

NEW DATA ON THE BIRCH MOUSE (*SICISTA BETULINA*) IN LITHUANIA

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Abstract. A decade ago the Birch mouse (*Sicista betulina*) was considered to be one of the rarest mammals in Lithuania. Now more than 80 animals have been caught at more than 30 different locations. The species is mostly distributed in the south-eastern and eastern parts of the country, the greatest number having been caught in three protected areas: in the Aukštaitija National Park, the Čepkeliai Strict Nature Reserve and the Kamasta Landscape Reserve. *S. betulina* generally lives in woodlands with open places or in open areas near forests, but they have been caught in a range of habitats in Lithuania. These include various types of forest, open grass bogs (usually with sparse small trees and shrubs), glades, meadows near a forest, coppices etc. They even live in human-influenced habitats such as clear cuttings, the edges of ditches and peat-bogs. Although *S. betulina* is listed in the Red Data Book of Lithuania as a rare, indeterminate, insufficiently-studied species, there is no danger of extinction of this species through destruction of its habitats. Some data are presented on the seasonal and daytime activity, occurrence in owl pellets, patterns of abundance and nutrition in captivity of *S. betulina*.

Key words: *Sicista betulina*, distribution, localities, habitats, Lithuania.

INTRODUCTION

The Birch mouse (*Sicista betulina*) is listed in the Red Data Book of Lithuania (Lietuvos raudonoji ..., 1992) as a rare, indeterminate and insufficiently-studied species. A decade ago *S. betulina* was considered to be one of the rarest Lithuanian mammals, with few records listed in the “Fauna of Lithuania. Mammals” (Lietuvos fauna ..., 1988). Now the number of localities at which this species has been recorded in this country has risen to more than 30, and the number caught to more than 80. This increase has been caused by 1) the increased intensity of the investigation of small mammals during the past decade, and 2) the listing of *S. betulina* in the Red Data Book of Lithuania, which has attracted attention to this animal.

The data on *S. betulina* published in “Fauna of Lithuania. Mammals” (Lietuvos fauna ..., 1988) is already rather old. Although to date there have been no special investigations of *S. betulina* in Lithuania, except for short-term observations in

captivity (Obelevičius, 1997), many new data on this species have been accumulated from separate sources, but only a summary of its distribution in Lithuania has been published so far, in Lithuanian (Juškaitis, 1997; Balčiauskas et al., 1999).

The goal of this paper is to present the most recently gathered data on the distribution, localities and habitats of *S. betulina* in Lithuania, with some data on the features of its ecology.

MATERIALS AND METHODS

Information on *S. betulina* was collected from the following sources:

- 1) more than 30 scientific and popular publications on localities and observations of *S. betulina* in Lithuania;
- 2) zoologists who have found *S. betulina* in Lithuania;
- 3) data collected by the author during investigations of small mammals in Lithuania.

Localities of *S. betulina* were mapped on 10 × 10 km squares of the "Lithuania - 94" national grid format. In some cases, two or even three localities are in the same square, and they are designated by one sign.

RESULTS AND DISCUSSION

The presently-known localities of *S. betulina* are distributed throughout almost the whole of Lithuania (Fig. 1). The species is, however, mostly distributed in the south-eastern and eastern areas of the country, with the greatest number of individuals being caught in three protected areas: in the Aukštaitija National Park, the Čepkeliai Strict Nature Reserve and the Kamasta Landscape Reserve.

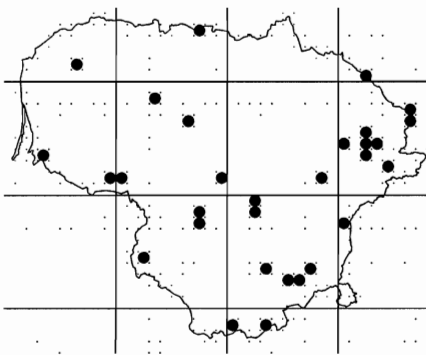


Fig. 1. Localities of *Sicista betulina* in Lithuania.

S. betulina is most widespread in Aukštaitija National Park, where four localities were discovered in Minčia, Daunoriai and Vaišniūnai forest districts from 1976 to 1977 (Lietuvos TSR ..., 1981), and some animals or jaws were found in nestboxes where Tengmalm's owls (*Aegolius funereus*) bred (Šablevičius, 1995). In the Čepkeliai Strict

Nature Reserve, *S. betulina* were caught during investigations of mammals from 1979 to 1980 (Čepkelių ..., 1980) and also more recently (Juškaitis, 1995;

E. Drobelis, personal communication). One of the best-investigated localities for *S. betulina* is in the Kamasta Landscape Reserve (Moletai district), where more than 20 animals were caught or observed between 1985–1993 (Mažeikytė, 1993, 1995; K. Baranauskas, personal communication), and the remains of this rodent were found in pellets of Tawny owls (*Strix aluco*). *S. betulina* was also caught in other protected areas: in the Viešvile Strict Nature Reserve (Juškaitis et al., 1996), the Kurtuvenai and Sirveta Regional Parks (Juškaitis, Lopeta, 1997; Juškaitis, 1997) and the Būda-Dambrava Botanical-Zoological Reserve (Baranauskas et al., 1995). Many localities of *S. betulina*, however, are not protected (Šlajus, 1991; Mažeikytė et al., 1996; Obelevičius, 1997; Norkus, 1998 etc.), although it is not necessary to establish new protected areas specially for this species.

The conservation of habitats is the main means of protecting many rare animals and plants. *S. betulina* generally lives in woodlands with clearings or in open areas near forests, but they have also been caught in a variety of habitats in Lithuania (Fig. 2), including various types of forest (birch-groves, mixed and even coniferous-groves), open grass bogs (usually with sparse small trees and shrubs), glades, meadows near a forest, coppices etc. It is noteworthy that *S. betulina* were twice caught in a clover field with shrubs about 200 m from a forest (Mažeikytė, 1993). These rodents even live in human-influenced habitats such as clear cuttings, the edges of ditches and peat-bogs. There is thus no danger of extinction for this species through destruction of their natural habitats.

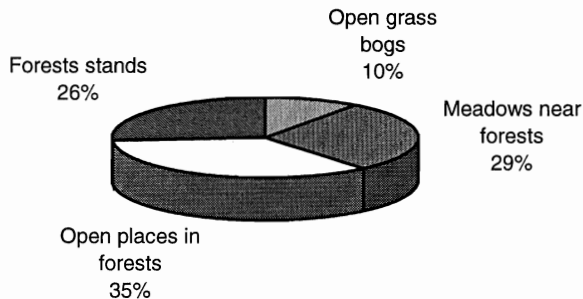


Fig. 2. Main habitats of *Sicista betulina* in Lithuania (n = 49).

Most of these animals were caught while trapping for small mammals in general (Fig. 3), but the number of individuals of *S. betulina* was a very small proportion of the total (Balčiauskas, Juškaitis, 1997) because snap-traps are not suitable for catching this species. Cylinders dug into the ground as pitfall traps, with ditches or fences between them, are the most effective way of catching *S. betulina* (Fokin, 1978). *S. betulina* were quite frequently caught by hand in the daytime, and were also found in the diet of owls (Fig. 3). Once this species was

even found 2.5 m above ground in an old Song thrush (*Turdus philomelos*) nest in a thick spruce-tree (Šlajus, 1991).

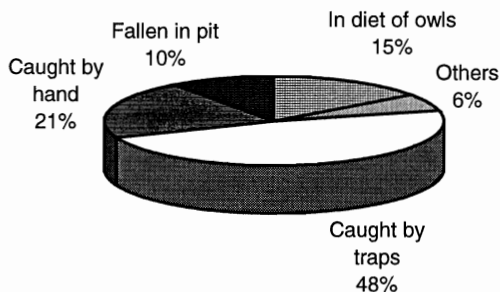


Fig. 3. Means of catching *Sicista betulina* in Lithuania (n = 62).

It is necessary to indicate the significance of *S. betulina* in the diet of owls. Six freshly captured animals and six lower jaws of these animals were found in two nestboxes in which Tengmalm's owls bred in Aukštaitija National Park in 1980 (Šablevičius, 1995). Remains of *S. betulina* comprised 7.5% of all prey (n = 80) in the pellets of this owl in Ignalina district (Lietuvos fauna ..., 1990). *S. betulina* brought for nestlings was found in the nestbox of a Tawny owl in Labūnava forest (Kedainiai district) (V. Naruševičius, personal communication). Remains of *S. betulina* have also been found in owl pellets in the lower reaches of the Nemunas river (Ivanauskas, 1973) and in the Kamasta Landscape Reserve (R. Juškaitis).

Data on the seasonal activity of *S. betulina* are scarce. The earliest date on which this animal has been found is 21 April 1998, when one was found in the nestbox of a Tawny owl (V. Naruševičius, personal communication). The latest date recorded was in Kurtuvenai Regional Park, where a young animal was found to have fallen into a snare for spiders between 7 and 27 September 1997 (Juškaitis, Lopeta, 1997).

There are some new data on the daytime activity of *S. betulina*, contrary to the widely held opinion that *S. betulina* is active only in twilight and at night (Ivanauskas, 1973; Lietuvos fauna ..., 1988). During a week in captivity, this mouse did not once sleep all day; it always slept only in the morning (between 6–7 and 10–11 a.m.). It seemed that the activity of *S. betulina* depended on the amount of food available: a hungry animal was looking for food all the time, while a satiated animal was drowsy, appearing half-asleep (Obelevičius, 1997). The daytime activity of *S. betulina* was also confirmed on many occasions when these animals were caught by hand or observed in the daytime (Fig. 3).

In captivity, *S. betulina* preferred food of animal origin, eating aphids, small grasshoppers, butterfly caterpillars, slugs and one earthworm. The mouse also fed on a diversity of soft fruit, especially raspberry, catberry, gooseberry (but only the juicy parts - the peel and seeds were left). It also ate grains of wheat and barley, seeds of the sorrel (*Rumex crispus*) and other plants (Obelevičius, 1997).

Possible fluctuations in *S. betulina* abundance were observed during investigations of the small mammal community in the first stage of succession of mixed forest, carried out in the Kamasta Landscape Reserve from 1987 to 1993. Five *S. betulina* were caught in 1991, comprising 3.3% of all small mammals caught, while only one or no individuals of this species were caught in other years (Mažeikytė, 1995).

The adult male caught in the Viešvile Strict Nature Reserve on 11 August 1995 weighed 10.4 g, which makes it the heaviest *S. betulina* caught in Lithuania to date. Its body measurements were: body length – 58.5 mm, tail length – 90 mm, hind foot length – 16 mm, ear length – 12 mm (Juškaitis et al., 1996).

It seems likely that the number of new localities for *S. betulina* will increase in the future, and more new data on the biology of this rare and mysterious animal will be collected. Special investigations of this species would be welcome.

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