

## A Study of the Ecofaunal Complexes of the Leaf-Eating Beetles (*Coleoptera, Chrysomelidae*) in Azerbaijan

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**Abstract:** A total of 377 leaf-eating beetle species from 69 genera and 11 subfamilies (*Coleoptera, Chrysomelidae*) were revealed in Azerbaijan, some of which are important pests of agriculture and forestry. The leaf-eating beetle distribution among different areas of Azerbaijan is presented. In the Great Caucasus 263 species are noted, in the Small Caucasus 206, in Kura - Araks lowland 174, and in Lenkoran zone 262. The distribution of the leaf-eating beetles among different sites is also described and the results of zoogeographic analysis of the leaf-eating beetle fauna are presented as well. Eleven zoogeographic groups of the leaf-eating beetles were revealed in Azerbaijan, which are not very specific. The fauna consists mainly of the common species; the number of endemic species is small.

**Key Words:** leaf-eating beetle, larva, pest, biotope, zoogeography.

### Azerbaycan'da Yaprak Böcekleri (*Coleoptera, Chrysomelidae*) Faunası Üzerinde Araştırmalar

**Özet:** Azerbaycan'da 11 altfamilyadan 69 cinsle ait 377 Yaprakböceği (Col.: Chrysomelidae) türü belirlenmiştir. Bu böceklerden bazıları tarım ve orman alanlarında zararlı durumundadır. Bu çalışmada Yaprakböcekleri'nin Azerbaycan'ın değişik bölgelerindeki dağılımları açıklanmıştır. Büyük Kafkasya'da 263, Küçük Kafkasya'da 206, Kür-Aras ovasında 174, Lenkaran Bölgesi'nde ise 262 tür bulunmuştur. Bu türlerin farklı biyotoplardaki durumu ve dağılımları ile ilgili zoocoğrafik analizlerde bu çalışmada yer almaktadır. Azerbaycan'da belirlenen Yaprakböcekleri 11 zoocoğrafik grupta incelenmiştir. Yapılan bu fauna çalışmasında belirlenen türlerin birçoğu yaygın olarak bulunan türlerdir, endemik tür sayısı oldukça azdır.

**Anahtar Sözcükler:** Azarbaycan, yaprakböcekleri, zoocoğrafya, chrysomelidae

### Introduction

The territory of Azerbaijan is notable for the diversity and particularity of its flora and fauna. This is obvious in the specific plant species composition and distribution of the leaf-eating beetles among different biocenoses.

The family of leaf-eating beetles is one of largest families in the order *Coleoptera*. So far over 50,000 chrysomelid species have been found throughout the world. They are numerous and widely present in all natural zones of Azerbaijan. Adults and larvae of many species are important pests of food crops, plantations of trees and shrubs, medical herbs and fodder crops. Their economic importance is often underestimated as their damage to a plant rarely results in death and the physiological loss cannot be quantitatively estimated.

### Materials and Methods

Materials were collected during 1970-1998 in all landscape zones of Azerbaijan: Sheki-Zakatala, Guba-Khachmas, Shemaha-Gobustan, Aspheron (Great Caucasus); Gandja-Dashkesan, Nagorny Karabakh, Nakhichevan AR (Small Caucasus); Lenkoran zone; Shirvan, Myl-Karabakh, Mugan-Salyan (Kura-Araks lowland).

The work consisted of 3 parts: field, stationary and laboratory.

Field work included the inspection of the following biotopes: meadows, meadow-steppes, wormwood semi-deserts, orchards, plantations of vegetables, forests, and forest glades.

Stationary observations of the development of some harmful species were carried out in spring-autumn. The influence of ecological factors such as temperature, humidity and wind on the vital functions of the leaf-eating beetles was studied.

Apart from the field research laboratory research was also carried out to reveal some biological peculiarities of the leaf-eating beetles.

The analysis of materials was carried out in the Laboratory of Entomology, Institute of Zoology of AS, Azerbaijan Republic.

## Results and Discussion

A total of 377 species of *Chrysomelidae* belonging to 11 subfamilies and 69 genera were detected in Azerbaijan as a result of our investigations lasting many years. Besides the species composition, we studied the bioecological features, economic importance, distribution between biotopes and vertical belts, formation of the fauna and zoogeography of those as well.

It was found that the eggs of *Chrysomelidae* are usually ovoid, rarer roundish or flattened. The eggs are milky, cream, dingy-grey, yellow, orange and reddish-brown in colour. The chorion is usually smooth, sometimes with dense fine-grained sculpture. The egg sizes range from 0.6 mm to 4.8 mm. The eggs are laid in single file or in small piles on the leaves of feeding plants, in the soil, at the plant bases or scattered on the soil surface. The development of most species lasts 8-10 days and that of some species of the genera *Clytrinae* and *Cryptocephalinae* up to 40-45 days.

The larvae have 3 to 5 instars. The larva development can last from several days (30-35) to 2 years.

The literature (1,2) and our own data (3) concerning the development and inhabitation conditions of the leaf-eating beetles in Azerbaijan enable us to divide them into 6 ecological groups as follows:

1. Aquatic forms. The larvae live in water on the plant roots and stems. They have sucking mouths and respiratory hooks. To this group belong all *Donaciinae*.
2. Soil forms. The larvae live in soil on the plant roots and gnaw round small branches and adventitious rootlets. They are notable for their whitish colour.

To this group belong *Eumolpinae*, and some *Galerucinae* and *Alticinae*.

3. Openly living forms. They live on the leaves and rarer on the stems of plants. They have various pigment colorations, and their eyes, legs and sclerites are well developed. The members of this group have multifarious protective formations. The group includes *Criocerinae*, *Chrysomelinae*, *Cassidinae*, and some *Galerucinae* and *Aticinae*.
4. Cover-carrying forms. The larvae dwell in the special larva covers, which are open at the fore ends. The covers are built of particles of substrate and excrement. These forms are found on the leaves and stems of plants, in ground litter, and in anthills. To this group belong *Clytrinae* and *Cryptocephalinae*.
5. Miner forms. The larvae of this group mine the plant leaves and are notable for their very flattened body and less developed eyes and legs. To this group belong *Zeugophorinae*, *Hispinae* and some *Alticinae*.
6. Intrastem forms. They dwell within the plant stems and mine them. They have thin and elongated bodies. To this group belong some *Alticinae*.

The leaf-eating beetles of Azerbaijan are connected with multifarious plant species. Thus, many of them are connected with *Salicaceae*, *Compositae*, *Cruciferae*, *Rosales*, *Cyperacea*, *Gramineae*, *Labiatae*, *Leguminosae* and *Polygonaceae*. They feed not only on leaves but also on the generative organs of plants, specifically on the blossoms. The subfamily *Clytrinae* is characterized by different feeding habits of the imago and larva phase. The imagos feed on the vegetative organs of plants and the larvae feed on the vegetable detritus (4).

The leaf-eating beetles are divided into phytophages (which can be polyphages, oligophages or monophages), phyto-saprophytes and saprophytes, the larvae of the second and third group feed on the vegetable detritus and on the animal food, respectively, or sometimes on both.

We also found that the leaf-eating beetles can be divided into two ecologically different groups in terms of the life-cycle features. The members of the first group are notable for the similar feeding and inhabitation habits of the imagos and larvae. The hibernating stage is imago

and the number of generations may be constant or dependent on the climate conditions. In the second group larvae and imagos have different inhabitation and feeding habits and the larva may be the hibernating stage. With respect to humidity, the leaf-eating beetles can be divided into the xerophilous, mesophilous and hydrophilous forms; however, this classification is not absolute, and the mentioned groups are changeable.

Besides the above-mentioned points, we also studied the connection of different groups of the leaf-eating beetles with particular sites and their feeding links as well. Eight types of area where the leaf-eating beetles are most frequently found can be recognized in the regions investigated. These are as follows: the wormwood semi-deserts where 216 species are found; meadows and meadow-steppes - 333; forests - 69; orchards - 41; vegetable plantations - 67; grain fields - 22; and fodder herb plantations - 11. At present, on the basis of the materials collected in Azerbaijan, 164 species of leaf-eating beetles are recorded as pests of agriculture, forests and parks. With regard to harmfulness, they can be divided into three groups: primary, minor and insignificant. Forty-five species belong to the first category. The group of minor pests includes 32 species which may be dangerous. Some of these species produce outbreaks of mass reproduction in some years and then damage plants very much. The insignificant pests are less harmful species. This group is the most numerous in terms of the number of species.

The analysis of the materials collected makes it obvious that the subfamilies and species of leaf-eating beetles are unevenly distributed among different regions and natural zones of Azerbaijan (Tables 1,2).

In the territory of the Great Caucasus, 264 species of leaf-eating beetles were detected, of which 186 inhabit Sheki-Zakatala, 119 Guba-Khachmas, 143 Shemakha-Gobustan and 104 species Apsheron.

Of the species detected in the Great Caucasus, 27 were abundant, 91 common, and 95 rare. Thirty-four species were not found in other areas of Azerbaijan (in the table those species are marked with\*).

In the Small Caucasus, 208 species of leaf-eating beetles were detected of which 156 inhabit the Gandja-Dashkesan region, 112 Nagorny Karabakh, 63 Nakhichevan.

Of the species detected in the Small Caucasus 20 were abundant, 68 common and 83 rare. Nineteen species were not found in other areas of Azerbaijan (marked with\*\* in Table 2).

In Kura-Araks lowland 172 species of leaf-eating beetles were detected, of which 61 inhabit the Shirvan region, 102 Myl-Karabakh region and 129 Mugan-Salyan region. Of the species detected in Kura-Araks lowland 24 were abundant, 70 common and 69 rare. Five species were not found in other areas of Azerbaijan (marked with\*\*\* in Table 2).

In the Lenkoran region 262 species were detected, of which 49 were abundant 98 common and 114 rare. Fifty-five species were not found in other areas of Azerbaijan (marked\*\*\*\*in Table 2).

The number of the species of leaf-eating beetles depends on the one hand on the natural conditions and on the other hand on the type of agriculture. The Great Caucasus abounds in vast forest tracts (Sheki-Zakatala region) and in orchards and vegetable plantations as well (Guba-Khachmas region). The Small Caucasus is characterized on the whole by the dry continental climate (Nakhichevan A.R.), the semidesert sites in the foothills forest tracts and abundant orchards.

Kura-Araks lowland is characterized by the poor fauna of leaf-eating beetles (172 species). There are mainly plantations of cotton and grains there and small fruit gardens as well, which certainly influence the quantity of the beetles and the species diversity.

The Lenkoran region in the main area of vegetable cultivation, and there are also orchards and mountain forests there. Therefore the leaf-eating beetles are found mainly in the vegetable plantations, forests and orchards of subtropic trees (262 species). These species were detected mainly in Zuvand (Diabar hollow) and in Talysh.

The distribution of leaf-eating beetles between the vertical belts was studied as well. In the lowland (Table 2) vegetation is scanty. This area spreads along the basins of the Kura and Araks. Summer is very hot there, water is insufficient, and winter is rather cold. Due to these conditions crops are not cultivated very much there and forests are insignificant.

A total of 199 leaf-eating beetle species were detected in the lowlands of Azerbaijan, of which the most

Table 1. Distribution of the number of the leaf-eating species from different subfamilies among the regions of Azerbaijan

Subfamily	Total number of species	Great Caucasus				Small Caucasus			Len-Koran zone	Kura-Araks lowland		
		Sheki-Zakatala	Guba-Khachmas	Shemaha-Gobustan	Apshe-ron	Gandja-Dashkesan	Nagorny-Karabakh	Nakhi-chevan AR	Shirvan zone	Myl-Karabakh	Mugan-Salyan	
<i>Orsodacninae</i>	3	1	-	1	1	1	1	-	3	1	-	-
<i>Donaciinae</i>	14	2	2	3	1	6	-	-	12	1	3	5
<i>Criocerinae</i>	11	9	7	3	2	6	6	3	8	1	7	3
<i>Clytrinae</i>	36	27	13	16	15	18	13	13	27	6	16	14
<i>Cryptocephalinae</i>	58	26	17	25	16	26	13	5	31	16	17	27
<i>Eumolpinae</i>	9	2	3	2	1	3	3	1	6	1	1	3
<i>Chrysomelinae</i>	51	34	25	23	18	23	16	15	34	12	16	21
<i>Galerucinae</i>	41	24	16	21	12	21	16	9	31	6	8	17
<i>Alticinae</i>	125	47	27	42	32	35	30	10	91	15	24	28
<i>Hispiinae</i>	3	1	-	-	1	1	1	1	2	-	1	1
<i>Cassidinae</i>	26	13	9	7	5	16	8	6	17	2	9	10
Total	377	186	119	143	104	156	112	63	262	61	102	129

Table 2. Distribution of the number of the leaf-eating beetles species of the family *Chrysomelidae* in total among the regions, natural zones and vertical belts of Azerbaijan

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland			Belts			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Subfamily <i>Orsodacninae</i></b>														
1. <i>Zeugophora scutellaris</i> Sffr.	r										r	r		
2. <i>Orsodacne cerasi</i> L.						r		r			r	r	r	r
3. <i>O. lineola</i> Pz.			r	r	r						r	r	r	r
<b>Subfamily <i>Donaciinae</i></b>														
4. <i>Donacia semicuprea</i> Pz.****											r		r	
5. <i>D. impressa</i> Payk	r										r		r	
6. <i>D. gracilicornis</i> Jacobs.°	c	c	c		c				c	c	c	r	r	
7. <i>D. marginata australis</i> Jacobs.					c					c	c	r	r	
8. <i>D. bicolora</i> Zschach.										r	r		r	
9. <i>D. thalassina</i> Germ.*			r										r	
10. <i>D. vulgaris</i> Zschach.									r		r	r	r	
11. <i>D. simplex</i> F.										c	c		r	
12. <i>D. tomentosa</i> Ahr.				r	r						a	r	r	
13. <i>D. cinerea</i> Hbst.					r			c			c		r	
14. <i>D. limbata</i> Papz.					r					r	r		r	
15. <i>D. antiqua</i> Kunze****											r		r	
16. <i>Plateumaris braccata</i> Scop.			r		r							r	r	
17. <i>P. sericea</i> L.			r						r		r	r	r	
<b>Subfamily <i>Criocerinae</i></b>														
18. <i>Oulema erichsoni</i> Sffr.****											r	r	r	
19. <i>O. tristis</i> Hbst.	c					c						r	r	
20. <i>O. melanopus</i> L.°	a	a	a	a	a	a	a	a	a	a	a	a	a	r
21. <i>Lema cyanella</i> L.		c			c					c			r	
22. <i>L.lichenis</i> Voet°	c	c	c		c		c		c		c	r	r	
23. <i>Crioceris asparagi</i> L.°	c			c	a	a			c	c	c	r	r	r
24. <i>C. duodecimpunctata</i> L.°	c	c			c	a	c		c		c	r	r	
25. <i>C. quatuordecimpunctata</i> Scop.	r	r							r		r	r	r	
26. <i>C. quinquinpunctata</i> Scop.	c	c	c				c		r			r	r	
27. <i>C. bicrucata</i> Sahlb.	r								r		r	r	r	
28. <i>Lilioceris faldermanni</i> Guer.	c	c			c	c					c	r	r	r

Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Subfamily Clytrinae</b>														
29. <i>Labidostomis lucida</i> Germ.	c				c						r	r	r	
30. <i>L. asiatica</i> Fald.									r		r	r	r	
31. <i>L. longimana</i> L.	a	a	a	a	a	a	a				a	r	r	r
32. <i>L. montana</i> L. Medv.	c		c				c				a		r	r
33. <i>L. propinqua</i> Fald.°	a	a	a	c	c	c			a	a	a	r	r	r
34. <i>L. beckeri</i> Wse."	o													r
35. <i>L. humeralis pachysoma</i> L. Medv.°	r				c	c			r		r	r	r	
36. <i>L. brevipennis</i> Fald.	c					c	c				a	r	r	r
37. <i>L. pallidipennis</i> Gebl.°	a	a	c	c	c	c			c	c	a	r	r	r
38. <i>L. decipiens</i> Fald.°	a	a	a	c	c	c	c		a	c		r	r	r
39. <i>L. subfasciata</i> Wse**							r							r
40. <i>L. elegans</i> Lef.					r		r				r			
41. <i>L. medvedevi</i> Warch.	r										r			r
42. <i>L. escherichi peregrina</i> Wse.°	a				c	c			c	c	a	r	r	r
43. <i>Chilotoma musciformis</i> Gz.°	o			r	o				c	c	a	r	r	r
44. <i>Ch. erythrostoma</i> Fald.°	a				o	o			c	c	a	r	r	r
45. <i>Smaragdina unipunctata</i> Oliv.°	a	a	a	a			a	a	a	a	a	a	r	
46. <i>Sm. viridis comans</i> Jac.****											r			r
47. <i>Sm. chloris biornata</i> Lef.						c	c				r	r	r	
48. <i>Sm. aurita auritoides</i> Ahr.	c		c	c							c	r	r	r
49. <i>Sm. cyanea</i> F.	c	c	c	c	r	r					r	r	r	
50. <i>Sm. affinis</i> Hellw.****											r	r		r
51. <i>Sm. limbata</i> Stev.°	a	a	a	a	a	a	a	a	a	a	a	r	r	r
52. <i>Sm. xanthaspis</i> Germ.**							r							r
53. <i>Coptocephala chalybaea</i> Germ.*			r											r
54. <i>C. rubicunda rossica</i> L. Medv.*	r													r
55. <i>C. gebleri</i> Gebl.°	c			c	c				c	c	a	r	r	r
56. <i>C. unifasciata destinai</i> Fairm°	c			c	c	c				c	c	r	r	r
57. <i>Antipa macropus</i> L.	c	c	c	c		c		c	c			r	r	r
58. <i>A. rugulosa</i> Wse			r				r							r
59. <i>Clytra atraphaxidis</i> Pall.°	c	c		c	c	c		c	c	c	r	r	r	r
60. <i>C. valerianae</i> Men.°	c	c	c	r	c	c	r	c	c	c	c	r	r	r
61. <i>C. novempunctata</i> Oliv°	c					c			c		o	r	r	r
62. <i>C. laeviuscula</i> Ratz.°	a	a	a	a	a	a	r	a	a	a	a	r	r	r
63. <i>C. quadripunctata</i> L.	c	c	c		r	r						r	r	r
64. <i>C. quadripunctata appendicina</i> Lac.	c	c	c							c	c	r	r	r
<b>Subfamily Cryptocephalinae</b>														
65. <i>Cryptocephalus tamaricis</i> Sols.***										c				r
66. <i>C. undatus</i> Suffr.			r	c						c				r
67. <i>C. undulatus</i> Suffr.				c					c	c				r
68. <i>C. gamma</i> H-S.			r		r					c				r
69. <i>C. rubi</i> Men.			c	r	c			c		c				r
70. <i>C. flexuosus</i> Kryn	r			r	r			r						r
71. <i>C. atriplicis</i> Gebl.***										c				r
72. <i>C. apicalis</i> Gebl.****											r			r
73. <i>C. schaefferi</i> Schrnk°		r	r		c	r				r	c	r	r	r
74. <i>C. coryli</i> L.	r			r	r							r	r	
75. <i>C. distinguendus</i> Schneid.**					c							r	r	
76. <i>C. cribratus</i> Sffr.°	c	c	c		r			c	c	c	r			r
77. <i>C. laevicollis</i> Gebl.		r			r		r			r				r
78. <i>C. flavipes</i> F.°	c	c	c	r	c			r		r	c	r	r	r
79. <i>C. quadriguttatus</i> Richt****											r			r
80. <i>C. sericeus</i> F.°	c	c	c	c	c	c	c	c	c	c	c	r	r	r
81. <i>C. aureolus</i> Sffr.	a		c		r				r			r	r	r
82. <i>C. virens</i> Suffr.*	r		r											r

Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
83. <i>C. violaceus</i> Laich.	r										r		r	
84. <i>C. concolor</i> Sffr.°	a	a	a		a	a		a	a	a	a	r	r	r
85. <i>C. nitidus</i> L.*	r												r	
86. <i>C. modestus</i> Sffr.	r				r	c		c		r			r	
87. <i>C. janthinus</i> Germ.°	a	a	a		c	c		c	c	c	c	r	r	r
88. <i>C. coerulescens</i> Shlb.°	c		r		r			r	c	c	c	r	r	r
89. <i>C. parvulus</i> Mull.°	c		r	r	r			c		c	c	r	r	r
90. <i>C. concinnus</i> Suffr.	c	c	c			c						r	r	
91. <i>C. biguttatus</i> Scop					r				r	r			r	
92. <i>C. bipunctatus</i> L.°	c		c	c	r	c		r	c		r	r	r	r
93. <i>C. bothnicus</i> L.	c								c				r	
94. <i>C. octacosmus</i> Bed.*		r											r	
95. <i>C. moraei</i> L.°	c	c	c	r	c	c		c	c	c	c	r	r	r
96. <i>C. pygmaeus</i> F.						r		r		r	r	r	r	r
97. <i>C. elegantulus</i> Grav.°	r				r	c			r	c	c	r	r	r
98. <i>C. exiguus</i> Sch.*		r											r	
99. <i>C. frontalis</i> Marsh.*		r										r	r	
100. <i>C. ocellatus</i> Drap.	r	r			r	r					a	r	r	r
101. <i>C. labiatus</i> L.****											c			r
102. <i>C. chrysopus</i> Gmel.		r	r	r					c			r	r	
103. <i>C. populi</i> Suffr.****											c			r
104. <i>C. connexus</i> Ol.	c		r							r	c	r	r	r
105. <i>C. fulvus</i> Gz.	c									c	c	r	r	
106. <i>C. macellus</i> Sffr.			r								c	r		r
107. <i>C. ovulum</i> Jacobs.****											c	r	r	r
108. <i>C. quepunctata</i> Harrer****											c	r	r	
109. <i>C. duplicatus</i> Suffr.*			r									r		
110. <i>C. bicolor</i> Esch			c		c			c					r	
111. <i>C. hypocoeridis</i> L.	c	c	c			c	r	r				r	r	r
112. <i>C. fulmenifer</i> Rt.*				r								r		
113. <i>C. pusillus</i> F.	c										r		r	
114. <i>C. curda</i> ****											r			r
115. <i>C. lederi</i> Wse****											c			r
116. <i>C. ochropezus</i> Suffr.**					r								r	
117. <i>Pachybrachys albicans</i> Wse°	a	a	a	a	a				a	a	a	r	r	r
118. <i>P. nigropunctatus</i> Suffr.				r	r					r	r		r	
119. <i>P. glycyrrhizae</i> Ol			r						a	c	r	r		
120. <i>P. tessellatus orientalis</i> Ol.**							r					r		
121. <i>P. fimbriolatus</i> Sffr.°	a	a	a	a	a	a	a	a	a	a	a	a	a	r
122. <i>Stylosomus tamaricis</i> H-S.				a					a	a	a	a	r	
<b>Subfamily Eumolpinae</b>														
123. <i>Pachnophorus pilosus</i> Rossi		r			r							r	r	
124. <i>P. tessellatus</i> Duff.						r					r		r	
125. <i>P. villosus</i> Dft.*		r											r	
126. <i>Chloropterus lefevrei</i> Reitt.			r								r		r	
127. <i>Bedelia insignis</i> Lef.°	r				r					r	r		r	
128. <i>Chrysohus asclepiadeus</i> Pall****											r		r	
129. <i>Chrysohares asiatica</i> Pall°	c	c	c	c	c	c	r	c	c	c	c	r	r	r
130. <i>Ch. constricticollis</i> Lop.										c	c		r	
131. <i>Bromius obscurus</i> L.**						c						r	r	
<b>Subfamily Chrysomelinae</b>														
132. <i>Leptinotarsa decemlineata</i> Say°	a	a	a	a	a	a	a	a	a	a	a	a	a	a
133. <i>Crosita grata</i> Fald**						r							r	
134. <i>Timarcha hummeli</i> Fald.		c			c	c		r				r	r	
135. <i>T. tenebricosa</i> Fab.		r									r	r	r	

Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
136. <i>Chrysolina limbata</i> L.	c	c	c				r					r	r	
137. <i>Ch. sanguinolenta</i> L.****												r		
138. <i>Ch. gypsophilae</i> Kust°	a			a	c		c			c	r			
139. <i>Ch. analis</i> L.		r									r			
140. <i>Ch. marginata</i> L.°	a	c	c	c	c	c	c	c	c	c	a			
141. <i>Ch. staphylea</i> L.°	c	c	c		c		r			r	r			
142. <i>Ch. polita</i> L.	c	c	c				r				c			
143. <i>Ch. lurida bakuensis</i> Lop.°	a	a	a	a	a	a		a			a			
144. <i>Ch. violacea</i> Mull.	r	r			r	r		r			a			
145. <i>Ch. daghestanica</i> Rtt.	c										c			
146. <i>Ch. fastuosa</i> Scop.	c	c			r	r					c			
147. <i>Ch. chalcites</i> Germ.	c		r	r	c			c						
148. <i>Ch. morio</i> Kryn*			r											
149. <i>Ch. azerbaijanica</i> Fald.						r					r	r	r	
150. <i>Ch. hyrcana</i> Wse°	r		r		c				r		c	r	r	r
151. <i>Ch. salviae</i> Germ.		r			c	r	r				c	r	r	
152. <i>Ch. hyperici</i> Forst°	a	c	c				r	r		r	a	r	r	r
153. <i>Ch. geminata</i> Payk									r				r	
154. <i>Ch. quadrigemina</i> Sffr.			r							r		r	r	
155. <i>Ch. sahlbergi</i> Men.°	a		a		a	a	a	a	a	a	a	a	r	r
156. <i>Ch. haemoptera</i> L.*				r									r	
157. <i>Ch. cerealis</i> L.°	r	r	r		r					r	r	r	r	
158. <i>Ch. varians</i> Schall.*	c												r	
159. <i>Ch. graminis</i> L.**					r								r	
160. <i>Ch. menthastris</i> Suffr°	a	a	a	a	a	a	a	a	a	a	a	a	a	a
161. <i>Ch. coeruleans spelendorifera</i> Motsh.		r									c	r	r	r
162. <i>Ch. coeruleans angelica</i> Rche.					r						r	r	r	
163. <i>Ch. salviae sculptipennis</i> Fald		r									r	r		r
164. <i>Ch. coeruleans</i> Scriba****											r			r
165. <i>Colaphellus sophiae hoelti</i> Men.°	c	c	c	c	c			c	c	c	c	r	r	r
166. <i>Plagioderma versicolora</i> Laich.°	c		c	c	c			c	c	c	c	r	r	r
167. <i>Chrysomela vigintipunctata</i> Scop.	c	c	c	c								r	r	
168. <i>Ch. populi</i> L.°	a	a	a	a	a	a	a	a	a	a	a	a	r	r
169. <i>Entomoscelis adonidis</i> Pall°	c	r	r	r	r	c	c	c		c	r	r	r	r
170. <i>E. pilula</i> Lop.°	c		r	r	r	c	r		c	c	c	r	r	r
171. <i>E. suturalis</i> Wse°	c	a	a	r	c		r	r	c	c	r	a	a	r
172. <i>Gastrophysa polygoni</i> L.°	a	a	a	c	c	c	a	a	a	a	a	a	a	r
173. <i>G. viridula</i> Deg.	c									c	r	r	r	r
174. <i>Phratora vitellinae</i> L.	r	r		r							r	r	r	
175. <i>Ph. atrovirens</i> Corn.	r	r									r	r	r	
176. <i>Prasocuris junci</i> Brahm	r										c		r	
177. <i>Phaedon cochleariae</i> F.	c		c								r	r	r	
178. <i>Ph. armoraciae</i> L.	c									r			r	
179. <i>Ph. graminis</i> Duft.	r									r			r	
180. <i>Ph. laevigatus</i> Duft.*	c												r	
181. <i>Gonioctena olivacea</i> Forst*			r	r								r	r	
182. <i>Neophaedon pyritus</i> Rossi		r		r						r	r	r	r	
<b>Subfamily Galerucinae</b>														
183. <i>Galeruca tanacetii</i> L.°	c	c	r	r	r	c	c	r	c	c	c	r	r	r
184. <i>G. pomonae</i> Scop.°	c	r	r			c			c	c	c	r	r	r
185. <i>G. hyrcana</i> L.Medv. et Mirz.****											r	r	r	
186. <i>G. spectabilis</i> F.°	c		r			c			r	r	c	r	r	r
187. <i>G. spectabilis lacericollis</i> Sem.****											r		r	
188. <i>G. intererrupta circumdata</i> Duft.°	c	c	c	c	c	a	a	c	r	r	c	r	r	r
189. <i>G. interrupta azerbaijanica</i> Wse	c	c	c					r			r		r	
190. <i>G. rufa</i> Germ.					r						r		r	

Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
191. <i>Theone silphoides</i> Dalm****											r		r	
192. <i>Diorhabda fischeri</i> Fald.°	c	c	c	c	c	c	c	c	c	c	c	r	r	r
193. <i>D. persica</i> Fald.°	c		c	c		c	c			r	r	r	r	r
194. <i>D. elongata</i> Brulle°	c	c	c	c	c		c	c	c	c	r	r	r	r
195. <i>Lochmaea suturalis</i> Thoms	c				r								r	
196. <i>L. caprea</i> L.	c	c	c	c	c	c					c	r	r	r
197. <i>L. crataegi</i> Forst.	c	c	c	c	c	c					c	r	r	
198. <i>Pyrrhalta viburni</i> Payk.**					r								r	
199. <i>P. luteola</i> Muil.°	a	a	a	a	a	a	a	a	a	a	a	a	r	r
200. <i>P. lineola</i> F.°	c			c	c					c	c		r	
201. <i>P. tenella</i> L.°	c				r	r				r			r	
202. <i>P. calmariensis</i> L.°	r	c	r			r				a	a	r	r	
203. <i>P. pusilla</i> Duft.	r			r						r	c		r	
204. <i>P. nymphaeae</i> L.	r					r						r	r	
205. <i>Phyllobrotica elegans</i> Kz.	c	c	c		r	c				r		r	r	
206. <i>Falsoexosoma cyanipennis</i> Reitt.				r						r		r	r	
207. <i>Exosoma collare flavipes</i> Heyb.					r		c			r		r	r	
208. <i>Agelastica alni</i> L.	a	a	a		a		a				a	r	r	r
209. <i>Luperus stylifer</i> Wse****											r		r	
210. <i>L. orientalis</i> Fald	c		c		r						c	r	r	r
211. <i>L. xanthopoda</i> Schrnk.°	c	c	c	c	r	c				c	a	r	r	r
212. <i>L. azerbaijdzhanicus</i> Kiesw.°	r		r		r					r	r	r	r	r
213. <i>L. kiesenwetteri</i> Joann	c	c	c			c	r				r	r	r	r
214. <i>L. discolor</i> Fald****											r		r	
215. <i>L. floralis</i> Fald****											c	r	r	r
216. <i>L. longicornis</i> F.				r	r						r		r	
217. <i>L. caucasicus</i> Weise**					r								r	
218. <i>L. viridipennis</i> Jac*		c											r	
219. <i>L. flavipes</i> L*		r											r	
220. <i>Euluperus xanthopus</i> Duft.	r		c			c					c	r	r	r
221. <i>E. xanthopus virescens</i> Ws.			r								a	r	r	r
222. <i>Monolepta russica</i> Guel**					c								r	
223. <i>Sermylassa halensis</i> L.			c							r	r		r	r
<b>Subfamily Alticinae</b>														
224. <i>Derocrepis rufipes</i> L.*												r	r	
225. <i>D. serbica</i> Kutsch.*			c	c								r	r	
226. <i>Epithrix pubescens</i> Koch°	r	r			r	c				r	c	r	r	r
227. <i>E. intermedia</i> Foudr. ****											r		r	
228. <i>E. atropae</i> Foudr.**					r								r	
229. <i>Crepidodera fulvicornis</i> F.	c			c				c		r	c		r	
230. <i>Cr. plutus</i> Latz. ****											r		r	
231. <i>Cr. aurata</i> Marsh.°	c	c	c		r			r		r	c	r	r	r
232. <i>Asiolestia ferruginea</i> Scop.			r			c					r	r		r
233. <i>A. crassicornis</i> Fald	c		c			r					c	r		r
234. <i>A. tarnsversa</i> Marsh.		r									c	r		r
235. <i>A. impressa</i> F.****											c	r	r	r
236. <i>Altica tamaricis</i> Sch.°	c		c		r	r	c	c	c	c	c	r	r	r
237. <i>A. quercetorum</i> Foudr.	c	c									c	r	r	
238. <i>A. ampelophaga</i> Guer.*	c	c	c									r	r	
239. <i>A. impressicollis</i> Reiche	r										r	r	r	
240. <i>A. lythri</i> Aube****											c		r	
241. <i>A. brevicollis</i> Foudr			a	c	a	c					c	r	r	
242. <i>A. deserticola</i> Wse°	c		c		r	r	c		c	c	c	r	r	r
243. <i>A. oleracea</i> L.°	r	r				c			r	r	c	r	r	r
244. <i>A. carduorum</i> Guer.°	c	r	r	r	c				r		c	r	r	r
245. <i>A. palustris</i> Wse								c	c	c	c		r	



Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
246. <i>A. viridula</i> Wse			c								c	r	r	
247. <i>A. breviscula</i> Weise****											c	r		
248. <i>Mantura mathewsi</i> Steph.****											r		r	
249. <i>Podogrica malvae</i> Ill o	a	a	a	c		a			c	c	c	r	r	
250. <i>P. menetriesii</i> Fald.	a			c	c	c					c	r	r	r
251. <i>P. fuscicornis</i> L.	c	c	c		c	c					r	r		
252. <i>Batophila fallax</i> Wse		r	r								r		r	
253. <i>Phyllotreta armoraciae</i> Koch***										r			r	
254. <i>Ph. latevittata</i> Kutsch				r	r	c			r	r	r		r	
255. <i>Ph. undulata</i> Kutsch.	c										r		r	
256. <i>Ph. vittula</i> Redt. o	c	c	c			c		r		r	c	r	r	r
257. <i>Ph. nemorum</i> L.			c		r					r	c	r	r	r
258. <i>Ph. flexuosa</i> Ill.					c						c		r	
259. <i>Ph. striolata</i> F.****											r		r	
260. <i>Ph. ochripes</i> Curt.	r	c		r	r						c	r	r	
261. <i>Ph. exclamations</i> Thub.*	c			r									r	
262. <i>Ph. balcanica</i> Hutg.****											a	r	r	
263. <i>Ph. atra</i> F. o	a	a	a	a	a	a	a	a	a	a	a	a	a	a
264. <i>Ph. aerea</i> All.			r	r							r		r	
265. <i>Ph. corrugata</i> Reiche				r	r								r	
266. <i>Ph. nigripes</i> F.	r	c		r	r	c					a	r	r	r
268. <i>Ph. procera</i> Red.**					r								r	
269. <i>Ph. diademata</i> Foudr.			r	c					c				r	r
270. <i>Ph. nodicornis</i> Marsh.****											r		r	
271. <i>Ph. praticola</i> Wse.	c										r		r	
272. <i>Ph. linnaei</i> L.*	r												r	
273. <i>Aphthona lutescens</i> Gyll****											r		r	
274. <i>A. cyparissiae nigricutis</i> Fdr.				r							a		r	
275. <i>A. nigriceps</i> Redt.	r										r		r	
276. <i>A. flava</i> Gyll.****											r			r
277. <i>A. abdominalis</i> Duff.			r							r	r		r	
278. <i>A. flavipes</i> All.	c	c	r		c						c		r	
279. <i>A. nonstriata</i> Goeze****											r		r	
280. <i>A. lacertosa</i> Ros.****											r		r	
281. <i>A. gracilis</i> Fald.****											r		r	
282. <i>A. euphorbiae</i> Schrnk. o	a	a	a	a			a			a	a	r	r	
283. <i>A. semicyanea</i> All.			c	r									r	
284. <i>A. pygmaea</i> Kutsch.****											r		r	
285. <i>A. grossa</i> Khn.**							r					r	r	
286. <i>Longitarsus obliteratus</i> Rosh.	r		c			r	c		r				r	
287. <i>L. anchusae</i> Payk**						r							r	
288. <i>L. parvulus</i> Payk		r			r						c		r	
289. <i>L. violentus</i> Wse*				r									r	
290. <i>L. linnaei</i> Duff.°	a	c	c	r		c			c		c	r	r	
291. <i>L. holsaticus</i> L.****											r		r	
292. <i>L. luridus</i> Scop.****											c		r	
293. <i>L. melanocephalus</i> Deg.			r							r	c		r	r
294. <i>L. tabidus</i> F.						r					c	r	r	
295. <i>L. nigrofasciatus</i> Goeze****											c		r	
296. <i>L. lycopi</i> Foudr.	c		c								a	r	r	
297. <i>L. atricollis</i> L.			c	r					r	r	a	r	r	r
298. <i>L. suturellus</i> Duft.***								r					r	
299. <i>L. nasturtii</i> F.***										r			r	
300. <i>L. exoletus</i> L.				r						r	r		r	r
301. <i>L. pratensis</i> Panz.		c	c		r				c		r		r	
302. <i>L. jacobacea</i> Wat.*			r										r	
303. <i>L. rubiginosus</i> Foudr.****											a		r	r

Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
304. <i>L. succineus</i> Foudr.	r			r							r		r	
305. <i>L. pellucidus</i> Foudr.	a	c	c	r	r					r	a	r	r	r
306. <i>L. suturalis rubenticollis</i> All.****											r		r	
307. <i>L. fuscoaeneus</i> Redt.****											r		r	
308. <i>L. nanus</i> Fdr.****											r		r	
309. <i>L. ochrolencus</i> Marsch.					r						r		r	
310. <i>L. fulgens</i> Foudr.****											r		r	
311. <i>L. longipennis</i> Kutsch.*				r									r	
312. <i>L. dimidiatus</i> All.			r							r			r	
313. <i>L. membranaceus</i> Foudr.*	r												r	
314. <i>L. pulmonariae</i> Wse**						r							r	
315. <i>L. suturalis</i> Marsch.	r		r			r					r	r	r	
316. <i>L. echii</i> Koch*.	r		r										r	
317. <i>L. picicollis</i> Wse****											r		r	
318. <i>Sphaeroderma testaceum</i> F.			r						r		r	r	r	
319. <i>Sph. rubidum</i> Gmel.			r						r				r	
320. <i>Argopus bicolor</i> Fssch.****											r		r	
321. <i>Chaetocnema coyeyi</i> All.			r	r							c	r	r	
322. <i>Ch. chlorophana</i> Duft.								r			c	r	r	
323. <i>Ch. sheffleri</i> Kutsch.**					r								r	
324. <i>Ch. semicoerulea</i> Koch	c	c						r	r	r	r		r	
325. <i>Ch. concinna</i> Marsh.	c	c	c			c					a	r	r	
326. <i>Ch. breviscula</i> Fald.				c	c	r			c	c	c		r	
327. <i>Ch. major</i> Dav.							c	c	c				r	
328. <i>Ch. hortensis</i> Geoffr.°	a	a	a	r	c	c	r	c	c	c	a	r	r	r
329. <i>Ch. aridula</i> Gyll.°	a	a	a	c	c	c	r	c	c	c	r	a	r	a
330. <i>Ch. arenacea</i> All.****											c	r	r	r
331. <i>Ch. tibialis</i> Ill*				r									r	
332. <i>Dibolia cryptocephala</i> Koch						r					c	r	r	
333. <i>D. cynoglossi</i> Koch****											r	r		
334. <i>Psylliodes attenuata</i> Koch	r				r								r	
335. <i>Ps. chrysocephala</i> L.°	a	a	a	r	a	a		r	a	a	a		r	
336. <i>Ps. sophiae</i> Hktg.°	c	c					r	c	c	c	c		r	
337. <i>Ps. napi</i> F.	r				r			r					r	
338. <i>Ps. cuprea</i> Koch°	r		c	c	r				r		r		r	
339. <i>Ps. cupreata</i> Duft.					r					r			r	
340. <i>Ps. persica</i> All.					r	c					c		r	r
341. <i>Ps. affinis</i> Payk	r				r								r	
342. <i>Ps. circumdata</i> Redt.	c								c		a		r	
343. <i>Ps. luteola</i> Mull.*	o	o										r	r	r
344. <i>Ps. hyosциami</i> L.	r					r					c	r	r	
345. <i>Ps. chalconera</i> Ill.						r					c	r	r	
346. <i>Ps. dulcamarae</i> Koch****											r		r	
347. <i>Ps. thalaspis</i> Fdr.**					r								r	
348. <i>Ps. cyanoptera</i> All****											r		r	
<b>Subfamily Hispinae</b>														
349. <i>Acmenychus inermis</i> Zbk.****											r		a	
350. <i>Hispella atra</i> L.°	c			c	c	c	c		c	c	c	r	r	
<b>Subfamily Cassidinae</b>														
351. <i>Chiridula semenovi</i> Wse					r		r			r	c		r	
352. <i>Macromonycha apicalis</i> Gebl.					c						c		r	
353. <i>Ischyronota elevata</i> Rtt	c			c				c	a	a			r	
354. <i>I. desertorum</i> Gebl.			c		c				c	c			r	
355. <i>Pilemostoma fastuosa</i> Sch.*	r												r	

Table 2. (Continue)

Specific compositions of leaf-beetles	Natural regions													
	Great Caucasus				Small Caucasus			Kura-Araks lowland				Belts		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
356. <i>Hypocassida subferruginea</i> Sch.°	a	a	a	a	a	a	a	a	a	a	a	a	r	r
357. <i>Cassida canaliculata</i> Laich.*		r											r	
358. <i>C. viridis</i> L.°	c	c	c		r				r	r	a	r	r	r
359. <i>C. subreticulata</i> Sffr.			r	r	r						r	r	r	r
360. <i>C. saucia</i> Wien°		r	r	c	r					c	r	r	r	
361. <i>C. murraea</i> L.****											c	r	r	
362. <i>C. nebulosa</i> L.°	c	c			c	c			c		a	r	r	r
363. <i>C. 11-notata</i> Gebl.						c	c						r	
364. <i>C. lineola</i> Gz.**					r								r	
365. <i>C. ferruginea</i> Goeze****											r		r	
366. <i>C. seladonia</i> Gyll.						r			r	r			r	
367. <i>C. vibex</i> L.°	c		c		r	c				c	c	r	r	
368. <i>C. pannonica</i> Suffr.							r			r			r	
369. <i>C. rubiginosa</i> Mull.°	c	c	c	c	c					c	c	r	r	r
370. <i>C. palaestina</i> Reiche°	c	c			c	r	r		c		c	r	r	r
371. <i>C. inquinata</i> Brulle°	c	c			c	c	r		r		c	r	r	r
372. <i>C. denticollis</i> Sffr.	c		c		r						c	r	r	
373. <i>C. sanguinolenta</i> Mull.****											r		r	
374. <i>C. prasina</i> Ill.	c				r						c		r	
375. <i>C. parvula</i> Boh.	c				r							r	r	
376. <i>C. nobilis</i> L.	a				c				c		a		r	
377. <i>C. vittata</i> Voet	c										r	r	r	

## Notes to Table 2

° - centrozonal special; \* - only in the Great Caucasus; \*\* - only in the Small Caucasus; \*\*\* - Kura-Araks Lowland; \*\*\*\* - only Lenkoran region; a - abundant species; c - common species; r - rare species.

1 - Sheki-Zakatala; 2 - Guba-Khacmas; 3 - Shemaha-Gobustan; 4 - Apsheron; 5 - Gandja-Dashkasan; 6 - Nagorny Karabakh; 7 - Nakhichevan; 8 - Shirvan; 9 - Myl-karabakh; 10 - Mugan-Salyan; 11 - Lenkoran zone; 12 - Lowland; 13 - Foothills; 14 - Mountains.

detrimental and frequently found species are the following: *Oulema melanopus*, *Lema lichenis*, *Crioceris asparagi*, *Lapidostomis propinqua*, *Smaragdina unipunctata*, *Sm. cyanea*, *Pachybrachys albicans*, *P. fimbriolatus*, *Stylosomis tamaricis*, *Leptinotarsa decemlineata*, *Chrysolina menthastri*, *Chrysomela populi*, *Pyrrhalta luteola*, *Luperus xanthopus*, *Agelastica alni*, *Phyllotreta atra*, *Chaetocnema hortensis*, and *Ch. aridula*.

It can be seen from the above that in the lowland belt of Azerbaijan the fauna of the leaf-eating beetles is rather poorer than in the foothills.

From Table 2 it is obvious that the foothill belt of Azerbaijan is the most abundant in plants. It abounds in fruit tree plantations, vineyards, forest tracts, grain fields, shrubs, and lebage. This belt has favourable climate conditions for growing the cultivated and wild plants that attract many species of leaf-eating beetles. Due to this, the number of species of leaf-eating beetles detected in this belt is rather large, 352 species. Some of

them, such as *Labitostomis decipiens*, *Pachybrachys albicans*, *Leptinotarsa decemlineata*, *Entomoscelis suturalis*, *Gastrophysa polygoni*, *Lochmaea crataegi*, *L. caprea*, and *Luperus xanthopoda* are of some importance for agriculture and forestry.

The third belt, the mountain one, abounds only in wild plants, having shrubs and forest tracts. This zone has a more rigorous climate, which is not favourable for growing any crops. The entomofauna of the zone is poor, consisting of 122 species; the most common of them are *Orsodacne cerasi*, *Oulema melanopus*, *Lilioceris faldermanni*, *Labiostromis longimana*, *Antipa macropus*, *Asiolestia crassicornis*, *Altica deserticola*, *Phyllotreta nigripes*, *Aphthona flava*, *Longitarsus atriculus*, *L. pellucidus*, *Chaetocnema arenacea*, *Psylliodes persica*, *Hypocassida subferruginea* and *Cassida nebulosa*.

Thus, the data presented in this paper show that the species of leaf-eating beetles are distributed between the three vertical belts unevenly. A total of 164 species were

registered as pests of agriculture and forestry. The most harmful ones were *Lema lichenis*, *Pachybrachys albicans*, *Leptinotarsa decemlineata*, *Chrysolina menthastri*, *Chrysomela populi*, *Entomoscelis suturalis*, *Plagioderia versicolora*, *Agelastica alni*, *Lochmea crataegi*, *Pyrrhalta lineola*, *P. luteola*, *Luperus longicornis*, *Altica brevicollis*, *Hypocassida subferruginea*, *Cassida nebulosa* and *C. viridis*.

The results of the investigations carried out over many years showed that leaf-eating beetles appear in different periods in different belts. Thus, in the lowland belt they appear after hibernation in late March or in early April, in the foothill belt during April and in the mountain belt in late April or early May. The difference between the vertical belts in the beetle appearance time is 15-20 days. The appearance of the beetles and their larvae coincides with the appearance of leaves, buds and blossoms on the trees and shrubs.

The analysis of the materials collected showed that not only does the species composition of the beetles feeding on particular plants depend on the natural landscapes but also on the degree of harmfulness of some pests and the economic importance of them and their entomophages as well.

While studying the leaf-eating beetles we tried to study their natural enemies as well. We found that in Azerbaijan 31 entomophage species play a part in the control of leaf-eating beetles. Of the predators, the main part is played by *Pentatomidae*, *Carabidae*, *Coccinellidae*,

*Chrysopidae*, and *Araneida*, and of parasites by *Hymenoptera* and *Diptera*.

The zoogeographic analysis of the leaf-eating beetle fauna of Azerbaijan shows that the fauna is not very unusual. It consists mainly of the common species, which occur in many zoogeographic regions throughout the world. The only relict species is *Falsoexosoma cyannipennis* which was found in the Binagady asphalt deposition (5). It occurs now in Azerbaijan and in southern Iran and Turkmenia (Kopet-Dag) as well.

On the basis of our studies we can ascertain 11 zoogeographical groups of leaf-eating beetles in Eastern Transcaucasia, taking into account the features of the different areas (6,7).

The holarctic complex consists of 5 genera and 8 species, Transpalearctic - 31 genera and 57 species, European and Euro-Siberian - 35 genera and 111 species, Pontic - 20 genera and 49 species, Mediterranean - 17 genera and 36 species, Eastern Mediterranean - 15 genera and 35 species, Iranian-Transcaucasian - 14 genera and 30 species, Turanian - 9 genera and 14 species, Caucasian endemics - 8 genera and 16 species, and Transcaucasian - 13 genera and 21 species (of them 12 species are Azerbaijanian endemics).

Thus, European, Euro-Siberian, Pontic and Mediterranean groups are dominant in terms of the species numbers and they are the basis of the leaf-eating beetle fauna of Azerbaijan (about 67.7%).

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