

Distribution of Turkish *Helophorus* Fabricius, 1775 (Coleoptera, Helophoridae) II. Subgenus *Atracthelophorus*, with Two New Records and Some Ecological Notes

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Abstract: Two newly recorded *Helophorus* Fabricius, 1775 species/subspecies for the Turkish fauna, *Helophorus* (*Atracthelophorus*) *shatrovskyi* Angus, 1985 and *H. (A.) leontis dixoni* Angus, 1987, are compared against Turkish specimens (private collection). A list of subgenus *Atracthelophorus* species known from Turkey and their distribution in Turkey and worldwide is presented. The ecology of each examined species is discussed.

Key Words: Coleoptera, Helophoridae, *Helophorus*, Distribution, Turkey

Türkiye *Helophorus* Fabricius, 1775 (Coleoptera, Helophoridae) Türlerinin Yayılışları II. (Altıncı: *Atracthelophorus*), İki Yeni Kayıt ve Bazı Ekolojik Notlar

Özet: Türkiye faunası için yeni kayıt olan *Helophorus* (*Atracthelophorus*) *shatrovskyi* Angus, 1985 ve *H. (A.) leontis dixoni* Angus, 1987'nin tanımları örneklerimiz üzerinden gözden geçirilmiştir. Türkiyeden bilinen *Atracthelophorus* Altıncısına ait türlerinin listesi Türkiye ve dünyadaki dağılımlarıyla birlikte verilmiş, her bir türün ekolojik özellikleri tartışılmıştır.

Anahtar Sözcükler: Coleoptera, Helophoridae, *Helophorus*, Yayılış, Türkiye

Introduction

The Helophoridae are a large family consisting of a single subfamily only of a single genus, *Helophorus*. This genus comprises more than 190 species (Incekara et al., 2004a), represented in 3 major zoogeographical regions (Palearctic, Nearctic and Ethiopian) (Balfour-Browne, 1958; Chiesa, 1959; Angus, 1984-1992; Smetana, 1985; Hansen, 1991, 1999; Hebauer, 1994).

The aim of this study is to make a contribution to the aquatic Coleoptera fauna. Forty-nine species have previously been recorded belonging to 6 subgenera (*Atracthelophorus*, *Rhopalhelophorus*, *Transithelophorus*, *Empleurus*, *Eutrichelophorus*, *Trichelophorus*, and *Helophorus* s. str.) in Turkey (Ienistea, 1978; Angus, 1985, 1992; Hansen, 1987, 1999; Mart and Erman, 2001; Incekara et al., 2002, 2004). Two species are newly recorded from Turkey.

Materials and Methods

Samples of 2 species were collected in different surveys of the aquatic Coleoptera of the East Anatolian region from 1998, and this study is entirely based on private collections. The beetles were killed using ethyl acetate or 70% alcohol solution. The aedeagophores of the beetles were cleaned with a brush, dissected out under a stereo microscope and exposed in 10% KOH solution for 1-2 h. The figures of the aedeagophores were drawn using a Nikon type 104 microscope.

Results

List of subgenus *Atracthelophorus* species known from Turkey

H. (Atracthelophorus) abeillei Guillebeau, 1896

Distribution: Syria, Lebanon, Armenia, Iran and Turkey (Erzincan, Erzurum, Hakkari and Van) (Freude,

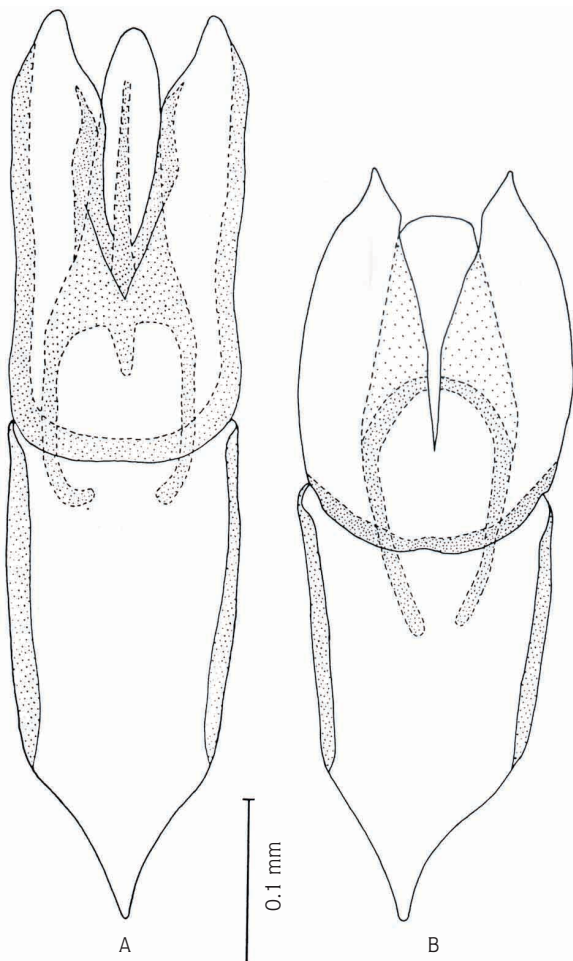


Figure. Aedeagophore, dorsal. A) *Helophorus shatrovskyi*. B) *H. leontis dixonii*.

1965; Angus, 1985, 1988, 1992; Hebauer, 1994; Mart and Erman, 2001).

Material examined: Erzincan province: center: Çayırılı road, 30 km, 03.VII.2003, 7 ♂♂, 11 ♀♀; Keşiş mountain (top), 02.VII.2003, 4 ♂♂, 6 ♀♀; Kelkit road, 1st fountain, 28.VIII.2003, 1 ♂, 04.VII.2003, 2 ♂♂, 1 ♀, 29.VIII.2003, 2 ♂♂, 3 ♀♀; Ahmediye pass, 04.VII.2003, 7 ♂♂, 3 ♀♀; Spikör pass (descending), 03.VII.2003, 18 ♂♂, 7 ♀♀; Mecidiyeköy, 27.V.2003, 2 ♂♂, 2 ♀♀; Salihli village, fountain, 28.V.2003, 3 ♂♂; Spikör pass (top), 29.V.2003, 3 ♂♂, 14 ♀♀, 26.V.2003, 5 ♂♂, 6 ♀♀; Kelkit road, 10 km, 6 ♂♂, 1 ♀; Gemecik village, 05.VII.2003, 9 ♂♂, 7 ♀♀; Kovalık pass, 27.V.2003, 4 ♂♂, 4 ♀♀. Çayırılı: Turnaçayırı village, fountain, 01.VII.2003, 3 ♂♂, 1 ♀♀; Karadayı village (exit), 01.VII.2003, 1 ♂; Başköy, 02.VII.2003, 12 ♂♂, 4 ♀♀, 27.VIII.2003, 3 ♂♂, 1 ♀;

Turnaçayırı village, 01.VII.2003, 5 ♂♂, 3 ♀♀; Cennetpınar village, 02.VII.2003, 1 ♂♂, 2 ♀♀. İliç: Çimento pass, 28.V.2003, 2 ♂♂, 5 ♀♀; Kemaliye road, M. Ziya Özbey, fountain, 30.VIII.2003, 4 ♂♂, 3 ♀♀. Refahiye: Çamdibi village, 28.V.2003, 5 ♂♂, 3 ♀♀; Sakaltutan, 27.V.2003, 1 ♂, 1 ♀; Kızıldağ, 27.V.2003, 28 ♂♂, 36 ♀♀; Kalkancı village, Hacı Alaaddin fountain, 04.VII.2003, 2 ♂♂, 3 ♀♀; Arapyazı fountain, 28.V.2003, 10 ♂♂, 3 ♀♀. Otlukbeli: pond road, 5 km, 01.VII.2003, 10 ♂♂, 7 ♀♀; Çayırılı road (second), 5 km, 02.VII.2003, 2 ♂♂, 1 ♀; Otlukbeli pond, 29.VII.2003, 2 ♂♂; small Otlukbeli, 02.VII.2003, 4 ♂♂, 3 ♀♀. Tercan: Beşkaya village, 02.VII.2003, 1 ♂, 1 ♀.

Erzurum province: Springs, 12.VI.1999, 1 ♂, Köşk village; ponds, 24.VI.1999, 1 ♂.

Ecology: *H. abeillei* is an alpine and subalpine species (1200-2800 m), generally found together with *H. ponticus*, *H. dedalus* and sometimes *H. faustianus*, and mostly prefers small springs with muddy or sandy bottoms.

2. *H. (A.) armeniacus* Ganglbauer, 1901

Distribution: Armenia and Turkey (Artvin) (Freude et al., 1965; Angus, 1985, 1992; Mart and Erman, 2001).

3. *H. (A.) brevipalpis* Bedel, 1881

Distribution: Africa (North), America (North), Denmark, Finland, Iran, Israel, Lebanon, Sweden, Syria and Turkey (Ankara, Antalya, Artvin, Bursa, Diyarbakır, İstanbul, İzmir, Kahramanmaraş, Kırklareli, Muğla, Samsun, Sinop and Van) (Balfour-Browne, 1958; Chiesa, 1959; Freude et al., 1965; Ienistea, 1978; Hansen, 1983, 1987; Angus, 1985, 1988, 1992; Smetana, 1985; Hebauer, 1994; Valladeres, 1995).

Material examined: Erzincan province: center: Ekşisu, 18.VI.1999, 4 ♂♂, 12 ♀♀; Mecidiyeköy, 29.V.2003, 11 ♂♂, 6 ♀♀; Devekorusu (exit), 03.VII.2003, 5 ♂♂, 5 ♀♀; Akyazı-Karakaya road, 10 km, 25.IV.1999, 23 ♂♂, 25 ♀♀; Beytahtı pond, 28.V.2003, 6 ♂♂, 6 ♀♀; Kelkit road, 5 km, 27.V.2003, 3 ♂♂, 3 ♀♀, 10 km, 26.V.2003, 7 ♂♂, 1 ♀; Yalnızbağ village (exit), 04.VII.2003, 6 ♂♂, 4 ♀♀; Kelkit road, 1st fountain, 04.VII.2003, 02.VII.2003, 8 ♂♂, 2 ♀♀; Mecidiyeköy, 25.VII.2003, 1 ♂; Akyazı village, 13.X.2003, 10 ♂♂, 12 ♀♀; Çayırılı road, 13 km, 03.VII.2003, 1 ♂; Gemecik village, 03.VII.2003, 9 ♂♂, 14 ♀♀; Yaylakent village, 02.VII.2003, 8 ♂♂, 7 ♀♀; Kovalık pass, 27.V.2003, 9 ♂♂, 11 ♀♀; Karadayı village, 03.VII.2003, 6 ♂♂, 2 ♀♀; Spikör pass, 26.V.2003, 4 ♂♂, 4 ♀♀; Kelkit road, 2nd fountain,

27.V.2003, 8 ♂, 3 ♀. Çayırılı: Turnaçayırı village, 01.VII.2003, 6 ♂, 2 ♀; Verimli bridge, 01.VII.2003, 11 ♂, 6 ♀; Gözeler-Çayırılı road, 5 km, 25.V.2003, 6 ♂, 10 ♀; Turnaçayırı village, 01.VII.2003, 2 ♂; Karadayı village, fountain, 25.VII.2003, 1 ♂, 2 ♀; Harmantepe village, 27.VIII.2003, 6 ♂, 12 ♀; Başköy, 27.VIII.2003, 3 ♂, 1 ♀, 02.VII.2003, 5 ♂, 1 ♀, 26.V.2003, 7 ♂, 11 ♀; Karadivan village, 02.VII.2003, 1 ♂, 4 ♀; Yeşilyaka village, 02.VII.2003, 8 ♂, 5 ♀; Cennetpınar village, 02.VII.2003, 4 ♂, 8 ♀; Bozağa village, 02.VII.2003, 6 ♂, 12 ♀. İliç: Kemaliye road, M. Ziya Abey fountain, 30.VIII.2003, 3 ♂, 3 ♀. Kemah: Doğanbeyli village, 14.X.2003, 4 ♂. Refahiye: Akçiğdem village, 27.V.2003, 2 ♂, 1 ♀; Çamdibi village (entrance), 28.V.2003, 1 ♂, 3 ♀; Köroğlu4 bridge, 29.VIII.2003, 6 ♂, 3 ♀, 04.VII.2003, 4 ♂, 5 ♀; Arapyazı village (exit), 28.V.2003, 1 ♂, 1 ♀; Sakaltutan, 27.V.2003, 3 ♂, 7 ♀; Çatalçam-Refahiye road, 12 km, 27.V.2003, 2 ♂, 9 ♀; Arapyazı village, 28.V.2003, 11 ♂, 7 ♀. Otlukbeli: Otlukbeli (entrance), 26.V.2003, 8 ♂, 3 ♀; Pond road, 5 km, 01.VII.2003, 2 ♂, 1 ♀; Küçükotlukbeli, 02.VII.2003, 1 ♂, 5 ♀; Yeniköy fountain, 02.VII.2003, 4 ♂, 9 ♀. Tercan: center, 18.VI.1999, 2 ♂, 10 ♀; Gözeler (exit), Mercan, 25.V.2003, 4 ♂, 1 ♀; Beşkaya, 02.VII.2003, 5 ♂, 4 ♀; Üçpınar village, 02.VII.2003, 2 ♂, 7 ♀; Mercan, 27.VIII.2003, 18 ♂, 4 ♀; 02.VII.2003, 4 ♂, 7 ♀; Kuzuören village, 27.VIII.2003, 5 ♂; Harmantepe village, 25.V.2003, 6 ♂, 2 ♀; Yalınkaş village, 02.VII.2003, 19 ♂, 36 ♀; Yayla road, 02.VII.2003, 11 ♂, 19 ♀; Mercan (entrance), 02.VII.2003, 38 ♂, 45 ♀; Tercan (exit), 27.VI.1998, 17 ♂, 13 ♀.

Ecology: *H. brevipalpis* is very common in the east Anatolia region. Its range extends from the east to west and south Anatolia. It may occur in all kinds of stagnant and running water bodies, mainly in spring and autumn, and is often very abundant.

4. *Helophorus (Atracthelophorus) arvernica* Mulsant, 1846

Distribution: Austria, Denmark, Finland, France, Italy, Norway, Russia, Spain, Scotland, Sweden and Turkey (Erzurum) (Balfour-Browne, 1958; Chiesa, 1959; Freude et al., 1965; Hansen, 1983, 1987; Angus, 1985, 1992; Smetana, 1985; Mart and Erman, 2001).

Material examined: Erzincan province: center: Karakaya, grassy pools, 24.IV.1999, 5 ♂ 8 ♀; 25.IV.1999, 8 ♂ 10 ♀; Karakaya-Akyazı road, 15 km,

25.IV.1999, 1 ♂, 1 ♀; Saztepe village, 30.V.2003, 2 ♂, 1 ♀; Yeniköy (exit), 25.V.2003, 2 ♂, 5 ♀; Beşsaray village, 28.V.2003, 1 ♂, 1 ♀; Hasanağa fish center, 28.V.2003, 3 ♂, 5 ♀; Kovalık pass, 27.V.2003, 4 ♂, 4 ♀. Çayırılı: Harmantepe village, 27.VIII.2003, 2 ♂, 1 ♀; Turnaçayırı village, 27.V.2003, 6 ♂, 6 ♀. Refahiye: Kalkancı village, Hacı Alaaddin fountain, 04.VII.2003, 3 ♂, 4 ♀. Tercan: Mercan, 24.IV.1999, 2 ♂, 1 ♀, 27.VIII.2003, 6 ♂, 8 ♀; Beşkaya village, 02.VII.2003, 2 ♂, 4 ♀; Mercan (entrance), 02.VII.2003, 6 ♂, 3 ♀.

Ecology: Found at edges of running fresh water. Adults are found mainly in spring, but also in summer and autumn.

5. *H. (A.) daedalus* d'Orchymont, 1932

Distribution: Iran and Turkey (Diyarbakır, Erzurum, İzmir and Van) (Angus, 1985, 1988, 1992; Hebauer, 1994).

Material examined: Erzincan province: center: Spikör pass, 03.VII.2003, 3 ♂, 7 ♀; Kovalık pass, 27.V.2003, 17 ♂, 19 ♀; Gemecik village, 27.VI.2003, 36 ♂, 05.VII.2003, 2 ♂, 29 ♀; Kelkit road, 1st fountain, 05.VII.2003, 7 ♂, 6 ♀; 04.VII.2003, 4 ♂, 8 ♀; 13.X.2003, 6 ♂, 5 ♀, 29.VIII.2003, 1 ♂, 4 ♀; Ahmediye pass, 13.X.2003, 1 ♂, 1 ♀; Kelkit road, 10 km, 28.VIII.2003, 2 ♂; Spikör pass (downhill), 4 ♂, 12 ♀; Mecidiye plateau (entrance), 29.V.2003, 1 ♂; Akyazı village, 13.X.2003, 7 ♂, 8 ♀; Çayırılı road, 17 km, 02.VII.2003, 2 ♂, 1 ♀. Çayırılı: Deliktaş village, 03.VII.2003, 2 ♂; Başköy, 27.VIII.2003, 8 ♂, 6 ♀; 02.VII.2003, 4 ♂, 4 ♀; Verimli village, 27.VIII.2003, 1 ♂; Kardayı village, 03.VII.2003, 5 ♂, 5 ♀; Turnaçayırı village, 01.VII.2003, 3 ♂, 3 ♀; Yaylakent village, 02.VII.2003, 5 ♂, 2 ♀. Refahiye: Yuvam village, 28.V.2003, 1 ♂, 1 ♀; Çamdibi village (exit), 25.V.2003, 1 ♂; Kızıldağ, 27.V.2003, 2 ♂; Ekencik village, 04.VII.2003, 1 ♂; Yuvadağı village, 29.VIII.2003, 6 ♂, 2 ♀; Çatalçam-Refahiye road, 12 km, 27.V.2003, 4 ♂, 3 ♀; Arapyazı village, 28.V.2003, 17 ♂, 23 ♀; Kalkancı pond, 29.VIII.2003, 12 ♂, 14 ♀. Tercan: Mercan, 27.VIII.2003, 19 ♂, 7 ♀; Kuzuören village, 13.10.2003, 9 ♂, 9 ♀; Göktaş village, 27.VIII.2003, 8 ♂, 7 ♀.

Ecology: grassy, temporary pools or edges of small running waters. Mainly found in spring, but also summer. In contrast to Angus's (1992) report, distribution of this species is not confined to the mountains. Generally

prefers high ground (1200-2100) but there are many specimens from low ground (İzmir; 0-500 m) (Angus, 1988).

6. *H. (A.) difficilis* Angus, 1988

Distribution: Israel, Lebanon and Turkey (Antakya, Erzurum and Osmaniye) (Angus, 1988, 1992; Hebauer, 1994).

Material examined: Erzincan province: center: Keşiş Mountain (top), 02.VII.2003, 2 ♂; Akyazı village, 13.10.2003, 4 ♂, 7 ♀; Spikör pass (downhill), 03.VII.2003, 2 ♂, 8 ♀. Çayırılı: Harmantepe village, 27.VIII.2003, 12 ♂, 16 ♀. Refahiye: Çamdibi village (entrance), 28.V.2003, 4 ♂, 7 ♀; Arapyazı village, 28.V.2003, 17 ♂, 21 ♀. Otlukbeli: pond road, 5 km, 01.VII.2003, 6 ♂, 12 ♀. Tercan: Dalıca village, 27.VIII.2003, 3 ♂, 1 ♀; Yayla road, 02.VII.2003, 6 ♂, 9 ♀.

Ecology: generally prefers high ground (1500-2200 m). Found in vegetation in temporary pools exposed to the sun and at the edges of slowly running water.

7. *H. (A.) faustianus* Sharp, 1916

Distribution: Caucasus and Turkey (Bursa, Giresun and Tokat) (Freude et al., 1965; Ienistea, 1978; Angus, 1985, 1988, 1992; Hansen, 1999).

Material examined: Artvin, Şavşat, Çam pass, 3.VII.2000, 1 ♂; Giresun, Aksu plateau, İstanbul Suyu, 24.VII.2004, 4 ♂, 7 ♀.

Ecology: very rare in Turkey. This species is characteristic on high ground (often the alpine zone) of east Anatolia as *H. ponticus*. Found in springs or stagnant pools with sandy bottoms.

8. *H. (A.) glacialis* Villa, 1883

Distribution: Denmark, Finland, Spain, Sweden and Turkey (Bursa) (Chiesa, 1959; Angus, 1985, 1988, 1992; Hansen, 1987, 1999; Valladares, 1995).

9. *H. (A.) guttulus* Motschulsky, 1860

Distribution: Caucasus and Turkey (Rize) (Freude et al., 1965; Ienistea, 1978; Angus, 1985, 1992).

10. *H. (A.) lewisi* Angus, 1985

Distribution: Israel, Russia and Turkey (Antakya, Diyarbakır, Erzincan, Gümüşhane, İzmir and Şırnak) (Angus, 1985, 1988, 1992; Hebauer, 1994).

Material examined: Erzincan province: center: Spikör pass (downhill), 29.V.2003, 17 ♂, 1 ♀; Mecidiye (entrance), 29.V.2003, 4 ♂, 7 ♀; Çayırılı road, 30 km, 29.V.2003, 4 ♂, 5 ♀; Spikör pass, 27.V.2003, 6 ♂, 1 ♀; Devekorusu (exit), 03.VII.2003, 2 ♂, 5 ♀. Refahiye: Arapyazı village (exit), 28.V.2003, 3 ♂, 4 ♀.

Ecology: in stagnant, only occasionally running fresh water, mainly shallow, open to sun, eutrophic pools with grassy and usually clayed bottoms, particularly in rather light-bottomed pools.

11. *H. (A.) maculatus* Motschulsky, 1860

Distribution: Armenia, Azerbaijan, Iran and Turkey (Van) (Angus, 1985, 1988, 1992).

Material examined: Erzincan province: center: Spikör pass, 26.V.2003, 2 ♂; Spikör pass (downhill), 03.VII.2003, 2 ♂, 7 ♀.

Ecology: found in both stagnant and running waters with muddy bottoms without vegetation. Apparently prefers high ground (200-2340 m).

12. *H. (A.) montenegrinus* Kuwert, 1885

Distribution: Austria, Balkans, Caucasus, Italy and Turkey (Ankara, Bolu, Bursa, İzmir, Kastamonu, Kırklareli, Sinop and Trabzon) (Chiesa, 1959; Ienistea, 1978; Angus, 1985, 1988, 1992).

13. *H. (A.) ponticus* Angus, 1988

Distribution: Turkey (Rize (Kaçkar Mountains), Bursa (Uludağ), Erzincan, Erzurum and Kars) (Angus, 1988, 1992; Mart and Erman, 2001).

Material examined: Erzincan province: center: Spikör pass, (downhill), 29.V.2003, 1 ♂; Keşiş dağı, top, 02.VII.2003, 3 ♂, 4 ♀; Kelkit road, 1st fountain, 28.VIII.2003, 1 ♂, 3 ♀; 04.VII.2003, 12 ♂, 8 ♀; 29.VIII.2003, 6 ♂, 2 ♀; Ahmediye pass, 04.VII.2003, 3 ♂, 3 ♀; Çayırılı road, 30 km, 03.VII.2003, 8 ♂, 12 ♀. Çayırılı: Başköy, 02.VII.2003, 13 ♂, 5 ♀; 27.VIII.2003, 5 ♂, 1 ♀; Karadayı village, 03.VII.2003, 7 ♂, 8 ♀; Turnaçayırı village, 01.VII.2003, 4 ♂, 6 ♀. Refahiye: Sakaltutan, 27.V.2003, 2 ♂, 1 ♀; Kızıldağ, 27.V.2003, 9 ♂, 7 ♀.

Erzurum province: ponds, Yedigöller, Tortum, 05.VI.1999, 6 ♂.

Ecology: it is said that *H. ponticus* generally prefers habitats at 3000 m in altitude or more (especially near

melting snow) because only a few specimens have been collected from habitats under 3000 m in altitude. In these species we found no external variations, although the aedeagophores do show distinct variations (Incekara et al., 2004b).

14. *H. (A.) zagrosicus* Angus, 1988

Distribution: Iran and Turkey (Hakkari) (Angus, 1988, 1992; Hansen, 1999).

15. *H. (A.) shatrovskyi* Angus, 1985

Body 2.5-2.6 mm in length. Head: bronze with shining dark green reflections, the surface granulate. "Y" groove distinct, pale, stem linear, its floor rugulose and with fine granules. Antennae 9-segmented, brown, the club loose and a little darker. Maxillary palpi yellowish brown, the apical segment symmetrical oval and darker at the extreme top.

Pronotum: color as head, highly arched, widest at the base of anterior third. Lateral margins rounded (especially anterior angles). Surface of all intervals rather smooth except for externals. Internal intervals bluntly angled outwards medially. Mid groove deep and narrow, tapered anteriorly and posteriorly, its floor rugulose. Submarginal grooves rather wider, about twice the width of submedians.

Elytra: brown, strongly striate, widest at the middle. Stria as wide as interstices; 6 and 7th interstices distinctly raised just behind the humeral angles. The lateral sides curved, the apex bluntly rounded. Flanks broadly visible from below.

Legs: brown, rather short. Claw segment darker. Tarsal swimming hairs short and slender.

Aedeagophore: 0.5-0.6 mm in length. Sclerotized portions very distinct. Outer margins of parameres slightly sinuate, incurved before the apex. Basal piece as long as parameres. Median lobe slightly shorter than parameres (Figure 1a).

Distribution: Mongolia (Angus, 1985a).

Material examined: Erzincan province: center: Spikör pass, (downhill), 29.V.2003, 1 ♂, 1 ♀. Çayırılı: Verimli bridge, 01.VII.2003, 1 ♂, 3 ♀♀.

Ecology: Muddy edges of slowly running streams without vegetation.

16. *H. (A.) leontis dixonii* Angus, 1987

Body 2.7-2.3 mm in length. Head metallic black, its surface covered with strong granules. Maxillary palpi blackish, the apical segment symmetric oval, widened medially, bluntly pointed at the tip. Antennae dark brown to blackish, 9-segmented, club loose. Stem of "Y" groove expanded anteriorly, its floor finely granulate. Area between arms of "Y" groove slightly raised.

Pronotum: color as head, granulate, widest medially, narrowed posteriorly, posterior margin almost straight. Lateral margins evenly rounded or slightly straighter basally. Grooves narrow and shallow (especially mid and submedians), line of small tubercles of submedian groove indistinct or missing. Marginal grooves dark brown to blackish.

Elytra: bronze to black, strongly striate. Interstices wider than stria, weakly convex. Widest at the middle. Scutellum oval, darkened. Flanks broadly visible from below. Legs rather short, brown to blackish.

Aedeagophore 0.4 mm in length. Parameres rather robust tapered and curved outwards apically. Median lobe shorter than parameres, rather robust and its apex almost straight. Basal piece as long as parameres (Figure 1b).

Distribution: Iran, Israel (Angus, 1987; Hebauer, 1994).

Material examined: Erzincan province: center: Çayırılı road, 30 km, 29.V.2003, 3 ♂♂, 1 ♀; Ahmediye pass, 21.VII.2003, 4 ♂♂, 2 ♀♀.

Ecology: found in both stagnant fresh water with muddy bottom and slowly running water with sandy bottom.

Discussion

Helophorus (Atracthelophorus) shatrovskyi Angus, 1985, introduced to science by R. B. Angus, is only known from Mongolia (Angus, 1985), and knowledge about this species is very limited. According to Angus (1985), in its general appearance *H. shatrovskyi* comes closest to *H. pumilio* ER. but it is immediately distinguished by its short maxillary palpi with a symmetrical apical segment. Further more *H. pumilio* is darker, has a more granulate pronotum, longer legs and a different aedeagophore.

In this study total specimens (2 ♂♂, 4 ♂♂) were collected from very high altitudes (200-2300 m) in

Erzincan. In contrast to Angus, 1985, our samples have a pale "Y" groove, the pronotum widest at base of anterior third, interstices as wide as the stria and basal piece of aedeagophore is not shorter than parameres.

H. (A.) leontis Angus, 1985 was described from northern Spain and *H. (A.) leontis dixonii* Angus, 1987 was surprisingly described from Israel. This situation creates a strong temptation to raise *H. (A.) leontis dixonii* to full species rank because these 2 localities are very distant geographically. Genetic isolation may already have taken place, but according to Angus (in lit.) the chromosomes of the Spanish and Israeli materials appear to be the same. In addition, the aedeagophores of the 2 subspecies are so similar that this seems to require that they be placed within the same species.

Externally, *H. l. dixonii* is very similar to the Anatolian *H. daedalus* but has an aedeagophore, with straight outer margins to the parameres, and no apical point.

Aedeagophores of Anatolian *H. l. dixonii* are very similar to those of Angus (1987) and Hebauer's (1994) drawings except for the median lobe (larger). In contrast to Angus 1987, the Anatolian *H. l. dixonii* shows only 2 differences from the holotype externally: a) tubercles of submedian groove indistinct or missing, b) larger (2.7-3.00 mm).

This study determined that the type form *H. leontis leontis* may be an Iberian endemic but that distribution of *H. l. dixonii* is not confined to the localities reported previously.

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