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A List of Species of the Order Orthoptera Found in Some Habitats of the Vlora Area, Albania

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Abstract

The Order Orthoptera belongs to the class of insects and they live in terrestrial habitats. They have a significant impact on ecology. In this paper, taxonomic data are presented for the species of the Order Orthoptera in the different habitats of the Vlora area. The collection of biological material was carried out at three stations: Llogara National Park, Kurora e Malit, and Zvernec during the period 2024. From our taxonomic analysis, we identified 18 species in the Order Orthoptera belonging to the two families Acrididae and Tettigoniidae collected at these three stations: Zvernec, Llogara National Park and Kurora e Malit (Sevaster). The family Tettigoniidae represents the highest number of species with 10 species and a species frequency of 55.55%, while the family Acrididae represents the lowest number of species, with 8 species and a species frequency of 44.44%. In terms of stations, the Llogara National Park station represents the highest number of species, with 10 species with a species frequency of 55.55%, followed by the Kurora e Malit station with 9 species and a species frequency of 50%, while the Zvernec station represents the lowest number with 6 species and a species frequency of 33.33%. The habitats of the Llogara National Park station have a diversity of species of the Order Orthoptera.

Keywords: Orthoptera, Diversity, Ecological Valence, Insects, Vlore

Introduction

The order Orthoptera belongs to the class Insecta, and is one of the oldest groups of insects (Mathew *et al*., 2022) [17].

Orthoptera live in terrestrial habitats (Shaheen *et al*., 2024, Cigliano *et al*., 2000) [19, 2]. Orthoptera have important impacts on ecology, mainly in the recycling of nutrients (Shaheen *et al*., 2024) [19]. They are sensitive to the environment because they are found everywhere in the world, which is why they act as bio-indicators (Shaheen *et al*., 2024; Bazelet, 2014) [19, 1].

Orthoptera are known as a major component of the biodiversity of grasslands (Thakkar *et al*., 2015; Weiss *et al*., 2013; Weyer *et al*., 2012) [20, 22, 23] as well as agricultural lands (Thakkar *et al*., 2015; Luoto *et al*., 2000) [20, 16]. However, the massive spread of Orthoptera is considered a global problem. They destroy agricultural crops and cause major economic damage to crops (Enkhtseteg *et al*., 2023; Hewitt 1977, Gupta, 1983, Lockwood and Lockwood 2008, Latchininsky *et al*. 2011, Zhang *et al*. 2019, Lecoq and Zhang 20, 20, 20) [6, 9, 7, 15, 10, 21, 11].

Our paper presents a taxonomic list of species of the Order Orthoptera in several habitats of the Vlora area (Zvernec, Llogara National Park and Kurora e Malit).

Materials and Methods

Species of the Order Orthoptera were collected during the year 2024, in the summer period. The collection of the material was conducted in the mornings from 09:00 to 14:00, depending on the climatic conditions. The biological material was collected using aerial entomological nets (NET).

The collected species of the Order Orthoptera were stored in ether bottles. Each tube was accompanied by a corresponding label containing the date, location, coordinates, and altitude above sea level (Colas, 2000; Lemonnier-Darcemont *et al*., 2016; Halimi *et al*., 2024) [4, 12,8].

For taxonomic determination, stereomicroscopes (Perfix Sciences), keys, and literature from countries bordering Albania with habitats similar to the study area (Willemse *et al*., 2018; Lemonnier - Darcemont *et al*., 2018) [24, 13] were used, as well as publications on the Order Orthoptera (Csiki, 1922; Lemonnier - Darcemont *et al*., 2024; Subashaj *et al*., 2025) [5, 14, 18] and the Orthoptera Species File (Cigliano *et al*., 2025) [3] were used.

Results and Discussion

Our study was conducted in the Vlora area, three habitats: Zvernec, Llogara National Park, and Kurora e Malit, each with a variety of habitats. The coordinates of the stations where biological material was collected in these three habitats of the study area are presented (Table 1):

Table 1: Species collection points by stations

S. No	Habitat	Station coordinates	Altitude (m)
1	Zvernec	40.500182, 19.405323	27
		40.501225, 19.404195	29
2	Llogara National Park	40.198352, 19.593545	1040
		40.142669, 19.675616	238
		40.216009, 19.578842	855
		40.197103, 19.594443	1012
3	Kurora e Malit (Sevaster)	40.380878, 19.72474	706
		40.374508, 19.726603	948
		40.37287, 19.729703	1147

From our study, we identified 18 species of the Order Orthoptera belonging to two suborders (Caelifera, Ensifera) and two families, Acrididae and Tettigoniidae (Table 2).

Table 2: List of species of the Order Orthoptera

S. No	Scientific name	Zvernec	Llogara National Park	Kurora e Malit
1	**Family Acrididae McLeay, 1819**			
1	*Pezotettix giornae* Rossi, 1794	+	+	
2	*Calliptamus italicus* Linnaeus, 1758	+	+	+
3	*Euchorthippus declivus* Brisout, 1848		+	+
4	*Chorthippus maritimus* Mitshenko, 1951		+	
5	*Oedipoda meridionalis* Ramme, 1913		+	+
6	*Aiolopus strepens* Latreille, 1804		+	+
7	*Oedipoda caerulescens* Linnaeus, 1758		+	
8	*Euchorthippus sp* Tarbinsky, 1926			+
2	**Family Tettigoniidae Krauss, 1902**			
9	*Tessellana orina* Burr, 1899	+		
10	*Decticus albifrons* Fabricius, 1775	+		
11	*Poecilimon jonicus* Fieber, 1853	+	+	
12	*Eupholidoptera schmidti* Fieber, 1861	+		
13	*Pholidoptera sp* Wesmael, 1838		+	
14	*Tylopsis lilifolia* Fabricius, 1793		+	
15	*Modestana ebneri* Ramme, 1926			+
16	*Decticus verrucivorus* Linnaeus, 1758			+
17	*Pholidoptera griseoaptera* De Geer, 1773			+
18	*Saga hellenica* Pallas, 1771			+

From our taxonomic analysis of the distribution of the number of species according to the families of the Order Orthoptera in the Vlora area, it is evident that the family Tettigoniidae is the most dominant family with 10 species and a species frequency of 55.55%.

This is followed by the family Acrididae with 8 species and a species frequency of 44.44% (Table 3, Fig 2). Species of the family Tettigoniidae exhibit the highest ecological valence in the stations Zvernec, Llogara National Park, and Kurora e Malit, while species of the family Acrididae show the lowest ecological valence.

a. *S. pedo* b. *T. orina*

Fig 1: Foto a. *S. hellenica*, b. *T.orina*

Table 3: Distribution of number of species and species frequency by families

S. No.	Family	Species number	Species frequency (%)
1	Tettigoniida	10	55.55 %
2	Acrididae	8	44.44 %

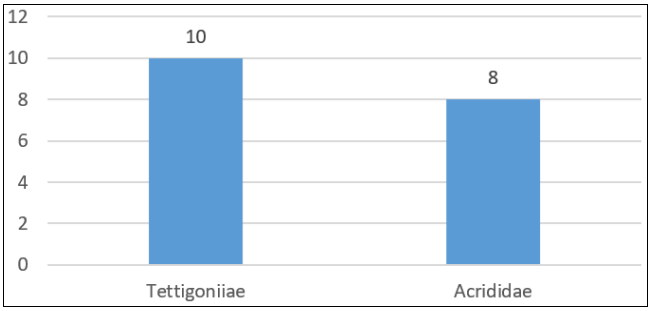

Fig 2: Distribution of the number of species by family

From our analysis, we refer that the Llogara National Park station has the highest diversity of species of the Order Orthoptera, with a total of 10 species and a species frequency of 55.55%. Following that is the Kurora e Malit station with 9 species and a species frequency of 50%. Next is the Zvernec station with 6 species and a species frequency of 33.33%. The Zvernec station is the least preferred for species of the Order Orthoptera, while the Llogara National

Park station and Kurora e Malit are the most preferred stations for species of this order (Table 4, Fig 3).

Table 4: Distribution of number of species and species frequency by stations

S. No.	Station	Species number	Species frequency (%)
1	Parku Kombetar Llogara	10	55.55 %
2	Kurora e Malit (Sevaster)	9	50 %
3	Zvernec	6	33.33 %

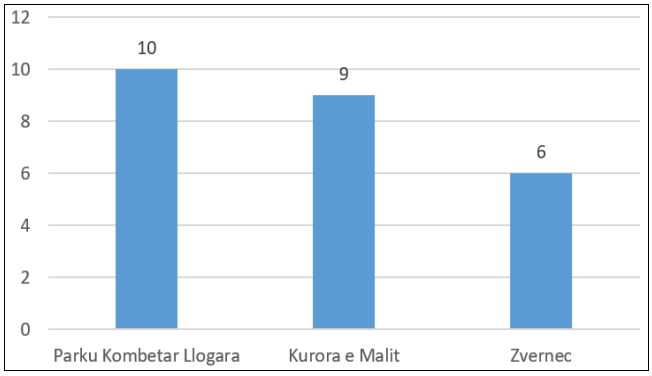

Fig 3: Distribution of the number of species by stations

Conclusions

This study presents the results for the Order Orthoptera in three stations of the Vlora area (Llogara National Park, Kurora e Malit, and Zvernec). We have identified 2 families and 18 species for this order.

The family with the highest number of species is Tettigoniidae, with 10 species or a frequency of 55.55%. This indicates that the habitats in the stations where we collected Orthoptera species offer favorable conditions for species belonging to this family. The family Acrididae represents the lowest number of the Order Orthoptera.

The analysis of the distribution of species by stations shows that the Llogara National Park station has the highest species biodiversity, with 10 species or a species frequency of 55.55%, followed by the Kurora e Malit station with 9 species and a species frequency of 50%. The Zvernec station represents the lowest species biodiversity, with 6 species and a species frequency of 33.33%, indicating a potential negative impact from anthropogenic factors.

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