

LIFE OF THE RIVER TISZA XX. MAMMOLOGICAL INVESTIGATIONS IN „TÖS“-FOREST

by

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Introduction

In the course of the systematic examinations in the Tisza-basin and continuing the mammological investigations at Marosszög, Körtevényes and Sasér (3, 4)) the so called Tös-forest was chosen as a new territory for this work in the area of the villages Alpár, Lakitelek and Tiszaug. Investigations on this area were justified by the followings:

a) Before the control of Tisza, this area was a part of the great forest of the inundation area of the river.

This is proved by the old *Quercus robur* exemplares, the members of the former extensive *Querceto-roboretum* association of the Great Hungarian Plain.

b) In all soil samples from this area the subfossil *Mollusca* fauna of Tisza is found.

c) The sand-region between the rivers Duna and Tisza is the nearest here to the Tisza and therefore it was possible and reasonable to investigate the effect of the sand too.

Evolution of the fauna

The evolution of the fauna of an area is the complex result of several factors. The fauna of the controlled Tisza-basin originated as follows:

The first factor was the fauna prior to the control. A member of this fauna is *Lutra lutra* (L.). Formerly it lived here in mass, nowadays it occurs only sporadically. Data about the former occurrences of the little mammals are not known.

Another factor of the origin of the fauna is the climatical one. From this point of view the area shows great daily fluctuations. These fluctuations are especially great in the temperature, humidity and air pressure. These fluctuations and the relatively great relative humidity of the air render possible the presence only for elastic species.

As third factor the sand-hills between the rivers Duna and Tisza can be mentioned. The special fauna of the sand-hills is, however, selected by the above-mentioned climatical factors and by the effect of Tisza.

The fourth factor is the anthropogen effect; not so much by the forestry but the noise, disturbances, laying fire by the tourists. During the season of excursions practically no tranquil point of the forest exists. This may explain the rather sparse fauna of the area (Table II.).

Results

Expositioning the results it seems suitable to arrange the area into different parts.

A. *Robiniatum* and mixed forests

The undergrowth is scanty, large rises and coolings in the temperature are characteristic and smaller or larger sand-hills. On this area the *Mammalia* fauna is negligible.

The animals found here are caught probably during their rambling in the night. The results are not confirmed with the hole-pitfalls. Inhabited holes were not found.

B. *Alnetum* and *Quercetum* of humid character

On this area, as dominants, the hygrophilic *Talpa europaea* L. and *Sorex a. araneus* L. occur. Subdominants are *Apodemus f. flavicollis* (MELCH.), *Apodemus sylvaticus* (L.). Rare are *Erinaceus roumanicus* BARR. et HAM. and *Mus musculus spicilegus* PET.

Variation of measures and the color of the caught animals are the same as those of the animals from Marosszög, Körtvélyes and Sasér (3, 4).

As an exception can be mentioned *Apodemus f. flavicollis* (MELCH.). The measures of the exemplares caught here are larger than those of the exemplares on the areae investigated former (3, 4) and approximate the data described in the literature. They agree with the measures of the exemplares from the Bialowieza-Nationalpark (1).

From the other literary data they diverge more or less (2, 5, 8). The few number of exemplares from the other *species* does not permit to establish general conclusions.

C. Humide grass-land of the inundation area.

Among the afforested fields there are larger and smaller openings which are intersected with moats. Beside the moats and at the edge of forests occur *Sorex a. araneus* L., *Talpa europaea* L. and in smaller amount *Apodemus sylvaticus* (L.). On this part *Sorex* occurs in the greatest quantity, in the measures and colour they are fairly uniform and correspond to the literary data (7).

D. *Phragmitetum*

On the openings in the direction of Alpár there are several larger and smaller ponds overgrown with reed.

On the area the dominant *species* are *Neomys fodiens* (PENNANT), *Ondatra zibethica* (L.), and nesting on the reeds *Micromys minutus pratensis* OCSKAY. The area may be divided into several biotops which have various fauna or at least the dominant *species* change.

It is not the aim to divide this relatively small area into smaller parts. To deduce general conclusions it is expedient to evaluate in per cent the number of the trapped animals (Table I.).

The above-mentioned data show that on this area the dominant *species* are *Apodemus f. flavicollis* (MELCH.) and *Sorex a. araneus* L. The subdominant and rare animals are enumerated in Table II.

The two extremes, the sand-hills and the swamps are disadvantageous for the little mammals. On the latter area live hygrophilic *species* (*Neomys*, *Ondatra*) while on the former the fauna is very scanty and negligible.

The bulk of the animals was found halfway between the two extremes on the smaller elevations of soils which transverse the hole area. Here are optimal the essential conditions, neither the underground water nor the loose sand do not endanger the holes.

Table I.

OCURRENCE OF THE FREQUENT SPECIES IN PER CENT OF THE TOTAL
NUMBER OF THE CATHED ANIMALS

<i>INSECTIVORA</i> .*	♂	♀
<i>Erinaceus europaeus roumanicus</i> BARR. & HAM.	3,1 ⁰ / ₀	—
<i>Sorex araneus araneus</i> LINNÉ	13,0 ⁰ / ₀	13,9 ⁰ / ₀
<i>Myotis daubentoni</i> (KUHL)	4,0 ⁰ / ₀	—
<i>Eptesicus serotinus</i> (SCHREBER)	2,5 ⁰ / ₀	—
<i>RODENTIA</i> :		
<i>Apodemus sylvaticus</i> LINNÉ	3,1 ⁰ / ₀	3,1 ⁰ / ₀
<i>Apodemus f. flavicollis</i> (MELCHIOR)	28,7 ⁰ / ₀	23,3 ⁰ / ₀
<i>Mus musculus spicilegus</i> PETÉNYI	3,1 ⁰ / ₀	—
<i>CARNIVORA</i> :		
<i>Mustela nivalis</i> LINNÉ	1,1 ⁰ / ₀	—
<i>Mustela putorius</i> LINNÉ	1,1 ⁰ / ₀	—

* Number of the cathed exemplares of *TALPA EUROPAEA* LINNÉ, considering the difficulties of trapping, was very small. Therefore it is not evaluate here.

Further, also it was demonstrable the zonal arrangement here too. Starting from the Tisza and advancing to the embankment diminishes the number of hygrophylic *species* and, at the same time, the number of the mesophilic and xerophilic *species* became dominant. In that case when other humide area too besides Tisza exist (swampy pits, ponds) the zonal arrangement is repeated several times according to the extent of the area.

Summary

In the course of our investigations of Tőss-forest it was established that this area has a special character in the Tisza-basin caused by the microclima and the pedological factors.

From the regularities established till now for the Tisza-basin are valid only the general ones: biotop of special feature, zonal arrangement, and selecting activity. These still could be modified to a lesser or greater extent.

Table II.

MAMMALIA FAUNA OF THE TŐS-Forest IN COMPARAISON WITH THAT
OF THE FORESTS TÁPÉ—VETYE, KÖRTVÉLYES, AND SASÉR

Name	Tápé— Vetye- forest	Körtvélyes	Sasér	Tős-forest
<i>Vulpes vulpes</i> (LINNÉ)	++	++	+++	++
<i>Mustela nivalis</i> LINNÉ	+	+	+	+
<i>Mustela erminea</i> LINNÉ	+	+	+	—
<i>Mustela putorius</i> LINNÉ	++	+	+	+
<i>Martes foina</i> (ERXLEBEN)	—	+	—	—
<i>Lutra lutra</i> (LINNÉ)	—	—	+	+
<i>Sus scrofa</i> LINNÉ	+++	+	+	—
<i>Capreolus capreolus</i> (LINNÉ)	++	++++	++	+
<i>Lepus europaeus</i> PALLAS	++++	+++	++	+
<i>Citellus citellus</i> (LINNÉ)	—	+	—	—
<i>Apodemus sylvaticus</i> (LINNÉ)	+++++	+++++	+++++	+
<i>Apodemus f. flavicollis</i> (MELCH)	+	+++	++++	+++++
<i>Mus musculus spicilegus</i> PET.	++++	++++	+++	+
<i>Micromys minutus pratensis</i> OCSKAY	++	++	+++	++
<i>Microtus arvalis</i> (PALLAS)	—	+	—	—
<i>Microtus oec. méhelyi</i> ÉHIK	—	—	+	—
<i>Ondatra zibethica</i> (LINNÉ)	++	+	+++	+++
<i>Erinaceus e. roumanicus</i> B. & H.	+	+	+	+
<i>Talpa europaea</i> LINNÉ	++++	++++	+++++	+++
<i>Sorex a. araneus</i> LINNÉ	+	++	++	++++
<i>Sorex minutus</i> LINNÉ	—	+	+	—
<i>Neomys fodiens</i> (PENNANT)	—	—	?	+
<i>Crocidura leucodon</i> (HERMANN)	+	+	—	—
<i>Myotis daubentonii</i> (KUHL)	—	—	—	++
<i>Myotis mystacinus</i> (KUHL)	—	—	+	—
<i>Eptesicus serotinus</i> (SCHREB)	—	—	+	+
<i>Plecotus auritus</i> (LINNÉ)	—	—	+	—

+ = occurs very rarely
 ++ = occurs rarely
 +++ = subdominant
 ++++ = dominant
 — = not found
 ? = doubtful

So e. g. the selection; in consequence of the sand some characteristic *species* are lacking.

Results of the trapping by the author were completed with the reliable data of game-keepers and therefore the faunalist of the area may be considered as complete.

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