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Notes on the species of Tetracampidae, with descriptions of some new species from Turkey (Hymenoptera, Chalcidoidea)

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Abstract

Diagnostic characters of the European subfamilies Platynocheilinae and Tetracampinae of the family Tetracampidae (Hymenoptera) and their genera and species from Turkey are given. The genera and species are: *Platynocheilus cuprifrons* (NEES, 1834) from Erzincan, *P. karsensis* sp. nov. from Kars (Platynocheilinae), *Epiclerus panyas* (WALKER, 1839), from Erzurum and Tokat, *E. tokatus* sp. nov. and *E. guemenekus* sp. nov. from Tokat, *E. alahanensis* sp. nov. from Hatay and *Foersterella seyhanensis* sp. nov. from Adana (Tetracampinae). The new species are described and illustrated, and some biological data for the species are given.

Key words: Hymenoptera, Tetracampidae, new species, Turkey.

Zusammenfassung

Es werden die diagnostischen Merkmale der europäischen Unterfamilien Platynocheilinae und Tetracampinae der Familie Tetracampidae (Hymenoptera) und ihrer Gattungen und Arten aus der Türkei veröffentlicht. Folgende Gattungen und Arten werden bearbeitet: *Platynocheilus cuprifrons* (NEES, 1834) von Erzincan, *P. karsensis* sp. nov. von Kars (Platynocheilinae), *Epiclerus panyas* (WALKER, 1839) von Erzurum und Tokat, *E. tokatus* sp. nov. und *E. guemenekus* sp. nov. von Tokat, *E. alahanensis* sp. nov. von Hatay und *Foersterella seyhanensis* sp. nov. von Adana (Tetracampinae). Die neuen Arten werden beschrieben und ihre diagnostischen Merkmale abgebildet. Angaben zur Biologie der behandelten Arten werden hinzugefügt.

Introduction

The tetracampid species are recognized by the following characters: Antennae with 11-12 segments, with single anellus, the club with three segments; thorax with pronotum large, bell-shaped, its hind margin usually indistinct, closely joined with mesonotum; mesoscutum with parapsidal grooves distinct and complete; scutellum with only two long pairs of bristles; fore wing with marginal vein long, much longer than stigmal, the postmarginal long; marginal vein in males of subfamily Platynocheilinae broadened, sausage-shaped; tarsi with five segments, except in males of subfamily Tetracampinae having tarsi four segmented (NIKOL'SKAYA 1952; BOUCEK 1958, 1965, 1988, 1997; GRAHAM 1963; YOSHIMOTO 1978; NIKOL'SKAYA & TRJAPITCYN 1978; PRINSLOO 1980).

In Europe and Turkey, there are two subfamilies, Platynocheilinae and Tetracampinae. The characters of the subfamilies are given in the key to subfamilies of Tetracampidae (BOUCEK 1958). Platynocheilinae consist of one genus, *Platynocheilus* WESTWOOD, ???, with three species which parasitize Agromyzidae (Diptera) and Pteromalidae (Hymenoptera) (BOUCEK & ASKEW 1968; BOUCEK 1993). Tetracampinae include 7 genera and 21 species in the world, and the species are parasitoids of eggs and larvae of Chrysomelidae (Coleoptera) and Agromyzidae (BOUCEK & ASKEW 1968).

BOUCEK (1958) and PECK et al. (1964) worked on European species, MANI (1971) on Indian species, BOUCEK (1988) on Australasian species, YOSHIMOTO (1975, 1978) and BOUCEK (1993, 1997) on Nearctic species. These are the main references on Tetracampidae, all of them gave diagnostic characters for the subfamilies, the genera and their species, including biological and distributional data for the species.

In the recent catalogue (NOYES 1998) the number of described species in the world are of *Platynocheilus*: 1 Nearctic, 2 Palearctic, 1 Holarctic; of *Epiclerus*: 3 Nearctic, 7 Palearctic, 5 Australasia; of *Foersterella*: 2 Palearctic and 1 Australian. Some undescribed ones were also reported by BOUCEK (1988) from several parts of the world. In Turkey, DOĞANLAR (1985) recorded two species from Eastern Anatolia.

In the present work, the Turkish species of Tetracampidae are studied, an identification key for the subfamilies, genera and their species are provided, four new species are described and illustrated, and available biological data of some species are given. Some material was reared from host(s) or from material with which the host(s) are associated. Other specimens were swept from pastures.

Key to Tetracampidae concerning Turkey (BOUCEK 1958, 1997)

- 1 Body long and narrow, with pronotum almost as long as broad; propodeum broadly bare; tarsi 5-segmented. ♀: antenna 12-segmented, with a long anellus. ♂: antenna 11-segmented, funicle 5-segmented; marginal vein greatly widened (fig.1) *Platynocheilinae - Platynocheilus* WESTWOOD, 1837 - 2
- Body, especially mesosoma, shorter, with pronotum distinctly broader than long; scutellum with two pairs of long bristles; propodeum extensively setose, the setae converging propodeum towards midline; antenna 11- or 12-segmented, if 12, then anellus short and transverse. ♂: tarsi 4-segmented; marginal vein normal. *Tetracampinae - 3*

- 2 In dorsal view head almost twice as broad as long; temples (fig.5) about 0.23 - 0.28 times as long as eyes; OOL almost equal to the distance between hind ocellus and hind margin of vertex; antenna with combined length of pedicellus and flagellum about twice breadth of head. *Platynocheilus cuprifrons* (NEES, 1834)
- In dorsal view head 1.75 times as broad as long; temples (fig.2) about half length of eyes; OOL about half of the distance between hind ocellus and hind margin of vertex; antenna with combined length of pedicellus and flagellum 1.34 times breadth of head. *Platynocheilus karsensis* sp. nov.
- 3 Gastral petiole quadrate to longer than broad, dorsally sculptured; pedicellus distinctly shorter than the first funicular segment; propodeum, metapleuron, and most of metacoxa entirely and densely setose; male antenna with scapus much longer than broad. *Epiclerus* HALIDAY, 1844 - 4
- Gastral petiole short, at least slightly transverse in dorsal view, without distinct sculpture; pedicellus twice as long as the first funicular segment; propodeum metapleuron, metacoxa not densely setose; male antenna with scapus 6 times as long as broad (fig.17) *Foersterella seyhanensis* sp. nov.
- 4 Tarsi 5-segmented; ♀: Propodeum very densely setose, medially with many punctures bearing white hairs, without reticulations; petiole with almost parallel edges, twice as long as broad in the middle; the last flagellar segment transverse *Epiclerus panyas* (WALKER, 1839)
- Tarsi 4-segmented; male 5
- 5 Scapus entirely dark, without ventral plaque, 3 times as long as broad *Epiclerus nomocerus* MASI, 1934
- Scapus with a distinct ventral plaque, less than twice as long as broad 6
- 6 Flagellum (fig.15) distinctly attenuate towards apex, 1st flagellar segments distinctly flattened, as long as broad, with only 3 rows of linear sensillae; 2nd and 3rd flagellar segments 1.5 - 2 times as broad as long; the others slightly transverse; 2nd flagellar segment with only one row of linear sensillae; 3rd almost with two rows; 4th with one row; 5th with one and a half rows; 6th with one row of sensillae; scapus with ventral plaque 0.45 - 0.50 length of scapus; propodeum with very dense white hairs and distinct punctures *Epiclerus panyas* (WALKER, 1839)
- Flagellum slightly attenuate towards apex or filamentous; funicular segments cylindrical, longer than broad; flagellar segment 2-6 almost quadrate; propodeum with sparse hairs and fine punctures 7
- 7 Funicular (fig.14) segments with a few linear sensillae, 1st with 3 rows, 2nd and 3rd with 2 rows, 4th to 6th with a row of sensillae; 5th and 6th funicular segments distinctly transverse; scapus with a ventral plaque about 0.3 length of scapus *Epiclerus alahanensis* sp. nov.
- Funicular segments with more sensillae; 5th and 6th funicular segments at most quadrate 8
- 8 Antenna (fig.12) with ventral plaque of scapus 0.66 length of scapus; funicular segments with many rows of short sensillae, the latter 1.5 times as long as broad, the 1st with almost 9 rows, 2nd with 7 rows, 3rd to 5th with 5 rows, 6th 4 rows; total length of pedicellus and flagellum 1.54 times breadth of head; the latter equal to width of forewing *Epiclerus guemenekus* sp. nov.

- Antenna (fig.13) with ventral plaque of scapus at most basal half of scapus; funicular segments with 4 rows of longer sensillae, the latter almost 5 times as long as broad; total length of pedicellus and flagellum at most 1.44 times breadth of head; the latter at least slightly shorter than width of forewing 9
- 9 Scapus twice as long as broad; pedicellus shorter than apical width of scapus; 1st funicular segment 1.5 times as long as broad (fig.29 of BOUCEK 1958) *Epiclerus temenus* (WALKER, 1839)
- Scapus (fig.13) 1.25 times as long as broad; pedicellus about as long as apical width of scapus; 1st funicular segment almost twice as long as broad *Epiclerus tokatus* sp. nov.

***Platynocheilus cuprifrons* (NEES, 1834) (figs 5, 6)**

♂: Length 1.8 mm. The synonyms and a very good description of the species were given by BOUCEK (1958). The specimens collected at Erzincan are identical with the description of the species, some additional characters can be given as follows: head in dorsal view (fig.5) twice as broad as long; antennae with pedicellus plus flagellum 1.9 times as long as breadth of head; temples about 0.23 - 0.28 times length of eye; OOL almost equal to distance between hind ocellus and hind margin of vertex; malar space 0.66 - 0.75 times length of eye; tentorial pits very deep, and clypeus elevated up. Petiole (fig.6) almost quadrate.

Material examined: 3 ♂♂, 9.V.1982, Erzincan, Turkey (leg. DOĞANLAR), swept from pastures.

Host unknown.

***Platynocheilus karsensis* sp. nov. (figs.1-4)**

Holotype ♂: Length 1.9 mm. Body metallic green, with bluish tinge dorsally on head, thorax and abdomen; antennae, marginal vein, tibiae and tarsi brownish black; coxae and femora concolorous with the body; venation, tegulae, trochanteres, basal and apical tips of femora pale yellow.

Head broader than thorax, in relation 35 : 28, in dorsal view (fig.2) 1.75 times as broad as long; ocelli small, POL : OOL = 12 : 5; OOL about half of the distance between hind ocellus and hind margin of vertex; temples very broad, half of length of eye; the vertical diameter of eye longer than malar space, as 3 : 2; anterior margin of clypeus truncate; tentorial pits deep, lengthened through sides of clypeus, at mid way of the distance between mouth margin and antennal sockets. Head in anterior view rounded-oval, only slightly transverse (35 : 30). Antennae (fig.4) with pedicellus plus flagellum 1.34 times as long as breadth of head, 1.65 times breadth of mesothorax; length : width of antennal segments in ratio as: 16 : 4; 8 : 3.5; 4 : 2; 4 : 2.8; 4 : 3; 4.5 : 3.8; 4 : 3; 4 : 3.5; 11+2 : 4.5 (club segments 4+4+3 with distinct spine).

Thorax about 2.5 times as long as broad, indistinct pubescent. Pronotum conical, in median line a little shorter than basal breadth (4:5); mesonotum 1.25 times as long as pronotum; scutellum oblong (19:14); propodeum as long as the distance between spiracles; callus with three rows of setae; hind margin of propodeum straight. Wings (fig.1): forewing without hairs on basal and cubital folds; speculum large, open; costal cell about

7 times as long as broad; marginal vein very broad, 4.2 times as long as broad; postmarginal vein almost half of marginal vein and 1.27 times as long as stigmal vein. Legs slender; hind tibiae 1.18 times as long as hind tarsus.

Gaster as long as head plus thorax, lanceolate, with sparse setae on hind margin of terga; petiole (fig.3) short, transverse, about thrice as broad as long.

♀ unknown.

Host unknown.

Distribution: Eastern Anatolia, Turkey.

Material studied: Holotype ♂, Sarıkamış, Kars, about 2000 m ab. See level, 24.VI. 1984 (leg. DOĞANLAR); deposited in the Dept. of Plant Protection, Agriculture Faculty, Mustafa Kemal University, Antakya, Hatay, Turkey.

Diagnosis: The genus has three species in the world, two from Europe, one from Transcaucasia. The new species differs from all of them in having very broad occiput (fig.2), the temples about half length of eyes (the other species having temples at most 0.3 times length of eye); head in dorsal view rather stout like *gracilis* BOUCEK, 1965, OOL 1/3 of distance between hind ocellus and hind margin of vertex (in *gracilis* OOL 1/2, and in *cuprifrons* and *gravenhorsti* RATZEBURG, 1852 equal to the distance between hind ocellus and hind margin of vertex).

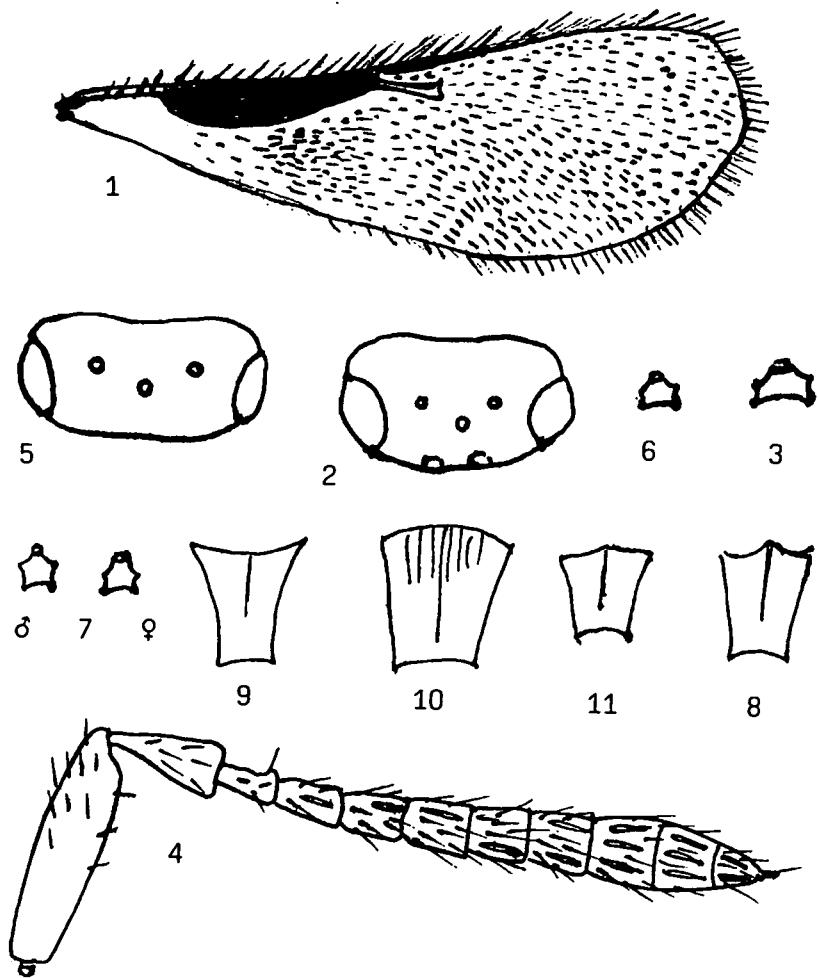
Foersterella seyhanensis sp. nov. (figs 7, 16, 17)

♀: Length 0.80 - 0.85 mm. Body greenish-blue, head darker, thorax and gaster basally brownish, antennae and legs brown, wings hyaline, venation pale yellow. Head slightly broader than thorax, in relation 23:20, in dorsal view 1.95 times as broad as long; POL : OOL = 7 : 4; OOL slightly greater than the distance between hind ocellus and median ocellus; temples very narrow, 1/6 length of eye; the vertical diameter of eye two times longer than malar space. Head in anterior view distinctly transverse (23:18), clypeus almost absent (fig.25). Antennae (fig.16, 26) with pedicellus plus flagellum 1.27 times as long as breadth of head, about 1.5 times breadth of mesothorax; length : width of antennal segments in ratio as: 11 : 2.5; 5 : 2.8; 2 : 2; 2.5 : 2; 2.5 : 2.5; 2.5 : 2; 2.5 : 2; 3 : 3; 9 : 3.8.

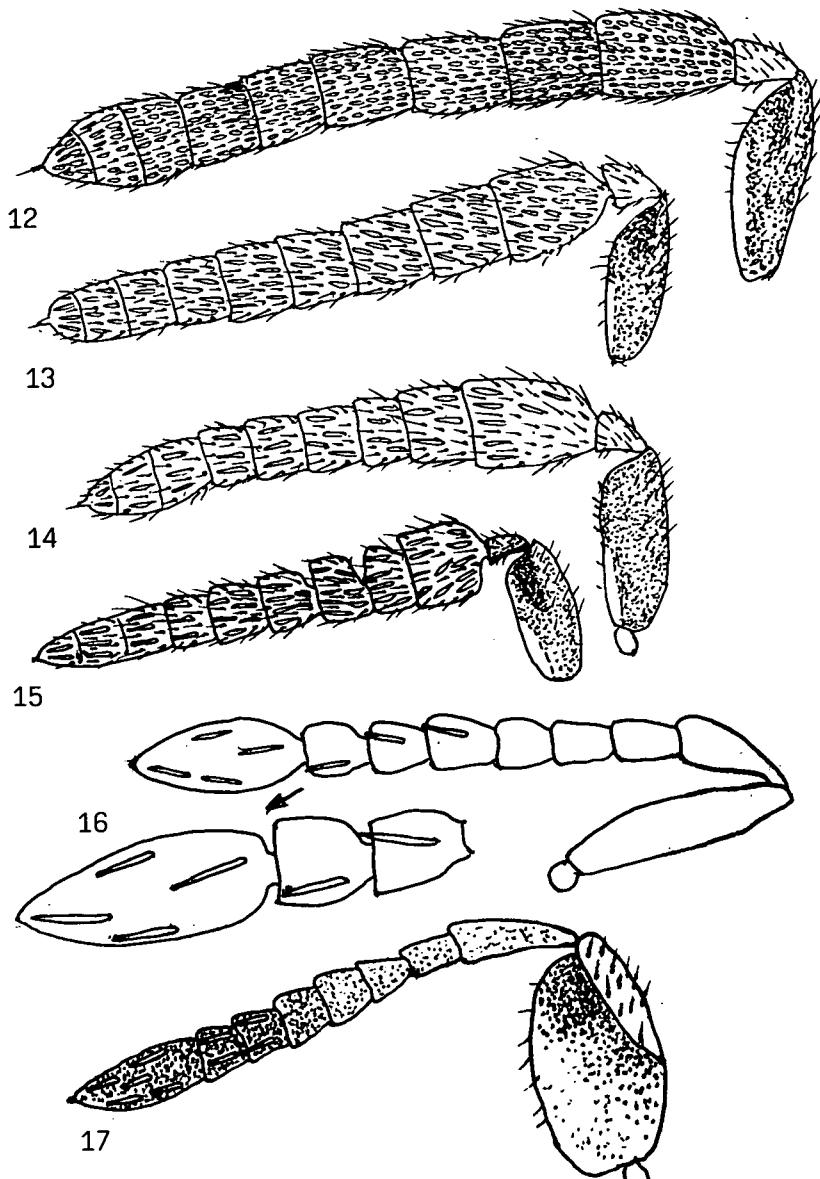
Thorax (fig.24) about 1.5 times as long as broad, pubescence almost same as given for *Foersterella reptans* (NEES, ???) by BOUCEK (1958). Pronotum conical, in median line almost half of basal breadth (9:19); mesonotum 0.8 times as long as pronotum; scutellum distinctly transverse (8:11); propodeum 0.45 times as long as the distance between spiracles, with sparse setae, more than thrice as long as metanotum. Forewing without speculum, covered with hairs; costal cell about 17 times as long as broad; marginal vein 1.3 times as long as postmarginal vein, the latter 4 times as long as stigmal vein; stigma with very long uncus, almost as long as length of stigma. Legs slender, hind metatarsus distinctly shorter than total length of following two segments, in ratio 3:4.

Gaster (figs 27, 29) slightly shorter than head plus thorax (6:7) and about 1.5 times as long as broad, with sparse setae on hind margin of terga; petiole (figs 7, 29) short, quadrate.

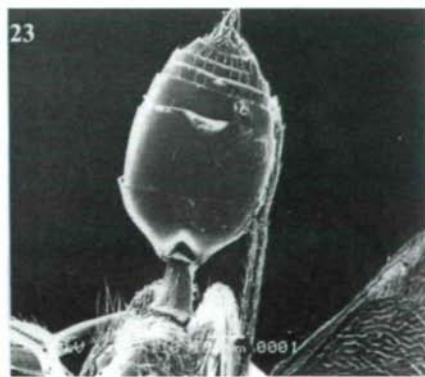
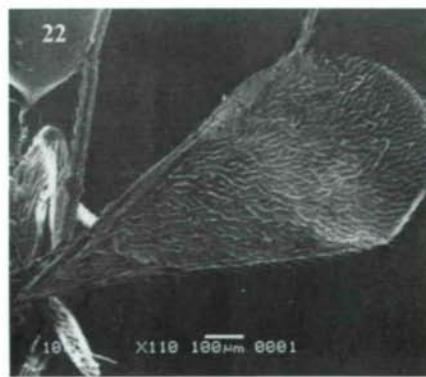
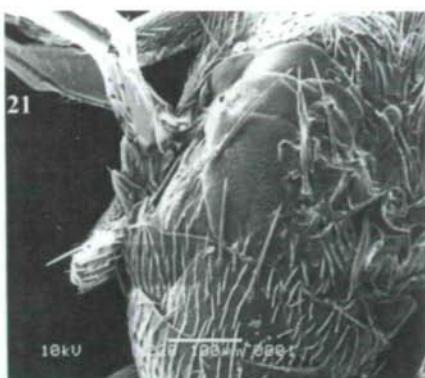
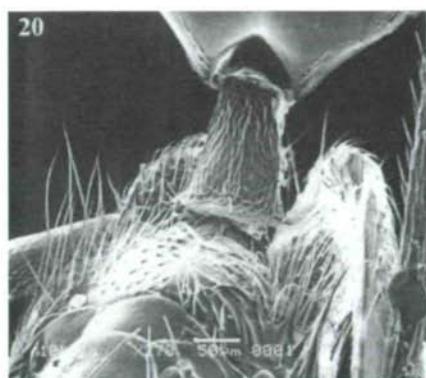
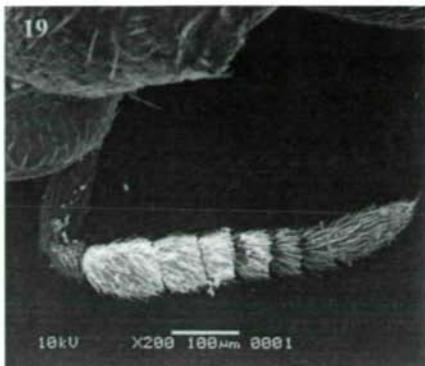
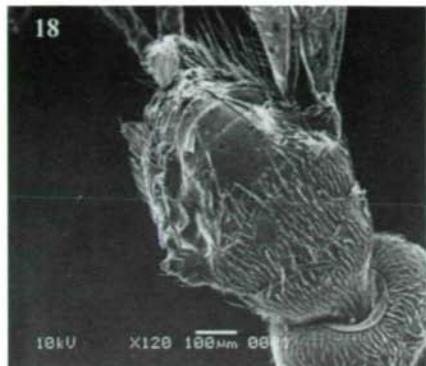
♂: Length 0.65 mm. Similar to female, except as follows: scapus and legs pale yellow, scapus a little darker apically, pedicellus light brown, flagellum brown. Propodeum 0.6 times as long as the distance between spiracles.



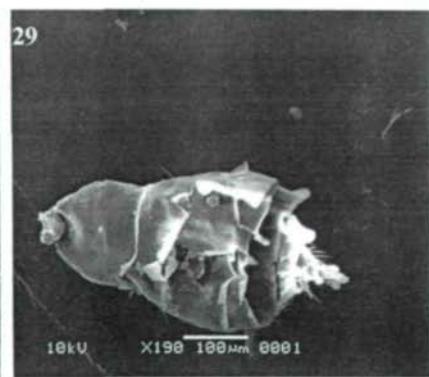
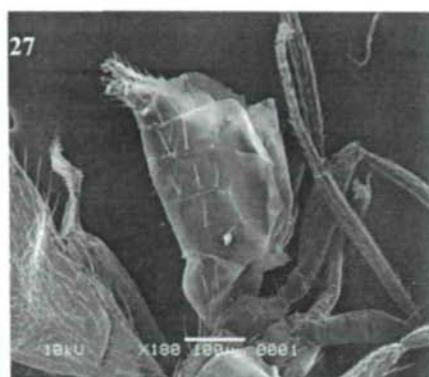
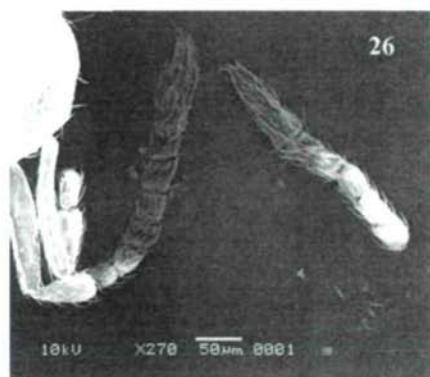
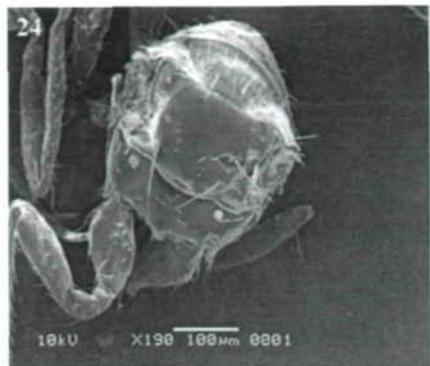
Figs 1- 4 *Platynocheilus karsensis* sp. nov. ♂: 1 forewing; 2 head in dorsal view; 3 petiole; 4 antenna. 5, 6 *Platynocheilus cuprifrons* (NEES, 1834) ♂: 5 head in dorsal view; 6 petiole. 7-11 petioles ♂: 7 *Foersterella seyhanensis* sp. nov.; 8 *Epiclerus alahanensis* sp. nov.; 9 *E. panyas* (WALKER, 1839); 10 *E. guemenekus* sp. nov.; 11 *E. tokatus* sp. nov.



Figs 12-15 *Epiclerus* spp. male antennae: 12 *E. guemenekus* sp. nov.; 13 *E. tokatus* sp. nov.; 14 *E. alahanensis* sp. nov.; 15 *E. panyas* (WALKER, 1839). 16, 17 *Foersterella seyhanensis* sp. nov. antennae: 16 female; 17 male.



Figs 18-19 *Epiclerus alahanensis* sp. nov.: 18 prosoma and mesosoma in dorsal view; 19 male antenna. 20-23 *Epiclerus panyas* (WALKER, 1839): 20 propodeum and petiole; 21 mesosoma in dorsal view; 22 forewing; 23 metasoma and propodeum.



Figs 24-29 *Foersterella seyhanensis* sp. nov.: 24 mesosoma; 25 lower part of head; 26 female antennae; 27 lateral and 29 dorsal view of female metasoma; 28 male antenna.

Antennae (figs 17, 28) with scapus broadly enlarged, 1.6 times as long as broad; flagellum almost filamentous, slightly wider than distance from third funicular segment to club; length : width of antennal segments in ratio as: 13 : 8; 7 : 2.5; 3 : 1.8; 3 : 2.2; 2.5 : 3; 2.5 : 3; 2.2 : 3; 2.2 : 3; 7.5 : 3. Petiole (fig.7) slightly narrower than that of female.

Host: Many females and males were reared from eggs of *Cassida rubiginosa* NULL. (Coleoptera: Chrysomellidae), feeding on leaves of *Cynara scolymus* and of *Onopordon* sp., *Circium* spp.

Distribution: Eastern part of Mediterranean Region, Adana, Turkey.

Material studied: Holotype ♀, Balcali-Adana, Turkey, 10.V.1998, reared from eggs of *Cassida rubigonosa* MULL. feeding on *Cynara scolymus* L. (leg. M.D. GHAVAMI); deposited in Entomology Museum of the Department of Plant Protection, Faculty of Agriculture, Mustafa Kemal University, Antakya, Hatay, Turkey. - Paratype (Allotype) ♂: same locality as holotype, 1.IV.1998. Paratypes: many ♀♀ and ♂♂, same locality as holotype, 1.IV.-2.VI.1998; some of them were reared on 10.II.1998 under laboratory conditions.

Diagnosis: The new species is similar to *F. reptans* NEES, 1834 in female and *F. erdoesi* BOUCEK, 1958 in male, but it differs from both as follows: scapus shorter than total length of pedicellus and following two segments (11 : 9.5) (in *reptans* scapus is equal to total length of pedicellus and following two segments); 1st funicular segment quadrate (in *reptans* 1st funicular segment 1.5 times as long as broad); club distinctly broader than 6th segment (in *reptans* club as broad as or slightly broader than 6th segment); malar space 2/3 width of eye (in *reptans* malar space equal to width of eye); metanotum 1/3 length of propodeum (in *reptans* metanotum half length of propodeum); hind metatarsus distinctly shorter than total length of following two segments (3 : 4); in male it differs from *reptans* in having unicolorous brown and almost filamentous flagellum, which is distinctly broader apically, and last three funicular segments white in *reptans*. It differs from *erdoesi* in having funicular segments from third to sixth equal (in *erdoesi* 3rd segment differs from the following ones, almost longer than width of preceding funiculars); scapus 1.6 times as long as broad (in *erdoesi* almost more than twice as long as broad), as seen in figs 20 and 23 of BOUCEK (1958). In female it differs from *erdoesi* in having shorter gaster, which is distinctly shorter than total length of head and thorax (in *erdoesi* gaster is distinctly longer than total length of head plus thorax as seen in figs 21-22 of BOUCEK 1958).

Epiclerus panyas (WALKER, 1839) (figs 9, 15)

The synonyms and a very good descriptions for both sexes of the species were given by BOUCEK (1958). The specimens from Turkey and from England agree in general with the description (figs 20-23). A few exceptions are in male antennae as seen in fig.15 and petiole (figs 9, 20) slightly narrower than that of BOUCEK's drawing.

Material studied: Turkey, 1♀, Erzurum, Olur, 7.VII.1984 (leg. DOĞANLAR); Tokat, 2♀♀, Taşlıçiftlik, 14.-18.IV.1989 (leg. H. ÇAM); 1♂, Merkez, 13.IV.1989 (leg. H. ÇAM); 1♂, Fidanlık, 28.V.1989 (leg. H. ÇAM). England, London, 3♀♀, 1♂, Gladstone Park, 26.VII.1981 (leg DOĞANLAR). All of them were swept from pastures. Host unknown.

Epiclerus alahanensis sp. nov. (figs 8, 14)

♂: Length 1.25 mm. Body black with bluish-green tinge, scapus with metallic tint, except white ventral plaque, antennae brownish black without metallic tint, coxae concolorous with body, mid and hind femora in basal half brown, forelegs, except coxae, tibiae and tarsi yellow, pretarsi black, wings hyaline, venation brownish-yellow.

Head (fig.18) slightly broader than thorax, in relation 38 : 32, in dorsal view almost twice as broad as long; POL : OOL = 11 : 5. Eye 1.37 times as long as broad; the vertical diameter of eye almost 2.5 times the malar space (19 : 8). Antennae (figs 14, 19) with pedicellus plus flagellum 1.5 times as long as breadth of head, about 1.65 times breadth of mesothorax; scapus with a ventral plaque in basal half of its length; length : width of antennal segments in ratio as: 15 : 6; 3 : 2; 10 : 7; 5 : 6; 4 : 5; 5 : 4.5; 4 : 4.8; 4 : 4.5; 11+1 : 4.5. Club segments in ratio: 4 : 3.5 : 3.5, with a short spine. Numbers of sensillae on segments as stated in the key.

Thorax (fig.18) about 1.66 times as long as broad, pubescence almost same as given for *Epiclerus panyas* by BOUCEK (1958). Pronotum conical, in median line 0.60 of basal breadth (9 : 15); mesonotum 0.66 times as long as pronotum; scutellum slightly longer than broad (19 : 16); propodeum about as long as the distance between spiracles, about 4 times as long as metanotum. Forewing about 2.60 times as long as broad, without speculum, covered with hairs; costal cell about 14 times as long as broad, with a few hairs on upper surface; marginal vein 2.35 times as long as postmarginal vein, the latter 3 times as long as stigmal vein; hindwing almost 5 times as long as broad. Legs slender; hind metatarsus distinctly shorter than total length of following two segments, in ratio 3 : 4.

Gaster slightly shorter than broad; petiole (fig.8) short, slightly longer than basal breadth (15:13).

Host unknown.

Distribution: Antakya, Hatay, Turkey.

Material studied: Holotype ♂, Turkey, Atakya, Hatay, Alahan Köyü, 14.VI.1989 (leg. E. DEMIREL), reared from *Phytomyza horticola* on *Sonchus oleraceae*; deposited in the Entomological Museum, Department of Plant Protection, Faculty of Agriculture, Mustafa Kemal University, Antakya-Hatay, Turkey.

Diagnosis: The new species is similar to *E. panyas* in having a few linear sensillae on flagellar segments, but it differs from it in having filamentous antennae and a longer 2nd funicular segment, which is 1.38 times as long as broad (in *panyas* flagellum is distinctly attenuate towards apex, flattened, 2nd funicular segment is distinctly transverse, 1.6 times as broad as long), and some other characters given in the key.

Epiclerus guemenekus sp. nov. (figs 10, 12)

♂: Length 1.90 mm. Body black with bluish-green tinge, except mesonotum and basal half of scutellum purple, antennae brownish black without metallic tint, coxae concolorous with body, hind femora in basal half brown, forelegs, tibiae and tarsi yellow, pretarsi black, wings hyaline, venation brownish-yellow.

Head slightly broader than thorax, in relation 50 : 45, in dorsal view twice as broad as long; POL : OOL = 13 : 7. Eye 1.25 times as long as broad, the vertical diameter of eye

almost two times longer than malar space (24 : 13). Antennae (fig.12) with pedicellus plus flagellum 1.5 times as long as breadth of head, about 1.65 times breadth of mesothorax; scapus with a ventral plaque, basal 2:3 of its length; length : width of antennal segments in ratio as: 20 : 7; 7 : 5; 13 : 7; 9 : 7; 9 : 7; 8 : 7; 6.5 : 7; 6.5 : 7; 15+1 : 8. Club segments in ratio: 5 : 5 : 5, with a short spine. Numbers of sensillae (1.5 times as long as broad) on segments as stated in the key.

Thorax about 1.66 times as long as broad, pubescence almost same as given for *Epiclerus panyas* by BOUCEK (1958). Pronotum conical, in median line 0.63 of basal breadth (5 : 8); mesonotum 0.71 times as long as pronotum; scutellum slightly longer than broad (25 : 23); propodeum about 0.65 times as long as the distance between spiracles, about 3 times as long as metanotum. Forewing about 2.36 times as long as broad, without speculum, covered with hairs; costal cell about 13 times as long as broad, with complete row of hairs on upper surface; marginal vein 1.9 times as long as postmarginal vein, the latter 3.3 times as long as stigmal vein; hindwing almost 5 times as long as broad. Legs slender, hind metatarsus distinctly shorter than total length of following two segments, in ratio 3:4.

Gaster slightly shorter than broad; petiole (fig.10) short, slightly longer than basal breadth (15:13).

Host unknown.

Distribution: Tokat, Turkey.

Material studied: Holotype ♂, Turkey, Tokat, Gümenek Köyü, 14.VI.1989 (leg. H. ÇAM), swept from pasture; deposited in the Entomology Museum, Department of Plant Protection, Faculty of Agriculture, Mustafa Kemal University, Antakya-Hatay, Turkey.

Diagnosis: The new species is similar to *E. temenus* (WALKER, 1839) and *E. alahanensis* sp. nov. in having long cylindrical antennae. It differs from both in having a lot of minute, almost dotted sensillae on flagellar segments (in both other species the flagellar segment with at most 3-4 rows of long sensillae); scape with longer ventral plaque (in both other species the ventral plaque is shorter as seen in fig.29 of BOUCEK (1958) and in fig.12). Also some other characters are stated in the key.

Epiclerus tokatus sp. nov. (figs 11, 13)

♂: Length 1.35 - 1.40 mm. Body black with bluish-green tinge, antennae brownish black without metallic tint, coxae concolorous with body, femora and tibiae brown, except their tips yellow, pretarsi black, wings hyaline, venation brown.

Head slightly broader than thorax, in relation 38 : 32, in dorsal view 2.1 times as broad as long; POL : OOL = 9 : 7. Eye 1.13 times as long as broad; the vertical diameter of eye 1.7 times malar space. Antennae (fig.13) with pedicellus plus flagellum 1.5 times as long as breadth of head, about 1.78 times breadth of mesothorax; scapus with a ventral plaque in basal half of its length; length : width of antennal segments in ratio as: 15 : 6; 5 : 3; 10 : 8; 7 : 7.5; 7 : 7.5; 6 : 7.5; 6 : 7; 4.8 : 6; 12+1 : 5. Club segments in ratio: 5 : 4 : 3, with a short spine. Numbers of sensillae (5 times as long as broad) on segments as stated in the key.

Thorax about 1.76 times as long as broad, pubescence almost same as given for *Epiclerus panyas* by BOUCEK (1958). Pronotum conical, in median line 0.57 of basal

breadth (8 : 14); mesonotum 0.75 times as long as pronotum; scutellum almost as long as breadth (20 : 19); propodeum about 0.70 times as long as the distance between spiracles, about twice as long as metanotum. Forewing about 2.38 times as long as broad, without speculum, covered with hairs; costal cell about 15 times as long as broad, with complete row of hairs on upper surface; marginal vein 1.66 times as long as postmarginal vein, the latter 3 times as long as stigmal vein; hindwing 5 times as long as broad. Legs slender; hind metatarsus distinctly shorter than total length of following two segments, in ratio 4 : 5.

Gaster distinctly longer than broad; petiole (fig.11) short, almost as long as basal breadth (10 : 9).

Host unknown.

Distribution: Tokat, Turkey.

Material studied: Holotype ♂, Turkey, Tokat, Fidanlık, 28.V.1989 (leg. H. ÇAM), swept from pasture; deposited in the Entomology Museum, Department of Plant Protection, Faculty of Agriculture, Mustafa Kemal University, Antakya-Hatay, Turkey. - Paratype ♂, Turkey, Tokat, Şenköy, 5.VII.1982 (leg. DOĞANLAR); deposited in the same museum as the holotype.

Diagnosis: The new species is similar to *E. temenus* in having long cylindrical antennae, but it differs from the species in having scapus 1.25 times longer than broad (in *E. temenus* the scapus is twice as long as broad), and funicular segments have more rows of sensillae than in *E. temenus*. It differs also in having the characters stated in the key.

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Literaturbesprechung

PICKER, M., GRIFFITH, C. & WEAVING, A. 2002: Field Guide to Insects of South Africa. - Struik Publishers, Cape Town, 440 S. Bestellbar über: www.kalahari.net

Endlich gibt es einen populärwissenschaftlichen Bestimmungsführer für Insekten Afrikas, auch wenn er geographisch "nur" für Südafrika gilt. Bemerkenswert ist, dass nahezu für alle Insektenordnungen eine erstaunliche Bandbreite an Arten vorgestellt wird, und zwar anhand eindrucksvoller Farbfotos. Auf diese Weise werden in dieser Paperback-Ausgabe über 1.200 Insektenarten vorgestellt. Dem einen oder anderen Spezialisten mag die Auswahl subjektiv erscheinen, aber die Autoren haben sich immerhin bemüht, die häufigsten, ökonomisch wichtigsten, ökologisch interessantesten und besonders interessante oder attraktive Insekten auszuwählen. Für manche Familien ist die Auswahl durchaus beachtlich, wenn nicht gar bemerkenswert. Dies gilt z.B. für die Cleridae (Buntkäfer), die mit vier vorgestellten Arten eine außerordentliche Resonanz erfahren, die in vergleichbaren Werken sonst eher zu vermissen ist. Aber auch alle anderen Insektenordnungen sind gut und reichhaltig vertreten.

Die Textseiten liegen den Tafelseiten gegenüber und beinhalten sehr kurze Informationen zur Identifikation, Biologie (soweit bekannt) und Habitat. Zu jeder Artbeschreibung gehört auch eine Verbreitungskarte, die das bisher bekannte (bzw. vermutete) Vorkommen einer Art anzeigt.

Die Farbfotos sind von ansprechender bis sehr guter Qualität und erlauben in Kombination mit dem Text ein relativ sicheres Bestimmen vorgefundener Insekten.

Autoren und Verlag ist hiermit ein brillanter Einstieg in die Insektenwelt Südafrikas gelungen, über den sich nicht nur Entomologen, Zoologen und Naturschützer freuen werden, sondern auch die zahlreichen Safaritouristen, die neben den berühmten Großtieren auch hin und wieder ein Auge auf die "kleinen" Schönheiten am Wegesrand werfen.

R. GERSTMAYER

SHERMER, M. 2002: In Darwin's Shadow. The Life and Science of Alfred Russel Wallace. - Oxford University Press, Oxford, 422 S.

Sollte er jemals in Vergessenheit geraten sein, die Welt hat ihn in den letzten Jahren auf jeden Fall wiederentdeckt - lange im Schatten von Charles Darwin stehend, hat er nun in aller Öffentlichkeit dem ihn gebührenden Platz und Ruhm erreicht: Alfred Russel WALLACE. Nachdem wohl niemand mehr herausfinden wird, wer die Nase wirklich vorn hatte, kann man sich heute generös darauf einigen, dass WALLACE und DARWIN die zeitgleichen "Entdecker" der "natürlichen Selektion" waren. Die heutige Renaissance WALLACES betrifft aber auch die Würdigung als "Wegbereiter" einer modernen Biogeographie, eines genialen Denkers, eines renommierten Buchautors mit einem gewissen Hang zum Spiritualismus. Michael SHERMER beleuchtet alle Facetten des Werdegangs von WALLACE, minutiös recherchiert, unterlegt mit authentischem Bildmaterial und teilweise so formuliert, dass man meinen könnte, WALLACE hat in diesem Buch mitgeschrieben. Es ist nicht "nur" eine Biographie über WALLACE, es ist vielmehr eine Analyse, welche Historie, Wissenschaft, Psychologie und Soziologie verbindet - eine aufregende Expedition durch die Geschichte der Evolutionstheorie und Biogeographie, ihrer Mentoren und ihrer Kritiker.

Nun wäre die Zeit eigentlich reif für eine Würdigung WALLACES im deutschen Sprach-

raum; zumindest eine Übersetzung dieser fantastischen Biographie könnte ein erster Schritt sein.

R. GERSTMEIER

MICÓ, E. & GALANTE, E. 2002: Atlas fotográfico de los escarabeidos florícolas ibero-baleares. - argania editio, Barcelona, 81 S.

Dieser kleine Fotoatlas behandelt die Scarabaeidae (Coleoptera) der iberischen Halbinsel und der Balearen. 44 Arten werden anhand ihres Aussehens (fotografiertes Sammlungsexemplar), ihrer Charakteristika, Biologie, Verbreitung, Habitattypen und Phäno- logie vorgestellt. Die mit einem Bildbearbeitungsprogramm bearbeiteten Farbfotos sind durchwegs gelungen, wenn auch manche Bilder (*Blithopertha lineata*, *Valgus hemipterus*) im Druck etwas "flau" erscheinen. Bei der geringen Anzahl vorgestellter Vertreter wurde auf einen Bestimmungsschlüssel verzichtet. Innerhalb der Nomenklatur der Cetoniini wird leider nicht der aktuelle Gattungsname *Protaetia* verwendet. Ansonsten ein für den Laien durchaus brauchbares Buch.

R. GERSTMEIER

VÁZQUEZ, X.A. 2002: European Fauna of Oedemeridae (Coleoptera). - argania editio, Barcelona, 179 S.

Seit der Arbeit von SCHMIDT (1846) wurden die Oedemeridae der europäischen Fauna nicht mehr komplett revidiert. Xavier VÁZQUEZ ALBALATE, der noch von F. ESPAÑOL in die Oedemeriden-Taxonomie eingeführt wurde, hat sich dieser Aufgabe mit Bravour gestellt. Er behandelt 79 Arten der Scheinbockkäfer Europas, und zwar westlich des Urals und des Wolga-Don-Systems, inklusive des europäischen Teils der Türkei. Die Einführung enthält detaillierte Angaben über Morphologie (Adulte und Larven), Biologie sowie Sammeln und Konservieren. Der spezielle Teil beginnt mit den Bestimmungsschlüsseln für Gattungen und Untergattungen; innerhalb der einzelnen Unterfamilien finden sich dann exakte Gattungsbeschreibungen, Schlüssel zu den jeweiligen Arten und Verbreitungskarten. Im Literaturverzeichnis sind 199 Orginalarbeiten zitiert; sehr hilfreich ist auch die Liste der Synonyme mit sämtlichen Literaturabgaben. Auf 10 SW-Tafeln finden sich wichtige morphologische Detailzeichnungen, auf 27 Farbtafeln sind die einzelnen Vertreter abgebildet. Manche dieser Tafeln (u.a. *Nacerdes*, *Oedemara simplex* - *O. melanopyga*, *Stenostoma*) sind allerdings ein Wermutstropfen in dieser Arbeit: hier sind Farben und Kontrast zu "flau", sei es aufgrund des Druckes oder durch Verfälschung per Bildbearbeitungsprogramm.

Ansonsten ist diese monographische Bearbeitung für alle Koleopterologen durchaus sehr empfehlenswert.

R. GERSTMEIER

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