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INVASIVE LAND SNAIL *OXYCHILUS TRANSLUCIDUS* (STYLOMMATOPHORA, ZONITIDAE) IN THE CATACOMBS OF ODESA (UKRAINE)

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Invasive Land Snail *Oxychilus translucidus* (Stylommatophora, Zonitidae) in the Catacombs of Odesa (Ukraine). Kovtun, O. A., Vargovitsh, R. S., Son, M. O., Balashov, I. A. — A finding of the subterranean population of the Caucasian invasive snail on the depth of 30 m below Odesa in Southern Ukraine is discussed.
Key words: terrestrial mollusks, subterranean habitat, troglophile.

Invasive land snail *Oxychilus translucidus* (Mortillet, 1854) (Stylommatophora, Zonitidae) originates from the Caucasus and since the second half of the 20th century has been introduced into numerous settlements of Central and Eastern Europe (Welter-Shultes, 2012; Balashov, 2016). In Ukraine it was reported from the settlements of the Crimea, Kyiv, Kharkiv, Vinnytsia, Khmelnytskyi, Zaporizhzhia, Donetsk and Mykolaiv Regions (Balashov, Gural-Sverlova, 2012, 2014; Balashov, 2016). No formal records of this species were reported from Odesa Region so far, but "*Oxychilus* sp." was listed from Odesa City (Son, 2006 in Sverlova et al., 2006). Its specimens were collected for the first time in Odesa by M. Son in 1999. Later it was repeatedly found in three locations in the urban landscapes, mainly under the stones.

Recently, based on the three shells collected by M. Son in 2000, it was concluded that reports of "*Oxychilus* sp." from Odesa belong probably to "*Oxychilus* cf. *mortilleti* (Pfeiffer, 1859)" (Gural-Sverlova, Gural, 2017). One of these three shells is 13 mm width (Gural-Sverlova, Gural, 2017), which is 1 mm larger than in maximum known for *O. translucidus* (Balashov, 2016). We have 47 *Oxychilus* shells collected in the same locality by M. Son few months later than shells analyzed by Gural-Sverlova and Gural (2017). The largest of these shells is of 8.7 mm width at five whorls, some shells of about 8.5 mm have 4.5 whorls. The *Oxychilus* shells studied by us from other locations in Odesa are even smaller. In our opinion, these shells clearly correspond to the descriptions of *O. translucidus* (Riedel, 1966; Welter-Schultes, 2012; Balashov, 2016). Perhaps, the shell of 13 mm width from this locality is abnormally gigantic specimen of *O. translucidus*. Otherwise, two invasive *Oxychilus* species co-occur (or co-occurred) in this locality, but at least the large shells series and an anatomical study are required to confirm the identification, especially for the species whose closest proven locality is placed more than 1,000 km from Odesa (Welter-Schultes, 2012).

The recent findings of *O. translucidus* in the deep underground habitats of the Odesa Catacombs (fig. 1) are of special interest, as this species has never been reported before neither from caves nor from other subterranean habitats. Our finding of this species occurred far from the catacombs entrances on the depth of 30-32 m below the surface of Nezhdanova and Kryvytskoho streets in the area of Kryva Balka, Odesa (observation and sampling of O. Kovtun, 7 specimens collected in 2014 and 2016 are deposited in the Collection of terrestrial molluscs of I. I. Schmalhausen Institute of Zoology NAS of Ukraine, IZAN GT 4387, 6025).

Fig. 1. *Oxychilus translucidus* in Odesa Catacombs (photo by O. Kovtun).

The width of the shell in collected specimens of *O. translucidus* is up to 7.9 mm at 5.5 whorls, the width of the umbilicus is around 1/10-1/11 of the width of the shell. By these parameters (moderately small *Oxychilus* with narrow umbilicus) this species cannot be misidentified with any other species occurring in Eastern Europe or potentially expected to invade here from other regions (Balashov, Gural-Sverlova, 2014; Balashov, 2016).

For the first time *O. translucidus* was found in Odesa Catacombs on 26.03.2014 and since then numerous specimens have been regularly observed and collected during studies of the catacombs on the walls in passages with flooded floor where the constant annual temperature is 14 °C.

An illegal discharge of sewage takes place in this part of catacombs. Most likely semi-carnivorous *O. translucidus* has penetrated inside the catacombs together with sewage, and consequently feeds there on some organisms trophically connected with dungs delivered from the surface and thus forms specific underground anthropogenic ecosystem.

Generally, the subfamily Oxychilinae is usual for the subterraneans and comprises several cave-dwelling taxa (Riedel, 1966; Balashov, 2016). Apparently, *O. translucidus* has been successfully adapted to the environmental conditions of Odesa Catacombs, its population looks stable and reproducing there and thus the species could be classified as a troglophile.

References

Balashov, I. A. 2016. *Fauna of Ukraine.* Vol. 29: *Molluscs.* Is. 5: *Stylommatophorans (Stylommatophora)*. Naukova dumka, Kyiv, 1–592 [In Russian].

Balashov, I., Gural-Sverlova, N. 2012. An annotated checklist of the terrestrial molluscs of Ukraine. *Journal of Conchology*, **41** (1), 91–109.

Balashov, I., Gural-Sverlova, N. 2014. Was there *Oxychilus diaphanellus* outside Crimea? On the variability of synanthropic *Oxychilus translucidus* in Ukraine (Stylommatophora, Zonitidae). *Ruthenica*, **24** (1), 25–29.

Gural-Sverlova, N. V., Gural, R. I. 2017. The land snails, *Oxychilus draparnaudi* and *Oxychilus* cf. *mortilleti* (Gastropoda, Pulmonata, Zonitidae) in the territory of Ukraine. *Zoologicheskii Zhurnal*, **96** (4), 375–382 [In Russian].

Riedel, A. 1966. Zonitidae (excl. Daudebardiinae) der Kaukasusländer (Gastropoda). *Annales Zoologici*, **24** (1), 1–303.

Sverlova, N. V., Khlus, L. N., Kramarenko, S. S. et al. 2006. *Fauna, ecology and intraspecific variability of the terrestrial molluscs in urban environment*. Lviv, 1–225 [In Russian].

Welter-Schultes, F. W. 2012. *European non-marine molluscs, a guide for species identification*. Planet Poster Editions, Göttingen, 1–679.

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