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A New Species and A New Subspecies of *Stenobothrus* Fischer, 1853 (Orthoptera, Acrididae) from Turkey

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Summary

In this study, a new species ***Stenobothrus (Crtalacris) bozcuki*** n. sp. and a new subspecies ***Stenobothrus (Stenobothrus) graecus malatyensis*** n. ssp. have been described. Essential figures were drawn and diagnosis were prepared for the new species and the new subspecies. Furthermore, ***S. graecus*** is the new species for Turkey.

Introduction

Stenobothrus is one of the widespread genera of Gomphocerinae (Acrididae) that includes 35 Palearctic species (Ragge, 1987). In Palearctic Region, 11 of those are determined in the West and Middle Europe (Harz, 1975; Ragge, 1987), 6 in North Africa (Louveaux and Halima, 1987) and as far 9 in Anatolia (Bei - Bienko and Mistshenko, 1951; Karabağ, 1953, 1958; Demirsoy, 1977, 1979). On the other hand, some Anatolian and the West European species have East European and Asian distributions. Other species of this genus are commonly distributed in Asia and East Europe (Bei - Bienko and Mistshenko, 1951; Harz, 1975). However, most species of ***Stenobothrus*** have widespread distributions.

There is a lot of study on Anatolian ***Stenobothrus*** species (specifically, Bei - Bienko and Mistshenko, 1951; Karabağ, 1953, 1958; Demirsoy, 1975, 1977, 1979; Salman, 1978; Çıplak and Demirsoy, 1991; Çıplak, 1992). In these studies, it was observed that 9 species are found in Turkey. These species were given with an

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identificaton key by Demirsoy (1977), and those are: ***S. werneri*** Adelung, 1907, ***S. sivridenkoi*** Ramme, 1930, ***S. stigmaticus*** (Rambur, 1839), ***S. zubovskii*** I. Bolivar, 1889, ***S. burri*** Karabağ, 1953, ***S. nigrogeniculatus*** Krauss, 1899, ***S. fischeri*** (Eversman, 1848), ***S. lineatus*** (Panzer, 1796), ***S. nigromaculatus*** (Herrich - Sch., 1840).

Hence, our two specimens groups were primarily identified according to Demirsoy (1977). When it was observed that these specimens were different than 9 species of Turkey allready described, they have been identified according to literature (especially Harz, 1975; Bei - Bienko and Mistshenko, 1951). Consenquently, we decided that one group of specimens have a new species characters and named as ***S. bozcuki*** n. sp.. Other group is similar to ***S. graecus*** Ramme, 1926 especially according to structure of penis and epiphallus (Fig. 16, 17 and 20, 21). ***S. graecus*** was only recorded from Greece and not from Anatolia. However, the specimens have some different features than ***S. graecus*** and so it was classified as a new subspecies and named as ***S. graecus malatyensis*** n. ssp..

In this study, one new species and one new subspecies are given. With the new species, subgenus ***Crotalacris*** and with the new subspecies ***S. graecus*** are firstly given for Turkey.

Material and Method

Specimens were collected from various localities and were taken to the laboratory. After dissecting genitalia of male, all specimens were prepared as museum material (Çıplak, 1992). Specimens were identified and compered with ***Stenobothrus*** specimens preserved in Hacettepe University, Zoological Museum (Ankara), Ankara University, Science Faculty, Zoological Museum (Ankara) and Atatürk University, Zoological Museum (Erzurum). Later, descriptions were made and figures (Fig.) were drawn under binoccular microscope. Finally an evaluation has been made.

Results

Stenobothrus (Crotalacris) bozcuki n. sp.

(Figures 1 - 7)

Description

Head as genus; vertex with median keel; the ratio of eye's diameter to length of suboccular deppression 1.7 (- 1.8) : 1; antenna in male 1.35 times longer than total length of head and pronotum, in female at the same length; metazona wider than prozona and pronotum wrinkled at middle; lateral keels incurved in second half of prozona with a weak angle; sulcus at the end of 4/10 of total pronotal length (Fig. 1, 2); tegmina, in male only covered hind knee, in female shorter; cubital area always exist and width of it less than half of medial area; fore margin of male tegmina become narrower towards apex from ending of costal wein, but this norrowing not too much (Fig. 3), in female nearly straigth (Fig. 4); stigma in male take place between end of middle 1/3 and

begining of apical 1/3; alae in male darkened apically, in female light; hind femora in male 3.6 - 3.7, in female 3.8 - 3.9 times longer than its high; hind knee and base of tibia dark (brownish - black or black), tibia red or orange, sometimes in female yellowish - red.

Male anal tergit widely emerginated, on each sides depressed, but not projected; hind margin of epiproct is conic and epiproct have special decore (Fig. 5), cerci almost as long as epiproct; penis valves are strongly developed, thick, conic and at the same length (Fig. 6); epiphallus have two lobes (Fig. 7).

Measurements (length as mm);

	Body	Pronotum	Tegmina	Hind Femora
male	17.5-20	2.9-3.4	11.5-13.6	11-12.5
female	21-26	4.8-5	13-15.1	13.7-14.5

Malatya, Pütürge, Kubbe Dağı, 1600 m, 20. VI. 1990, 2 males, 4 females; Malatya, Arguvan, between Kuyudere - Karahöyük Villages, 1200 m, 13. VI. 1988, 3 males, 4 females; Malatya, Arguvan, Gökağaç Village, 1400 m, 17. VII. 1988, 1 male, 1 female; Malatya, Hekimhan, Dikili Village, 1650 m, 15. VI. 1989, 2 males, 3 females; Malatya, Yazıhan, Fethiye Village, Karabel Place, 1100 m, 22. VI. 1989, 1 male, 1 female; Malatya, Arapkir, Övledik, 1450 m, 17. VI. 1990, 1 male; Malatya, Akçadağ, Karahan, 1500 m, 23. VI. 1989, 1 female (Legitat: B. Çıplak).

There is not any species of subgenus ***Crotalacris*** have been recorded from Turkey.

Diagnosis

This new species can be quite easily distinguished from species of **Crotalacris** subgenus, but have some similarities with **S. carbonarius.** It differs from **S. carbonarius** with characters noted bellow; antenna shorter, sulcus in first half of pronotum, male tegmina becomes slightly norrower towards apex and cubital area is always exist (Fig. 3, 8), hind femora thin, penis valves thick and at the same length (Fig. 6, 9), epiphallus have two lobes (Fig. 7, 10).

I am honoured to dedicate this new species to Dr. A. Nihat BOZCUK who have great help in establishing Zoological Museum, İnönü University (Malatya).

Stenobothrus (Stenobothrus) graecus malatyensis n. ssp.

(Figures 11 - 17)

Description

Head as genus, the ratio of the width of vertex: diameter of eyes: suboccular depression in male 1.3: 2.5: 1.3, in female 2:3.1 (- 3.2) : 2; antenna in male 1.4, in female 1.2 times longer than total lenght of pronotum and head, median segment of antenna 1.9 - 2.1 times as long as its width; lateral keels of pronotum slightly incurved

(like a bow) in prozona, sulcus at the beginning of 5/10 (Fig. 11, 12) and in female hind lateral sides of pronotum widened (Fig. 12); mesosternal interspace in male and female 1.55 - 1.6 times wider than its height; tegmina in male covered hind knee but in female shorter than hind knee, norrowly rounded apically, subcostal and radial weins almost straight and subcostal area widened towards apex, stigma is between the end of 3/4 and the begining of 4/4, cubital area always exist (Fig. 13, 14); in male apical of alae darkened; hind femora 4 times as long as its height, hind knee brownish - black, base of hind tibia black, other parts in male red - orange, in female red - orange or yellowish - red and there is a ligth stripe after bazal black ring.

Male 10. tergit have narrow and quadrangle indentation and with furcula, above of furcula depressed; anal tergit round and have conic projection, wrinkled on each sides (Fig. 15); epiphallus curled in its width, have transparent area in midlle and there is two strong and bend lobes on each sides (Fig. 16); valves of penis long, and at the same length, strong at the base and pointed towards apex, and bend inwards at apex (Fig. 17). Ovipositor have strong and curved valves.

Measurements (length as mm);

	Body	Pronotum	Tegmina	Hind Femora
male	17-18	3.3-3.5	12-13	10.5-11
female	20-24	4-4.3	13.5-14.5	14-15

Malatya, Hekimhan, Yukarısazlıca Village, 1550 m, 15. VI. 1989, 3 males, 2 females; Malatya, Hekimhan Dikili Village, 1750 m, 16. VI. 1989, 1 male, 1 female; Malatya, Hekimhan, Taşoluk Village, 1750 m, 9. VIII. 1990, 2 females; Malatya, Arapkir, Taşdibek Village, 1650 m, 9. VII. 1987, 2 males; Malatya, Arapkir, Karababa Hill, 1650 m, 14. VI. 1990, 1 male; Malatya, Konak, Beydağı, 1600 m, 19. VII. 1990, 2 males, 1 female; Malatya, Akçadağ, Levent Village, 1350 m, 23. VI. 1989, 1 male; Malatya, Arguvan, Armutlu Village, 1600 m, 16. VII. 1988, 1 male, 2 females (Legitat: B. Çıplak).

Diagnosis

This new subspecies is similiar to ***S. graecus graecus*** Ramme, 1926 according to main structure of genitalia (Fig. 16, 17 and 20, 21) and differs from with having narrower tegminal apex, long costal wein (Fig. 13, 18), quadranglarly despressed male 10. tergit (15, 19) and wider mesosternal interspace (Diagnosis have been prepared according to description and figures of Harz, 1975).

Conclusion

In this study, a new species and a new subspecies of Stenobothrus have been described. The new species ***S. bozcuki*** is different than other species of ***Crotalacris*** subgenus with clear features as mentioned in diagnosis.

The ***S. graecus*** Ramme, 1926 species is only known from Greece (Harz, 1975) and now this species have been recorded from Anatolia with a new subspecies. As could

be seen from diagnosis of *S. graecus malatyensis* n. ssp. there is enough different features for it to be described as a new subspecies.

Presently, 11 species of *Stenobothrus* are found in Turkey. This number is equal to the number of species found in West and Middle Europe. This situation shows the biological prosperity of Turkey.

Another outcome of this study is related to the sistematic status of *Stenobothrus* for Turkey. In general, it is accepted that, order *Orthoptera* is well known group of Turkey's Fauna. In addition, suborder *Caelifera* (which includes *Stenobothrus*) of this order is more studied than other suborder *Ensifera*. But as seen above, still new species and subspecies could be found in Turkey. Furthermore, during our studies it was seen that species of this genus could not be identified easily. Therefore, species of this genus that distributed in Turkey needs to be revised.

Özet

Türkiye'den *Stenobothrus* cinsinin yeni bir türü ve yeni bir alttürü

Bu çalışmada, yeni tür *Stenobothrus (Crotalacris) bozcuki* n. sp. ve yeni alttür *Stenobothrus (Stenobothrus) graecus malatyensis* n. ssp. tanımlanmıştır. Yeni tür ve alttür için gerekli şekiller çizilmiş ve diagnosisleri verilmiştir.

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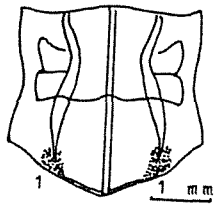
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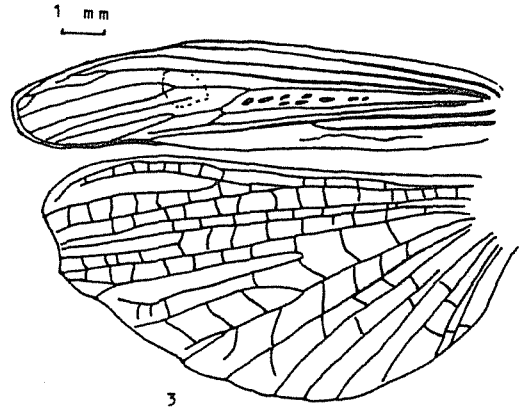
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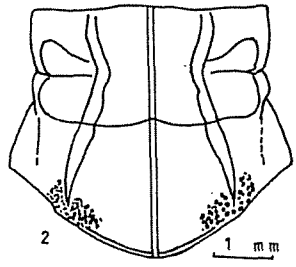
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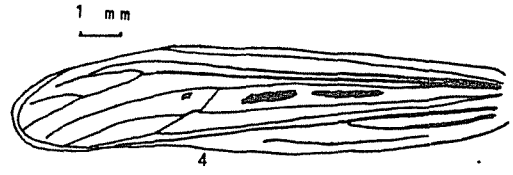
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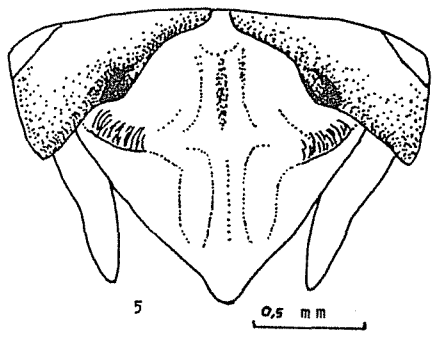
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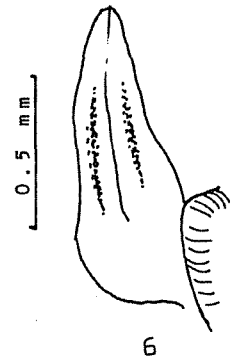
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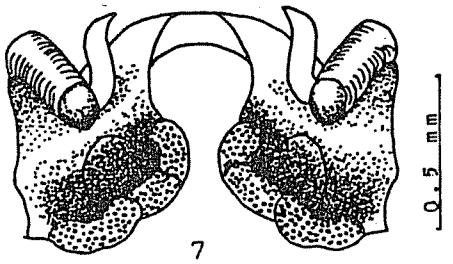

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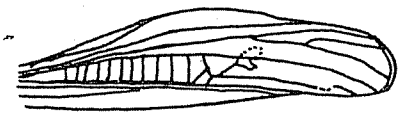

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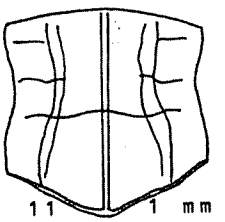

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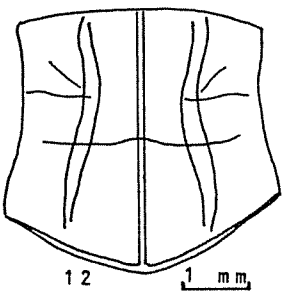

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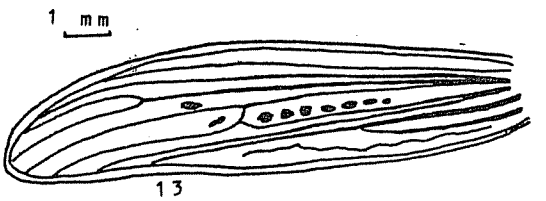

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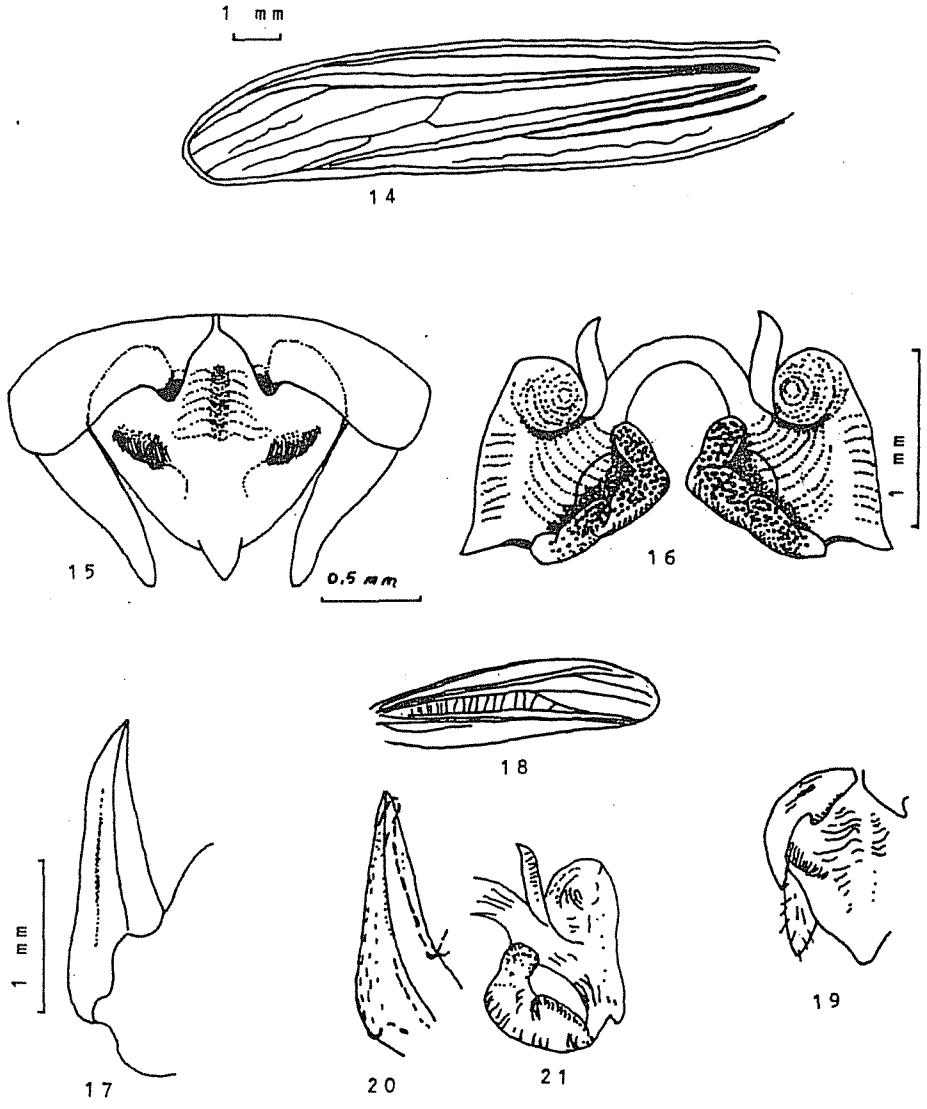

Explanation of figures

Fig. 1 - 7: *S. bozcuki* n. sp; 1- male pronotum, 2- female Pronotum, 3- male tegmina and alae, 4- female tegmina, 5- male 10. and anal tergits, and cerci 6- male penis valves, 7- male epiphallus; Fig. 8 - 10: *S. carbonarius* (from Harz, 1975); 8- male tegmina, 9- male penis valves, 10- male epiphallus; Fig. 11 - 17: *S. graecus malatyensis* n. ssp.; 11- male pronotum, 12- female pronotum, 13- male tegmina, 14- female tegmina, 15- male 10. and anal tergits, and cerci, 16- male epiphallus, 17- male penis valves; Fig. 18 - 21: *S. graecus graecus* (from Harz 1975); 18- male tegmina, 19- male 10. and anal tergits, and cercus 20- male penis, 21- male epiphallus.