Published December 31, 2002

Klapalekiana, **38**: 213-225, 2002
ISSN 1210-6100

Distributional records of carrion beetles (Coleoptera: Silphidae) from Iran, Afghanistan, Pakistan and north-western India

Údaje o rozšíření mrchožroutovitých brouků (Coleoptera: Silphidae) z Íránu, Afghánistánu, Pákistánu a severozápadní Indie

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Distribution, Coleoptera, Silphidae, Iran, Afghanistan, Pakistan, India, Palaearctic region

Abstract. Records on distribution of 28 species of Silphidae (based on 865 specimens) from Iran, Afghanistan, Pakistan and north-western India (Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh states) are presented. First state distributional records for the following species are provided: *Necrodes littoralis* (Linnaeus, 1758) (India: Uttar Pradesh), *Nicrophorus antennatus* (Reitter, 1884) (Afghanistan), *Silpha obscura* Linnaeus, 1758 (India: Himachal Pradesh; south-easternmost known occurrence of this species in Asia), *Thanatophilus dentigerus* (Semenov, 1891) (Pakistan, India: Uttar Pradesh), *T. ferrugatus* (Solsky, 1874) (Iran) and *T. porrectus* (Semenov, 1891) (Afghanistan, Pakistan). First reliable records (only old, unprecise records from the territory were available) concern the following species: *Aclypea turkestanica* (Ballion, 1871) (Iran), *Necrodes nigricornis* Harold, 1875 (India: Uttar Pradesh) and *Thanatophilus minutus* Kraatz, 1876 (India: Himachal Pradesh and Uttar Pradesh). Finally, the second precise record of *Aclypea cicatricosa* Reitter, 1884 from Iran is given.

INTRODUCTION

The carrion beetles is a small group of ca. 200 species worldwide (Newton 1991).

Distribution of most of the species of Silphidae throughout Iran to north-eastern India is only inadequately known. In older papers, localities of collected specimens were usually given only in general terms such as "Persia", "Kashmir" or "Himalayas" (e.g. in Portevin 1922, 1926; Hatch 1928). Corespondingly, only few papers have been devoted to the distribution of Silphidae in south-western Asia so far. Some data were included in the papers by Kraatz (1876), Portevin (1922, 1926), Schawaller (1979, 1980, 1981, 1996), Růžička et al. (2000) and Sikes et al. (2002). Papers focused on these territories were only those by Portevin (1906) for "Persia" [= Iran], Růžička (1996) and Nikolaev & Kozminykh (2002) for Iran, Portevin (1937) and Nikolaev & Kozminykh (2002) for Afghanistan and Schawaller (1982) for Pakistan and India.

The aim of this paper is to improve the knowledge of distribution of the carrion beetles in this region. Altogether, 865 specimens of 28 species of the carrion beetles are listed, based on material collected by various Czech entomologists in 1995-2002 and material from Afghanistan collected by O. Jakeš and J. Šimek between 1964-1966 and deposited in MZMB (Jakeš 1967). For several species, relatively precisely labelled older material with exact locality data has

been found in collections of BMNH, DEIC, HNHM, MNHN, NHMW, SMNS, ZFMK and ZMNB by the senior author. This material is also included.

MATERIAL AND METHODS

The following collection acronyms are used throughout the text (according to Arnett et al. 1993): BMNH – Natural History Museum, London (M. J. D. Brendell); DEIC – Deutsches Entomologisches Institut, Eberswalde (L. Zerche); HNHM – Magyar Természettudományi Muzeum, Budapest (O. Merkl); JRUC – private collection of Jan Růžička, Praha; JSCC – private collection of Jan Schneider, Praha; KORC – private collection of Kamil Orszulik, Frýdek-Místek; MNHN – Muséum national d'Histoire naturelle, Paris (Nicole Berti); MZMB – Moravské zemské muzeum, Brno (V. Kubáň); NHMW – Naturhistorisches Museum, Wien (H. Schönmann); NMPC – Národní museum, Praha (J. Jelínek); SMNS – Staatliches Museum für Naturkunde, Stuttgart (W. Schawaller); ZFMK – Zoologische Forschungsinstitut und Museum "Alexander Koenig", Bonn (M. Schmitt); ZMHB – Museum für Naturkunde, Humboldt-Universität, Berlin (B. Jaeger, M. Uhlig).

The following abbreviations are used throughout the text: coll. – collection of (i.e. not collected by!); distr. – district; env. – environs of; leg. – collected by; loc. – locality; mts – mountains; nr. – near; prov. – province; spec. – specimen(s).

Species within the subfamilies Silphinae and Nicrophorinae are sorted alphabetically, the same system is used for the arrangement of provinces under the material examined for each species. Within provinces, material is sorted chronologically. All material was determined or reviewed by Jan Růžička and/or Jan Schneider.

Geographical names of all provinces and localities in Afghanistan, Pakistan and India are unified according to Anonymous (2001a); geographical names of localities in Iran are unified according to Anonymous (2001b). If the historical name or original name provided on the locality label is substantially different from the transliteration given in Anonymous (2001a, 2001b), a recent transliteration is given within square brackets after the original name. In the material from BMNH and MNHN lacking any date on the locality labels, the dates of its incorporation into the museum collection are provided in square brackets after the locality names (in the form "without date [but before ...]"). In the material from Afghanistan deposited in MZMB, numbering of the localities follows Jakeš (1967). Unidentified historical localities from Afghanistan and India are marked as such in square brackets after the appropriate locality names.

Throughout the text, the first state distributional records are differentiated from the first reliable state records – this term is applied to all precisely located material that supplements old and imprecise records from only roughly delimited territories (e.g., "Persia", "Kashmir", "Himalayas" or "northern India").

RESULTS

Silphinae

Ablattaria arenaria (Kraatz, 1876)

Iran: Huzestan prov.: Choqua – Zanbil env., Zikurat, ca. 100 m, 5.-6.v.1996, D. Král leg., 2 males, 1 female (JSCC).

Known from Greece, Turkey and Near East (Schawaller 1979, Háva et al. 1998); old records from "Persia" [= Iran] reported by Portevin (1906) and Schawaller (1979).

Ablattaria laevigata cribrata (Ménétries, 1832)

Iran: Gilan prov.: 55 km WSW Rasht, Masuleh, 37°10´N 48°58´E, 28.-30.vii.1999, J. Kaláb leg., 1 male (JSCC); Alborz mts, Rudbar, 2500-3000 m, 1.vi.2001, V. Kocourek leg., 1 female (JSCC); Alborz mts, Rudbar env., 1.vi.2001, K. Orszulik leg., 3 males, 3 females (JRUC, KORC); Mazandaran prov.: Astrabad [= Gorgan], without date, ex coll. Eppelsheim, 1 female (NHMW); the same locality, without date, ex coll. A. Grouvelle, 1 male, 1 female (MNHN); the

same locality, iv.1899, Hauser leg., 2 males (NHMW); the same locality, v.1899, Hauser leg., 2 females (NHMW); 35 km S Amol, 36°22′N 52°20′E, 500 m, 3.v.1998, Gy. Fábián & K. Székely leg., 1 female (HNHM); 40 km NE Minu Dasht, Karim Isham env., 500 m, 2.-5.iv.2001, S. Murzin leg., 1 male (JSCC); Alborz mts, Kuh-e-Damavand, 2500-3600 m, 25.v.2001, V. Kocourek leg., 2 males, 2 females (JSCC); Gorgan env., 25.v.2001, K. Orszulik leg., 1 female (JRUC); S Gorgan, Nahar Khoran env., 27.v.2001, K. Orszulik leg., 1 female (KORC); Khorasan prov.: Kopetdag mts, Siaret [= Ziarat], 1160 m, v.1899, Hauser leg., 1 male (NHMW); Ala-Dagh [= Shah Jahan mts], Budschnurd [= Bojnurd], 1033 m, v.1902, Hauser leg., 1 male, 1 female (NHMW).

Known from eastern Caucasus (Schawaller 1979); only two records from Iran (Azarbayjan-e Sharqui and Gilan provinces) were provided by Schawaller (1979) and Růžička (1996), respectively; from south-western Turkmenistan reported by Kryzhanovskiy & Sabirova (1981). Schawaller (1979) treated this taxon as a valid species, Nikolaev & Kozminykh (2002) recently changed its position only to a subspecies of the common European *A. laevigata* (Fabricius, 1775). The present records confirm the occurrence of this subspecies also at higher altitudes (not reported in other species of this genus), as already mentioned by Schawaller (1979).

Aclypea cicatricosa Reitter, 1884

Iran: Lorestan prov.: pass 52 km E Horramabad [= Khorramabad], 18.iv.2002, P. Kabátek leg., 1 male (JSCC).

Endemic to Iran, described from "Persia" (Reitter 1884). A single precise record from Iran (Kerman province) was given by Růžička (1996). Specimens reported from southern Turkmenistan by Nikolaev (1990) were later re-examined by Nikolaev & Kozminykh (2002) and described as *Aclypea kopetdaghica* Nikolaev, 2002. Second precise record of *A. cicatricosa* from Iran.

Aclypea turkestanica (Ballion, 1871)

Iran: Khorastan prov.: Ala-Dagh [= Shah Jahan mts], Budschnurd [= Bojnurd], 1033 m, vi.1902, Hauser leg., 1 female (NHMW); Mazandaran prov.: 40 km NE Minu Dasht, Karim Isham env., 500 m, 2.-5.iv.2001, S. Murzin leg., 1 male (JSCC); **Afghanistan:** Kabul prov.: Kabul env., Darufulun [unidentified], 1800 m, 17.vi.1953, J. Klapperich leg., 2 males, 2 females (ZFMK); **Pakistan:** North West Frontier prov.: Hazara, Upper Kagan Valley, Narang, 8000 ft, 28.v.1927, H. G. Champion leg., 3 spec. (BMNH); Naran, Kagan valley, 26.-27.vii.1998, J. Rejsek leg., 1 male (JSCC); Lawarai[= Lowarai] Pass, 2500-3118 m, 8.-9.vii.1998, J. Rejsek leg., 14 spec. (SMNS); Lowari [= Lowarai] pass, 3200-3500 m, 8.-10.viii.1998, L. Černý leg., 26 spec. (JRUC, JSCC); 15 km NNW Dir, Lawai [= Lowarai] pass, S side, 35°21′N 71°48′E, 3100 m, 29.vii.-1.viii.2000, J. Kaláb leg., 3 spec. (JSCC); SW env. of Utrot, 35°28′N 72°26′E, 2400 m, 26.-28.viii.2000, J. Kaláb leg., 1 spec. (JSCC); Northern Areas: Sumro, 8000 ft, without date [but before 1922], H. E. Andrewes leg., 1 female (BMNH); Deosai mts, 3 km NW Chilam Chauki, 35°04′N 75°04.8′E, 3300 m, 12.-14.v.1998, Gy. M. László & G. Ronkay leg., 1 male, 1 female (HNHM); ca. 30 km S Chilas, Babusar Pass, 4601 m, 21.-23.vii.1998, J. Rejsek leg., 7 spec. (SNMS); 30 km S Chilas, 5 km S Babusar, 35°11′N 74°03′E, 3400 m, 19.-21.vii.2000, J. Kaláb leg., 10 spec. (JSCC); **India:** Jammu and Kashmir: Gulmarg, vi.1931, M. Cameron leg., 1 female (BMNH); Kashmir, Lidderwat and halfway to Kolahoi glacier, 6.-7.vi.1967, Gy. Topál leg., from under stones, 2 females (HNHM); Kashmir, Pahalgam env., vi.1995,

R. Sauer leg., 34 spec. (JSCC); Ladakh distr., Chemre, vi.1995, R. Sauer leg., 4 males, 1 female (JRUC, JSCC).

The names *Aclypea christophi* (Kraatz, 1876) (described from "Persia" [= Iran], without more detailed locality) and *A. sculpturata* Grouvelle, 1903 (described from Kashmir) are currently treated as junior objective synonyms of *A. turkestanica* (Ballion, 1871); for further discussion, see Schawaller (1996: 13). Widely distributed in Middle Asia, reaching as far as Kashmir and China: Xinjiang Uygur autonomous region in the east (Nikolaev 1990, Schawaller 1996, Růžička et al. 2002). From Afghanistan reported by Nikolaev & Kozminykh (2002), and from Pakistan by Schawaller (1996). The first reliable records from Iran.

Aclypea undata (O. F. Müller, 1776)

Iran: Azarbayjan-e Gharbi prov.: 10 km S Khoy, 8.vi.1999, P. Kabátek leg., 2 females (NMPC); 50 km NW Orumiyeh, Serou, 37°39′N 44°45′E, 9.vi.1999, E. & P. Hajdaj leg., 1 male (JSCC); ditto, M. Johanides leg., 5 spec. (JSCC); ditto, 7.vi.2000, E. & P. Hajdaj leg., 2 males, 1 female (JSCC); ditto, 15.iv.2002, 1 male, 2 females (JSCC); Mahabad, 36°47′N 45°46′E, 1500 m, 5.v.2000, J. Kaláb leg., 1 male (JSCC); Esfahan prov.: 13 km SWW Ardestan, Horamabad, 12.v.1999, K. Orszulik leg., 1 male (JRUC); Gilan prov.: 10 km W Rostam Abad, 1300 m, 17.v.2000, J. Rejsek leg., 1 male, 1 female (SMNS); Lorestan prov.: Zagros mts, 30 km W Khorramabad, Gholaman env., 1000 m, 6.-7.v.1996, D. Král leg., 1 female (JSCC); Mazandaran prov.: 3 km S Kelerd, 36°29.1′N 52°17.3′E, 200 m, 27.iv.1999, L. Nádai, Z. Rahmé & K. Székely leg., 1 male (HNHM); 6 km W Reine, 35°53.3′N 52°02.5′E, 28.iv.1999, Gy. Fábián, L. Nádai,Z. Rahmé & K. Székely leg., 1 male (HNHM); 45 km SW Chalus, Delir, 36°21′N 51°08′E,22.-24.vii.1999, J. Kaláb leg., 2 spec. (JSCC); Javaher Deh, 20 km WSW Ramsar, 2300 m, 14.v.2000, J. Rejsek leg., 1 male (SMNS); Gevaher Deh env., 30.v.2001, K. Orszulik leg.,2 males, 1 female (JRUC, KORC); Tehran prov.: Tehran, Karadj, 12.xi.1959, E. S. Brown leg.,1 female (BMNH).

Palaearctic species, widely distributed from Europe to western Siberia; from Iran reported by Schawaller (1996) and Růžička (1996).

Necrodes littoralis (Linnaeus, 1758)

Iran: Mazandaran prov.: Astrabad [= Gorgan], iv.1899, Hauser leg., 5 spec. (NHMW); ditto, v.1899, Hauser leg., 4 spec. (NHMW); Chalus, 28.-29.iv.1970, W. Wittmer leg., 1 female (SMNS); Alborz mts, N slopes, Ramsar env., 10 km NEE Churti, ca. 500 m, 10.-11.v.1996, D. Král leg., 2 females (JSCC); 35 km S Amol, 36°20′N 52°20′E, 500 m, 14.v.1998, Gy. Fábián & K. Székely leg., 2 males, 1 female (HNHM); Khorasan prov.: Kopetdag mts, Siaret [= Ziarat], 1160 m, without date and collector name, 1 female (ZMHB); same locality, v.1899, Hauser leg., 2 males, 1 female (NHMW); **Pakistan:** Azad Kashmir: Poonch [= Punch] distr., S slopes of Gali nr. Baoh, 2200-2400 m, 6.-14.viii.1988, Heinz leg., 1 male (SMNS); North West Frontier prov.: Kaghan [= Kagan] valley, 20 km NE Balakot, Tathabaya, 34°41′N 73°25′E, 2400 m, 27.vii.1994, B. Berczig, Gy. M. László & G. Ronkay leg., 1 male, 1 female (HNHM); Kaghan [= Kagan] valley, Tathabaya, 34°36′N 73°26′E, 2200 m, 19.v.1998, Gy. M. László & G. Ronkay leg., 1 female (HNHM); ditto, 34°36.8′N 73°27′E, 2300 m, 7.-9.vii.1998, G. Csorba & G. Ronkay leg., 1 male (HNHM); Ayubia, 34°01.8′N 73°24′E, 2650 m, 5.-6.vii.1998, G. Csorba & G. Ronkay leg., at light, 1 female (HNHM); **India:** Uttar Pradesh: Mussoorie, vii.1992, Werner leg., 1 male, 1 female (JSCC).

Widely distributed in the Palaearctic region; from Iran reported by Portevin (1922, 1926), from Pakistan by Schawaller (1982), from Afghanistan listed by Nikolaev & Kozminykh (2002), and from India: Himachal Pradesh by Portevin (1922, 1926). First record from India: Uttar Pradesh.

Necrodes nigricornis Harold, 1875

India: Uttar Pradesh: Moradabad, without date, ex coll. A. Grouvelle, 1 male, 1 female (MNHN).

Known from India (Assam), Bangladesh, Vietnam, Korea, China, Taiwan and Japan (Portevin 1914, 1926, Cho & Lee 1992, Růžička et al. 2000). Arrow (1909) described *N. brevicollis* from "N. [= North] India" (without more detailed locality); Růžička et al. (2000) synonymized this name with *N. nigricornis*. The first reliable record from India: Uttar Pradesh.

Phosphuga atrata (Linnaeus, 1758)

Iran: Lorestan prov.: 5 km S Borujerd, 33°51.5′N 48°33.5′E, 1500 m, 14.iv.1999, Gy. Fábián, L. Nádai, Z. Rahmé & K. Székely leg., 3 spec. (HNHM).

Widely distributed in the Palaearctic region; from Iran and Afghanistan mentioned by Nikolaev & Kozminykh (2002), and from India (the state of Jammu and Kashmir) reported a single record by Schawaller (1982).

Silpha obscura Linnaeus, 1758

Iran: Azarbayjan-e Gharbi prov.: Khoi [= Khoy], 1904, Zugmayer leg., 1 female (NHMW); Bazargan, 1.v.1999, M. Dvořák leg., 1 male, 2 females (JSCC); Azarbayjan-e Sharqui prov.: Takht-e-Soleyman, 14.v.1999, K. Orszulik leg., 1 male (JRUC); 35 km SE Ardabil, Nir lake, 38°00′N 48°34′E, 2500 m, 10.-11.v.2000, J. Kaláb leg., 1 male, 1 female (JSCC); Cahar Mahali-o-Bakhtiyari prov.: Shur Ab, 2500-2700 m, 18.vii.2000, R. Reitmaier leg., 4 spec. (JSCC); Gilan prov.: Ramsar env., Javaher Deh, 1700-2000 m, 16.vii.1975, Heinz leg., 12 spec. (SMNS); 20 km WSW Ramsar, Javaher Deh, 36°52′N 50°28′E, 2300 m, 7.-8.viii.1999, J. Kaláb leg., alpine region, 4 spec. (JSCC); ditto, 14.v.2000, 6 spec. (JSCC); ditto, J. Rejsek leg., 13 spec. (SMNS); ditto, 2000-2300 m, 5.vii.2000, R. Reitmaier leg., 24 spec. (JSCC); Sefid Rud river, Rostam Abad, Piri, 1200 m, 19.vii.1975, Heinz leg., 12 spec. (SMNS); Talesh mts, Hastpar, 25.vii.1976, J. Boháč leg., pitfall trap, 1 female (JRUC); Talesh mts, N slopes, 15 km WWS Asalem, ca. 300 m, 11.-12.v.1996, D. Král leg., by road, 1 female (JSCC); 55 km WSW Rasht, Masuleh, 37°10′N 48°58′E, 28.-30.vii.1999, J. Kaláb leg., 2 males, 3 females (JSCC); 50 km ESE Rudbar, Kelishom, 36°44′N 49°56′E, 2100 m, 2.-3.v.2000, J. Kaláb leg., 9 spec. (JSCC); ditto, J. Rejsek leg., 2 males, 2 females (JSCC); 20 km E Khalkhal, 1900 m, 13.-16.v.2000, J. Rejsek leg., 1 female (SMNS); Alborz mts, Rudbar, 2500-3000 m, 1.vi.2001, V. Kocourek leg., 2 males (JSCC); Khorastan prov.: Ala-Dagh [= Shah Jahan mts], Budschnurd [= Bojnurd], 1033 m, vi.1902, Hauser leg., 1 female (HNHM); Mazandaran prov.: Astrabad [= Gorgan], iv.1899, Hauser leg., 4 males,2 female (NHMW, HNHM); the same locality, v.1899, Hauser leg., 1 male, 1 female (NHMW); Alborz mts., Schalous [=Chaluz] pass, 2600-2900 m, 2.ix.1960, J. Klapperich leg., 1 male, 2 females (HNHM); 44 kmS Chaluz, 2.v.1970, Kasy & Pretzmann leg., 2 males, 1 female (NHMW); 30 km E Sari, 27.iv.1972, Bilek & Ressl leg., 1 female (NHMW); S Almdeb, 300 m, 15.vii.1975, Heinz leg., 1 spec. (SMNS); mts S of Galugah and Behhahr, ca. 700 m, 2.vii.1975, Heinz leg.,9 spec. (SMNS); Alborz mts., N slopes, Vali Abad env., 1800-2500 m, 8.-10.v.1996, D. Král leg., 3 males, 2 females (JSCC);

35 km S Amol, 36°20′N 52°20′E, 500 m, Gy. Fábián & K. Székely leg., 1 male (HNHM); Alborz mts, Kuh-e-Damavand, SE side, 35°53.3′N 52°02.5′E, 3100 m, 28.iv.1999, Gy. Fábián, L. Nádai, Z. Rahmé & K. Székely leg., 1 female (HNHM); pass ca. 10 km N Gachsar, 36°10′N 51°19′E, 19.-21.vii.1999, J. Kaláb leg., 10 spec. (JSCC); 10 km SW Rudbarak, 36°26′N 51°02′E, 2300 m, 30.iv.-1.v.2000, J. Kaláb leg., 12 spec. (JSCC); ditto, J. Rejsek leg., 16 spec. (SMNS); 40 km NE Minu Dasht, Karim Isham env., 500 m, 2.-5.iv.2001, S. Murzin leg., 4 spec. (JSCC); Gorgan env., 25.v.2001, K. Orszulik leg., 1 male (KORC); Gevaher Deh env., 30.v.2001, K. Orszulik leg., 15 males, 8 females (JRUC, KORC); 10 km S Chomastan, 36°24′N 52°06′E, 500 m, 16.vi.2000, E. & P. Hajdaj leg., 6 spec. (JSCC); 10 km S Hasan Kif, 36°25′N 51°02′E, 2300 m, 17.vi.2000, E. & P. Hajdaj leg., 6 spec. (JSCC); 45 km SW Chalus, Delir, 36°21′N 51°08′E, 22.-24.vii.1999, J. Kaláb leg., 6 spec. (JSCC); Khorasan prov.: Kopetdag mts, Siaret [= Ziarat], 1160 m, v.1899, Hauser leg., 1 male (NHMW); Tehran prov.: Chalus valley, Gachsar, 2400 m, 29.vi.1975, Heinz leg., 6 spec. (SMNS); Alborz mts, Tehran env., Golhak, 1400 m, vi.-viii.1981, J. Klapperich leg., 1 female (HNHM); Alborz mts, 10 km W Reine, Kuh-e-Damavand, 35°52.1′N 52°01.2′E, 6.v.1998, Gy. Fábián & K. Székely leg., 1 female (HNHM); ditto, 35°53.3′N 52°02.5′E, 2200-2650 m, 14.v.1998, Gy. Fábián & K. Székely leg., 1 male (HNHM); **Afghanistan:** Badghiz prov.: Ghormač [= Ghowrmach], loc. No. 8, 700 m, 20.-23.iii.1964, O. Jakeš leg., 1 female (MZMB); Bala Murghab [= Bala Morghab], loc. No. 101, 470 m, 3.xi.1964, O. Jakeš leg., 1 male, 1 female (MZMB); ditto, loc. No. 102, 4.xi.1964, 1 male, 1 female (MZMB); ditto, loc. No. 104, 5.xi.1964, 5 males, 6 females (MZMB, JRUC); Baghlan prov.: Hindukush mts, Salang valley, Batausar [unidentified], 2550 m, 10.x.1952, J. Klapperich leg., 1 female (HNHM); Konar prov.: Nuristan, Bashgul valley, Kamdesch[= Kamdesh], 2000 m, 16.vii.1952, J. Klapperich leg., 2 males (HNHM); Nuristan, Bashgul valley, Afsai [= Afsay], 2000 m, 20.vii.1952, J. Klapperich leg., 1 male, 1 female (HNHM); Nuristan, Bashgul valley, Peschwurdo [unidentified], 2200 m, 21.vii.1952, J. Klapperich leg., 3 males 2 females (HNHM); Nuristan, Bashgul valley, Achmede Dewane [unidentified], 2700 m, 28.vii.1952, J. Klapperich leg., 1 male (HNHM); Parvan prov.: Ghorband valley, 1900 m, 26.viii.1952, J. Klapperich leg., 1 male (HNHM); **Pakistan:** North West Frontier prov.: Hazara, Upper Kagan valley, 8000 ft, 30.v.1927, H.G. Champion leg., 6 pec. (BMNH); Shogran, Kagan valley, 28.-30.vii.1998, J. Rejsek leg., 1 female (SMNS); SW env. of Utrot, 35°28′N 72°26′E, 2400 m, 26.-28.viii.2000, J. Kaláb leg., 11 spec. (JSCC); **India:** Jammu and Kashmir: Srinagar, 1936, J. Léninger leg., 1 male (MNHN); Kashmir, Aroo [= Aru], 1200 ft, 20.v.1952, A. Kincel leg., 1 male, 1 female (NMPC); Kashmir, Pahlgam [= Pahalgam], 1200 ft, 26.v.1952, A. Kincel leg., 1 male, 3 females (NMPC); Kashmir, Lidderwat and halfway to Kolahoi glacier, 6.-7.vi.1967, Gy. Topál leg., singled, 1 male, 1 female (HNHM); Kashmir, Lidder valley, 8.vi.1967, Gy. Topál leg., singled, 1 male (HNHM); Kahsmir, Pahalgam, 2500 m, viii.1977, Richter leg., 2 males (NHMW); ditto, 2300 m, 1.-14.vii.1981, D. Müting leg., 3 females (HNHM); Kashmir, Pahalgam env., vi.1995, R. Sauer leg., 34 spec. (JSCC); Ladakh, Chemre, vi.1995, R. Sauer leg., 1 male (JSCC); Himachal Pradesh: Lahul [= Lahaul] valley, Chandra river, Siso, 10000 ft, 1.-2.x.1951, F. A. Kincl leg., ex coll. M. Fassati, 1 male (JSCC); ca. 50 km N Manali, Kulti valley, E of Khoksar, 3200-4000 m, 19.vi.1996, K. & B. Březina leg., alpine meadows, 1 male, 1 female (JSCC).

Widely distributed in the Palaearctic region. From Iran reported by Schawaller (1980) and Růžička (1996), from Afghanistan by Portevin (1937) and Schawaller (1980), and from Pakistan

by Schawaller (1980, 1982). From India known from Kashmir and Ladakh in the state of Jammu and Kashmir (Schawaller 1980), from the Himachal Pradesh reported herein for the first time. The last two mentioned localities form the south-easternmost known occurrence of this species in Asia.

Silpha tristis Illiger, 1798

Iran: Gilan prov.: 55 km WSW Rasht, Masuleh, 37°10′N 48°58′E, 28.-30.vii.1999, J. Kaláb leg., 4 males, 3 females (JSCC); Mazandaran prov.: Alborz mts, N slopes, Ramsar env., 10 km NEE Churti, ca. 500 m, 10.-11.v.1996, D. Král leg., by road, 1 male (JSCC); Behshahr, 69 m, 14.v.1997,M. Škorpík leg., 1 male (JRUC); 10 km S Chalus, 36°35′N 51°23′E, 400 m, 17.vi.1999, E. & P. Hajdaj leg., 1 male (JSCC).

European species, known also from western Caucasus and northeastern Turkey (Zaitzev 1914, Portevin 1926, Hatch 1928, Háva et al. 1998, Nikolaev & Kozminykh 2002), from Iran recorded only once by Portevin (1906).

Thanatophilus dentigerus (Semenov, 1891)

Pakistan: Northern Areas: ca. 30 km S Chilas, Babusar Pass, 4601 m, 21.-23.vii.1998, J. Rejsek leg., 1 female (SNMS); **India:** Himachal Pradesh: Kulu [= Kullu], without date, ex coll. A. Grouvelle, 1 male, 1 female (MNHN); Lahoul [= Lahul distr.], Sumdéo [unidentified], vi.1914, G. Babault leg., 1 female (MNHN); Spiti distr., Tchary-Djoni [unidentified], vi.1914, G. Babault leg., 2 males, 1 female (MNHN); Spiti distr., Pulga, v.1914, G. Babault leg., 1 male (MNHN); ca. 50 km N Manali, Kulti valley, E of Khoksar, 3200-4000 m, 19.vi.1996, K. & B. Březina leg., alpine meadows, 1 male (JSCC); Uttar Pradesh: Kumaon distr., Gori R. Gorge [= Gori valley], Laspa [unidentified], 10000 ft, without date [but before 1953], H. G. Champion leg., 1 female (BMNH); Kumaon distr., Gori R. Gorge [= Gori valley], 5000-9000 ft, without date [but before 1953], H. G. Champion leg., 1 male (BMNH).

Known from China and Nepal (Schawaller 1981, 1982; Růžička & Schneider 1996; Růžička et al. 2002). Recorded also from north-western India: Himachal Pradesh, "Kulu" and Simla (Schawaller 1981, 1982). Nikolaev & Kozminykh (2002) mention possible occurrence of *T. dentigerus* in Tajikistan. From Pakistan and India: Uttar Pradesh reported for the first time.

Thanatophilus ferrugatus (Solsky, 1874)

Iran: Khorasan prov.: Bazangan, 36°16′40″N 60°32′41″E, 660 m, 10.-11.v.1997, M. Škorpík leg., 2 females (JSCC); **Afghanistan:** Badghiz prov.: Bala Murghab [= Bala Morghab], loc. No. 7, 470 m, 20.iii.-1.iv.1964, O. Jakeš leg., 1 male, 1 female (MZMB); the same locality, loc. No. 21, 25.v.-10.vi.1964, O. Jakeš leg., 21 males, 25 females (MZMB, JRUC); Faryab prov.: along road from Maimana [= Meymaneh] to Andkhoi [= Andkhvoy], loc. No. 5, 350-400 m, 17.iii.1964, O. Jakeš leg., 1 female (MZMB); 10 km NW Ghormač [= Ghowrmach], Rašid [= Rashid], loc. No. 17, 700 m, 18.v.1964, O. Jakeš leg., 46 males, 43 females (MZMB, JRUC); Čašma-i-Yanbulaq [= Chashma-i-Yanbulaq], loc. No. 18/1, 650-800 m, 19.v.1964, O. Jakeš leg., 1 male, 3 females (MZMB).

Known from southern Russia, Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan, and Kyrghyzstan (Schawaller 1981, Nikolaev & Kozminykh 2002). Recently reported also from Afghanistan (Nikolaev & Kozminykh 2002); from Iran reported herein for the first time.

Thanatophilus minutus Kraatz, 1876

India: Himachal Pradesh: Punjab: Simla, without date [but before 1924], 1 male (BMNH); Spiti valley, Tchary-Djoni [unidentified], vi.1914, G. Babault leg., 1 male (MNHN); Uttar Pradesh: 15 km S Badarinath, 30 km N Joshimath, 2800 m, 9.-11.vii.1994, M. Snížek leg., 1 female (JRUC).

Described from "Tibet" (Kraatz 1876), known from India: Assam and Sikkim (Portevin 1920) and Afghanistan (Nikolaev & Kozminykh 2002); from north-western India known only one unprecisely located specimen from "India bor." (Schawaller 1981). First reliable records from India: Himachal Pradesh and Uttar Pradesh.

Thanatophilus porrectus (Semenov, 1891)

Afghanistan: Badakhshan prov.: Hindukush mts, 4500 m, without more precise location, 1970, Krecbach leg., ex coll. D. Král, 1 male, 2 females (JRUC, JSCC); **Pakistan:** North West Frontier prov.: Sharan, Kagan valley, 2500 m, 31.vii.-2.viii.1998, J. Rejsek leg., 1 male (JSCC).

Widely distributed from Armenia to northern and western part of Central Asia (including Pamir mts and Karakorum mts), western China and Far East of Russia (Schawaller 1981, 1982, Růžička & Schneider 1996, Nikolaev & Kozminykh 2002); from Afghanistan and Pakistan reported for the first time.

Thanatophilus rugosus (Linnaeus, 1758)

Iran: Azarbayjan-e Gharbi prov.: 50 km NW Orumiyeh, Serou, 37°39´N 44°45´E, 7.vi.2000, E. & P. Hajdaj leg., 3 females (JSCC).

Widely distributed in the Palaearctic region; two old records from Iran reported by Schawaller (1981).

Thanatophilus sinuatus (Fabricius, 1775)

Iran: Azarbayjan-e Sharqui prov.: 40 km SE Tabriz, 30.iv.1972, Bilek & Ressl leg., 1 female (NHMW); 35 km SE Ardabil, Nir lake, 2500 m, 10.-11.v.2000, J. Rejsek leg., 1 female (SMNS); Khorastan prov.: Ala-Dagh [= Shah Jahan mts], Budschnurd [= Bojnurd], 1033 m, vi.1902, Hauser leg., 1 male, 2 females (HNHM, NMPC); Mazandaran prov.: Astrabad [= Gorgan], iv.1899, Hauser leg., 1 male (NMPC); ditto, v.1899, 1 male (HNHM); Bandar-e Torkaman, 28.v.2001, K. Orszulik leg., 2 males, 1 female (JRUC, KORC).

Widely distributed in the Palaearctic region; from Iran reported by Schawaller (1981) and Růžička (1996).

Thanatophilus terminatus (Hummel, 1825)

Iran: Azarbayjan-e Gharbi prov.: 50 km NW Orumiyeh, Serou, 37°39´N 44°45´E, 7.vi.2000, E. & P. Hajdaj leg., 2 males, 1 female (JSCC); Azarbayjan-e Sharqui prov.: 35 km SE Ardabil, Nir lake, 2500 m, 10.-11.v.2000, J. Rejsek leg., 3 males, 2 females (SMNS); Khorastan prov.: Ala-Dagh [= Shah Jahan mts], Budschnurd [= Bojnurd], 1033 m, vi.1902, Hauser leg., 1 female (HNHM).

Known from southern Ukraine (Crimea), southern Russia and Turkey to Central Asia, reaching south-western Siberia and western China in the east (Schawaller 1981, Nikolaev & Kozminykh 2002); from Iran reported by Schawaller (1981).

Nicrophorinae

Nicrophorus antennatus (Reitter, 1884)
Iran: Azarbayjan-e Gharbi prov.: 50 km NW Orumiyeh, Serou, 37°39′N 44°45′E, 7.vi.2000, E. & P. Hajdaj leg., 2 males (JSCC); Khorasan prov.: Ala-Dagh [= Shah Jahan mts], Bujnurd [= Bojnurd], 1033 m, v.1902, Hauser leg., ex coll. Leonhard, 1 male (DEIC); **Afghanistan:** Konduz prov.: Kunduz [= Konduz], loc. No. 32, 400 m, 18.-22.iv.1966, J. Šimek leg., 1 female (MZMB).

Widely distributed in the Palaearctic region; from Iran and India: Kashmir reported by Portevin (1906) and Sikes et al. (2002). From Afghanistan reported for the first time.

Nicrophorus germanicus (Linnaeus, 1758)
Iran: Azarbayjan-e Gharbi prov.: 50 km NW Orumiyeh, Serou, 37°39′N 44°45′E, 7.vi.2000, E. & P. Hajdaj leg., 2 females (JSCC).

Western Palaearctic species; from Iran mentioned by Shchegoleva-Barovskaya (1933), Nikolaev & Kozminykh (2002) and Sikes et al. (2002).

Nicrophorus humator (Gleditsch, 1767)
Iran: Azarbayjan-e Sharqui prov.: Makidi Arasbaran Wildlife Refuge, 1650-1800 m, 10.-15.vi.1978, Martens & Pieper leg., 3 females (SMNS); Mazandaran prov.: Alborz mts, Kuh-e-Damavand, 2500 m, 24.v.2001, K. Orszulik leg., 2 males (JRUC, KORC); ditto, 3400 m, 1 female (KORC); Tehran prov.: Alborz mts., NE Tehran, pass above Polur, 2350 m, 30.vi.1978, Martens & Pieper leg., 1 female (SMNS).

Widely distributed in the Palaearctic region; from "Persia" [= Iran] mentioned by Portevin (1906) and Sikes et al. (2002), from Afghanistan mentioned by Nikolaev & Kozminykh (2002) and Sikes et al. (2002).

Nicrophorus interruptus Stephens, 1830
Iran: Mazandaran prov.: Alborz mts, Kuh-e-Damavand, S side, 3500 m, 26.viii.1995, L. Nádai leg., 1 female (HNHM); 45 km SW Chalus, Delir, 36°21′N 51°08′E, 22.-24.vii.1999, J. Kaláb leg., 3 females (JSCC).

Widely distributed in the Palaearctic region; from Iran mentioned without more details by Nikolaev & Kozminykh (2002) and Sikes et al. (2002).

Nicrophorus investigator Zetterstedt, 1824
Pakistan: North West Frontier prov.: 15 km NNW Dir, Lawarai [= Lowarai] pass, S side, 35°21′N 71°48′E, 3100 m, 29.vii.-1.viii.2000, J. Kaláb leg., D. S. Sikes det., 1 female (JSCC).

Widely distributed across the Holarctic region; from Iran, Afghanistan, Pakistan and India: Jammu and Kashmir reported by Růžička (1996), Nikolaev & Kozminykh (2002) and Sikes et al. (2002).

Nicrophorus morio Gebler, 1817
Iran: Mazandaran prov.: Alborz mts, Kuh-e-Damavand, 2500 m, 24.v.2001, K. Orszulik leg., 1 male (KORC); **Afghanistan:** Baghlan prov.: Salang pass, N slope, 35°40′N 69°00′E, 2400 m, 11.-12.vii.1971, C. Holzschuh leg., 1 spec. (JSCC).

Known from south-eastern Russia, Central Asia to Mongolia, China and eastern Siberia (Shchegoleva-Barovskaya 1933, Růžička & Schneider 1996, Nikolaev & Kozminykh 2002, Sikes et al. 2002); from Iran and Afghanistan reported without more details by Sikes et al. (2002).

Nicrophorus nepalensis Hope, 1831

Pakistan: North West Frontier prov.: SW env. of Utrot, 35°28′N 72°26′E, 2400 m, 26.-28.vii.2000, J. Kaláb leg., 12 spec. (JSCC); 20 km N Murree, Nathiagali, 34°04′N 73°24′E, 2400 m, 9.-11.viii.2000, J. Kaláb leg., 1 male, 5 females (JSCC); 30 km N Murree, Ayubia, 2600 m, 10.vii.2001, B. Benedek & G. Ronkay, 1 female (HNHM); Azad Kashmir: 20 km NNW Bagh, Sudhangali, 34°05′N 73°44′E, 2200 m, 3.-8.viii.2000, J. Kaláb leg., 7 spec. (JSCC); **India:** Jammu and Kashmir: Gulmarg, 15.vi.1931, Fletscher leg., 1 spec. (BMNH); Anantnag distr., Lahiavan, 2600-3000 m, 21.vii.1980, C. Holzschuh leg., 1 female (JSCC).

Widely distributed from Himalaya and China to Japan and Oriental region (Schawaller 1982, Růžička & Schneider 1996, Sikes et al. 2002); from Pakistan and India: Jammu and Kashmir, Uttar Pradesh and Himachal Pradesh reported by Schawaller (1982) and Sikes et al. (2002).

Nicrophorus nigricornis Faldermann, 1835

Iran: Azarbayjan-e Sharqui prov.: Makidi Arasbaran Wildlife Refuge, 1650-1800 m, 10.-15.vi.1978, Martens & Pieper leg., 8 spec. (SMNS); 35 km SE Ardabil, Nir lake, 38°00′N 48°34′E, 2500 m, 10.-11.v.2000, J. Kaláb leg., 1 male (JSCC); ditto, J. Rejsek leg., 2 spec. (SMNS); 30 km SE Tabriz, 37°45′N 46°30′E, 3000 m, 24.vi.2000, E. & P. Hajdaj leg., 1 male (JSCC); Mazandaran prov.: road Chaluz – Karaj, Marzan Abad, 3000 m, 18.vi.1997, M. Kafka leg., 1 spec. (JSCC); pass above Gachsar, N slopes, 2700 m, 17.-21.vi.1998, Heinz leg., 1 spec. (SMNS); 10 km S Hasan Kif, 36°25′N 51°02′E, 2300 m, 17.vi.2000, E. & P. Hajdaj leg., 1 female (JSCC); Mt. Takht-e Soleiman, N slope, 2200 m, 4.-5.v.2001, Čatloš et Reitmeier leg., 1 spec. (JSCC); Alborz mts, Kuh-e-Damavand, 3400 m, 24.v.2001, K. Orszulik leg., 1 male (KORC).

Known from Caucasus, Transcaucasia, north-eastern Turkey and northern Iran (Zaitzev 1914, Shchegoleva-Barovskaya 1933, Háva et al. 1998, Nikolaev & Kozminykh 2002, Sikes et al. 2002). Single record from eastern Kazakhstan (Zaisan lake env.) given by Shchegoleva-Barovskaya (1933).

Nicrophorus satanas Reitter, 1893

Afghanistan: Badghiz prov.: Bala Murghab [= Bala Morghab], loc. No. 7, 470 m, 20.iii.-1.iv.1964, O. Jakeš leg., 1 male, 1 female (MZMB); the same locality, loc. No. 12, 550 m, 20.iv.1964, O. Jakeš leg., 1 male, 1 female (MZMB); the same locality, loc. No. 45, 470 m, 1.-10.vii.1964, O. Jakeš leg., 1 female (MZMB); Khwaja Azis [= Qwaia Azis], loc. No. 77, 700 m, 29.ix.1964, O. Jakeš leg., 11 males, 7 females (MZMB, JRUC); Kabul prov.: NW of Kabul, Paghman mt., 2100 m, 19.v.1977, de Freina leg., 1 spec. (SMNS); Konduz prov.: Kunduz [= Konduz], loc. No. 10, 400 m, 9.-15.iii.1966, J. Šimek leg., 1 male (MZMB); Zabol prov.: Kalat [= Qalat] env., 1500 m, 15.v.1977, de Freina leg., 1 spec. (SMNS); **Pakistan:** North West Frontier prov.: Swat Kohistan, Sadal, 1500 m, 8.vii.1969, Vartian leg., 1 spec. (SMNS).

Known from south-eastern Russia, Kazakhstan, Uzbekistan, Turkmenistan and Kyrghyzstan (Shchegoleva-Barovskaya 1933, Nikolaev & Kozminykh 2002, Sikes et al. 2002); from Iran, Afghanistan and Pakistan recently reported without more details by Sikes et al. (2002).

Nicrophorus vespillo (Linnaeus, 1758)

Iran: Gilan prov.: Talesh mts, Hastpar, 25.vii.1976, J. Boháč leg., pitfall trap, 1 male, 1 female (JRUC); Mazandaran prov.: Nur Reserve nr. Nur, sea level, 29.vi.1978, Martens & Pieper leg., 1 spec. (SMNS).

Widely distributed in the Palaearctic region; from "Kashmir" reported by Portevin (1926), from Iran mentioned without more details by Nikolaev & Kozminykh (2002) and Sikes et al. (2002).

Nicrophorus vespilloides Herbst, 1783

Iran: Gilan prov.: Dar-e-Dasht, E Rudbar, 1000 m, 8.vi.-6.vii.1998, Heinz leg., 1 spec. (SMNS); Mazandaran prov.: S Alam Deh, Galandrud, ca. 1000 m, 16.-25.vi.1998, Heinz leg., 3 spec. (SMNS); 10 km S Chaluz, 36°35′N 51°23′E, 400 m, 12.vi.2000, E. et P. Hajdaj leg., 1 male (JSCC); 12 km S Ramsar, 1.-4.vii.2000, R. Reitmaier leg., 2 males, 2 females (JSCC).

Widely distributed across the Holarctic region; from Iran reported by Růžička (1996) and Sikes et al. (2002).

ACKNOWLEDGEMENTS. We are grateful to J. Boháč (České Budějovice), B. Březina (Praha), L. Černý (České Budějovice), M. Dvořák (Praha), J. Farkač (Praha), E. Hajdaj (Ježov, CZ), C. Holzschuh (Wien), M. Johanides (Praha), J. Kaláb (Jinačovice, CZ), V. Kocourek (Praha), M. Kafka (Neratovice, CZ), D. Král (Praha), S. Murzin (Moscow), K. Orszulik (Frýdek-Místek, CZ), R. Reitmaier (Žilina, Slovakia), J. Rejsek (Poděbrady, CZ), R. Sauer (Praha), M. Snížek (České Budějovice) and M. Škorpík (Lukov, CZ) for the possibility to study their material of Silphidae, and to Nicole Berti (MNHN), M. J. D. Brendell (BMNH), B. Jaeger (ZMHB), J. Jelínek (NMPC), V. Kubáň (MZMB), O. Merkl (HNHM), W. Schawaller (SMNS), M. Schmitt (ZMFK), H. Schönmann (NHMW), M. Uhlig (ZMHB) and L. Zerche (DEIC) for the possibility to study the material under their care. D. Král is also thanked for helpful comments on earlier drafts of the manuscript and for his help with identification of old and dubious localities.

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SOUHRN

Práce obsahuje údaje o rozšíření 28 druhů mrchožroutovitých brouků (Coleoptera: Silphidae) z Íránu, Afghánistánu, Pákistánu a severozápadní Indie. Většina materiálu, čítajícího celkem 865 exemplářů, byla nasbírána v letech 1995-2002 českými entomology. Doplněny jsou i údaje získané studiem staršího materiálu, uloženého v několika evropských muzeích, jenž byl recentně studován prvním z autorů. Významný je materiál z Afghánistánu, sbíraný v letech 1964-1966 O. Jakešem a J. Šimkem, který je deponován v Moravském zemském muzeu v Brně.

Jednotlivé druhy jsou řazeny abecedně v rámci obou podčeledí Silphinae a Nicrophorinae, v abecedním pořadí jsou řazeny i názvy provincií jednotlivých států u každého druhu, v rámci provincií je materiál řazen chronologicky. Veškerý materiál byl determinován či revidován J. Růžičkou nebo J. Schneiderem. Názvy všech provincií a lokalit jsou sjednoceny podle (Anonym 2001a) s výjimkou íránských lokalit, upravených podle (Anonym 2001b). Jestliže se původní název na lokalitním štítku výrazně liší od názvu uvedeného v citovaných pramenech, současná transliterace jména lokality je uvedena v hranatých závorkách za originálním jménem. Některé konkrétní názvy lokalit z Afghánistánu a z jednotlivých států severozápadní Indie nebyly identifikovány v citovaných pramenech, vždy jsou v hranaté závorce za jménem lokality označeny jako nenalezené. V textu jsou odlišovány první údaje druhu z určitého státu od prvních spolehlivých údajů (druhá kategorie je použita tehdy, jestliže existují publikované starší, nepřesné údaje z větších regionálních celků, pokrývajících částečně i zmíněný stát (např. „Persie", „Kašmír", „Himaláje" nebo „severní Indie").

Následující druhy jsou poprvé hlášeny ze států, uvedených vždy v závorce za jménem druhu: *Necrodes littoralis* (Linnaeus, 1758) (Indie: stát Utarpradéš), *Nicrophorus antennatus* (Reitter, 1884) (Afghánistán), *Silpha obscura* Linnaeus, 1758 (Indie: stát Himáčalpradéš; uvedené údaje tvoří nejjižnější a nejvýchodnější známé lokality v rámci rozšíření tohoto druhu v Asii), *Thanatophilus dentigerus* (Semenov, 1891) (Pákistán, Indie: stát Utarpradéš), *T. ferrugatus* (Solsky, 1874) (Írán) a *T. porrectus* (Semenov, 1891) (Afghánistán, Pákistán).

První spolehlivé údaje o výskytu ve státech, uvedených v závorce za jejich jménem, se týkají druhů *Aclypea turkestanica* (Ballion, 1871) (Írán), *Necrodes nigricornis* Harold, 1875 (Indie: stát Utarpradéš) a *Thanatophilus minutus* Kraatz, 1876 (Indie: státy Himáčalpradéš a Utarpradéš). Uveden je též druhý spolehlivý nález druhu *Aclypea cicatricosa* Reitter, 1884 z Íránu.