

A review of the neozoan non-marine macro-crustaceans in Belgium

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Introduction

There is growing concern about the introduction of alien (neozoan) species, because of their possible impact on ecologically equivalent native species or on other species or because of the possible change in ecosystem structure and process. Many alien species, belonging to different zoological groups, have already been observed in Belgian inland waters. This paper aims at inventorying the non-marine and estuarine alien macro-crustaceans which up to now have been recorded in Belgium. A more comprehensive paper on the distribution of alien macro-crustaceans in Belgium, with emphasis on dates and localities and on cartography, and with a more exhaustive bibliography, will be published in the *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Biologie*, volume 72 (2002).

Species accounts

Leptestheria dahalacensis (RÜPPEL, 1837)

The species was collected on 26 October and 8 November 1988 (BRENDONCK *et al.* 1989) in a fishpond in Heverlee (Park Abbey). *L. dahalacensis* was most likely introduced in the fishpond when carp, originating from a place near Lake Balaton (Hungary), was brought there.

Hemimysis anomala (SARS, 1907)

This species was collected for the first time in Belgium on 12 October 1999, in the "Galgeweel", a brackish water pond on the left bank of the River Schelde, near the harbour of Antwerp (VERSLYCKE *et al.* 2000). In 2000 it was collected upstream Namur (Heer and Lustin) and between Namur and Liège (Gives), and in 2001 in Lanaye, in the gravel pit of the old Meuse (VANDEN BOSSCHE 2002, this volume).

Gammarus tigrinus SEXTON, 1939

Was collected for the first time in Belgium in April 1996, in the "Grote Put" in Antwerpen-Ekeren (VERCAUTEREN *et al.* 1999). In 1997 and 1998 the species was found in two other localities, namely the Bloso sports centre "Netepark" in Herentals, and in a ditch in Bornem Hingene (VERCAUTEREN & WOUTERS 1999).

Echinogammarus berilloni CATTÀ, 1878

The very few published records of this southern European species are all from rivers and ponds in southern Belgium. The collections of the RBINS contain a number of specimens from about thirty localities, of which Neerijse, Langerode (19 June 1925) represents the oldest record.

Dikerogammarus villosus (SOWINSKY, 1874)

VANDEN BOSSCHE *et al.* (2001) mention the presence of *Dikerogammarus villosus*, in 1998, in four stations in the river Meuse (Heer, Lustin, Gives, Chokier). In a second paper VANDEN BOSSCHE (2002, this volume) emphasizes that the species has become common in the river Meuse, between Namur and Liège, and that it is spreading rapidly. In 2000 it was already found upstream Namur.

Corophium curvispinum SARS, 1895

The first (but not the oldest) record of the species was published by WOUTERS (1985), who found the species in 1983 in the river Meuse in Jambes. In later papers, D'UDEKEM D'ACQZ & STROOT (1988) report the presence of this species in the river Meuse in Huy, in 1981 (oldest record), and MEURISSE-GÉNIN *et al.* (1987) from Lustin, Bas-Oha and Amay. VANDEN BOSSCHE *et al.* (2001) collected the species in 2000 in four more localities in the river Meuse between the French border and Liège, and in 2001 (VANDEN BOSSCHE 2002, this volume) in Lanaye, in the two side arms facing the Dutch border.

Crangonyx pseudogracilis BOUSFIELD, 1958

Was collected for the first time in Belgium on 28 October 1992, in the "Gebuistloop" in Puurs. In 1998 the species was found in two other localities, namely in a ditch in "Hof ter Zielbeek" in Puurs and in a ditch in Ruisbroek (VERCAUTEREN & WOUTERS 1999 and VERCAUTEREN *et al.* 2000). The species was probably introduced from the Netherlands by human activities. VANDEN BOSSCHE (2002, this volume) reports the species from the river Meuse in Yvoir and Lanaye, Vieille Meuse in 1998, 2000 and 2001. According to this author "*C. pseudogracilis* is likely to vanish completely from the river Meuse, under the increasing pressure of *Dikerogammarus villosus*".

Orchestia cavimana HELLER, 1865

There are only very few published records of this species available, mostly from NW Belgium. The collections of the RBINS contain a large number of specimens from about 35 localities, of which Antwerpen, left bank of the river Schelde (26 March 1927), represents the oldest record. It is a common species in the canals of N and NE Belgium. VANDEN BOSSCHE (2002, this volume) reports the species from the river Meuse in Yvoir (1991), Petit-Lanaye (1995 and 1998), Gives and Lanaye, Nouvelle Gravière (2001).

Atyaephyra desmaresti (MILLET, 1831)

The first (but not oldest) record of this species was published by PELSENEER (1886), who presumably collected it in Hastière, in the River Meuse, in 1886. In 1931, LESTAGE published a review article, covering all previously published records, and adding some new ones. He also questioned the validity of the locality Hastière. According to LESTAGE the oldest, and therefore first record for Belgium is probably 1895, in the Canal of Charleroi, Brussels. Later records of the species were published by ADAM & LELOUP (1940), mostly from the canals in N and NE Belgium, and by MEURISSE-GÉNIN *et al.* (1985) and WOUTERS (1985), both from the river Meuse.

Astacus leptodactylus (ESCHSCHOLTZ, 1823)

The distribution of this species, the turkish crayfish, is discussed in the following papers: DARVILLE (1982), GÉRARD (1986a, 1986b, 1989), ARRIGNON *et al.* (1999). There are no specimens of this species deposited in the collections of the RBINS.

Pacifastacus leniusculus (DANA, 1852)

The distribution of this species, the signal crayfish, which is rather rare in Belgium, is discussed in the following papers: DARVILLE (1982), GÉRARD (1986a, 1986b, 1989), ARRIGNON *et al.* (1999). There are no specimens of this species deposited in the collections of the RBINS.

Orconectes (Faxonius) limosus (RAFINESQUE, 1817)

The distribution of this species is amply discussed in a number of papers: DARVILLE (1982), JELLASICS (1985), GÉRARD (1986a, 1986b, 1989), ARRIGNON *et al.* (1999). According to GÉRARD (1986a), *O. limosus* arrived in Belgium, from France, via the river Meuse, in the late fifties or the early sixties. The date of the oldest specimen available in the collections of the RBINS is 1971 (Waulsort, river Meuse). This is probably more than ten years after the installation of the species in the river Meuse. Recently the species has been recorded from Sint-Niklaas (1991, collections RBINS), Brugge (AQUAFIN 2001), Edegem (2001, T. VERCAUTEREN, pers. comm.) and Rotselaar (2001, H. VERREYCKEN, pers. comm.).

Callinectes sapidus RATHBUN, 1896

The North American blue crab was collected for the first time in November 1981, in the cooling system of Bayer Antwerpen NV (ANONYMOUS 1981). The presence of *C.*

sapidus in the river Schelde was later confirmed by VAN DAMME & MAES (1993), who found a male specimen in the cooling circuit of the nuclear power plant in Doel, in October 1993.

Eriocheir sinensis H. MILNE EDWARDS, 1854

The mitten crab was observed for the first time in Belgium in 1933 by a fisherman who caught a specimen in "Kruisschans" (N. of Antwerpen) (LESTAGE 1935). During the period 1933-1957, the mitten crab became a very common species, even to a point that it was considered a "public enemy". The most important papers on the distribution of the mitten crab during that period are: LESTAGE (1935), LELOUP (1937, 1938, 1939, 1943), HUET (1941), CAPART (1956) and ADEMA (1991). Since this period, and more particularly since 1970, new distributional data have become available, as published records, as specimens deposited in the collections of the RBINS, or as oral communications. The species occurs mainly in the coastal area and in the Schelde and Yser basins, but also in isolated ponds, such as in the natural reserve "De Maten", in Genk (1998, K. COTTENIE, pers. comm.), and in the pond "Toren Ter Heide", Rotselaar (2001, H. VERREYCKEN, pers. comm.).

Rhithropanopeus harrisi (GOULD, 1841)

The dwarf crab was found for the first time in Belgium in Doel, Prosperpolder, river Schelde, on 26 May 1985. A cheliped of a second specimen was collected at the same locality on 27 October 1985 (DUMOULIN & RAPPÉ 1985), and another cheliped was collected in 1987 (ADEMA 1991). Five living specimens were found in 1991 in the cooling circuit of the nuclear power plant in Doel (VAN DAMME *et al.* 1992), and six living specimens were caught on the right bank of the river Schelde in Lillo, in 1994 (D'UDEKEM D'ACQZ 1994).

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