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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, Vlora

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	Parku Kombetra Llogara	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	Parku Kombetar LLogara	Kurora e Malit
1	Familja Acrididae McLeay, 1819			
1	<i>Pezotettix giornae</i> Rossi, 1794	+	+	
2	<i>Calliptamus italicus</i> Linnaeus, 1758	+	+	+
3	<i>Euchorthippus declivus</i> Brisout, 1848		+	+
4	<i>Chorthippus maritimus</i> Mitshenko, 1951		+	
5	<i>Oedipoda meridionalis</i> Ramme, 1913		+	+
6	<i>Aiolopus strepens</i> Latreille, 1804		+	+
7	<i>Oedipoda caerulea</i> Linnaeus, 1758		+	
8	<i>Euchorthippus</i> sp Tarbinsky, 1926			+
2	Familja Tettigoniidae Krauss, 1902			
9	<i>Tessellana orina</i> Burr, 1899	+		
10	<i>Decticus albifrons</i> Fabricius, 1775	+		
11	<i>Poecilimon jonicus</i> Fieber, 1853	+	+	
12	<i>Eupholidoptera schmidtii</i> Fieber, 1861	+		
13	<i>Pholidoptera</i> sp Wesmael, 1838		+	
14	<i>Tylopsis lilifolia</i> Fabricius, 1793		+	
15	<i>Modestana ebneri</i> Ramme, 1926			+
16	<i>Decticus verrucivorus</i> Linnaeus, 1758			+
17	<i>Pholidoptera griseoaptera</i> De Geer, 1773			+
18	<i>Saga hellenica</i> 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.

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 %

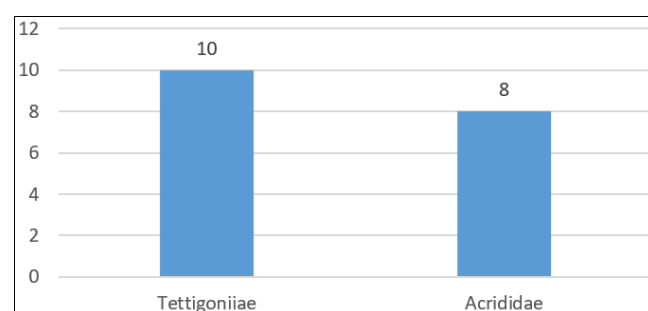


Fig 2: Distribution of the number of species by family

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



a. *S. pedo*

b. *T. orina*

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

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 %

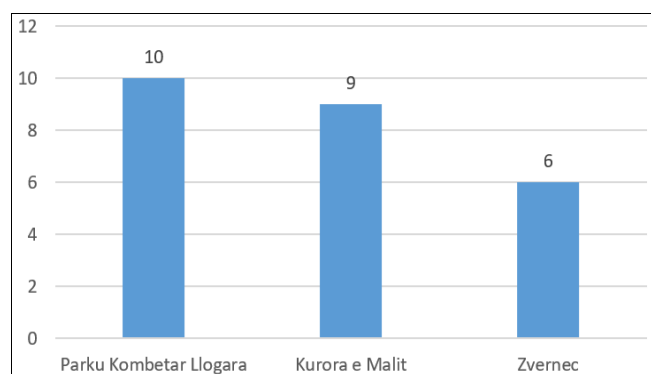


Fig 3: Distribution of the number of species by stations

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.

References

- Bazelet CS, Samways MJ. Habitat quality of grassland fragments affects dispersal ability of a mobile grasshopper, *Ornithacris cyanea* (Orthoptera: Acrididae). *African Entomology*. 2014; 22(4):714-725. Doi: 10.4001/003.022.0405.
- Cigliano MM, De Wysiecki ML, Lange CE. Grasshopper (Orthoptera: Acridoidea) species diversity in the Pampas, Argentina. *Diversity and distributions*. 2000; 6(2):81-91. Doi: <https://doi.org/10.1046/j.1472-4642.2000.00077.x>
- Cigliano MM, Braun H, Eades DC, Otte D. Orthoptera Species File, 2025. Doi: <http://orthoptera.speciesfile.org/>.
- Colas G. Guide de l'entomologiste. Editions N. Boubée, 2000.
- Csiki E. Explorations zoologicae ab C. Csiki in Albania peractae. VI. Orthopteren. Magyar Tudományos Akademia. 1922; 1:75-82.
- Enkhtsetseg G, Dorjsuren A, Choi HE, Hwang WU. An annotated checklist of grasshoppers (Orthoptera, Acridoidea) from Mongolia. *Biodiversity Data Journal*. 2023; 11:e96705.
- Gupta VK. The locust and grasshopper agricultural manual 1982. *Oriental Insects*. 1983; 17(1):78-126.
- Halimi E, Qirinxhi Xh, Paparisto A, Subashaj G. Contribution to knowledge of the true bugs species (Hemiptera: Heteroptera) in the habitats of the Berati area in Albania. *Journal of Biological. Research–Bollettino della Società Italiana di Biologia Sperimentale*. 2024; 97(2). Doi: <https://doi.org/10.4081/jbr.2024.12479>.
- Hewitt G. Review of forage losses caused by rangeland grasshoppers. Agricultural Research Service, United States. Department of Agriculture, Washington District of Columbia, Miscellaneous Publications. 1977; (1348):24.
- Latchininsky A, Sword G, Sergeev M, Cigliano MM, Lecoq M. Locusts and Grasshoppers: Behavior, Ecology, and Biogeography. *Psyche-A Journal of Entomology*. 4pp.
- Lecoq M, Cease A. What Have We Learned after Millennia of Locust Invasions? *Agronomy*. 2022; 12(2):472.
- Lemonnier-Darcemont M, Darcemont Ch. *Peripodisma tymphii* (Willemse, 1972). (Orthoptera, Acrididae, Catantopinae), status and threats in Greece and Albania. *Faunistik*. 2016; 31:81-91.
- Lemonnier - Darcemont M, Kati V, Willemse L, Darcemont Ch. Effects of changing grazing systems on the threatened genus *Peripodisma* (Orthoptera: Acrididae: Melanoplinae) in the Mediterranean mountains of the southern Balkans. *Journal of Mediterranean Ecology*. 2018; 16:67-79.
- Lemonnier – Darcemont M, Chobanov D, Heller GK, Darcemont Ch. Synonymy between *Pholidoptera ebneri* Ramme, 1931 and *Pholidoptera stankoi* Karaman, 1960 (Orthoptera Tettigoniidae). *Articulata. Systematic*. 2024; 39:69-82.
- Lockwood DR, Lockwood JA. Grasshopper population ecology: Catastrophe, criticality, and critique. *Ecology and Society*. 2008; 13(1):34.
- Luoto M. Modelling of rare plant species richness by landscape variables in an agriculture area in Finland. *Plant Ecol*. 2000; 149:157-168.
- Mathew R, Leema R, Joseph KG, Cyril AE. Orthopteran diversity in Tropical ecosystems of Central Kerala, India. *Indonesian Journal of Forestry Research*. 2022; 9(1):121-133.
- Subashaj G, Halimi E, Bajrami A, Paparisto A. An Analysis of the Order Orthoptera Diversity from the Vlora Region Ecosystems, Southwestern Albania. *International Journal of Ecosystems and Ecology Science*. 2025; 15/1:55-60. Doi: <https://doi.org/10.31407/ijeecs15.1>.
- Shaheen R, Abbas Z, Nabbeel M, Virk R, Habib F, Shah AS, et al. Molecular characterization of Grasshopper species from Tehsi Loghi. *JPTCP*. 2024; 31(2):126-133.
- Thakkar B, Parmar S, Parikh P. Study on diversity of orthoptera fauna in south gujarat, India. *International*

- Journal of Pure and Applied Zoology. 2015; 3(4):368-374.
21. Zhang L, Lecoq L, Latchininsky M, Hunter A, David. Locust and grasshopper management. Annual Review of Entomology. 2019; 64(1):15-34.
 22. Weiss N, Zucchi H, Hochkirch A. The effects of grassland management and aspect on Orthoptera diversity and abundance: Site conditions areas important as management. Biodiver. Conser. 2013; 22:2167-2178.
 23. Weyer J, Weinberger J, Hochkirch A. Mobility and microhabitat utilization in a flightless wet land grasshopper, *Chorthippus montanus* (Charpentier, 1825). J. Insect Conser. 2012; 16:379-390.
 24. Willemse L, Kleukers R, Odé B. The grasshoppers of Greece. EIS Kenniscentrum Insecten & Naturalis Biodiversity Center, Leiden. Naturalis Biodiversity Center, 2018, 440.