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RESEARCHES ON THE MYRMECOFILE SPECIES OF LYCAENIDA FAMILY COLLECTED FROM GRASSLANDS AROUND SIBIEL, SIBIU

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Abstract

This study refers to Lycaenidae family, owned mirmecofile species. The pupose of the paper was to characterize the habitat feeding preferences of this butterfly species, especially for mirmecofile species. Butterflies respond rapidly to environmental changes and are important indicators of the health of biodievrsity and the wider environment. A study of the diurnal Lepidoptera (Rhopalocera) populations was based on foirld survey method and completed in the meadows cut for hay around the village of Sibiel, located 22 km from Sibiu, central Romania. This study has generated an important new baseline on the status of butterflies in the region, specifying which are the mirmecofile species. Of the 59 species of Macrolepidopters collected in 2015, there were identified 7 myrmecofile species belonging to the Lycaenidae Family as follows: Satyrium spini spini, Satyrium acaciae acacia, Plebeius argus argus, Plebeius argyrognomon argyrognomon, Aricia agestis agestis, Polyommatus icarus icarus, and *Polyommatus daphnis daphnis.*

***Key words*:** *faunistics, ecology, Macrolepidoptera, Sibiel*

INTRODUCTION

Researches on the mutual relations between butterflies and ants, most notably the butterflies of the genus *Maculinea*, where the larvae have evolved into social parasites, obligatory *Myrmica* antimykofili [35].
In the case of mutualist butterfly larvae, the basis of the mirmecofile relationship is to provide a source of food in exchange for protection. Ants of the host species bring the larvae into the colony, where they grow up to the hump.
In the *Maculinea* cucumber (*M. alcon, M. rebeli*) the larvae are nourished and fed by the hosts, and in the predatory species (*M. arion, M. nausithous, M. teleius*) they feed on eating larvae and eggs ants [36].
Such mutualist relations have formed between Lycaenidae butterflies larvae and ants throughout their evolution.
The mutual relationship between butterfly and antler larvae is to protect larvae against various parasites and predators.
Ants are rewarded by larvae with a rich amino acid secretion.

MATERIALS AND METHODS

The study of lepidoptera in Transylvania has a long history [1-9, 10-33, 36, 37].
The collection sites were located in Sibiel grassland, over the periode April to October 2015 [34]. Search were made throughout this period, with more intensive effort during the summer months.
The grassland habitat in the village of Sibiel [27, 32-35] was chosen in which the butterfly species of the Lycaenidae family live on plants from the spontaneous flora.
The aim of the paper was to characterize the habitat feeding preferences of Lycaenidae butterflies species, specifying which of these are mirmecofile species.

RESULTS AND DISCUSSIONS

The Lycaenidae family contains more than 5,000 species of butterflies, of which over 75% have a certain relationship with different species of ants. Much of these relationships are mutualistic, optional or mandatory. In the optional relationship, larvae offer saccharine to

ants in exchange for protection against predators and parasites.

The collection sites were located in Sibiel grassland, over the periode April to October 2015. Search were made throughout this period, with more intensive effort during the summer months. Specific survey areas where specimens were collected included: North Sibiel village: Valea Cetății, Calea Nouă, Schit Sibiel, Colibi, Gura Morii, in the South-East: Bărcul Roșu, Subpărățel Forest, Luncă, Vadul, in the South-West: grassland Vii, Locuri Rele [34].

Family Lycaenidae

Satyrium spini spini ([Denis&Schiffermüller], 1775)) (Photo 1)

Habitat type(s): bush area, forest edges, sylvan glades. **Status***:* localized and rare. **Altitude**: 100-800 m. **Flight period**: VI-VII. **Protection status**: near threatened. **Larval food plants**: *Rhamnus catharticus, Paliurus spina-christi*. Myrmecophile species. **Overwintering stage:** egg.

Photo 1. *Satyrium spini spini*
https://www.google.ro/search?q=Satyrium+spini+spini

Satyrium acaciae acacia (Fabricius, 1787) (Photo 2)

Habitat type(s): oak forests, forest edges, karst areas, wooded steppe, limestone gorges.

Photo 2. *Satyrium acaciae acacia*
https://www.google.ro/search?q=Satyrium+acaciae+acacia

Status*:* localized, common and very common. **Altitude**: 0-800 m. **Flight period**: mid V-mid VII. **Protection status**: endangered, vulnerable and near threatened. **Larval food plants**: *Prunus spinosa*. Myrmecophile species. **Overwintering stage:** egg.

Plebeius argus argus (Linnaeus, 1758), (Photo 3)

Habitat type(s): found in all habitat types [9,34].

Status*:* common and very common. **Altitude**: 0-1600 m. **Flight period**: mid V- mid VI (G1), mid VII-VIII. **Protection status**: Least concern. **Larval food plants**: *Hippocrepis comosa, Lotus corniculatus*, Coronilla varia, *Cytisus sp., Helianthemum sp., Genista sp., Colutea sp., Astragalus sp., Ononis sp., Medicago sp., Galega sp., Erica sp., Calluna vulgaris*. Myrmecophile species. **Overwintering stage:** egg.

Photo 3. *Plebeius argus argus*
https://www.google.ro/search?q=Plebeius+argus+argus

Plebeius argyrognomon argyrognomon (Bergsträsser, 1779), (Photo 4)

Habitat type(s): grasslands, meadows, bush areas, limestone areas.

Photo 4. *Plebeius argyrognomon argyrognomon*
https://www.google.ro/search?q=Plebeius+argyrognomon

Status*:* common. **Altitude**: 0-1200 m. **Flight period**: V-VI (G1), midVII- midIX (G2). **Protection status**: near threatened and Least concern. **Larval food plants**: *Astragalus glycyphyllos*, *Coronilla varia*. Myrmecophile species. **Overwintering stage:** larva.

Aricia agestis agestis
([Denis&Schiffermüller], 1775), (Photo 5)
Habitat type(s): found in all habitat types. **Status***:* common and very common. **Altitude**: 0-1700 m. **Flight period**: mid IV-XI. **Protection status**: Least concern. **Larval food plants**: *Geranium pratense, Helianthemum nummullarium, Eredium sp., Geranium sp*. Myrmecophile species. **Overwintering stage:** larva.

Photo 5. *Aricia agestis agestis*
https://www.google.ro/search?q=Aricia+agestis+agestis

Polyommatus icarus icarus (Rottemburg, 1775), (Photo 6)
Habitat type(s): found in all habitat types. **Status***:* very common. **Altitude**: 0-2200 m. **Flight period**: mid IV-XI.

Photo 6. *Polyommatus icarus icarus*
https://www.google.ro/search?q=Polyommatus+icarus+icarus

Protection status: Least concern. **Larval food plants**: *Medicago lupulina, M. sativa. Onobrychis sp., Galega sp., Lotus sp., Ononis sp., Trifolium sp., Melilotus sp., Genista sp., Astragalus sp., Anthyllis sp., Ceronilla sp*. Myrmecophile species. **Overwintering stage:** larva [34].

Polyommatus daphnis daphnis
([Denis&Schiffermüller], 1775), (Photo 7)
Habitat type(s): limestone areas, karst canyons, rock slopes, loess wastelands, steppe meadows, limestone gorges. **Status***:* common and very common. **Altitude**: 0-1600 m. **Flight period**: mid VI- mid IX. **Protection status**: Least concern. **Larval food plants**: *Ceronilla varia, Astragalus slycyphyllos.* Myrmecophile species. **Overwintering stage:** egg.

Photo 7. *Polyommatus daphnis daphnis*
https://www.google.ro/search?q=Polyommatus+daphnis+daphnis

CONCLUSIONS

The countryside around Sibiel village is important for butterflies. Sampling in one season, it was found that the area supported a minimum of more than a quarter of all butterfly species known to regularly occur in Romania.
The relationship of mutualism is best known among the butterflies of the family Lycaenidae and ants. The lycaenide manioces produce nectar by specialized organs and communicate with ants through sound and vibration. This anthrax relationship is considered beneficial for butterfly caterpillars as it reduces larval parasite.
It is known that forty-one percent of all genus ants include species that associate with insects. Ants provide a service in exchange for nutrients in the form of honey, a sugar liquid

excreted by many insect phytopathogens. Interactions between honey-producing insects and ants are often called trophobiosis, a term that combines the notions of trophic relationships with symbiosis between ants and insects.

As a result of the present study of the 59 species of Macrolepidopters collected in 2015 in the high grasslands around Sibiel, Romania, we identified 7 myrmecofile species, belonging to the *Lycaenidae* Family. These species are: *Satyrium spini spini, Satyrium acaciae acacia, Plebeius argus argus, Plebeius argyrognomon argyrognomon, Aricia agestis agestis, Polyommatus icarus icarus*, and *Polyommatus daphnis daphnis.*

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