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## Contributions to the Blacinae fauna of Turkey \* (Hymenoptera, Braconidae)

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### Abstract

13 species of *Blacus* (Hymenoptera, Braconidae, Blacinae) belonging to 3 subgenera are recorded from the Marmara Region of Turkey. 10 species are new records for the Turkish fauna.

### Zusammenfassung

Es werden 13 Arten der Gattung *Blacus* (Hymenoptera, Braconidae, Blacinae) für die türkische Marmara Region festgestellt, die 3 Untergattungen angehören. 10 Arten davon sind neu für die Fauna der Türkei.

### Introduction

*Blacus* NEES, 1818 is the most common and ubiquitous genus of the subfamily Blacinae. It is the largest group of the subfamily, and members of *Blacus* are endoparasitoids of larvae of Coleoptera (SHAW & HUDDLESTON 1991). It differs from other Blacini genera by having tendency to enlarged parastigma (ACHTERBERG 1988).

In Blacinae the genera are represented with only one or few species except *Blacus*, which is represented with 60 species in the Palearctic Region and 154 species world wide. The latest revision studies and new identified species are ACHTERBERG 1976, 1988; ACHTERBERG & GUERRERO 2000; HAESELBARTH 1992; ZETTEL 1991.

Little is known about the *Blacus* fauna of Turkey. To date, a total of 6 species (*Blacus*

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(*Blacus*) *exilis* (NEES, 1812), *B. (B.) instabilis* RUTHE, 1861, *B. (B.) nigricornis* HAESELBARTH, 1973, *B. (Ganychorus) ruficornis* (NEES, 1812), *B. (G.) conformis* WESMAEL, 1835, *B. (G.) madli* HAESELBARTH, 1992) have been given in literature (HAESELBARTH 1973, 1975a, 1975b, 1992; TOBIAS 1986; ACHTERBERG 1988; BEYARSLAN et.al. 2002).

This study, by which faunistic and taxonomic characters of *Blacus* species in Marmara Region were evaluated, was carried out between 1987 and 2002 in 137 localities (Fig.1). A total of 13 species were identified, 8 species belonging to the subgenus *Blacus*, 4 to subgenus *Ganychorus*, and 1 to subgenus *Hysterobolus*, respectively. Of these, 10 species are new records for Turkey. By adding these new records, the number of *Blacus* species in Turkey raises from 6 to 16.

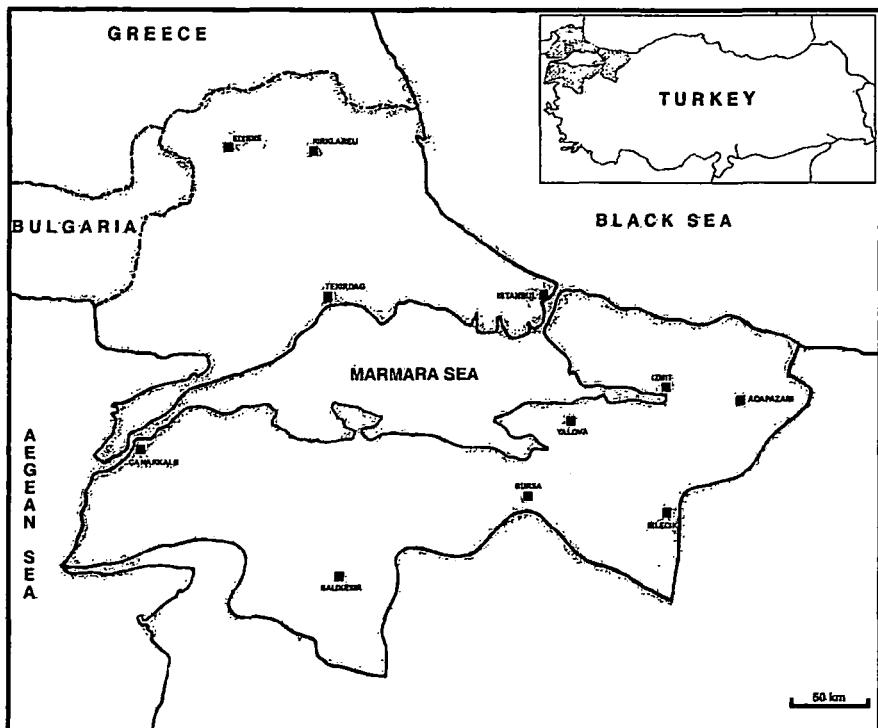


Figure 1: Marmara Region in Turkey.

#### Subgenus *Blacus* NEES, 1818

##### *Blacus (Blacus) errans* (NEES, 1812)

*Bracon errans* NEES VON ESENBECK, 1812, Mag. Ges. Nat. Fr. Berl. 5: 19.

*Blacus (Blacus) errans*: VAN ACHTERBERG 1976: 241.

Material examined: İstanbul-Sarıyer-Bilezikçi Çiftliği (Mixed forest, 30m, 24.6.1993, 1♂). - New record for Turkey!

General Distribution: Austria, Denmark, Germany, England, Finland, Holland, Hun-

gary, Italy, former Czechoslovakia, Russia (European parts), Sweden, Switzerland (ACHTERBERG 1988), Caucasia (TOBIAS 1986).

***Blacus (Blacus) exilis* (NEES, 1812)**

*Bracon exilis* NEES VON ESENBECK, 1812, Mag. Ges. Nat. Fr. Berl. 5: 19.

*Blacus (Blacus) exilis*: VAN ACHTERBERG 1976: 233-234.

Syn: *Blacus intermedius* JANZON, 1975: 137-138.

Material examined: Bursa-Karacabey (Clover field, 50m., 12.07.1993, 1♀); Edirne-Keşan-Paşayıgil (Pasture, 100m, 30.7.1993, 1♀); Güllapoğlu Yerleşkesi (Pasture, 41m, 4.10.2001, 1♀); Tekirdağ-Naipköy (Pasture, 30m, 7.9.1999, 1♀).

General Distribution: Austria, Azerbaijan, Belgium, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, Holland, Hungary, Ireland, Israel, Italy, Kazakhstan, Mongolia, former Czechoslovakia, Portugal, Spain, Sweden, Switzerland, Turkey, USA (ACHTERBERG 1988), Korea (PAPP 1985); Afghanistan (TOBIAS et.al. 1998), Caucasia, Siberia (TOBIAS 1986).

***Blacus (Blacus) hastatus* HALIDAY, 1835**

*Blacus hastatus* HALIDAY, 1835, Ent. Mag. 3: 21.

*Blacus (Blacus) hastatus*: VAN ACHTERBERG 1976: 240.

Material examined: İstanbul-Sarıyer-Bilezikçi Çiftliği (Mixed forest, 30 m, 24.6.1993, 1♀). - New record for Turkey!

General Distribution: Austria, Denmark, England, Finland, Germany, Holland, Hungary, Ireland, former Czechoslovakia, Scotland, Sweden (ACHTERBERG 1988), former Yugoslavia (BRAJKOVIC 1988), Caucasia, Ukraine (TOBIAS 1986).

***Blacus (Blacus) interstitialis* RUTHE, 1861**

*Blacus interstitialis* RUTHE, 1861, Berl. ent. Z. 5: 150.

*Blacus (Blacus) interstitialis*: VAN ACHTERBERG 1976: 239.

Material examined: Edirne-Tavuk Ormanı (Mixed forest, 41m, 24.10.1991, 1♀); Güllapoğlu Yerleşkesi (Stream bank, 41m, 16.9.1999, 2♀♀; Pasture, 1.-4.10.2001, 14♀♀); Tekirdağ-Işıklar (Pasture, 110m, 7.8.1991, 2♀♀). - New record for Turkey!

General Distribution: Austria, Denmark, Germany, Holland, Hungary, North Africa, former Czechoslovakia, Sweden (ACHTERBERG 1988), Afghanistan (TOBIAS et.al. 1998), Finland (KOPONEN 1992).

***Blacus (Blacus) leptostigma* RUTHE, 1861**

*Blacus leptostigma* RUTHE, 1861, Berl. ent. Z. 5: 152.

*Blacus (Blacus) leptostigma*: VAN ACHTERBERG 1976: 240.

Material examined: Edirne-Hacınumur (Pasture, 50m, 13.6.1987, 1♀; Crop field 27.8.1991, 2♀♀). - New record for Turkey!

General Distribution: Germany, Ireland (ACHTERBERG 1988).

***Blacus (Blacus) nigricornis* HAESELBARTH, 1973**

*Blacus nigricornis* HAESELBARTH, 1973, Veröff. Zool. St.-Samml. München. 16: 149.

*Blacus (Blacus) nigricornis*: VAN ACHTERBERG 1976: 241.

Material examined: Tekirdağ-Malkara-Izgar (Pasture, 200m, 23.5.1992, 1♀).

General Distribution: England, France, Holland, Hungary, Ireland, Italy, former Czechoslovakia, Sweden, Turkey (ACHTERBERG 1988).

***Blacus (Blacus) rufescens RUTHE, 1861***

*Blacus rufescens* RUTHE, 1861, Berl. ent. Z. 5: 141.

*Blacus (Blacus) rufescens*: VAN ACHTERBERG 1976: 239.

Material examined: Balıkesir-Manyas-Kuçcenneti (Mixed forest, 15m, 15.7.1993, 1♂).

- **New record for Turkey!**

General Distribution: Austria, Denmark, Germany, Holland, Romania, Sweden, former Yugoslavia (ACHTERBERG 1988), Moldavia (TOBIAS 1986), Hungary (PAPP 1999).

***Blacus (Blacus) stelfoxi HAESELBARTH, 1973***

*Blacus stelfoxi* HAESELBARTH, 1973, Veröff. Zool. St.-Samml. München. 16: 144-145.

*Blacus (Blacus) stelfoxi*: VAN ACHTERBERG 1976: 239.

Material examined: Adapazarı-Karasu-Hara (Clover field, 50m, 8.7.1993, 1♂); Balıkesir-Manyas-Kayacaköy (Clover field, 100m, 15.7.1993, 1♂); Susurluk-Yahyaköy (Stream bank, 20m, 23.7.2001, 1♀); Edirne-Suakacagı (Oak forest, 210m, 5.7.1997, 1♂). - **New record for Turkey!**

General Distribution: Austria, Bulgaria, Finland, France, Germany, Greece, Holland, Hungary, Mongolia, Sweden (ACHTERBERG 1988), Caucasia, Siberia (TOBIAS 1986).

**Subgenus *Ganychorus* HALIDAY, 1835**

***Blacus (Ganychorus) armatus RUTHE, 1861***

*Blacus armatus* RUTHE, 1861, Berl. ent. Z. 5: 137.

*Blacus (Ganychorus) armatus*: VAN ACHTERBERG 1976: 204-205.

Material examined: Adapazarı-Akyazı-Madenler (Pasture, 180m, 22.9.1992, 1♀); Edirne-Suakacagı (Oak forest, 210m, 5.7.1997, 2♀♀). - **New record for Turkey!**

General Distribution: Albania, Austria, Azerbaijan, Canada, England, France, Germany, Hungary, Kazakhstan, former Czechoslovakia, Poland, Romania, Sweden, Switzerland, USA (ACHTERBERG 1988).

*Blacus (G.) armatus* from the studied area shows some similarities to *B. (G.) diversicornis*. It can be distinguished from *diversicornis* by the long face, bottomly notauli protruding as spin of the lateral carina of scutellum.

***Blacus (Ganychorus) diversicornis* (NEES, 1834)**

*Blacus diversicornis* NEES VON ESENBECK, 1834, Hym. Ichn. affin. Mon. 1: 49.

*Blacus (Ganychorus) diversicornis*: VAN ACHTERBERG 1976: 212.

Material examined: Kırklareli-Koçcaz-Erikler (Pasture, 430m, 2.8.2000, 1♀). - **New record for Turkey!**

General Distribution: Albania, Austria, Bulgaria, Denmark, England, Finland, France, Germany, Holland, Hungary, Ireland, Italy, Kazakhstan, former Czechoslovakia, Poland, Romania, Sweden, former Yugoslavia (ACHTERBERG 1988), Korea (PAPP 1985).

***Blacus (Ganychorus) maculipes* WESMAEL, 1835**

*Blacus maculipes* WESMAEL, 1835, Nouv. Mem. Acad. Brux. 9: 94.

*Blacus (Ganychorus) maculipes*: VAN ACHTERBERG 1976: 212.

Material examined: Adapazarı-Karasu-Hara (Clover field, 50m, 8.7.1993, 1♂); Sapanca-İstanbul Üniversitesi Tesisleri (Orchard, 60m, 16.8.1994, 1♀); Bilecik-Okluca (Oak and pine forest, 420m, 24.7.2001, 1♀); Vezirhan (Pasture, 75m, 25.7.2001, 1♀); Bursa-İnegöl-Karacaköy (Pasture, 300m, 18.8.1994, 1♀); Edirne-Lalapaşa (Meadow, 200m, 6.6.

1987, 1♀ 1♂); Yenikadın (Willow grove, 50m, 13.6.1987, 1♂); Süleoğlu (Crop field, 175 m, 28.5.1988, 2♂♂); Lalapaşa-Hacıdanışment (Oak forest, 450m, 5.6.1988, 1♂); Meriç kenar (River bank, 41m, 8.6.1993, 8♂♂); Lalapaşa-Kalkansöğüt (Mixed forest, 200m, 5.7.1997, 2♂♂); Suakacıbaşı (Oak forest, 210m, 5.7.1997, 1♂); Lalapaşa-Uzunbayır (Poplar wood, 200m, 5.7.1997, 9♀ ♀ 11♂♂); Enez (Mixed forest, 20m, 13.8.2000, 1♀); İstanbul-Çatalca-Kızılcaalı (Poplar wood, 50m, 14.6.2001, 1♂); Çatalca-Ömerli (Pasture, 80m, 15.6.2001, 2♂♂); Pendik-Kazdağı Çiftliği (Pasture, 50m, 6.7.1993, 1♂); Kırklareli-Demirköy (Mixed forest, 390m, 16.6.1987, 1♂); Kızılıçıkdere (Pasture, 200m, 2.6.1993, 2♀ ♀); Lüleburgaz-Türkgeldi Çiftliği (Orchard, 60m, 22.7.2000, 2♀ ♀); Kofçaz (Stream bank, 380m, 2.8.2000, 2♀ ♀); Tekirdağ-Hayrabolu-Malkara arası (Willow grove, 230m, 27.7.2000, 1♀); Saray (Oak forest, 150m, 16.6.2001, 1♂). - New record for Turkey!

General Distribution: Austria, Belgium, Bulgaria, Denmark, England, Finland, Germany, Holland, Hungary, Italy, former Czechoslovakia, Poland, Romania, Russia (Europen parts), Scotland, Sweden, Switzerland, former Yugoslavia (ACHTERBERG, 1988).

ACHTERBERG (1988) expresses that *Blacus (G.) maculipes* is generally found in mountainous areas and mostly male individuals occur. We determined this species from mountainous area, but it is also found at lower altitudes. These individuals of *Blacus* we met frequently with many males during our research. They were determined by using museum material.

#### ***Blacus (Ganychorus) ruficornis* (NEES, 1812)**

*Bracon ruficornis* NEES VON ESENBECK, 1812, Mag. Ges. nat. Fr. Berl. 5: 18.

*Blacus (Ganychorus) ruficornis*: VAN ACHTERBERG 1976: 203-204.

Material examined: Adapazarı-Akyazı-Madenler (Pasture, 180m, 22.9.1992, 1♀); Karasu-Hara (Clover field, 50m, 8.7.1993, 1♂); Sapanca-İstanbul Üniversitesi Tesisleri (Orchard, 60m, 16.8.1994, 1♀); Geyve-Dereköy (River bank, 30m, 25.7.2001, 13♀ ♀ 1♂); Pamukova-Mekece (Poplar wood, 110m, 25.7.2001, 3♀ ♀); Balıkesir-Edremit (Pasture, 15m, 22.7.2001, 25♀ ♀); İvrindi-Osmanlar (Mixed forest, 240m, 22.7.2001, 5♀ ♀); Susurluk-Demirkapı (Stream bank, 65m, 23.7.2001, 7♀ ♀); Bilecik-Vezirhan (Orchard, 90m, 21.9.1992, 1♀); Çavuşköy (Clover field, 1000m, 9.7.1993, 1♂); Bayırköy (Poplar wood, 700m, 17.8.1994, 1♀); Küplü (Clover field, 500m, 17.8.1994, 2♀ ♀); Bursa-İnegöl-Cerah (Poplar wood, 400m, 10.7.1993, 2♀ ♀); İnegöl-Mezitli (Pasture, 1450m, 11.7.1993, 1♀); Karacabey-Cambazköy (Pasture, 200m, 12.7.1993, 2♀ ♀ 1♂); Uluçam-Doğanlı Barajı (Mixed forest, 300m, 13.7.1993, 1♀); İnegöl-Taraklı (Mixed forest, 1275m, 18.8.1994, 4♀ ♀); Cumalızik-Alırızabey ormanı (Pasture, 270m, 18.9.1992, 1♀); Süleymaniye, (1250m, 19.9.1992, 6♀ ♀); Karacabey-Hara (Clover field, 30m, 23.7.2001, 1♀); Karacabey-Yenikaraağaç (Poplar wood, 30m, 23.7.2001, 19♀ ♀); İnegöl-Çakırçiftlik (Stream bank, 150m, 24.7.2001, 1♀); Yenişehir-Çayırlı (Orchard, 120m, 24.7.2001, 9♀ ♀); Yenişehir-Köprühisar (Clover field, 100m, 24.7.2001, 8♀ ♀); Çanakkale-Ayyacık-Gemedere (Pine wood, 350m, 22.7.2001, 2♀ ♀); Ezine (Pasture, 30m, 22.7.2001, 10♀ ♀); Kazdağı (Mixed forest, 700m, 16.9.1992, 1♀); Edirne-Lalapaşa (Meadow, 200m, 6.6.1987, 1♀ 1♂); Tayakadın (Clover field, 40 m, 9.6.1987, 2♂♂); Hacimur (Crop field, 50 m, 13.6.1987, 2♀ ♀ 4♂♂; Pasture, 27.8.1991, 6♀ ♀ 4♂♂); Yenikadın (Willow grove, 50m, 13.6.1987, 3♂♂); Büyükdöllük (Crop field, 50m, 20.6.1987, 4♂♂; Pasture, 11.8.1991, 1♀); Yolüstü Köyü (Crop field, 50m, 20.6.1987, 2♂♂); Süleoğlu (Crop field, 175m, 28.5.1988, 1♀); Lalapaşa-Vaysal (Oak forest, 400m, 4.6.1998, 1♂); Binevler (Pasture, 41m, 9.6.

1991, 1♀); Karaağaç (Pasture, 41m, 26.7.1992, 3♀ 4♂♂); Meriç-Hasırcıarnavut (Clover field, 105m, 30.7.1992, 1♂); Pasture, 21.6.1993, 1♂); Uzunköprü-Saçılımüsellim (Clover field, 70m, 1.8.1992, 1♀); Havsa-Abalar (Pasture, 45m, 1.8.1992, 1♀ 1♂); Havsa-Çukurköy (Meadow, 30m, 19.6.1993, 3♂♂); Keşan-Karahisar (Pasture, 180m, 5.8.1993, 1♂); Suakacağı (Oak forest, 210m, 5.7.1997, 1♂); Güllapoğlu Yerleşkesi (Stream bank, 41m, 16.9.1999, 1♀); İpsala (Pasture, 70m, 5.8.1993, 10♀♀; Clover field, 27.7.2000, 1♂); Lalapaşa-Vaysal-Ömeroba arası (Oak forest, 560m, 2.8.2000, 1♀ 1♂); Keşan-Korudağı (Pine forest, 350m, 7.6.2001, 1♂); Enez-Hasköy (Poplar wood, 80m, 2.8.2001, 6♀♀); Değirmenyesi (River bank, 36m, 1.9.2001, 2♀♀); Lalapaşa-Doğanköy (Mixed forest, 370m, 1.9.2001, 1♂); İstanbul-Sarıyer-Bilezikçi Çiftliği (Mixed forest, 30m, 24.6.1993, 1♀ 1♂; 14.6.2001, 1♀); Çatalca-Durusu (Pasture, 110m, 14.6.2001, 1♀); Gaziosmanpaşa-Boğazköy (Oak forest, 60m, 15.6.2001, 1♀); Sarıyer-Kısırmadırı (Meadow, 70m, 25.6.1993, 2♀♀ 1♂); Çatalca-Oklalı (Pasture, 60m, 14.6.2001, 2♂♂); Çatalca-Kızılcaalı (Poplar wood, 50m, 14.6.2001, 5♀♀ 1♂); Silivri-Büyükkılıçlı (Clover field, 150m, 15.6.2001, 3♀♀ 3♂♂); İzmit-Uzuntarla (Pine wood, 100m, 7.7.1993, 1♂); Kırklareli-Erenler (Crop field, 200m, 16.6.1987, 4♂♂); Pınarhisar-Poyrahi (Pasture, 310m, 16.6.1987, 1♂); Demirköy (Mixed forest, 390m, 16.6.1987, 2♂♂; 1.9.1988, 2♀♀); Yeniceköy-Demirköy arası (Pasture, 660m, 16.6.1987, 1♀); Demirköy-İğneada (Mixed forest, 10m, 17.6.1987, 1♂; 3.6.1993, 1♀); Çukurpınar (Oak forest, 500m, 1.9.1988, 2♀♀; 4.6.1993, 1♂); Pınarhisar-Yeniceköy (Stream bank, 700m, 6.9.1988, 2♀♀); Kaynarca (Pasture, 125m, 6.9.1988, 1♂); Demirköy-Balaban (Mixed forest, 300m, 6.7.1997, 1♀); Lüleburgaz-Celaliye (Pasture, 50m, 22.6.1993, 5♀♀); Vize-Pazarlı (Pine wood, 150m, 24.7.2000, 1♀); Lüleburgaz-Ceylanköy (Pasture, 60m, 24.7.2000, 6♀♀); Kofçaz-Erikler (Pasture, 430m, 2.8.2000, 14♀♀); İnce-Paşayeri (Mixed forest, 150m, 2.8.2000, 3♀♀); Vize-Kömürköy-Kıylıköy arası (Mixed forest, 15m, 16.6.2001, 3♀♀ 4♂♂); Kofçaz-Ahmetler (Oak forest, 570m, 17.7.2001, 12♀♀ 4♂♂); Kofçaz-Beyci (Clover field, 590m, 17.7.2001; 11♀♀ 1♂); Çağlalık (Stream bank, 620m, 17.7.2001, 10♀♀); Dereköy (Stream bank, 400m, 17.7.2001, 5♀♀ 1♂); Babaeski-Kuleli (Clover field, 55m, 18.7.2001, 2♀♀); Lüleburgaz-Çengelli (Stream bank, 60m, 18.7.2001, 2♀♀); Lüleburgaz-Emirali (Stream bank, 60m, 18.7.2001, 1♀); Lüleburgaz-Evrensekiz (Stream bank, 65m, 18.7.2001, 9♀♀); Lüleburgaz-Karaağaç (Poplar wood, 60m, 18.7.2001, 7♀♀); Tekirdağ-Işıklar (Pasture, 110m, 7.8.1991, 1♀); Hayrabolu (Willow grove, 50m, 26.8.1992, 1♂); Hayrabolu-Susuzmüsellim (Crop field, 110m, 3.8.1993, 3♀♀); Çorlu-Marmara Ereğlisi (Moor, 10m, 12.8.1993, 1♂); Muratlı (Poplar wood, 54m, 7.9.1999, 2♀♀; 9.6.2001, 1♂); Uçmakdere (Orchard, 300m, 8.9.1999, 1♀); Hayrabolu-Lahana (Clover field, 70m, 27.7.2000, 2♀♀); Naipköy (Pasture, 30m, 23.10.2001, 1♀); Saray (Oak forest, 150m, 16.6.2001, 2♀♀, 4♂♂); Banarlı (Orchard, 100m, 3.6.2001, 2♀♀ 1♂); Yalova-Safran (Stream bank, 70m, 11.8.2001, 3♂♂). - The first record from Turkey was published by BEYARSLAN et al. (2001). The data are new records for the Marmara Region.

General Distribution: Albania, Austria, Belgium, Bulgaria, Cyprus, Denmark, England, Finland, France, Germany, Greece, Holland, Hungary, Ireland, Italy, Japan, Mexico, North Africa, Norway, former Czechoslovakia, Poland, Romania, Russia (European parts), Scotland, Spain, Sweden, Switzerland, USA (ACHTERBERG 1988), Turkey (BEYARSLAN et al. 2002), Tunisia (PAPP 1981), former Yugoslavia (BRAJKOVIC 1988). - The species has a wide distribution in the world and is determined as diurnal and nocturnal.

The determined specimens show differences in color, sculpture and the number of antennal segments. The species was found in all different habitats in the research area.

### Subgenus *Hysterobolus* VIERECK, 1913

#### *Blacus (Hysterobolus) nixoni* HAESELBARTH, 1973

*Blacus nixoni* HAESELBARTH, 1973, Veröff. zool. St.-Samml. München. 16: 114-115.

*Blacus (Ganychorus) nixoni*: VAN ACHTERBERG 1976: 211.

*Blacus (Hysterobolus) nixoni*: VAN ACHTERBERG 1988: 130.

Material examined: Balıkesir-Edremit (Pasture, 15m, 22.7.2001, 1♀); Tekirdağ-Naipköy (Pasture, 30m, 7.9.2002, 1♂). - New record for Turkey!

General Distribution: Bulgaria, Cyprus, Holland, Portugal (ACHTERBERG 1988), Korea (PAPP 1989).

### Discussion

The majority of the 13 species described in this study are distributed in the Palaearctic region. The species mentioned above can be divided into following groups according to their zoogeographical distributions.

Holarctic: *Blacus (B.) exilis*, *Blacus (G.) armatus*, *Blacus (G.) ruficornis*.

Palaearctic: *Blacus (B.) interstitialis*, *Blacus (G.) diversicornis*, *Blacus (H.) nixoni*.

Seven species are Euro-Siberian. Several of them are distributed in Europe and Asia Minor and some of them in the Caucasus: *Blacus (B.) errans*, *Blacus (B.) hastatus*, *Blacus (B.) leptostigma*, *Blacus (B.) nigricornis*, *Blacus (B.) rufescens*, *Blacus (B.) stelfoxi*, *Blacus (G.) maculipes*.

Recent zoogeographic composition and structure of Anatolia and Thrace are recognised as a part of the Palearctic Region. It seems that *Blacus* species recorded from Turkey up to now are of Palearctic distribution, which also agrees with the situation mentioned above. Species we determined mostly show a European distribution. For the European species determined from Asia Minor the distribution now includes also Asia.

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