25. Buprestid Beetles (Coleoptera: Buprestidae) from Kopetdagh and the Adjacent Regions of Southern Turkmenistan

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Abstract

The buprestid fauna of the Kopetdagh Mountains and adjacent regions of South Turkmenistan is reviewed as a whole as well as separately for Southwest Turkmenistan, Bolshoi Balkhan, Maly Balkhan, West Kopetdagh, Central Kopetdagh, East Kopetdagh, the submontane plain of Kopetdagh, the area between the Tedzhen and Murgab Rivers, and the Badghyz Plateau.

There are 193 buprestid species and subspecies belonging to 27 genera in the studied region; 126 species from 25 genera are found in Kopetdagh. A detailed taxonomic and biogeographic analysis of the buprestid fauna is given. The most diverse genera are *Sphenoptera* and *Acmaeoderella* (more than half of the regional buprestid fauna); their role increases in lowlands and decreases in mountains. Generic and subgeneric faunistic diversity in the lowlands is significantly lower than in the mountains; the same is true of specific diversity in the primarily mesophilous genera (*Capnodis*, *Anthaxia*, *Cratomerus*, and *Agrilus*).

The most numerous biogeographic elements in both the regional and the Kopetdagh faunas are species with Turanian, Southwest Asian, Khorassan, subendemic, and endemic ranges. Widely represented are the Irano-Turanian, Hesperian-Sethian, Turkestanian, West Palearctic subboreal-subtropic, Irano-Turanian-Gobian, and East Iran-Turanian elements; Iranian and Afghanian elements also are present. The regional buprestid fauna is comprised primarily of Irano-Turanian elements of western origin with the important participation of the widely distributed (West Palearctic and Hesperian-Sethian) elements. Thus, it differs from buprestid faunas of other Middle Asian regions in which elements of eastern origin are predominant and the role of widely distributed elements decreases. Fifty-nine (46.8%) of the species are not found in Middle Asia eastward beyond Kopetdagh, whereas 67 species are found in the other parts of Middle Asia. Endemic elements (Khorassan endemics, subendemics, and narrow local endemics) include 24 species and subspecies (12.4%) of the regional fauna and 17 species and subspecies (13.5%) of the Kopetdagh fauna, demonstrating the high level of faunistic isolation. There are no endemics of supraspecific rank.

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Nine ecological groups of buprestids are designated according to plant communities where species develop as larvae: psammophilous, halophilous, sagebrush, tugai, steppe, xerophilous (shiblyak), mesophilous, juniper, and tragacanthoid groups. A peculiar character of the Kopetdagh buprestid fauna is expressed in the composition of steppe and xerophilous groups, supported by the mesophilous, juniper, and tragacanthoid groups where the importance of West Palearctic, Hesperian-Sethian, Southwest Asian, Khorassanian, and local endemic elements increases. In general, the faunistic specificity increases with the altitude. Tugai forests may have facilitated the dispersal of numerous mesophilous buprestid species over desert areas.

The list of buprestids from Kopetdagh and surrounding areas is given, with notes on their distribution in the studied region, in Middle Asia, in the former USSR, and in the Palearctic realm, as well as with notes on the larval host plants.

Introduction

The rich and original nature of the Kopetdagh Mountains has attracted investigators' attention for a long time. The recent surveys by Kamelin (1970) on the Kopetdagh flora, Kryzhanovsky (1965) and Medvedev and Nepesova (1990) on beetles, and Fet (1983) on spiders emphasized a rather high level of endemism of Kopetdagh flora and fauna and the presence of numerous species not found in other parts of Middle Asia.

Kopetdagh, which is the northern extremity of the Turkmeno-Khorassan Mountains, is formed within Turkmenistan by several mountain ranges latitudinally oriented. It is usually divided into West, Central, and East parts, which differ in their altitudes, climate, and vegetation. That West Kopetdagh is characterized by more-or-less well-developed communities of deciduous, xeromesophilous trees and shrubs secures the presence of many mesophilic insects there. Formations of juniper, tragacanthoid plants, and steppes are more widely present in the higher Central Kopetdagh. East Kopetdagh, with its low mountains, is characterized by the predominance of halophile vegetation and impoverished communities of xerophilous trees and shrubs.

Various viewpoints exist toward the position and status of Kopetdagh and the surrounding areas in different systems of biogeographic division of the Palaearctic realm. We use the system suggested by Yemelyanov (1974), who separates the Turkmeno-Khorasssan Mountains (including Kopetdagh) into the Khorassan Mountainous Province of the Irano-Turanian Subregion of the Sethian Desert Region. Some authors also attribute to this province low, isolated ranges of Bolshoi Balkhan and Maly Balkhan, which are located farther northwest and are separated from Kopetdagh by narrow desert depressions. In the west and northwest, Kopetdagh is bordered by Transcaspian deserts; in the north, by the Karakum sand desert; and in the east and southeast, by desert areas separating the Tedzhen and Murghab Rivers. All of the

mentioned deserts are part of the South Turanian Plain Province (Yemelyanov 1974). The Badghyz Plateau belongs to the Paropamiz Mountains, which are contiguous with the Iranian portion of the Turkmeno-Khorassan Mountains. Fauna of Badghyz contains a number of Khorassan species and subendemic species common to the Kopetdagh fauna. However, many authors regard the Badghyz as part of the South Turanian Province; this problem is discussed below.

The Khorassan Province therefore borders the South Turanian Province to the north, west, and east; the Afghanian Province to the southeast; the Iranian Province to the south; and the Southwest Asian Province to the southwest. As a result of the latitudinal orientation of the mountain chains, the Turkmeno-Khorassan Mountains are connected to the mountain ranges of Southwest Asia (including Middle East and Turkey), the Transcaucasia, Paropamiz, and Hindu Kush, all of which greatly affect composition of Kopetdagh flora and fauna.

This work is based primarily on the abundant material from southern Turkmenistan deposited in the Zoological Institute of the Russian Academy of Sciences (St. Petersburg), including material collected by the authors in 1973 through 1991, as well as collections of other Russian and foreign museums, and private collections. It should be noted that Kopetdagh and the surrounding areas are not equally well studied in detail: the buprestid faunas of West Kopetdagh, Central Kopetdagh, and Badghyz are well known, whereas East Kopetdagh, Bolshoi Balkhan, and Maly Balkhan are far less thoroughly investigated. The buprestid fauna of the submontane plain of Kopetdagh is also not well defined because references to "Ashkhabad" and other submontane settlements in old collections are often uncertain. Also, taxonomic problems exist with the identification of some species (especially in the genus *Sphenoptera*, which is a dominant genus in the studied region).

Taxonomic and Biogeographic Analysis of the Buprestid Fauna of Kopetdagh and Adjacent Areas

In the studied region, 193 buprestid species and subspecies belonging to 27 genera have been found (Table 1), which is about 30 % of the total buprestid fauna of the former Soviet Union. The genera *Sphenoptera* (65 spp., or 33.7%) and *Acmaeoderella* (34 spp., 17.6%) are the predominant taxa and constitute a characteristic feature of the Turanian temperate desert areas. The role of these genera increases in the desert lowlands, e.g., 42.5% and 15%, respectively, in southwest Turkmenistan, 44.8% and 12.1% in the area between the Murgab and Tedzhen Rivers, and 33.3% and 23% in Badghyz; this role decreases in the mountains of Kopetdagh (26.4% and 17.6%). Generic and subgeneric diversity of lowland buprestid fauna is significantly poorer than in the mountains; the same is true for specific diversity in the primarily mesophilous genera (e.g., *Capnodis*, *Anthaxia*, *Cratomerus*, and *Agrilus*). The most numerous biogeographic elements belong to the species with Turanian (46 spp., or 23.8%),

Southwest Asian (26 spp., or 13.5%), and Khorassan, endemic, and subendemic (total of 24 spp., or 12.4%) types of ranges. Well represented are widely distributed Irano-Turanian (18 spp., or 9.3%), Hesperian-Sethian (16 spp., or 8.3%), Turkestanian (16 spp., or 8.3%), West Palaearctic subboreal-subtropic (12 spp., or 6.2%), Irano-Turanian-Gobian (10 spp., or 5.2%), and East Iran-Turanian (10 spp., or 5.2%) elements. Iranian (five spp.) and Afghanian (one sp.) elements also occur there. The regional buprestid fauna is formed primarily by the Irano-Turanian elements of western origin, with the important participation of widely distributed (West Palaearctic and Hesperian-Sethian) elements. The fauna thus differs from other Middle Asian regional buprestid faunas in which elements of the eastern origin predominate and the proportion of widely distributed elements is reduced.

In Kopetdagh, 126 buprestid species and subspecies belonging to 25 genera have been found. Southwest Asian (21 spp., or 16.7%), Turanian (20 spp., or 15.9%), Khorassan, endemic, and subendemic (total of 17 spp., or 13.5%), widely Irano-Turanian (13 spp., or 10.3%), and Hesperian-Sethian (13 spp., or 10.3%) elements predominate in the composition of the Kopetdagh fauna. Its basic core is formed by Sethian elements (100 spp.), with the rest comprised of widely distributed ones (trans-Palaearctic, 2 spp.; West Palaearctic subboreal-subtropic, 11 spp.; and Hesperian-Sethian, 13 spp.). Kopetdagh is the eastern boundary of distribution inside the former Soviet Union for the West Palaearctic species *Anthaxia cichorii*, *Agrilus derasofasciatus*, *Coroebus rubi*, and *Trachys phlyctaenoides*. The West Palaearctic species *Acmaeoderella mimonti* and *A. gibbulosa* as well as trans-Palaearctic *Agrilus viridis* are absent from Middle Asia, but they occur in the Tarbagatai and Altai Mountains (West Kazakhstan). Some widely distributed species (e.g., *Acmaeoderella mimonti*) form distinct geographic races in Kopetdagh; if in the future these races are formally described as species or subspecies, the number of widely distributed species will be reduced. The Irano-Turanian species of western origin are of considerable importance among the Sethian elements; there are 45 species (35.7%) with West Iran-Turanian, Southwest Asian, Iranian, and Khorassan types of ranges. There are 35 species (27.8%) of Irano-Turanian buprestids of eastern origin (with East Iran-Turanian, Turanian, and Turkestanian types of ranges). The remainder belongs to the more widely distributed Saharo-Irano-Turanian (2 spp.), Irano-Turanian-Gobian (5 spp.), and Irano-Turanian (13 spp.) elements. Kopetdagh forms the western boundary of distribution for many species of this group, primarily for those of the Turkestanian range. The high number of species of eastern origin (particularly Irano-Turanian-Gobian and Turanian) in the Kopetdagh buprestid fauna is explained by high aridity, presence of profound desert depressions, and low altitudes. These species are primarily concentrated in the foothills and large river valleys (e.g., those of the Sumbar and Arvaz). In contrast, the species of western origin, primarily those originating from Southwest Asia, dominate in higher mountain belts. Kopetdagh is the eastern boundary of distribution (at least within Middle Asia) for many of these species, e.g., *Acmaeodera pilosellae persica*, *A. chalcithorax*,

Table 1. The list of Buprestidae from Kopetdagh and the adjacent regions

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Subfam. Julodinae Trib. Julodini				
Julodis Eschscholtz, 1829				
J. euphratica Laporte et Gory, 1835	1–9	Tu, Uz, Tj, Tr, Ir, Af, Iq, Sa, Eg	SaIT	Soil – outside plant roots
J. variolaris freygessneri Meyr-Darcis, 1883	1–9	Tu, Uz, Ir, Af	Turan	Soil – outside roots of *Alhagi**, *Calligonum**
J. laevicostata Gory, 1840	5, 7	Ir, Iq	Iran	Soil
Julodella Semenov, 1893				
J. shestoperovi Stepanov, 1959	5		Endem	Soil
J. kaufmanni (Ballion, 1870)	7, 9	Tu, Uz, Tj	Turk	Soil
J. brevilata Semenov, 1893	5, 7, 9	Ir	Khor	Soil
Subfam. Polycestinae Trib. Polycestini				
Strigopteroides Cobos, 1981				
S. aegyptiacus (Gmelin, 1788)	7	Tu, Uz, Tr, Ir, Sa, Eg, Sy, Iq	SaIT	Dead wood
Subfam. Acmaeoderinae Trib. Acmaeoderini				
Acmaeodera Eschscholtz, 1829				
A. (Acmaeodera)				
A. babatauensis Obenberger, 1935	9	Tu, Uz, Tj, Ky	Turk	*Pistacia**, *Ficus**, *Amygdalus*
A. ghilarovi Volkovitsh, 1988	4, 9		Endem	Unknown
A. pilosellae persica Mannerheim, 1837	4, 5	Zk, Tr, Ir	SWA	*Colutea**
A. chalcithorax Obenberger, 1935	4, 5, 7	Zk, Tr, Ir, Iq	SWA	*Astragalus* (*Tragacantha*)*

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
A. (*Acmaeotethya*)				
A. pallidepicta Reitter, 1895	4, 5, 7	Ir	Khor	*Juglans**, *Ficus**, *Salix**, *Amygdalus**, *Colutea*, *Pistacia*
A. instabilis Cobos, 1966	9	Af	Afghan	*Paliurus*, *Pistacia** (oviposition)
A. (*Cobosiella*)				
A. chotanica Semenov, 1890	2, 5, 7, 9	Tu, Uz, Tj, Ch	ITG	*Salix**, *Ulmus**, *Ficus**, *Gleditsia**, *Populus*, *Morus*, *Pistacia*
Xantheremia Volkovitsh, 1978				
X. koenigi (Ganglbauer, 1888)	2–5, 7–9	Tu, Uz, Tj, Ka	eIT	*Alhagi**, *Lycium**
X. subscalaris (Reitter, 1897)	1, 8	Tu, Uz, Tj, Ka, Af	Turan	*Alhagi**, *Lycium**, *Glycyrrhiza*
X. steinbergi (Volkovitsh, 1978)	4, 8	Uz, Tj	Turan	*Alhagi*, *Glycyrrhiza*
Acmaeoderella Cobos, 1955				
A. (*Acmaeoderella*) s.str.				
A. caspica caspica (Ganglbauer, 1888)	3–5, 7		Endem	*Centaurea**
A. caspica turkestanica (Obenberger, 1934)	9	Tu, Uz, Tj, Af	Turk	*Onopordum*
A. caspica suturifera (Reitter, 1904)	1, 3, 4, 7–9	Tu, Uz, Ka, Ir, Af, Sy	Turan	*Jurinea**, *Cousinia**
A. turanica (Reitter, 1890)	5, 7, 9	Tu, Uz, Tj, Af	Turk	Unknown
A. badhysica Volkovitsch, sp.n.	9		Endem	Unknown
A. plavilscikovi (Obenberger, 1936)	1, 2, 4, 5, 9	Tu, Uz, Ky, Ka, Zk	IT	*Atriplex*, *Salsola**, *Limonium*, *Reaumuria**, *Noaea**
A. oresitropha (Obenberger, 1936)	3–5	Uz, Tj, Ky, Zk	IT	*Salsola**, *Reaumuria*, *Zygophyllum*

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
A. cinerea Volkovitsch, 1982	2–5, 9	Tu, Uz, Tj, Ky, Ka, Ir	eIT	*Artemisia*
A. nivetecta Volkovitsch, 1976	7, 9	Tu, Tj, Ir, Af	eIT	*Heliotropium*•
A. (Carininota)				
A. flavofasciata chorasanica nom. nov.	4	Ir	Khoras	polyphagous (other subspecies)
A. mimonti (Boieldieu, 1865)	4	Ka, Ep, Zk, Tr, Ir, Iq, Eu, eMt	WP	*Prunus, Caragana, Astragalus (Tragacantha)*
A. glasunovi (Semenov, 1895)	9	Tu, Uz, Tj, Ky, Ka	Turk	*Pistacia*•, *Astragalus (Tragacantha)*•, *Celtis, Pyrus, Prunus, Robinia, Amygdalus, Rhus, Colutea, Caragana*
A. repetekensis (Obenberger, 1934)	1	Tu, Uz, Ka	Turan	*Ammodendron*•, *Salsola*•
A. zarudniana Volkovitsch, 1977	2–5, 7, 9	Ir	Iran	*Zygophyllum (Halimiphyllum)*•
A. (Euacmaeoderella)				
A. villosula (Steven, 1830)	9	Tu, Td, Zk, Tr, Ir, Af, Iq, eMt	HS	*Ferula, Malabalia, Zosima*
A. coelestina Volkovitsch, 1977	4		Endem	Unknown
A. subcyanea (Reitter, 1890)	5	Zk, Tr, Ir, Af, Gr	HS	Unknown
A. obscura (Reitter, 1889)	4	Zk, Tr, Ir, Iq, Sa, eMt	HS	Unknown
A. vetusta (Menetriés, 1832)	4–5	Zk, Tr, Ir, eMt	HS	Unknown
A. adamantina (Reitter, 1890)	5, 9	Tu, Uz, Tj, Af, Sy	Turk	*Ferula*•, *Dorema*•

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
A. canescens (Semenov, 1895)	2–3, 8–9	Tu, Uz, Ka, Ir	Turan	*Ferula**, *Dorema**
A. semiviolacea (Semenov, 1895)	9	Tu, Uz, Tj, Ky	Turk	*Ferula**, *Dorema*
A. alepidota Volkovitsch, 1977	4, 8–9		Endem	*Ferula**
A. strandi (Obenberger, 1918)	4–5		Endem	*Ferula**, *Dorema**
A. gibbulosa (Menetriés, 1832)	3–7	Ka, sEp, Zk, Tr, Ir, eMt, Iq	WP	*Onopordum**, *Prangos*, *Ferula*, *Malabalia*, *Zosima*, *Chondrilla*
A. dubia (Ballion, 1870)	1–9	Tu, Uz, Tj, Ky, Ka	eIT	polyphagous; *Ferula**, *Dorema**, *Atriplex**, *Suaeda**, *Isatis**, *Crambe**, *Chrozophora**
A. insueta Volkovitsch, 1977	3, 9	Tu, Uz, Tj	Turan	*Ferula**, *Dorema**, *Isatis**
A. valentinae Volkovitsch, 1977	8	Uz, Tj, Ky, Ka	Turan	*Zygophyllum**
A. candens Volkovitsch, 1977	5	Tu,Tj	Turan	*Chrozophora**
A. iranica (Obenberger, 1934)	5–7, 9	Tu, Ka, Ir, Af	eIT	*Cousinia**
A. ballioni (Ganglbauer, 1888)	1–5, 8–9	Tu, Uz, Tj, Ka, Ir, Af	eIT	*Salsola**, *Halothamnus**, *Anabasis*, *Convolvulus**
A. solskyi (Obenberger, 1934)	1, 3, 7	Tu, Uz	Turan	*Astragalus* (*Ammodendron*)*
A. tragacanthae kopetdaghica Volkovitsch, 1977	4, 5, 9		Endem	*Astragalus* (*Tragacantha*)*
A. personata (Semenov, 1896)	8, 9	Tu, Ka, Mg	ITG	*Halocnemum**, *Halothamnus**, *Anabasis**, *Salsola**, *Ephedra**, *Haloxylon**

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Subfam. Chalcophorinae Trib. Psilopterini				
Capnodis Eschscholtz, 1829				
C. tenebricosa (Olivier, 1790)	4–5, 7–9	Uz, Tj, Ky, Ka, Ir, Iq, Tr, Ep, Zk, Af, Eu, Mt	WP	*Rumex*
C. tenebrionis (Linnaeus, 1758)	4–5, 7	Uz, KA, Ep, Zk, Ir, Tr, Eu, Mt	WP	*Armeniaca*, *Prunus*, *Cerasus*, *Amygdalus*, *Persica*, *Pyrus*, *Crataegus*
C. miliaris (Klug, 1829)	4–5, 7–9	Tu, Uz, Tj, Ky, Ka, Zk, Tr, Ir, Iq, Af, Ch, eMt	HS	*Salix**, *Populus**, *Elaeagnus**
C. jacobsoni Richter, 1952	5–6, 9	nIr	Khoras	*Amygdalus**
C. parumstriata Ballion, 1870	7, 9	Uz, Tj, Ky, Af, Pa	Turk	*Pistacia**
C. excisa Menetriés, 1848	1, 3–4, 7–9	Tu, Uz, Tj, Ka, Ir, Iq, Zk, Sa, Eg	SaIT	*Calligonum**
C. sexmaculata Ballion, 1870	5, 7, 9	Uz, Tj, Ky, Ka, Af, In	Turk	*Amygdalus*
C. anthracina (Fischer, 1830)	4–5, 7–8	Tj, Zk, Tr, Ir, Af	wIT	*Rheum*
Cyphosoma Mannerheim, 1837				
C. tataricum (Pallas, 1773)	7–8	Tu, Uz, Tj, Ka, seEp, Zk, Ir	IT	Unknown
C. turcomanicum (Kraatz, 1883)	1–5, 7–8	Tu, Uz, Ka, Ir	Turan	Unknown

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Aurigena Spinola, 1837				
A. lugubris longicollis Kraatz, 1881	4–5	Zk, Tr, Ir	SWA	*Rosa*, *Prunus*, *Cerasus*, *Pyrus*
Psiloptera Solier, 1833				
P. (*Lampetis*)				
P. argentata (Mannerheim, 1837)	1–5, 7–9	Tu, Uz, Tj, Ka, Zk, Tr, Ir, Af, Iq	IT	*Haloxylon**, *Kalidium**, *Salsola**, *Juglans**
Subfam. Sphenopterinae				
Trib. Sphenopterini				
Sphenoptera Solier, 1833				
S. (*Sphenoptera*), s.str.				
S. glabrata (Menetriés, 1832)	2, 4–5, 7	Zk, Tr, Ir, Af, Iq	SWA	*Astragalus* (*Tragacantha*)*
S. furva Jakowlew, 1907	4–5	Zk, Ir	SWA	*Astragalus* (*Tragacantha*)*
S. rangnowi Kerremans, 1909	4, 7	Ir, Af	Iran	*Astragalus* (*Tragacantha*)*
S. lia Jakowlew, 1901	4–5, 7, 9	Tu, Uz, Af	Turan	*Astragalus**
S. cyanea Jakowlew, 1899	4, 7	Ir, Af	Iran	Unknown
S. violacea Jakowlew, 1899	7	nIr	Khor	Unknown
S. chalybaea Menetriés, 1849	6–7	Tu, Zk, Af	wIT	*Astragalus**
S. serripes Jakowlew, 1901	1, 7	Tu	Turan	*Astragalus**
S. korshinskii Jakowlew, 1900	4	Uz	Turan	Unknown
S. egregia Jakowlew, 1901	8	Tu	Turan	*Acanthophyllum**
S. lateralis Faldermann, 1836	7–8	Uz, Ky, Ka, Af	eIT	*Anabasis*
S. exarata (Fischer, 1824)	7–9	Tu, Uz, Tj, Ky, Ka, seEp, Zk, Ir, Af, Ch	IT	*Glycyrrhiza**

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
S. navicula Jakowlew, 1907	2, 7	Tu	Turan	Unknown
S. repetekensis Obenberger, 1927	5, 7–8	Tu, nIr	Turan	*Acanthophyllum**
S. aerata Jakowlew, 1892	9	Tu, Uz, Ka, Zk, Ir	IT	*Iris**
S. komarovi Jakowlew, 1886	4, 5, 7	Zk, Ir, Af	SWA	Unknown
S. latesulcata Jakowlew, 1886	9	Zk	SWA	Unknown
S. turcmenica Obenberger, 1927	7		Endem	Unknown
S. (*Deudora*)				
S. caspica Jakowlew, 1904	1	Tu	Turan	*Eremosparton**
S. curta Jakowlew, 1885	1, 3–4	Tu	Turan	Unknown
S. unidentata Jakowlew, 1890	4–5, 8–9	Tu, Uz, Tj, Ka, Zk, Tr, Ir, Af	IT	Unknown
S. allecta Jakowlew, 1900	9	Tu, Uz, Zk	SWA	Unknown
S. subtilis Jakowlew, 1899	4	Ir	Khor	Unknown
S. tenax Jakowlew, 1902	5, 7	Zk	SWA	Unknown
S. captiosa Jakowlew, 1902	5, 7	Zk	SWA	Unknown
S. addenda Jakowlew, 1900	8	Zk, Ir, Tr	SWA	Unknown
S. mitrochinae Alexeev, in litt.	9	Tu, Tj	Turan	Unknown
S. kepelensis Zykov *et al.*exeev, 1992	9	Uz, Af	Turk	*Astragalus**
S. koenigi Jakowlew, 1890	4–5, 7, 9		Endem	*Cousinia**
S. afflicta Jakowlew, 1900	7, 9	Uz, Tj, Ka	Turan	Unknown
S. bucharica Jakowlew, 1900	4–5, 7–9	Tu, Uz	Turk	Unknown
S. vestita Jakowlew, 1887	1, 3, 8	Tu, Zk	SWA	*Salsola**
S. (*Rhaphidochila*)				
S. coerulea Jakowlew, 1899	5	Zk, Tr, Ir, Af	wIT	*Acanthophyllum**

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
S. (*Chilostetha*)				
S. canescens Motschulsky, 1860	7, 9	Tu, Uz, Tj, Ky, Ka, seEp, Af	IT	*Artemisia*
S. eximia Jakowlew, 1902	4, 7	Uz	Turan	Unknown
S. cataonia Obenberger, 1926	4, 7, 9	Tu	Turan	Unknown
S. erojlandusica Alexeev et Zykov, in litt.	9		Endem	*Artemisia**
S. rauda Jakowlew, 1908	1–2, 4–5, 7	Tu, Uz, Tj, Ky, Ka, Zk, Ir	IT	Unknown
S. puberula Jakowlew, 1887	1, 4–5, 7, 9	Uz, Tj	Turan	Unknown
S. (*Chrysoblemma*)				
S. potanini Jakowlew, 1889	1–2, 7–8	Tu, Uz, Ka, Ir, Mg	ITG	*Haloxylon**
S. beckeri Dohrn, 1866	1, 4–9	Tu, Uz, Tj, Ka, seEp, Zk, Ir, Af, Mg, Iq	ITG	*Climacoptera**, *Horaninovia**, *Salsola**, *Calligonum**
S. scovitzi Faldermann, 1835	1, 3–4, 6–9	Tu, Uz, Tj, Ky, Ka, Zk, Ir, Af	IT	*Climacoptera**, *Salsola**
S. ignita Reitter, 1895	4, 7–8	Tu, Uz, Tj, Ka	Turan	Chenopodiaceae
S. pseudoignita Alexeev, 1978	8–9	Tu, Uz, Tj, Ir	Turan	*Salsola**, *Suaeda**, *Climacoptera**, *Nitraria**
S. hauseri Reitter, 1895	3, 7–9	Tu, Uz, Tj, Ka, Ir, Af	Turan	*Haloxylon**
S. orichalcea (Pallas, 1781)	1, 4	Tu, Uz, Ki, Ka, Mg, seEp, wSi, Zk	ITG	*Anabasis*, *Kalidium*, *Halocnenum*, *Kochia*

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
S. amplicollis Jakowlew, 1899	3–5, 8–9	Tu, Uz, Tj, Ir	Turan	*Halothamnus**
S. tomentosa Jakowlew, 1886	1, 3–5, 6–9	Tu, Uz, Tj, Ka	Turan	*Salsola**
S. punctatissima Reitter, 1895	1, 7–9	Tu, Uz, Tj, Ka, Af	Turan	*Haloxylon**
S. pubescens Jakowlew, 1886	1, 8	Tu, Tj, Ka	Turan	*Halostachys*
S. viridula Jakowlew, 1905	9	Tu, Tj, Ka	Turan	*Tamarix*
S. bifulgida Reitter, 1898	1, 8	Tu, Uz, Ka	Turan	*Salsola**
S. viridiaurea Kraatz, 1882	1, 4–9	Tu, Uz, Tj, Ka, Ir, Af	Turan	*Salsola**, *Kochia**, *Climacoptera**, *Suaeda*, *Alhagi**
S. artemisiae Reitter, 1889	9	Zk, Ir, Af	SWA	Unknown
S. zarudnyi schatinensis Alexeev et Zykov, 1991	4–5	Zk, Ir	SWA	*Acanthophyllum**
S. tschitscherini Jakowlew, 1900	1, 8	Tu, Tj, Zk	IT	*Halothamnus**, *Salsola**, *Kochia**, *Climacoptera**
S. amoena Jakowlew, 1901	4–5	Zk, Ir	SWA	Unknown
S. apta Jakowlew, 1903	4	Zk	SWA	Unknown
S. (*Hoplistura*)				
S. mesopotamica Marseul, 1865	4–5, 7–8	Tu, Uz, Tj, Ka, Zk, Tr, Ir, Af, Iq	IT	*Tamarix*, *Trachomitum*
S. balassogloi Jakowlew, 1885	1, 4, 8–9	Tu, Uz, Ka, Zk, Ir, Af	IT	*Tamarix*
S. semenovi Jakowlew, 1889	8–9	Tu,Tj, Ir, Af	ITG	*Tamarix*

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
S. (*Tropeopeltis*)				
S. kaznakovi Jakowlew, 1899	4, 7–8	Uz, Tj, Ir, Af	Turk	*Amygdalus*, *Persica*, *Armeniaca*, *Cerasus*, *Prunus*
S. kambyses Obenberger, 1930	4–5, 7, 9	Ir, Iq	Iran	*Amygdalus**, *Armeniaca**, *Prunus**
S. schneideri Reitter, 1898	7	Tu, Uz, Ka	Turan	*Calligonum**
S. mujunkumensis Obenberger, 1928	7, 9	Uz, Ka	Turan	*Calligonum**
Trib. Anthaxiini				
Anthaxia Eschscholtz, 1829				
A. (*Haplanthaxia*)				
A. cichorii (Olivier, 1790)	4	Ep, Zk, Ir, Eu, Mt, Iq	WP	polyphagous; *Juglans**, *Paliurus**
A. (*Cryptanthaxia*)				
A. nanissima Alexeev, 1968	8	Tu, Uz, Tj, Ka, Mg	ITG	*Populus*
A. spinosa Abeille de Perrin, 1900	4–5	nIr	Khor	*Astragalus* (*Tragacantha*)*
A. badghyzica Bily, 1991	9		Endem	*Astragalus* (*Tragacantha*)*
A. lucidiceps Gory, 1841	1–5, 7–9	Tu, Uz, Tj, Ka, Zk, Ir, Af, eMt	HS	*Ferula**, *Dorema**
A. discicollis Laporte & Gory, 1839	4–5	Zk, eMt	HS	*Juniperus**
A. (*Melanthaxia*)				
A. hemichrysis Abeille de Perrin, 1900	4–5	Zk, nIr	SWA	*Juniperus**

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
A. (*Cyclanthaxia*)				
A. holoptera Obenberger, 1914	4–5	Zk	SWA	Unknown
A. kreuzbergi Richter, 1944	9		Endem	*Pistacia**
A. (*Anthaxia*)				
A. bicolor Faldermann, 1835	4	Uz, sEp, Ir, eMt	HS	*Fraxinus*
A. muliebris Obenberger, 1918	4	Zk, Tr, Ir	SWA	*Malus*, *Cydonia*, *Punica*
A. (*Callanthaxia*)				
A. passerinii (Pecchioli, 1837)	4–5	Zk, Tr, Ir, eMt	HS	*Juniperus*, *Cupressus*
Cratomerus Solier, 1833				
C. (*Trichocratomerus*)				
C. intermedius (Obenberger, 1913)	4–5, 7	Tu, Uz, Tj, Zk, Ir	IT	*Celtis*, *Ulmus**, *Pyrus*, *Malus*
C. (*Cratomerus*)				
C. fariniger (Kraatz, 1882)	4–5, 7–8	Tu, Uz, Tj, Ky, Ka, Af	eIT	*Salix*, *Populus*, *Juglans**
C. hungaricus sitta (Kuster, 1852)	4, 7	sEp, Zk, Tr, Ir	SWA	Unknown
C. sponsa (Kiesenwetter, 1857)	4	Zk, Tr, Gr, Sy	HS	Unknown
C. medvedevorum Alexeev, 1978	2		Endem	*Halimodendron**
C. (*Cryptocratomerus*)				
C. fedtschenkoi (Semenov, 1895)	4–5, 8–9	Tu, Uz, Tj, Ir, Af	Turk	*Celtis*, *Acer*, *Halimodendron*

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
C. elaeagni Richter, 1945	4, 8	Tu, Uz, Tj, Ir, Af	eIT	*Elaeagnus**, *Amygdalus*, *Prunus*, *Persica*, *Juglans*, *Tamarix*
C. judinae Stepanov, 1954	9	Uz, Tj	Turk	*Pistacia**
C. turanus (Obenberger, 1914)	4–5	nIr	Khoras	*Rosa**
Trib. Melanophilini				
Trachypteris Kirby, 1837				
T. (*Trachypteris*)				
T. picta picta (Pallas, 1782)	4–5, 7–8	Tu, Uz, Tj, Ky, Ka, Ir, Af, Ch, Mg	ITG	*Salix**, *Populus*
T. (*Oxypteris*)				
T. cuspidata (Klug, 1829)	1, 4, 7–9	Uz, Tj, Ka, Zk, Ir, sEu, Mt	HS	*Elaeagnus**, *Pistacia*, *Ficus*, *Juniperus*, *Pinus*, *Populus*
Trib. Buprestini				
Buprestis Linnaeus, 1758				
B. (*Orthocheira*)				
B. salomonii Thomson, 1878	7–8	Tu, Uz, Tj, Zk, Tr, Ir, nCh, Sy	HS	*Populus**
Trib. Dicercini				
Poecilonota Eschscholtz, 1829				
P. (*Poecilonota*)				
P. nadezhdae Semenov, 1909	4	Zk, nIr	SWA	*Ulmus*
P. dives (Guillebeau, 1889)	4	Eu	WP	*Salix*

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Dicerca Eschscholtz, 1829				
D. (*Dicerca*)				
D. aenea validiuscula Semenov, 1909	4–5	Uz, Ky, Ka, nIr, Zk	IT	*Juglans*•
D. (*Hemidicerca*)				
D. fritillum (Menetriés, 1832)	4	Zk, nIr	SWA	Unknown
Subfam. Chrysobothrinae Trib. Chrysobothrini				
Chrysobothris Eschscholtz, 1829				
C. (*Chrysobothris*)				
C. affinis nevskyi Richter, 1944	1, 4–5, 7–8	Tu, Uz, Tj, nIr	eIT	polyphagous; *Juglans*•
C. deserticola Semenov et Richter, 1934	1, 4, 9	Tu, Uz, Tj, Ka	Turan	*Ammodendron*•, *Pistacia*•
C. (*Sphaerobothris*)				
C. globicollis Reitter, 1895	1, 7, 9	Tu, Uz, Tj, Af	Turan	*Ephedra*•
C. (*Abothris*)				
C. nana Fairmaire, 1892	3, 7, 8	Tu, Uz, Tj, Ka	Turan	*Populus*, *Juglans*, *Cercis*
C. jakovlevi Semenov, 1891	9	Tu	Turan	*Ammodendron*•, *Pistacia*•

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Subfam. Agrilinae Trib. Coroebini				
Clema Semenov, 1900				
C. freudei volkovitschi Alexeev, in litt.	4–5, 9		Endem	*Stipa*•
C. deserti Semenov, 1900	I, 3, 7	Tu, Uz, Ka, Ir	Turan	*Aristida*•
Coroebus Laporte et Gory, 1839				
C. rubi (Linnaeus, 1767)	5	Ep, Zk, Tr, Ir, Eu, Mt	WP	*Rubus*, *Rosa*
Meliboeus Deyrolle, 1864				
M. (*Meliboeoides*)				
M. amethystinus (Olivier, 1790)	4–5, 9	Tu, Uz, Tj, Ky, Ka, seEp, Zk, Tr, Ir, sEu, Mt	HS	*Cousinia*•, *Echinops*
M. robustus (Kuster, 1852)	7	seEp, Zk, Tr, Ir, Iq	HS	*Echinops*
M. cyaneus (Ballion, 1870)	4–5, 7, 9	Tu, Uz, Tj, Ky, Ka, seEp, Zk	IT	*Cirsium*•, *Cousinia*, *Prangos*
M. (*Meliboeus*)				
M. staneki Obenberger, 1935	4–5	Zk, Tr, Af	SWA	Unknown
M. reitteri Semenov, 1889	1–5, 7, 9	Tu, Uz, Tj, Ky, IKa, seEp, Zk, Tr, Ir, Af	IT	*Artemisia*•
M. caucasicus Abeille de Perrin, 1896	5	seEp, Zk	SWA	Unknown

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Trib. Agrilini				
Agrilus Curtis, 1825				
A. derasofasciatus Lacordaire et Boisduval, 1835	4	seEp, Zk, Tr, Ir, Eu, Mt	WP	*Vitis*
A. pistaciophagus Alexeev et Kulinitsch, 1963	9	Uz, Tj, Ky, Ir	Turk	*Pistacia**
A. sericans Kiesenwetter, 1857	4	Ka, sEp, Zk, Eu, eMt	WP	*Artemisia*
A. albogularis Gory, 1841	1, 4–5	Uz, Tj, Ky, Ka, Ep, Zk, Tr, Ir, Eu, Mt, Iq	WP	*Artemisia*
A. pseudoalbogularis Alexeev, in litt.	4–5	Uz, Tj, Ky, Ka	Turk	*Eurotia*
A. ganglbaueri Semenov, 1891	4, 8–9	Tu, Uz, Tj, Ka, Af, Mg	ITG	*Populus*
A. viridis (Linnaeus, 1758)	5	Ka, Ep, Si, Fe, Mg, Eu, Mt	PP	polyphagous; *Acer**
A. cuprescens Menetriés, 1832	4	Uz, Tj, Ky, Ka, Tr, Ir, Mg, Ep, Zk, Si, Fe	PP	*Rosa**, *Rubus**
A. lineola schamyl Obenberger, 1922	4–5	Zk, nIr	SWA	*Salix**
A. vaginalis Abeille de Perrin, 1897	1, 3–4	Tu, Uz, Tj, Ka, Zk, Tr	HS	*Astragalus**, *Colutea*
A. validiusculus Semenov, 1891	1, 3–5, 7, 9	Tu, Ka, Ir	Turan	*Salsola**, *Haloxylon*, *Halostachys*
A. erojlandusicus Alexeev, in litt.	9	Tu, Uz	Turan	*Salsola**
A. araxenus Khnzorian, 1960	4–5	Zk	SWA	Unknown

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Subfam. Cylindromorphinae Trib. Cylindromorphi				
Cylindromorphus Kiesenwetter, 1857				
C. pubescens Semenov, 1895	1	Tu, Uz, Ka	Turan	*Carex**
C. kopetdagicus Alexeev, in litt.	4–5		Endem	*Elytrigia**
Paracylindromorphus Thery, 1930				
P. lebedevi (Obenberger, 1928)	3–4, 7–9	Tu, Uz, Tj, Ka	Turan	*Aeluropus**
P. transversicollis (Reitter, 1913)	7, 9	Tu, Uz, Tj, Ka, seEp, Zk, Ir, Ch, Mg	ITG	*Phragmites**
*P. semenovi*Thery, 1937	3	Tj, Ka, seEp	Turan	*Phragmites**
P. subuliformis (Mannerheim, 1837)	9	Tj, Ka, Ep, Si, Fe, Tr, Af, Ch, Mg, Ko	PP	*Agropyron*, *Glyceria*
Subfam. Trachyinae Trib. Trachyini				
Trachys Fabricius, 1801				
T. phlyctaenoides Kolenati, 1846	4–5	Ep, Zk, Tr, Ir, Gr, Bu	HS	*Phlomis**
Habroloma Thomson, 1846				
H. aurea Thomson, 1864	5, 7	Tj, Ky, Ka, Zk, Ir	IT	Unknown

Table 1. Continued

Species	Distribution in Kopetdagh and adjacent regions[a]	General distribution[b]	Range type[c]	Larval habitat/host plants[d]
Trib. Aphanisticini				
Aphanisticus Latreille, 1829				
A. emarginatus (Olivier, 1790)	4–5	Uz, Ka, Ep, Zk, Tr, Ir, Eu, Mt	WP	*Juncus*
A. pygmaeus Lucas, 1849	1	Uz, Ka, Ep, Eu, Mt	WP	*Juncus*

[a] The following areas of Kopetdagh and the adjacent regions are distinguished: 1 – Southwest Turkmenistan, 2 – Bolshoi Balkhan, 3 – Maly Balkhan, 4 – West Kopetdagh, 5 – Central Kopetdagh, 6 – East Kopetdagh, 7 – Submontane plain of Kopetdagh, 8 – Area between the Tedzhen and Murghab Rivers, 9 – Badghyz

[b] Distribution in the Palearctic is given. The characters "n", "s", "w", "e" stand for northern, southern, western, and eastern; the following abbreviations are accepted. Middle Asia: Ka – Kazakhstan, Ky – Kyrghyzstan, Tj – Tajikistan, Tu – Turkmenistan (outside of the studied areas), Uz – Uzbekistan. Other regions of the former USSR: Ep – European Part, Fe – Far East, Si – Siberia, Zk – Transcaucasia. Adjacent countries: Af – Afghanistan, Ch – China, Ir – Iran, Mg – Mongolia, Tr – Turkey. Other countries and regions: Bu – Bulgaria, Eg – Egypt, Eu – Europe, Gr – Greece, In – India, Iq – Iraq, Ko – Korea, Mt – Mediterranean, Pa – Pakistan, Sa – Saudi Arabia, Sy – Syria

[c] Range types (after Yemelyanov 1974): PP – Pan-Palearctic, WP – West Palearctic, HS – Hesperian- Sethian, SaIT – Saharo-Irano-Turanian, ITG – Irano-Turanian-Gobian, IT – broad Irano-Turanian, Turan – Turanian (sT + nT), Turk – Turkestanian, SWA – Southwest Asian, Khor – Khorassanian, Iran – Iranian, Afghan – Afghanian, Endem – endemic

[d] All data on larval host plants (not only from Turkmenistan) are given; host plants in Turkmenistan are marked with (*). Species with wide selection of host plants are designated as "polyphagous"; in this case, host plants are listed only for Turkmenistan

Anthaxia discicollis, *A. holoptera*, *A. hemichrysis*, *A. muliebris*, *Cratomerus hungaricus sitta*, *Sphenoptera glabrata*, *S. furva*, *Poecilonota nadezhdae*, *Dicerca fritillum*, *Aurigena lugubris*, *Agrilus lineola shamyl*, *A. araxenus*, *Meliboeus robustus*, and *M. staneki*. Some species are reported only from West Kopetdagh. Kopetdagh (and, to some extent, Bolshoi Balkhan, Maly Balkhan, and Badghyz) are known as the northern boundary for such Iranian species as *Julodis laevicostata*, *Acmaeoderella zarudniana*, *Sphenoptera rangnowi*, *S. cyanea*, and *S. kambyses*.

Fifty-nine buprestid species (46.8%) are not found in Middle Asia beyond Kopetdagh. Among them prevail Southwest Asian (21 spp.) Khorassan (17 spp.), some widely distributed West Palaearctic (5 spp.), and Hesperian-Sethian species (7 spp.). Genera and subgenera *Acmaeodera* (*Acmaeotethya*), *Aurigena*, *Sphenoptera* (*Rhaphidochila*), *Poecilonota*, *Dicerca* (*Hemidicerca*), and *Coroebus* are found in Kopetdagh but are absent not only from the surrounding plains but from all other mountains of Central Asia. Such genera as *Julodis*, *Julodella*, *Acmaeodera*, *Capnodis*, *Anthaxia*, *Meliboeus*, and *Agrilus* in Kopetdagh are characterized by marked diversity.

Sixty-seven species from Kopetdagh are also found in other parts of Middle Asia: among these prevail species with Turanian (20 spp.), widely Irano-Turanian (13 spp.), East Iran-Turanian (8 spp.), and Turkestanian (7 spp.) types of ranges. Sixty-four species found in Kopetdagh also inhabit the Transcaucasia, with a prevalence of Southwest Asian (21 spp.), widely Irano-Turanian (13 spp.), Hesperian-Sethian (13 spp.), and West Palaearctic (10 spp.) elements.

There are no endemics of superspecific rank in the buprestid fauna of the Kopetdagh and surrounding areas. Endemic elements belong to the Khorassan endemics (which are also distributed in northern Iran). These include twenty-four species and subspecies (12.4%) and are indicative of the high level of isolation of the regional buprestid fauna. As mentioned above, there are 17 endemics (13.5% of the fauna) of different levels in the Kopetdagh. For comparison, endemics constitute 18% of the higher plants (Kamelin 1970) and 38.5% of the tenebrionid beetles (including subendemics) (Medvedev and Nepesova 1990). The following buprestid species belong to Khorassan endemics: *Julodella brevilata*, *Acmaeodera pallidepicta*, *Acmaeoderella flavofasciata chorasanica*, *Capnodis jacobsoni*, *Sphenoptera violacea*, *S. subtilis*, *Anthaxia spinosa*, and *Cratomerus turanus*. The endemics and subendemics of the Kopetdagh are *Julodella shestoperovi*, *Acmaeoderella caspica caspica* (which is also found in Maly Balkhan), *A. coelestina*, *A. strandi*, and *Cylindromorphus kopetdagicus*. Endemics of both Kopetdagh and Badghyz include *Acmaeodera ghilarovi*, *Acmaeoderella alepidota* (which is also found between the Tedzhen and Murghab Rivers), *Acmaeoderella tragacanthae kopetdagica*, *Sphenoptera koenigi*, and *Clema freudei volkovitshi*. Endemics of Badghyz are *Acmaeoderella badhysica*, *Sphenoptera eroilandusica*, *Anthaxia badhysica*, and *A. kreuzbergi*. The only known endemic of Bolshoi Balkhan is *Cratomerus medvedevorum* (the type locality for poorly known *Sphenoptera turcmenica* was not correctly indicated).

Ecological Groups of the Buprestids

Many species of buprestids are polyphagous with the wide range of larval host plants, a characteristic which makes difficult their placement in definite ecological groups. Some species (e.g., *Acmaeoderella dubia*, *Capnodis tenebricosa*, *Anthaxia lucidiceps*, and *Trachypteris cuspidata*) can be found within various plant communities, from submontane plain through upper mountain belt. On the other hand, larval host plants of many species are unknown although for some species habitats can be surmised by the presence of adults. Therefore, in considering the composition of ecological groups, we refer only to the most typical and best known species.

1. Buprestids associated with Sand Vegetation (the Psammophilous Group)
This group includes 24 species, among them 20 psammophiles widely distributed over Turanian deserts. The most typical species are *Julodis variolaris freygessneri*, *Acmaeoderella caspica suturifera*, *A. repetekensis*, *A. nivetecta*, *A. canescens*, *A. insueta*, *A. solskyi*, *Capnodis excisa*, *Sphenoptera serripes*, *S. caspica*, *S. potanini*, *S. hauseri*, *S. punctatissima*, *S. schneideri*, *Chrysobothris deserticola*, *C. globicollis*, *C. jakovlevi*, *Clema deserti*, and *Cylindromorphus pubescens*. The representatives of this group occur primarily in the sand deserts of Southwest Turkmenistan, in the area between the Tedzhen and Murghab Rivers, and in Badghyz. They are also widely represented in the submontane plain of Kopetdagh and together with psammophilous plants can penetrate to the foothills and even to higher belts.

2. Buprestids associated with salt desert and "painted rock" communities (the halophilous group)
This group constitutes 26 species, among them eleven Turanian and five widely distributed Irano-Turanian elements. There are Irano-Turanian species of western origin: a Southwest Asian *Sphenoptera latesulcata* (Badghyz) and *S. vestita*. The typical species are *Acmaeoderella plavilscikovi*, *A. ballioni*, *A. personata*, *Sphenoptera lateralis*, *S. vestita*, *S. beckeri*, *S. scovitzi*, *S. pseudoignita*, *S. viridiaurea*, *S. orichalcea*, *S. amplicollis*, *S. tomentosa*, *S. tschitscherini*, and *Agrilus validiusculus*. These species are common in the deserts of Southwest Turkmenistan, in Maly Balkhan, in the submontane plain of Kopetdagh, in the area between the Tedzhen and Murghab rivers, and in Badghyz. Many species occur in the foothills of West and East Kopetdagh and are numerous in "painted rocks" of the Sumbar Valley.

3. Buprestids associated with sagebrush-ephemeroid communities (the sagebrush group)
The 12 species of this group are primarily associated with sagebrush (*Artemisia* spp.). The various biogeographic elements range from the West Palaearctic (two spp.) to endemic (one sp.); widely Irano-Turanian and Turanian (3 spp. each) elements prevail. The group includes numerous species of *Sphenoptera*

(*Chilostetha*). Typical species are *Acmaeoderella cinerea*, *Sphenoptera canescens*, *S. rauda*, *S. puberula*, *S. erojlandusica*, *S. artemisiae*, *Meliboeus reitteri*, *Agrilus sericans*, and *A. albogularis*. Representatives of the sagebrush group are present almost everywhere from the plains to the lower mountain belts in Kopetdagh and Bolshoi Balkhan.

4. Buprestids associated with tugai vegetation (the tugai group)
Riparian desert forests, "tugais," are widely distributed along Middle Asian rivers, reaching lower mountain zones and turning there into mountain riparian forests. The tugai group includes 25 species trophically associated with trees and shrubs (*Populus, Salix*, *Elaeagnus*, and *Tamarix*) as well as with the herbaceous (*Alhagi*, *Glycyrrhiza*, *Phragmites*, *Aeluropus*, and *Juncus*) vegetation of tugais. Widely distributed Irano-Turanian-Gobian, as well as Turanian (6 spp. each) and widely Irano-Turanian (4 spp.) elements predominate in this group. Other elements include trans-Palaearctic (1 sp.), West Palaearctic (2 spp.), Hesperian-Sethian (2 spp.), East Iran-Turanian (3 spp.), and endemic (1 species, *Cratomerus medvedevorum*, from Bolshoi Balkhan). The typical species are *Acmaeodera chotanica*, *Capnodis miliaris*, *Anthaxia nanissima*, *Cratomerus fariniger*, *Trachypteris picta picta*, *Buprestis salomonii*, *Chrysobothris nana*, and *Agrilus ganglbaueri* (which live on *Populus*, *Salix*, and sometimes on other trees and shrubs); *Sphenoptera mesopotamica*, *S. viridula*, *S. balassagloi*, and *S. semenovi* (which live on *Tamarix*); *S. exarata* (which lives on *Glycyrrhiza*); *Xantheremia* spp. (which live primarily on *Alhagi*); *Paracylindromorphus* spp. (which live on *Phragmites* and *Aeluropus*); and *Aphanisticus* spp. (which live on *Juncus*). The majority of these species are widely distributed from the plains to the upper mountain belt. Species especially associated with the herbaceous vegetation often occur along rivers and streams, around springs and in moist areas. The high proportion of widely distributed Irano-Turanian-Gobian species in the tugai buprestid fauna may indicate that dispersal of many mesophilic species over desert areas may have been faciltated by the presence of tugai forests. Due to their polyphagy, such species as *Acmaeodera chotanica*, *Cratomerus fariniger*, *Dicerca aenea*, and *Chrysobothris nana* may live in various forest communities, including those of upper mountain belts. Special consideration should be given to the fact that the tugai group includes many taxa of tropical and subtropical origin, such as *Acmaeodera* (*Cobosiella*) (distributed mainly in Southeast Asia), *Xantheremia* (North Africa and Southwest Asia), *Sphenoptera* (*Hoplistura*) and *Aphanisticus* (Africa and Southeast Asia). Such species as *Anthaxia nanissima*, *Buprestis salomonii*, *Chrysobothris nana*, and *Agrilus ganglbaueri* also belong to tropical and subtropical taxa.

5. Buprestids associated with steppes (the steppe group)
This group includes 12 species, most of which are asssociated with different Asteraceae (*Acmaeoderella caspica*, *A. turanica*, *A. badhysica*, *A. iranica*, *Meliboeus amethystinus*, and *M. cyaneus*), Apiaceae (*Acmaeoderella villosula*),

or Lamiaceae (*Trachys sphylctaenoides*). Steppe-group species often occur within various communities. Only a still undescribed endemic *Clema freudei volkovitshi* and *Cylindromorphus kopetdagicus* associated with wild grasses can be considered typical representatives of this group. The core of the steppe group is formed by Hesperian-Sethian (4 spp.) and endemic (4 spp.) elements; the Turkestanian (2 spp.), widely Irano-Turanian (1 sp.), and East Iran-Turanian (1 sp.) elements are also present. Six species do not occur in Middle Asia beyond Kopetdagh and Badghyz. The species of this group inhabit steppe formations from the lower foothills to the upper mountain belts.

6. Buprestids associated with the formation of xerophilous trees and shrubs (shiblyak) (the shiblyak group)

This is the most numerous buprestid group, including 36 species, 22 of which are not found in Middle Asia beyond the studied region. Turkestanian (12 spp.), Southwest Asian (6 spp.), and endemic (6 spp.) elements predominate; Hesperian-Sethian (3 spp.), Khorassan (3 spp.), Iranian (2 spp.), West Palaearctic (1 sp.), widely Irano-Turanian (1 sp.), East Iran-Turanian (1 sp.), and Afghanian (1 sp.) elements are also present. Representatives of the shiblyak group are associated with both trees and shrubs (*Acmaeodera pilosellae persica*, *A. pallidepicta*, *Capnodis sexmaculata*, *Sphenoptera kaznakovi*, *S. kambyses*, and *Cratomerus fedschenkoi*) as well as with herbaceous vegetation [*Sphenoptera koenigi* and a number of species of *Acmaeoderella (Euacmaeoderella)*].

The buprestid group associated with *Pistacia vera* includes seven species (*Acmaeodera babatauensis*, *Acmaeoderella glasunovi*, *Capnodis parustriata*, *Cratomerus judinae*, *Agrilus pistaciophagus*, *Acmaeodera instabilis*, and *Anthaxia kreuzbergi*, which is endemic to Badghyz). Badghyz is the western boundary of distribution for the majority of the Turkestanian species; only *Capnodis parumstriata* has been recorded from Ashkhabad, but this reference needs to be confirmed. Although pistachio communities were almost completely destroyed in Kopetdagh during the historical period, at least polyphagous *Acmaeodera babatauensis* and *Acmaeoderella glasunovi* have a wide range of larval host plants (*Ficus carica*, *Amygdalus spp.*, and *Astragalus* sect. *Tragacantha*), many of which are found in Kopetdagh almost everywhere; this seems to prove that their geographic boundary has a natural character. Replacement of insect species composition in Badghyz and Kopetdagh is also confirmed by the example of the tragacanthoid formation group. Another typical representative of the shiblyak group in the studied region is the Iranian species *Acmaeoderella zarudniana*, which develops on *Zygophyllum*. A group of species associated with the gigantic *Ferula* and *Dorema* plants (Apiaceae) can also be distinguished, including endemics *Acmaeoderella alepidota* and *A. strandi*. Adult *A. alepidota*, whose larvae develop in the stems of *Ferula oopoda*, are usually found inside the large egg-like leaf-sinuses of these plants, where often up to twenty beetles accumulate. Representatives of this group are primarily distributed in the lower and upper foothills (1,000–1,200 m) and in the lower mountain belt (up to 1,500 m) in Kopetdagh, Badghyz, and (with an impoverished composition) in Bolshoi

Balkhan and Maly Balkhan. The shiblyak fauna in Kopetdagh differs significantly from the analogous faunas of other parts of Middle Asia due to the presence of the numerous species of western origin as well as Khorassanian and local endemics. The Iranian species *Sphenoptera kambyses* has been shown to be a serious pest of cultured fruit trees.

7. Buprestids associated with xeromesophilous trees and shrubs (the mesophilous group)

The group includes 23 species, of which 16 species are not found in Middle Asia eastward of the studied area. This group includes Southwest Asian (7 spp.) and West Palaearctic (6 spp.) elements as well as Irano-Turanian (3 spp.), Hesperian-Sethian (2 spp.), Khorassan (2 spp.), and East Iran-Turanian (1 sp.) elements. The majority of species occur in the deciduous forests of the southern European portion of the former USSR, the Caucasus, Southwest Asia, and the Eastern Mediterranean; some species are distributed in Middle Asian mountain forests. Typical species include *Acmaeoderella flavofasciata chorasanica*, *Capnodis tenebrionis*, *Aurigena lugubris*, *Anthaxia cichorii*, *A. bicolor*, *A. muliebris*, *Cratomerus intermedius*, *C. hungaricus sitta*, *Poecilonota nadezhdae*, *Dicerca aenea validiuscula*, *Chrysobothris affinis nevskyi*, *Agrilus derasofasciatus*, *A. viridis*, *A. lineola shamyl*, and *Habroloma aurea*. Almost half of these species are known only from West Kopetdagh but may also be possibly found in Central Kopetdagh. Such species as *Capnodis tenebrionis*, *Aurigena lugubris*, and *Chrysobothris affinis* are serious pests of cultivated crops.

8. Buprestids associated with Juniperus spp. (the juniper group)

This group includes only three species, all of which develop in juniper trees. They are Hesperian-Sethian *Anthaxia discicollis* and *A. passerinii*, and Southwest Asian *A. hemichrysis*. These species are rather common in the Transcaucasia, but within Middle Asia they are only known from Kopetdag. In Bolshoi Balkhan they have not been yet found. Other mountain species of *Anthaxia* (subgenus *Melanthaxia*) are found farther east, including the Kugitangtau Mountains.

9. Buprestids associated with tragacanthoid plants (the tragacanthoid group)

This group includes eight species, of which only *Sphenoptera coerulea* develops in *Acanthophyllum*, while other species are associated with *Astragalus* (section *Tragacantha*). None of these species are found in Middle Asia eastward beyond the studied region. Among them are Southwest Asian (3 spp.), endemic (2 spp.), West Iran-Turanian (1 sp.), Khorassan (1 sp.), and Iranian (1 sp.) elements. *Anthaxia badghyzica* is known only from Badghyz; a very closely related *A. spinosa* is found in Kopetdagh and North Iran while other related species inhabit the Transcaucasia. An endemic subspecies *Acmaeoderella tragacanthae kopetdagica* is described from Kopetdagh and Badghyz; the nominal subspecies is found in the Transcaucasia. *Sphenoptera rangnowi* is known from Kopetdagh, Iran, and Afghanistan, whereas *Acmaeodera chalcithorax*, *Sphenoptera*

glabrata, *S. furva*, and *S. coerulea* inhabit tragacanths in the Transcaucasia, Southwest Asia, Iran, and Afghanistan. Therefore, the tragacanthoid group is faunistically much closer to similar ecological groups from the Transcaucasia and Southwest Asia than to those of the mountainous portion of Middle Asia eastward of the studied region. In Badghyz, species of *Sphenoptera* and *Acmaeodera chalcithorax*, which are very common in Kopetdagh, are not found; *Anthaxia spinosa* is substituted by a closely related *A. badghyzica*, and a Turkestanian polyphagous species *Acmaeoderella glasunovi* is present. The last species is not found in Kopetdagh but is widely distributed in the Turkestanian Province, where the tragacanthoid group is formed by absolutely different species of buprestids than those mentioned above.

In summary, the peculiar character of the Kopetdagh buprestid fauna is somewhat less strongly expressed in the composition of steppe and shiblyak groups but is strongly expressed in mesophilic, juniper, and tragacanthoid groups, which have heavy impact from West Palaearctic, Hesperian-Sethian, Southwest Asian, Khorassan, and endemic elements. This faunistic specificity increases with altitude from lower to upper mountain belts (800 to 2,200 m).

Regional Buprestid Faunas

1. Southwest Turkmenistan

Forty buprestid species belonging to 15 genera are known from this region. Among these, *Sphenoptera* (17 spp., 42.5%) and *Acmaeoderella* (6 spp., 15.0%) predominate; other genera each include one species (or, rarely, two or three). Turanian (20 spp., 50%) and widely Irano-Turanian (7 spp., 17.5%) elements are most numerous in the fauna composition; Hesperian-Sethian, Irano-Turanian-Gobian, East Iran-Turanian (3 spp. each), Saharo-Irano-Turanian (2 spp.), West Palaearctic, and Southwest Asian (1 sp. each) elements are also present. There are no endemic taxa. Only from this region (Gasan-Kuli District) within Turkmenistan has *Aphanisticus pygmaeus* been found. The representatives of halophilous (16 spp., 40%) and psammophilous (13 spp., 32.5%) groups are most abundant. The sagebrush and tugai groups are represented by three species each.

2. Bolshoi Balkhan

The buprestid fauna of these isolated mountains is poorly studied; only 19 species from 10 genera are known from here, and none of them is markedly predominant. *Acmaeoderella* (6 spp.) and *Sphenoptera* (4 spp.) are the most abundant taxa; the majority of other genera are represented by a single species. Widely Irano-Turanian, East Iran-Turanian (4 spp. each), and Turanian (3 spp.) elements prevail; there are also Irano-Turanian-Gobian (2 spp.), West Palaearctic, Hesperian-Sethian, Saharo-Irano-Turanian, Southwest Asian,

Iranian, and endemic (1 sp. each) elements. Endemic to Bolshoi Balkhan (the northern slope) is *Cratomerus medvedevorum*, which develops in *Halimodendron halodendri*; it possibly may be found in Kopetdagh as well. Representatives of halophilous (4 spp.), sagebrush (4 spp.), psammophilous (3 spp.), tugai (3 spp.), xerophilous (1sp.), and tragacanthoid (1 sp.) groups are present. Of special interest are the northernmost records in Middle Asia of an Iranian *Acmaeoderella zarudniana* (xerophilous group) and Southwest Asian *Sphenoptera glabrata* (tragacanthoid group), common to Kopetdagh.

3. Maly Balkhan

The buprestid fauna here has not been studied in detail. Twenty-nine species from 11 genera are known; *Acmaeoderella* (11 spp., 37.9%) and *Sphenoptera* (6 spp., 20.7%) are the most abundant taxa. The Turanian (13 spp., 44.8%), widely Irano-Turanian, and East Iran-Turanian (4 spp. each, 13.8%) elements markedly predominate; there are also Hesperian-Sethian, Saharo-Irano-Turanian (2 spp. each), West Palaearctic, Southwest Asian, Iranian, and endemic (subendemic) elements (1 sp. each). There are no endemic species. Dominant ecological groups are halophilous (10 spp., 34.5%) and psammophilous (8 spp., 27.6%); other groups include the tugai (3 spp.), sagebrush and xerophilous formation (2 spp. each), and steppe (1 sp.). A rare species within Turkmenistan, *Paracylindromorphus semenovi*, is recorded only from Maly Balkhan. Findings of Iranian *Acmaeoderella zarudniana*, West Palaearctic *A. gibbulosa*, and Kopetdagh endemic *A. caspica caspica* demonstrate faunistic connections with Kopetdagh.

4. West Kopetdagh

This is one of the best studied areas of Kopetdagh, with the buprestid fauna including 106 species from 21 genera. The genera *Sphenoptera* (30 spp., 28.3%) and *Acmaeoderella* (17 spp., 16%) are the most abundant ones; *Agrilus* (10 spp., 9.4%), *Anthaxia* (9 spp., 8.5%), and *Cratomerus* (7 spp., 6.6%) are also widely represented. Species of *Poecilonota* and *Dicerca* (*Hemidicerca*) within the studied region are only known from this area. This fauna includes the Southwest Asian (18 spp., 17.0%), Turanian (17 spp., 16.0%), Hesperian-Sethian and widely Irano-Turanian (12 spp. each, 11.3%), and West Palaearctic (10 spp., 9.4%) elements. Of considerable importance are the Khorassan (4 spp., 3.8%) and endemic (9 spp., 8.5%) elements. East Iran-Turanian (7 spp.), Irano-Turanian-Gobian, Turkestanian, Iranian (each 4 spp.), Saharo-Irano-Turanian (2 spp.), trans-Palaearctic and West Iran-Turanian (1 sp. each) elements are also present. *Acmaeoderella coelestina* is the only species which might be regarded as an endemic of West Kopetdagh. Representatives of xerophilous (23 spp., 21.7%), mesophilous (20 spp., 18.9%), halophilous (15 spp., 14.2%), and tugai (13 spp., 12.3%) groups dominate the buprestid fauna of West Kopetdagh; species of tragacanthoid and sagebrush (7 spp. each), steppe (6 spp.),

psammophilous (4 spp.), and juniper (3 spp.) groups are also present. Within the xerophilous formation group, Southwest Asian (6 spp.) and endemic (5 spp.) elements predominate; the Turkestanian elements are represented only by three species. Within the studied region, the following 17 species are found only in West Kopetdagh: a trans-Palaearctic *Agrilus cuprescens*, the West Palaearctic *Acmaeoderella mimonti*, *Anthaxia cichorii*, *Poecilonota dives*, *Agrilus derasofasciatus*, and *A. sericans*; the Hesperian-Sethian *Acmaeoderella obscura*, *Anthaxia bicolor*, and *Cratomerus sponsa*; a Turanian *Sphenoptera korshinskii*; Southwest Asian *Sphenoptera apta*, *Anthaxia muliebris*, *Poecilonota nadezhdae*, and *Dicerca fritillum*; the Khorassan *Acmaeoderella flavofasciata chorasanica* and *Sphenoptera subtilis*; and an endemic *Acmaeoderlla coelestina*.

5. Central Kopetdagh

The fauna of this area includes 86 species and subspecies from 23 genera; *Sphenoptera* (21 spp., 24.4%) and *Acmaeoderella* (16 spp., 18.6%) are the most abundant taxa; *Capnodis*, *Agrilus*, *Anthaxia* (6 spp. each, 7.0%), and *Meliboeus* (5 spp.) should be also mentioned. The only representative of *Coroebus* known from Middle Asia has been found in Central Kopetdagh. Southwest Asian (16 spp., 18.6%), widely Irano-Turanian (11 spp., 12.8%), and Turanian (10 spp., 11.6%) elements dominate the fauna; also present are Hesperian-Sethian (8 spp.), East Iran-Turanian and endemic (7 spp. each), West Palaearctic and Turkestanian (6 spp. each), Khorassan (5 spp.), Irano-Turanian-Gobian and Iranian (3 spp. each), West Iran-Turanian (2 spp.), trans-Palaearctic and Saharo-Irano-Turanian (1 sp. each) elements. *Julodella shestoperovi* is the only known endemic of Central Kopetdagh. The representatives of xerophilous (21 spp., 24.4%), halophilous (12 spp., 13.9%), and mesophilous (11 spp., 12.8%) groups predominate; steppe (8 spp.), tugai (7 spp.), sagebrush and tragacanthoid (6 spp. each), and psammophilous and juniper (3 spp. each) groups are present. The xerophilous group is formed primarily by the Southwest Asian (6 spp.) and Turkestanian (4 spp.) elements. Six species, including a trans-Palaearctic *Agrilus viridis*, West Palaearctic *Coroebus rubi*, Hesperian-Sethian *Acmaeoderella subcyanea*, Turanian *Acmaeoderella candens*, Southwest Asian *Meliboeus caucasicus*, and endemic *Julodella shestoperovi*, within the studied region are found only in Central Kopetdagh; of these, only *Acmaeoderella candens* is found in other regions of Middle Asia.

6. East Kopetdagh

This area of Kopetdagh is very poorly studied, with only nine species from four genera recorded. Of special interest are the findings of the Khorassan species *Capnodis jacobsoni* and a West Palaearctic *Acmaeoderella gibbulosa*. Based on the orographic features of East Kopetdagh, we suggest that the Turanian elements from halophilous and xerophilous formation groups will be found to predominate in the local buprestid fauna. A rather large natural grove of

Pistacia vera exists next to the town of Kaakhka, but we have not succeeded in our search of buprestids associated with this tree; thus, we tentatively consider Badghyz as the western boundary of pistachio-associated species.

7. The Submontane Plain of the Kopetdagh

The buprestid fauna of this area includes 84 species from 20 genera; however, many specimens labeled from such settlements as Ashkhabad or Geok-Tepe probably have been collected in the Kopetdagh foothills; this makes the faunistic analysis of this area difficult. The most abundant taxa are *Sphenoptera* (36 spp., 42.9%), *Acmaeoderella* (10 spp., 11.9%), and *Capnodis* (7 spp., 8.3%). Ashkhabad is the only site within the region studied where *Strigopteroides aegyptiacus* developing in dead dry wood has been recorded; according to our observations in Bokhara (Uzbekistan), this species is a timber pest. Turanian (24 spp., 28.6%) and widely Irano-Turanian (11 spp., 13.1%) elements are predominant here; the East Irano-Turanian (7 spp.), Southwest Asian and Turkestanian (6 spp. each), Hesperian-Sethian, Irano-Turanian-Gobian, and Iranian (5 spp. each), West Palaearctic, Saharo-Irano-Turanian, Khorassan, and endemic (3 spp. each), and West Irano-Turanian (1 sp.) elements are also present. A poorly studied *Sphenoptera turcmenica* is an endemic of this area, and two other species (*Acmaeoderella caspica caspica* and *Sphenoptera koenigi*) are subendemic. Among ecological groups, psammophilous (14 spp., 16.7%), halophilous and tugai (12 spp. each, 14.3%), and xerophilous group (11 spp., 13.1%) predominate; there are also representatives of sagebrush (6 spp.), steppe and mesophilous (5 spp. each) and tragacanthoid (3 spp.) groups. The rather high number of mesophilous buprestid species is due to the large areas occupied by orchards in the Kopetdagh Oasis, where the representatives of this group may develop as larvae in various fruit trees and shrubs.

8. The area between the Tedzhen and Murghab Rivers

From this region, 58 species belonging to 14 genera are known, with the predominance of *Sphenoptera* (27 spp., 46.6%) and *Acmaeoderella* (7 spp., 12.1%). Turanian (20 spp., 34.5%); widely Irano-Turanian, Irano-Turanian-Gobian (8 spp. each, 13.8%); and East Iran-Turanian (7 spp., 12.1%) elements are the most abundant; there are also Hesperian-Sethian (4 spp.); Turkestanian (3 spp.); Saharo-Irano-Turanian, west Iran-Turanian, Southwest Asian (2 spp. each), and West Palearctic and subendemic (1 sp. each) elements. There are no endemics. This area is the only place in Turkmenistan where *Acmaeoderella valentinae* has been collected. Ecological groups are represented by halophilous (19 spp., 32.8%), tugai (17 spp., 29.3%), and psammophilous (10 spp., 17.2%) species; there are also species of xerophilous (6 spp.) and mesophilous (1 sp.) groups. The high role of tugai species is due to the presence of extensive tugais (riparian forests) in the Tedzhen and Murghab Valleys. In general, this regional fauna is characteristic for the South Turanian biogeographical province.

9. The Badghyz Plateau

The buprestid fauna of Badghyz has been recently reviewed (Volkovich and Alexeev 1992); it includes 87 species and subspecies from 17 genera. The dominant taxa are *Sphenoptera* (29 spp., 33.3%) and *Acmaeoderella* (20 spp., 23.0%). Relatively numerous are *Capnodis* (6 spp.), *Agrilus* (5 spp.), and *Acmaeodera* (4 spp.); species of *Julodella*, *Acmaeodera* (*Acmaeodera*), and *Acmaeodera* (*Acmaeotethya)* are also present. Predominant zoogeographic elements are Turanian (23 spp., 26.4%); Turkestanian (14 spp., 16.1%); widely Irano-Turanian (10 spp., 11.5%); endemic and subendemic (9 spp., 10.3%); Southwest Asian (3 spp.); Saharo-Irano-Turanian, Khorassan, Iranian (2 spp. each); trans-Palearctic, West Palearctic, and Afghanian (1 sp. each).

The endemics of Badghyz are *Sphenoptera eroilandusica*, *Anthaxia badhyzica*, and *A. kreutzbergi*; Southwest Asian *Sphenoptera latesulcata*, *S. artemisiae*, and the Afghanian species *Acmaeodera instabilis* are known within Middle Asia only from Badghyz. The Khorassan species *Julodella brevilata* and *Capnodis jacobsoni*; the Iranian *Acmaeoderella zarudniana* and *Sphenoptera kambyses*; the endemic (subendemic) *Acmaeodera ghilarovi*, *Acmaeoderella alepidota*, *A. tragacanthae kopetdaghica*, *Sphenoptera koenigi* and *Clema freudei volkovitshi* are common to Badghyz and Kopetdagh. The representatives of xerophilous (20 spp., 23%), halophilous (15 spp., 17.2%), psammophilous and tugai (12 spp. each, 13.8%) groups are the most abundant; species of steppe (8 spp.), sagebrush (7 spp.), and tragacanthoid (2 spp.) groups are also represented. In the xerophilous group, species associated with *Pistacia vera* (7 spp.) play an important part; these are represented mainly by Turkestanian elements, possibly with western boundary of their range in Badghyz. Volkovitch and Alexeev (1992) described the faunistic differences between the lowland and mountainous parts of Badghyz; these differences are expressed primarily in the role of predominating Turanian and Turkestanian species. Our biogeographic analysis demonstrates that Badghyz, which is affiliated with the South Turanian Province by some authors, rather should be regarded as a transitional territory between the South Turanian, Turkestanian, and Khorassan Provinces.

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