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The Protection of the Lepidopterofauna – The Latest Trends and Problems

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Recent columns of Nota lepid. represent a discussion in which two main trends are discernible. They deal with the ways which aim to protect the lepidopterofauna whose species are dwindling at a great rate. Both the European species and those of other parts of the world are threatened with extinction.

Several authors, such as Ebert, Hesselbarth and Kasy (1978), are of the opinion that the most important thing is to make special registrations in the form of the so called Red Data Books or Red Lists. This attempt to solve the problem was criticised by Alberti (1979). The author is right to put the main stress on protecting the various biotopes by means of letting them free of human interference.

Parnassius apollo (L.) is a classical example which serves the biologists in the discussions on the protection of invertebrates. Up to the year 1950 there remained only two centres of its habitation in Poland. They were contained within two national parks : Tatra National Park (about 30 known localities) and Pieniny National Park (14 localities). According to the statistical data for 1978 (Dabrowski, 1980), only two localities remain in the Polish part of the Tatra Mountains and there is only a single locality in the Pieniny Mts., which is very likely to disappear. The process of extinction of this species can be described in the following way : The south facing mountain slopes, by virtue of their aspect, are exposed to warm southerly winds (Föhn) and, consequently, long periods of sunshine. The warmth is absorbed by the soil and rocks, affording ideal conditions for such plants as Sedum, the foodplant of *Parnassius apollo* (L.) and for the butterfly itself.

The populations of this butterfly are characterised by great activity and they are tolerant to the sudden changes of mountain climate.

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The herbivorous mammals largely prevent the expansion of forest on these biotopes. The natural forest expansion, being a slow process, allows some new stations to occupy temporarily the open southern slopes. Everything changes with the interference of man. The introduction of modern management extends even to the local forest sanctuaries. The foresters of the national parks, who have the executive power, carry out intensive afforestations. All that is regarded as waste land is afforested including the steep mountain sides. This action has greatly reduced the size of the major part of these ecosystems with their groups of vegetation, plants and animals, of which *Parnassius apollo* (L.) is the most characteristic index species. It happened despite the fact that this butterfly was on the list of the species protected by law. Several years ago, two different plans of action were worked out : one for the Tatra National Park and the other for the Pieniny National Park. They both contained full directions, the observance of which was absolutely necessary for the restitution of this monumental species. But the authorities of the above mentioned national parks neglected the problem and hindered this action. It is necessary to point out that the species is also increasingly endangered by overcollecting as the number of colonies surviving decreases. However, where the species is abundant, collecting does not do much harm.

In Poland, besides the National parks there are about 600 nature reserves. There is only one sanctuary for insects among them (its area is 2 ha = 5 acres). The interests of the entomologists rested in the exploiting of the rare species and continuing their investigations. The problem of the survival of the species was almost forgotten. For over twenty years various casual reserves of animated nature have become the refugia for the native fauna : the steppe reserves, the peat bog reserves, the forest reserves and even the geological ones. They have appeared in all those places where the natural ecosystems were threatened. The authorities for the preservation of nature had hardly planned them. At the beginning of the 1960's, it was realized that the people responsible for the reserves had not foreseen the quick development of civilisation. The boundaries of the majority of such biotopes were too narrow. The biotopes were not separated enough from the altered ecosystems around. Chemical poisoning of soil, water and air by all kinds of pesticides, manure and industrial smoke, afforestation and mass tourism threatened the existence of these tiny refugia. Actually, the future of the majority of these sanctuaries of various countries in Europe, which are often the

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refugia for a number of butterflies, will depend upon two factors : the arrangement of highly effective protective zones and attempts, under the supervision of ecologists as well as of the experts on flora and fauna, to keep the status quo in the particular type of nature reserve. Here, the populations of butterflies can be regarded as the best indicators of the unwanted changes which can take place in ecosystems.

The entomological fauna has been much neglected ; this branch of knowledge, not being popular, has made no progress. That is why the initiative of the European Invertebrate Survey has faced difficulties. There have been a lot of difficulties to overcome in almost every European country. Finally however, we have a system of registration for the Lepidopterofauna in addition to other faunas. Owing to its statistical method, it has become a good foundation for the rational economy of the resources of man's natural environment. A lack of experimental studies is felt when we approach the subject of the introduction of certain species of butterflies and moths into new ecosystems. As populations become threatened with extinction, it is necessary to transfer them from their endangered situations to new biotopes which can ensure their survival. Several experiments have already been made, but not yet published. The author has made successful attempts to carry over *Papilio machaon* (L.), *Minois dryas* (Scop.) and *Zygaena carniolica* (Scop.) (Fig. 1). These experiments tell us that it is proper and profitable to use gravid females for this purpose. Females, when placed in new localities, are able to choose accurately the most suitable niches for their progeny. At the same time we get rid of the problem of the introduction of many undesirable parasites into the new ecosystems, which is difficult to avoid in the case of transferring the caterpillars from one biotope to another.

After a quarter of a century, we have realized that the putting of 4 species of Lepidoptera on the list of the legally protected species in Poland did not serve the intended purpose. *Parnassius mnemosyne* (L.), *Parnassius apollo* (L.), *Iphiclides podalirius* (L.) are extinct in the majority of their former localities. The inclusion of *Acherontia atropos* (L.) was done under a misapprehension, as this moth flies from the south and its populations in Poland are not permanent. But the act of that registration is useful as a legal form of protecting the species. We need official sanctioning of the protection of nature to complement the other forms. Having in mind the actual threat to the

Lepidopterofauna, the "Red Data Book of Polish Lepidopterofauna, I : Rhopalocera and Zygaenidae" has just been accomplished. This is not merely a list of species. The book is a result of long (some score of years) and careful observations of the regions and gives information about some of the frequent causes that led to the extinction of the populations of about 60 species. It contains also suggestions as to the active preservation of the remaining species.

Fig. 1. A colony of *Zygaena carniolica* (Scop.) ready for release in a new locality.

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The number of species threatened with extinction still increases and in European countries the areas of the disappearing populations are enlargening. This requires radical action. We must make a serious resolution about the protection of biotopes and put it into practice. This will be done with the help of the theoretical knowledge of the entomologists and botanists. We have noticed that it is often sufficient to separate the protected biotopes from anthropogenic interference in order to restore their normal function as refugia.

Having presented the situation of the protection of fauna in Poland and Europe, we must point out that these particular problems are much easier to solve in the Soviet Union. There are many legal statutes in force for the preservation of nature and they are not disregarded. The authorities abide by them in the nature reserves (e.g. "zapoviednik"). Moreover, the intensity of the anthropogenic pressures which are so destructive to the natural environment is not as high as it is in Europe. We can take as examples the biocoenoses protected by law in certain areas of the autonomic republics of Uzbek, Armenia or even Georgia. There are, however, still difficulties in drawing the attention of the nature conservation authorities to the Lepidopterofauna (Dabrowski, 1980).

In conclusion, we can say that the most essential thing in the efforts to restore the disappearing species of butterflies is the protection of their biotopes, which was rightly stated by Alberti (1979). At the same time, we accept the so-called "Red data books" or "Red lists", since they are a scientific documentation on all instances of threat to particular species in the fauna of the region. They complement all our efforts to give the protection of biotopes and our Lepidopterofauna an ecological basis.

References

Alberti, B., 1979. Artenschutz vordringlich über Rote Listen oder Biotopschutz ? Nota lepid., **2** : 3-7.

Dabrowski, J. S., 1980. The disappearance of the biotopes of *P. apollo* (L.) in Poland. Časopis Slezského musea (Acta musei Silesiae), Series A, Opava, 1980, Vol. 29, 181-185.

Ebert, G., Hesselbarth, G., & Kasy, F., 1978. Die Bedeutung Roter Listen in der Lepidopterologie. Nota lepid., **1** : 69-74.

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