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Evaluation of Importance of Teksar Mountain of Armenia for Bird and Butterfly Protection

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Research Article

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Abstract

The Teksar Mountain requires evaluation as a potential Important Bird and Biodiversity Area (IBA) and as a Prime Butterfly Area (PBA), especially because the networks of those areas in Armenia are underdeveloped. There are 131 species of birds recorded in the area, among which 101 are breeding and 30 occur during migration or found in breeding season having this site as part of their foraging range. The site fits several criteria of IBA: A1, B1a, B1b, as well as the criteria of PBA: it hosts a number of globally threatened and nationally threatened species, as well as the regional endemics. The site faces a number of threats, related to poaching, overgrazing, uncontrolled mowing, arsons, small Hydro Power Plants, and potentially – metal mining. The existing Yeghegis State Sanctuary covers only 17% of the valuable ecosystems and doesn't function properly. It is proposed to evaluate the area as an Emerald Site, with further development of the site's management plan. Such a management plan should consider extraction of the area from the public hunting, sustainable grazing and mowing schemes, improvement of the local communities' livelihood through development of wildlife tourism, and an extensive training and educational program.

Keywords: Teksar Mountain; Important Bird Area; Prime Butterfly Area; Conservation; Armenia

Introduction

Armenia as part of the Caucasus ecoregion is included in the list of global biodiversity hotspots [1], having over 17,700 species of animals, including 495 endemic species and over 3,800 species of vascular plants, including 142 endemic species [2]. Only 13% of the country is covered by the network of National Protected Areas [2], and 17% – by the network of Important Bird and Biodiversity Areas – IBAs [3,4].

Currently for the country, there are 18 IBAs recognized [5], and 12 Prime Butterfly Areas (PBAs) evaluated [6]. The recent revision of IBAs shows a necessity of increasing their number in the country [4]. At the same time, the preliminary screening of the country's butterfly fauna, demonstrated potential for at least 20 other PBAs to be evaluated [7]. One of such areas, is the Teksar Mountain, which is located in

the Vayots Dzor province and is bordered by the rivers Arpa from the south and Yeghegis from the north and north-east. The mountain ridge is situated mainly within the elevation range from about 1,700 m to 2,750 m above sea level and is presented by a variety of habitats: tragacanth mountain steppe, alpine meadows and carpets, oak woodland, and juniper woodland. A preliminary screening of the area shows presence of several threatened and endemic species of birds and butterflies, which are inhabiting the range, and thus, it is necessary to evaluate the area versus criteria of IBAs and PBAs. Such evaluation is especially important, as can provide the necessary information for the further assessments of the conservation importance of the area at the national level, or internationally, e.g., as Emerald Site protected under Bern Convention [8].

Therefore, the main purpose of the current article is to evaluate the Teksar Mountain as Important Bird and Biodiversity Area and as a Prime Butterfly area.

Materials and Methods

According to general requirements for recognition of the IBAs, those should fit one or several criteria listed below [9].

- Places of international significance for the conservation of birds and other biodiversity
- Recognized world-wide as practical tools for conservation
- Distinct areas amenable to practical conservation action
- Identified using robust, standardized criteria
- Sites that together form part of a wider integrated approach to the conservation and sustainable use of the natural environment

The identification of Prime Butterfly Areas is based on methodology developed for Europe [10], and local adaptations of that under some local conditions, such as in Turkey [11], Bulgaria [12], and other countries. Therefore, the methodology assigns to designate the Prime Butterfly Area as such, if two of the following have been represented:

- Species included in Red Data book of European butterflies [13].
- Species included in Appendix II of the Bern Convention (on the conservation of European wildlife and natural habitats)
- and/or species include in the EU Habitats and Species Directive, as well as species of national concern listed in Red Book of Animals of the Republic of Armenia.

Therefore, the data needed for assessment of the area include data on bird fauna, data on butterfly fauna, data on existing and potential threats to the birds, butterflies and their habitats, spatial data on land use, spatial data on areas of national or international conservation concern.

Bird Data Collection

For the current assessment of Teksar Mountain we used the data, which was collected in the period of 2003-2022 in frames of the National Bird Monitoring Scheme, developed by BirdLinks Armenia NGO. It includes (1) unstandardized observations (so called opportunistic data) and (2) standardized counts (data, collected according to standard methodology).

Unstandardized observations (opportunistic data) are usually provided by birdwatchers and contain minimum data requirements: precise identification of species, observation date, geographic coordinates, name of nearest locality (human settlement, mountain, historical site, etc.), breeding code, name of observer and his contacts. It is desirable to mention whether all observations have been recorded or the list represents only a selection of species. Every comment is useful (time, observation duration, number of people in the group, etc.). Since it's not always possible to record precise geographical coordinates on the spot, information may be provided according to the 10x10 km square code.

Standardized counts (counts conducted within a certain time), are led both by specialists and birdwatchers, having proper skills [14]. Counts are implemented during a fixed period of 1 or 2 hours, when an observer passes the route in slow motion. It is desirable to make such counts at the time of the day, when birds are most active (as a rule, early in the morning). The best season for bird count is the period between 10th of May and 10th of June, nevertheless, data, collected in March-April and July-August are used as well (for some species, e.g., Bearded Vulture or Eagle Owl, the best period of count of breeding pairs is January-February). With this method, there are more requirements to data: precise identification of species, number of observed or acoustically recorded individuals, observation date, geographical location: 10x10 km square code, coordinates of a beginning of the route, start and end times of the count, name of nearest locality (human settlement, mountain, historical site, etc.), breeding code, name and contacts of observer/s. Collected data are entered into standardized protocols and when the field work is over are inputted into the Database of National Bird Monitoring owned by BirdLinks Armenia NGO.

Both types of data have been collected using the volunteer force – over 300 persons provided the data about this specific area.

Butterfly Data Collection

For the current assessment of Teksar Mountain we used the data, which was collected in the period of 2003-2022 in frames of the National Butterfly Monitoring Scheme,

developed by BirdLinks Armenia NGO. Similar to the bird data, it includes (1) unstandardized observations and (2) standardized counts.

Unstandardized observations (opportunistic data) are usually provided by wildlife lovers and contain minimum data requirements: precise identification of species, observation date, geographic coordinates, name of nearest locality (human settlement, mountain, historical site, etc.), name of observer and his contacts. It is desirable to mention whether all observations have been recorded or the list represents only a selection of species. Since it's not always possible to record precise geographical coordinates on the spot, information may be provided according to the 10x10 km square code.

Standardized counts (counts conducted within a certain time), are led both by specialists and wildlife lovers, having proper skills. The Standardized Transect Counts are better known as Pollard Walks [15]. Routes of transects were laid out to sample representative habitat and ran for 100 m parallel to the slopes. The width of routes was 5 meters. The walks have been implemented during 11:00-13:00 in sunny weather, with the wind speed less than 3 by Boffort Scale. Collected data are entered into standardized protocols and when the field work is over are inputted into the Database of National Butterfly Monitoring Scheme, owned by BirdLinks Armenia NGO [16-20].

Both types of data have been collected using a great volunteer force – over 20 persons in total.

Geographical Data Collection

This includes the boundaries of the candidate Emerald Sites, Key Biodiversity Areas (hereinafter KBAs), and Specially Protected Natural Areas (hereinafter SPNAs).

The spatial data on KBAs was provided by WWF Armenia, the data on candidate Emerald Sites, and SPNAs, as well as on Public Hunting Lands was provided by the Ministry of Environment of RA.

Threat Data Collection

For collection of the data on existing and possible threats we have checked the land ownership, types and scale of various human activities, and interviews of some target groups.

The data on land ownership was collected through the National Cadaster and Department of Protected Areas of the Ministry of Environment.

The data on human activities was collected through the National Statistical Agency and by visiting the sites.

The data on direct threats was collected through the semi-structured interviews of the local farmers and hunters. Additional information on the direct threats was accumulated in this period through social media, specifically the Armenian Ornithological Society (formerly Birding Association of Armenia) group.

Data Processing

The first part of the data processing includes preparation of the area's account, listing the general description of the site, description of characteristics of avifauna and butterfly fauna and the priority species of global and national concern, features of land use and current threats, as well as existing and necessary conservation measures.

The second part of the processing includes evaluation of the features of the area versus criteria of the area as IBA and as PBA, and analysis of the area's overlap with the public hunting lands, with the areas on national and global conservation concern, namely: SPNAs, candidate Emerald Sites, and by KBAs. This part of processing was implemented using ArcGIS 10.0 (Environmental Systems Research Institute, Inc.).

Results and Discussion

General Description

The site is represented by a rather separated mountain which branches off from the Vardenis Mountain Ridge and has an elevation range from 1,700 m to 2,750 m above sea level (Figures 1 & 2) and makes about 12,196 ha. About 83% area of site belongs to the community and about 17% of it is allocated to Yeghegis State Sanctuary. At the same time, 11% of the area is allocated as a public hunting land (Table 1). The southern slopes of the mountain is covered by calcareous grasslands, which at the lower part are represented by semi-desert like formations and shrublands, while with the increase of elevation, those formation are being replaced with the tragacanth mountain steppes. With further increase of elevation, the landscape changes towards grassy mountain steppe, then to meadows, and then to sub-alpine carpets. The northern slope of the ridge has much more rigorous terrain, rich with rocks, cliffs, and screes, and being cut by several deep canyons. The lower part of the northern slope is covered by the scarce juniper woodlands, while the numerous gorges are hosting remains of deciduous woodlands formed by oak, hornbeam, wild plum, hawthorn, and other trees. At the bottom of the northern slope, there is a Yeghegis river, surrounded by riparian woodlands and shrublands.

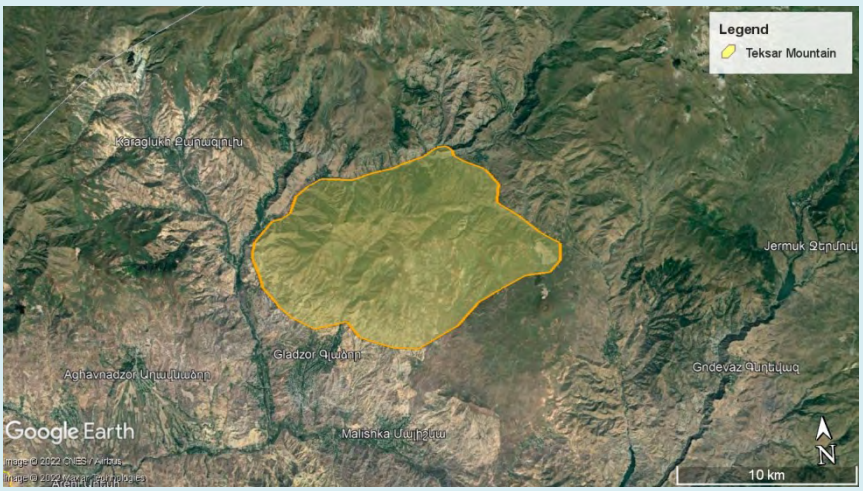

Figure 1: Location of Teksar Mountain.

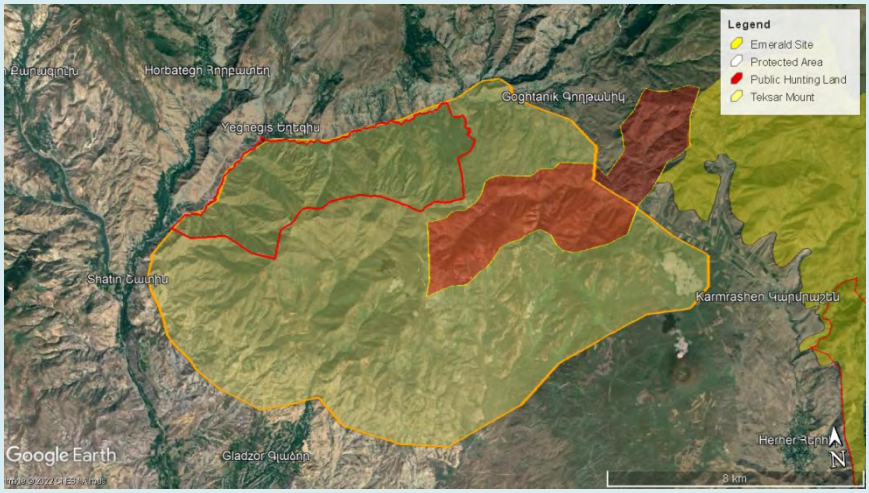

Figure 2: Overlap of various categories of the areas within the boundaries of Teksar Mount site.

Name of Site	Area (ha)	Hunting Lands		Protected Areas		Candidate Emerald Sites		KBAs		Working lands	
		ha	%	ha	%	ha	%	ha	%	ha	%
Teksar Mountain	12,196	1,291	11%	2,080	17%	0	0%	11,232	92%	10,116	83%

Table 1: Allocation of the land at the Teksar Mountain area.

Bird Fauna

There are 131 species of birds recorded in the area (Table 2), among which 101 are breeding and 30 occur during migration or found in breeding season having this site as part of their foraging range. Among the mentioned species, the area is important for breeding populations of high mountain species, such as Caspian Snowcock *Tetraogallus caspius* (B1b), Alpine Accentor *Prunella collaris* (B1b), Crimson-winged Finch *Rhodopechys sanguineus* (B1b), Wallcreeper *Tichodroma muraria* (B1b) and White-winged Snowfinch *Montifringilla nivalis* (B1b). Soaring migrants, like storks, cranes, and raptors, sometimes make congregations in the lower edge of the area, however, the site doesn't or just occasionally might reach the threshold of criteria B3c. The site represents an important breeding and foraging range for such raptors, as Egyptian Vulture (A1), Bearded Vulture (B1a), Short-toed Snake Eagle (B1b), Levant Sparrowhawk (B1b), Golden Eagle (B1b), and Eagle Owl (B1b).

Latin names	English names	Breeding status
PHASIANIDAE		
Tetraogallus caspius	Caspian Snowcock	Breeding
Alectoris chukar	Chukar	Breeding
Perdix perdix	Grey Partridge	Breeding
Coturnix coturnix	Common Quail	Breeding
CICONIIDAE		
Ciconia nigra	Black Stork	Non-breeding
ACCIPITRIDAE		
Pernis apivorus	European Honey-buzzard	Non-breeding
Milvus migrans	Black Kite	Non-breeding
Gypaetus barbatus	Lammergeyer	Breeding
Neophron percnopterus	Egyptian Vulture	Breeding
Gyps fulvus	Eurasian Griffon Vulture	Breeding
Aegypius monachus	Eurasian Black Vulture	Breeding
Circaetus gallicus	Short-toed Snake-eagle	Breeding
Circus cyaneus	Northern Harrier	Non-breeding
Circus pygargus	Montagu's Harrier	Non-breeding
Accipiter gentilis	Northern Goshawk	Breeding
Accipiter nisus	Eurasian Sparrowhawk	Breeding
Accipiter brevipes	Levant Sparrowhawk	Non-breeding
Buteo buteo	Common Buzzard	Breeding
Buteo rufinus	Long-legged Buzzard	Breeding
Aquila pomarina	Lesser Spotted Eagle	Breeding
Aquila nipalensis	Steppe Eagle	Non-breeding
Aquila chrysaetos	Golden Eagle	Breeding
Hieraaetus pennatus	Booted Eagle	Breeding
FALCONIDAE		
Falco naumanni	Lesser Kestrel	Non-breeding
Falco tinnunculus	Common Kestrel	Breeding
Falco subbuteo	Eurasian Hobby	Breeding
Falco cherrug	Saker Falcon	Non-breeding
Falco peregrinus	Peregrine Falcon	Breeding
RALLIDAE		
Crex crex	Corn Crake	Breeding
GRUIDAE		
Anthropoides virgo	Demoiselle Crane	Non-breeding
CHARADRIIDAE		
Vanellus vanellus	Northern Lapwing	Non-breeding
SCOLOPACIDAE		
Gallinago media	Greater Snipe	Non-breeding
Actitis hypoleucos	Common Sandpiper	Breeding
COLUMBIDAE		

Columba livia	Rock Dove	Breeding
Columba palumbus	Common Wood-pigeon	Breeding
CUCULIDAE	CUCULIDAE	
Cuculus canorus	Common Cuckoo	Breeding
STRIGIDAE		
Otus scops	Common Scops-owl	Breeding
Bubo bubo	Eurasian Eagle-owl	Breeding
Athene noctua	Little Owl	Breeding
CAPRIMULGIDAE		
Caprimulgus europaeus	Eurasian Nightjar	Breeding
APODIDAE		
Apus melba	Alpine Swift	Breeding
Apus apus	Common Swift	Breeding
ALCEDINIDAE		
Alcedo atthis	Common Kingfisher	Breeding
MEROPIDAE		
Merops apiaster	European Bee-eater	Breeding
CORACIIDAE		
Coracias garrulus	European Roller	Breeding
UPUPIDAE		
Upupa epops	Eurasian Hoopoe	Breeding
PICIDAE		
Picus viridis	Eurasian Green Woodpecker	Non-breeding
Dendrocopos syriacus	Syrian Woodpecker	Breeding
ALAUDIDAE		
Melanocorypha bimaculata	Bimaculated Lark	Breeding
Calandrella brachydactyla	Greater Short-toed Lark	Breeding
Galerida cristata	Crested Lark	Breeding
Lullula arborea	Wood Lark	Breeding
Alauda arvensis	Eurasian Skylark	Breeding
Eremophila alpestris	Horned Lark	Breeding
HIRUNDINIDAE		
Ptyonoprogne rupestris	Eurasian Crag Martin	Breeding
Hirundo rustica	Barn Swallow	Breeding
Delichon urbica	Northern House-martin	Breeding
MOTACILLIDAE		
Anthus campestris	Tawny Pipit	Breeding
Anthus trivialis	Tree Pipit	Breeding
Anthus spinoletta	Water Pipit	Breeding
Motacilla cinerea	Grey Wagtail	Breeding
Motacilla alba	White Wagtail	Breeding
CINCLIDAE		
Cinclus cinclus	White-throated Dipper	Breeding

TROGLODYTIDAE		
Troglodytes troglodytes	Winter Wren	Non-breeding
PRUNELLIDAE		
Prunella modularis	Dunnock	Non-breeding
Prunella ocularis	Radde's Accentor	Breeding
Prunella collaris	Alpine Accentor	Breeding
MUSCICAPIDAE		
Erithacus rubecula	European Robin	Non-breeding
Luscinia megarhynchos	Common Nightingale	Breeding
Luscinia svecica	Bluethroat	Breeding
Irania gutturalis	White-throated Robin	Breeding
Phoenicurus ochruros	Black Redstart	Breeding
Phoenicurus phoenicurus	Common Redstart	Non-breeding
Saxicola rubetra	Whinchat	Breeding
Saxicola maurus	Siberian Stonechat	Breeding
Oenanthe oenanthe	Northern Wheatear	Breeding
Oenanthe hispanica	Black-eared Wheatear	Breeding
Monticola saxatilis	Rufous-tailed Rock-thrush	Breeding
Monticola solitarius	Blue Rock-thrush	Breeding
Muscicapa striata	Spotted Flycatcher	Non-breeding
Ficedula parva	Red-breasted Flycatcher	Non-breeding
Ficedula semitorquata	Semi-collared Flycatcher	Non-breeding
TURDIDAE		
Turdus torquatus	Ring Ouzel	Breeding
Turdus merula	Eurasian Blackbird	Breeding
Turdus viscivorus	Mistle Thrush	Breeding
Turdus pilaris	Fieldfare	Non-breeding
SYLVIIDAE		
Cettia cetti	Cetti's Warbler	Breeding
Acrocephalus palustris	Marsh Warbler	Breeding
Iduna pallida	Olivaceous Warbler	Breeding
Hippolais languida	Upcher's Warbler	Breeding
Sylvia nisoria	Barred Warbler	Breeding
Sylvia curruca	Lesser Whitethroat	Breeding
Sylvia communis	Greater Whitethroat	Breeding
Phylloscopus trochilus	Willow Warbler	Non-breeding
Phylloscopus collybita	Eurasian Chiffchaff	Non-breeding
Phylloscopus sindianus	Mountain Chiffchaff	Non-breeding
AEGITHALIDAE		
Aegithalos caudatus	Long-tailed Tit	Breeding
PARIDAE		
Parus caeruleus	Blue Tit	Non-breeding
Parus major	Great Tit	Breeding

SITTIDAE		
Sitta neumayer	Western Rock-nuthatch	Breeding
TICHODROMADIDAE		
Tichodroma muraria	Wallcreeper	Breeding
REMIZIDAE		
Remiz pendulinus	Eurasian Penduline-tit	Breeding
ORIOLIDAE		
Oriolus oriolus	Eurasian Golden-oriole	Breeding
LANIIDAE		
Lanius collurio	Red-backed Shrike	Breeding
Lanius minor	Lesser Grey Shrike	Breeding
CORVIDAE		
Garrulus glandarius	Eurasian Jay	Breeding
Pica pica	Black-billed Magpie	Breeding
Pyrrhocorax graculus	Yellow-billed Chough	Non-breeding
Pyrrhocorax pyrrhocorax	Red-billed Chough	Breeding
Corvus corone	Carrion Crow	Breeding
Corvus corax	Common Raven	Breeding
STURNIDAE		
Sturnus roseus	Rose-coloured Starling	Breeding
PASSERIDAE		
Passer domesticus	House Sparrow	Breeding
Passer montanus	Eurasian Tree Sparrow	Breeding
Petronia petronia	Rock Sparrow	Breeding
Montifringilla nivalis	White-winged Snowfinch	Breeding
FRINGILLIDAE		
Fringilla coelebs	Chaffinch	Non-breeding
Fringilla montifringilla	Brambling	Non-breeding
Serinus pusillus	Red-fronted Serin	Breeding
Carduelis chloris	European Greenfinch	Breeding
Carduelis carduelis	European Goldfinch	Breeding
Carduelis spinus	Eurasian Siskin	Non-breeding
Carduelis cannabina	Eurasian Linnet	Breeding
Carduelis flavirostris	Twite	Breeding
Rhodopechys sanguinea	Crimson-winged Finch	Breeding
Carpodacus erythrinus	Common Rosefinch	Breeding
EMBERIZIDAE		
Emberiza citrinella	Yellowhammer	Non-breeding
Emberiza cia	Rock Bunting	Breeding
Emberiza hortulana	Ortolan Bunting	Breeding
Emberiza melanocephala	Black-headed Bunting	Breeding
Miliaria calandra	Corn Bunting	Breeding

Table 2: Bird species, which inhabit Teksar Mountain.

Butterfly Fauna

There are 153 species of butterflies recorded in the area (Table 3). Among the mentioned species, the area is important for such globally threatened species as *Parnassius apollo*, *Maculinea arion*, and *Maculinea rebeli*, and nationally threatened ones, such as *Papilio alexanor*, *Colias aurorina*, *Brenthis ino*, *Tomares romanovi*, *Polyommatus huberti*, *P. erewanensis*, *P. surakovi*, *P. ninae*. Also, the area is critically important for the regional endemics, such as *Satyrus effendi* and *Callophris danchenkoi*.

	Latin names	Status in Red Book of Armenia	Regional endemic
	Hesperiidae		
1	Erynnis tages	NE	
2	Erynnis marloyi	NE	
3	Carcharodus alceae	NE	
4	Carcharodus lavatherae	NE	
5	Carcharodus orientalis	NE	X
6	Muschampia tessellum	NE	
7	Spialia phlomidis	NE	X
8	Spialia orbifer	NE	
9	Pyrgus melotis	NE	
10	Pyrgus sidae	NE	
11	Pyrgus cinarae	NE	
12	Pyrgus serratulae	NE	
13	Pyrgus armoricanus	NE	
14	Pyrgus alveus	NE	
15	Thymelicus lineola	NE	
16	Thymelicus sylvestris	NE	
17	Ochlodes sylvanus	NE	
18	Hesperia comma	NE	
	Papilionidae		
19	Parnassius mnemosyne	VU	
20	Parnassius apollo	VU	
21	Iphiclides podalirius	NE	
22	Papilio machaon	NE	
23	Papilio alexanor	VU	
	Pieridae		
24	Leptidea sinapis	NE	
25	Leptidea duponcheli	NE	
26	Anthocharis cardamines	NE	
27	Anthocharis gruneri	NE	X
28	Anthocharis damone	NE	X
29	Euchloe ausonia	NE	
30	Zegris eupheme	NE	
31	Aporia crataegi	NE	
32	Pontia daplidice	NE	

33	Pontia chloridice	NE	X
34	Pieris bryoniae	NE	
35	Pieris pseudorapae	NE	
36	Pieris ergane	NE	
37	Pieris krueperi	NE	X
38	Pieris rapae	NE	
39	Pieris brassicae	NE	
40	Colias sareptensis	NE	
41	Colias thisoa	NE	X
42	Colias aurorina	VU	X
43	Colias crocea	NE	
44	Gonepteryx rhamni	NE	
45	Gonepteryx farinosa	NE	
	Lycaenidae		
46	Armenia ledereri	NE	X
47	Armenia hyrcanica	NE	X
48	Nordmannia spini	NE	
49	Nordmannia abdominalis	NE	X
50	Callophrys chalybeitincta	NE	
51	Callophrys paulae	NE	X
52	Callophrys danchenkoi	NE	X
53	Tomares romanovi	VU	X
54	Tomares callimachus	NE	
55	Lycaena phlaeas	NE	
56	Lycaena virgaurea	NE	
57	Lycaena tityrus	NE	
58	Lycaena candens	NE	
59	Lycaena alciphron	NE	
60	Lycaena kurdistanica	NE	X
61	Lycaena thetis	NE	
62	Cupido minima	NE	
63	Cupido osiris	NE	
64	Celastrina argiolus	NE	
65	Pseudophilotes vicrama	NE	
66	Glaucopsyche alexis	NE	
67	Maculinea rebeli	VU	
68	Maculinea arion	VU	
69	Plebeius argus	NE	
70	Plebeius (idas) idas	NE	
71	Plebejides zephyrinus	NE	
72	Eumedonia eumedon	NE	
73	Aricia agestis	NE	

74	Ultraaricia crassipuncta	NE	X
75	Cyaniris bellis	NE	
76	Plebejidea loewii	NE	
77	Kretania eurypilus	NE	
78	Neolysandra coelestina	NE	X
79	Agriades pyrenaicus	NE	
80	Lysandra bellargus	NE	
81	Lysandra corydonius	NE	
82	Meleageria daphnis	NE	
83	Polyommatus (icarus) icarus	NE	
84	Polyommatus amandus	NE	
85	Polyommatus dorylas	NE	
86	Polyommatus thersites	NE	
87	Polyommatus (Agrodiaetus) ripartii	NE	
88	Polyommatus (Agrodiaetus) demavendi	NE	X
89	Polyommatus (Agrodiaetus) eriwanensis	EN	X
90	Polyommatus (Agrodiaetus) damon	NE	
91	Polyommatus (Agrodiaetus) cyaneus	NE	X
92	Polyommatus (Agrodiaetus) firdussii	NE	X
93	Polyommatus (Agrodiaetus) vanensis	NE	X
94	Polyommatus (Agrodiaetus) surakovi	EN	X
95	Polyommatus (Agrodiaetus) huberti	EN	X
96	Polyommatus (Agrodiaetus) ninae	VU	X
97	Polyommatus (Agrodiaetus) altivagans	NE	X
98	Polyommatus (Agrodiaetus) iphigenia	EN	
	Nymphalidae		
99	Libythea celtis	NE	
100	Esperarge climene	NE	
101	Lasiommata megera	NE	
102	Lasiommata maera	NE	
103	Melanargia galathea	NE	
104	Melanargia russiae	NE	
105	Melanargia larissa	NE	
106	Coenonympha pamphilus	NE	
107	Coenonympha lyllus	NE	X
108	Coenonympha leander	NE	
109	Erebia aethiops	VU	
110	Erebia graucasica	NE	X
111	Erebia medusa	NE	
112	Proterebia afra	NE	
113	Hyponephele lycaon	NE	
114	Hyponephele lupina	NE	

115	Maniola jurtina	NE	
116	Hipparchia pellucida	NE	
117	Hipparchia syriaca	NE	X
118	Hipparchia fatua	NE	X
119	Hipparchia parisatis	NE	X
120	Brintesia circe	NE	
121	Arethusana arethusa	NE	
122	Satyrus amasinus	NE	X
123	Satyrus effendi	NE	X
124	Pseudochazara pelopea	NE	X
125	Pseudochazara schahrudensis	NE	X
126	Pseudochazara thelephassa	NE	
127	Chazara briseis	NE	
128	Chazara persephone	NE	
129	Chazara bischoffi	NE	X
130	Thaleropis ionia	NE	X
131	Limenitis reducta	NE	
132	Neptis rivularis	NE	
133	Vanessa atalanta	NE	
134	Vanessa cardui	NE	
135	Inachis io	NE	
136	Polygonia c-album	NE	
137	Polygonia egea	NE	
138	Nymphalis xanthomelas	NE	
139	Aglais urticae	NE	
140	Argynnis pandora	NE	
141	Argynnis aglaja	NE	
142	Argynnis adippe	NE	
143	Argynnis niobe	NE	
144	Issoria lathonia	NE	
145	Brenthis hecate	NE	
146	Brenthis ino	VU	
147	Boloria caucasica	NE	X
148	Euphydryas aurinia	NE	
149	Melitaea didyma	NE	
150	Melitaea persea	NE	X
151	Melitaea cinxia	NE	
152	Melitaea arduinna	NE	
153	Melitaea phoebe	NE	

Table 3: Butterfly species, which inhabit Teksar Mountain.

Threats

Significant portion of the area is used as a pastureland for nomadic grazing by surrounding communities. Smaller portion is allocated for haymaking, which faces obstacles of the difficult terrain. Also, the part of the area is included in the public hunting lands (Figure 2), with the lack of control over the hunting, which is increasing the risk of poaching in the area. Such poaching was reported, both: on game birds out of official hunting season and on raptors taken as trophy. At the lower elevation, the area's natural grasslands suffer from the intensive pasture use that causes overgrazing with all the consequences: from a change of plant community to the soil erosion, which is particularly dangerous at this steep area. Another threat comes from human induced fires: the local people often burn *Astracantha* spp. and *Onobrychis cornuta* bushes, either for quick fire for cooking or just for fun. Such a habit can provoke large-scale fires in the area. The next threat comes from the small Hydro Power Plants, which have significantly fragmented the river Yeghegis, and enormously decreased the volume of the water in the river. Such practice affects humidity of the value and makes the ecosystems even more vulnerable to the climatic changes. Eventually, the area was a subject of investigations for the potential mining of color metals. Such project, if accepted, can damage entire habitats and ecosystems, resulting in extermination of the whole populations of the plant and animal species.

Existing and Proposed Conservation Measures

The area is recognized as KBA and is partly included into the Yeghegis State Sanctuary, which however doesn't have neither administration nor a management plan.

The area can be assessed as the Important Bird Area according to the criteria A1, B1a, B1b. Also, the area can be assessed as Prime Butterfly Area, as it hosts a number of globally threatened and nationally threatened species, as well as the regional endemics. In frames of the international programs, it is important to conduct a full assessment of the area as an Emerald Site. Then, the integrated management plan for the area could be developed, which should take into account the priorities of Yeghegis State Sanctuary from one side and the interests of local communities from another. Specifically, such plan should consider the careful impact assessment of all the new infrastructure and especially mining projects, as well as should set up strict protection of the nesting sites of sensitive bird species and the host areas of the patchy distributed butterfly species. Also, the plan should consider sustainable grazing schemes. At the same time, the plan can consider development of wildlife tourism in the area (birdwatching, butterfly-watching, mammal watching, flower-watching etc.), which can create a new value for the wildlife. Such development should be aligned with the education program aimed at local people.

Most of the area is located at the community lands. The rest of the area is used for horticulture and livestock husbandry. Intensive grazing, uncontrolled mowing, and non-coordinated habitat transformation under orchards – are the major threats here. Also, some poaching was reported, both: on game birds out of official hunting season and on raptors taken as trophy.

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