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THE PONTOCASPIAN MYSID *HEMIMYSIS ANOMALA* SARS, 1907, NEW TO THE FAUNA OF THE NETHERLANDS

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ABSTRACT

The first records in The Netherlands of the Pontocaspian mysid *Hemimysis anomala* Sars, 1907 are described. Ecological notes are given together with a discussion of the distribution of this species in Europe.

INTRODUCTION

The distribution of the mysidacean genus *Hemimysis* (Sars, 1869) comprises the northeastern Atlantic Ocean, the Mediterranean and the Pontocaspian region (Bacesco, 1954; Ledoyer, 1963 and 1989). Two of the species in the genus, i.e., *Hemimysis serrata* Bacescu, 1938 and *Hemimysis anomala* Sars, 1907, are considered to be originally Pontocaspian species (Bacesco, 1954). Recently *H. anomala* has colonised several locations in Western Europe. *H. anomala* can immediately be identified by a single feature: the telson is quadrately truncated without a trace of an apical cleft (Ledoyer, 1963). In *H. serrata* the telson is also truncated, however, a slight median cleft is present at the apex. Furthermore, unlike *H. anomala*, *H. serrata* has the distal half of the outer margin of the antennal scale provided with spines instead of long setae (Bacesco, 1954).

MATERIAL EXAMINED

13.06.1997, 2 specimens in ZMA (Crust. Mys. 203.883),
29.11.1997, 50 specimens in ZMA (Crust. Mys. 203.885).

LOCALITY

The 'Noorder IJ-plas' is a small water body near the 'Coentunnel' at Amsterdam. Its fauna was investigated by SCUBA-diving on 13.06.1997, 11.07.1997, and 29.11.

1997. The (hyper)benthic crustacean fauna was studied at depths between 1 and 7 m over a distance of approximately 100 m along the southeastern shore. Mysids were collected using a plastic jar and a hand net.

On 13.06.1997 *H. anomala* was observed at a depth between 2 and 5 m. Two swarms of approximately one hundred specimens each were hovering 10 - 20 cm above holes on a boulder-strewn muddy slope. Only two specimens could be collected. On 11.07.1997 no *Hemimysis* were observed. On 29.11.1997 a swarm of hundreds of specimens was observed in and near the open windows of a car wreckage at a depth of 4 m. A sample of this swarm was collected, of which 50 specimens were deposited in the Zoological Museum of the University of Amsterdam (ZMA).

ECOLOGY

The chloride content of the oligohaline 'Noorder IJ-plas' is approximately 1000 to 1100 mg Cl/l (Lenoir et al., 1996). Its fauna mainly consists of brackishwater species, but a few freshwater species are present as well. Some crustacean species observed by Lenoir et al. (1996) are the isopods *Cyathura carinata* (Kröyer, 1848) and *Lekane-sphaera rugicauda* (Leach, 1814), the amphipods *Gammarus duebeni* Liljeborg, 1852, *G. tigrinus*, Sexton, 1939, *G. zaddachi* Sexton, 1912 and *Corophium multisetosum*

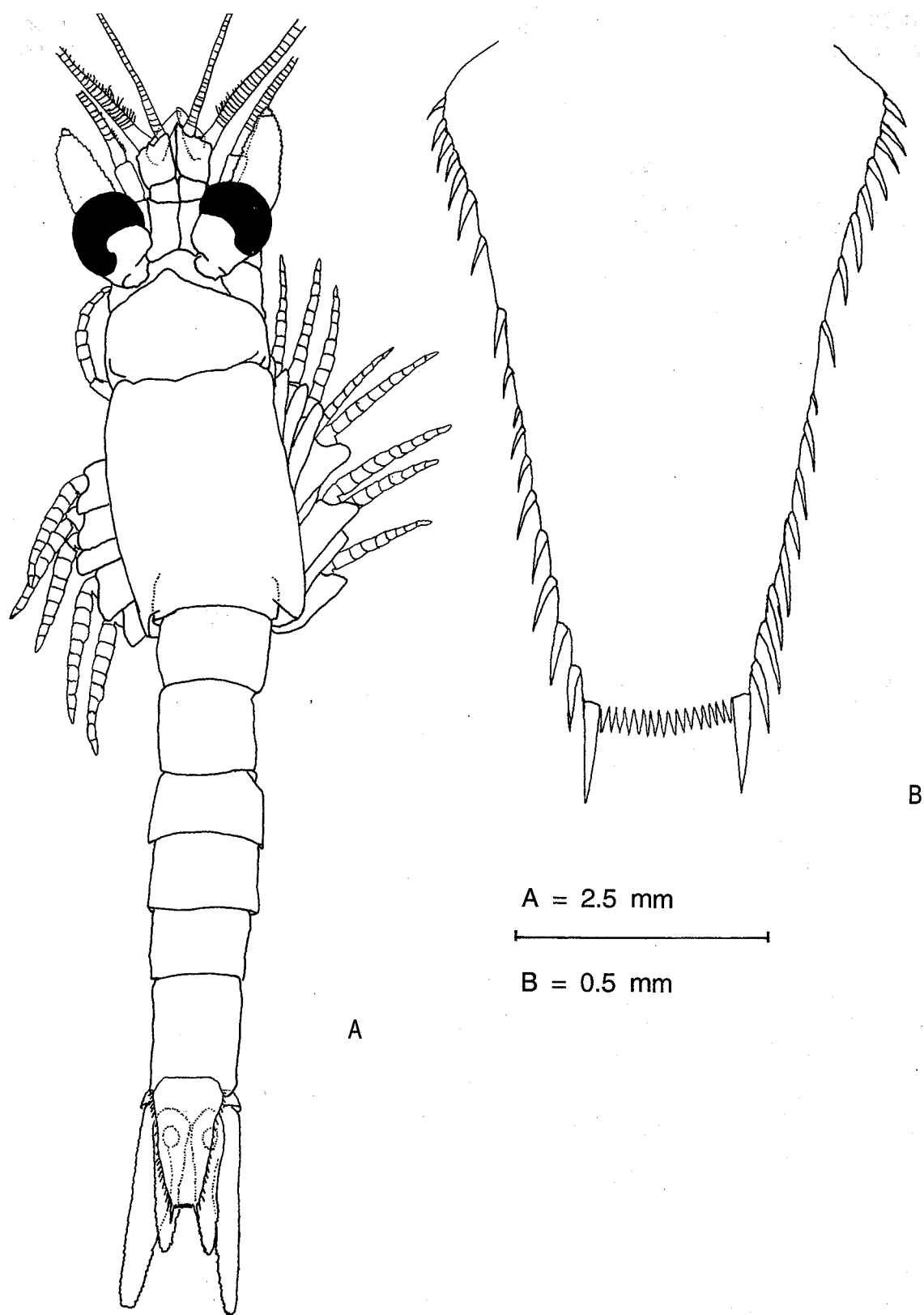


Fig. 1. A - *Hemimysis anomala*, male, habitus, from Amsterdam (setae omitted); B - *H. anomala*, telson.

Stock, 1952, the mysid *Neomysis integer* (Leach, 1814), and the shrimps *Palaemonetes varians* (Leach, 1814) and *Atyaephyra desmarestii* (Millet, 1831). Besides the crustacean species already mentioned by Lenoir et al. (1996), three more crustacean species were observed. The crabs *Eriocheir sinensis* Milne Edwards, 1854 and *Rhithropanopeus harrisii* (Maitland, 1874), already known from other water bodies in the region, and the mysid *Hemimysis anomala*, not previously recorded from Western Europe. According to Bacesco (1954) *H. anomala* is the most euryhaline Pontocaspian species of *Hemimysis*, as it is found in the Black Sea as well as in Rumanian freshwater bodies.

Our observations suggest that *H. anomala* is restricted to substrates provided with holes. This is in accordance with observations in Germany, where this mysid was only collected along riverbanks consisting of loose stones, never along river banks consisting of stones plastered together (Schleuter et al., 1998).

Both observations of *H. anomala* in the 'Noorder IJ-plas' were made by day. Several species of *Hemimysis* hide in holes during the day, coming out only during the dark hours (Bacesco, 1954; Dekker & de Bruin, 1993). *H. anomala* apparently can be observed in the open by day in the vicinity of holes. In some specimens, greyish pigment was seen on the carapax, which was never observed in *H. lamornae* from the Netherlands. This feature might be related to less nocturnal habits.

In July, the mysid seemed to have disappeared. Many dead specimens of the isopod *Cyathura carinata* were observed. The only live crustaceans observed were a few specimens of the mysid *Neomysis integer*. The population of *H. anomala* may have migrated to colder water at greater depths, which were not investigated. More observations are needed to validate this hypothesis.

DISCUSSION

Initially *H. anomala* was known only from the Caspian Sea and the Black Sea (Bacesco, 1954). Russian fisheries biologists introduced the mysid into several water bodies in the former Soviet Union to improve fish production. These populations spread until they reached the Baltic. In 1992, this species was found in the coastal waters of the Baltic in Finland (Salemaa & Hietalahti, 1993), and on 08.10.1997 in Germany in the river Rhine and one of its tributaries, the Neckar (Schleuter et al., 1998).

How *H. anomala* reached Germany and The Netherlands remains unsolved for the moment. Since the opening of the Main-Donau canal in 1992 several Pontocaspian species reached the Rhine basin, e.g., the amphipod *Dikerogammarus villosus* (Sowinsky, 1874) (Bij de Vaate & Klink, 1995) and the freshwater polychaeta *Hypania invalida* (Grube, 1860) (Klink & Bij de Vaate, 1996). However, as Schleuter et al. (1998) already pointed out, *H. anomala* has long been known from the Donau delta, although it has never been recorded upstream. So, the mysid probably reached The Netherlands in another way. Trans-

portation in ballast water of ships might be an explanation. This also was suggested for other euryhaline mysids, especially species that seek shelter under solid objects, e.g., *Limnomysis benedeni* Czerniavsky, 1882 (Wittmann, 1995). The 'Noorder IJ-plas' was formerly connected to the 'Noordzee-kanaal', which is a busy shipping route connecting the port of Amsterdam with the North Sea, and via the 'IJsselmeer' with the Rhine basin. Probably *H. anomala* will invade, or already has, the 'IJsselmeer' and the lower Rhine. *H. anomala* may well have established populations in other brackish harbour regions along the coast of Europe. The population in The Netherlands may even originate from one of these populations. Due to its cryptic habits and the difficulties connected with investigations in ports, it may easily escape attention.

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