Acta Biol. Szeged. 32, pp. 137–139 (1986)

CHECK LIST OF *COLLEMBOLA* ON A SANDY GRASSLAND (KISKUNSÁG NATIONAL PARK, HUNGARY)

E. H. HORNUNG

(Received: Sept. 15, 1985)

Abstract

13 species belonging to 4 families of the taxon Collembola were stated in the material of Barber traps filled with ethylene-glykoll. The traps were set in Bugacpuszta (KNP, Hungary), on the research area of the Zoological Institute of Szeged University. The number of individuals was between 60–80 thousand per year. There were both euedafic and epedafic species among them. The occurrence of *Onychoiurus armatus* (TULLB.) GISIN means pecularity for the investigated extrem dry sandy soil. The presence of *Cyphoderus albinus* NICOLET is also rarity. This was found in the nest of the ant *Lasius alienus* FÖRSTER.

The dominant species were: *Entomobrya nigriventris* STACH. (57.19%), *Entomobrya quinquelineata* BÖRN. (19.86%) and *Seira pallipes* REUTER (16.31%).

Key words: *Collembola*, check list, sandy grassland, dominance-ratio.

Introduction

The knowledge of the specific representatives of the investigated systematic or ecological group is fundamentally necessary to all ecological studies. Can it be either structural or funtional one. This means — as first step — the preparation of a check list. This was done at the beginning of the investigation of *Collembola* group as an important factor of decomposing subsystem in the frame of studies at Bugacpuszta (Kiskunság National Park) coordinated by the Zoological Department of the Attila József University at Szeged.

An account on the role of *Collembola* and on their population characteristics will be given in the next publication. Here and now presumably a full list of species is published.

The investigation of *Collembolas* living on the above mentioned area was started by HORVÁTH and NACSA (1982). They found 7 species determining 10355 specimens. The underestimation the number of species can be due to the samples consisting of relatively few specimens.

The description of abiotic and biotic factors of the area under discussion can be found in several publications (MÓCZÁR et al. 1980; KÖRMÖCZI et al. 1981; GALLÉ et al. 1985). The most important factors in the respect of *Collembolas* are: extremly dry, in summer often drought-dangerous climate, sandy soil featured by wind hollows and having mosaic vegetation and microclimate. These all determine the existence of *Collembola* and influence their seasonal dynamism.

Methods and discussion

The determined specimens were produced by the continuously active Barber-traps containing ethylene-glycoll arranged in fives, at 18 points of the area differing in their facilities.

The specimens were determined on the ground of GISIN's key (1960). The material yielded 13 species belonging to 4 families and they are representing both lifetypes:

epedafic (atmobiotic) = EE (here)
euedafic (hemiedafic, euedafic) = EU.

By the classification of EISENBEIS and WICHARD (1985) resp. that of GISIN (1943) in brackets.

The material studied consisted of about 60–80 thousand specimens per year. All the species could be found in the time whole of investigation (from March till December).

The list of the species:

fam.: *Poduridae*

1. *Xenylla maritima* TULLBERG, 1869; EU
2. *Brachystomella curvula* GISIN, 1948; EU

fam.: *Onychiuridae*

3. *Onychiurus armatus* (TULLBERG, 1869) GISIN 1952; EU

fam.: *Isotomidae*

4. *Isotomurus palustris* (MÜLLER, 1776); EU; 0.25%

fam.: *Entomobryidae*

5. *Entomobrya nigriventris* STACH, 1930; EE; 57.19%
6. *Entomobrya quinquelineata* BÖRNER, 1901; EE; 19.86%
7. *Orchesella bifasciata* NICOLET, 1841; EE; 0.63%
8. *Orchesella cincta* (LINNÉ, 1758); EE; 0.73%
9. *Seira pallipes* REUTER, 1895; EE; 16.31%
10. *Lepidocyrtus cyaneus* TULLBERG, 1871; EE; 2.82%
11. *Cyphoderus albinus* NICOLET, 1841;

fam.: *Sminthuridae*

12. *Sminthurinus bimaculatus* (AXELSON, 1902); EE; 0.42%
13. *Sminthurus maculatus* TÖMÖSVÁRY, 1883; EE; 1.79%

The dominance-ratio data behind the species names mean data without *Poduridae*, *O. armatus* and *C. albinus*. The dominancy of *E. nigriventris* (57.19%) can be seen from these values. The proportions of *E. quinquelineata* (19.86%) and *S. pallipes* (16.31%) are also high.

The presence of *Poduridae* is regular only in the case of two trap-groups, on extrem dry places with degraded vegetation. But there they have mass occurrence.

Their picking means a heavy methodical problem because of their smallness and great number of occurrence (500–1000 specimens per trap-group).

The occurrence of *O. armatus* is very occassional. Being this species euedafic, the method used is not really effective for their collection.

C. albinus lives excusively in ant nests. In this particular case it was found in the nest of *Lasius alienus* FÖRSTER.

The representatives of family *Sminthuridae* have often high occurrence by using sweep nets. From this fact we can conclude that their density is higher in the grass level, their living space is not primary the ground surface.

Acknowledgements: I would like to express my sincere thanks to DR IMRE LOKSA, senior lecturer of the Zoosystematical and Ecological Department of ELTE University in Budapest for his selfless help in determination and for re-examination of the species.

References

EISENBEIS, G. and WICHARD, W. (1985): Atlas zur Biologie der Bodenarthropoden. — Gustav Fischer Verlag, Stuttgart — New York, pp. 1–434.

GALLÉ, L., HORNUNG, E., SZŐNYI, G., GYÖRFFY, GY. and KINCSEK, I. (1985): A JATE Állattani Tanszékének komplex ökológiai kutatásai. (Complex ecological studies of a sandy grassland in Kiskunság National Park.) — in: Tudományos kutatások a Kiskunsági Nemzeti Parkban 1975–1984. ed. TÓTH, K., Hungexpo, Budapest

GISIN, H. (1943): Ökologie und Lebensgemeinschaften der Collembolen in schweizerischen Exkursionsgebiet Basels. — Rev. Suisse Zool. *50*, 131–224.

GISIN, H. (1960): Collembolenfauna Europas. — Mus. Hist. Nat., Genf

HORVÁTH, P. and NACSA, G. (1982): *Collembola* populációk ökológiai vizsgálata homokpusztai gyepökoszisztémában. (Ecological investigations of *Collembola* populations on a sandy grassland.) (Manuscript)

KÖRMÖCZI, L., BODROGKÖZY, GY. and HORVÁTH, I. (1981): Investigation of biological production and bioclimate of sandy grassland in Bugac (Great Hungarian Plain between Danube and Tisza). — Acta Biol. Szeged. *27*, 55–69.

MÓCZÁR, L., GALLÉ, L., GYÖRFFY, GY. and HORNUNG, E. (1980): Complex ecological investigations in sandy soil grassland: aims and general methodology. — Acta Biol. Szeged. *26*, 161–164.

Address of the author:
E. H. HORNUNG
Department of Zoology
Attila József University
H–6722 Szeged, P.O. Box: 659
Hungary