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Fauna of Straight-Winged Insects of the Plato Ustyurt (Insecta: Orthoptera)

Maxset J. Medetov

Institute of the Gene Pool of Plants and Animals AS RUz, Tashkent 100053, Uzbekistan

Abstract: ***In the article, according to results of the scientific research es, there were defined 41 species of insects of the group of the straight-wingeds class belonging to 28 generations of 4 (four) families on-the territories of the Plato Ust-Yurt. One to their living conditions these species were divided into 11 groups. These zoo-geographically researched species belong to 6 groups by latitude and 9 groups-on longitude.. Studying the natural areas that they inhabit snows they are divided into: 10 species which are registered as…=extremely rare; 8 rare ones; 20 ever-inhabitants and one which is pecularly adaptable to common developing circumstances, flying in large groups destroying all crops where ever they appear.***

Keywords: Fauna, orthoptera, Plato Ust-yurt, population, straight-winged insects

1. Introduction

The Plato Ustyurt is situated on the very north-west part of Uzbekistan and is bordered by Kazakhstan on the north and west Turkmenstan-one the South, and by the Aral Sea and the Amudarya delta on the East. The territory is equal to 200000 square kilometers.

The landscape of the Ust-Yurt is covered with the formation of flora wich resistable to sunshine and adaptable to grow on Solt-marches. It's ground is basically consists of solid soil and macadon, especially, on the South-East deserted areas Nowadays we have enongh scientific sources of the insects of the Plato Ustyurt, only a number of groups of insect fauna is researched partially.

During the last 40-50 es the ecological changes taking place on the Aral Sea Coasts have ed insects of these areas too. Under the influence of such changes as a number of (Zoologists) biologists point out in their researches there have bcenreformed some harmful species of locustoids [4,5,9,8,10]. However, thein researches problems do not concern the of their type system and population completely, yet.

So the aim and purpose of the present research is to decide some problems concerning with the defining of the type system, species and groups of straight-winged insects of the Ustyurt Plato (**Fig. 1**).

2. Materials and Methods

The research work activities we carried on during the period of 2010-2015. The fauna of the straight-winged insects have ben researched along the vast territories (areas) including the two sides of the Qungrad-Beynew authothoroughfare. And the examples of species of straight-winged insects were picked together and studied in the central biolaboratories of the Ustyurt territory.

The picked examples of insects were laid onto the specially arranged with the data collected according to the purpose of research: the plase where the specy is taken from, date, the time in periods, changes, characteristic features and etc. The results and the collected examples were bronght to the Entomological laboratory of the Fauna and Flora Genefund Intitute of the Academy of Sciences of Uzbekistan for the testing and researching. There were defined their phases of developing, the taxonomic features of straight-winged insects. In the tests for distinguishing their taxonomic features there used some works of biologists, namely, «The locusts of Kazakhstan, Middle Asia and neigbouring territories [5] for studying grasshoppers…and» Natural Laws of Population of Straight-winged insects of the Northern Asia» [6] for crickets and beetles.

The method offered by M.V. Pravdin was used in the classification of species by their inhabitance and existence. Accordind to this method the straight-winged insects were divided into smaller groups by their morphologic indexes and biotypes.

The zoo-geographical characterics of defining of species was fulfilled according principles offered by M.E. Sergeyev [7]. Species of the insects were divided into geographical latitudes and longitudes due to the nature, landscape and continental climate of the area inhabited by them.

Figure 1: Study area (Central Ustyurt)

3. Results and Discussion

While analyzing the examples of the insects collected from different areas of the Ustyurt Plato there were found 3 large

families of the straight-wingeds' class: the 1st-beetles,…(Tettigonioidea) the 2nd-crickets…(Grylloidea); and the 3rd-true locust (Acridoidea). In their turn these three large families are divided into 28 genera to which also belong some 41 species and subspecies (**Fig. 2**).

Figure 2: Distribution of Insecta:Orthoptera (South Ustyurt)

Some 36 species of Locusts (grasshoppers…), 3 species of beetles and 2 species of crickets populate these areas, including Ruspolia, Melanogryllus, Velarifictorus, Rand, 1964., Pyrgomorpha Aud: Serv., Anacridium Uv., Egnatioides Voss., Egnatius Stal., Acrida L., Locusta L., Moiscirtus Sauss., Leptoternis Sauss., Pseudospinggonotus Shum., Spingoderus B.-Bien., Helioscirtus Sauss., Dociostaurus Fiev., Notostaurus B.-Bien., Mesasippus Serg Tarb belonging to the abovementioned gerena per 1 sample; Platycleis, Calliptamus Aud-Ser, Heteracris F. Walk, Oedipoda Latr, genera have per 2 species; Eremippus uv genus has three and the genus Sphingonotus Fieb has nine species or subspecies which populate the definite areas of the Plato Ustyurt. (Table 1).

According to living condition the researched species are divided into 11 groups. One species among them is Herpetobiont-which feeds on organic remains and is considered to belong to mesophylls group; 10 hortobionts inhabiting the surface of the soil in the open areas; 1 (one) specy, and 2 (two) subspecies are psammobionts which are naturally adapted as inhabitants of sandy deserts; 1 (one) hortobiont subspecy which inhabits dense grasslands: 1 (one) specy and two (2) of Thamnobionts-who live in forests and bushs; 4 species and 2 subspecies of microthamnobionts habitate polybushed areas; 1 specy belonging to glass-covered hortobionts inhabits in the forests and reels liveson the leaves and scraps; 9 species and 6 subspecies-heremobionts-inhabitants of the deserted areas and related to surfaces of soils, and the last one specy is a flying migrant.

Table 1: The straight-winged insects of the Plato Ustyurt and their ecological and zoo-geographical analysis

Species	Frequency	Ecological group	Zoo-geography (population)
Platycleis intermedia serv.	+++	Fac. Hortobiont	Deserts of Middle Asia and Kazakhstan.
Platycleis Affinis fied	+++	Fac. Hortobiont	Deserts of Middle Asia and Kazakhstan.
Ruspolia nitidula (scop)	+++	Fac. Hortobiont	Deserts of Middle Asia and Kazakhstan.
Melanogryllus desertus Pall	+++	Fac. Hortobiont	Deserts of Middle Asia and Kazakhstan.
Velarifictorus bolivari	+++	Fac. Hortobiont	Deserts of Middle Asia and Kazakhstan.
Pyrgomorpha bispinosa deserti B.-Bien	+++	Fac. Hortobiont	Deserts of Middle Asia and Kazakhstan.
Chrotogonus Turanicus. Kuthy	+++	Herpetobiont	Deserts of Middle Asia and Kazakhstan.
Asiotmethis muricatus australis Tarb	++	Psammobiont	The Southern Boundaries of M.Asia and Kazakhstan
Strumiger desertorum Zub	++	Psammobiont	The Southern Boundaries of M.Asia and Kazakhstan
Dericorys annulata roseipennis (Redt)	++	Thamnobiont	Desert and Kazakhstan Mongolia.
Anacridium aegyptium (L)	+++	Thamnobiont	Desert and Europe-Middle Asia.
Calliptamus italicus italicus L.	C	Hortobiont	Desert and Europe- Kazakhstan
Calliptamus barbanis (Costa)	+++	Fac. Hortobiont	The Southern Deserts and Europe the Eastern Siberia
Heteracris adspersa (Redt)	+++	Thamnobiont	Deserts of the Central Asia
Heteracris littoralis (Ramb)	+++	Thamnobiont	Deserts of the Central Asia and Kazakhstan
Egnatioides desertus desertus (Uv)	++	Microthambiont	Deserts of the Central Asia and Kazakhstan
Egnatius apicalis (stal)	+	Microthambiont	Polydeserts of the Central Asia-Kazakhstan
Acrida oxycephala (Pall)	+++	Hortobiont with a glasslike cover	Polydeserts of the Central Asia
Lousta migraterial L.	C	A flying migrant	A specy belonging to Trans-Southern and Trans-Arctic (Trans-Nothern) Boundaries of Asia.
Mioscirtus wagnery (Kitt)	+	Eremobiont	Polydeserts of the Central Asia-Kazakhstan
Oedipoda caerulescens L.	++	Eremobiont	Far-away areas and Europa-Kazakhstan
Oedipoda miniata miniata (Pall)	++	Eremobiont	Southern far-away areas and Europa-Kazakhstan
Sph. Rubescens rubescens (F.walk)	+++	Eremobiont	Deserts of Kazakhstan, Western Mongolia.
Sph. Octofasciatus (Aud.sern)	+	Eremobiont	Deserts of Central Asia-Kazakhstan
Sph. S eurasius Mistsh	++	Eremobiont	Polydeserts of the Central Asia
Sphingonotus nebulosus (F.Walk)	+	Eremobiont	Polydeserts of the Kazakhstan and Mongolia.
Sphingonotus nebulosus discolor (Uv)	+	Eremobiont	Polydeserts of the Kazakhstan and Mongolia.
Sph. S obscuratus latissimus (Uv)	+	Eremobiont	Deserts of Kazakhstan and Mongolia.
Sphingonotus salinus (Pall)	+++	Eremobiont	Polydeserts of the Kazakhstan and Mongolia.
Sph. Maculatus maculates (Uv)	+++	Eremobiont	Polydeserts of the Central Asia and Kazakhstan
Sph. Halocnemi (Uv)	+++	Eremobiont	Deserts of the Central Asia and Kazakhstan
Pseudo-sphingonotus savignyi (Sauss)	+++	Eremobiont	Deserts and Central Asia
Sphingoderus Carinatus (Sauss)	+++	Eremobiont	Polydeserts of Kazakhstan and Western Mongolia.

Heliocirtus moseri (Sauss)	+++	Eremobiont	Deserts of the Central Asia and Kazakhstan
Leptopternis gracilis (Ev)	+++	Psammobiont	Polydeserts of Kazakhstan and Mongolia.
Docciostaurus tartarus stshelk	++	Fas. Hortobiont	Polydeserts of the Central Asia-Kazakhstan
Notostaurus albicornis (Ev)	+++	Fas. Hortobiont	Southern far-qway areas Kazakhstan Europa
Eremippus Simplex (Ev)	+	Microthambiont	Southern far-qway areas Kazakhstan, Western Mongolia.
Eremippus Costatas (Serg. Tarb)	+	Microthambiont	Polydeserts of Middle Asia
Eremippus Comatus (Mistsh)	+	Microthambiont	Polydeserts of Middle Asia
Chorthippus meridionalis (Wistsh)	+	Fas. Hortobiont	Polyzonal Trans polearctic specy

Comments on conventional signs: + - extremely rare species; ++ - rare species; +++ - constant inhabitants; C - species with a great developing rate migrating in large groups destroying all the crops where ever they appear.

All the species researched from the point of view of zoo-geography are divided into (6) six groups-on latitude and 9 (nine) groups-on longitude. The main groups of them inhabit in areas belonging to Far South, polydeserts, deserts of Kazakhstan, Mongolia and Central Asia. The groups belonging to Polyzones, Europ-East Siberia, Europe-Middle Asia on the contrary, are Considered as rare species.

According to their freguency in different natural zones they were divided as 10 extremely rare, 8 rare, 20 constant inhabitants and 1 greatly developing specy. As the results of the analysis show on the Ust-Yurt Plato there dominates the species belonging to the genera Spingonotus which include the following representatives: Pseudosphingonotus savingyi, Sphingoderus carinatus, Leptopternis gracilis, Helioscirtus moseri. Besides one specy of locusts (Eremippus costatus, Serg. Tarb) is found for the first time among Middle Asian. Straight-winged insects. To the line we can also add the two species (Platycleis affinis, Ruspolia nitidula) representing the Ruspolia genus; one specy (Velarifictorus bolivari (Uv) of the crickets belonging to Velavifictorus (Rand. 1964) genus; 4 species (Oedipoda caerulescens, Sphingonotus nebulosis, Eremippus costatus, Eremippus Comotus) and 3 subspecies (Sphingonotus obscuratus latissimus, Sphingonotus eurasius eurasins, Sphingonotus rubescens rubescens) of locusts genus. They are also considered to be new-found ones among the Southern Aral coast Fauna.

4. Conclusion

As conclusion we can present the following main results of our research. The straight-winged insects of the Plato Ust-Yurt are scientifically divided into 4 families 27 genera which represent 41 specy and subspecies. 1 specy of locusts is considered to be found for the first time in the territory of all the Middle Asia. 1 genus (Ruspolia) and two species of beetle-like insects (Platycleis affinis, Ruspolia nitidula); 1 genus (Velarifictorus Rand. 1964) and 1 specy (Velarifictorus bolivari (Uv)) of crickets; 4 species (Oedipodo caerulescens, Sphingonotus nebulosus, Eremippus Costatus, Eremippus comatus) and subspecies (Sphingonotus obscuratus latissimus, Sphingonotus eurasius eurasius, Sphingonotus rubescens rubescens) turned to be new-found ones among the fauna of the South Aral coasts territory.

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