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# THE STRUCTURE OF AN ENTOMOFAUNA CHARACTERISTIC FOR A SPONTANEOUS MEADOW IN SIBIEL VILLAGE (SIBIU, ROMANIA)

**Cristina STANCĂ-MOISE**

"Lucian Blaga" University of Sibiu, Faculty of Agricultural Sciences, Food Industry and Environmental Protection, Sibiu, Romania, Phone: 0040269234111, Fax: 0040269234111, E-mail: cristinamoise1@yahoo.com

***Corresponding author*:** cristinamoise1@yahoo.com

***Abstract***

*This paper complements previous studies characterizing the useful and harmful insect species existing in different types of ecosystems in the village of Sibiel (Sibiu). The study presents quantitative relations resulted from the ecological typology established by observations and research. Research related to the application of the information theory in knowledge of the biota structure of a grassland ecosystem, with quantities and qualitative ratios related to useful and harmful fauna for the studied meadow have not taken any further. The present study is a beginning knowledge of entomofauna specific for spontaneous grasslands, providing useful data for those interested in setting a system of integrated pest control in these biotas.*

***Key words:*** *entomofauna, Sibiel village, Sibiu, Romania*

## INTRODUCTION

Although natural grassland area of our country does not exceed 4 mil, ha, their entomofauna is not widely known. Over time they were studied by: [1-6,11-13,22].
research focusing the behavior of phytophageous species, studies on pests of fodder, the entomofauna structure and dynamics of forage crops, especially grassland perennial grasses cultivated and spontaneous.
This paperwork complements the research in the area of Sibiel (Sibiu) and implicitly of Romania. Over the years the author has conducted studies on populations of insect orders Coleoptera [7,14-22] and Lepidopetera [24-34, 39].
The analysis of wild flora highlights nine economically [8-10,37,38] distinct groups, namely the group of meso-hydrophytes which include *Agrostis tenuis* and a group of *Festuca pratensis,* which grow in well aerated places. In sandy areas grow mesophyll species such as: *Poa pratensis, Plantago lanceolatum, Achillea millefolium, Campanula patula,* but also less mesohygrophilous herbaceous plant species such as *Agrostis alba*, *Deschampia cespitosa and Ranunculus repens*. [35,36]. The most important association in this grassy layer is *Holcus lanatus*, together with other species of: *Agrostis stolonifera, Carex vulpina and Alopecurus pratensis*. Due to the high number of mesohygrophilous and hygrophyte species, the studied grassland falls into the association of *Agrostideto-Festucetum pratensis* [23].

Fig. 1. Natural grassland area in Sibiel (Sibiu) orig.

## MATERIALS AND METHODS

For knowing the entomofauna in the studied meadow it was used threading technique, by means of entomological net. The material

captured from April to September 2015 was systematically grouped, labeled and determined the species. To express quantitative relationships and group relationships between species in the ecosystem were used analytical idea (abundance and dominance) which enable the structure and role of different species in the biota activity studied.

Fig. 2. Important association in this grassy layer (orig.)

## RESULTS AND DISCUSSIONS

In terms characteristic of 2015, entomophauna captured in grassland at the edge of the village Sibiel (Sibiu) has been divided in harmful and useful one.

Fig.3. The studied grassland, images from each month collection September 2015 (orig.)

In the meadow analyzed were seized 475 copies of 42 species belonging to 6 systematic insect orders. Of the 475 specimens, 81.4% are damaging wildlife. The heterogeneity index reflects a substantial increase in pest distribution:

$$R = FU / FD = 24.3\%$$

Pest insect belonging to the following orders:

**Ord. DIPTERA**: 174- 8 species dominating 36.63%, Fam. Chloropidae (*Meromyza nigriventris* 17.3%) and 5.4% *Tipula oleracea*.

**Ord. COLEOPTERA**: 86 copies-9 species 18.10%. Most representative of this order were species belonging to Fam. Chrisomelidae with *Phylotetra atra* species 4.6%, following Curculionoidae family with *Hypera nigriventis* species 2.4%.

**Ord. HOMOPTERA**, with 63 copies and 6 species 13.26. The most important number belonged to Fam. Cicadellidae, Psammotettix striatum, 2.8%.

**Ord. THYSANOPTERA**, with 32 copies, 3 species-6.73%. Best represented are copies of Fam. Thripidae (Chirotrips denticaudus, 28 specimens 7.6%)

**ORD. HETEROPTERA** with 21 specimens belonging to 3 Species 4.42%, the most important families were: Fam. Pentadonidae (Eurydema eleraceum-3.2%).

**Ord. HYMENOTERA** with 4 copies, 0.84%, 1 species in Fam. Cimicidae.

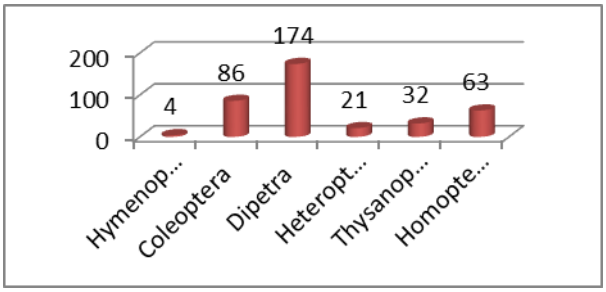


Fig. 4. The structure of entomophauna (Species)

Reduced diversity of useful entomofauna was influenced by climatic factors features of 2015.

In the analyzed meadow from the total of 475 specimens 97 specimens were captured, 18.6%, 11 species belonging to useful entomofauna.

The 97 copies were grouped into five insect orders. **Ord**. **HYMENOPTERA** 34 copies-3 species 6.7%. Fam. Formicidae (*Formica rufa*) -19 copies 4,3%.

**Ord**. **COLEOPTERA** 29 copies-4 species 4.8%, Fam. Halticidae (*Halticus maculatus*,

11 copies, 2.6%).
**Ord. DIPETRA**-19 copies-3.9%.
**Ord. HETEROPTERA**-9 copies, 2 species 0.1%
**Ord. NEUROPTERA**-6 copies-1.6%.

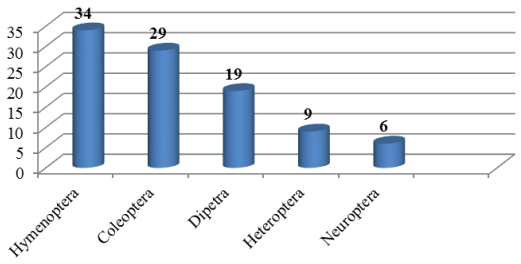


Fig. 5. The structure of entomophauna (Copies)

Among the arthropods were captured a few entomophages. Of these 43 species, 8 species-17.9%. Entomofauna was synthesized in four orders:
**Ord. HYMENOPTERA**-27 copies-3 species 11.6%.
**Ord. COLEOPTERA**- 5 copies-2 species 1.7%.
**Ord. HETEROPTERA**-4 copies -2species 2.2%.
**Ord. DIPTERA**-4 copies-3 species 2.7%.

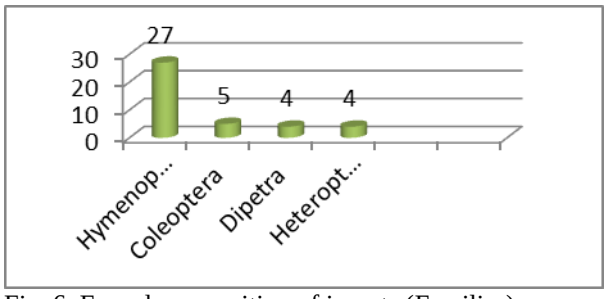


Fig. 6. Faunal composition of insects (Families)

## CONCLUSIONS

In terms of 2015 after research of entomofauna characteristic of a meadow ecosystem in the village of Sibiel (Sibiu) were established: the structure, abundance, dominance and dynamics of insect species belonging to 7 orders and a total number of 475 copies. 81.4% of centralizing data obtained are damaging wildlife species (Fig.4) and 18.6% are useful wildlife species (Fig.5). Maintaining biological balance of the agronomical ecosystem of a spontaneous grassland play an important role in the presence and activity of entomophagus species (Fig.6), especially that of the predatory insects.

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