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**Short communication**

# First record of the invasive Ponto-Caspian mysid *Limnomysis benedeni* Czerniavsky, 1882 from the River Pripyat, Belarus

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## Abstract

The invasive Ponto-Caspian mysid *Limnomysis benedeni* Czerniavsky, 1882 has been recorded for the first time in August 2007 at three sites on the River Pripyat (the Belarusian part of the inland European central invasion corridor). This species occurs in the onshore shallow zone (depth 0.2-0.3 m) with aquatic vegetation and high temperature. High abundances of this species have been observed in port bays. Most likely, this invasive mysid entered the River Pripyat basin from the Dnieper Reservoirs where it was intentionally introduced after 1960.

*Key words*: alien species, mysid, *Limnomysis benedeni*, first record, distribution

Until now only two mysid crustaceans, *Mysis relicta* Lovén, 1862 and *Paramysis lacustris* (Czerniavsky, 1882), have been reported from Belarusian inland waters. *M. relicta*, a native glacial relict species, has been recorded from some lakes of glacial origin in the hypolimnion layer (Suschenya et al. 1986). During 2006 a Ponto-Caspian mysid *P. lacustris* was found in Lake Drysviaty, a cooling reservoir of Ignalina nuclear power station (Vezhnovetz, unpublished data, Annex). This species entered into this lake from Lithuania where it was intentionally introduced in 1960s (Arbačiauskas 2005).

In August 2007 another invasive Ponto-Caspian mysid, *Limnomysis benedeni* Czerniavsky 1882 was found in hand net samples taken during a survey of the River Pripyat (Figures 1-2, Annex). A typical biotope, where *L. benedeni* was found, is the onshore shallow zone (depth 0.2-0.3 m) with aquatic vegetation (*Ceratophyllum* spp. and *Potamogeton* spp.) and high temperature (25-26°C). Oxygen content and pH in the biotopes were between 4.3-7.2 mg $l^{-1}$ and 7.47-7.57, respectively. The conductivity was low and did not exceed 174 µS.

Maximal abundance (176 ind. $m^{-3}$) of *L. benedeni* was recorded in the canal which connects Mykashevichy port bay with the river. This species was also found in Mozyr port bay (12.8 ind. $m^{-3}$) and the lower part of the river near Narovlia town (19.2 ind. $m^{-3}$) (see Figure 1 and Annex).

*Limnomysis benedeni* is a typical species of freshwater and brackish waterbodies in the Black Sea and Azov Sea regions. Usually it prefers less than 5 PSU salinity and macrophyte biotopes (Mordukhai-Boltovskoy 1969).

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**Figure 1.** Map of Belarus with records of *Paramysis lacustris* (1) and *Limnomysis benedeni* (2-4), see also Annex

**Figure 2.** Lateral view of *Limnomysis benedeni* (ovigerous female, body size 13 mm), recorded on 11 August 2007 in the canal connecting Mykashevichy port with Pripyat River (Photograph by V Semenchenko)

In the middle of the 20th century, *L. benedeni* was intentionally introduced into the Dnieper Reservoirs and Balaton Lake in order to increase the food source of young fish (Mordukhai-Boltovskoy 1969). This species also entered in the middle part of the Danube River on Serbian territory (Bogut et al. 2007) and the Rhine River (Bernauer and Jansen 2006).

Intensive shipping along inland waterways via the Dniepr and Pripyat Rivers can most likely be considered as the main pathway of invasion of *L. benedeni* into the Prypyat River from the reservoirs in the Dniepr River, as indicated by records of this species in locations close to river ports. In this regard it is necessary to point out that Mazyr and, especially, Mykashevichy ports are characterized a high intensity of barge shipping.

It is probable that *P. lacustris* will also be found in other lakes and rivers near the Lithuanian border as this species is found in the Neman River basin on Lithuanian territory adjoining Belarus (Arbačiauskas 2005).

*Limnomysis benedeni* has a short life span and generation time, non-specific food preference, and suspension feeding (Bogut et al. 2007). Present records of *L. benedeni* in high densities in several locations in the Pripyat River may indicate that this invasive Ponto-Caspian species is successfully established in inland waters of Belarus, and further studies are needed to estimate its impact on the native communities in Belarus, as well as survey of it possible further dispersal along the European central invasion corridor to the basins of the Bug and Vistula Rivers (Poland).

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## References

Arbačiauskas K (2005). The distribution and local dispersal of Ponto-Caspian Peracarida in Lithuanian fresh water with notes on *Pontogammarus robustoides* population establishment, abundance and impact. Oceanological and Hydrobiological Studies. Vol. XXXIV, Suppl. 1: 93-111

Bernauer D and Jansen W (2006). Recent invasions of alien macroinvertebrates and loss of native species in the upper Rhine River, Germany. Aquatic Invasions 1 (2): 55-71

Bogut I, Galir A, Čerba D and Vidaković J (2007) The Ponto-Caspian invader, *Limnomysis benedeni* (Czerniavsky, 1882), a new species in the fauna of Croatia. Crustaceana 80 (7): 817-826

Mordukhai-Boltovskoi FD (ed.) (1969). A key to fauna of Black Sea and Azov Sea. 536 pp

Suschenya LM, Semenchenko VP and Vezhnovetz VV (1986). Biology and production of glacial relict crustaceans. Minsk, 166 pp

**Annex**
Records of Ponto-Caspian mysids in Belarus in 2006-2007

| Species | Site no (Map Ref.) | Location | Record coordinates | | Date of record | Number ind/m$^3$ | Collector |
|---|---|---|---|---|---|---|---|
| | | | Latitude,°N | Longitude,°E | | | |
| *Paramysis lacustris* | 1 | Drysviaty Lake | 55°37' | 26°42' | September 2006 | 1 | V. Vezhnovetz |
| | 2 | Pripyat River, Mykashevichy | 52°09.48' | 27°20.32' | 11 August 2007 | 176.0 | V. Razlutski |
| *Limnomysis benedeni* | 3 | Pripyat River, Mazyr | 52°08.76' | 29°18.51' | 16 August 2007 | 12.8 | V. Semenchenko V. Razlutski |
| | 4 | Pripyat River, Narovlia | 51°52.01' | 29°29.21' | 17 August 2007 | 19.2 | V. Semenchenko V. Razlutski |