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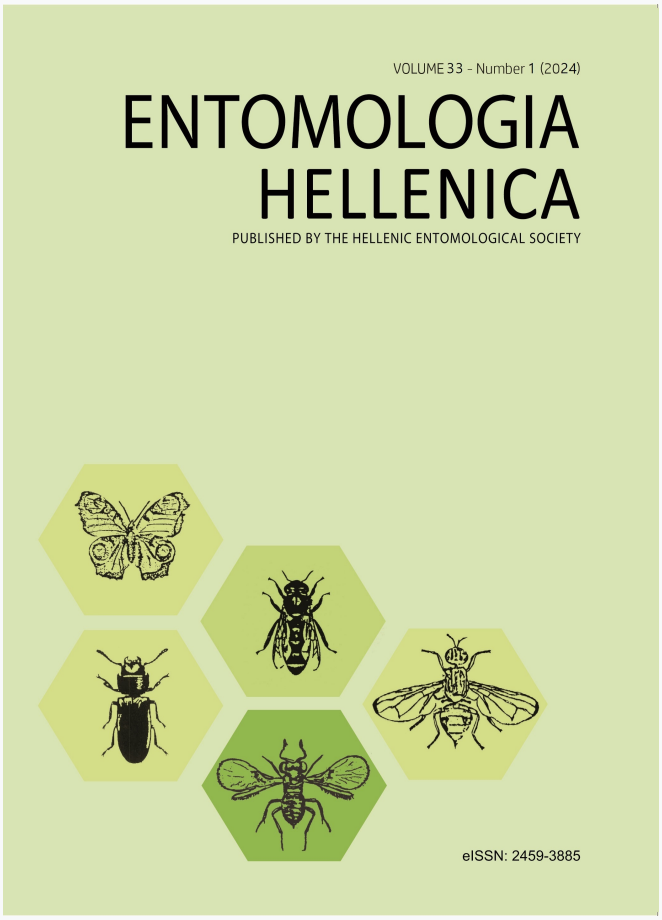

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A note on the predatory hybotid fly genus *Crossopalpus* from Kerkini National Park in Greece with a key to the species occurring and expected in Greece

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ABSTRACT

Six species of the genus *Crossopalpus* were collected during a recent survey in the Kerkini National Park in northern Greece. Three species are reported from Greece for the first time: *Crossopalpus chvalai* Kovalev, 1976, *Crossopalpus flexuosus* (Loew, 1840) and *Crossopalpus humilis* (Frey, 1913). A key is provided to the species occurring in Greece as well as those expected to occur in Greece. New illustrations of the male genitalia of all these species are given.

KEY WORDS: Hybotidae, identification key, illustrations male genitalia, new species records.

Introduction

In the present paper we report on *Crossopalpus* Bigot, 1857, a genus of predatory hybotid flies, that were collected during an extensive survey in the Kerkini National Park in northern Greece during 2005-2010. *Crossopalpus* are generally ground dwelling where they hunt for small prey in litter, under dead leaves or on dung though they can mount also in vegetation (Chvála, 1975). Sometimes they are very abundant on swampy banks of rivers, lakes and ponds as well in salt marshes.

The identification of *Crossopalpus* species can be troublesome because of incorrect recognition of the different parts of the male genitalia and/or the absence of labels on the illustrations of the various parts of the male genitalia by most authors. For example, the huge left cercus might be mistaken for the left epandrial lamella. However, the left epandrial lamella is reduced in size and indistinct as it is fused with the hypandrium. As a complication, a pair of papilla-like structures do resemble cerci. These papillae are in fact the left surstyli attached on the apex of the remnants of the left epandrial lamella. Finally, all the appendages are generally folded together and need to be cleared in potassium hydroxide to be properly recognised.

Materials and Methods

Sampling sites. More than 30 sites were sampled all around Kerkini National Park from 2005 until 2010. Most of the material was collected with Malaise traps (MT), some with yellow pan traps (YPT), pitfall (PFT) traps and a few by hand netting. All material was collected by Mr. Gordon Ramel who was the driving force of the Project Kerkini. The specimens are preserved in 70% ethanol. They are stored by record (site, date) and each record received a register number (reg. GR…).

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Preparation and examination of male genitalia. Male genitalia were removed from the abdomen and transferred to tap water to remove ethanol from the tissues. Subsequently they were transferred to a tube with 10% KOH. Each tube was placed in a thermos bottle with hot (80°C) water and regularly checked for the state of maceration. When the various parts of the male terminalia had become slightly transparent, they were transferred to tap water for at least one minute to remove the KOH. A small drop of acetic acid was be added to guarantee the end of the maceration process and then they were rinsed in pure tap water again for a minute and transferred to 70% ethanol. After at least one minute they were subsequently placed in a drop of glycerine and mounted in a drop of a water-soluble gel on a microscopic slide for study. In this gel they can be positioned and oriented with a micro-pin. Drawings were made using a camera obscura on a microscope.

In order to get the male genitalia in the right orientation, the position of the anus (a), being an amorph greyish structure, generally lentiform and protruding between the two cerci, was checked. The position of the cerci combined with the anus indicates the dorsal view of the genitalia. The right cercus (RC) is on the left side of the illustration of the dorsal view of the genitalia and the left cercus is on the right side of the image (LC). In ventral view of the epandrium, two papilla-like structures bearing several bristles can be observed. They represent the left surstyli that are inserted apically on the reduced left epandrial lamella. These papilla-like surstyli resemble cerci and should not be confused with the real cerci that flank the anus.

Abbreviations of male genitalia: a: anus; a1 and a2: appendages constituting the lobe present at the inside of the right epandrial lamella; eja: ejaculatory apodeme; dp: dorso-apical projection of the right epandrial lamella; hy: hypandrium; lc: left cercus; lel: left epandrial lamella; ls1: left surstylus 1; ls2: left surstylus 2; rc: right cercus; rel: right epandrial lamella; rs1: right surstylus or right surstylus 1 if right surstylus is bipartite; rs2 right surstylus 2.

We followed the Fauna Europaea (De Jong, et al. 2014) for the distribution of the Crossopalpus species in Europe and occasionally the Palaearctic catalogue of the Hybotidae (Chvála & Kovalev, 1989).

Results

An overview of the collected material is given in Table 1 while a complete table with collection information can be found in Annexe 1.

More than ninety percent of the specimens were collected with Malaise traps, while low numbers were collected using other sampling methods. Six species of *Crossopalpus* were collected. *Crossopalpus nigritellus* was the dominant species with 467 specimens, followed by *C. chvalai* with 69 specimens while the other four species all numbered less than a dozen. The species newly recorded for the Greek fauna are shaded in grey.

Taxonomic account

Taxonomic information on the genus *Crossopalpus* is provided below as well as new information on the species in Greece with illustrations of the male genitalia of all species.

Crossopalpus Bigot, 1857

Crossopalpus Bigot, 1857, Annls Soc. ent. Fr., 5: 563.
Eudrapetis Melander, 1918, Ann. ent. Soc. Am., 11: 187 (as subgenus of *Drapetis* Meigen).
Type-species: *Platypalpus ambiguus* Macquart, 1827 (mon.).

Table 1.**:** Overview of the *Crossopalpus* species found during the survey of Kerkini National Park (2005 – 2010) based on various sampling methods (unknown indicates that the type of method was not on the label). New species are highlighted.

Species	Malaise trap	netting	pitfall trap	yellow pantrap	unknown	total
Crossopalpus nigritellus	445	1	4	2	15	467
Crossopalpus chvalai	60	4		3	2	69
Crossopalpus humilis	9			1	1	11
Crossopalpus aeneus	1			7		8
Crossopalpus setiger	2					2
Crossopalpus flexuosus	1			1		2
Total	518	5	4	14	18	559

Diagnosis after Chvála (1975). Small to medium-sized (1.6-4 mm), mainly black polished species (see habitus Fig. 1). Head broad, prolonged below with deep genae below eyes. A strong, beak-like proboscis is present. Occiput slightly concave below neck. A pair of long vertical setae very distinct from other short occipital hairs. Posterior pair of ocellar setae almost as long the verticals. Anterior pair of ocellars quite absent. Antennae placed above middle of head in profile, postpedicel with lower edge convex and an apical stylus. Pedicel with a single very long seta beneath.

Thorax broad when viewed from above, large setae distinct, and sometimes with numerous similar long bristly hairs evenly distributed over mesonotum; mesopleuron bare.

Legs. Fore and mid tibiae with two distinct preapical setae. Hind tibiae sometimes with long antero- and posterodorsal setae, and with a more or less developed posterior apical tooth-like projection.

Wings clear, the common stem of veins R2+3 and R4+5 very short.

Male genitalia (Fig. 2) consisting of a large right epandrial lamella that sometimes has a dorso-apical projection (dp). The right surstylus (rs) is either distinctly separated from the right epandrial lamella or sometimes fused with it or has two lobes: rs1 and rs2 and hence to the right side the second lobe is considered as the right surstylus 2 (rs2). In some species, a lobe is present at the inside of the right epandrial lamella that can be split in two appendages (a1 and a2), visible in lateral view flanking rs1 (Fig. 2A). The right cercus is much smaller and thinner than the huge left cercus. The left epandrial lamella is reduced and not distinct, but its dorsal appendages are present in the form of two papilla-like structures considered as left surstylus 1 (ls1) and left surstylus 2 (ls2).

Crossopalpus resembles *Drapetis* Meigen, 1822 but in the latter the genae are very narrow (almost linear), an anterior pair of ocellar setae is present, the pedicel bears only short ventral bristles rarely as long as pedicel and the common stem of veins R2+3 and R4+5 is longer. *Crossopalpus* has very broad genae, the anterior ocellar setae are lacking, the pedicel has a single ventral seta much longer than pedicel and the common stem of veins R2+3 and R4+5 is very short.

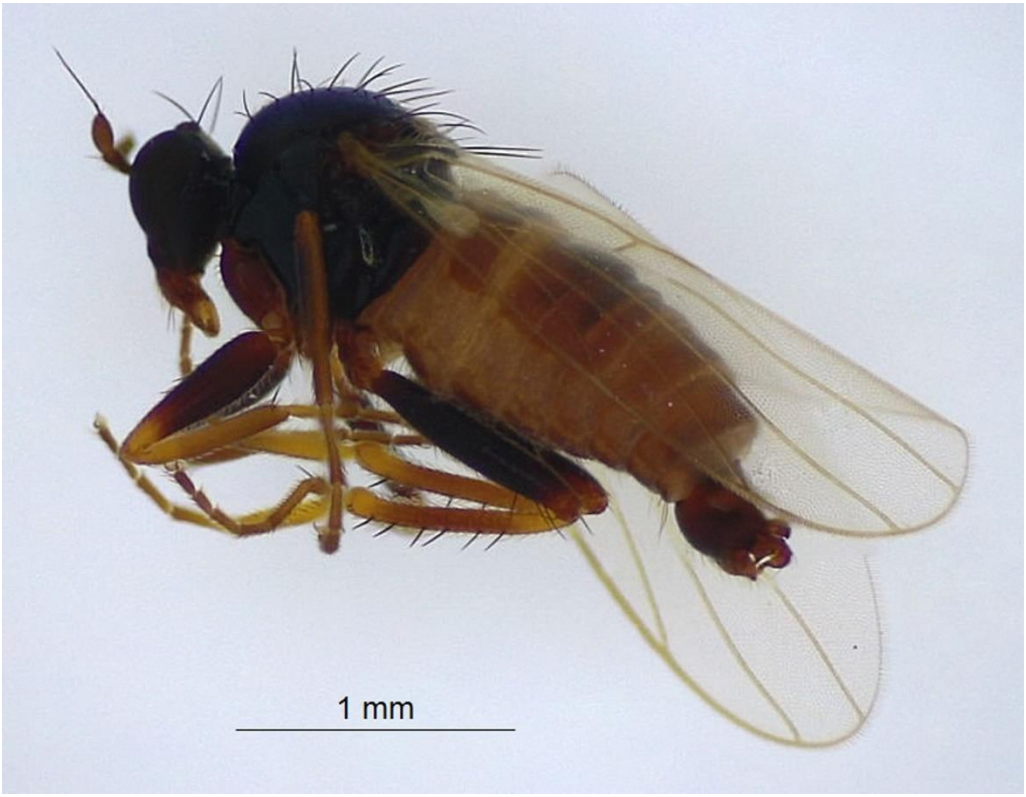

FIG.1.: *Crossopalpus chvalai* Kovalev, 1976. Male habitus (Greece, Vironia Ramna site, GR0052, leg. G. Ramel; image P. Grootaert).

Most of the species of *Crossopalpus* can be identified with the key provided in Chvála, 1975. However, not all European species are in this key, for example *Crossopalpus aeneus* (Walker, 1871), *C. chvalai* Kovalev, 1976 and *C. pilipes* (Loew 1859), are lacking and, therefore, a simplified key to the species known and expected to occur in Greece is given at the end of the paper.

To allow quick retrieval of the species and their illustrations, the species are arranged in alphabetic order and not in species-groups.

Crossopalpus aeneus (Walker, 1871)

Fig. 2.

Drapetis aenea Walker, 1871: 273.

Crossopalpus aeneus (Walker, 1871) in Collin, 1959: 386: comments.

Crossopalpus aeneus (Walker, 1871) in Smith, 1967: 2: fig. 1, 2 (tip right epandrial lamella, right surstylus).

Crossopalpus aeneus (Walker, 1871) in Kovalev, 1975: 561 (figs 4-6).

Material examined

1 ♀, Kerkini pumping station, 37m, 41°12’48.7 N 23°06’11.9 E, 06-12.IV.2007 (MT), (reg. GR 0039); 4 ♂♂, 1 ♀, Megalohori Marsh, 38m, 41°15’01 N 23°14’08 E, 19.VIII.2007 (YPT), (reg. GR0043); 1 ♀, Neo Petritsi Strymon floodplain, 48m, 41°16’09 N 23°19’39 E, 15.III.2010 (YPT), (reg. GR0046); 1 ♀, Neo Petritsi Roupel's Gorge, 78m, 41°17’32 N 23°19’35 E, 15.III.2010 (YPT), (reg. GR0048).

Male genitalia (Fig. 2)

The apices of the right and left cercus are fused, forming a broad bridge behind the anus. The right side of the right cercus is microtrichose, while the left cercus lacks microtrichia. The tip of the right epandrial lamella widened, somewhat truncate with a median point (Fig. 2A: rs1). A second appendage named here as right surstylus rs2 is elongate rectangular (Fig. 2A) with a few long setae. The left epandrial lamella is fused with the hypandrium and bears two papilla-like surstyli bearing some short bristles (Fig. 2C). The left most surstylus (ls2) is club-shaped while the right most surstylus (ls1) is smaller with a hook-shaped tip.

Comments

The right surstylus (Fig. 2A) illustrated here corresponds to the illustrations given by Smith (1967) in his Fig. 2 while the apex of the right epandrial lamella corresponds to his Fig. 1 for left lobe. They also correspond to the illustrations given by Kovalev (1975) in his Fig. 5 for the right surstylus and Fig. 6 for the apex of the right epandrial lamella. In addition, Kovalev, loc. cit. his Fig. 4 illustrates a ventral view of the genitalia showing both left surstyli that correspond to the left surstyli here in Fig. 2C.

Distribution

Austria, Azores Is., Belgium (catalogue Grootaert et al., 1991), Bosnia and Herzegovina, Bulgaria, Canary Islands, Cyprus, France (mainland), Germany, Greece (mainland, Crete, Dodecanisos), Hungary, Italy (mainland, Sardinia), Madeira, Malta, North Africa, Switzerland, Ukraine.

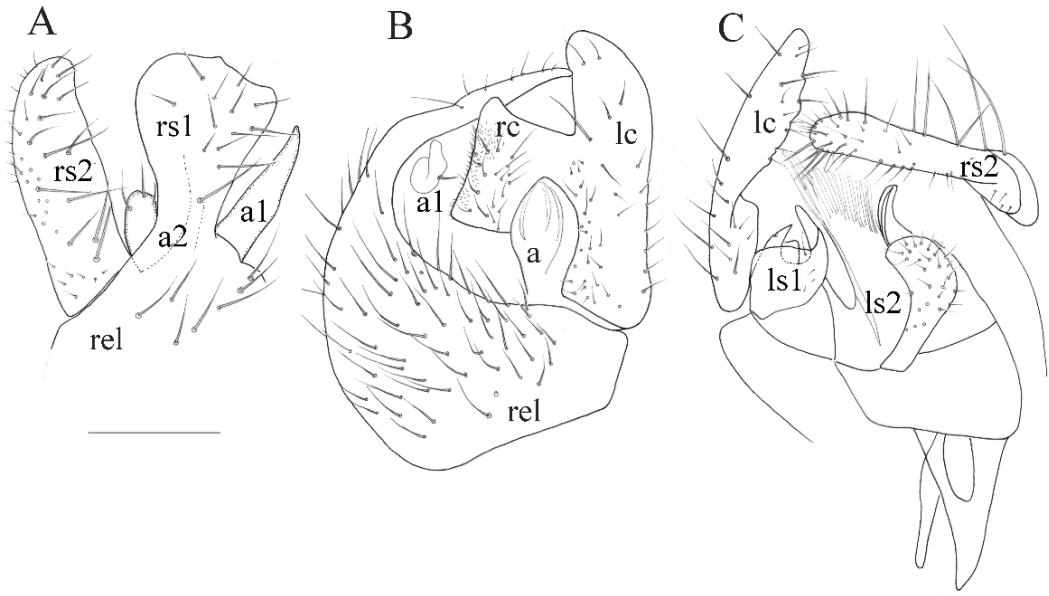

FIG. 2.**:** *Crossopalpus aeneus* (Walker, 1871). Male terminalia: A. right surstylus and apex of right epandrial lamella; B. dorsal view epandrium with cerci; C. ventral view epandrium showing border of left cercus, left surstyli and right surstylus. Scale 0.1 mm. (Greece, Megalohori Marsh, GR0043, leg. G. Ramel; image P. Grootaert).

Crossopalpus chvalai Kovalev, 1976

Figs 1, 3.

Crossopalpus chvalai Kovalev, 1976: 780 (figs 1-2).

Crossopalpus chvalai Kovalev, 1976 in Kovalev, 1979 (figs 1-2).

Material examined

2 ♂♂, 5 ♀♀, Neo Petritsi Sultanitsa, 1485m, 41°19'02.1 N 23°12'05.0 E, 23–29.V.2008 (MT); 3 ♂♂, 7 ♀♀, 14-21.IV.2008; 4♂♂, 2 ♀♀, 16-22.IV.2008; 4 ♂♂, 5 ♀♀, 30.IV–06.VII.2008; 4 ♂♂, 4 ♀♀, 07-13.VII.2008; 1 ♂, 5 ♀♀, 14-21.VII.2008; 1 ♂, 1 ♀, Kerkini timber Yard, 45m, 41º13'29,2 N 23º05'07,9 E, 23-29.V.2007; 1 ♀, Kerkini Plateau Alder, 1000m, 41°18'54 N 23°01'56 E, 08-13.VIII.2007, (YPT); 1 ♀, Kerkini Krousia Mts Site, 75m , 41°11'32,4 N 23°03'59,5E, 30.V. 05.IV.2007 (MT); 1 ♂, 3 ♀♀, Megalohori Strymon, 38m, 08- 14.IX.08 (hand); 1 ♀, Megalohori Marsh,, 38m, 41°15'01 N 23°14'08 E, 19.VIII.2007, (YPT); 1 ♂, Ano Paroia Plateau Platanus forest, 600m, 28.VIII.03.IX.2007 (YPT); 1 ♀, Vironia Ramna site, 700m, 41°17'42.5 N 23°11'33.1 E, 28.VII.3.VIII.2008 (MT); 1 ♂, 1 ♀, 22-28.IX.08 (MT); 3 ♂♂, 01-07.IX.08 (MT), (ref. GR0052, male terminalia illustrated).

Comments

This species is new for the Greek fauna. It is quite abundant and found in many sites in the Kerkini National Park. It is not widespread in Europe. *Crossopalpus chvalai* Kovalev, *C. curvipes* (Meigen), *C. dilutipes* (Strobl) and *C. setiger* (Loew) form a group of closely related species referred to as the setiger-group. It is characterized by typically male genitalia having a large, forked, strap-like right surstylus and a large left cercus with a very long strap-like left lobe. The right cercus is quite broad, apically not connected to the left cercus and generally bearing an apical seta distinct from other bristling on the cercus.

Distribution

Central and South European Russia, Hungary, Greece (mainland).

Crossopalpus flexuosus (Loew, 1840)

Fig. 4.

Crossopalpus flexuosus Loew, 1840: 23.

Crossopalpus chvalai (Loew, 1840) in Kovalev, 1972 (Figs 25-27).

Material examined

1♀, Kerkini pumping station, 37m, 41°12'48.7 N 23°06'11.9 E, 06-12.IV.2007 (MT) (reg. GR0040); 1 ♂, Megalohori Marsh, 38m, 41°15'01 N 23°14'08 E, 19.VIII.2007 (YPT) (reg. GR0042).

Comments

This species is new for the Greek fauna.

The right cercus is very narrow, while the left cercus is very large; pointing toward the right side.

Distribution

Austria, Belgium (Grootaert et al., 1991), Czech Republic, France (mainland), Germany, Greece (mainland), Italy (mainland), Macedonia, The Netherlands, Poland, Switzerland, (former) Yugoslavia.

Crossopalpus humilis (Frey, 1913)

Fig. 5.

Crossopalpus humilis Frey, 1913: 69.

Collin, 1961: Fig. 21 (wing); Fig. 22 (a. middle abdominal segment male; b. right lamella and anal papillae; c: left lamella).

Chvála, 1975: extended diagnosis (Figs. 628-630, 778).

Material examined

2 ♂♂, 3 ♀♀, Kerkini pumping station, alt. 37m, 41°12'48.7 N 23°06'11.9 E, 30.V.2007 – 05.IV.2007, MT (reg.

GR0037); 2 ♂♂, 2 ♀♀, 06.IV.2007 – 12.IV.2007 (MT) (reg. GR0038); 1 ♀, Neo Petritsi Roupel's Gorge, alt. 78m, 41°17'32 N 23°19'35 E, 14.III.10, YPT (reg. GR0047); 1 ♀, Ano Paroia Base camp, alt. 1600m, 41°18'35 N 23°03'36 E, 25.IV.2007 – 31.IV.2007 (MT) (reg. GR0049).

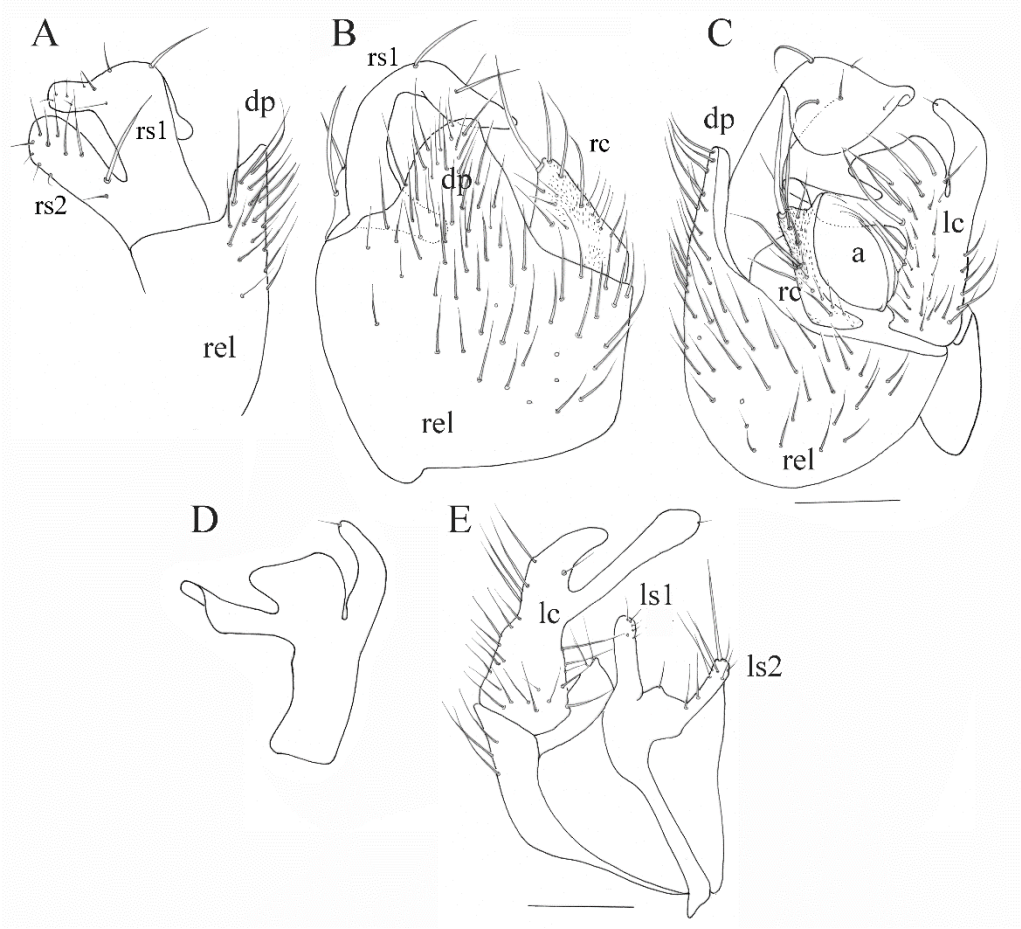

FIG. 3.**:** *Crossopalpus chvalai* Kovalev, 1976. Male terminalia: A. right surstylus and apex of right epandrial lamella; B. dorsal view epandrium right epandrial lamella; C. dorsal view epandrium with cerci; D. ventral view left cercus without setation; E. ventral view epandrium showing side of left cercus and left surstyli. Scale 0.1 mm. (Greece, Vironia Ramna site, GR0052, leg. G. Ramel; image P. Grootaert).

Comments

This species is new for the Greek fauna. *Crossopalpus humilis* is easily confused with *C. minimus* especially when only the colouration of the legs is considered, which is quite variable in *C. humilis*. The general coloration of the legs is variable from rather yellowish, yellowish brown to dark brown and so the paler forms can be confused with *C. minimus*.

Some of the characters in the key presented in Chvála (1975) and in the key here below, are difficult to interpret in small species like *C. humilis* and *C. minimus*, especially if no long series or specimens of both species can be compared. In the *C. humilis* specimens in the present study, the legs are all rather yellowish with somewhat brownish femora. The halteres are pale brownish, not brown as mentioned in the key. However, halteres that are dusky in ethanol become darker when dry, which might lead to consider them as black. The shape of the left cercus is striking. In both *C. humilis* and *C. minimus*, the large left cercus is forked. However, in C. humilis the right side of the fork is large (Fig. 5E) while the left side of the fork is short and narrow, finger-like. In *C. minimus* it is the opposite. The right side of the forked left cercus is much smaller than the huge rounded left side (Fig. 11B, D).

Distribution

Austria, Britain I., Belgium (Grootaert et al., 1991), Bulgaria, Czech Republic, Danish Mainland, East Palaearctic, Finland, Germany, Greece (mainland), Hungary, Ireland, Italy (mainland), The Netherlands, Russia (Central European and Northwest European Russia), Norway (mainland), Poland, Slovakia, Slovenia, Sweden and Switzerland.

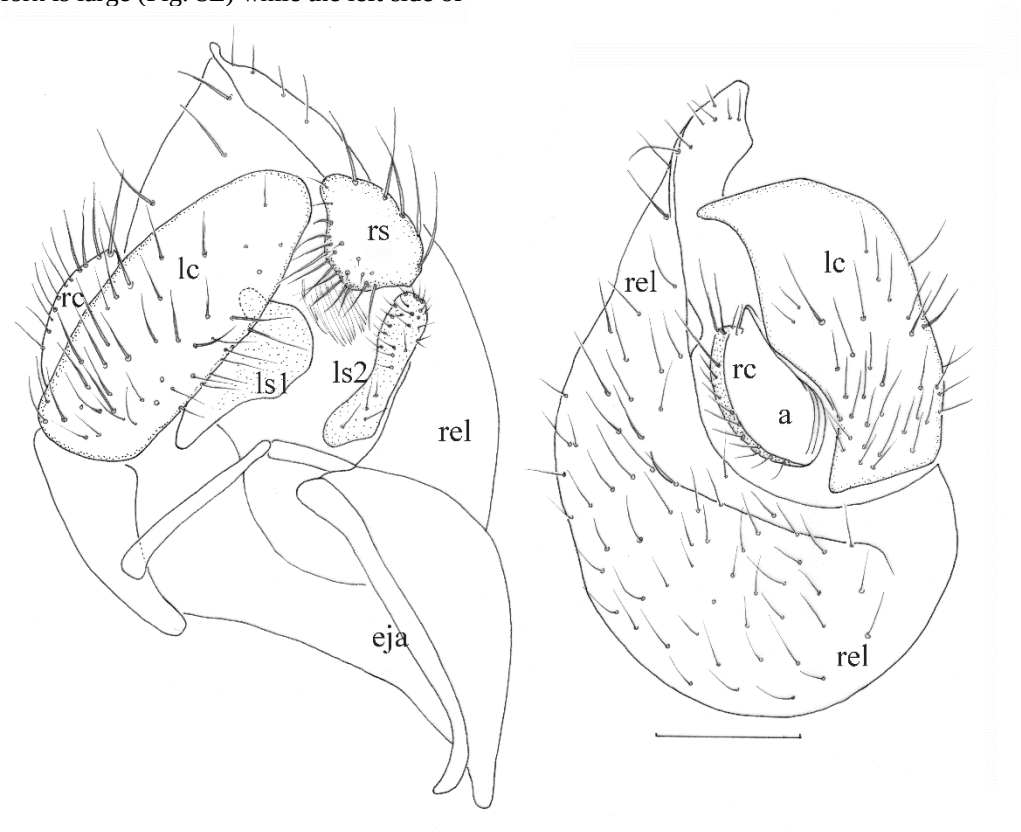

FIG. 4.**:** *Crossopalpus flexuosus* (Loew, 1840). Male terminalia: A. ventral view of epandrium with left cercus, left surstyli, right surstylus and apex of right epandrial lamella; B. dorsal view epandrium with cerci. Scale 0.1 mm. (Greece, Megalohori Marsh, GR0042, leg. G. Ramel; image P. Grootaert).

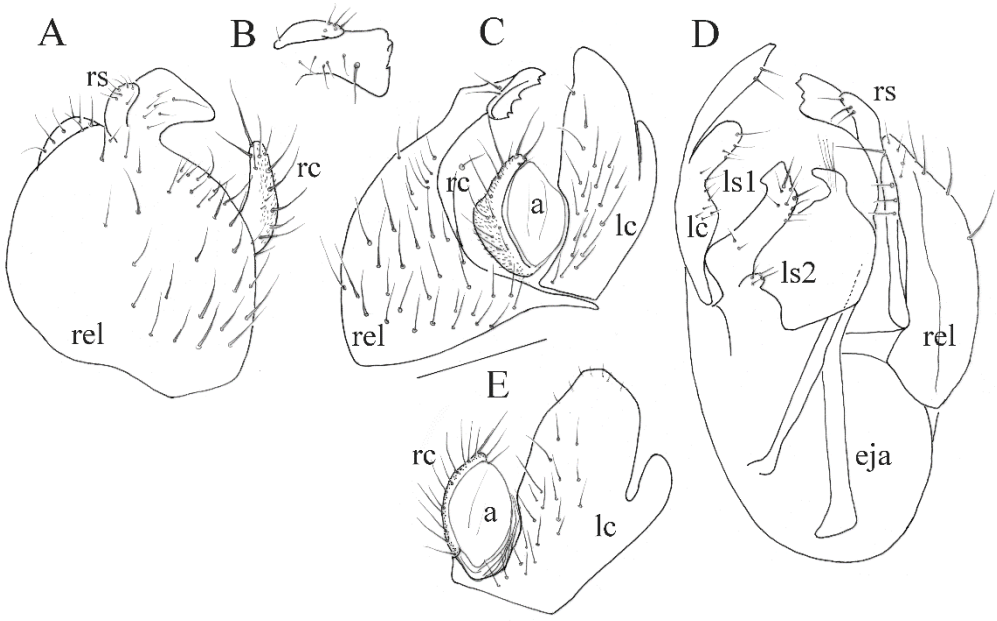

FIG. 5.**:** *Crossopalpus humilis* (Frey, 1913). Male terminalia: A. lateral view of right epandrial lamella with right surstylus (rs) and right cercus; B. apex right epandrial lamella seen from above; C. dorsal view epandrium with cerci; D. ventral view epandrium showing border of left cercus, left surstyli and right surstylus and border of right epandrial lamella. E. right and left cercus in dorsal view. Scale 0.1 mm. (Greece, Megalohori Marsh, GR0037, leg. G. Ramel; image P. Grootaert).

***Crossopalpus nigritellus* (Zetterstedt, 1842)**

Fig. 6.

Tachydromia nigritella Zetterstedt, 1842: 298.

Crossopalpus nigritella in Collin, 1961: 46: description, Fig. 20 (a) right epandrial lamella; (b) left terminal lamella and anal papillae; (c) left hind leg; (d) penis; (e) ventral lamella in which penis lays (hypandrium).

Crossopalpus nigritellus in Chvála, 1975: extended diagnosis (Figs. 10, 19, 29, 614, 625-627, 777)

Material examined

14♂, 12♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 6.VII.2008, Mal, GR0001; 1♂, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 6.VII.2008, Mal, GR0002; 8♂, 13♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 13.VII.2008, Mal, GR0005; 8♂, 6♀, Neo Petritsi Midway site, alt 750m, 41°18’49.8 N 23°16’35.6 E, 15.VI.2008 Mal, GR0006; 2♂, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 13.VII.2008, GR0008; 16♂, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 15.VI.2008, GR0009; 11♂, 25♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 15.X.2008, GR0010; 4♂, 2♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 3.VIII.2008, Mal, GR0011; 2♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 26.X.2008, GR0012; 17♂, 19♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N

23°12’05.0 E, 29.V.2008, Mal, GR0013; 8♂, 22♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 19.X.2008, Mal, GR0015; 1♂, 2♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 21.VII.2008, GR0016; 4♂, 6♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 14.IX.2008, Mal, GR0017; 2♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 29.IX.2008, Mal, GR0018; 3♂, 8♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 7.IX.2008 , GR0019; 1♂, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 22.VI.2008, hand, GR0020; 32♂, 28♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 22.VI.2008, Mal, GR0022; 37♂, 68♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 12.X.2008, Mal, GR0023; 13♂, 15♀, Neo Petritsi Sultanitsa, alt 1485m, 41°19’02.1 N 23°12’05.0 E, 15.IV.2008, Mal, GR0024; 1♀, Neo Petritsi Midway site, alt 750m, 41°18’49.8 N 23°16’35.6 E, 18.V.2008, Mal, GR0026; 2♂, 5♀, Neo Petritsi Midway site, alt 750m, 41°18’49.8 N 23°16’35.6 E, 25.V.2008, Mal, GR0027; 16♂, 14♀, Neo Petritsi Midway site, alt 750m, 41°18’49.8 N 23°16’35.6 E, 1.VI.2008, Mal, GR0028; 1♀, Neo Petritsi Midway site, alt 750m, 41°18’49.8 N 23°16’35.6 E, 8.VI.2008, 29.VI.2008, GR0029; 5♂, Neo Petritsi Midway site, alt 750m, 41°18’49.8 N 23°16’35.6 E, date, 29.V.2007, GR0030; 1♀, Kerkini timber Yard, alt 45m, 41º13’29,2 N 23º05’07,9 E, 23.V.2007, GR0031; 1♀, Kerkini Krousia, alt 75m, 41°11’32.4 N 23°03’59.5 E, 6.VI.2007, GR0033; 1♀, Kerkini Krousia, alt 75m, 41°11’32.4 N 23°03’59.5 E, 13.VI.2007, GR0034; 1♀, Lithotopos Ecotourism site, alt 65m, 41°08’15.6 N 23°13’01.2 E, 30.V.2006, Mal, GR0045; 1♂, Ano Paroia Base camp, alt 1600m, 41°18’35 N 23°03’36 E, 25.VI.2007, GR0050; 1♂, Vironia Ramna site, alt 700m, 41°17’42.5 N 23°11’33.1 E, 28.VII.2008, Mal; 1♂, Vironia Ramna site, alt 700m, 41°17’42.5 N 23°11’33.1 E, 1.IX.2008, Mal; 1♀, Vironia mini reed bed, alt 905m, 41°18’02.4 N 23°13’35.5 E, 14.VII.2008, YPT, GR0055; 1♀, Vironia tree 03 Abies , alt 1180m, 41°19’15.4 N 23°13’52.9 E, 21.VIII.2008, YPT, GR0056; 1♂, 1♀, Vironia tree line , alt 1605m, 41°18’55.2 N 23°12’49.1 E, 22.IX.2008, pitfall trap, GR0057; 1♀, Vironia tree line , alt 1605m, 41°18’55.2 N 23°12’49.1 E, 15.IX.2008, pitfall trap, GR0058; 1♀, Vironia tree line , alt 1605m, 41°18’55.2 N 23°12’49.1 E, 29.IX.2008, pitfall trap, GR0059.

Crossopalpus nigritellus was the most common and abundant species found in the present survey. It was found in all 60 samples containing *Crossopalpus* representing 467 specimens at altitudes ranging from 45 – 1600 m asl. The peak of flight activity was from the end of May until the end of June, but some specimens were found as late as October.

Distribution

Austria, Belgium, Britain I., Central European Russia, Czech Republic, Danish mainland, Estonia, Finland, France (mainland), Germany, Greece (mainland, Crete), Lithuania, Poland, Russia (Near East and Northeast European Russia), Slovakia, Slovenia, Spain (mainland), Sweden, Switzerland, The Netherlands, Ukraine.

Crossopalpus pilipes (Loew 1859)

Fig. 7.

Drapetis pilipes Loew (1859): 36.

Drapetis (Crossopalpus) pilipes Loew (1859) by Engel in Lindner: 117 (diagnosis) Fig. 68.

Comments

The species is reported from Greece in the Palaearctic catalogue of the Hybotidae by Chvála and Kovalev (1989) but was not sampled in the present study because it is a coastal species. Its occurrence in Greece is

not doubted and male genitalia are illustrated here of a specimen from Romania along the Black Sea.

Distribution

Bulgaria, France, Greece, Italy, Romania, Spain; North Africa: Egypt, Tunisia (Chvála & Kovalev, 1989).

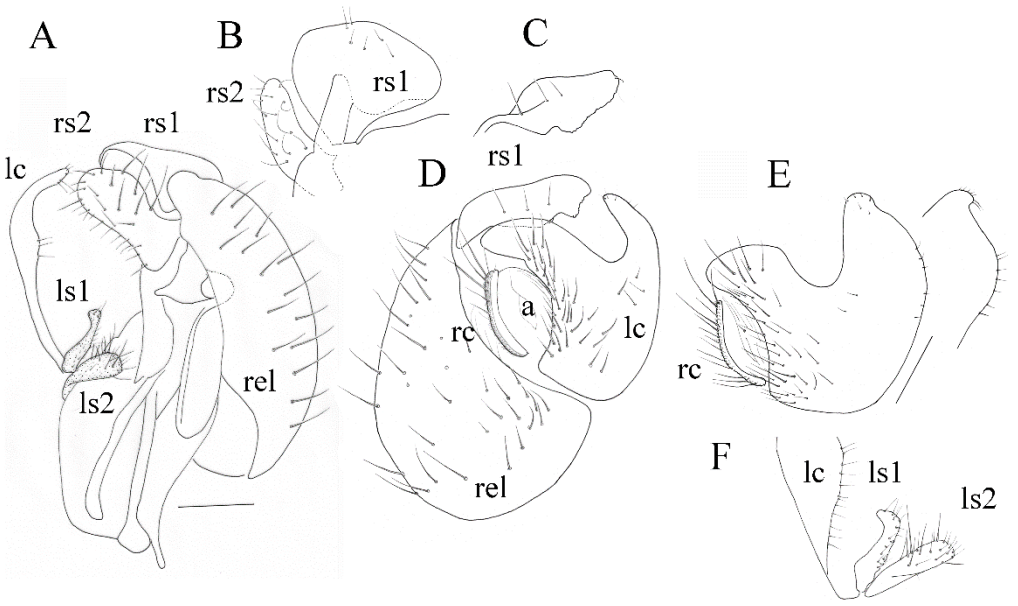

FIG. 6.**:** *Crossopalpus nigritellus* (Zetterstedt, 1842). Male terminalia: A. ventral view on epandrium with border of left cercus, left surstylus 1 & 2, right epandrial lamella with right surstylus 1 & 2; B. apical view on right surstylus 1 & 2; C. lateral view on right surstylus 1; D. dorsal view on epandrium and cerci; E. dorsolateral view on right and left cercus with detail of notch below apex of left cercus when tilted more to the left side; F. left surstylus 1 and 2 more tilted more ventrally than in fig. A. Scale 0.1 mm. (Greece, Megalohori Marsh, GR0017, leg. G. Ramel; image P. Grootaert).

***Crossopalpus setiger* (Loew 1859)**

Figs 8, 9.

Drapetis setiger Loew (1859): 39.

Crossopalpus setigera in Collin, 1961: 45: description. fig. 19: Male genital appendages (dorsal view of epandrium with cerci).

Crossopalpus setiger (Loew, 1859) in Chvála, 1975: 268 (figs 616, 617, 619-621, 775).

Material examined

1 ♂, 1♀, Kerkini pumping station, 37m, 41°12’48.7 N 23°06’11.9 E, 30.V.05.IV.2007 (MT). (reg. GR0036).

Comments

The male terminalia of *C. setiger* of the specimens from Kerkini (Greece) (Fig. 8) were compared with specimens from the Netherlands (Fig. 9) and Romania (Constanta) and all proved to be identical.

Distribution

Belgium (Grootaert et al., 1991), Britain I., Bulgaria, Central European Russia, Czech Republic, Danish mainland, Estonia, Finland, France (mainland), Germany, Greece (mainland, Dodekanisos), Italy (mainland, Sardinia), Lithuania, The

Netherlands, Northwest European Russia, Spanish mainland, Sweden.

Chvála (1975) mentions that *C. setiger* is mainly a coastal species or can be found on the sandy banks of lakes and rivers and on adjacent vegetation. This is a little confusing and would suggest that *C. setiger* is a coastal and lowland species. However, this species is not at all limited to coastal habitats but can occur in a variety of habitats and even high up in the mountains (Grootaert, unpubl).

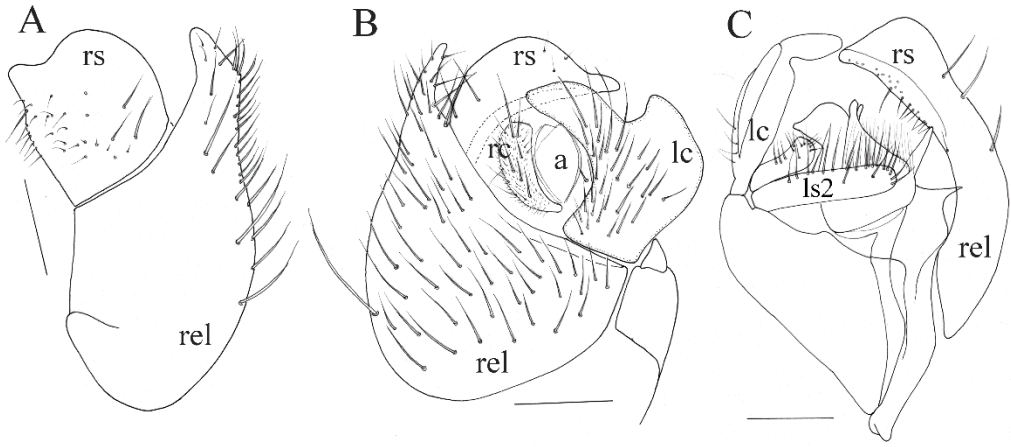

FIG. 7.**:** *Crossopalpus pilipes* Male terminalia: A. Right epandrial lamella and right surstylus in lateral view; B. epandrium with cerci, dorsal view; C. epandrium ventral view. Scale 0.1 mm. (Romania, Sacalin I., leg. Alexandru Pintilioaie; image P. Grootaert).

Species expected to occur in Greece

Crossopalpus abditus Kovalev, 1972

Fig. 10.

Crossopalpus abditus Kovalev, 1972: 194 (Figs 28-30, 33).

Crossopalpus abditus Chvála, 1975: 275 (figs 634-636).

Material examined
Belgium, 41 males, 12 females, De Gavers (Leg. M. Pollet).

Comments
Not recorded yet from Greece but expected to be present. *C. abditus* is closely related to *C. flexuosus* that is recorded here for the first time in Greece. The illustration of the genitalia is from a male from Belgium.

Distribution
Belgium, Central European Russia, Czech Republic, East Palaearctic, Finland, Germany, Northwest European Russia, Slovakia, Sweden, Ukraine.

Crossopalpus minimus (Meigen, 1838)

Fig. 11.

Drapetis minimus (Meigen, 1838): 100.

Crossopalpus minima in Collin, 1961: 50: description. Fig. 21: (a) genital appendages; (b) antenna.

Comments
The species has not been reported from Greece but considering its distribution it is

expected here and, therefore, illustrated. Due to the variability of the general colouration, this species can be confused with *C. humilis*. However, the shape of the male left cercus is very distinctive as is discussed above under *C. humilis*.

Distribution

Belgium (Grootaert et al., 1991), Britain I., Central European Russia, Estonia, France (mainland), Germany, The Netherlands, Switzerland.

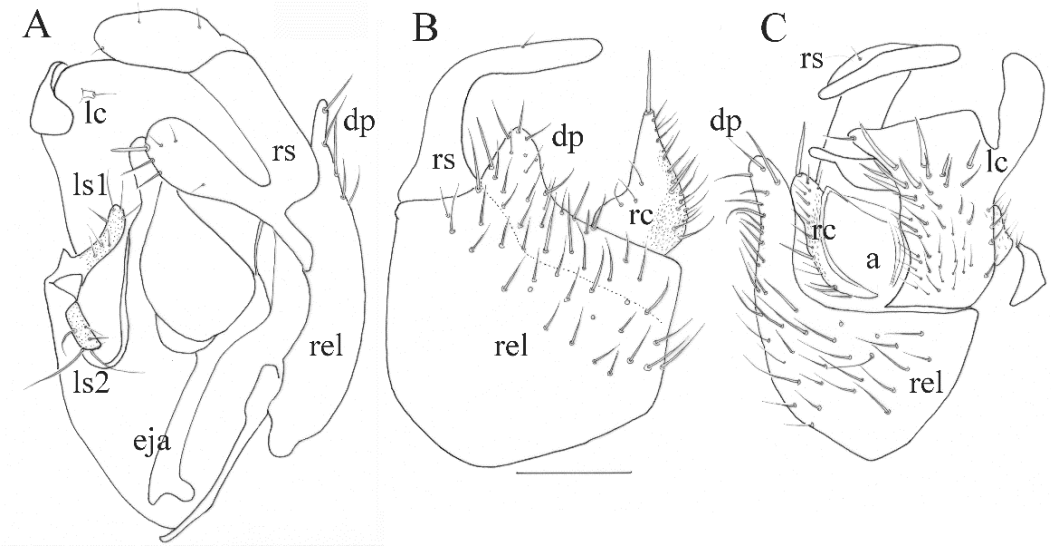

FIG. 8.**:** *Crossopalpus setiger* (Loew, 1859). Male terminalia: A. epandrium ventral view; B. epandrium right lateral view; C. epandrium with cerci, dorsal view. Scale 0.1 mm. (Greece, Kerkini, GR0036, leg. G. Ramel; image P. Grootaert).

Key to male *Crossopalpus* species from Greece

1.-Hind tibia with at least two distinct anterodorsal setae besides the usual preapical setae (Fig. 2). Mesonotum with long black setae mixed with short setae…….…. 2

-Hind tibia without anterodorsal setae except for the preapical ones. Mesonotum with only short setae (numerous acr and dc), without distinct long setae except at sides ……...…….…… 4

2. Hind tibia with two to three long posterodorsal setae in addition to the row of anterodorsal setae, these setae about three times as long as tibia is wide. Hind tibia with a preapical posterior yellow spur, about one third of the length of the metatarsus …… *C. pilipes* (Loew)

.- Hind tibia lacking long posterodorsal setae and hind tibia lacking a long posterior spur or if present at most with a small rounded projection …….……..… 3

3. Hind tibia black or dark brown at basal quarter. Ventral seta on pedicel 4/5 of length of postpedicel. Dorso-apical triangular projection (dp) of the right epandrial lamella shorter than half of the length of the right epandrial lamella (Fig. 8) ....…… *C. setiger* (Loew)

.-Hind tibia yellowish brown to (in some females with a black anterodorsal stripe) dark brown. Male: ventral seta on pedicel 2/3 length of postpedicel. Dorso-apical triangular projection (dp) of the right epandrial lamella very large, exceeding half the length of the right epandrial lamella and longer than right surstylus located behind this projection (Fig. 3) ……..……*C. chvalai* Kovalev

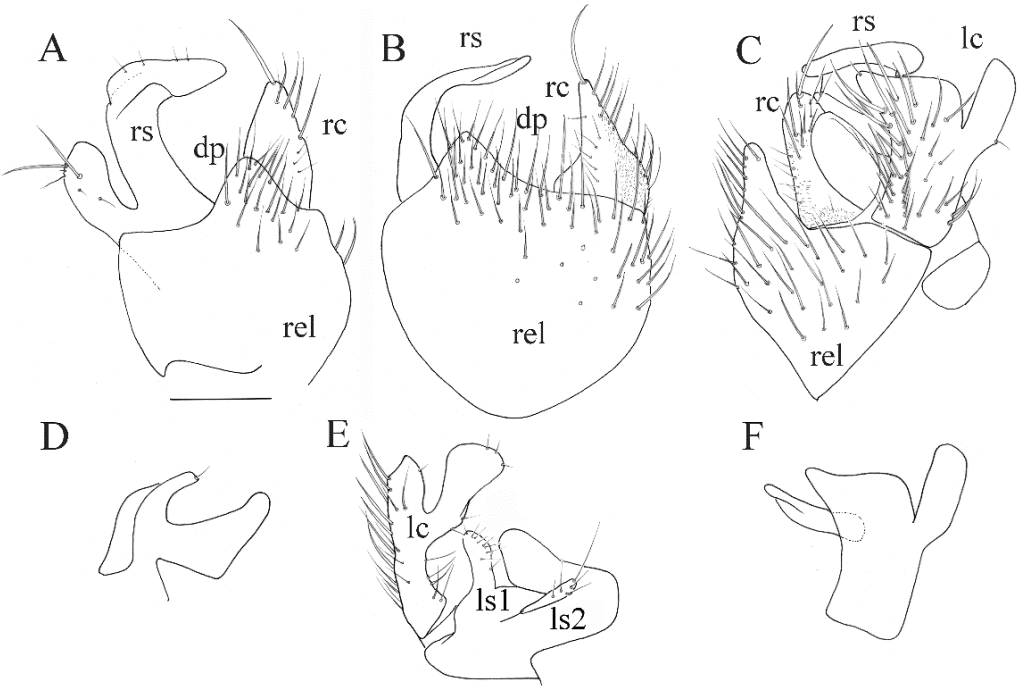

FIG. 9.**:** *Crossopalpus setiger* (Loew, 1859). Male terminalia: A. right surstylus and apex of right epandrial lamella; B. Lateral view right epandrial lamella with right cercus; C. dorsal view epandrium with cerci; D. right view on left cercus; E. left view on left cercus with left surstyli; F. dorsal view on left cercus without setae showing a ventral appendage hidden by right cercus and anus. Scale 0.1 mm. (The Netherlands, leg. J. Wind; image P. Grootaert).

4. Anepisternum entirely shiny black (including the dorsal margin). Hind tibia with a more or less distinct apical tooth ……5

.-Anepisternum with spots of light pubescence or the entire dorsal margin of anepisternum pubescent. Hind tibia with a distinct apical tooth (*C. aeneus*) or without (*C. flexuosus*, *C. abditus*) ……..……. 7

5. Fore coxa black. Apical section of vein M slightly undulating and curved anteriorly at extreme tip. Palpus and halter darkened. Hind femur with three long, black anteroventral setae before tip, and hind tibia with a rather large and rounded apical tooth posteriorly. Larger, body size 1.6-2.2 mm ……..…… *C. nigritellus* (Zetterstedt)

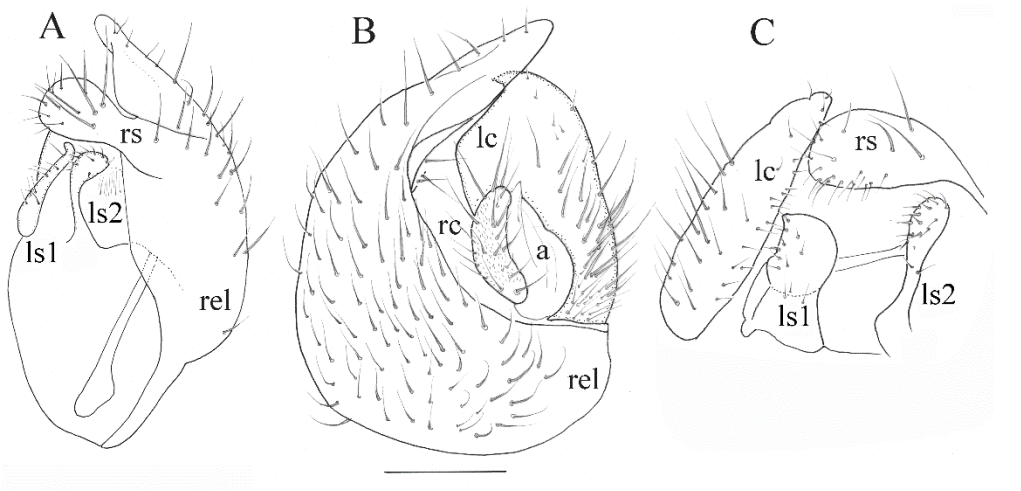

FIG. 10.**:** *Crossopalpus abditus* Kovalev, 1972. Male terminalia (Fig. xx): A. right surstylus and apex of right epandrial lamella and left surstyli 1 and 2 (rs1, rs2); B. dorsal view on epandrium with cerci; C. ventral view on epandrium with lateral side of left cercus, right and left surstylus. Scale 0.1 mm (Belgium, De Gavers, GA0032, leg. M. Pollet; image P. Grootaert).

-. Fore coxa yellowish. Apical section of vein M more distinctly curved anteriorly before tip. Hind femur with two weaker anteroventral setae before tip, and hind tibia with a smaller and rather pointed tooth posteriorly. Smaller, body size 1.2-1.5 mm ……..…….…… 6

6. Legs mostly blackish. Stylus shorter, less than four times as long as basal antennal segments. Hind femur thickened towards tip and somewhat curved; vein M more evenly bowed. Halter brown. Rather smaller species ……. *C. humilis* (Frey)

-. Legs yellowish, only hind coxa and four posterior femora blackish apical-dorsally. Stylus longer, more than four times as long as antenna. Hind femur more equally thickened but similarly curved; vein M slightly curved anteriorly on apical quarter. Halter pale yellow. Slightly larger species. ……. *C. minimus* (Meigen)

7. Apex of hind tibia posteriorly with a long preapical tooth (Kovalev, 1969: fig. 365, 7). The apical segment of vein M lacking an undulating bend. Scutum with four to five pairs of strong dorsocentral setae; one or two of them before the middle of scutum. Body size 2-2.5 mm ……..…..*C. aeneus* (Walker)

.- Hind tibia without posterior preapical tooth. Vein M with an undulating bend. Only the prescutellar dorsocentral setae are developed ……..…..…… 8

8. Fore coxae yellowish. Fore and mid femora black, but at least apical third yellow. Male genitalia (Fig. 4) …….. *C. flexuosus* Loew

.- Fore coxae black. Fore and mid femora black and only the extreme tip yellowish to reddish-brown. Male genitalia (Fig. 10). ..... *C. abditus* Kovalev

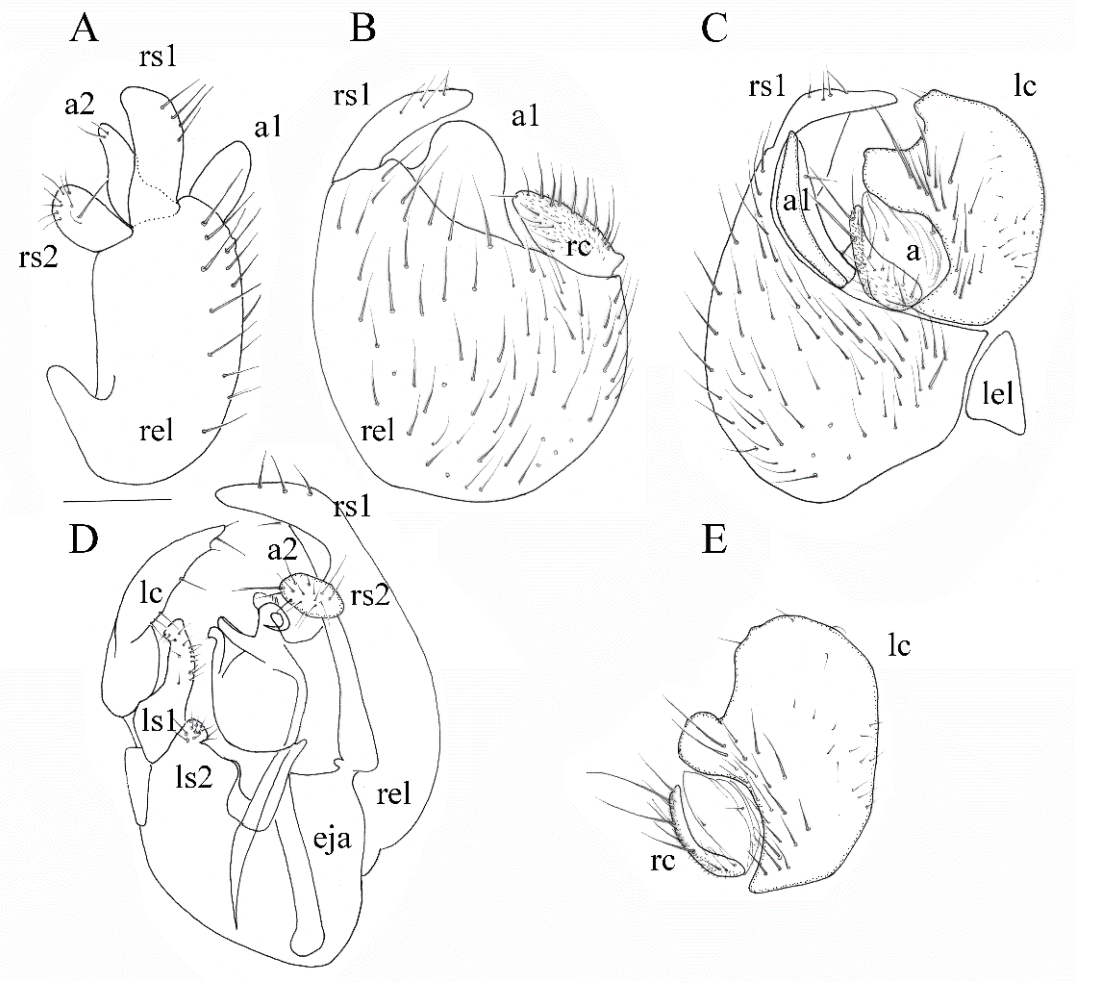

FIG. 11.**:** *Crossopalpus minimus* (Meigen, 1838). Male terminalia: A. ventro-lateral view of right epandrial lamella with right surstylus (rs1 and rs2) below the surstyli sit appendages of the inner border of the right epandrial (a1 & a2); B. dorso-lateral view of epandrium with right cercus; C. dorsal view epandrium with cerci; D. ventral view epandrium showing border of left cercus, left surstyli and right surstylus and border of right epandrial lamella; E. dorsal view on right and left cercus. Scale: 0.1 mm. (Belgium, Brussels, reg. JM1338, leg. P. Grootaert; image P. Grootaert).

General discussion and conclusions

The extensive sampling in Kerkini National Park, especially using Malaise traps, resulted in three new species of Crossopalpus for Greece. However, it is unusual to find large numbers of Crossopalpus in Malaise traps since they are mainly ground dwellers and larger numbers are often found in coloured pan traps on the ground. The sampling with other methods was less extensive than with the Malaise traps hence no false conclusions should be drawn from the results obtained here as to the effectiveness of the methods.

Though seven *Crossopalpus* species have been recorded in Greece now, it is likely that several more species are to be expected when a more extensive survey of the country will be made.

Acknowledgements

We heartily thank Gordon Ramel (Project Kerkini) for collecting and providing the samples. Further we thank Miroslav Barták, Alexandru Pintilioaie, Marc Pollet, Jan Wind and Ruud van der Weele for providing specimens from their collections to compare with the Greek samples. We also thank the important comments of two anonymous reviewers and Dr Igor Shamshev.

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Annexe 1. Collection data of the survey in Kerkini National Park (N. Greece)

Register	species	male	female	total	locality	altitude	latitude	date in	date out	trap
GR0001	*Crossopalpus nigritellus*	14	12	26	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	30-Jun-08	06-Jul-08	MT
GR0002	*Crossopalpus nigritellus*	1		1	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	30-Jun-08	06-Jul-08	MT
GR0003	*Crossopalpus chvalai*	4	5	9	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	30-Jun-08	06-Jul-08	MT
GR0004	*Crossopalpus chvalai*	4	4	8	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	07-Jul-08	13-Jul-08	MT
GR0005	*Crossopalpus nigritellus*	8	13	21	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	07-Jul-08	13-Jul-08	MT
GR0006	*Crossopalpus nigritellus*	8	6	14	Neo Petritsi Midway site	750m	41°18'49.8 N 23°16'35.6 E	09-Jun-08	15-Jun-08	MT
GR0007	*Crossopalpus chvalai*	3	7	10	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	14-Jun-08	21-Jun-08	MT
GR0008	*Crossopalpus nigritellus*	2		2	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	14-Jun-08	21-Jun-08	MT
GR0009	*Crossopalpus nigritellus*	16		16	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	15-Sep-08	21-Sep-08	MT
GR0010	*Crossopalpus nigritellus*	11	25	36	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	29-Sep-08	15-Oct-08	MT
GR0011	*Crossopalpus nigritellus*	4	2	6	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	28-Jul-08	03-Aug-08	MT
GR0012	*Crossopalpus nigritellus*	0	2	2	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	20-Oct-08	26-Oct-08	MT
GR0013	*Crossopalpus nigritellus*	17	19	36	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	23-May-08	29-May-08	MT
GR0014	*Crossopalpus chvalai*	2	5	7	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	23-May-08	29-May-08	MT
GR0015	*Crossopalpus nigritellus*	8	22	30	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	13-Oct-08	19-Oct-08	MT
GR0016	*Crossopalpus nigritellus*	1	2	3	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	14-Jul-08	21-Jul-08	MT
GR0016	*Crossopalpus chvalai*	1	5	6	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	14-Jul-08	21-Jul-08	MT
GR0017	*Crossopalpus nigritellus*	4	6	10	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	08-Sep-08	14-Sep-08	MT
GR0018	*Crossopalpus nigritellus*	0	2	2	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	22-Sep-08	28-Sep-08	MT
GR0019	*Crossopalpus nigritellus*	3	8	11	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	01-Sep-08	07-Sep-08	NA
GR0020	*Crossopalpus nigritellus*	1	0	1	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	16-Jun-08	22-Jun-08	hand
GR0021	*Crossopalpus chvalai*	4	2	6	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	16-Jun-08	22-Jun-08	MT
GR0022	*Crossopalpus nigritellus*	32	28	60	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	16-Jun-08	22-Jun-08	MT
GR0023	*Crossopalpus nigritellus*	37	68	105	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	06-Oct-08	12-Oct-08	MT
GR0024	*Crossopalpus nigritellus*	13	15	28	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	09-Jun-08	15-Jun-08	MT
GR0025	*Crossopalpus chvalai*	3	4	7	Neo Petritsi Sultanitsa	1485m	41°19'02.1 N 23°12'05.0 E	09-Jun-08	15-Jun-08	MT
GR0026	*Crossopalpus nigritellus*	0	1	1	Neo Petritsi Midway site	750m	41°18'49.8 N 23°16'35.6 E	12-May-08	18-May-08	MT
GR0027	*Crossopalpus nigritellus*	2	5	7	Neo Petritsi Midway site	750m	41°18'49.8 N 23°16'35.6 E	19-May-08	25-May-08	MT
GR0028	*Crossopalpus nigritellus*	16	14	30	Neo Petritsi Midway site	750m	41°18'49.8 N 23°16'35.6 E	26-May-08	01-Jun-08	MT
GR0029	*Crossopalpus nigritellus*	0	1	1	Neo Petritsi Midway site	750m	41°18'49.8 N 23°16'35.6 E	02-Jun-08	08-Jun-08	MT
GR0030	*Crossopalpus nigritellus*	5	0	5	Neo Petritsi Midway site	750m	41°18'49.8 N 23°16'35.6 E	23-Jun-08	29-Jun-08	MT
GR0031	*Crossopalpus nigritellus*	0	1	1	Kerkini timber Yard	45m	41º13'29,2 N 23º05'07,9 E	23-May-07	29-May-07	NA
GR0032	*Crossopalpus chvalai*	1	1	2	Kerkini timber Yard	45m	41º13'29,2 N 23º05'07,9 E	23-May-07	29-May-07	NA
GR0033	*Crossopalpus nigritellus*	0	1	1	Kerkini Krousia	75m	41°11'32.4 N 23°03'59.5 E	06-Jun-07	12-Jun-07	NA
GR0034	*Crossopalpus nigritellus*	0	1	1	Kerkini Krousia	75m	41°11'32.4 N 23°03'59.5 E	13-Jun-07	19-Jun-07	NA
GR0035	*Crossopalpus chvalai*	0	1	1	Kerkini Plateau Alder	1000m	41°18'54 N 23°01'56 E	08-Aug-07	13-Aug-07	YPT
GR0036	*Crossopalpus setiger*	1	1	2	Kerkini pumping station	37m	41°12'48.7 N 23°06'11.9 E	30-May-07	05-Jun-07	MT
GR0037	*Crossopalpus humilis*	2	3	5	Kerkini pumping station	37m	41°12'48.7 N 23°06'11.9 E	30-May-07	05-Jun-07	MT
GR0038	*Crossopalpus humilis*	2	2	4	Kerkini pumping station	37m	41°12'48.7 N 23°06'11.9 E	06-Jun-07	12-Jun-07	MT
GR0039	*Crossopalpus aeneus*	0	1	1	Kerkini pumping station	37m	41°12'48.7 N 23°06'11.9 E	06-Jun-07	12-Jun-07	MT
GR0040	*Crossopalpus flexuosus*	0	1	1	Kerkini pumping station	37m	41°12'48.7 N 23°06'11.9 E	06-Jun-07	12-Jun-07	MT
GR0041	*Crossopalpus chvalai*	1	3	4	Megalohori Strymon	38m	NA	08-Sep-08	14-Sep-08	hand
GR0042	*Crossopalpus flexuosus*	1	0	1	Megalohori Marsh	38m	41°15'01 N 23°14'08 E	NA	19-Aug-07	YPT
GR0043	*Crossopalpus aeneus*	4	1	5	Megalohori Marsh	38m	41°15'01 N 23°14'08 E	NA	19-Aug-07	YPT
GR0044	*Crossopalpus chvalai*	0	1	1	Megalohori Marsh	38m	41°15'01 N 23°14'08 E	NA	19-Aug-07	YPT
GR0045	*Crossopalpus nigritellus*	0	1	1	Lithotopos Ecotourism site	65m	41°08'15.6 N 23°13'01.2 E	30-May-06	05-Jun-06	MT
GR0046	*Crossopalpus aeneus*	0	1	1	Neo Petritsi Strymon floodplain	48m	41°16'09 N 23°19'39 E	NA	15-Mar-10	YPT
GR0047	*Crossopalpus humilis*	0	1	1	Neo Petritsi Roupel's Gorge	78m	41°17'32 N 23°19'35 E	NA	14-Mar-10	YPT
GR0048	*Crossopalpus aeneus*	0	1	1	Neo Petritsi Roupel's Gorge	78m	41°17'32 N 23°19'35 E	NA	15-Mar-10	YPT
GR0049	*Crossopalpus humilis*	0	1	1	Ano Paroia Base camp	1600m	41°18'35 N 23°03'36 E	25-Jun-07	31/Jun/2007	NA
GR0050	*Crossopalpus nigritellus*	1	0	1	Ano Paroia Base camp	1600m	41°18'35 N 23°03'36 E	25-Jun-07	31/Jun/2007	NA
GR0051	*Crossopalpus chvalai*	1	0	1	Ano Paroia Plateau Platanus forest	600m	NA	28-Aug-07	03-Sep-07	YPT
GR0052	*Crossopalpus chvalai*	1	1	2	Vironia Ramna site	700m	41°17'42.5 N 23°11'33.1 E	22-Sep-08	28-Sep-08	MT
GR0053	*Crossopalpus chvalai*	0	1	1	Vironia Ramna site	700m	41°17'42.5 N 23°11'33.1 E	28-Jul-08	03-Aug-08	MT
GR0053	*Crossopalpus nigritellus*	1	0	1	Vironia Ramna site	700m	41°17'42.5 N 23°11'33.1 E	28-Jul-08	03-Aug-08	MT
GR0054	*Crossopalpus chvalai*	3	0	3	Vironia Ramna site	700m	41°17'42.5 N 23°11'33.1 E	01-Sep-08	07-Sep-08	MT
GR0054	*Crossopalpus nigritellus*	1	0	1	Vironia Ramna site	700m	41°17'42.5 N 23°11'33.1 E	01-Sep-08	07-Sep-08	MT
GR0055	*Crossopalpus nigritellus*	0	1	1	Vironia mini reed bed	905m	41°18'02.4 N 23°13'35.5 E	14-Jul-08	20-Jul-08	YPT
GR0056	*Crossopalpus nigritellus*	0	1	1	Vironia tree 03 Abies	1180m	41°19'15.4 N 23°13'52.9 E	21-Jul-08	27-Jul-08	YPT
GR0057	*Crossopalpus nigritellus*	1	1	2	Vironia tree line	1605m	41°18'55.2 N 23°12'49.1 E	22-Sep-08	28-Sep-08	PFT
GR0058	*Crossopalpus nigritellus*	0	1	1	Vironia tree line	1605m	41°18'55.2 N 23°12'49.1 E	15-Sep-08	21-Sep-08	PFT
GR0059	*Crossopalpus nigritellus*	0	1	1	Vironia tree line	1605m	41°18'55.2 N 23°12'49.1 E	29-Sep-08	05-Oct-08	PFT
GR0060	*Crossopalpus chvalai*	0	1	1	Kerkini Krousia Mts Site	75m	41°11'32,4 N 23°03'59,5E	30-May-07	05-Jun-07	MT

Register = number of the tube (some species were left together in a tube)
date in: some were missing on label
NA = data notavailable on label
MT: Malaise trap
YPT: yellow pan trap

Αναφορά στο γένος αρπακτικών *Crossopalpus* από τον Εθνικό Δρυμό Κερκίνης με κλείδα προσδιορισμού για τα είδη που εμφανίζονται ή ενδέχεται να εμφανιστούν στην Ελλάδα

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ΠΕΡΙΛΗΨΗ

Κατά τη διάρκεια μιας πρόσφατης μελέτης που διεξήχθη στον Εθνικό Δρυμό Κερκίνης στη Βόρεια Ελλάδα, συλλέχθηκαν άτομα από έξι είδη του γένους *Crossopalpus*. Τα τρία από αυτά τα είδη αναφέρονται για πρώτη φορά από την Ελλάδα, συγκεκριμένα τα *Crossopalpus chvalai* Kovalev, 1976, *Crossopalpus flexuosus* (Loew, 1840) και *Crossopalpus humilis* (Frey, 1913). Στην παρούσα εργασία περιλαμβάνεται μια κλείδα προσδιορισμού των ειδών του γένους *Crossopalpus* που απαντώνται στην Ελλάδα, συμπεριλαμβανομένων αυτών που ενδέχεται να εμφανιστούν. Επιπροσθέτως, δίνονται νέες απεικονίσεις των γεννητικών οργάνων των αρσενικών όλων των αναφερόμενων στην κλείδα ειδών.

