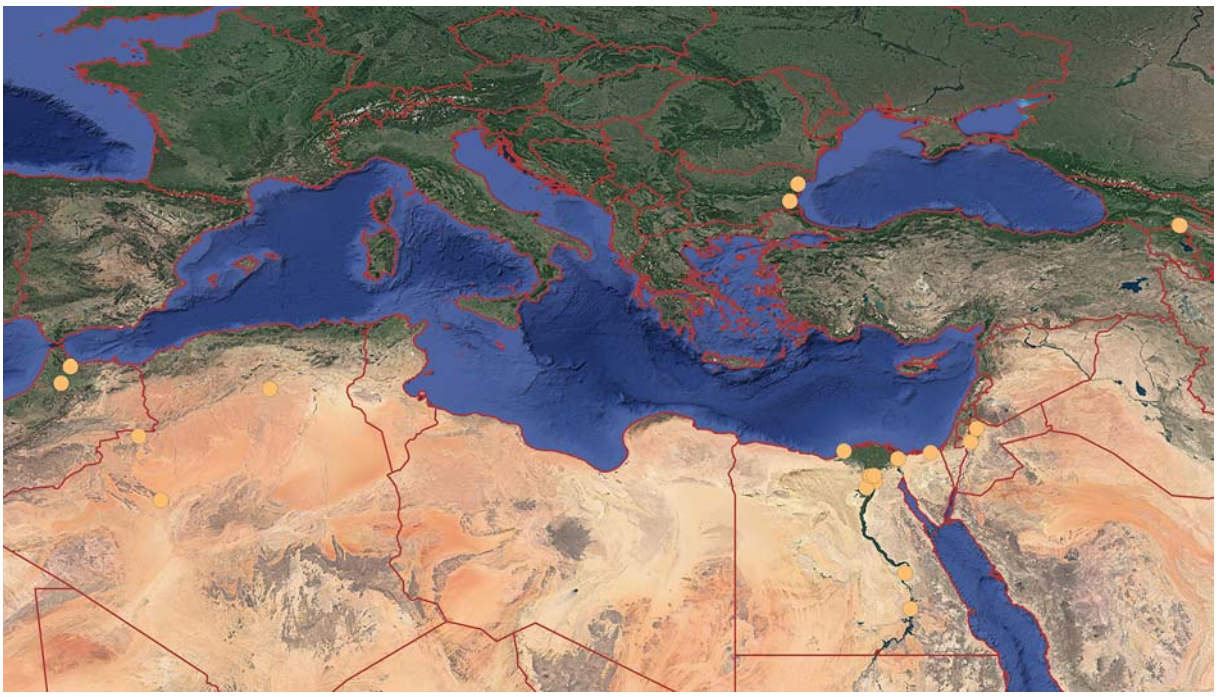


Fig. 29. Records of *Allotrichoma quadripectinatum* [Becker, 1903] (based on the data presented in this paper and data from Becker [1903], Beschovski, Zatwarnicki [2002], El-Hawagry et al. [2018], Giordani Soika [1956, as *A. bellicosum*], Stuke [2012], Vite [1991, as *A. bellicosum*]).

Рис. 29. Распространение *Allotrichoma quadripectinatum* [Becker, 1903] (по данным представленной статьи и работ Becker [1903], Beschovski, Zatwarnicki [2002], El-Hawagry et al. [2018], Giordani Soika [1956, как *A. bellicosum*], Stuke [2012], Vite [1991, как *A. bellicosum*]).

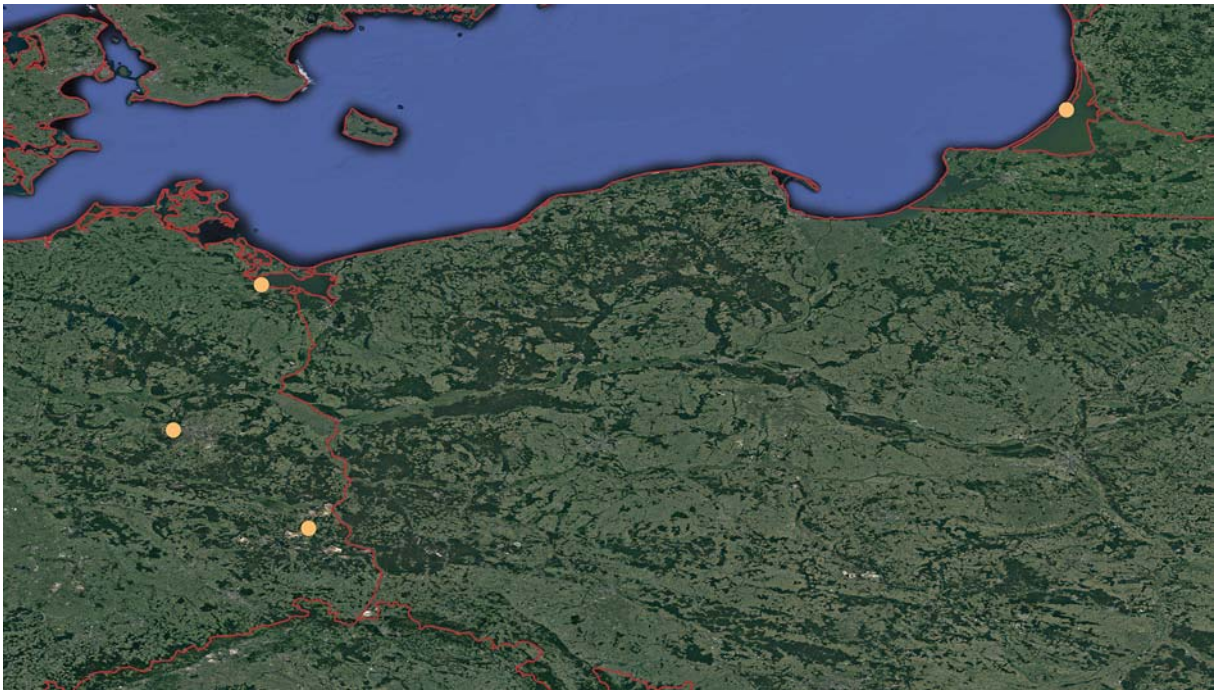


Fig. 30. Records of *Allotrichoma strandi* Duda, 1942 (based on the data presented in this paper and data from Duda [1942], Zatwarnicki, Hollmann-Schirrmacher [1997]).

Рис. 30. Распространение *Allotrichoma strandi* Duda, 1942 (по данным представленной статьи и работ Duda [1942], Zatwarnicki, Hollmann-Schirrmacher [1997]).

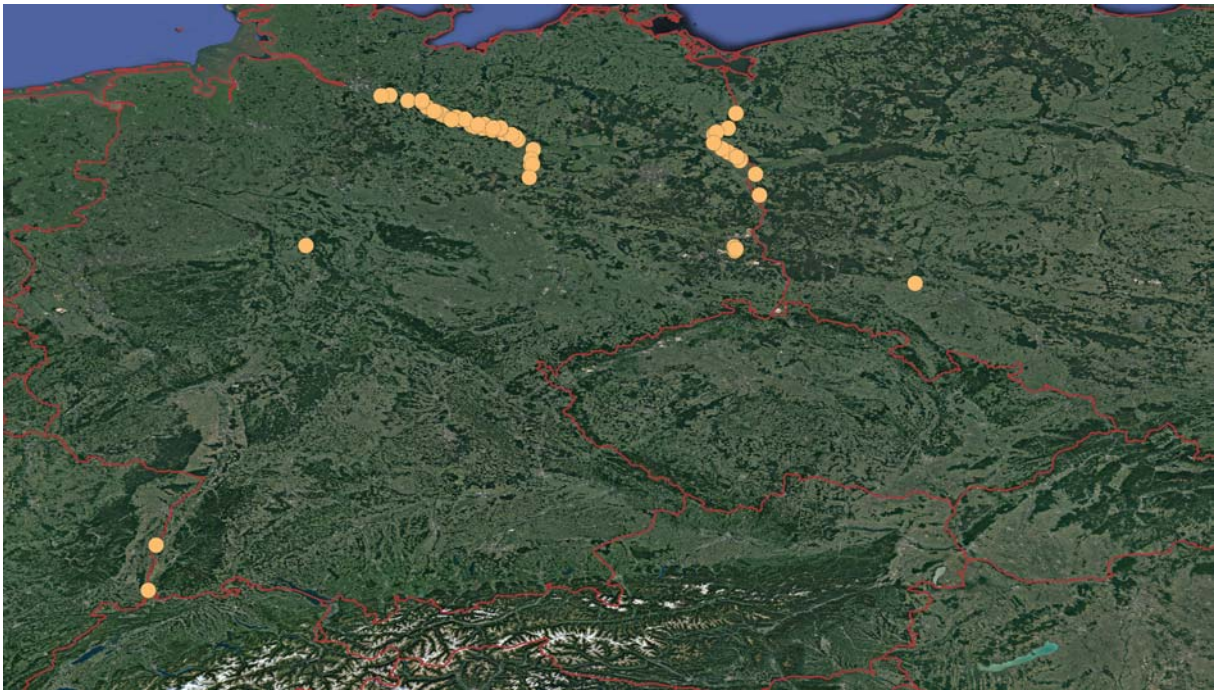


Fig. 31. Records of *Allotrichoma trispinum* Becker, 1896 (based only on the data presented in this paper).
Рис. 31. Распространение *Allotrichoma trispinum* Becker, 1896 (по данным представленной статьи).

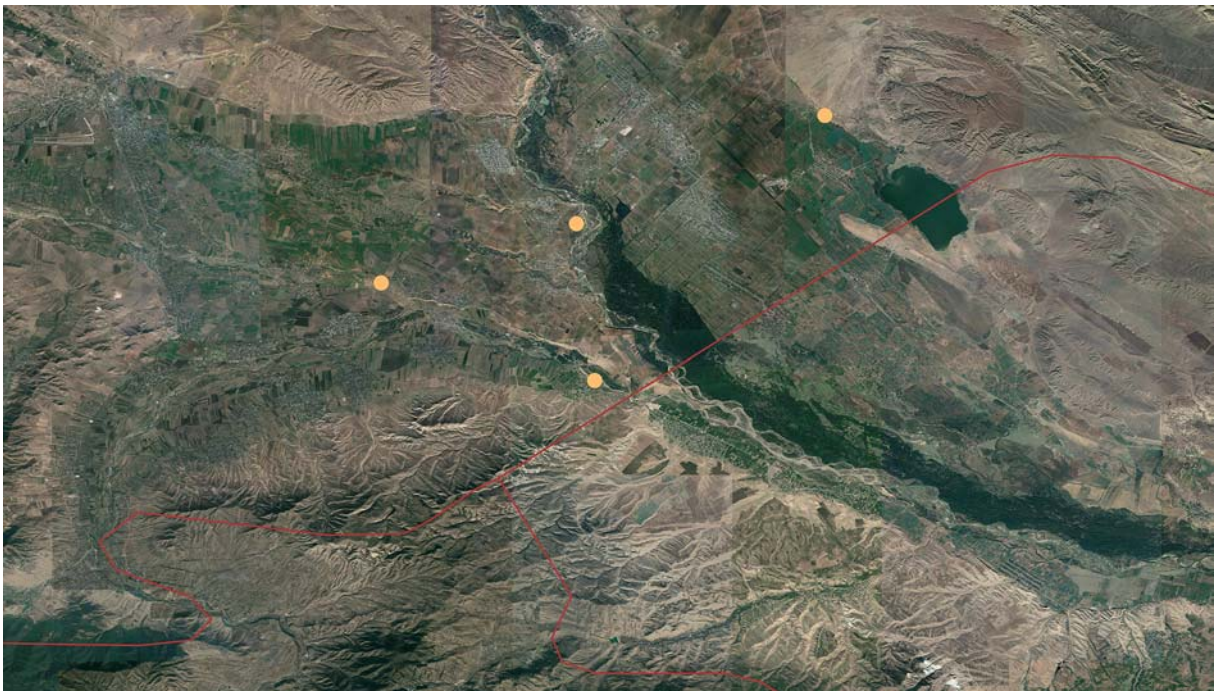


Fig. 32. Records of *Allotrichoma tskarishdidae* **sp.n.**
Рис. 32. Распространение *Allotrichoma tskarishdidae* **sp.n.**

Literature

Becker T. 1903. Ägyptische Dipteren (Fortsetzung und Schluß) // Mitteilungen aus dem Zoologischen Museum in Berlin Bd.2. S.67–195.

Becker T., Kuntze A., Schnabl J., Villeneuve E. 1910. Dipterologische Sammelreise nach Korsika (Dipt.) // Deutsche Entomologische Zeitschrift. Bd.54. S.635–665.

Beschovski V.L. 1966. *Allotrichoma dahli* n. sp. — Eine neue Art Diptera (Ephydridae) aus Bulgarien // Comptes rendus de l' Académie bulgare des Sciences. Vol.19. S.937–939.

Beschovski V.L., Zatwarnicki T. 2002. Faunistic review of the subfamily Gymnomyzinae (Insecta: Diptera: Ephydridae) in Bulgaria with some data from other European Countries // Acta zoologica Bulgarica. Vol.54. P.3–17.

Bohart G.E., Gressitt J.L. 1951. Filth-inhabiting flies of Guam // Bulletin of the Bernice P. Bishop Museum. Vol.204. P1–152.

Canzoneri S. 1980. Tre nuove specie di Sicilia (Diptera, Ephydridae) // Lavori. Società Veneziana di Scienze Naturali. Vol.5. P.9–11.

Canzoneri S., Rampini L. 1990. Osservazioni sul genere Allotrichoma Becker (Diptera, Ephydridae) // Lavori. Società Veneziana di Scienze Naturali. Vol.15. P.43–46.

Canzoneri S., Vienna P. 2000. Gli Ephydridae (Insecta, Diptera) italiana: aggiornamenti tassonomici e geonemici // Il Naturalista Valtellinese. Vol.11. P.39–88.

Cresson E.T.Jr. 1929. Studies in the dipterous family Ephydridae. Paper II // Transactions of the American Entomological Society. Vol.55. P.165–195.

Cumming J.M., Wood D.M. 2017. Adult morphology and terminology // Kirk-Spriggs A.H., Sinclair B.J. (eds.). Manual of Afrotropical Diptera. Vol.1. Introductory chapters and keys to Diptera families. Suricata. Vol.4. P.89–133.

Dahl R.G. 1973. Beiträge zur Kenntnis der Fauna Afghanistans. Ephydridae, Diptera // Časopis Moravského Musea. Vol.56–57. S.347–360.

Drake C.M. 2000. *Allotrichoma bezzi* Becker (Diptera, Ephydridae) new to Britain // Dipterists Digest. Vol.7. P.21–23.

El-Hawagry M., Zatwarnicki T., Ebrahim A.M. 2018. Catalogue of the Egyptian Ephydroidea (Diptera: Schizophora: Acalyptratae) // Zootaxa. Vol.4444. P.201–246.

Gibbs D. 2006. *Allotrichoma laterale* (Loew, 1860) (Diptera, Ephydridae) new to Britain // Dipterists Digest. 2nd. Series. Vol.13. P.123–126.

Giordani Soika A.G. 1956. Viaggi di A. Giordani Soika nel Sahara IX. Contributo allo studio del popolamento del Sahara Diptera Ephydridae // Bollettino del Museo Civico di Storia Naturale di Venezia. Vol.9. P.95–117.

Hollmann-Schirrmacher V., Zatwarnicki T. 1997. Neue Ephydriden (Diptera) aus der Schweiz // Mitteilungen der Schweizerischen Entomologischen Gesellschaft. Bd.70. S.187–189.

Kahanpää J., Zatwarnicki T. 2015. Notes on Shore Flies (Diptera: Ephydridae) from Finland and north-west Russia // Biodiversity Data Journal. Vol.3. P.1–39.

Karnecká H. 1980. Shore flies (Diptera, Ephydridae) new to the fauna of Czechoslovakia // Acta Entomologica Bohemoslovaca. Vol.77. P.419–423.

Krivosheina M.G., Zatwarnicki T. 1997. Some notes on the Old World *Allotrichoma* (Diptera: Ephydridae) with description of three new species // Polskie Pismo Entomologiczne. Vol.66. P.291–310.

Kubátová-Hiršová H. 2006. Notes on the checklist of Ephydridae (Diptera) of the Czeck Republic and Slovakia // Entomofauna Carpathica. Vol.18. P.43–46.

Mathis W.N., Zatwarnicki T. 2012. Revision of New World Species of the Shorefly Subgenus *Allotrichoma* Becker of the Genus *Allotrichoma* with Description of the Subgenus *Neotrichoma* (Diptera, Ephydridae, Hecamedini) // Zookeys. Vol.161. P.1–101.

Papp L. 1974. New or little known species of Ephydridae and Sphaeroceridae from Hungary (Diptera: Acalyptratae) // Acta Zoologica Academiae Scientiarum Hungaricae. Vol.20. P.403–409.

Papp L. 1979. A contribution to the revision of the Palearctic Ephydridae (Diptera) // Folia Entomologica Hungarica. Vol.32. P.97–104.

Raffone G. 2001. *Allotrichoma* (*Allotrichoma*) *pseudolaterale*, n. sp. delle Isole Lipari (Sicilia). (Diptera, Ephydridae) // Lavori. Società Veneziana di Scienze Naturali. Vol.26. P.21–23.

Runyan J.T., Deonier D.L. 1979. A comparative study of *Pseudohecamede* and *Allotrichoma* // Deonier D.L. (ed.). First Symposium on the systematics and ecology of Ephydridae (Diptera). Lawrence: North American Benthological Society. P.123–137.

Stuke J.-H. 2010. Die Uferfliegen Niedersachsens und Bremens (Diptera: Ephydridae) – Teil I // Entomologische Zeitschrift. Bd.120. S.171–189.

Stuke J.-H. 2011. Eine kritische Liste der aus Deutschland nachgewiesenen Ephydridae mit der Beschreibung einer neuen Art (Diptera) // Entomologische Zeitschrift. Bd.121. S.115–126.

Stuke J.-H. 2012. Funde von Ephydridae (Diptera) aus Jordanien mit der Beschreibung von fünf neuen Arten // Studia Dipterologica. Vol.18. S.197–224.

Stuke J.-H. 2013. Funde von Ephydridae (Diptera) aus der Oberrheinebene in Baden-Württemberg (Deutschland) // Studia Dipterologica. Vol.20. S.59–67.

Stuke J.-H. 2014. Neue Funde von Ephydriden (Diptera) aus Griechenland, mit der Beschreibung einer neuen Art // Studia Dipterologica. Vol.20. S.189–213.

Stuke J.-H., Bährmann R. 2013. Die Uferfliegen Sachsen-Anhalts (Diptera: Ephydridae) // Entomologische Zeitschrift. Bd.123. S.115–127.

Stuke J.-H., Beu P., Fahldieck M., Flügel H.-J., Heiss R., Kehlmaier C., Kuhlisch C., Mengual X., Pavlova A., Pont A., Reimann A., Rulik B., Ssymank A., Streese N., Tschirnhaus M. von, Werner D., Ziegler J. 2020. Funde von Zweiflüglern (Insecta: Diptera) während des 35. Treffens des Arbeitskreises Diptera vom 8.–10. Juni 2018 in Hitzacker, Niedersachsen (Deutschland) // Studia Dipterologica. Vol.23. S.267–297.

Thier R.W., Foote B.A. 1980. Biology of mud-shore Ephydridae (Diptera) // Proceedings of the Entomological Society of Washington. Vol.82. P.517–535.

Vitte B. 1991. Étude des Diptères Ephydrides du Maroc, III. Les Ephydrides du Rif et de la plaine au nord de Casablanca (Diptera, Brachycera); description d'une nouvelle espèce // Bollettino del Museo Civico di Storia Naturale di Venezia. Vol.40. P.21–36.

Vitte B. 1992. Une nouvelle espèce du genre *Allotrichoma* Becker (Diptera, Brachycera) // Étude des Diptères Ephydrides du Maroc. IV. Nouvelle revue d'entomologie. Vol. 9. P.255–258.

Zatwarnicki T. 1984. New records of Polish Ephydridae (Diptera, Acalyptratae) // Polskie Pismo Entomologiczne. Vol.54. P. 415–419.

Zatwarnick T. 1996. New records of Western Palearctic shore flies (Diptera: Ephydridae) // Annals of the Upper Silesian Museum, Entomology. Vol.6–7. P.107–125.

Zatwarnicki T. 1991. Changes in nomenclature and synonymies of some genera and species of Ephydridae (Diptera) // Deutsche Entomologische Zeitschrift. Vol.38. P.295–333.

Zatwarnicki T. 2008. Ephydridae // Ziegler J. (ed.). Diptera Stelviana. Vol.1. Studia Dipterologica. Supplement. Vol.16. P.171–174.

Zatwarnicki T., Hollmann-Schirrmacher V. 1995. Ephydriden (Diptera: Ephydridae) aus der Schweiz // Mitteilungen der Schweizerischen Entomologischen Gesellschaft. Bd.68. S.35–47.

Zatwarnicki T., Hollmann-Schirrmacher V. 1997. Neue und seltene Ephydridae aus Deutschland (Diptera, Ephydridae) // Studia Dipterologica. Vol.4. P.219–230.

Zatwarnicki T., Kubátová-Hiršová H., Barták M. 2001. Ephydridae // Barták M., Vaňhara J. (eds.). Diptera in an Industrially Affected Region (North Western Bohemia, Bílina and Duchcov Environs) II. Folia Facultatis Scientiarum Naturalium Universitatis Masarykianae Brunensis (Biologia). Vol.105. P.439–447.