

Folk knowledge of non-domestic mammals among ethnic Hungarians in North-Western Romania

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Abstract. Most ethnobiological research on mammals has focused on the domesticated species and largely ignored the wild taxa. We carried out a research among the ethnic Hungarians in Nuşfalău, Romania, to document the local ecological knowledge on mammals. We studied which kinds of local wild mammals the villagers know, which folk taxa they can identify, the names they use for these taxa, and what do they know about the morphological, behavioural and ecological characteristics, as well as the economical impact of these mammals. Twenty persons were interviewed with the aid of colour photographs of 62 mammal species. Five hundred and twenty three individual data on the various folk taxa were thus gathered. The majority of the interviewees were still possessed surprisingly detailed and precise knowledge on the wild species living in their surroundings. They classified the 62 mammal species into 42 folk taxa and grouped them into 11 larger sets. The groupings were almost similar to the scientific classification except for one group which mainly contained mice and voles. The eastern hedgehog (*Erinaceus roumanicus*) had a unique taxonomy with two highly distinct folk taxa. The characteristics of the known folk taxa were described according to their morphological, ethological-ecological, and cultural salience. In the case of physical appearance, naming of a prototype and comparing to it was typical. In terms of ecological salience of feeding habit, characteristics of movement, habitat, breeding habit, bashfulness, voice, annual and daily pattern of behaviour, and observability were the most important characteristics. The comparison to humans was particularly important when describing behaviour. In terms of cultural salience, the characterization of harm caused and benefit gained was unequivocally dominant. The overwhelming majority of the species were known through personal experience. The effect of books and media was negligible. Local knowledge of wild animals is part of our common European cultural heritage. This knowledge is fading rapidly, and most of it may be lost in the next decades.

Key words: classification, cultural heritage, ethnozoology, folk taxonomy, salience.

Introduction

There has been much ethnobiological research on the relationship between biota, landscape and folk knowledge of plants, birds, insects, medicinal uses, habitats, etc. However, research on local knowledge of mammals has only focused on the domesticated species and largely ignored the wild taxa (a few exceptions are Malkin 1962; Broch 2009; Ziembicki et al. 2013).

Only a small number of studies have been published in Europe and northern Eurasia (Svanberg et al. 2011). The majority of them were aimed to present folk knowledge on individual species (including biological identification and local naming). One comprehensive study by Fridell and Svanberg (2007), was published as a book which summarised folk knowledge on mammals in Sweden. Ståhlberg and Svanberg (2010) analyzed the relationship between rodents and nomads in Siberia. Lescureux and Linnell (2010) studied tradi-

tional knowledge and cognitive processes in relation to wolf (*Canis lupus*), brown bear (*Ursus arctos*), and European lynx (*Lynx lynx*) in Macedonia. There was also an ethnozoological study regarding human-wolf relationship in the Iberian Peninsula (Álvares et al 2011).

Large-scale ethnozoological data among ethnic Hungarians has been collected so far for only one region (Sóvidék, Szeklerland, Romania). Gub (1996) gathered data on traditional ecological knowledge of 40 mammal species in a landscape dominated by coniferous and beech forest. He provided the most elaborate documentation on the knowledge related to cultural salience by bringing together proverbs and riddles as well as collected the traditional knowledge on morphological and ecological characteristics of all folk mammal taxa occurring in Sóvidék region. These data are closely corresponded to the scientific opinions. Kovács (1987) studied the folk knowledge of 31 mammal species along the Danube (Szigetköz, NW Hun-

gary), which were sometimes surprisingly precise even if judged by scientific standards

Identification, naming, and classification of folk taxa in most cases are accomplished using three criteria. These are the morphological appearance of animals (i.e. size, shape, colour), the ecological distinctiveness (i.e. behaviour, habitat, abundance), and the cultural significance (harm, either supposed or real, and benefit) (Hunn 1982). Considering the degree of familiarity with a species, the most important factors are morphological characteristics, particularly the body size, and the potency to cause damage (Hunn, 1999). Babai (2011) found the life form categories of Brown (1979) as the most influential method in separating animals (particularly between the categories of wild and forest animals).

Studying the wild plants and natural vegetation, Molnár (2012) showed that the depth and degree of traditional ecological knowledge in Central Europe is comparable to those found among people who live in the tropics or the boreal zone, even if in some areas the erosion of such knowledge is quiet advanced. It is likely that local knowledge of animal taxa is substantial. Therefore we formulated the hypothesis that local knowledge of wild mammals – similar to those related to habitats and non medicinal or non commercial plants (cf. Molnár and Babai 2009, Babai and Molnár 2009) – will be greatly independent of science.

We carried out our research among ethnic Hungarians in Nuşfalău, Romania. Our main goals were to document the local ecological knowledge on mammals in a village and unravel its characteristics, and to compare it to the knowledge found in other regions. We studied which kinds of local wild (non-domesticated) mammals the villagers know, which folk taxa they identify, the names they use for these taxa, what do they know about the morphological, behavioural, and ecological characteristics, and the economic impact bring about by these mammals.

Materials and methods

Study area

We collected the data among ethnic Hungarians practicing traditional agriculture in Nuşfalău village (Szilágy-nagyfalu in Hungarian) (47° 11' 58" N 22° 42' 35" E) in the micro region along the upper course of the Barcău River, North-Western Romania. The choice of this village was justified by the existed traditional life-style, the diverse environment, and the population size of inhabitants which ensure a larger number of knowledgeable infor-

nants. As people in Nuşfalău spend lots of time in the fields and forests during their everyday activities, their connection to the natural environment is direct.

The axis of the micro region is the river valley, which lies about 200 meters above the sea level. The studied population lives in a village that is situated on the bank of the Barcău River. Although the section of the river within the village has been partially regulated, most of its natural conditions are still preserved. The alluvial soil that characterizes the lowest parts of the valley is mainly planted with cereal crops. Part of this valley was formerly used as pasture, when this utilization was economical. The hills reach the altitude of 300-350 meters a.s.l. These hills are covered with brown forest soils, on which orchards and vineyards are situated and interspersed by patches of rather natural forests of sessile and Turkey oaks. The area is characterized by moderate continental climate, with mean annual precipitation of 600 mm. The average temperature is 8°C. The highest temperature reaches 19°C in the month of July, while the lowest is -4°C in the month of January with.

Data collection

We collected the data during summer of 2010 from 20 of the most knowledgeable persons in the village beginning with the suggestion of the local Calvinist priest, and then selecting the rest by the snowball method. The average age of the interviewees was 78 years (41-90 years). All of them were still holding the memories of the traditional forest use and smallholder farming, while some were still practicing them. Eighteen of the interviewed people were Calvinist, a denomination which was considered as more important than their place of birth (marriages between different denominations were very rare in the past). Fourteen of the Calvinists were born in Nuşfalău, whereas four of them were born in neighbouring villages. One person (Roman Catholic) was born in Carastelec, and another (Baptist) in Zăuan.

We conducted indoor interviews recorded on a dictaphone (approximately 35 hours of recording), since the presentation of living specimens and direct observation of the animals in the wild would have been greatly inconvenient for most of the informants. We studied all species found in the vicinity of the village. Since detailed mammalogical studies have not been conducted in the area, we prepared a list of 62 species that are likely to occur on the basis of the mammalian fauna of the areas with similar habitats (according to Dobrosi 1999; Gombkötő and Estók 1999). We placed an average of six photos of species of similar size on an A4 sheet to allow the interviewees to have a feeling of the relative proportion of each animal. Differing scale of the pictures caused substantial difficulties in many cases during our preliminary study. In case of ambiguous descriptions, further enquiries of the specific characters of the species in question were asked to ascertain the identity of the animal at the species level.

We collected altogether 523 individual data on 42 folk taxa (Ulicsni 2012). We also made semi-structured interviews with the majority of people and carried out picture sorting, during which they could group the species at their will. We used these results to reconstruct folk taxon-

Table 1. The mammals of Nuşfalău, Romania.

Common name	Scientific name	Species authority
1. Eastern hedgehog	<i>Erinaceus roumanicus</i>	Barrett-Hamilton, 1900
2. Shrews	<i>Sorex, Crocidura, Neomys</i> spp.	
3. Common mole	<i>Talpa europaea</i>	Linnaeus, 1758
4. Bats	Chiroptera	
5. Brown hare	<i>Lepus europaeus</i>	Pallas, 1778
6. European rabbit	<i>Oryctolagus cuniculus</i>	(Linnaeus, 1758)
7. Eurasian red squirrel	<i>Sciurus vulgaris</i>	Linnaeus, 1758
8. European ground squirrel	<i>Spermophilus citellus</i>	(Linnaeus, 1766)
9. Forest dormouse	<i>Dryomys nitedula</i>	(Pallas, 1778)
10. Edible dormouse	<i>Glis glis</i>	(Linnaeus, 1766)
11. Common dormouse	<i>Muscardinus avellanarius</i>	(Linnaeus, 1758)
12. Lesser blind mole rat	<i>Spalax leucodon</i>	Nordmann, 1840
13. Muskrat	<i>Ondatra zibethicus</i>	(Linnaeus, 1766)
14. Coypu	<i>Myocastor coypus</i>	Molina, 1782
15. Eurasian beaver	<i>Castor fiber</i>	Linnaeus, 1758
16. Common hamster	<i>Cricetus cricetus</i>	(Linnaeus, 1758)
17. Eurasian harvest mouse	<i>Micromys minutus</i>	(Pallas, 1771)
18. Striped field mouse	<i>Apodemus agrarius</i>	(Pallas, 1771)
Yellow-necked mouse	<i>Apodemus flavicollis</i>	(Melchior, 1834)
Wood mouse	<i>Apodemus sylvaticus</i>	(Pallas, 1881)
19. Common vole	<i>Microtus arvalis</i>	(Pallas, 1778)
20. Steppe mouse	<i>Mus spicilegus</i>	Petényi, 1882
21. House mouse	<i>Mus musculus</i>	Linnaeus, 1758
22. Brown rat	<i>Rattus norvegicus</i>	(Berkenhout, 1769)
23. Wildcat	<i>Felis silvestris</i>	Schreber, 1777
24. Eurasian lynx	<i>Lynx lynx</i>	(Linnaeus, 1758)
25. Red fox	<i>Vulpes vulpes</i>	(Linnaeus, 1758)
26. Wolf	<i>Canis lupus</i>	Linnaeus, 1758
27. Golden jackal	<i>Canis aureus</i>	Linnaeus, 1758
28. Brown bear	<i>Ursus arctos</i>	Linnaeus, 1758
29. Stoat	<i>Mustela erminea</i>	Linnaeus, 1758
30. Eurasian weasel	<i>Mustela nivalis</i>	Linnaeus, 1766
31. European polecat	<i>Mustela putorius</i>	Linnaeus, 1758
32. Steppe polecat	<i>Mustela eversmanni</i>	Lesson, 1827
33. Stone marten	<i>Martes foina</i>	(Erxleben, 1777)
34. Pine marten	<i>Martes martes</i>	(Linnaeus, 1758)
35. Eurasian badger	<i>Meles meles</i>	(Linnaeus, 1758)
36. Eurasian otter	<i>Lutra lutra</i>	(Linnaeus, 1758)
37. Wild boar	<i>Sus scrofa</i>	(Linnaeus, 1758)
38. European roe deer	<i>Capreolus capreolus</i>	(Linnaeus, 1758)
39. Red deer	<i>Cervus elaphus</i>	Linnaeus, 1758
40. Fallow deer	<i>Dama dama</i>	(Linnaeus, 1758)
41. Mouflon	<i>Ovis aries</i>	Linnaeus, 1758

omy. Figures depicting taxonomic relations were prepared following the method of Berlin (1992). Continuous circles on these figures indicate scientific taxa, whereas small and large dashed circles represent folk taxa and more inclusive folk categories, respectively. The overlap of the circles of scientific taxa indicates that certain scientific taxa are viewed as alike (e.g. it is a mouse, but of a different kind). Inclusive categories were established on the basis of pile sorting, co-references and direct questions. We listed our data in tables, and summarized the results by data provider and species. Comments of individual interviewees were separated by a slash, and literal quotations were in Italics.

Results

The 62 scientific mammal species (Table 1, in virtue of Endes 1987; Endes 2003; Fügedi 1992) were classified by the people in Nuşfalău into 42 folk taxa (68 %). By reducing the bats into a single taxon, the total number of species was 50, which was classified into 42 folk taxa (82 %). The 42 taxa were grouped into 11 larger sets. Four out of 11 inclusive groups contained two independent elements, they were the two folk taxa for the Eastern

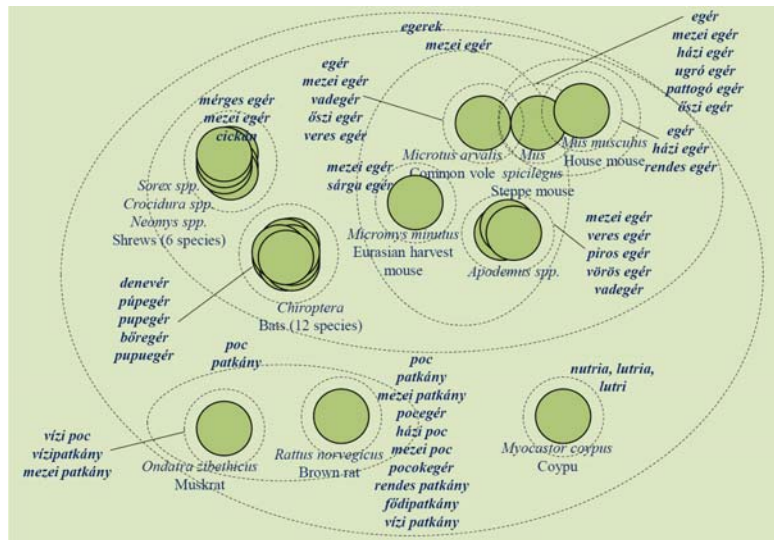


Figure 1. Grouping of the smaller rodents in the folk taxonomy in Nuşfalău, bats (12 species) and shrews (6 species) were also placed into this set.

hedgehog (*E. roumanicus*), common mole (*Talpa europaea*) and lesser blind mole rat (*Spalax leucodon*), brown hare (*Lepus europaeus*) and European rabbit (*Oryctolagus cuniculus*), and Eurasian otter (*Lutra lutra*) and Eurasian beaver (*Castor fiber*). The richest group contained mainly rodents (29 species including bats and shrews). The groups of even-toed mammals and large carnivores were clearly distinct (5 and 6 species were placed into these groups, respectively). The 15 species of the most harmful small carnivores and the larger rodents made up a rather complex group. Although morphological characters played the most important role in folk mammal classification, the tendency to cause or gain economic damage was also significant.

The 21 species of rodents were classified into 15 folk taxa (71 % identity with the scientific species). The groupings were completely identical to the scientific classification except for mice and voles (Fig. 1). In these groups, similar species were collapsed into a single taxon, although most people could identify individual species by very small differences (e.g. house mouse (*Mus musculus*) was separated from steppe mouse (*Mus spicilegus*) by habitat differences, and meadow vole (*Microtus arvalis*) was distinguished from house mouse by tail length).

All currently present or once occurred, but now locally extinct species of carnivores and even-toed mammals were classified in the same way as

in scientific classification (Figs. 2-3). Uniquely among the taxa, the eastern hedgehog (*E. roumanicus*) was divided into two separate folk taxa (Fig. 4). The lighter coloured and rather narrow headed (proportionally longer nosed) specimens are called *sünkutya* (literally hedgehog dog), whereas the broader headed, darker coloured animals are called *sündisznó* (literally, hedgehog hog). In addition, people used to mention the similarity of the legs to those of hogs or dogs.

Among insectivores, only mole and shrews were identified, but shrews were not further distinguished. Although twelve species of bats are likely to occur in the area, they were not distinguished either. People knew both species of lagomorphs, although rabbits had already disappeared from the area.

Saliency of folk taxa

The characteristics of folk taxa are described below according to their saliency.

Morphological saliency. In the case of physical appearance (Table 2), naming of a prototype and comparison to it was typical, as in the case of house mouse, to which the related species were compared. Similar relation was observed in the case of red deer (*Cervus elaphus*) and its relatives. Reference to conspicuous body parts such as the tail, ear, and sometimes limbs, and detailing of the coloration of the hair were also frequent. It was also typical that external characteristics of humans

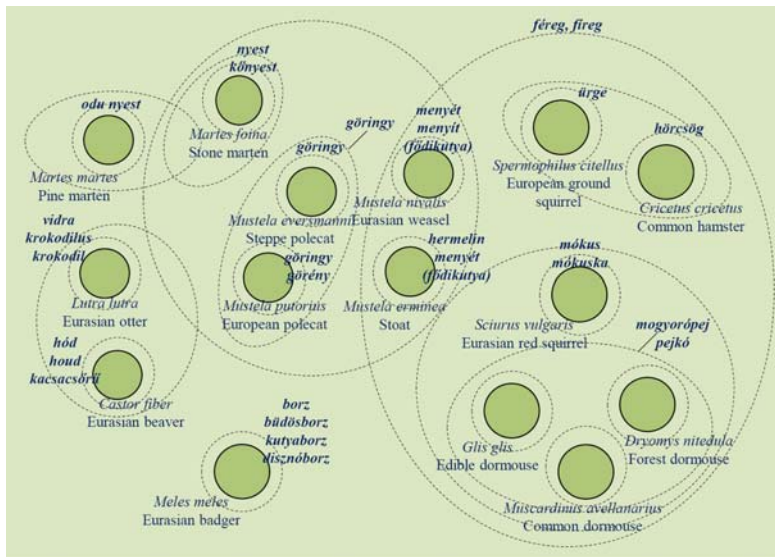


Figure 2. Grouping of small carnivores and some rodents in the folk taxonomy in Nuşfalău.

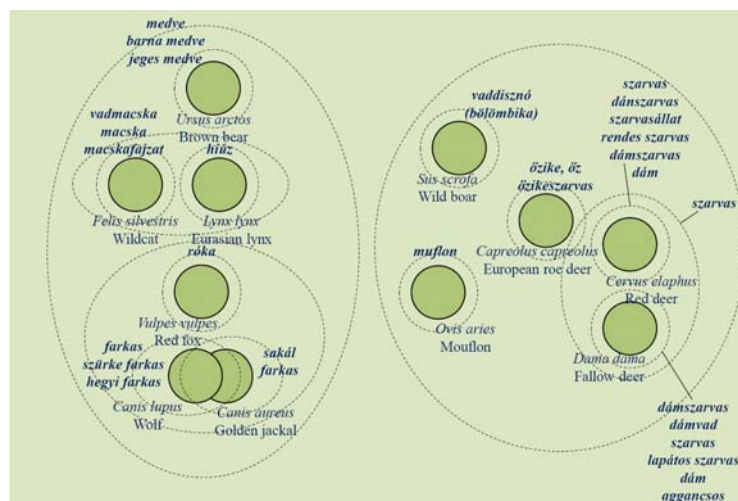


Figure 3. Grouping of large carnivores and even-toed mammals in the folk taxonomy in Nuşfalău.

were analogized with those of animals. One common example was the comparison of the look of stone marten (*Martes foina*) to that of humans.

Ecological salience. In terms of ecological salience (Table 3), the following characteristics were the most frequently mentioned: feeding habit, characteristics of movement, habitat, breeding habit, bashfulness, voice, annual and daily pattern of behaviour (especially in nocturnal animals), and observability. Comparison to humans was particularly important when describing behaviour. Con-

trasting to a prototype also often occurred. In such cases, the distinguishing characteristic usually was the ferocity (e.g. brown hare (*L. europaeus*) to wildcat (*Felis silvestris*)). Certainly, the most frequently mentioned behaviours and habitat characteristics were the ones considered important in terms of harm and benefit for humans.

Cultural salience. In terms of cultural salience (Table 4), the characterization of harm caused and benefit gained was unequivocally dominant. Interviewees considered brown rat and animals in

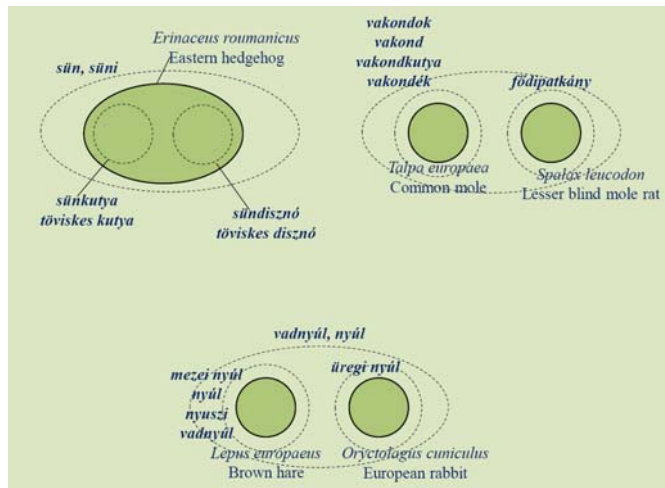


Figure 4. Grouping of 5 additional mammal species in the folk taxonomy in Nuşfalău.

the group of *férgek* as the most detrimental. In several cases, a species was considered harmful, although not causing considerable damage (species of mouse and vole). Hedgehog, hare, and rabbit were explicitly considered beneficial. Brown hare (*L. europaeus*), red fox (*Vulpes vulpes*), stoat (*Mustela erminea*), pine marten (*Martes martes*), Eurasian badger (*Meles meles*), wild boar (*Sus scrofa*), European roe deer (*Capreolus capreolus*), red deer (*C. elaphus*) and fallow deer (*Dama dama*) were or still are hunted for meat or fur. Purposeful extermination was reported in the case of European ground squirrel (*Spermophilus citellus*), edible dormouse (*Glis glis*), common hamster (*Cricetus cricetus*), brown rat (*Rattus norvegicus*), Eurasian weasel (*Mustela nivalis*), European polecat (*Mustela putorius*), and pine marten (*M. martes*). Some of the beliefs that might cause this attitude were widely known (i.e. the feeding habit of the common hamster or the blood sucking of the Eurasian weasel), but their justification was unknown by the informants.

Discussion

Folk taxonomy of mammals

The majority of the interviewed people were still possessed surprisingly detailed and precise knowledge about the wild animals living in their surroundings. This was surprising, because we were expected to find more eroded knowledge than what Jolsvay (1977), and Lőrinczy (1979-2002) had reported. The degree of knowledge of the species was positively correlated to their body size (cf.

Hunn 1999). The list of known species were strongly corresponded to that of Gub (1996), although the landscape where he conducted his studies in middle Transylvania was more forested and dominated by conifers, enabling the people there to frequently encounter and to have better knowledge of forest animals.

The proportion of folk taxa to scientific taxa was 68%, or 82% by reducing all bats into a single category. Similar values were found by Rea (1998), even if he studied a somewhat less diverse mammalian fauna. Except for a few species, all were called by a folk name. Surprisingly, inclusive categories were named much less frequently here (9 out of 21) than in studies on folk taxonomy in the tropical regions (i.e. Fleck et al. 2002). The inclusive units were also closely corresponded to the scientific classification. Deviations were apparent only in the case of bats (Chiroptera), shrews (*Sorex*, *Crocidura*, *Neomys* spp.), and lesser blind mole rat (*S. leucodon*). Hunn (1990) and Rea (1998) reached similar conclusions in mammalian folk classifications.

The interviewed people identified all mammal species occurring in the village and its neighborhood that can be distinguished by their external characters. They were all possessed very similar degree of knowledge. Individuals with outstandingly detailed or very little knowledge were only few. However, the distinguishing characteristic between house mouse (*M. musculus*) and steppe mouse (*Mus spicilegus*) was entirely behavioural.

Familiarity with species was often inversely proportional to the number of used folk names. The name of larger species that had fewer folk

Table 2. Morphological descriptions of mammalian folk taxa by local farmers/villagers of Nuşfalău.

Scientific name	Morphological features
<i>Erinaceus roumanicus</i>	has specific nose, spiny, there is a light and a dark type, has small feet <i>This is surely a dog (hedgehog dog), because its nose is long. There is one, which is perhaps a bit darker. But this one is surely a dog, as you can see by its leg. All live here. Neither the dog, nor the fox and wolf can harm them, because it pulls itself back, and they cannot bite its spines.</i>
<i>Sorex, Crocidura</i> spp.	has pointed nose, small, mouse like <i>It is not this fat, but elongated. This is the furious mouse. / This is a type of the mouse.</i>
<i>Talpa europaea</i>	blind, has short tail, it has black fur <i>There are grey ones of it, for example. But there are fully black ones, too.</i>
Chiroptera species	winged mouse, humpbacked <i>It is hump mouse, because it has a wing, because the ordinary mouse does not have wings, but this one has wings. / It has a hump on its back, like the one of the elephant. The normal mouse does not have one. / It is a species of mouse. It is exactly like a mouse. Its head, even the teeth, and its ears, like those of the mouse. And it climbs up with its two hind legs, then hangs head down.</i>
<i>Lepus europaeus</i>	reddish brown, bicolored, larger in size
<i>Oryctolagus cuniculus</i>	greyish, has shorter ears, smaller in size
<i>Sciurus vulgaris</i>	has bushy tail and tufted ears, greyish brown or red <i>The tail of the squirrel is not flat. It is rounded. / ...The tip of its ear is a sort of tufted.</i>
<i>Spermophilus citellus</i>	has rounded ears, yellowish brown <i>This is the ground squirrel, because it is spotted like this. [...] It is with its small dull ears.</i>
<i>Dryomys nitedula</i>	masked, has bushy tail, smaller in size <i>At his eyes, it is black, dark like this. Here, this part also is dark. Then its belly bottom is white. And here, this part of the neck also is white on this pejkó.</i>
<i>Glis glis</i>	has bushy tail, fat, grey, has sharp claws <i>The stick of its tail is flat. The tail of the squirrel is not flat. Its tail is round.</i>
<i>Muscardinus avellanarius</i>	has bushy tail, brown, small in size <i>The mogyorópej has the colour of the squirrel. The squirrel has a tuft on the tip of its ears. The mogyorópej does not have one. There is more than one kind. The tail of the mogyorópej is flat. [...] Their size is like a two months old kitten.</i>
<i>Spalax leucodon</i>	brown, has short nose, blind <i>Its nose is blunt like this. The mole has a little longer nose.</i>
<i>Ondatra zibethicus</i>	larger than the Brown rat, lighter in colour, has characteristic tail <i>...looks like the common rat, but its fur is lighter.../ The muskrat is bigger than the ordinary rat. / This is about a muskrat, because the tail itself looks like that.</i>
<i>Myocastor coypus</i>	big, ugly
<i>Cricetus cricetus</i>	has polecat-like coloration, has big mouth pouches
<i>Micromys minutus</i>	yellow, tiny <i>It is this small yellow one that is on the corn. These small yellow ones that are in the nest have no streak on the back. It is only a small ground mouse.</i>
<i>Apodemus agrarius</i>	has streak on back, reddish brown
<i>Microtus arvalis</i>	has short tail and smaller ears <i>And then there are among these mice, one of them has a tail this long, the other has only this short and small one. As I see, this is the short tailed one.</i>
<i>Mus spicilegus</i>	looks identical to house mouse
<i>Mus musculus</i>	compared to rat: lighter, smaller
<i>Rattus norvegicus</i>	unattractive, has long tail
<i>Felis silvestris</i>	has wild looks, larger and darker <i>It is almost like a normal domestic cat, but it is rather grey. And bigger.</i>
<i>Lynx lynx</i>	has tufts on ears
<i>Vulpes vulpes</i>	has bushy tail, ugly when shedding hair
<i>Canis lupus</i>	has long tail, wild looks, grey, looks like a German shepherd dog <i>It is as large as a German shepherd. But looks somewhat wilder. Its tail is a sort of bigger...</i>
<i>Canis aureus</i>	a smaller wolf
<i>Ursus arctos</i>	large, brown
<i>Mustela erminea</i>	slim and long, white <i>It is so beautiful as it is white, like an Angora rabbit.</i>
<i>Mustela nivalis</i>	long, may be also white, the smallest carnivore around buildings <i>...only the small chicks...'Cause she is small. There are white ones in weasels.</i>
<i>Mustela putorius</i>	belly is darker, has bushy tail, variegated
<i>Mustela eversmanni</i>	very light kind of polecat

Table 2. (continued)

Scientific name	Morphological features
<i>Martes foina</i>	has white throat and bushy tail, reddish brown
<i>Martes martes</i>	<i>Its face looks really like the one of a man. It has a long neck, and its head is like that of a man.</i> darker kind of Pine marten <i>It has a bushy tail like this, eh. This is grey like this, and has a bushy tail like this. The other one is black like this. The Beech marten is the lighter.</i>
<i>Meles meles</i>	fat, short in stature, bear-like, variegated in colour <i>It is like a smaller dog.</i>
<i>Lutra lutra</i>	big, brownish, has white throat, marten-like <i>It is also in water, catching fish. It is bigger than a marten.</i>
<i>Sus scrofa</i>	big and strong
<i>Capreolus capreolus</i>	smaller and red (compared to Red deer as the prototype of wild game)
<i>Cervus elaphus</i>	the bull is like a king, big, majestic with antlers
<i>Dama dama</i>	It is smaller and has shovel-shaped antlers, conspicuous white on buttocks
<i>Ovis aries</i>	<i>It looks like a ram.</i>
<i>Castor fiber</i>	has big teeth and flat tail like fish

names was tended to be more similar to their official Hungarian scientific name. These names were also identical to those used in colloquial Hungarian (Jolsvay 1977).

The name and classification of dormice were particularly interesting and complex. The three species occurring there i.e. common dormouse (*Muscardinus avellanarius*), forest dormouse (*Dryomys nitedula*), edible dormouse (*G. glis*) were inclusively called by two variants of a single name (*mogyorófej* and *pejkó*). Surprisingly, people had very detailed morphological, behavioural, and ecological knowledge of each. Distinction of the species that are called by the same name is rather frequent in traditional animal taxonomy recorded in very distant ethnic groups (birds: Diamond and Bishop 1999; bats: Fleck et al. 2002). There might be two factors contributing to the precise knowledge of nocturnal dormice. In the case of the two species occurring in anthropogenic environments (such as edible and common dormouse), one reason may be their occasional, but then often significant damage. This, however, cannot explain the distinction of forest dormouse, as this species particularly tends to stay away from humans (Bakó 2007). It is known that hunting the dormouse for human consumption was widespread in Central Europe (Toussaint-Samat 1987; Peršič 1998). This custom, however, has now faded away in our area. We think that part of the personal experience in hunting may have survived till today. This is supported by the observations in areas with similar mammalian fauna, where there are no data on dormouse hunting such as the Vály valley in Slovakia. There we could collect much less data on dormice (Ullicsni 2012). The fact that substantial at-

tention may be directed towards dormice due to their occasionally significant damage may not be neglected either. This habit was considered so important by our informants that they placed dormice into an inclusive category together with Eurasian red squirrel (*Sciurus vulgaris*), Eurasian weasel (*M. nivalis*), and stoat (*M. erminea*), in which all small mammals were considered greatly harmful and called *féreg* or *fireg* (pest). Surprisingly this taxa never contained the brown rat (*R. norvegicus*), which was the member of the main morphologically distinguished "mouse shaped" category.

In contrast to dormice, members of the species-rich bat (Chiroptera) were not distinguished in any way. The Matses in the Peruvian Amazon also use a single name for more than 100 species of bats in their environment, although they have very detailed knowledge on their habitat preference, and morphological and behavioural differences (Fleck et al. 2002). Bats occurring in the vicinity of Nuşfalău exhibit far smaller variation in morphology, behaviour and habitat preference than bats in the tropical regions. Besides, the detection of habitat preference has a fairly low likelihood because of the bats' nocturnal habit, and thus resulted in the low number of interaction with humans. Bats, a species-rich group with 10-14 species in areas with similar environmental conditions were classified in a single folk taxon in all studied areas inhabited by ethnic Hungarians (Sóvidék, SW Transylvania - Gub 1996; NW Hungary - Kovács 1987; Gyimes, Romania - Babai 2011; SW Slovakia, Central and Eastern Hungary - Ullicsni unpubl.; NE Croatia - Tórizs unpubl.). The knowledge of the species group, particularly that

Table 3. Ethological and ecological descriptions of mammalian folk taxa by local farmers/villagers of Nuşfalău.

Scientific name	Ethological and ecological features
<i>Erinaceus roumanicus</i>	nocturnal, follows humans, barks and grunts <i>But it is said that the one that barks is a dog (hedgehog dog).</i>
<i>Sorex, Crocidura spp.</i>	nocturnal, poisonous <i>I say, it comes over from the outhouse, through the foundation, 'cause it was not coated.../ It eats, then throws it up within 10 minutes.</i>
<i>Talpa europaea</i>	digs blindfolded, feeds on earthworms, helpless on the surface, sensitive <i>This, if sees sunlight, is said to die. / As I know, elder is stuck into the way of the mole. Where there are many, it deters them away. / When it comes out to sunlight, it does not run, because cannot see. You can even strike it dead. [...] This mole is so sensitive that when we walk and I stamp with my feet, it hears it in the ground that well, they are coming. [...] It is very sensitive an animal.</i>
Chiroptera species	flying mouse, may be placed among birds, nocturnal insectivore, hangs upside down, sleeps over winter <i>It cannot be said that the bat is a beneficial animal, nor that it is a wild animal. I have not a hint where it should be (placed). The bat shall be placed rather among the winged animals, because it flies. / These live a double life. When it hangs itself or what, and then it does not even moves for 5-6 months. It is like a bear. / It even eats its own droppings, takes it back. At night it feeds on bugs, when it is outside, catches them.</i>
<i>Lepus europaeus</i>	wilder, alert, does not dig burrows <i>...only a small pit, or takes something for itself to the base of a tree or to the hay. It is in the field all the time in summer. But in winter, they move to the woods, because there are fallen leaves and it makes a nest there. / Sharpening their ears, are they not? They are very sensitive animals. This bunny.</i>
<i>Oryctolagus cuniculus</i>	lives in burrows in groups <i>This lives in ground holes, burrows. The other only scrapes a small pit...</i>
<i>Sciurus vulgaris</i>	consumes lots of walnuts, jumps long
<i>Spermophilus citellus</i>	lives in burrows in the grassland, stands up like a stake
<i>Dryomys nitedula</i>	eats mainly hazelnuts, but also walnuts
<i>Glis glis</i>	likes hazelnuts, makes a nest, screams, bites, fast and can run on the wall <i>Now, as the young magpies have left the nest, it takes it over. It stacks (the nest) up with the flowers of Clematis. And it has that white, that downy thing, which it takes into the magpie nest, and gives birth into that.</i>
<i>Muscardinus avellanarius</i>	likes hazelnut, builds nest, screams, bites <i>The one that I saw and also caught has bitten my hand. [...] Screams like a mouse.</i>
<i>Spalax leucodon</i>	an underground vegetarian <i>The ground rat also eats potato.</i>
<i>Ondatra zibethicus</i>	aquatic, has aquatic life style, rodent <i>Well, I often see this fishing, it moves like a traveling circus.</i>
<i>Myocastor coypus</i>	exclusively vegetarian, clean, lives in wet places <i>He gave it carrots, but this does not eat it. It takes (the carrot) with its claws, washes and sprinkles it, peels it, and then eats it. / This eats neither mice nor any animals.</i>
<i>Cricetus cricetus</i>	lives underground, has bad nature, hoarding <i>It takes 30-40 kg of corn into each burrow. It goes down as much as it cannot be reached even by a plough... / It hoards corn into its mouth pouch and places... / It prepares a kind of hancsuk.</i>
<i>Micromys minutus</i>	builds a nest among crops, not harmful <i>I also saw this nest high among the crop.</i>
<i>Apodemus agrarius</i>	mostly observable in autumn
<i>Microtus arvalis</i>	lives in agricultural areas
<i>Mus spicilegus</i>	characteristically leaps, lives in agricultural areas <i>Well, this is a jumping mouse. I don't know, but it hops. Because some of them are just hopping. Well it lives free.</i>
<i>Mus musculus</i>	found around buildings all year round
<i>Rattus norvegicus</i>	a common pest <i>This is a pocegeş. But as it is written, a rat. / ...which were born this month will, if not in the next, but by the second month, have had their own young.</i>
<i>Felis silvestris</i>	ferocious <i>...like that of the Lynx. And its nature is like that.</i>
<i>Lynx lynx</i>	very large, cat-like
<i>Vulpes vulpes</i>	a common predator <i>...it had a large den at the end of the third parcel. We heard so many times, even from the hills many times, as the fox was barking from there.</i>

Table 3. (continued)

Scientific name	Ethological and ecological features
<i>Canis lupus</i>	predator, attacks sheep and maybe horse, nocturnal, may be dangerous <i>It cannot the horse, but already can the Red deer...</i>
<i>Canis aureus</i>	a small kind of wolf in the reedbeds <i>This is down in the reedbed...</i>
<i>Ursus arctos</i>	mainly carnivorous, rare
<i>Mustela erminea</i>	proceeds by leaps, avoids humans, more common in wet places <i>likes water.../... it is bouncing, because it does not walk smoothly like this, but with leaps.</i>
<i>Mustela nivalis</i>	fast, fits into mouse burrows <i>The weasel stands like a peg / ...extends itself so, as is said; it fits in every small burrow.</i>
<i>Mustela putorius</i>	most harmful small predator around houses <i>...when dusk sets in, it is already searching around.</i>
<i>Mustela eversmanni</i>	occurs in flat terrain
<i>Martes foina</i>	occurs in the attic, aerial acrobat, steals many eggs <i>It turned over (things) when it lived with us, I said on the attic, it toppled (everything) that sleeping was impossible. It carried walnuts, corn from one corner to another. By morning, nothing was in place where was left in the evening [...] When I noticed it, it was fleeing along the rafter like a phenomenon.</i>
<i>Martes martes</i>	occurs in the forest, avoids humans <i>The treehole marten is there, up in the mountains. It does not like the noise. By itself.</i>
<i>Meles meles</i>	moves around in dusk <i>This has loads of fleas, and even the den is filled with fleas. This is foul smelling, very much. / It even turns against man when gets in trouble.</i>
<i>Lutra lutra</i>	feeds on fish, voracious <i>This can enter the water like a rifle bullet.</i>
<i>Sus scrofa</i>	has a wild nature, nocturnal, grubs everything
<i>Capreolus capreolus</i>	lives in agricultural areas, develops antlers <i>...Even of the small roe deer that are running out in the field. First, when they grow, they are two small sticks like this. And (the roe deer) shed them in April-May every year. A month or one and a half, and (the antlers) regrow. When they develop, they are soft and jelly-like. And there is hair on them, quite much. As they start to harden, they also begin to thin. Then (the roe deer) begins to scrape them clean.</i>
<i>Cervus elaphus</i>	prototype of game animals, comes to graze in evenings <i>...if she gives birth just in a shrub, and there is anyone passing by, or strokes that little one, she never returns to it.</i>
<i>Dama dama</i>	considered an alien
<i>Ovis aries</i>	wild, bashful
<i>Castor fiber</i>	feeds on twigs

on life history and behaviour, however, is precise (cf. also Gub 1996).

In contrast, shrews (*Sorex*, *Crocidura*, *Neomys* spp.), which are widespread and clearly observable, were known perhaps the least and very vaguely in many aspects, compared to our prior expectations and fragmentary data from elsewhere (Jolsvay 1977, Lőrinczy 1979-2002). The reason for this is not known. According to Gub (1996), people know little about them, although the water shrew was separated from the other species. Kovács (1987), however, found surprisingly detailed descriptions along the Danube, where three taxa i.e. the Eurasian pygmy shrew (*S. minutus*), common shrew (*S. araneus*), and Eurasian water shrew (*Neomys fodiens*) were distinguished.

Morphological, ethological-ecological and cultural salience

Interviewees described almost all species from

multiple aspects including morphology, ecology and cultural significance, which indicated detailed knowledge of the animals. The two exceptions were the particularly rare (and introduced) mouflon (*Ovis aries*) and steppe polecat (*Mustela eversmanni*).

Morphological salience

Similarly to the reports of Hunn (1990), Rea (1998), and Fridell and Svanberg (2007), the most salient morphological characteristics in our study were size, colour, tail, ear and limbs.

The most frequent way of evaluation of species characteristics by our informants was the comparison of species with similar characteristics. For example, in comparing red squirrels (*S. vulgaris*) and dormice, the difference in tail shape and bushiness is often mentioned. Beside the habitat differences, muskrat (*Ondatra zibethicus*) and brown rat (*R. norvegicus*) are also distinguished

Table 4. The descriptions of culturally salient features of mammalian folk taxa by local farmers/villagers of Nuşfalău.

Scientific name	Cultural features
<i>Erinaceus roumanicus</i>	beneficial, mystical <i>It is a beneficial animal, because where it lives, there are no mice, 'cause this catches mice and the poc. It captures even the big poc. (poc= rat).</i>
<i>Sorex, Crocidura spp.</i>	hardly observable, insignificant, not harmful <i>This used to occur in barns. It does not harm hens or others.</i>
<i>Talpa europaea</i>	causes harm with its mounds, dies of sunshine <i>This is a harmful animal, because it makes burrows in the ground and searches for earthworms and everything [...] And if it passes by the root of the vegetables, (the plants) are pushed out. It destroys them.</i>
Chiroptera species	not dangerous, may be frightening, beneficial <i>It happened in the evening or at night that it strokes my forehead, but otherwise it is not a dangerous animal.</i>
<i>Lepus europaeus</i>	has economical benefits, causes no particular harm <i>This then is beneficial in the sense that its meat is also good, because it can be prepared as wild game to make a sort of delicious stew of it...</i>
<i>Oryctolagus cuniculus</i>	was hunted in the past, similar to domestic rabbit
<i>Sciurus vulgaris</i>	very harmful, has bad nature <i>It takes out the meat of the walnut. Can climb the walnut tree whatever tall it is. Then it holds the walnut in its two small hands, then [...] it was pelted, and then it took a walnut and threw it down.</i>
<i>Spermophilus citellus</i>	very harmful, used as a curse word <i>Snake province, mosquito swarms, ground squirrel town / When we filled (the hole) with three buckets (of water), the souslik came out.</i>
<i>Dryomys nitedula</i>	bad pest <i>Picks hazelnuts and walnuts. It holes them on the tree. We had lots of walnuts, then the pejkó picked them, holed them, and threw the holed ones onto the ground.</i>
<i>Glis glis</i>	the worst pest, causes the greatest damage in walnut, chews everything into pieces <i>...it chews up everything in the building. / When there are walnuts, it damages them badly. If it is a certain kind of walnut, it destroys half of it. If it has a family, small, it collects not only what it eats, but also for reserve. My neighbor also has a walnut tree, yet she can hardly harvest some walnuts. By the time she notices it, it has emptied and holed them.</i>
<i>Muscardinus avellanarius</i>	bad pest, harmful
<i>Spalax leucodon</i>	become very rare, harmful
<i>Ondatra zibethicus</i>	causes no significant harm due to its aquatic habit
<i>Myocastor coypus</i>	its flesh and fur is expensive <i>Because the flesh of it, and the fur, are very expensive. / It is kept for its pelt. It is said that its meat also is very tasty.</i>
<i>Cricetus cricetus</i>	the most dangerous and detrimental pest <i>...you are like a hamster, you gather food for yourself... / Hamsters are such a clever animal, one lies on its back and spreads its four legs, and the other packs 3-4 ears of corn in between them, then grabs by its tail and pulls into the hole.</i>
<i>Micromys minutus</i>	weather forecaster <i>...Gosh, if the mouse builds a nest up here, there will be a heavy winter, lots of snow...</i>
<i>Apodemus agrarius</i>	less harmful <i>I cannot extirpate them. I have this kind in the garden. I got these cartridges. That one with the streaked back. It eats vegetables. / It can be encountered at harvest time, then in the fall, at the time of corn picking.</i>
<i>Microtus arvalis</i>	least harmful rodent <i>It only likes cereals, but otherwise does not do anything (i.e. harm). / one does not like it when it enters (the house), for that matter, but they have not a big harmful effect on anything [...], but they also have to live on, they are also under the heaven of God.</i>
<i>Mus spicilegus</i>	no apparent harm is caused
<i>Mus musculus</i>	not really harmful <i>They are not harmful. They eat only wheat. This takes neither chicken, nor eggs. It enters only the barn or the storeroom and grinds the crop grains. But otherwise it does not make any harm.</i>
<i>Rattus norvegicus</i>	the most dangerous and harmful of all pests around buildings <i>I feel frightened when I see it. This is an ugly animal. Uh, it is so ugly. / Well, it eats the chicken. Ducklings. It gnaws the wheat grain. / If it can get into the hutch, it even eats the small rabbits. / The poc, when bites you, you have to go immediately to see a doctor.</i>

Table 4. (continued)

Scientific name	Cultural features
<i>Felis silvestris</i>	may be dangerous to humans, but mainly loots bird nests <i>It is a little dangerous animal. It is in the forest and does not like people, but if it finds them by chance, the wild cat can attack humans.</i>
<i>Lynx lynx</i>	almost unobservable, may be dangerous
<i>Vulpes vulpes</i>	shrewd poultry stealer <i>It happened that it returned three times at one night. Then they even took poultry.</i>
<i>Canis lupus</i>	generally not dangerous to humans, but precaution needed <i>The wolf is dangerous, but not to humans. It is dangerous to animals. / And the stinky wolf does not attack humans, as long as the one is conscious. No. But when there is lots of snow, it covers with snow. / They often decimate the flocks of sheep.</i>
<i>Canis aureus</i>	mystical, bad kind <i>But as is said, when it is, say, someone speaks too loud or shouts, it is said, like a jackal.</i>
<i>Ursus arctos</i>	dangerous to humans, but rare
<i>Mustela erminea</i>	hunted for its fur
<i>Mustela nivalis</i>	blood sucker <i>It bites the nipple of the animal. The weasel. It sucks the blood of the animal, then it swells up, and the nipple gets ill. / It sucks only the blood, and the flesh itself is not eaten. It sucks the blood, and the animal dies. This is a very bad animal, it harms the chickens and the farmstead very badly.</i>
<i>Mustela putorius</i>	kills with bad odor <i>It makes a foul odor, and then the animals get dizzy. / The polecat likes the farmstead. This polecat is a nice animal, but very dangerous.</i>
<i>Mustela eversmanni</i>	unknown, whether it is beneficial or harmful is not known
<i>Martes foina</i>	very harmful, smart, human-like <i>It strangles the farmstead.</i>
<i>Martes martes</i>	hunted for its excellent fur
<i>Meles meles</i>	its fat has medicinal properties, damages grape and corn, hoarding <i>Badger. It was very long ago, when it used to be caught, and loaves of soap were made of it, if it was fat. Yes, I heard it from my dad. But it was forbidden. / And it eats corn. And it collects, it has a nest, and gathers what it needs for winter. And there is a saying that collects like the badger for winter. / The badger then gnaws up everything that gets into its way.</i>
<i>Lutra lutra</i>	hunted for its fur <i>It is also captured. Fur is made of it.</i>
<i>Sus scrofa</i>	harmful, may be dangerous <i>It does not hurt anyone. In the month of May, when they have piglets, then the boar still does not hurt, only the sow. But she is only ? when a piglet screams, or you have a dog with you, [] then the dog snaps and the piglet screams / ...this is a hateful job, because it hurts one, if not taking care.../ ...I cannot plant anything in there, 'cause the wild boar grunts everything out.</i>
<i>Capreolus capreolus</i>	beloved
<i>Cervus elaphus</i>	called <i>szarvas állat</i> (lit. animal with antler) <i>He got free, then walked down the street. He was like a king.. Wow, how beautiful he was.</i>
<i>Dama dama</i>	introduced <i>It likes fruits and grape very much. [...] well, the fallow deer were here again.</i>
<i>Ovis aries</i>	alien
<i>Castor fiber</i>	edible, was hunted, has excellent fur

greatly by the shape of the tail where the cross section of the rat's tail is circular, whereas that of muskrat is elliptic).

In the classification of eastern hedgehog, colour plays a significant role. Although only a single species of hedgehog (*Erinaceous roumanicus*) is recorded in the scientific literature (Bihari et al. 2007), this animal is divided into two taxa by traditional folk classification based on several differences. Interestingly, the pairing of the names of these taxa is reversed in the Sóvidék (Gub 1992).

Similar classifications were found in other regions, for instance in the Hungarian speaking areas of Szigetköz (Kovács 1987), Sóvidék (Gub 1992), Detrehemtelep (Keszeg 2012), Felsővály, Nagykőrös, and Nádudvar (Ullicsni unpubl.). In the studies conducted among ethnic Hungarians, only the ones in Gyimes did not register this sort of classification (Babai 2011). We are unable to provide an adequate explanation for this general treatment of the hedgehog. This hedgehog classification is regarded by Kicsi and Magyar (2007) as

part of what some folklorists (according to their devolutionary premises) called as a *gesunkenes Kulturgut* (lit. 'sunken cultural relicts') that can be traced back to the 13th century. The terms *disznósün* and *kutyasün* were appeared even in the 17th century Codex Guelph.

Detailed observation of the physical appearance of small carnivores is shown by a common mistake. The western polecat (*M. putorius*) and common hamster (*C. cricetus*) were confused several times when they were to be identified by pictures. This was, however, immediately corrected by the informants after clarifying their way of life. This may be certainly explained by the observation that the two species, uniquely among all other mammal species found in the region, have reversed colour saturation on the back and the belly. They are ventrally darker, and dorsally lighter.

Ethological-ecological salience

Evaluations of ecological and behavioural characteristics made by locals were very rich and usually detailed. The following characteristics were the most often described: feeding habit, movement, habitat, breeding, bashfulness, voice, daily and annual rhythm of behaviour, chance to see it, and rarely, mode of eradication.

In discriminating the two forms of the eastern hedgehog (*E. roumanicus*), besides morphological differences, behavioural differences is also played a greatly significant role. The animal was considered very beneficial, because it catches mice, and even by the recollection of some people, brown rats (*R. norvegicus*) (or at least deter them). Owing to these characteristics, it was typical to introduce this animal beyond its natural area of distribution all over Europe, such as in Northern Sweden (Fridell and Svanberg 2007). Although the hedgehog was regarded as a beneficial animal, hunting for rodents was attributed only to the *sünkutya*. An additional behavioural difference between *sünkutya* and *sündisznó* was vocalization: the *sünkutya* barks, whereas the *sündisznó* grunts.

Southeast European people, including Romanians, have developed a special world of beliefs concerning hedgehogs. They think the *prickly hog* is a *Verbena*-bringer (which brings the herb *Verbena officinalis*, a species considered hard to find) with which it is capable of opening all kinds of padlocks (cf. Svanberg 2011). These beliefs often appear also among ethnic Hungarians who live in close contact with Romanians, but it did not among the inhabitants of Nuşfalău, where borrow-

ing of Romanian animal names was not typical either.

A nice example of discrimination based on behavioural differences is that of stoat (*M. erminea*) and Eurasian weasel (*M. nivalis*), which are in many ways quite similar. Interviewees almost accurately described the differences between the two species in movement (the former elongates and stands up, the latter leaps). The habitats of both (settlements vs. avoiding humans) in particular, were precisely identified.

The observed behavioural patterns of certain species were explained in peculiar ways. The coypu (*Myocastor coypus*) depends on the presence of water bodies, and thus its feeding behaviour can be observed in such environments. This may have resulted in the belief that it rinses its food and even peels it before consumption.

Cultural salience

Culturally salient features include the harmfulness and beneficialness, as well as the developing beliefs (Hunn 1999). The best known species considered as harmful in the study area were the ones preying on poultry. Those species were characterized very precisely. Eurasian weasel (*M. nivalis*), European polecat (*M. putorius*), and stone marten (*M. foina*) exerted such a great influence on household farming (by the consumption of poultry, egg, and fruits). Besides the precise knowledge of their morphological and ecological characteristics, the number of notions associated with them was also significantly high. In addition to common hamster (*C. cricetus*) and European ground squirrel (*S. citellus*), as well as the small carnivores that were considered pests, dormice were also often listed among the species causing much headache to the farmers. Some people placed dormice among pests. Common mole (*T. europea*) was also regarded harmful, although to a lesser extent. Our informants were aware that moles provide benefits, as a substantial proportion of their food is composed of invertebrates damaging vegetable gardens. However, while searching for underground prey, a great number of and mostly young garden plants are damaged by the moles, and therefore people expressed their opinion of let them live, but elsewhere.

Surprisingly, the small rodents were not considered harmful, and their presence was accepted. One reason may be that although they are morphologically similar to brown rat (*R. norvegicus*), the harm they cause is lesser. It is also interesting

that the presence and activity of bats was regarded neutral from the standpoint of humans, eventhough their feeding habit and behaviour were well known (such as consuming plant pests, among others).

In addition to the biologically precise knowledge stemming from experience, mammals of all wild animals are also associated with the greatest number of legends and beliefs. Their connection to reality has often faded away owing to the large number of generations the tales and faith have been passed on. Due to general familiarity with these beliefs, questioning their truthfulness was not common among our informants. Even the very unlikely story has been treated as true, in which a hamster drags its mate with an ear of corn on its belly to its den.

Anthropomorphism in animals is perhaps most common for mammals such as common hamster (*C. cricetus*), Eurasian harvest mouse (*Micromys minutus*), red fox (*V. vulpes*), wolf (*C. lupus*), and stone marten (*M. foina*). We found several examples of discovering human features in the looks of animals. In Nuşfalău, people most often believed to discover similarities to human beings in stone marten feature. The Romas living in the Eastern Beskid Mountains make distinctions among hedgehogs on the basis of the presence or absence of human facial features: those with a human face are left untouched, whereas those without it are hunted for food (Luzcaj, Rzeszów, pers. comm. 2011).

A frequent element of traditional ecological knowledge is the occurrence of taboos (Zelenin 1929–30; Edlund 1992; Nolsøe 1997; Herjulfsdotter and Svanberg 2005). We only found one direct indication for this in the study area. The name of red deer (*C. elaphus*), *szarvas* (literally the one with antlers), is a circumscription for the species because the true name of the animal has been treated as taboo. The situation is similar, but less apparent in the name of wolf (*C. lupus*), *farkas* (literally, the one with a tail), and also in the name of bear, *medve*, which is a borrowed word from a Slavic language.

Origin of folk knowledge of mammals

We know from many ethnographical studies that populations with traditional lifestyles have a very detailed knowledge of the various species in their surroundings (Lévi-Strauss 1962). In this specific ethnic Hungarian community, the overwhelming majority of the species were known through personal experience, similar to the findings of Carpa-

neto and Germe (1989), Hunn (1990), Rea (1998), and Majnep and Bulmer (2007). There are only a few species in the area, mainly rare and/or secretive animals, which are relatively unknown by the people there. Such species are: lesser blind mole rat (*S. leucodon*), European ground squirrel (*S. citellus*), common hamster (*C. cricetus*), Eurasian beaver (*C. fiber*), Eurasian lynx (*L. lynx*), and mouflon (*O. aries*). Many interviewees knew the supposedly extinct common hamster and European ground squirrel only from other areas. This unfamiliarity may have been the cause of their being regarded as the most harmful pests. Stories about these species were usually realistic or only slightly embellished (as in the stories on Wild boar (*S. scrofa*) attacks), and heard mostly from inhabitants of other villages.

People tended to personally know even the rare animals that are difficult to observe, such as stoat (*M. erminea*) and forest dormouse (*D. nitedula*). This supports the idea that a significant portion of their knowledge originated from personal experiences. The high degree of familiarity with these species may have survived for specific reasons. In the case of dormice, this might have been hunting, and in stoat, the explanation may be its winter fur, which is of outstanding quality compared to other furred animals.

Only few of our informants regularly visited lakes, rivers, and streams. As a consequence, they had less information on aquatic species and habitats. We collected the majority of the relevant data from only a few people. Lack of knowledge may explain the widespread nature of false information related to otters. This animal is often called crocodile, which is probably refers to its detrimental voracity. Its secretive and aquatic life style may have provided more space for the spread of false beliefs.

In the case of certain species, the possibility has arisen that a part of their knowledge originates from the media or books (see Frazão-Moreira et al. 2009). The significance of this is definitely the greatest in the case of the golden jackal (*Canis aureus*). The image of this species is greatly influenced by the legend of Miklós Toldi who was born in Nuşfalău. The epic poem by Arany (Toldi, 1846) in which the protagonist fights with 'reed wolves', is part of the general cultural knowledge among the contemporary Hungarians. As a result, local people still possess considerable knowledge of this species, eventhough there is no evidence of its presence in the last two hundred

years (Tóth et al. 2009). The media can also be the source of information as its populations are increasing, and spreading northward (Markov et al. 2012). The other example for the effect of media is the brown bear (*U. arctos*). Our interviewees almost always mentioned the appearance of this species in the urban area of Braşov, which was frequently broadcasted on TV. Nevertheless, we did not detect new information and any significant change in the consideration of the species as a consequence of this. Interestingly one interviewee called the brown bear as polar bear. This mistake in naming may indicate that people know almost nothing about the animals that are absent in the area, and at most heard or read their names in the media or in books. Molnár (2012) obtained similar data in the salt steppe of Hortobágy, where the effect of media and books was negligibly small on the knowledge of wild plants.

Conclusions

Biologists may ask why one should study folk knowledge of animals in a region so often studied by zoologists for centuries. There are several answers to this question. The main goal of science is to describe the world. The disciplines of anthropology and ethnobiology describe the local knowledge of specific groups of people. Nevertheless, the documentation of folk zoological knowledge in Europe is very limited. Although the names of the most important wild animals have been collected by ethnographers and linguists (in Hungary, e.g. Jolsvay et al. 1977, Lőrinczy 1979-2002), folk zoological knowledge was not documented and published sufficiently due to the limits of theoretical and personal zoological knowledge and, also the varying range of scientific interests. We argue that only a trained researcher with zoological competence can accomplish an effective collection of folk zoological knowledge. If we do not undertake this job we will have to rely on the collection and publications of amateurs who probably would not notice accidental false data, misconceptions and, particularly, thematic and lexical gaps in the collection. If the knowledge and vocabulary of local people were better understood, communication among farmers, scientists, and conservation managers could also be improved. Agri-environmental regulations and nature conservation management would be more ef-

fective if adjusted more to the knowledge of local people, and farmers.

Local knowledge of animals is part of our common European cultural heritage. It is the scholars' responsibility to learn, archive, and use the knowledge connected to animals. Local environmental education programs should be based on local culture including the zoological knowledge. Local knowledge could enrich teaching materials from a cultural point of view. We hope that our study increases the awareness of researchers, because we are in danger of losing knowledge developed over millennia, which deserves to be properly recorded for the future.

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