

PRELIMINARY DATA CONCERNING THE DYNAMICS OF SOME POPULATIONS OF SMALL MAMMALS FROM A MAIZE CROP (BEREȘTI-TAZLĂU LOCALITY, BACĂU COUNTY, ROMÂNIA)

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Abstract. The paper presents the preliminary results of a study developed between July 2008 and November 2009 concerning the dynamics of some populations of small mammals in an agricultural maize crop from Berești Tazlau village, Bacău County. During the 2 years of study (2008 and 2009) 64 individuals of small mammals were captured, which systematically belong to Rodentia order, to 2 families (Arvicolidae and Muridae), 3 genera and 6 species. In the whole course of the study a numerical increase of autumn captures was noticed, the species *Apodemus agrarius* being dominant (PALLAS 1771), followed by *Microtus arvalis* (PALLAS 1779). Besides, the study reveals the dominance of adult males and a slight rejuvenation of populations during autumn.

Keywords: small mammals, maize crop, Bacău County.

Rezumat. Date preliminare privind dinamica unor populații de micromamifere dintr-o cultură de porumb (comuna Berești-Tazlău, județul Bacău, România). Lucrarea prezintă rezultatele preliminare ale unui studiu început în iulie 2008-noiembrie 2009 privind dinamica unor populații de micromamifere dintr-o cultură agricolă de porumb din localitatea Berești-Tazlău, județul Bacău. Pe perioada celor doi ani de studiu (2008 și 2009) au fost capturate un număr de 64 exemplare de mamifere mici, care din punct de vedere sistematic aparțin Ordinului Rodentia, la două familii (Arvicolidae și Muridae), 3 genuri și 6 specii. Pe toată perioada de studiu s-a observat o creștere numerică a capturilor în perioada de toamnă, dominantă fiind specia *Apodemus agrarius* (PALLAS 1771) urmată de *Microtus arvalis* (PALLAS 1779). De asemenea studiul relevă dominarea masculilor adulți și o ușoară întinerire a populațiilor în sezonul de toamnă.

Cuvinte cheie: micromamifere, cultură de porumb, județul Bacău.

INTRODUCTION

Berești Tazlau commune is situated in the central part of Bacău County (46°28' N, 26°40' E), its territory being geographically situated in the Eastern Subcarpathians, in the Tazlau depression (Fig. 1). This hilly area varies in altitude between 250 and 550 m. The climate here is influenced in summer by the Azores anticyclone and in the winter by the Siberian anticyclone. The area is crossed by the Tazlau river with its tributaries: the Cernu, the Strâmba, and the Nadișa. The vegetal carpet was formed on a clay substratum and the area presents a vegetation period ranging between 170 and 180 days. The main vegetal association here is *Quercus-petraea-Carpinetum*, with a rich specific composition, having as recognition species *Melampyrum nemorosum*, *Staphylea pinata*, *Stellaria holostea*, *Lathyrus venetus*. The shrub stratum is mainly composed of *Crataegus monogyna*, *Ligustrum vulgare*, *Euonymus europaea*, *Cornus sanguinea*, *C. mas*, *Rosa canina*, *Viburnum lantana*, *Staphylea pinnata*.



Figure 1. The physical-geographical map of Bacău County (FILIP et. al., 1996).

Figura 1. Harta fizico-geografică a județului Bacău (FILIP et. al., 1996).

In this area, there can be found good conditions of development for cereals, such as: *Zea mays*, *Triticum aestivum*, *Avena sativa*, *Secale cereale* (BARABAŞ, 1974).

MATERIAL AND METHODS

Preliminary research upon dynamics aspect of small mammal fauna in the agricultural maize crop in Beresti Tazlau commune, Bacau County were conducted in 2008 and 2009, from July until November. In order to capture the material, 50 live traps were used, placed in the form of a web on the ground, at 10 m distance of each other, 3 days per month (SIMIONESCU, 1984). Thus, for every year 5 samples were analysed. In the 2 years of the study 64 rodent individuals were captured: 36 in 2008 and 28 in 2009. The material was determined by using the specialized literature (POPESCU & MURARIU, 2001) and (PUCEK, 1981).

RESULTS AND DISCUSSIONS

In the period July 2008 – November 2009, 64 rodents were captured. Systematically they are included in 2 families: Arvicolidae and Muridae, 3 genera and 6 species: *Microtus arvalis* (PALLAS 1779), *Mus musculus* LINNAEUS 1758, *Mus spicilegus* NORDMANN 1840, *Apodemus agrarius* (PALLAS 1771), *Apodemus flavicollis* (MELCHIOR 1834), *Apodemus sylvaticus* (LINNAEUS 1758). In Table 1 we present the situation of captures in the 2 years of the study and their taxonomical situation.

Table 1. Species of rodents collected in maize crop (Beresti Tazlau, Bacau County).
Tabel 1. Specii de rozătoare colectate în cultura de porumb (Beresti Tazlău, județul Bacău).

No.	Order	Family	Species	No. of specimens		Total
				2008	2009	
1	Rodentia	Arvicolidae	<i>Microtus arvalis</i> (PALLAS 1779)	9	7	16
2		Muridae	<i>Mus musculus</i> (LINNAEUS 1758)	3	2	5
3			<i>Mus spicilegus</i> (NORDMANN 1840)	4	5	9
4			<i>Apodemus agrarius</i> (PALLAS 1771)	15	11	26
5			<i>Apodemus flavicollis</i> (MELCHIOR 1834)	3	1	4
6			<i>Apodemus sylvaticus</i> (LINNAEUS 1758)	2	2	4
7			Total	36	28	64

During the whole period of the study, the species *Apodemus agrarius* (PALLAS 1771) was best numerically represented – 15 individuals captured in 2008 and 11 individuals in 2009, followed by *Microtus arvalis* (PALLAS 1779) with 9 individuals captured in 2008 and 7 individuals in 2009 (Figs 2, 3). In 2009 we notice a decline of the individuals' number in comparison with the previous year.

The capture increase took place from summer to autumn, as plants grew mature and agricultural works stopped. The increase of population density during autumn is due to forming of maize stem bundles, which provide an ideal shelter and a rich food source for rodents.

Analysing the age and sex structure of species identified in the maize crop in 2008, of the 36 individuals, 20 were males and 16 females, with an adult dominance during the whole period of study and a slight rejuvenation of populations in the autumn when more juveniles and preadults were captured (Fig. 4). In 2009 we notice a similar situation to that of 2008, i.e. adult domination during summer and population rejuvenation during autumn. During this year, of the 28 individuals captured, 18 were males and 10 females (Fig. 5).

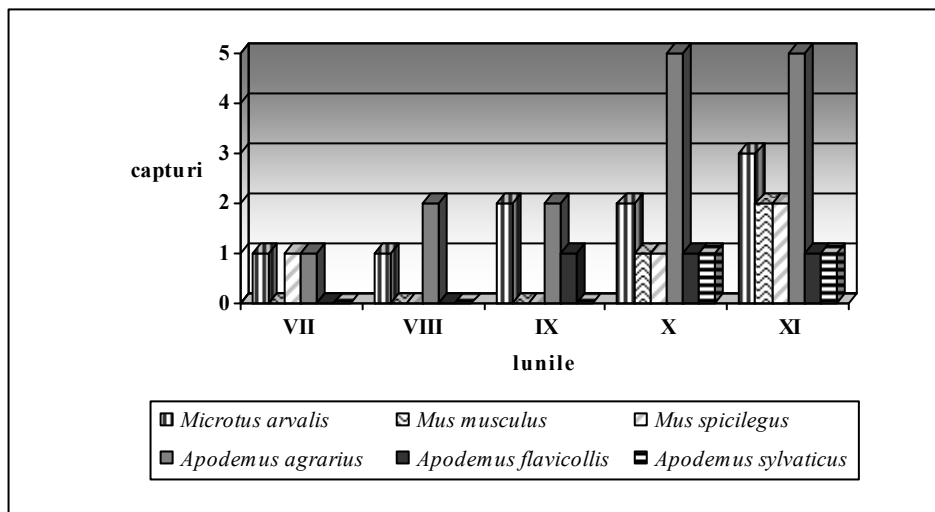


Figure 2. The monthly dynamics of rodent species identified in the maize crop (in 2008).
 Figura 2. Dinamica lunară a speciilor de rozătoare identificate în cultura de porumb (2008).

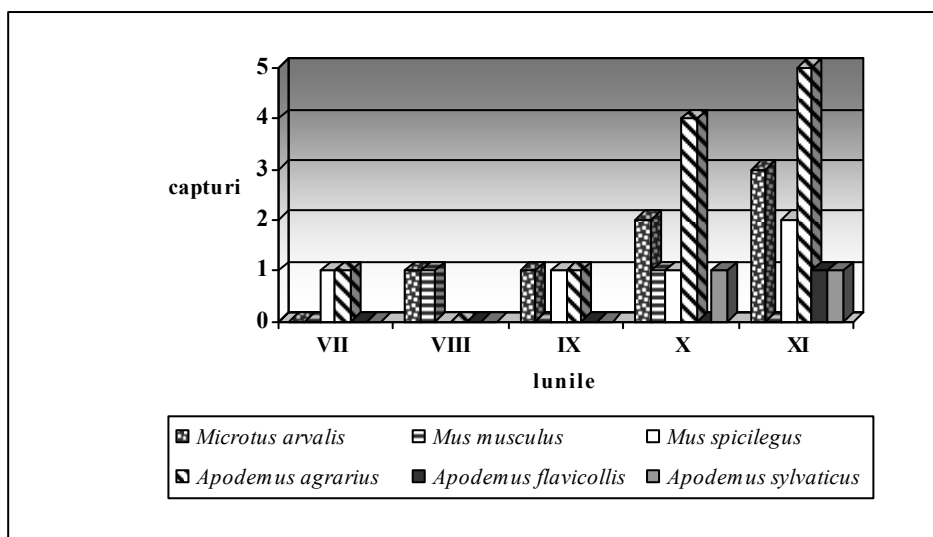


Figure 3. The monthly dynamics of rodent species identified in the maize crop (in 2009).
 Figura 3. Dinamica lunară a speciilor de rozătoare identificate în cultura de porumb (2009).

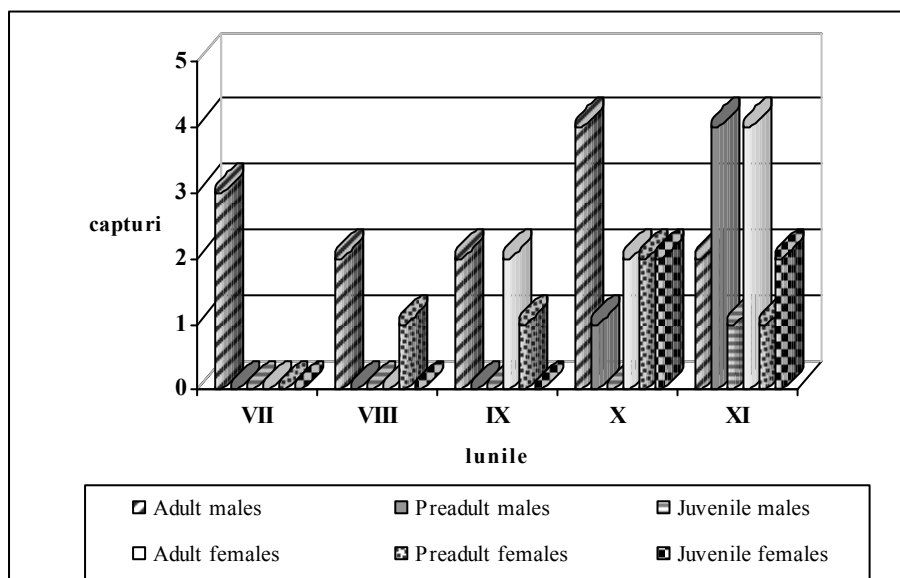


Figure 4. Age and sex structure in the species collected during 2008.
 Figura 4. Structura pe vârstă și sex la speciile colectate în anul 2008.

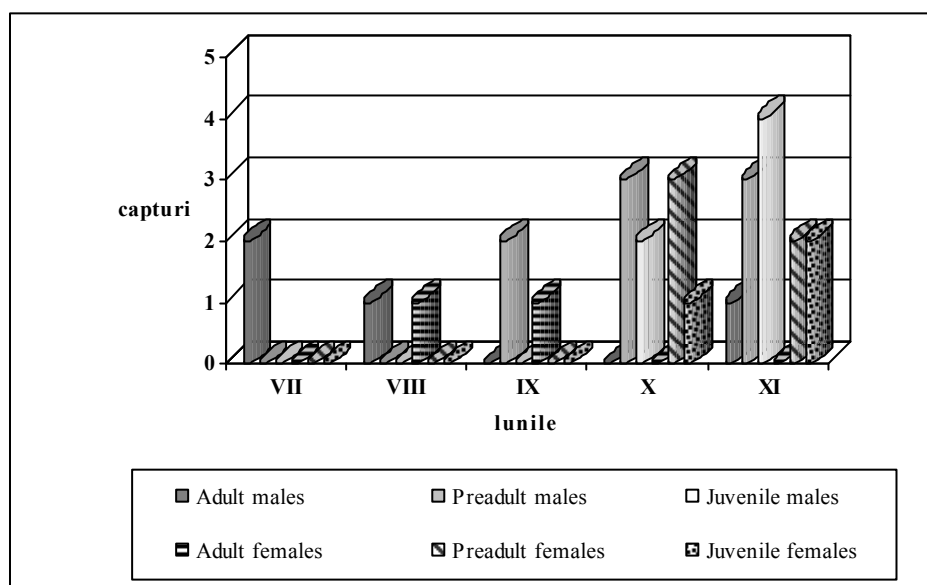


Figure 5. Age and sex structure in the species collected during 2009.
 Figura 5. Structura pe vârstă și sex la speciile colectate în anul 2009.

CONCLUSIONS

1. During July 2008 – November 2009 in the maize crop in Beresti Tazlau, Bacau County 64 rodent individuals were captured: 36 in 2008 and 28 in 2009.

2. Systematically, the rodents captured in the above-mentioned period belong to 2 families (*Arvicolidae* and *Muridae*), 3 genera and 6 species: *Microtus arvalis* (PALLAS 1779), *Mus musculus* (LINNAEUS 1758), *Mus spicilegus* (NORDMANN 1840), *Apodemus agrarius* (PALLAS 1771), *Apodemus flavicollis* (MELCHIOR 1834), *Apodemus sylvaticus* (LINNAEUS 1758).

3. During the whole period of study, the numerically dominant species was *Apodemus agrarius* (PALLAS 1771) with a number of 26 individuals, followed by *Microtus arvalis* (PALLAS 1779) with a number of 16 individuals.

4. The monthly dynamics of rodent species identified in the maize crop reveals, in the 2 years of study, a numerical increase of captures, from summer to autumn, a fact which can be explained through the ceasing of agrotechnical work, the adult-growing of plants and the formation of maize stem bundles, which provide an ideal shelter and a rich food source.

5. The analysis of age and sex structure underlines the adult male dominance during the whole period of study and the population rejuvenation during autumn when more juveniles and preadults were captured.

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