



UDC 599.323.42 (477.4)

REDISCOVERY OF THE NORTHERN MOLE VOLE, *ELLOBIUS TALPINUS* (RODENTIA, CRICETIDAE), AT THE WESTERN BANK OF THE DNIPRO RIVER, UKRAINE

M. Rusin^{1*}, H. Rashevskaya¹, Y. Mylobog², V. Stryhunov²

¹*Schmalhausen Institute of Zoology, NAS of Ukraine, vul. B. Khmel'nitskogo, 15, Kiev, 01030 Ukraine*

²*Kryvyi Rih National University, XXII Partz'izdu 11, str., Kryvyi Rih, 50027 Ukraine*

*corresponding author

E-mail: mrusin@list.ru

Rediscovery of the Northern Mole Vole, *Ellobius talpinus* (Rodentia, Cricetidae), at the Western Bank of the Dnipro River, Ukraine. Rusin M., Rashevskaya H., Mylobog Y., Stryhunov V. — *Ellobius talpinus* was supposed to become extinct from the westernbank of the river Dnipro. After 50 years the species was found again in Dnipropetrovsk and Kherson Region. The brief description of the current distribution of the northern mole vole to the west of the Dnipro is given. Altogether 11 localities were found. The rediscovered populations may be treated as endangered in the region.

Key words: *Ellobius talpinus*, distribution, Eastern Europe.

Переоткрытие обыкновенной слепушонки, *Ellobius talpinus* (Rodentia, Cricetidae), на западном берегу Днепра, Украина. Русин М., Рашевская А., Милобог Ю., Стригунов В. — *Ellobius talpinus* длительное время считалась вымершим видом к западу от Днепра. После 50 лет вид был повторно найден в Днепропетровской и Херсонской областях. Приводится краткое описание современного распространения обыкновенной слепушонки к западу от Днепра. Всего было обнаружено 11 локалитетов. Обнаруженные популяции находятся под угрозой исчезновения в регионе.

Ключевые слова: *Ellobius talpinus*, распространение, Украина.

Introduction

The northern mole vole, *Ellobius talpinus* (Pallas, 1773), is a widespread species of the genus *Ellobius*, a group of subterranean rodents of the family Cricetidae. Its range extends from Eastern Europe to Central Siberia and Central Asia (Ognev, 1950). In the core of its range the species is abundant but in the western rim during the 20th century the distribution became fragmented. The possible causes for this are plowing of pristine steppes, decline of steppe plants which were preferable food for the species (e. g. *Tulipa* spp.), extension of irrigation, artificial forestation and construction (Rusin et al., 2008).

Because of the loss in distribution *E. talpinus* was included to the third edition of the Red Data Book of Ukraine (Korobchenko, Kondratenko, 2009). Some researchers even supposed that the populations to the west from the Dnipro, found in the first half of the 20th century, were currently extinct from the area (Kondratenko et al., 2006, Rusin, 2012).

Populations of the northern mole vole from the western bank of the Dnipro were reported from three Regions. In Mykolayiv Region it was found in Snihurivskiy District by Izdebskiy (1965) and one individual from 1950 deposited in the National Museum of Natural History in Kiev (NMNH) without exact information on its locality. In Kherson Region *E. talpinus* inhabited the areas close to the Dnipro (Pidoplichka, 1930). The mole vole was found near the village of Hrushivka of Vysokopillia District (Kryzhov, 1936 cit. after Ognev, 1950), Novooleksandrivka (Kryzhov, 1936 cit. after Ognev, 1950), Novovorontsovka (Seleznev, 1928 cit. after Ognev, 1950; one individual of 1928 deposited in the NMNH). Izdebskiy (1965) reported *Ellobius* in Velyka Oleksandrivka District. In Dnipropetrovsk Region Pidoplichka (1930) mentioned it for regions of Kryvyi Rih close to the Dnipro. In Apostolove District near the station of Tik (or Tok) a single specimen was trapped in 1904 and deposited in the Kherson Nature History Museum (Migulin, 1927). One of the best studied regions is Nikopol,

from where several records came: near to the station of Chortomyk the mole vole was reported by Pidoplichka (1930) and one specimen was deposited in the Zoological Museum of Moscow State University (Yakimenko, 1984); four more specimens from Nikopol are stored in the NMNH; 14 specimens in Nikopol District were trapped by Zubko (1940). Another 10 specimens were trapped by Migulin in 1936 (Migulin, 1938) in the village of Novonikolaevka (currently Chkalove) of Nikopol District, 7 of them are deposited in the NMNH.

In recent literature very dubious and uncertain information is given. Bulakhov and Pakhomov (2006) suppose that the species is widely distributed in all southern part of Dnipropetrovsk Region in the western bank of the Dnipro. However, they give no proofs for this. The other report indicates that near the village of Mylove in Kherson Region several skulls were found in owl pellets in 1995 (Korobchenko et al., 2010). Unfortunately these skulls were not deposited in any museum.

During our survey we have found almost dozen of populations of the northern mole vole to the west of the Dnipro which significantly improves our knowledge on the distribution of this species in Ukraine.

Methods

We collected data on the distribution of *E. talpinus* during expeditions to Dnipropetrovsk, Mykolayiv, Kherson and Kirovohrad Regions in April, July, August, September, October, November 2013 and January, August 2014. The total length of routes during the survey was around 4600 km (fig. 1).

E. talpinus was identified by the presence of mounds which are quite specific for the species. In one locality special wire-traps designed for mole voles (Golov, 1954) were used, a total of 7 individuals trapped and released after measurements and photo taken.

The northern mole vole is a highly social animal (Yevdokimov, 2001) living in families that may occupy vast areas up to several hectares (Rusin, 2012). Each family consists of up to 20 individuals, but normally it is around 5–7 (Yevdokimov, 2001). Family patches are usually separated from each other by an area without mounds thus calculating a bare amount of families is easy.

The geographical coordinates during the expeditions were collected by GPS navigators operating WGS84 coordinate system. The maps (fig. 1, 2) were produced in QGIS 2.6. Brighton using OpenLayers plugin (Bing Road layer).

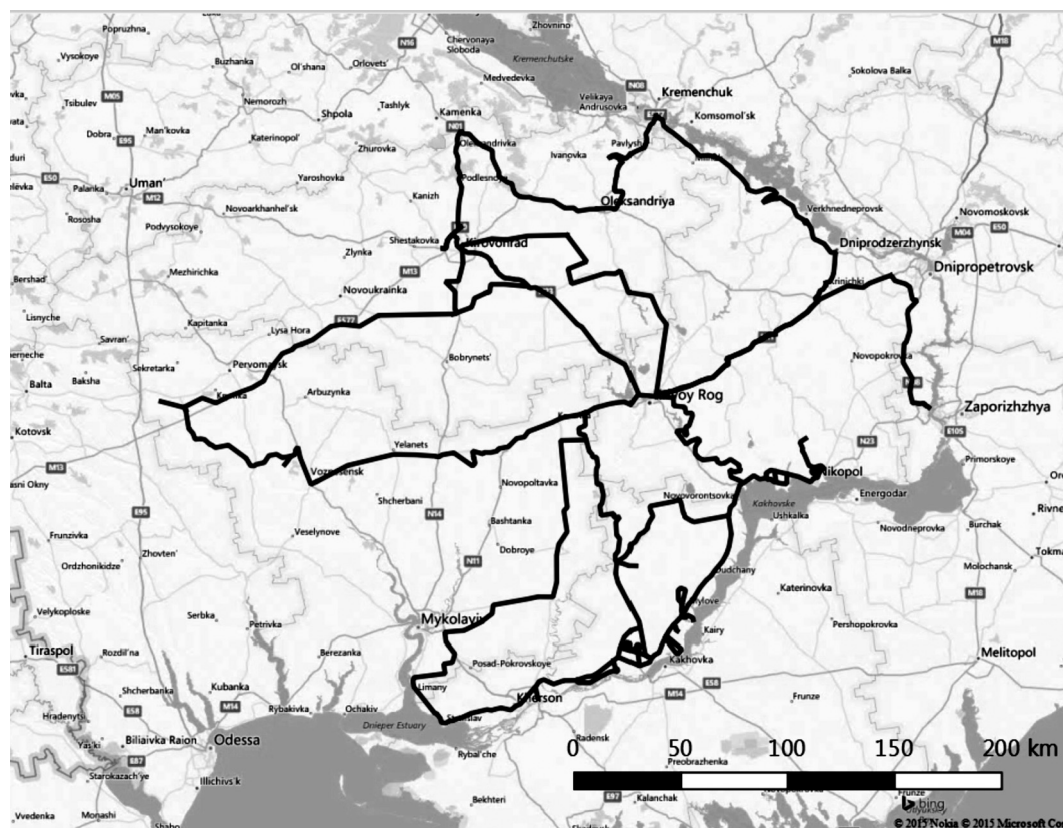


Fig. 1. Survey routes to the west of the Dnipro River.

Рис. 1. Схема маршрутов обследований к западу от Днепра.

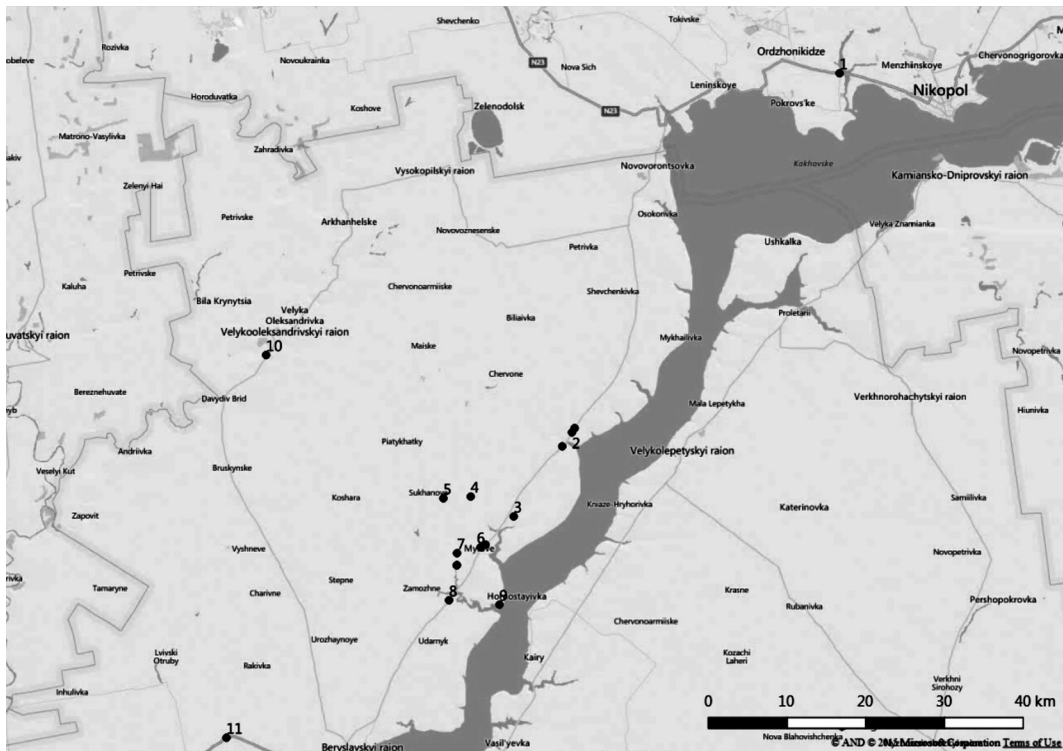


Fig. 2. Localities of *Ellobius talpinus* to the west of the Dnipro River.

Рис. 2. Карта находок *Ellobius talpinus* к западу от Днепра.

Results and discussion

We found 11 localities with the presence of the northern mole vole (fig. 2). One population was found in Dnipropetrovsk Region not far from the town of Nikopol. All other were found in Kherson Region. We did not find any signs of *E. talpinus* in Mykolayiv and Kirovohrad Regions. The summarized data of our observations are given below (numbers correspond to those indicated in fig. 2.).

1. In Dnipropetrovsk Region between the station of Chortomlyk and Nikopol near the village of Oleksiivka on April 16–17, 2013 mounds of the mole voles were found: along the highway at least 5 families; also at the junction of the main road with a road from the village of Kapulivka the hill (a monument to Zaporizhia Cossacks) was covered with mounds of the mole voles (possibly several families). Later in autumn of the same year the site along the highway was plowed. Coordinates: 47.6° N 34.2° E.

2. In Kherson Region, Novovorontsovka District, in the vicinities of the village of Dudchany the mole voles were found on August 26, 2013: two families to the north of the village near the highway, one family in the village and two more to the south of the village near the road and in the small ravine. Coordinates: 47.2° N 33.8° E.

3. In Kherson Region, Beryslav District, in a ravine between the villages of Mylove and Kachkarivka two family patches were recorded on September 20, 2013. Coordinates: 47.1° N 33.7° E.

4. In Kherson Region, Beryslav District, one family was found at the top of the ravine, located between the villages of Sukhanove and Mylove on September 20, 2013. Coordinates: 47.1° N 33.6° E.

5. In Kherson Region, Beryslav District, in a ravine close to the village of Sukhanove. Two families were found on September 20, 2013. Coordinates: 47.1° N 33.6° E.

6. In Kherson Region, Beryslav District, along the highway in the village of Mylove, two families, October 13, 2013. Coordinates: 47.07° N 33.6° E.

7. In Kherson Region, Beryslav District, in the lower part of the ravine, located between the villages of Mylove and Novokairy. September 20, 2013. Coordinates: 47.05° N 33.6° E.

8. In Kherson Region, Beryslav District, between the villages of Novokairy and Krupytisia. On August 26, 2013 one family was found. Also two individuals were observed actively burrowing (fig. 3). Coordinates: 47.0° N 33.6° E.

9. In Kherson, Beryslav District, in the village of Respublikanets on the top of cliffs along the Dnipro River (near the monument to Kost Hordienko) an unidentified number of families were observed on October 13, 2013 within the area of at least two hectares. Coordinates: 47.0° N 33.65° E.

10. In Kherson Region, Velyka Oleksandrivka District, south from the village of Mala Oleksandrivka one family patch was revealed on the slope of the ravine, going to the Ingulets River. January 19, 2014. Coordinates: 47.3° N 33.3° E.

11. In Kherson Region, Beryslav District, between the villages of Virivka and Burhunka. Two families were found on the slope facing the highway. October 13, 2013. Coordinates: 46.85° N 33.2° E.

According to our findings the largest region where *E. talpinus* occurs is a narrow stripe along the right bank of Kakhovske Reservoir mainly in Beryslav and Novovorontsovka District of Kherson Region. This group of localities could be regarded as a core population for mole voles to the west of the Dnipro.

The finding of *Ellobius* near the left bank of the Ingulets River (locality N 10) was rather unusual as in many other seemingly good unplowed valleys with steppe vegetation of this region no mounds of the mole voles were found. There is little doubt that in the past in the area between the Ingulets and Dnipro a stable and successful population existed. The actually discovered population fragments maybe the remnants of it. We suppose that some more small local populations can be found in this region as well.

The Nikopol locality most probably currently has no connections with this core population as it is separated by a vast wetland area of the Bazavluk River. We rather thoroughly surveyed the southern part of Apostolove District, where *Ellobius* had been



Fig. 3. A northern mole vole near the village of Novokairy in Kherson Region, 26.08. 2013 (photo by V. Strigunov).

Рис. 3. Обыкновенная слепушонка в окрестностях с. Новокайры Херсонской обл., 26.08.2013 (фото В. Стригунова).

reported in the first half of the 20th century. Our data show no signs of mole voles occurring there, but we have found a large population of mole rats (*Spalax*) around the station of Tik. It is important to mention that it is the locality where one specimen of the mole vole was trapped a hundred years ago.

Most of the populations were found close to human settlements, along the highways, rubbish dumps and even in the villages. Although some authors suppose that the northern mole vole is an indicator of undamaged sandy steppes and avoids human presence (Zagorodniuk, Korobchenko, 2008; Korobchenko, Kondratenko, 2009), our data do not support this idea. Respective authors studied mole voles only in Lugansk Region, where *E. talpinus* is really connected to sandy areas. But according to our observations in Dnipropetrovsk, Kherson, Lugansk, Crimea, Rostov and Volgograd regions the species selects much wider range of habitats. And even in Lugansk Region in the village of Saryi Aidar we found mounds of the mole voles almost inside the village (Rusin, 2012).

Taking in account the dispersal of colonies, small amount of families found in each and significant loss of habitats due to plowing, irrigation, artificial forestation and road construction we assume *Ellobius talpinus* as endangered in the study region. Two largest populations we found are near Nikopol (N 1) and the village of Respublikanets (N 9). These populations and areas of their occupancy require special measures of protection.

We are thankful to S. K. Semenyuk for his reports on several localities of *Ellobius talpinus* in Kherson Region.

References

- Bulakhov, V. L., Pakhomov, O. E. Biological diversity of Ukraine. Dnipropetrovsk Oblast. Mammals. — Dnipropetrovsk : Dnipropetrovsk University Press, 2006. — 353 p. — Ukrainian : Булахов В. Л., Пахомов О. Е. Біологічне різноманіття України. Дніпропетровська область. Ссавці (Mammalia).
- Golov, B. A. Live-trap for the mole vole // Bull. Soc. Imp. Nat. Mosc. — 1954. — 59, N 5. — P. 95–96. — Russian : Голов Б. А. Ловушка-живоловка на слепушонку.
- Izdebskiy, V. M. Rodents of the Lower Dnipro Region (fauna, ecology, practical value) : Abstract of Ph. D. thesis. — Kherson, 1965. — 269 p. — Russian : Издебский В. М. Грызуны Нижнего Приднепровья (фауна, экология, практическое значение).
- Kondratenko, O., Zagorodniuk, I., Tovpinetz, M. Sketches about rare species of steppe mammals for new edition of the Red Data Book of Ukraine // Mammal fauna of Eastern Ukraine. In memory of Olexandr Kondratenko / Ed. I. Zagorodniuk. — Luhansk. — 2006. — P. 204–210. — Ukrainian : Кондратенко О., Загороднюк І., Товпинець М. Нариси про рідкісні види степових ссавців для нового видання Червоної книги України.
- Korobchenko, M., Chebotok, E., Polischuk, I. Former and modern distribution of *Ellobius talpinus* (Rodentia, Mammalia) in the Lower Dnipro region // Vestnik zoologii. — 2010. — 44, N 4. — P. 368. — Ukrainian : Коробченко М., Чеботок Є., Поліщук І. Колишнє і сучасне поширення сліпущка звичайного, *Ellobius talpinus* (Rodentia, Mammalia), в Нижньому Подніпров'ї.
- Korobchenko, M., Kondratenko, O. *Ellobius talpinus* // Red Data Book of Ukraine / Ed. I. Akimov. — Kiev, 2009. — P. 536. — Ukrainian : Коробченко М., Кондратенко О. Сліпачок звичайний.
- Migulin, O. O. Harmful and useful mammals of Ukraine. — Kharkiv, 1927. — 166 p. — Ukrainian : Мигулін О. О. Шкідливі та корисні звірі України.
- Migulin, O. O. Mammals of Ukrainian SSR (materials on fauna). — Kiev : Press of Academy of Ukrainian SSR, 1938. — 426 p. — Ukrainian : Мигулін О. О. Звірі УРСР (матеріали до фауни).
- Ognev, S. I. Rodents // Mammals of USSR and adjacent countries. Vol. 7. — Moscow ; Leningrad, 1950. — 706 p. — Russian : Огнев С. И. Грызуны // Звери СССР и прилежащих стран. Т. 7.
- Pidoplichka, I. G. Harmful rodents of the Right-bank forest-steppe region and effects of some of them to agriculture. — Kiev, 1930. — 81 p. — Ukrainian : Підопличка І. Г. Шкідливі гризуни Правобережного Лісостепу та значення окремих груп в сільському господарстві.
- Rusin, M. Yu. *Ellobius talpinus* Pallas (Rodentia: Cricetidae) in Ukraine: distribution, number and conservation // Pryrodnychiy almanakh. Ser. Biological sciences. — 2012. — N 16. — P. 121–137. — Russian : Русин М. Ю. *Ellobius talpinus* Pallas (Rodentia: Cricetidae) в Україні: розповсюдження, численність і охорона.
- Rusin, M. Yu., Sineva, N. V., Kolesnikov, M. A. On a state of the northern mole-vole *Ellobius talpinus* (Rodentia, Cricetidae) in Eastern Ukraine // Vestnik zoologii. — 2008. — 42, N 3. — P. 275–279. — Russian : Русин М. Ю., Синева Н. В., Колесников М. А. О состоянии популяций слепушонки обыкновенной, *Ellobius talpinus* (Rodentia, Cricetidae), на востоке Украины.

- Yakimenko, L. V.* Cadaster map of ranges of northern mole vole (*Ellobius talpinus* Pall.) and Zaisan mole vole (*E. tancrei* Blasius) // Diversity and zoogeography of mammals. — Vladivostok : BPI, 1984. — P. 76–102. — Russian : Якименко Л. В. Кадастрово-справочная карта ареалов обыкновенной (*Ellobius talpinus* Pall.) и зайсанской (*E. tancrei* Blasius) слепушонок.
- Yevdokimov, N. G.* Population ecology of the northern mole vole. — Yekaterinburg, 2001. — 144 p. — Russian : Евдокимов Н. Г. Популяционная экология обыкновенной слепушонки.
- Zagorodniuk, I. V., Korobchenko, M. A.* Mole-vole, *Ellobius talpinus* (Pall.) in the Siversky Donets basin // Foundings of animals of the Red Data Book of Ukraine / Ed. H. V. Fesenko. — Kiev : Institute of Zoology NASU, 2008. — P. 407–410. — Ukrainian : Загороднюк І. В., Коробченко М. А. Сліпушок, *Ellobius talpinus* (Pall.), у басейні Сіверського Дінця.
- Zubko, Y. P.* To the question of subspecies status of molevoles (*Ellobius talpinus* Pall.) in European part of the USSR // Naukovi zapysky Kharkivskogo derzh. ped. inst. — 1940. — 4. — P. 191–194. — Ukrainian : Зубко Я. П. Про питання про підвидовий склад сліпачків (*Ellobius talpinus* Pall.) Європейської частини СРСР.

Received 12 March 2015

Accepted 24 March 2015