New Data on Threatened Lepidopterofauna of North-Eastern Albania

Dr. Ariana Striniqi Laçej

Department of Bio-Chemistry,
"Luigj Gurakuqi" University, Shkodra, Albania

Prof. Dr. Kastriot Misja

Department of Biology
Tirana University, Tirana, Albania

Abstract: *Butterflies represent an interesting group of insects with a high diversity. Preserving the value of this diversity requires continuous monitoring, especially of endangered and threatened species. In this paper I am going to present some North-Eastern Albania Lepidoptera species that are endangered in their habitats and have their threatened categories at the national level based on the Red List of IUCN (International Union for the Protection of Nature). There are exactly 28 butterfly species with their risked categories, from different regions of North-Eastern Albania, that belong respectively to IUCN categories: DD (4 species), EN (2 species), LR (1 specie), CR (2 species), VU (19 species). For each type are given for the venue, habitat, chorology, and also are given ideas about the causes of risk and protective measures.*

Key words: *endangered species, Red List of Lepidoptera, North-Eastern Albania, threatened categories*

Introduction

Butterflies are distinguished among all other insects, by the features of their construction. During the spring they fly in different plants of which suck nectar, helping absorb their pollination.

Thus, the butterflies play an important role as indicators of biodiversity. Their types belong to different zoogeographic groups and ecological groups and populate different height above sea level.

Lepidoptera are the group of insects with a high diversity. For this reason it requires more attention and constant monitoring in particular those perilous species in different levels. This high diversity of Lepidoptera species, is favored by variety forms of relief forms (mountains, valleys, fields, hills, lakes, etc).

Lack of authentic studies for threatened and risked species, except of Red Books, where are included insects of North-East of Albania, and the same time our modest help through monitoring and evaluating Lepidoptera situation, knowing threat factors and risk factors possibility of suggesting conservation measures, represent stimulus for this study.

The publication of these data helps in assessing the biodiversity of butterflies' situation in North-East of Albania.

The importance of this study is great, especially at this time, when in North-East of Albania as elsewhere in the world landscapes has been changed as a result of:

- different urbanized areas
- climatic change
- human interventions
- use of different insecticides and pesticides

Therefore is necessary keeping under control the habitats and prohibition of their demolition.

Aims and Objectives

This study contributes in a further knowledge of Entemophauna of North-East of Albania Region, focusing also in preservation and conservation of endangered species and their respective habitats, especially warm field-hilly regions, warm lower grass areas, rich vegetation areas and water heated areas.

The study intends to help and assist to all decision makers and academic/scientific workers on the observation of North-East of Albanian Lepidopterophauna.

Materials and Methods

The materials were collected during the period March-September 2004-2009 at several localities of North-East of Albania: following Shkodra, Puka, Kukës, Peshkopi, Mirditë . (Fig.1). The collection of day butterflies is made with entomological grids of cheesecloth material (as addressed in Misja 1997, 2005). After catch, the material is stored in paper envelopes, where is written the meeting place, time, habitat's description.

The collected material, when not processed during the day, can be held in the collection envelopes, or arranged in entomological mattresses. In any entomological mattress are included butterflies collected in a certain environment, associated by a label, where is written meeting place, habitat's description, date and the collector's name.

It is good that the processed material be collected immediately after capture. Otherwise the dry material should be mitigated with excilator. For setting up the butterflies, we used entomological needles, being careful that body and wings are not harmed.

The collection of night butterflies, meanwhile, is made by exploiting the fact that they are attracted the best from light bulbs, with different wavelengths. Therefore, light traps are used with different constructions. As a smothery subject is used ethylic ether or ethyl acetate. The butterflies are attracted from the light and remain on the entomological grids.

Another light trap is that of Pennsylvania type. After catch, storage and processing, then is determined it's risk status. The estimation of the present status and threatened level of some North-Eastern Albania Lepidopterophauna species, were done based on IUCN categories, mentioned by Sutherland (2006) in the Conservation Handbook (Research, Management and Policy).

Map of North-East Albania

Fig.1 Map of Albania Localities for each of 28 Lepidoptera species collected.

Results and Discussion

Below are 28 endangered species meet in different regions of North-East Albania, which belong to different families: Lepidopteras belong to different families ,as we can see on Fig 4. Families with the greatest number of endangered species are: Nymphalidae (29 species), Lycanidae (18 species), Hesperidae (10 species), Pieridae (10 species).
Number of species according to chorology as represented on Fig 5. Regarding Corology we can say that the greatest number of species respectively have: Mediterranean (29 species), Eurosiberian (24 species), Euroasiatic (12 species).

Lepidopteras are in different stages of threatment as represented on Fig. 3

- there are 21 species or 75 % , VU (Vulnerable)
- there are 2 species or 7,14 % , EN (Endangered) category
- there are 2 species or 7,14 % , DD (Data Deficient) category

- there are 2 species or 7,14 % , CR (Critically Endangered) category
- there is 1 specie or 3,57 % , LR (Near threatened) category

1. Erynnis tages,. (F. Hesperiidae)
Status: VU Habitat: grass kalkare encountered in environments up to 1800m. Chorology: Type Eurosiberian. Meet in: Kukës, Shkodra.
2. Carcharodus alceae. (F. Hesperiidae)
Status: VU. Habitat: The area without moisture, heated by the sun, the vegetation. Chorology: Type Palearktik. Meet in: Shkodra
3. Carcharodus flocciferus (F.Hesperiidae).
Status: VU habitat: in the valley, often hanging up around 2000m. Chorology: Eurosiberian. Meet in: Tirana ,Bishop Kukes, Shkodra.
4. Pyrgus armoricanus (F.Hesperiidae)
Status: EN Chorology: Mediterranean
Habitat: The area heated by the sun and good without moisture, the valleys of mountains page up to 1500m.
Meet in: Peshkopi
5. Thymelicus acte ion (F.Hesperiidae)
Status: VU Chorology: Mediterranean
Habitat: well heated area of dense vegetation, up to 1500m. Meet in : Kukës (kulla e Lumës)
6. Hesperia comma (F. Hesperiidae)
Status: VU Habitat: environment plants, meadows.
Chorology: Eurasian. Meet in: Lurë, Tetojë
7. Spialia phlomidis (F. Hesperiidae)
Status: DD Habitat: rich environments with vegetation. Chorology: Balkan. Meet in: Shishtavec
8. Parnassius apollo, (F.Papilioniudae)
Status: CR Habitat: Encountered mountains, alpine pastures, meadows with rare woods. Chorology: Eurosiberian Meet in: Kukës, Malësi e Madhe, Peshkopi.
9. Parnassius mnemosyne (F.Papilionidae)
Status: VU Habitat: plain, meadows, mountain slopes of the page to about 1800m. Chorology: Type Eurosiberian. Meet in: Kukës, Malësi e Madhe.
10. Zerynthia cerisyi, (F.Papilionidae)
Status: VU Chorology: Balkan type.
Habitat: areas heated by the sun well up to about 1200m. Meet in: Peshkopi, Shkodër, Kukës
11. Zerynthia polyxena (F .Papilionidae)
Status: VU Habitat: field-heated areas - hills to 1000m. Chorology: Mediterranean. Meet in: Tropojë , Shkodër.
12 Pieris krueperi (F.Pieridae)
Status: VU Chorology: Eurasian. Habitat: The area warm up to 2000m. Meet in Bajram Curri
13. Pontia chloridice (F.Pieridae)
Status: LR Chorology: Eurosiberian
Habitat: warm areas without moisture up to about 1500m. Meet in Mirdita
14. Euchloe penia , (F. Pieridae)
Status: VU. Chorology: Mediterranean
Habitat: Dry meadows and pastures, forests çeltira up to 1500m. Meet in: Bishop

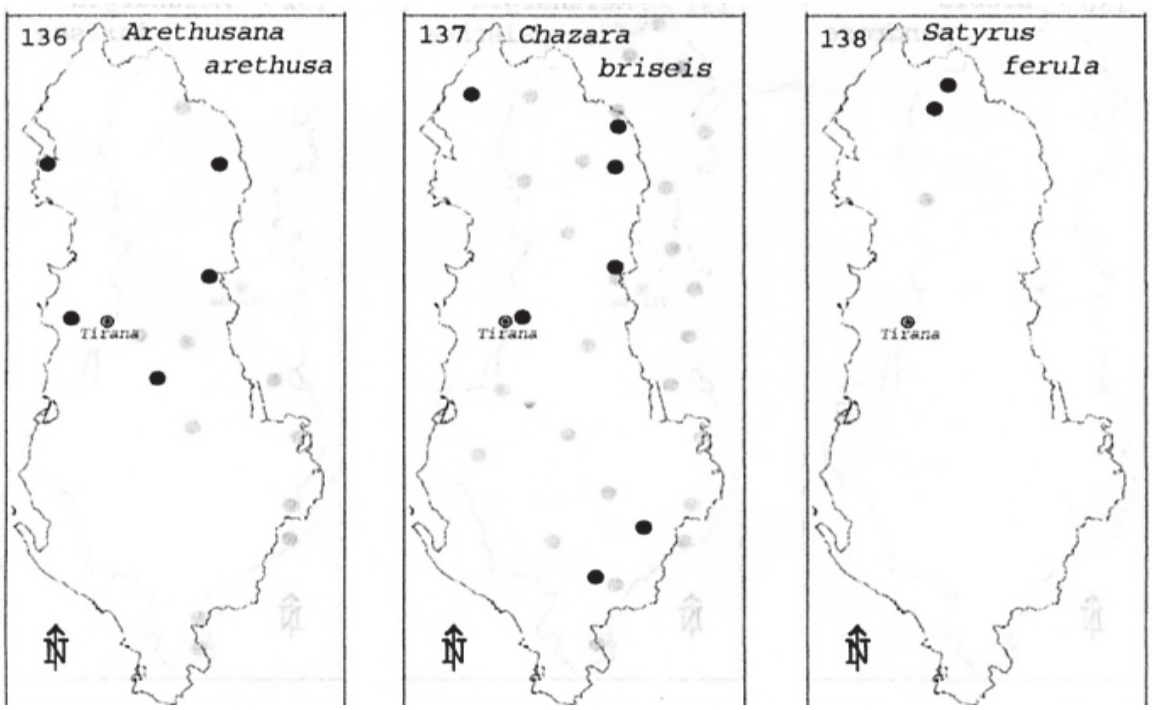

Fig.2 Here are maps with places where we meet each of 3 species (Maps for each of 28 species of butterflies presented are done)

15. Thecla betulae (F. Lycaenidae)
Status: VU Chorology: palearktik Habitat: forest of thin, brushy areas, up to about 1000m. Meet in: Great Malesia ,Bishop
16. Neozephyrus quercus, (F. Lycaenidae)
Status: VU Habitat: in the forests of oak, runs up to 1500m. Chorology: euromesdhetar Meet in: South Albania, Kukes.
17. Satyrium W - album, (F.Lycaenidae)
Status: VU Habitat: deciduous forest and areas with thin forests. Chorology: Eurasian. Meet in: Kukes
18. Thermolycaena dispar (F. Lycaenidae)
Status: VU Habitat: in meadows or marshy moisture stress. Chorology: Type Holarktik. Meet in: Kukes.
19. Cupido minimus (F. Lycaenidae)
Status: VU Chorology: Eurosiberian
Habitat: Meet in pastures, meadows, wasteland from the coast up to about 2000m.
Meet in: Kukës.
20. Glaucopsyche alexis, , (F.Lycaenidae)
Status: VU , forested areas, flat valley near the woods, up to 2000m.
Chorology: Eurasian
Meet in: Kukës , Shkodër
21. Maculinea alcon, (F. Lycaenidae)
Status: VU , the European level. Habitat: wet meadows, up to 100m altitude
Chorology: Eurosiberian
Meet in: Peshkopi , B.Curr , Kukës
22. Maculinea arion, (F.Lycaenidae)
Status: EN, in rare specimens in dry areas with dense vegetation, up to 2000m altitude. Chorology: Type eurosiberian.
Meet in: M.e Madhe , B.Curr, Kukës
23. Iolana iolas, (F.Lycaenidae)
Status: VU Chorology: holomesdhetar
Habitat: in particular specimens in flat, thin areas with shrubs up to about 1000m.
Meet in: Kukes, Shkodra.
24. Polyommatus eroides, (F.Lycaenidae)
Status: CR Habitat: in mountain ravine up to 2000m.

Chorology: eurosiberian
Meet in: Peshkopi , B.Curri .

25. Erebia aethiops, (F.Nymphalidae)
Status: VU habitat: areas near the forest, up to about 2000m. Chorology: Eurosiberian. Meet in: Tropoje, Kukës , Malësi e Madhe.

26. Erebia pronoe (F. Nymphalidae)
Status: DD Habitat: forest area of mountain meadows
Chorology: European Meet in: Korab Mountain Area

27. Minois dryas (F.Nymphalidae)
Status: VU Chorology: Eurasian. Habitat: moist meadows, forests of thin, valleys up to 1500m.
Meet in: Kukës

28. Chazara briseis, (F.Nymphalidae)
Status: VU Chorology: Mediterranean
Habitat: The area no moisture, rënore - rock goes up to about 1500m. Meet in: M.e Madhe, Dibër.

categories	number of species
VU	21
LR	1
CR	2
EN	2
DD	2

Tab.1 Number of species according to categories

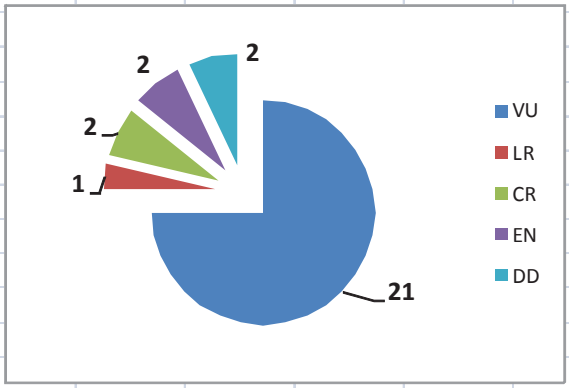

Fig.1 Number of species according to categories

families	number of species
Hesperidae	7
Papilionidae	4
Pieridae	3
Lycanidae	10
Nymphalidae	4

Tab.2 Number of species according to families

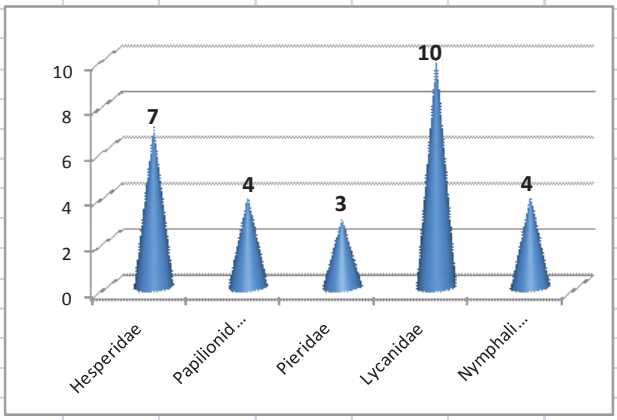

Fig.2 Number of species according to families

Conclusions

Being sensitive to environmental change, butterflies play an important role as bio-indicators of ecosystem. Preserving the values of the ecosystem requires a continuous monitoring of endangered species and their habitats for not allowing their destruction and fragmentation.

Through this study we put in lime 28 types of Lepidopteras found in different areas of North-Eastern Albania as it was mentioned above, they are endangered in different levels.

We think that there are lots of causes of their peril, but the most important to be highlighted are the destruction of their habitats, the collection before egg emplacement, chemical –organic contamination of waters (for water insects) etc. To prevent these risks we should take measures for the protection and preservation of the habitats, to elude commercial collections.

Meanwhile, we should investigate thoroughly on ecological research and should monitor endangered species and their habitats.

References

Misja.K "Identifying Prime Butterfly Areas in Europe. *National Compilers. Dutch Ministry of Agriculture*. 1.(1) 17-21, (2001)

Misja.K., Monografie for Rhopalocera of Albania. *Instituti i Kërkimeve Biologjike Tirana*. 53-82, (2005).

Misja K. and. Co, Insects. *Red Book of Albanian Fauna*. Tirana. 41-73, (2006).

Misja.K., Sistematika e Fluturave; Ekologjia e Fluturave. *Entomologjia*, 212-239 and 298-310, (2004).

Çernishov V.B., Насекомых. *Ekologiçeskaja Zastita Rastemij, Moskva,* 58-81, (2001).

IUCN 2009. *IUCN Red List of Threatened Species.* www.iucnredlist.org (2009)

Brereton. T.M., Warren M.S., Roy D.B.& Stewart, K. The changing status of the Chalkhill Blue butterfly Polymmatus coridon in the UK: the impacts of conservation policies and environmental factors. *Journal of Insect Conservation* 12 (1), 629-638, (2008).

Sutherland J.W. *The Conservation Handbook, Research Management and Policy, Norwich UK*, 278, (2006).

Striniqi A. & Misja K., Insekte të rrezikuara në rrethet Shkodër, Malësi e Madhe. *Buetini Shkencor, Universiteti "Luigj Guakuqi". Seria e Shkencave të Natyrës,* 58 (08), 137-143, (2008).

Striniqi A., Some threatened and risked Insects in Shkodra Region. *Natura Montenegrina. International Symposium of Ecologists of the Republic of Montenegro.* 7 (3), 481-492, (2008).

Paparisto A., Halimi E., Misja K., Striniqi A. Threatened Entomophauna of Albania and therir categories based on IUCN categories. *International Conference on Biological and Environmental Sciences. Tirana.* 355-361, (2008).

Striniqi A. Oga J., Misja K. Data on threatened insects of Shkodra Lake Region. *Book of Abstracts. International Conference on Shkodra Lake*. 22, (2010).