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Annals of Biological Research, 2015, 6 (5):33-38
(http://scholarsresearchlibrary.com/archive.html)

Annals of Biological Research
Scholars Research Library
ISSN 0976-1233
CODEN (USA): ABRNBW

Modern state of the red book mammalia and insecta in the Azerbaijan territories of the Greater Caucasus

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ABSTRACT

The paper contains information about mammals and insects entered the Red Book of Azerbaijanand the Red List of IUCN distributed in the Azerbaijan territories of the Greater Caucasus (South and North slopes). Researche carried out in the 2008-2012 years.

Key words: red book, national park, IUCN

INTRODUCTION

The South and North slopes of the Azerbaijan territory of the Greater Caucasusis suffered from antropogenic influence (deforestation, transforming of natural landscapes into agricultural lands) more than other territories. It is one of the main reason of the decreasein number of fauna and flora of the territory.

It should be noted that at the present time on the territory of Azerbaijan the concept of conservation of biodiversity and sustainable use of it on a scientific basis isrealized. Accordingly, to ensure product safety, wildlife resources have a special place. Having into consideration the above; we can see how it is actual tostudy the fauna of rare, economically important species of mammals and insects that live in Azerbaijan. Assessment of the current state of species with special status allows elaboration of measures for their protection.

Key words: Red Book, Red List of the IUCN, category, criterion, endemic

MATERIALS AND METHODS

Dataon populations of mammals and insects collected during the census and visual observations for the period of 2008-2012, in the South and the North - Eastern slopes of the Greater Caucasus, Azerbaijan.

Census of the mammals was carried out according to generally accepted methods [2, 3, 4, 5]. The Red Book of Azerbaijan [6] and IUCN Red List were used as well.Insects were recorded visually.

RESULTS AND DISCUSSION

Check list of the mammals and insects recorded in the South and North-Eastern slopes of the Greater Caucasus is given inthe table. The *Talpa levants*Thomas, 1906 from the order Insectivora entered the second edition of the Red Book of Azerbaijan [6]. It is found at an altitude of600-2000 m a.s.l. It prefers mesophilous ecosystems (particularly forests). Feeds on insects and earthforms mainly.

Table
Rare and disappearing species of mammals and insects occured in the South and North-Eastern slopes of the Greater Caucasus

№	Name of species	Status of the species (second edition of the Azerbaijan Red Book(ARB); IUCN)
	Class-Mammalia Order-Insectivora	
1	*Talpalevantis* Thomas, 1906.	ARB; LC. IV.1; IUCN
	Order-Chiroptera	
2	*Rhinolophushipposideros*Bechstein, 1800	ARB; LC. IV.2; IUCN
3	*Myotis bechsteinii* Kunhl, 1817	ARB; NT. IV.1; IUCN
4	*M.emarqinatus*Geoffroy, 1806	ARB; LC; II.4; IUCN
5	*M.blythii* Tomas, 1875	ARB; NE. II.4; IUCN
6	*Barbastellabarbastella*Scheber, 1774	ARB; NT.; IV.1
7	*Barbastellaleucomelas*Cretzchmar, 1826	ARB; LC; II.3; IUCN
8	*Eptesicus bottae* Peters, 1869	ARB; LC; IV.1; IUCN
	Order-Rodentia	
9	*Hystrix indica*Kerr. 1792	ARB; LC; II.4; IUCN
10	*Micromys minutus* Pollas, 1771	ARB; LC; II.4; IUCN
11	*Chionomys gud* Satunin,1909	ARB; LC; II.4; IUCN
12	*Hyaena hyaena* Linnaeus, 1758	ARB; NT; II.3; IUCN
13	*Ursusarctos*(Linnaeus, 1758)	ARB; LC; II.3; IUCN
14	*Martes martes*(Linnaeus, 1758)	ARB; LC; II.3; IUCN
15	*Mustela (Mustela) erminea*, 1758	ARB; LC; IV.1.; IUCN
16	*Lutralutra*(Linnaeus, 1758)	ARB; NT; II.3.; IUCN
17	*Telus (Chaus) Chaus* Gued., 1776	ARB; LC; II.4
18	*Lynx lynx*(Linnaeus, 1758)	ARB; LC; II.3; IUCN
19	*Pantherapardus*(Linnaeus, 1758)	ARB; NT; II.3; IUCN
20	*Rupicara rupicapra*(Linnaeus, 1758)	ARB; LC; II.3; IUCN
21	*Capreolus capreolus*(Linnaeus, 1758)	ARB; LC; II.3; IUCN
22	*Cervus elaphus maral* (Ogilbi, 1840)	ARB; LC; II.3
23	*Capra cylindricornis* Bulth, 1840	IUCN;Endemic to Caucasus
	Class Insecta Order Coleoptera	
24	*Carabus (Procerus) caucasicus ssp. caucasicus* Adams, 1817.	ARB; NT;II.3. Endemic to Southern Caucasus
25	*Calosoma(Acalosoma)inquisitor* (Linnaeus, 1758).	ARB; NT; II.3.
26	*Calosoma (Calosoma) sycophanta* Linnaeus, 1958.	ARB; NT; II.3.
27	*Lucanus cervus*(Linnaeus, 1758)	ARB; CR; II 4
28	*Rhaesus serricollis* Motschulsky, 1838	ARB; VU; II.3.
29	*Necydalis major* Linnaeus, 1758	ARB; VU; II.4., IV.2.
30	*Rosalia alpina*Linnaeus, 1758	ARB;VU; II.3, IV.2.; IUCN
	Order Lepidoptera	
32	*Colias thisoa* Ménetries, 1832	ARB; NE.II.3, II.4.
33	*Colias aurorina* Herrich-Schäffer, 1850	ARB; NE.II.3, II.4.
34	*Manduca atropos* Linnaeus, 1758	ARB; NE.II.3, II.4.
35	*Parnassius apollo* Linnaeus, 1758	ARB; NE.II.3, II.4.
36	*Parnassius nordmanni* Ménétries, 1850	ARB; NE.II.3, II.4.
37	*Pseudochazara alpina* Staudinger, 1878	ARB; NE.II.2, II.3.
38	*Chariclea delfinii Linnaeus, 1758*	ARB; NE.II.2, II.3.
39	*Collimorpha guadripunctaria Poda, 1761*	ARB; NE.II.2, II.3.

Rhinolophushipposideros (Lesser horseshoe bat)is prone to living in the rain forests and urban landscapes situated in the 600-2300 m.a.s.l.The species is small in numbers but the populationis stable in the studied area.***Myotis bechsteinii***-(Bechstein's Myotis)lives in woodlands. The species is rare and less common.It is found in the Noth-Eastern part of the area (Gabala district); ***M.emarqinatus*** -(Geoffroy's Myotis)- occurs in arid landscapes, at the height of 1000 m. In the studied area the species is often found in surroundings of Mingachaur district and Bozdagh mountain ridge. It lives in colonies consisted of 1000-1200 individuals; ***M.blythii***(Lesser mouse-eared myotis)–lives in both lowlands and at the height of 2300-2500 m, it is abundant in the mountainous woodlands and meadows; ***Barbastella barbastella***– (Westernbarbastelle)occurs in the woodlands and mountainous landscapes of the Noth-Eastern part of the area at the height of 1500 m. It is a sedentary species and rare in everywhere; ***B.leucomelas*** – (Asianbarbastelle)is occursin arid landscapes from 600 m to 1600 m. a.s.l. rare species. Habitats are protected according to Bern convention.***Eptesikus bottae***– (Botta's serotine)occurs in the estuary of Gabyrry and Ganikh rivers and in surroundings of Mingachaur district. It is rare and prefers the arid landscapes situated at the heght of 500-700 m a.s.l.

Studied area represents 14 species of order*Rodentiya*, of wahich 3 ones entered the ARB and IUCN red list (Table).

Hystrix indica - (Indian porcupine) the typical represent of the order living in the different parts of the studied area. It is recorded in the territories of the Eldar shamy State Nature Reserve, Korchay State Nature Reserveand ShahdaghNP; ***Micromys minutus***- (Eurasian harvest mouse) is very rare species distributed in the North-Eastern part of the studied area, particularlyin the fields of cereal crops and forest - field landscapes; ***Chionomys gud***– (Caucasian Snow Vole)is distributed in the rocky landscapes of the alpine belts of the North – Eastern part of the Greater Causus at a height of 800-900 m and 3000 m. Rare species.

Order *Carnivora* (predators) is represented by 16 species, of which 7 ones entered the Red Book of Azerbaijan and Red List of the IUCN. ***Hyaena hyaena***-(Striped Hyaena)footprints of the species has been recorded in the low arid landscapes (Mingachaur, Gobustan, Akhar-Bakhar, Bozdagh və Palantokan ridges). Rare species; ***Ursus arctos***– (brown bear) occurs in mountainous woodlands, sometimes found on bare highlands of the studied area(Shahdagh hNP, Altyaghach NP). Its population in Azerbaijan is consisted of 500-700 individuals; ***Martes martes***–(European pine marten)occurs in the North-Western part of the studied area. It is abundant. Prefers the landscapes with chetsnut, cherry tree, linden, hornbeam trees. It usually makes dens in hollow trees. Rare species. EnteredIUCN Red List; ***Lutra lutra*** – (European otter) occurs in the middle forest belts with small rivers, springs and other sources of water in the North-Eastern part of the studied area. Very small in number entered the Red List of the IUCN. ***Felus chaus*** – (jungle cat)occurs in the North-Eastern part (Samur-Shabran, Guba-Gusar) of the studied. ***Lynx lynx*** - (Eurasian lynx) lives in the woodlands and bare landscapes of the South and North parts of the studied area. Rare species entered Red Book of Azerbaijan and Red List of the IUCN.; ***Panthera pardus*** - (leopard) could survive in the Akhar-Bakhar ridge in the northern part of the Mingachaur water reservoir. It is under threat of disappearing. There 5 species of the order *Artiodactyla* live in the studied area. Of them 3 ones entered the Red Book of Azerbaijan and the Red List of the IUCN. ***Capra cylindricornis*** – (East Caucasian tur)is an endemic species of Caucasus entered the Red List of the IUCN. ***Capreolus capreolus***-(*Roe deer*) is found in the South-East and a little in the North-east parts of the studied area. Lives in sparse forests of the lower layer with rare shrubs, foothill landscapes, woodlands and open spaces of middle layer. At present in the study area preferably lives 500-550 heads [2, 3].***Cervus elaphus*** - (Red deer) Prefers the South and North-West slopes of the Greater Caucasus. Depending on seasons it can live in all biotopes from middle forest belts to alpine landscapes. We counted 450-500 heads of deer in the Azerbaijan territories of the Greater Caucasus [1].***Rupcapra-rupicapra*** (Caucasian chamois) Lives in the North-West and South territories of the studied area. Depending on season of the year it is found in heights from 600-700 m to 1500-3000 m a.s.l.They prefer middle and alpine rocky belts to live. We calculated 250-300 heads of Caucasian chamois in studied areas [1].

Carabus (Procerus) caucasicus ssp. caucasicus **Adams, 1817.** It is widespread species. Endemic to Southern Caucasus.In Azerbaijan it is found in foothills andmountains up to 1200 m a.s.l. in the Greater Caucasus and Caucasus Minor (surroundings of Shusha, Dashalty gorge).Beetles can be found in nature from early spring to mid summer. Mating and oviposition occur in the late spring. Larvae develop in summer. Beetles of new generation hatch at the beginning of September and go to winter in October.

Calosoma(Acalosoma)inquisitor **(Linnaeus, 1758).** Rare species.The length of body is 15-28 mm. Worldwide distribution: Iran, CentralEurope, Caucasus, Central Asia, far East. In Azerbaijan it can be found on the crown and bark of the trees or on the ground in the Shabran and Ismayilli deciduousforests.Both adult and larvae feed on caterpillars or pupae of gypsy moths, geometrids,browntail, oak silkworm,pea-green oak twist. Gives one generation in a year. Adults active from April to June and can live several years.Antropogenic influence on habitats, insecticide applied to decrease number of pests are the limiting factors[20]

Calosoma (Calosoma) sycophanta **Linnaeus, 1958.**The body length is 21-35 mm. Elytra are golden-green with a metallic sheen.Distributed in Europe, Asia and Caucasus. In Azerbaijan it is found on the ground or on the bark or branches of the trees in the deciduous plain and mountain forests. Small numbered species, however its number can increase during the outbreak of gypsy moth.Adult can live up to 2-4 years. The beetle overwinter under the bark, in rotten wood. The eggs are laid into the ground, the larvae develop within 2-3 weeks feeding ondifferent leaf-eating larvae (gypsy moth,lackey moth, geometrids)[12, 13].

Lucanus cervus**(Linnaeus, 1758).**The status of this beetle is very critical in Azerbaijan. The woldwide distribution: Central, Southern and Western Europe, Asia Minor, Azerbaijan (Greater Caucasus, Caucasus Minor). Beetles appear from May to July. Adults feed on tree sap. Females ley eggs in the deceing wood in the ground. Larvae feed on rotten wood[15].Depending on the thermic situation of the habitat the development of one generation can last 4-6 years. *L.cervus* is the biggest representative of the family *Lucanidae* in Azerbaijan [7].It is under the threat of disappearing in Azerbaijan. The main limiting factor is the loss of habitats and uncontrolled catch of beetles. Now *L.cervus* entered the Red book of Azerbaijan.

***Rhaesus serricollis* Motschulsky, 1838.** The length of the body in males is30-40 mm, in females 60 mm. Distributed in Albania, former Yugoslavia, Greece, Baulgaria, Turkey, Iran, Syria, Russia, Georgia, Armenia, Azerbaijan (Sheki-Zagatala, Guba-Khachmaz and Shirvan)[16, 17]. Inhabits the deciduous forests of the middle and low mountain belts. It can be found at a height up to 1500-2000 m a.s.l. Adults appear from June to September. *Rh.serricollis* is a nocturnal beetle. Larvae feed mainly onbeech and poplar, sometimes plane, walnut, willow, lime tree, chestnut and other deciduous trees.Development of one generation lasts up to 3 yeras. Main factors of limiting number is anthropogenic influence on habitats. It is necessary to limit the cutting of old deciduous trees in the habitat of beetles and to prohibit catch of beetles[18].

***Necydalis major* Linnaeus, 1758.**Rare species. Sensitive to negative factors.Body length is 21-32 mm. Worldwide distribution: Caucasus,Russia, Eastern Europa, Japan. In Azerbaijan the species was found in the mix forests of the Guba-Khachmaz region[18]. Adult are active in June-July. Beetles are chiefly found on old dry and decaying willow.The beetles spend a hidden life. The generation develops within 2 years[19]. Limiting factors are the cutting of old deciduous trees and destroying of habitats.

***Rosalia alpina*Linnaeus, 1758**(Rosalia longicorn)**.** Worldwide distribution: Western Europe, South-Western Ukraine, Caucasus, Syria, Palestine. In Azerbaijan it is found in the Greater Caucasus and Causus Minor at a heigh ofup to 1500m a.s.l.[12, 13].Prefers the dry and decaing beech. Aduls appear in July till the late August. One generation developswithin 3 years. By day beetles are more active. Very rare species in Azerbaijan. Habitats are suffered from negative antropogenic factors..

***Colias thisoa* Ménetries, 1832.** The wingspan of the butterfly is 45-50 mm. It is found in the ShahdaghNational Park, Daralayaz and Zangazour mountain ridges of the Lesser Caucasus [7]. For habitat it prefers steep mountain slopes with alpine vegetation, especially with milk vetch at the height of 2000-2500 m a.s.l. The adults appear in the nature late June and early July and the females lay eggs on milk vetch. The larvae feed on Astragalus species. It gives one generation a year. Rare species. Habitats of the butterfly is used as a pastures for cattle.The reasonfor the decline in number of the butterfly is the trambling of the habitats by cattle and lossof host plants. The butterfly has been protected in Azerbaijan since 1980. It is entered the Red Book of Azerbaijan [6].

***Colias aurorina* Herrich-Schäffer, 1850.** Rare species. The wingspan is 60-70 mm. The length of the front wing is 25-31. Distributed in Syria, Lebanon, Turkey, Iran, Greece, Caucasus, Central Asia. In Azerbaijan besides ShahdaghNP (Shamakhy district) it occurs in Nakhchivan (Shahbuz district), Absheron (Altyagach)and Talysh (Zuvand) [7]. Habitats are dry slopes with such xerophilous plants as thyme and tragacanth([8].Flys from late May till late June, sometimes till early July. In order to find females sitting on the grass male fly very low.Sometimes they feed on the thymenectar. Females fly slow and rare.They have twocolor variations: white andbright orange. Eggs are laid on *Astragalus persicus* F. et M. in the second half of June. Larvae hatch in July and early August and feed on leaves of the *A.persicus*. Pupation occurs in the bushes. The butterfly overwinters in pupa stage.It gives one generation in a year. One of the main reasons for reducing the number of this butterfly is uncontrolled catch of them by collectors – lovers and collection of its food plant *A.persicus* by local residents.

Death's-head Hawk-moth-***Manduca atropos* Linnaeus, 1758.** Disappering species.It is the biggest species of hawkmoths distributed in Europe and Caucasuswith the wingspan of 120-130 mm.The butterfly is called as death's-head hawk-mothbecause of yellow human skull-shaped pattern of markings on the thorax.It is distributed in Europe, Canar islands, Azors, Asia Minor, Africaand Caucasus. In Azerbaijan it is found in Shahdaghand Absheron Nationa Parks, Kura-Araz lowland, foothils of the Greater Caucasus and Caucasus Minor, Lachin, Shusha (Dashalty valley, Asgaran), Talysh (Lerik), NakhichivanAR (Ordubad) [7].Eurytopic species. Butterfflies fly in April-May and August – September. Gives two generations in a year. Larvae feed on leaves of potato plant, wild jasmine, datura and develop in June-July and September-October. Pupation occurs in ground. The pupae of the second generation are overwintered. Butterflies can emita loud squeak.They often fly into the beehive and feed on honey.

Mountain Apollo - *Parnassius apollo* Linnaeus, 1758. The wingspan is 70-94 mm. Distributed in Southern andMid Europa, South of European part of the former USSR, Caucasus, Central Asia, Kazakhstan, Western, Earsten and Southern Siberia. In Azerbaijan habitats cover ShahdaghNP, mountains and foothills of the Greater Caucasus and Caucasus Minor (Goygol, daralayaz, Southern slopes of Zangazur ridge, Asgaran, edges of the Topkhana forest in Asgaran district and subalp area of the Zagatala State Reserve). Butterflies fly from the second half of July till the late August. Mating and oviposition occur in the first half of August. Larvae hatch in September. The mountain appollo overwinters in larva stage. Overwintered larvae feed on leaves of *Sedum album* L. in May-June [7].

***Parnassius nordmanni* Ménétries, 1850**.Alpine endemic of the Caucasus with the wingspan of 55-60 mm. In Azerbaijan it is distributed in the alpine meadows of the Greater Caucasus at the height of 3000 m or above

(Shahdagh Massif, Bazarduzu, Babadagh, Guton) [7].Habitats are stony and motley grass alpine slopes and meadows. Butterflies fly and oviposit in August.Larvae feed on leaves of the plants from genus *Corydalis* in August-September and overwinter. They continue to develop in May-June of the next year.Pupation occurs under stones and in the crevices of rocks.Gives 1 generation in a year. The main limiting factors are unrestrained grazing outside the protected areas, habitat transformation, trampling ofby holidaymakers, the commercial collection of butterflies.It is entered entered the Red Book of Azerbaijan [6].

***Pseudochazara alpina* Staudinger, 1878.** Rare Caucasian endemicwith the wingspan of50-60 mm. Distributed in the territories of Shahdagh, Babadagh, and Southern slopes of the Caucasus[7].It inhabitsmountain slopeswith openscreesor rock outcrops.Butterflies fly in the second half of July and August. Larvae feed in spring and early summer on wild cereals. Eggs overwinter. Gives one generation in a year. Natural enemies and diseases are unknown. Limiting factors are uncontrolled catch of butterflies by collectors,destruction of habitats by landslides caused by heavy rains.

***Periphanes delphinii* (Linnaeus, 1758)**– (Pease Blossom)Rare species. The wingspan is28-32mm. It can be found in Central, Southern and Eastern Europe, Russia, Asia Minor,North Africa, Turkmenistan and Georgia. In Azerbaijan the moth is found locally in all regions, particularly in plains, sometimes in foothills and mountain wilderness. Inhabits thexerophitous stations of the plains, deserts, mountain wildernesses. The moth flies from late April to late August. Larvae feed on flowers and fruits of lakrspur, wolfsbane. Probably, the pupae overwinter and the species gives 2 generations in a year [11].The main limiting factor is transformation of habitats into agricultural ecosystems.

***Euplagia quadripunctaria*(Poda, 1761)(Jersey Tiger).** The wingspan is50-52mm. Worldwide distribution: Europe, Russia,the Near East, Caucasus, South Turkmenistan, and Iran[20]. In Azerbaijan it is founded in Shamakhy-Gobustan, Sheki-Zagatala, Lankaran andNagorno Karabakhnatural areas[11]. Inhabits shrubs in foothills and clearings in mountain forests. The moths flies in July and August. Larvae feed in April, May, September and October on plantain, alfalfa, nettle, woodbine and willoweed. Small numbered species. Distributed locally. The main limiting factors are deterioration and the destruction of habitat as a result of overgrazing and uprooting shrubs and plowing under which death of a significant part of fodder plant species occurs).The deterioration of habitats is also due to the increase in recreational pressure, leading to a decrease in forage and to the direct destruction of butterflies (local small populations can be wiped out in a few years).

To sum up it can be noted that from 43 species of mammals and 76 species of insects entering the Red Book of Azerbaijan 23 ones of mammals and 15 species of insects live in the Azerbaijan territories of the Greater Caucasus (South and North slopes) (Table).

REFERENCES

[1] Guliyev S.M. Fauna of Artiodactyla of Azerbaijan (in azery). Baku: “Elm ve Tehsil,**2008**, 24
[2]S.M.GuliyevSomedataonecologyofroedeer, chamoisintheslopesoftheGreaterCaucasus// Teriofauna of Russia and border ingterritories. IX cong. Of the TerriologicalSoci.RAS.**2011**, p.265.
[3]S.M.GuliyevOnstateof*Capreoluscapreolus*L., 1758 inAzerbaijan // News of Samara Scientific Centre of RAS, **2012**, v.14, № 1(8), issue 3, pp. 1898-1902
[4]A.A. Nasimovich To methods of quantitative census of red deer in the Caucasian reservation // Scientific methods on management in reservations. **1941**. issue 8. pp.211-227 (inRussian)
[5]I.V.DzharkovBasicmethodsofcensusofwildartiodactyls // In: Methodsofcensusandgeographicaldistributionofland vertebrates. M, AS of the USSR, **1952**. (inRussian)
[6] Red Book of Azerbaijan Republic. Fauna. II edition. Baku-**2013**. Pp. 90-91 (in Azeri)
[7]R.M.EffendiHigher lepidopterans of Azerbaijan: Author. dis. candidate. biol. Science. Baku, **1971**. 24 p.(inRussian)
[8]M.A.Ryabov Lepidoptera of Caucasus// In..: Animal world of the USSR. V.- M. – L., **1958**, pp.351-475.(inRussian)
[9]K.Lampert, N.KholodkovskiyAtlas of butterflies and larvae of Europe and partly Russian – Asian possessions.S.Petersburg.**1913**. pp.240-241(inRussian)
[10]O.I.Merdzeyevskaya Noctuidae of Belarussia.Publ. «Nauka i Tekhnika», Minsk, **1971**, p.291; 3. (in Russian)
[11] S.V.AliyevNoctuids (Lepidoptera, Noctuidae) of Azerbaijan. Baku. «Elm», **1984**. 209 p. (in Russian)
[12] E.A.Guseynova, I.G.Kerimova, Sh.M.Maharramova, G.I.TozluSome red book species of beetles from the North-Eastern Azerbaijan to day\\ Conf. Devoted to mountains, Georgia, **2002**, pp. 80-81, 132. (in Russian)

[13] I.G.Kerimova, E.A.Huseynova, Sh.M.Maharramovarare beetles in the oil polluted North-Eastern forests of Azerbaijan\\ ANAS, Agrarian Scientific Centre of the Ministry of Agriculture, ASR Plant Protection Institute, Pr. Scientific session. Ganja – **2005**.p.103-107 (in Azeri)
[14] I.A.NuriyevaEcological-faunistik information about some carabid beetles (Coleoptera, Adephaga, Carabidae) of Azerbaijan // Pr. Society of Azerbaijan Zoologists v1. pp.347-350.(in Azeri)
[15] I.D.Batiashvilirare insects. – M.: Forestry, **1982**. – 165 p. (inRussian)
[16] N.N.PlavilshikovLong-horned beetles. Fauna of the USSR.Coleoptera, **1958**.part.23, issue.1.M.-L.591 p.
[17]M.L.Danilevski, A.I.Miroshnikov, Long-horned beetles(Coleoptera, Cerambycidae)of Caucasus. Key.Krasnodar, **1985**.p. 94. (inRussian)
[18] I.G.Kerimova Materials to fauna of long-horned beetles (Cerambycidae) of Azerbaijan \\ I Bekkerov Internationalscientific – practical conf.May 27 May 29, **2010**. pp.401-404. (inRussian)
[19] A.I.Cherepanov Long-horned beetles of Northern Asia (Prioninae, Disteniinae, lepturinae, Aseminae). “Nauka”, Siberian department, Novosibirsk, **1979**.p.396-399. (inRussian)
[20]Dubatolov, V.V., **2010**: Tiger-mothsofEurasia (Lepidoptera, Arctiidae) (NyctemerinibyRobdeVos&VladimirV. Dubatolov). Neue Entomologische Nachrichten 65: 1-106.(inRussian)