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DORMOUSE ASSOCIATIONS IN SLOVENIA – A NEW APPROACH TO AN OLD TRADITION

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ABSTRACT. The fat dormouse (*Glis glis*) has been a commodity species in Slovenia for almost a millennium. The consumption of dormouse meat was already reported around the year 1240 and the trapping methods, as described in the 17th century, have hardly changed since then. Dormice provided rural people with proteins, fat and fur. As a result of the rapid socio-economical transformation of the Slovene society in the second half of the 20th century, dormouse hunting lost its original economic meaning. However, being so deeply rooted in a traditional society, it survived albeit in a modified form and has become a part of Slovene national identity. Several dormouse associations, which have emerged since 1972, aim to continue the old tradition and to preserve ethnological artifacts. In 1996 members of these associations started collecting data on the biology of the fat dormouse in order to develop sustainable hunting. In order to avoid extensive exploitation and poaching, it is a desirable goal to keep trapping under control and surveillance of the associations. This, however, requires regulations, based on scientific research on the ecology of *Glis* populations in Slovenia and on the impact and the effects of hunting. We discuss challenges emerging as well as bottlenecks and limitations.

Key words: *Glis glis*, dormouse hunting, dormouse associations, Slovenia, ethnological heredity

SLOVENYA'DA YEDİUYUR DERNEKLERİ – ESKİ BİR GELENEĞE YENİ BİR YAKLAŞIM

ÖZET. Yediuyur (*Glis glis*) Slovenya'da hemen hemen bir bin yıl ticari bir ürün olmuştur. Yediuyur etinin tüketildiğini gösteren kayıtlar yaklaşık 1240 yıllarına kadar gider ve 17. yüzyılda tanımı yapılan yakalama yöntemleri o günden zamanımıza nerdeyse hiç değişmemiştir. Yediuyurlar kırsal halkın protein, yağ ve kürk gereksinimlerini karşılamıştır. 20. yüzyılın ikinci yarısında Sloven toplumunda meydana gelen hızlı sosyo-ekonomik dönüşüm sonucu Yediuyur avı eski,orijinal ekonomik değerini kaybetmiştir. Ancak, geleneksel bir toplumda oldukça derin kökler salması nedeniyle, değişmiş bir formda olsa bile Yediuyur avı varlığını sürdürmüş ve Sloven ulus kimliğinin bir parçası olmuştur. Bu eski geleneği sürdürmek ve etnolojik malzemeleri korumak amacıyla 1972 yılından bu yana çeşitli Yediuyur dernekleri kurulmuştur. 1996'da bu derneklerin üyeleri sürdürülebilir avcılığı geliştirmek amacıyla Yediuyurların biyolojileri ile ilgili bilgileri toplamaya başlamışlardır. Aşırı sömürüyü ve kaçak avcılığı önlemenin en uygun yolu bu derneklerin tuzak kurmalarını kontrol ve gözetim altına almaktır. Ancak bu da, Slovenya'daki *Glis* populasyonlarının ekolojisi ve avcılığın populasyonları etkilemesi ile ilgili bilimsel araştırmalara dayalı düzenlemeler gerektirir. Bu konu ile ilgili ortaya çıkan tıkanıklıklar ve kısıtlamalar yanında yapılan itirazlar da tartıştırılmıştır.

Anahtar sözcükler: *Glis glis*, yediuyur avı, yediuyur dernekleri, Slovenya, etnolojik miras

INTRODUCTION

The fat or edible dormouse *Glis glis* (Linnaeus, 1766) is a squirrel-like nocturnal rodent native to the entire territory of Slovenia (1). Although of rare occurrence in many regions of central Europe, populations sometimes attain considerable densities in the southern part of its range. Whereas an average

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of 30 dormice per ha was reported for the Caucasus (2), densities reach only 0.6-1.8/ha in England, 1-11/ha in Poland, between 4.9 and 20-22/ha in Germany and up to 1/ha in Moravia (3, 4); the majority of European dormouse populations seem to have densities ranging from 0.2 to 4/ha (5). Densities in Slovenia are estimated to approach those in the Caucasus (unpublished results), however, numbers are subject to enormous annual fluctuations (6). As a hibernator and presumably delivering only a single litter (2; unpublished results) in late summer, the animal is likely to be over-abundant only in autumn.

In former times rural people in the extensive forest regions of the mountainous parts of central and southern Slovenia relied on the occasional availability of this small mammal (7; Fig. 1), which has been a commodity species since Roman times (8). The tradition of dormouse hunting (Slovene: *polhanje*) dates back to the 13th century and the trapping methods, as already described in the 17th century, have hardly changed since then. Throughout its history dormouse hunting provided the rural population with meat, fat and fur. The fat dormouse (Slovene: *polh*) was entirely used economically. The consumption of dormouse meat was reported for the first time around 1240 (7). The meat was either salted, left in fat or more rarely smoked and thus preserved for winter consumption. According to anecdotal information, dormouse meat was nearly the only source of animal proteins for people living in areas where growing crops was limited due to the alkaline soil on eroded limestone. The animal's fat was also consumed but it was mainly used for medical purposes in people and domestic animals, although its medicinal effects remain largely unknown. Various clothing was made from dormouse fur and some products became to be part of the traditional Slovene dressing (Fig. 2). Furs were exported widely to Europe, providing the dormouse hunters (Slovene: *polhar*) with additional income. In high-density years a single trapper would collect up to 200 – 400 dormice in a single night and over 1000 per season. As a result, each family used to store up to 120 kg of dormouse meat during a masting year (9). The annual bag in the 19th century, as estimated from the number of skins sold, reached values up to 800,000 dormice in a single area of ca 5,100 km^2 (5), giving an average of 1.57/ha. Considering that the skins for domestic use were probably omitted from this count and that trapping was supposedly practiced on much less than half of this territory, the actual average bag is presumed to have exceeded 3/ha. Because of these high numbers, it is not surprising that hunting dormice was taxed throughout its history until 1849 when this taxation was dropped.

The tradition of dormouse hunting remained vibrant into the 20th century. However, there has been a rapid social and economic transformation of the society: Slovenia's rural population decreased from 41.1% in 1951 to 9.4% in 1981 (10) and is still steadily declining. Thus dormouse hunting is loosing its original economic meaning. Because it is so deeply rooted in the social life of a traditional society, it managed to survive until now, albeit in a modified form. After having been regarded as a commodity species in nearly two thirds of the Slovenian ethnical territory (Fig. 1) for centuries, the fat dormouse and its trapping has become more of a social occasion. Dormouse meat is occasionally still eaten and is regarded as a specialty in some areas. According to the 1976 Game Act (*Zakon o varstvu, gojitvi in lovu divjadi ter o upravljanju lovišč*) the fat dormouse is considered a game species with a hunting season from September 25 to November 15. Trapping dormice is open to any citizen providing that appropriate traps are used. This regulation currently provides the only legal basis for dormouse hunting.

DORMOUSE ASSOCIATIONS

In 1972 the first dormouse association (Slovene: *polharsko društvo*) was established in a traditional dormouse hunting area. This step has been followed in other regions of Sovenia, resulting in four regional associations as registered by now. The goals of these associations are very similar: to continue the old tradition of dormouse hunting, to protect ethnological artifacts (dormouse traps, dormouse products etc.) from decay and to educate the public about this fragment of national identity.

The currently 217 members (range 12 – 112) of these four associations reflect only a small portion of Slovenians actually practicing dormouse hunting. Sex ratio is strongly male biased (share of women is ca 15%). The majority of members are under 50 years old and children (under 15 years) constitute ca 5%. The women and children, but also a few men have joined an association, more as a social resource than to actually practice dormouse hunting. The associations' chairs are located in the traditional dormouse hunting areas (Fig. 1). Two associations own a meeting hut (Slovene: *polharski dom*) which serves not

only for club activities, but also provides facilities for the social life of the entire local community. Membership is open to any Slovene citizen, providing he or she has some interest in the tradition and in nature in general. Members are expected to adopt the goals of their association and to promote them.

In 1998 the associations agreed to co-ordinate their activities and established a board, each association being represented by its chairperson. Besides the activities already sponsored by individual associations, the board intends to pay more attention to the adoption of a new legislation and to the education of members. In this process, Slovenian scientists (zoologists, nature conservation experts and ethnologists) were invited by the board to collaborate and to provide expert reports. Between October 1998 and September 1999 the board met five times.

Ethnological activities

The increasing interest in national identity, which the Slovenian society is currently experiencing, draws the ethnologists' focus on the organization of dormouse associations, their values and standards, the communication among members and with the society, social events, leisure etc. (11).

One of the most appreciated results of ethnological efforts is the Inner Carniola Dormouse Collection (Slovene: *Notranjska polharska zbirka*) with nearly 300 artifacts connected to dormouse hunting tradition. The collection was established in 1976 by the first dormouse association ever founded in Slovenia. Located within the historical hunting castle of Snežnik complex, it is now supervised by the regional Museum (*Notranjski muzej*) and as such is open to the public. A few enthusiastic dormouse hunters also maintain small private collections and one of them is unofficially considered to be a private museum.

In spring 1999, the dormouse association "Krim" prepared a survey and distributed twenty page questionnaires among over 300 dormouse hunters all over Slovenia. The main goals of this approach are to save the tradition from oblivion and to create a register of active dormouse hunters in Slovenia.

Each dormouse association regularly organizes a "dormouse hunting night" (Slovene: *polharska noč*) at the official beginning of the dormouse-hunting season (September 25). This social event also attracts a broader public and the number of visitors reaches up to 500. Although the main aim is to keep the ethnological heredity alive, the celebrations also include modern performances (e.g. pop-national music, dancing) unknown in traditional dormouse hunting. Thus, those events range broadly from semi-closed meetings, which intend to be as traditional as possible (e.g. dormice are served, prepared in a traditional way), to massive public festivals.

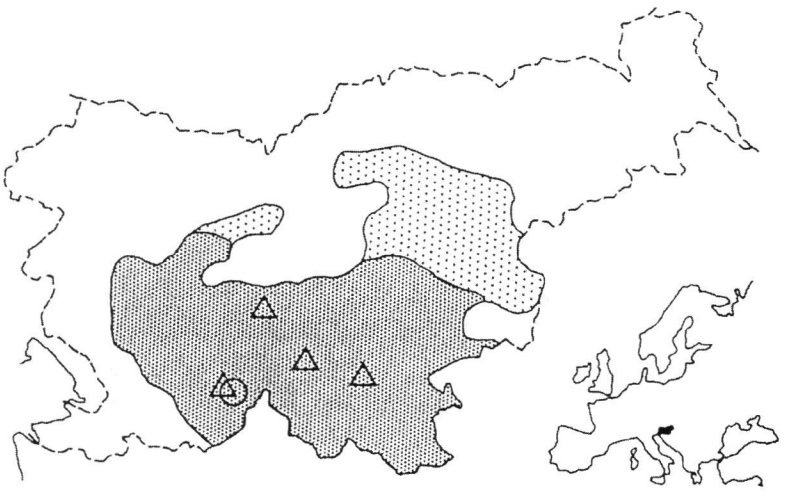

Fig. 1. Map of Slovenia with traditional dormouse hunting areas shaded; dense shading indicates regions where the tradition survived into recent times. Triangles indicate chairs of local dormouse associations; circle – location of the Inner Carniola dormouse collection.

Fig. 2. Although dormouse skins were widely exported in former times, there were always enough for domestic use. The traditional dormouse fur hat first appeared at the end of the 18th Century and was worn until very recently, both in the towns and in rural areas. Although this hat is considered to be a typical component of Slovene dress it is very exceptional to be able to obtain this hat from a dealer today. Only few members of the dormouse clubs continue to produce the traditional hats. Each hat requires thirty adult skins, and the fur quality of older animals is preferred over that of young specimens. (Photo Alenka Kryštufek).

Hunting practice, research and conservation

In opposition to the general ethnological acceptance of the dormouse hunting tradition there has been growing concern for animal rights all over Slovenia. In addition, at the time of writing, Slovenia is in an intensive process of adopting its legislation to the standards of the European Union, which will have an impact on nature conservation practices. The "Convention on the Conservation of European Wildlife and Natural Habitats" (Bern Convention), which has been accepted and signed by most European countries, including Slovenia, lists the fat dormouse in Appendix III. This presumes regulation of exploitation in order to keep animal populations at sustainable levels. One of the measures to be undertaken was the temporary prohibition of hunting. However, different dormouse densities (as cited in the introductory chapter) imply different conservation status across the range of the species. As of 1989, law in eleven European states protected the fat dormouse, while it was not considered as threatened in six other states (12). In addition, five European states considered its populations to be stable and only three reported declines (12). Currently, *Glis glis* is listed in the category "Lower Risk - Near Threatened" in the European IUCN Red List (13). On the other hand, the fat dormouse is reported as a pest to agriculture and forestry, e.g. in Slovenia (14), Croatia (15) and Italy (16). Besides Slovenia, Croatia is the only country considering the fat dormouse as a game animal (17) that requires a specific approach to its population management.

It should be underlined, however, that the hunting status of the fat dormouse in Slovenia differs from the status of all other game mammals and birds treated by the same act. Membership in a hunters club (Slovene: *lovsko društvo*) is compulsory for licensed hunters of game animals. This includes two years of basic education and training, final exams and the membership in the Slovenian hunter's association (Slovene: *Lovska zveza Slovenije*). The hierarchical organization, the well-performed surveillance and the regular education of its members through a monthly periodical allow control of the hunting activities. This, however, does not apply to dormouse hunters. Although law restricts the hunting season, there is almost no surveillance, resulting in common violations. It thus happened in 1999, that even members of the Parliament organized a dormouse night and started hunting on September 24, i.e. one day before the season was opened.

The dormouse associations seek closer collaboration with the hunters association, not surprisingly because many dormouse trappers are also licensed hunters and because there is an increasing interest in regulating trapping more strictly. The proposal recommended by the board for co-ordination among associations is to require membership in one of the dormouse associations as a condition for receiving a trapping license. This would certainly provide a first step towards better surveillance over the practice of dormouse hunting. However, as already mentioned, so far only a small fraction of dormouse hunters is organized in associations.

The next task is to put trapping on sustainable grounds. We have no information about

- How many people are hunting dormouse
- The annual bag
- The impact of trapping on dormouse populations

The first two issues might be solved properly by restricting dormouse trapping to licensed hunters, coupled with effective surveillance. Nevertheless, estimation of hunting pressure on dormouse populations will remain the main challenge for future research. As mentioned in the introductory chapter, dormouse populations fluctuate but we know nothing about the demographic structure in different phases of a "cycle", not to mention the underlying causes of these fluctuations. This lack of knowledge on fat dormouse biology prevents us from answering fundamental questions such as:

- Is the start of the hunting season (September 25) appropriate?
- Is dormouse hunting tolerable and to which extent?
- Is it more stabilizing for a population if trapping removes the young of the year or the older animals?

The dormouse hunters' growing interest in the natural history of the fat dormouse offered an opportunity to start collecting scientifically relevant data. The trappers have excellent first hand experience with the species and its habitat, but one should keep in mind that their conclusions are based on anecdotal information, rather than controlled studies. Endless discussions thus continue during social meetings about the number of annual litters per female, the start of reproduction, the ability of dormice to "foresee" in spring the forthcoming beech masting, the time of emergence from hibernation, dormancy in summer and even the possibility of dormice to stay torpid over the entire summer. In order to meet scientific standards, it thus appeared necessary to first explain the significance of systematically collecting data to the volunteers. This was not always an easy task, since e.g. the idea of achieving a high trapping success dominates over collecting unbiased statistical samples. What we supposed to be an appropriate start to estimate population density were line transect counts ("distance sampling") based on sightings and mapping of vocalizations (3). This method requires no special equipment and relies entirely on the personal experience of the participants. Observations during the first three years on a small scale transect survey (1996-1998) encouraged us to invite more dormouse hunters to participate in 1999. Fieldwork was carried out in August, which proved to be the period with the highest vocal activities and the time when the young were not yet fully weaned. We expect that collecting more data will allow us to evaluate the reliability of this method for density estimates, and hope to use this inexpensive approach for long-term monitoring of dormouse populations.

Another method employed is monitoring the usage of nest boxes (18) in order to obtain reliable data on reproduction activity (litter size, number of litters per year), longevity and population densities. In 1999 over 100 nest boxes were placed in two localities in traditional dormouse hunting areas. Nest-boxes were checked monthly and dormice were individually marked by ear tattooing. So far, dormouse hunters

assisted enthusiastically in fieldwork. In keeping with tradition, such surveys were sometimes also organized as small social events.

Dormouse hunters were also asked to preserve fat dormouse heads, which are a by-product of their autumnal trapping. Over 1500 skulls have been collected so far between 1996 – 1999. This material is to be used for gaining estimates of the age structure in different phases of a "cycle". We are still searching for an inexpensive method to evaluate this material. Preliminary investigations suggest mandible sections to be the most promising, but also expensive, approach.

Including the dormouse hunters in the above scientific activities has enormous benefits (first hand experience on the species and the locality, enthusiasm and devotion, and voluntary work) but there are several limitations. Only few of the numerous members of the associations are willing to spare their free time for field research and there is a permanent lack of money. Without any grants, the expenses are mainly paid by the participants of field activities. The donation of 58 nest-boxes by the regional Forestry Institute at Kočevje is a rare and much appreciated instance of sponsorship.

The fieldwork and studying the animals by non-invasive means is a new experience for the hunters. Outdoor activities play an important role in the life of most hunters as long as they are perceived as meaningful. The millennial tradition of the dormouse hunting serves as an excellent reason for their engagement.

Shortage of labor is a major problem when it comes to evaluating data and material in the laboratory. For the time being, we included three undergraduate students of biology to prepare their B.Sc. theses on dormouse material. However, opportunities for gaining information greatly exceed the currently available study capabilities. Hopefully, by overcoming several bottlenecks we will be able to increase the rate of documenting the biology of the fat dormouse.

CONCLUSION

Hunting dormice has a longstanding tradition in Slovenia, so it is still practiced albeit it has lost its original meaning. It is a delicate pathway to meet both the traditional needs and the demands of the Bern Convention. The formation of dormouse associations and their increasing interest in restricting hunting by adopting a new legislation may be regarded as the currently best solution to have hunters under surveillance and to control their activities. The ongoing collaboration with scientists is a first step towards obtaining information on the impact of hunting. It must be stated that the purpose of this paper is not to promote dormouse hunting. The authors oppose the killing of animals for mere amusement. We would like to see the future of the tradition shift to awakening the hunters' interest and appreciation of the biology of the animal and in using their knowledge and experience for studying the animal's biology by non-invasive methods. In order to achieve these goals many more studies are necessary in Slovenia.

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