RESEARCHES ON THE FAUNA OF MOLES, HEDGEHOGS AND SHREWS (MAMMALIA) IN THE TINCA AREA (BIHOR COUNTY, ROMANIA)

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Abstract. The paper presents the results of the researches performed between 2000-2024 regarding the moles, hedgehogs and shrews species from the Tinca area (Bihor county, Romania) and some of their ecological and ethological aspects. Seven species were identified, belonging to 3 families and 5 genera.

Keywords: moles, hedgehogs, shrews, Tinca area.

Rezumat. Cercetări asupra cârtițelor, aricilor și chițcanilor (Mammalia) din zona Tinca (județul Bihor, România). Lucrarea prezintă rezultatele cercetărilor efectuate de autori în perioada 2000-2024 privind speciile de cârtițe, arici și chițcani (Mammalia) din zona Tinca (județul Bihor, România) și unele aspecte ecologice și etologice ale acestora. Au fost identificate 7 specii, aparținând la 3 familii și 5 genuri.

Cuvinte cheie: cârtițe, arici, chițcani, zona Tinca.

INTRODUCTION

The Tinca area is located in the south-western part of the Bihor county, at the contact of the Miersig plain and the Holod depression. The average altitude is 115 m, the climate is temperate-continental and the vegetation belongs to the oak layer. The hydrographic system is represented by the Crișul Negru river. The Tinca village includes the Tinca, Râpa, Belfir, Gurbediu and Girișu Negru villages (Fig. 1). Papers and books regarding the moles, hedgehogs and shrews species in the area were published by ILIE A. L. (2014a, b; 2016a, b, c; 2017; 2019; 2020; 2022); ILIE L. C., ILIE A. L. (2018 a, b); ILIE & MARINESCU, 2018; 2021). The aim of this paper is a synthesis of these works on the mentioned species and some of their ecological and ethological aspects from this part of Romania.

Figure 1. The location of Tinca area (original).

MATERIAL AND METHODS

Research regarding the presence of the moles, hedgehogs and shrews species, their ecology and ethology began sporadically in 2000, then systematically performed starting 2005 till 2024 in different locations from the Tinca village. The species were captured by traps, others were identified by direct observation, by the pellets of owl species or traces of their presence in nature. Different guides were used for the identification of these species and their traces in nature (BANG et al., 1985; MACDONALD & BARRET, 1995; MURARIU, 2000; OLSEN, 2012). The conservation status of these species was published in different sources: (BOTNARIUC & TATOLE, 2005; GOGA, 2012).

RESULTS AND DISCUSSIONS

In the analyzed period, the following species were identified in the Tinca area:

EULIPOTYPHLA ORDER,
TALPIDAE FAMILY:

Talpa europaea (Linnaeus, 1758) - Examined material: a common species throughout the area in the underground terrestrial environment where it digs numerous galleries (ILIE, 2014a). These communicate with the outside through the well-known earthworm burrows: many molehills, Tinca, June 23, 2015 (ILIE, 2016a); one specimen, the Gurbediu forest, May 19, 2015 (unpublished data) (Fig. 2);one specimen, Tinca, May 16, 2020 (ILIE, 2020). ILIE identifies a 100 % albino specimen, July 17, 2015, Girișu Negru (ILIE, 2016a). The author also notes the rapidity of movement, despite its cumbersome appearance, of a specimen discovered at the edge of the Tinca forest, June 7, 2015, and his sound is a bizarre combination of a grunt and a squeak (ILIE, 2016a). Common species in Romania, wherever the soil is rich enough in humus (GOGA, 2012). Conservation status: least concern.

ERINACEIDAE FAMILY:

Erinaceus concolor Martin, 1838 - Examined material: ILIE identifies one female specimen with two baby hedgehogs in the personal garden, Tinca, July 2, 2003 and one specimen, in the same location, August 5, 2006; many traces, Tinca, August 21, 2014 (Fig. 3); one albino specimen on a meadow between Tinca and Husasău de Tinca, November 12, 2015 (ILIE, 2016a); three specimens, Tinca, June 20, 2015 (ILIE, 2014a; 2016a); two excrements who contained seeds of fruits, peels of grapes, Tinca, January 12,20, 2018 (ILIE & MARINESCU, 2018); one excrement who contained the seeds of hawthorn, the Tinca forest, October 6, 2018 (ILIE & ILIE, 2018); two excrements who contained remains of insects (coleopterans belonging to Carabidae and Scarabaeidae families), Tinca, July 1; August 20, 2019 (ILIE, 2019); four juvenile specimens, the Râpa forest, July 25, 2019; one specimen, Tinca, the entirely May-October months,2020 (ILIE, 2020); one specimen, Tinca, April 30 (Fig. 4); May 7, 28; the entirely July and August months, 2021; two specimens, Tinca, June 24, 2021 (ILIE & MARINESCU, 2021); one specimen, Râpa, December 4, 14,2021; February 2, 2022; September 22, 2022; one female with four juvenile specimens, Tinca, April 6, 2022; one specimen, Tinca, May 2; June 12, 28-30; July 21-30; August 10; September 25, 28; October 4, 11, 2022 (ILIE, 2022). The presence of the species in the cold season confirms data from scientific literature (MURARIU, 2000).
In 2016, ILIE identified a series of excrements whose content he analyzed: Excrement 1: L=2.5cm, l=o.8cm, contained only elytrons of Carabidae (Coleoptera) – *Harpalus* Latreiile, 1802 and *Pterostichus* Bonelli, 1810 genera, Tinca, March 4, 2016 (Fig. 5). Excrement 2:L=6.2cm, l= 0.7cm, contained only seeds of fruits, Tinca, July 12, 2016. Excrement 3:L=4cm, l=1cm, contained only elytrons of carabids (*Harpalus* Latr., *Pterostichus* Bon.), Tinca, June 15, 2016. Excrement 4: L=3.1cm, l=1cm, contained the remains of a specimen *Gryllotalpa gryllotalpa* Linnaeus, 1758 (Orthoptera, Gryllotalpidae) as well as the remains of carabid coleopterans (elytron, pronotum, antenna), Tinca, June 20, 2016. Excrement 5:L=4cm, l=1.1cm and excrement 6:L=4.5cm, l=1cm, contained remains belonging of a beetle from Cerambycidae and Carabidae families (Coleoptera), as well as of two specimens of Chrysomelidae family: *Chrysolina sturmi* Westhoff, 1882 (one male and one female), Tinca, June 24, 2016.
Excrement 7: L=4.5cm, l=1.1cm, contained remains of *Gryllotalpa gryllotalpa* L, as well as remains of Carabidae, Tinca, June 24, 2016. Excrement 8:L=3.5cm, l=0.8cm, contained remains of *Gryllus campestris* Linnaeus, 1758 (Orthoptera, Gryllidae) as well as remains of little Carabidae, Tinca, June 25. Excrement 9: L=5cm, l=1cm, contained remains of cricket and seeds of spontaneous Apiaceae, Tinca, June 25 (ILIE, 2016c).
Common species in the Tinca area and in Romania, having predominantly crepuscular and nocturnal activity. Useful species, feeding on numerous species of insects harmful to agriculture. Conservation status: least concern.

SORICIDAE FAMILY:

Crocidura suaveolens (Pallas, 1811) - Examined material: one specimen, Tinca, October 14, 2005. On December 1, 2014, ILIE observed that a cat attacked and ate the head of a specimen of the species but not the body. Cats generally avoided attacks on shrews, preferring to eat rodents and small birds (ILIE, 2016a); one specimen, Tinca, November 10, 20, 2021; one specimen, Tinca, May 6, 2022 (ILIE, 2022) (Fig. 6). Insectivorous relative common species in the area and Romania, having predominantly crepuscular and nocturnal activity. Conservation status: least concern.

Crocidura leucodon (Hermann, 1780) - Examined material: one specimen, Râpa, May 12, 2005; one specimen, Tinca, August 18, 2006 (ILIE, 2016a); one dead specimen, Tinca, October 15, 2016 (ILIE, 2016b). Relative common species in the area and in Romania, having a similar living environment, activity and type of feeding to those of the previous species. Conservation status: least concern.

Neomys fodiens (Pennant, 1771) - Examined material: many traces on the shores of the Crișul Negru river, Tinca, December 24, 2014 (ILIE, 2014b); January 3, 2016; one captured specimen, Tinca, June 3, 2015, near the Crișul Negru river, having the following sizes: total lenght = 12.4 cm, tail lenght = 4 cm, head lenght = 3 cm (ILIE, 2016a). It digs tunnels at the water s edge, sometimes using the tunnels of moles or various species of rodents. Diurnal, sometimes nocturnal activity. Relative common species in the area and in Romania, near waters. Conservation status:least concern.

Sorex araneus (Linnaeus, 1758) - Examined material: one specimen, Tinca, March 10, 13, 2017 (ILIE, 2017); one specimen, the edge of the Gurbediu forest, June 20, 2017; one specimen, Tinca, October 10, 2018 (ILIE & ILIE, 2018b); two excrements, L=4 mm, l=1mm,Tinca, November 8, 2017 (ILIE & ILIE, 2018a); one specimen, the edge of the Rîpa forest, July

3, 2019; one specimen, the edge of the Tinca forest, May 28, 2020 (unpublished data). Crepuscular and nocturnal activity. Common species in the area and in Romania. Conservation status: least concern.

Sorex minutus (Linnaeus, 1766) - Examined material: one specimen, Tinca, August 2, 2007; one specimen, Gurbediu, July 13, 2008 (ILIE, 2016a). Crepuscular and nocturnal activity. Common species in the area and in Romania. Conservation status: least concern. The presence of these species in the cold season confirms data from scientific literature (MURARIU, 2000).

Figure 2. *Talpa europaea* (photo: Ilie A.).

Figure 3. *Erinaceus concolor* - traces (photo: Ilie A.).

Figure 4. *Erinaceus concolor* (photo: Ilie A.).

Figure 5. Hedgehog- excrement (photo: Ilie A.).

Figure 6. *Crocidura suaveolens* (photo: Ilie A.).

CONCLUSIONS

During the analyzed period, 7 species belonging to 3 families and 5 genera were reported in the Tinca area. According to Red list of vertebrates from Romania (BOTNARIUC & TATOLE, 2005) there were registered 7 least concern species. Some species were observed in the cold season.

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