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Research on the Fauna of the Order Orthoptera in Some Habitats of the Vlora Area, Albania

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Abstract
Orthoptera are medium-sized, large terrestrial insects, with long and short antennae. They are the most diverse order of insects within the Polyneoptera. They play an important role in food webs. This paper aims to study the taxonomy of the Order Orthoptera in several stations in the Vlora area (Albania). The collected material was collected during the period of July to August 2024. In this paper we refer to 3 families and 23 species. From systematic analysis it results that the most represented family is Acrididae with 14 species and with a frequency of 60.86%. The least represented families are Tettigoniidae with 8 species and with a species frequency of 34.78%, followed by the family Oecanthidae with 1 species and with a species frequency of 4.34%. This shows that the ecosystems of the stations where biological material was collected for the Acididae family offer suitable conditions. The habitats of the Qafa e Pishes station showed a greater diversity of species compared to the other stations, with 12 species and a species frequency of 52.17%, while the Maja e Qores station had fewer species, with 8 species and a species frequency of 34.78%. This indicates that the habitats at the Qafa e Pishes station offer favorable conditions for species of the Order Orthoptera.

Keywords: Biodiversity, Ecosystem, Insects, Orthoptera, Vlore

Introduction
Orthoptera are medium to large terrestrial insects with long and short antennae [18]. Orthoptera is the most diverse order of insects within the Polyneoptera [23].
They play an important role in food webs, as the main consumers of plant biomass and play a crucial role in the functioning of ecosystem processes [24, 19]. When massive locust outbreaks occur, they cause environmental and socio-economic damage such as degradation and desertification of grasslands, leading to a deterioration of the environment and grassland ecosystems [15, 10, 22, 15, 3].
Grasshoppers are a good ecological and biological indicator of ecosystem qualities and the efficiency of ecological networks [16, 8, 1, 2, 25].

Materials and Methods
The study was conducted in the period of July to August 2024. Field expeditions were carried out in the mornings from 09:00 to 14:00 depending on climatic conditions. The material was collected with aerial entomological nets (NET).
The collected material was placed in ether tubes [9, 11, 12, 21]. Each tube was accompanied by the respective label on which the date, location, coordinates (GPS), and altitude above sea level were written.
For species identification, stereomicroscopy, literature and keys from countries bordering Albania that have climatic conditions and habitats similar to the study area as well as previous publications on the Order Orthoptera in Albania and the Orthoptera Species File (OFS) were used [26, 6, 5, 7, 17, 13, 14, 20, 4].

Results and Discussions
Our taxonomic analysis we refer 23 Orthoptera species at the three stations Maja e Qores, Qafa e Pishes (Bolene) and Kurora e Malit (Sevaster) belonging to the three families Acrididae, Tettigonidae and Oecanthidae (Table 2). The coordinates and altitude above sea level for each station are presented in Table 1.

Table 1: Species collection points by stations

S. No	Habitat	Station coordinates	Altitude
1	Maja e Qores	40.201723, 19.600733	1300
		40.20776, 19.60019	1485
		40.211303, 19.6024475	1650
2	Qafa e Pishes	40.26084, 19.787257	1256
		40.256648, 19.788767	1313
3	Kurora e Malit	40.366157, 19.744057	1684
		40.364602, 19.743375	1748
		40.364878, 19.74106	1769

Table 2: List of species of the Order Orthoptera in the Vlora Area

S. No	Scientific name	Maja e Qores	Qafa e Pishes	Kurora e Malit
1	**Family Acrididae** MacLeay, 1819			
1	Stenobothrus fischeri Eversmann, 1848	+		
2	Oedipoda caerulescens Linnaeus, 1758	+		
3	Chorthippus sp Fieber, 1852		+	
4	Calliptamus italicus Linnaeus, 1758	+	+	+
5	Oedipoda meridionalis Ramme, 1913	+		
6	Euchorthippus declivus Brisout, 1848		+	+
7	Peripodisma llofizii Lemonnier – Darcemont & Darcemont, 2015			+
8	Chorthippus maritimus Harz, 1971			+
9	Pezotettix giornae Rossi, 1794		+	
10	Omocestus rufipes Zetterstedt, 1821		+	
11	Euchorthippus sp Tarbinsky, 1926	+		
12	Chorthippus biguttulus Linnaeus, 1758		+	
13	Chorthippus willemsei Harz, 1971		+	
14	Stenobothrus rubicundulus Kruseman & Jeekel, 1967		+	
2	**Family Oecanthidae** Blanchard, 1845			
15	Oecanthus dulcisonans Gorochov, 1993		+	
3	**Family Tettigoniidae** Krauss, 1902			
16	Platycleis affinis Fieber, 1853	+		+
17	Poecilimon jonicus Fieber, 1853	+		
18	Eupholidoptera schmidti Fieber, 1861	+		+
19	Platycleis sp Fieber, 1853		+	+
20	Decticus verrucivorus Linnaeus, 1758			+
21	Pholidoptera femorata Fieber, 1853			+
22	Pholidoptera sp Wesmael, 1838		+	
23	Modestana ebneri Ramme, 1926		+	

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

S. No	Family	Species number	Species frequency (%)
1	Oecanthidae	1	4.34 %
2	Tettigoniidae	8	34.78 %
3	Acrididae	14	60.68 %

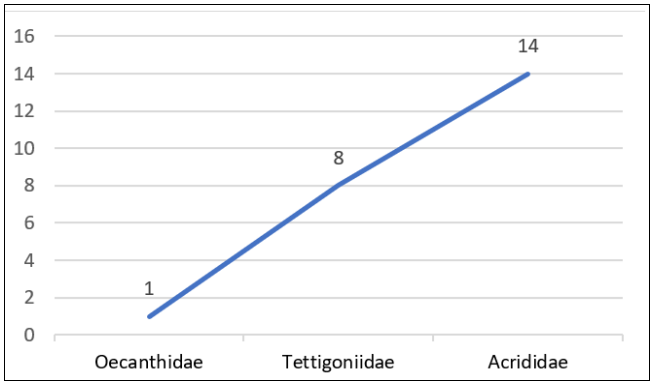

Fig 1: Distribution of the number of species by family

Referring to the data in Table 3 and Fig 1, it is evident that the Acrididae family has the highest number of species, totaling 14 species with a species frequency of 60.86%. This is followed by the Tettigoniidae family with 8 species and a species frequency of 34.78%. The Oecanthidae family has the lowest number of species, with only 1 species and a species frequency of 4.34%.

According to these data, we can say that for the species of the Acrididae family there are optimal conditions in the three stations that we have analyzed (Maja e Qores, Qafa e Pishes, and Kurora e Malit).

We have analyzed the distribution of species by collection stations from Table 2. From our analysis, we note that the Qafa e Pishes (Bolene) station has the highest biodiversity, with 12 species in total and a species frequency of 52.17%.

Then follows the station Kurora e Malit (Sevaster), with 9 species and a species frequency of 39.13%, and fewer species the station Maja e Qores, with 8 species and a frequency of 34.78% (Table 4, Fig 2). Based on these data that we refer to in this paper, we can say that the station Qafa e Pishes offers the most suitable conditions for species of the Order Orthoptera.

However, these conclusions are based on the number of species that we have managed to encounter by family and by collection stations. For a more complete ecological analysis of the habitats of the stations, and the biological cycle of Orthoptera, we must have a greater coverage of days in the field for collection and a wider area, which we will continue in future studies in this area. In this paper we have presented

only some data based on the species that we have encountered and the relevant stations.

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

S. No	Station	Species number	Species frequency (%)
1	Maja e Qores	8	34.78 %
2	Kurora e Malit	9	39.13 %
3	Qafa e Pishes	12	52.17 %

Fig 2: Distribution of the number of species by stations

Conclusions

This study presents a taxonomic and ecological analysis of species of the Order Orthoptera in different habitats of the Vlora area, mainly Maja e Qores, Qafa e Pishes and Kurora e Malit (Sevaster).

According to the analysis, we have referred to 3 families and 23 species. The Acrididae family represents the highest number of Orthoptera species, with 14 species and a species frequency of 60.86%. The Tettigoniidae family represents 8 species and a species frequency of 34.78%. While the Oecanthidae family represents the lowest number of Orthoptera species.

From the analysis of the distribution of species by stations, we refer that the Qafa e Pishes station has the highest species biodiversity, with 12 species and a species frequency of 52.17%.

Based on the analysis of the distribution of species by Families and encounter stations, we can say that for the species of the Acrididae family, the habitats of the area provide more optimal ecological conditions, and the Qafa e Pishes station offers suitable habitats for these species.

We recommend increasing field studies for these species in this area, as well as increasing the encounter points of the species in all habitats of the area.

We recommend controlling human activity, in eco-tourism developments, as well as economic livestock activities at altitude in these areas, which seem to negatively affect the biodiversity of Orthoptera.

References

1. Bazelet CS, Samways MJ. Identifying grasshopper bioindicators for habitat quality assessment of ecological networks. Ecological Indicators. 2011; 11:1259-1269.
2. Bazelet CS, Samways MJ. Habitat quality of grassland fragments affects dispersal ability of a mobile grasshopper, Ornithacris cyanea (Orthoptera: Acrididae). African Entomology. 2014; 22:714-725.
3. Belovsky GE, Slade JB. Grasshoppers affect grassland ecosystem functioning: Spatial and temporal variation. Basic Appl. Ecol. 2018; 26:24-34.
4. Cigliano MM, Braun H, Eades DC, Otte D. Orthoptera Species File, 2025.
5. Csiki E. Explorationes zoologicae ab C. Csiki in Albania peractae. VI. Orthopteren. Magyar Tudomanyos Akademia. 1922; 1:75-82.
6. Eades DC, Otte M, Cigliano MM, Braun H. Orthoptera Species File, 2014. Version 5.0/5.0.
7. Ebner R. Ein Beitrag zur Orthopteren fauna der europäischen Türkei mit besonderer Berücksichtigung von Albanien (Ergebnisse einer Reise nach Nord-Albanien, A. Klaptocz, 1909). Zoologische Jahrbücher, Abteilung für Systematik, Ökologie und Geographie der Tiere. 1910; 29:401-414.
8. Gebeyehu S, Samways MJ. Grasshopper assemblage response to a restored national park (Mountain Zebra National Park, South Africa). Biodiversity and Conservation. 2002; 11:283-304.
9. 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).
10. He K, Huang JF. Remote sensing of locust and grasshopper plague in China: A review. Proceedings of the 5th International Conference on Agro-Geoinformatics (Agro-Geoinformatics). Tianjin, China, 2016.
11. Kasalo N, Tvrtković N, Bogić D, Kokan B, Vuković M, Kučinić M, *et al*. An Overview of Orthoptera Mass Occurrences in Croatia from 1900 to 2023. Insects. 2024; 15(2):82.
12. Lemonnier-Darcemont M, Darcemont CH. Peripodisma ceraunii (Orthoptera, Acrididae, Melanoplinae: Podismini), a new species of the genus Peripodisma from southern Albania. Articulata. 2015; 30:53-62.
13. Lemonnier-Darcemont M, Darcemont CH. First overview of the south Albanian Orthoptera fauna. Articulata. 2015; 30:68-80.
14. Lemonnier-Darcemont M, Darcemont CH. New data on the biology of Nocaracris bulgaricus (Ebner & Drenowski, 1936) (Orthoptera: Pamphagidae) in mountains of northern Greece and southern Albania. Articulata. 2020; 35:79-85.
15. Lu L, Kong W, Eerdengqimuge, Ye H, Sun Z, Wang N, *et al*. Detecting Key Factors of Grasshopper Occurrence in Typical Steppe and Meadow Steppe by Integrating Machine Learning Model and Remote Sensing Data. Insects. 2022; 13:894.
16. Pudasaini R, Dhital S. A review of the Acrididae (Orthoptera, Caelifera) recorded in Nepal 2022. Journal of Insect Biodiversity and Systematics. 2022; 8(3):467-482.
17. Puskás G. Orthoptera research in Albania. Annales Musei Historico-Naturalis Hungaric. 2016; 108:303-323.
18. Rentz DC. Orthoptera. In: Werger, M.J.A. (eds) Biogeography and Ecology of Southern Africa. Monographiae Biologicae. Springer, Dordrecht. 1978; 31.
19. Schirmel JR, Gerlach R, Buhk C. Disentangling the role of management, vegetation structure, and plant quality for Orthoptera in lowland meadows. Insect Sci. 2019; 26:366-378.

20. Subashaj G, Halimi E, Paparisto A. An Overview of the Grasshoppers (Orthoptera, Insecta) in Vlore Area, Albania. International Journal of Advanced Multidisciplinary Research and Studies (Int. J. Adv. Multidisc. Res. Stud.). 2024; 4(3):316-319.
21. 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.
22. Shen J, Zhang N, Gexigeduren HEB, Liu CY, Li Y, Zhang HY, *et al*. Construction of a GeogDetector-based model system to indicate the potential occurrence of grasshoppers in Inner Mongolia steppe habitats. Bull Entomol Research. 2015; 105:335-346.
23. Shin S, Baker AJ, Enk J, McKenna DD, Foquet B, Vandergast AG, *et al*. Orthoptera-specific target enrichment (OR-TE) probes resolve relationships over broad phylogenetic scales. Sci Rep. 2024; 14(1):21377.
24. Tzirkalli E, Zografou K, Willemse L, Vogiatzakis NI, Kati V. Conservation Prioritization of Orthoptera Assemblages on a Mediterranean Island. Diversity. 2024; 16(6):347.
25. Zhang L, Lecoq M, Latchininsky A, Hunter D. Locust and grasshopper management. Annual Review of Entomolog. 2019; 64:15-34.
26. Willemes F. A key to the orthoptera species of Greece. Fauna Graeciae, Hellenic Zoological Society Athens. 1985; 2:288.