

Fauna and Taxonomy of Locusts and Grasshoppers (Tettigonioidae and Acridoidea) of Zaamin National Nature Park

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Abstract: Orthopteran species, which are widespread in Zaamin National Park in Jizzakh region, are distinct due to their composition and quantity, also promote to an increase in species of natural landscapes and the reproduction of the insects with abundance of nutrients. As a result of scientific research it was identified that there were 4 families of orthopterans belonging to 28 generations including 39 species in Zaamin National Nature Park. Permanent species comprised of 24 species, while the least common were 15 species.

Keywords: Orthoptera insects, orthopterans, family, generation, species, grasshopper, national natural park, landscape, coordinate, imago, larva.

1. Introduction

Zaamin National Nature Park is located in Zaamin district of Jizzakh region of the Republic of Uzbekistan in 25 km away from the center (55 km away from Jizzakh city), 30 km from north to south and 17 km from east to west. The date of formation: September 8, 1976. Area: 24110 hectares, including forest land - 12130 ha; forests - 16783 ha, territories distant from the forest - 7327 ha. Annual rainfall: 700-800 mm. Coordinates: N 39°35'38.51, E 68°19'03.39

Zaamin National Nature Park has attracted a number of researchers by its natural climate of the fauna for its diversity of the species and conditions. [1].

Orthopterans according to the systematic status belong to insect class (Insecta: Orthoptera). There are more than 20,000 species known, 520 species and subspecies of them are widespread in the Republic of Uzbekistan and in other countries of Central Asia, and are divided into 2 subspecies and 3 large families [2,3,9,10]. Of this, over 250 species are the largest orthopterans and are widely spread throughout our country. Despite the fact that the distribution, biological features and ecology of local insects are more widely studied than in other types of insects, these data are incomplete and it is important to study the natural and anthropogenic changes occurring over the next 20-30 years,

and it is also important to study the orthoptera of this area, taking into account the fact that up to this time their species composition has not been sufficiently studied.

Methods of general entomology along with the methods to study composition of orthoptera insects were used at the time of collecting samples of insects. The distribution of orthoptera insects and their density were studied according to the following criteria: insects were collected from 1 to 3 in the case with help of an entomological trap they were considered "very rare species", if from 4 to 10 insects were collected within an hour, they were called "rare species", when 11 to 20 insects - "regular species", and "regular species but are not forming colonies", and if 20 to 100 insects - "species, forming colonies" [7,8].

In Zaamin National Nature Park of Jizzakh region, there were collected 1616 orthopteran insects between 2018 and 2019. Collected samples were taken to the General Entomology laboratory of Zoology Institute of the Academy of Science of the Republic of Uzbekistan. Collected samples under laboratory conditions were divided into taxonomic categories. The results of our study showed that orthopteran studies in the study area represented 4 families, 28 generations, 39 species. (Table - 1).

Table 1: Composition and taxonomic structure of Orthoptera species in Zaamin National Nature Park

Nº	Families	Nº	Generations	Nº	Types
I	Tettigonioidae	1	Tettigonia L.	1	Tettigoniacaudata
		2	Caereocercus Uvarov	2	Tettigoniaviridissima L.
II	Pyrgomorphidae Brunner	3	Pyrgomorpha Aud. Serv.	3	Caereocercus fuscipennis Uv
		4	Chrotogonus Aud.-Serv.	4	Pyrgomorphabispinosadeserti B. Bien.
III	Acrididae Mac Leay	5	Dericorys Serville	5	Chrotogonusturanicus Kuthy
		6	Anacridium Uv.	6	Dericorysalbidula Serville
		7	Calliptamus Aud.-Serv.	7	Anacridium aegyptium
				8	Calliptamus turanicus Serg. Tarb
				9	Calliptamus italicus italicus L.

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		10	Calliptamusbarbaruscephalotes
	8 Heteracris Walk.	11	Heteracrisadpersa
		12	Heteracrispterosticha
	9 EgnatiusStal	13	EgnatiusapicalisStal.
	10 Acrida L.	14	Acridaoxycephala
	11 TruxalisFabr	15	TruxaliseximiaEichw
	12 OchridiaStal.	16	Ochridiahebetatahebetata
	13 EuthystiraFieb	17	Euthystirabrachyptera
	14 DuroniellaI. Bol.	18	Duroniellakalmyka
		19	DuroniellagracilisUv
	15 EpacromiusUv	20	Epacromiustergestinus
	16 AiolopusFieb	21	Aiolopusthalassinus
		22	AiolopusoxianusUv.
	17 Locusta L.	23	Locustamigratoriamigratoria L.
	18 OedaleusFieb.	24	Oedaleusdecorus
	19 OedipodaLatr	25	Oedipodaminiata
	20 AcrotylusFieb	26	Acrotylusinsubricus
	21 SphingonotusFieb.	27	SphingonotusmaculatusmaculatusUv.
	22 Pseudosphingonotus Shum	28	Pseudosphingonotussavignyi
	23 Ramburiella I. Bol.	29	RamburiellafoveolataSerg. Tarb.
		30	Ramburiellaturcomana
	24 DociostaurusFieb	31	Dociostaurus (s.str.) maroccanus
	25 ChorthippusFieb.	32	Chorthippusmeridionalis
		33	Chorthippus (s.str.) angulatusSerg.Tarbinsky
		34	Chorthippus (s.str.)karelini (Uvarov)
		35	Chorthippus (s.str.) dichrous(Eversmnn)
	26 BryodemaFieb.	36	BryodemaheptapotamicumBey-Binko
	27 Chrysochraon	37	Chrysochraondispar (Germer)
IV	TetrigidaeRamb	28	TetrixLatr.
		38	Tetrixsubulata L.
		39	Tetrixtartaratarata

By their lifestyle of orthoptera insects the types of geobionts, epigeobionts, xylobionts and hydrobionts were not found among collected species. Among identified species there were: 2 types - inactive tamnionts, 1 type - active tamniont, 4 types - tamnionts, 1 type -

microtamniont, 6 types - facultative hortobionts, 4 types - cereal hortobionts, 4 types - hortobionts, 6 types - specialized phytophills, 1 - flying migrant, 3 types - gerpetobionts, 5 types - eremobionts, 2 types - psammionts (Table 2).

Table 2: Ecology of Orthoptera of Zaamin National Nature Park

No	Types	Ecology
Tettigonioidae		
1	<i>Tettigoniacaudate</i> Charp.	<i>Inactivetamniont. Regular type.</i>
2	<i>Tettigoniaviridissima</i> L.	<i>Inactivetamniont. Regular type.</i>
3	<i>Caereocerusfusciennis</i> Uvarov	<i>Activetamniont. Rare type.</i>
Tetrigidae		
4	<i>Tetrixsudulata</i> Saulcy.	<i>Gerpetobiont. Rare type .</i>
5	<i>Tetrixtartaratarata</i> Saulcy.	<i>Gerpetobiont. Rare type.</i>
Pyrgomorphidae		
6	<i>Pyrgomorphabispinosadeserti.</i>	<i>Facultativehortobiont. Regular type.</i>
7	<i>Chrotogonusturanicus</i> Kuthy	<i>Gerpetobiont. Regular type.</i>
Acrididae		
8	<i>Acridaoxycephala</i> (Pall.)	<i>Sedge-cereal hortobiont. Regular type.</i>
9	<i>Aiolopusoxianus</i> Uv	<i>Facultativehortobiont. Regular type.</i>
10	<i>Aiolopusthalassinus</i> (F.).	<i>Facultativehortobiont. Regular type.</i>
11	<i>Anacridiumaegyptium</i> (Linnaeus)	<i>Tamniont. Regular type.</i>
12	<i>Acrotylusinsubricusinsubricus</i> (Scopoli)	<i>Eremobiont. Regular type.</i>
13	<i>Bryodemaheptapotamicum</i> Bey-Binko	<i>Eremobiont. Rare type.</i>
14	<i>Duroniellagracilis</i> Uv.	<i>Facultativehortobiont. Regular type.</i>
15	<i>DuroniellaKalmuka</i> (Adelung)	<i>Facultativehortobiont. Regular type</i>
16	<i>Dociostaurus</i> (s.str.) mroccanus(Thunberg)	<i>Hortobiont. Regular type.</i>
17	<i>Dericorysalbidula</i> Aud.-Serv.	<i>Tamniont. Regular type.</i>
18	<i>Euthystirabrachyptera</i> (Ocsk)	<i>Specializedphytophyll. Rare type</i>
19	<i>Epacromiustergestinus</i> (Charp).	<i>Facultativehortobiont. Rare type.</i>
20	<i>Egnatiusapicalis</i> Stal.	<i>Microtamniont. Rare type.</i>
21	<i>Locustamigratoria</i> L.	<i>Flying migrant. Colonies forming type.</i>
22	<i>Oedipodaminata</i> (Pallas)	<i>Eremobiont. Regular type.</i>
23	<i>Oedaleusdecorus</i> (Germar)	<i>Substrategeophile. Regular type.</i>
24	<i>Ochridiahebetata</i> (Uvarov)	<i>Psammiont. Rare type of subspecies.</i>

25	<i>Pseudosphingonotussavignyi</i> (Saussure)	<i>Eremobiont. Regular type.</i>
26	<i>Ramburiellafofeolata</i> Serg.Tarbinsky	<i>Cerealthortobiont. Regular type.</i>
27	<i>Ramburiellaturcomana</i> (Fischer-Waldheim)	<i>Cerealthortobiont. Rare type.</i>
28	<i>Calliptamusitalicusitalicus</i> (L.)	<i>Hortobiont. Grosslygrowing type.</i>
29	<i>Calliptamusturanicus</i> Serg.Tarb	<i>Hortobiont. Regular type.</i>
30	<i>Calliptamusbarbaruscephalotes</i> (Costa)	<i>Hortobiont. Regular type</i>
31	<i>Truxaliseximia</i> Eichw	<i>Sedge-cereal hortobiont. Regular type</i>
32	<i>Heteracrisadspersa</i> (Redt.).	<i>Tamnobiont. Regular type</i>
33	<i>Heteracrispterosticha</i> (Fischer- Waldheim)	<i>Tamnobiont. Rare type.</i>
34	<i>Sphingonotusmaculatusmaculatus</i> Uv.	<i>Eremobiont. Regular type.</i>
35	<i>Chorthippusmeridionalis</i>	<i>Specializedphytophyll. Rare type.</i>
36	<i>Chorthippus (s.str.) angulatus</i> Serg.Tarbinsky	<i>Specializedphytophyll. Rare type.</i>
37	<i>Chorthippus (s.str.)karelini</i> (Uvarov)	<i>Specializedphytophyll. Rare type.</i>
38	<i>Chorthippus (s.str.) dichrous</i> (Eversmnn)	<i>Specializedphytophyll. Rare type.</i>
39	<i>Chrysochraon</i> (Germer)	<i>Specializedphytophyll. Rare type.</i>

Regular types of orthoptera insects spread in the study area are large in numbers, there are 24 species. This group includes the types of generation of *Duroniella*, *Calliptamus* and *Tettigonia*. They are considered to be most common in nature and have always been superior in quantity.

In conclusion, based on materials collected from Zaamin National Nature Park of Jizzakh region it was found that during the period between April 2018 and August 2019 there were 4 families belonging to 28 generations including 39 species. Accordingly, regular species comprised of 24 species, while the least common were 15 species.

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