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DIVERSITY OF SMALL MAMMALS COMMUNITIES IN TWO SEMIARTIFICIAL WOODED HABITATS

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RIASSUNTO – ***Diversità delle comunità di micromammiferi in due ambienti boschivi semi-naturali***. E' stata indagata la composizione delle comunità di micromammiferi in due allevamenti intensivi di fagiani - "Hájek" (HJ) and "Rumunská" (RB), Moravia meridionale, Repubblica Ceca – differenti sia per composizione del habitat sia per densità di fagiani. Nel periodo 2002 – 2005, sono state complessivamente identificate 10 specie (7 roditori e 3 insettivori). La diversità (indice di Shannon-Weaver, H`) è risultata maggiore in RB ($H`_{RB}$ = 1.28; $H`_{HJ}$ = 1.11; t = 3.09: p< 0.01), mentre abbondanza relativa e equiripartizione non hanno mostrato differenze significative. La diversità è probabilmente influenzata dalla composizione e dalla struttura del habitat. In aree intensamente modificate dalle attività agricole, gli allevamenti di fagiani possono rappresentare un "rifugio" per i piccoli mammiferi.

Parole chiave: allevamento di fagiani, micromammiferi, diversità, composizione del habitat

Pheasantries are relatively small areas characterised by a mosaic of various woody and open land habitats suitable for pheasant breeding. Large numbers of pheasants concentrated in these habitats need supplementary feed. In the agricultural landscape of southern Moravia (The Czech Republic), a pheasantry represents an isolated forest stand which, besides intensive pheasant breeding, plays a role as a refuge for many animal species.

Our research aimed to assess the influence of the pheasantry environment on the diversity of small mammal populations in the rural landscape.

The pheasantry "Rumunská - RB" (280 ha) – (49º 02.41` N, 016º 42.8` E) lies at an elevation of 190 to 200 m a.s.l. It is a mosaic of forest habitats, consisting of several tree species of various age categories, with dominance of oak, and small open areas, such as meadows, small fields and wetlands. Intensive breeding of pheasants (*Phasianus colchicus, Syrmaticus reevesi*) is supplied all year round by various cereal and maize foods. On average 72 pheasant chicks are released per ha every year in spring. Each year pheasants are harvested in autumn and only a small number of adults survive during the winter.

The location "Hájek - HJ"(60 ha) – (48º 57.4` N, 016º 35.62` E) lies at 190 m a.s.l. It represents a typical production forest, belonging to the *Carpineto-Quercetum acerosum* forest type, and is characterized by a more uniform habitat with respect to RB. The number of pheasant chicks released every year amounts to only 15 individuals per ha.

From 2002 to 2005, small mammals were sampled five times a year for three consecutive nights by snap trapping on linear transects. For each site 20 traps were used, spaced out 5 m apart. Peanut butter was used as bait. The trapped species were determined in laboratory.

Small mammal community structure was described by the Shannon-Weaver index of diversity (H'; Shannon and Weaver, 1963), equitability (E; Sheldon, 1969) and relative abundance (rA = number of individuals trapped per number of trap-nights; Losos *et al*., 1985). The mean values of these parameters were compared by t-test.

On the whole, 1745 small mammals of ten different species (7 rodents and 3 insectivores) were captured. *Apodemus flavicollis*, *A. sylvaticus* and *Clethrionomys glareolus* were the dominant species (Tab. 1). During the four years, the diversity of small mammal communities varied greatly in both pheasantries (Fig. 1), mean values being significantly different (H_{RB} = 1.01 ± 0.25; H_{HJ} = 0.79 ± 0.34; t = 3.09, P = 0.006). On the other hand the equitability was similar (E_{RB} = 0.77 ± 0.12; E_{HJ} = 0.76 ± 0.28; t = 0.010, P = 0.90).

Table 1 - Composition of the small mammal community in two pheasantries (RB and HJ); N = number of trapped individuals; rA = relative abundance; % = per cent frequency of occurrence.

	RB			HJ		
Small mammals	N	rA	%	N	rA	%
Apodemus flavicollis	545	5.8	49.1	379	7.02	58.9
A. sylvaticus	220	2.35	19.8	122	2.26	19
Clethrionomys glareolus	239	2.56	21.5	89	1.65	13.8
Microtus arvalis	84	0.9	7.56	48	0.89	7.47
M. subterraneus	3	0.03	0.27	2	0.04	0.31
Mus musculus	2	0.02	0.18	0	0	0
Apodemus microps	5	0.05	0.45	0	0	0
Sorex araneus	3	0.03	0.27	0	0	0
Crocidura leucodon	3	0.03	0.27	0	0	0
Crocidura suaveolens	1	0.01	0.09	0	0	0

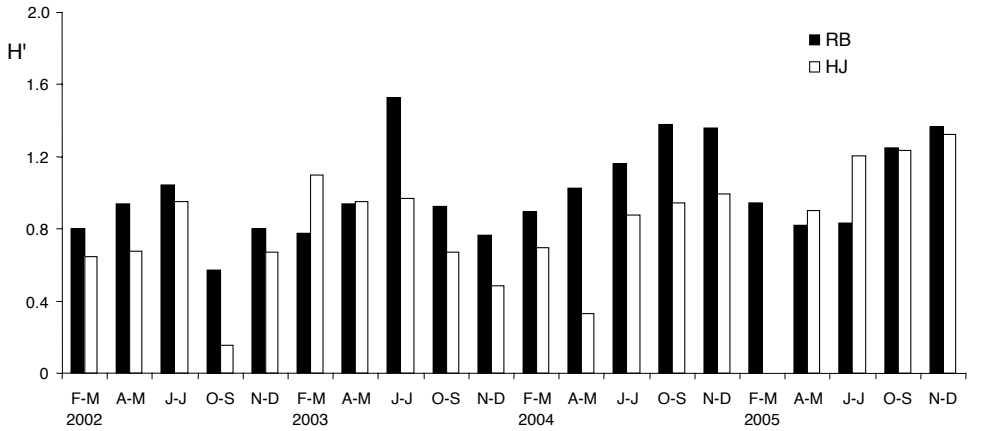

Figure 1 - Diversity of small mammals communities in two differently managed pheasantries (RB, HJ) in southern Moravia rural landscape.

An intensively managed pheasantry such as RB is characterised by a high diversity of habitats, according to pheasants' ecological preference (Hudec and Šťastný, 2005). Such a high diversity of habitats in a relatively small area positively influences the presence of small mammal species of forest as well as of open land (e.g. Gurnell, 1985). The same goal is obtained by windbreaks and small woods in agroecosystems (Stanko *et al*., 1996; Suchomel and Heroldová, 2004).

Supplementary food (mainly cereals and maize) provided for pheasants during the year is another important characteristic of pheasantries. During the vegetative season, when enough natural food resources are available, supplementary food does not make up a major component of small mammal diet but during winter it can support the overwintering of the population (Flowerdew, 1987; Suchomel *et al*., 2005). As the relative abundance of small mammals (Tab. 1) and equitability are not significantly different for the two pheasantries (rA: t = -0.009, P = 0.99; E: t = -0.0701; P = 0.944), food resources of human origin do not seem to be a major factor (compared with habitat composition and structure) shaping the diversity of the small mammal community of pheasantries.

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