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Short communication

The Ponto-Caspian mysid, *Hemimysis anomala* G.O. Sars 1907 (Crustacea), arrives in Ireland

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Abstract

A swarm of the Ponto-Caspian mysid *Hemimysis anomala* was found in a small boating harbour on Lough Derg, the most downstream lake on the Shannon River system, Ireland's largest river. Some hundreds of individuals were found in an area with macrophyte growth on the western side of this lough. Several individuals had brood-sacs containing clearly visible eye-staged young.

Key words: mysid, crustacean, *Hemimysis*, Ireland, alien, first record

Until the present, only one mysid, *Mysis relicta* Lovén, 1862, was known from deep-water Irish lakes (Reynolds 1998). This species has long been known from Lough Derg (Tattersall and Tattersall 1951), a lake with a surface area of 117 km^2, a mean depth of 7m and depths to 37m.

Recently, the freshwater mysid, *Hemimysis anomala* G. O. Sars 1907 (Figure 1), was found at Dromaan Harbour on Lough Derg (52º56.60'N, 08º19.86'W). This species has not been found before in Ireland. Lough Derg is the most downstream and the largest lake on the Shannon River.

An active swarm of *H. anomala* was recovered from within the shade of a floating tyre, in an area with dense cover of macrophytes, where depths were ~1 m. All this was within a small boating harbour with a slipway where small overland trailered boats can be launched. The tyre was adjacent to a small *Phragmites australis* (Cav.) Trim ex Steud.stand, along with rooted and floating invasive plants, the water violet *Hottonia palustris* L. and Nuttall's pondweed *Elodea nuttallii* (Planch.) H. St John (Figure 2). More than a hundred specimens, up to 12 mm body length, including several with brood pouches containing clearly visible eye-staged young, were first captured on 30 April 2008 at a water temperature of 13ºC. Some tens of specimens, including some with brood pouches, were again captured on 6 May 2008 when the temperature has risen to 17ºC. At this time some smaller free-swimming individuals were noted. On 12 May, when the temperature was 19ºC, none were found within the shelter of the same tyre.

The Ponto-Caspian *Hemimysis anomala* was found as recently as 2004 in the midlands of England (Holdich et al. 2006). The present record is from the midland region of Ireland, from a large lake where there is a wide range of recreational activities. The specimens collected were identified from the distinctive orange and transparent appearance of live specimens (Figure 1) and also from the most posterior part of the

telson being un-notched and bearing two prominent posterior-lateral spines. This feature distinguishes it from *M. relicta* and from *Limnomysis benedeni* Czerniavsky, 1882, another Ponto-Caspian species which is expanding its range in Europe.

Figure 1. Lateral view of a living *H. anomala* from Lough Derg (Photograph by Dan Minchin)

Hemimysis anomala is a mysid shrimp from the freshwater and brackish areas surrounding the Black and Caspian seas (Holdich and Pöckl 2007). It is the sixth aquatic species from the Ponto-Caspian region to reach Ireland. Others are the amphipod *Chelicorophium curvispinum* (Sars, 1895) (Lucy et al. 2004), the zebra mussel *Dreissena polymorpha* (Pallas, 1771) (Minchin et al. 2006) with its protozoan symbionts *Conchophthirus acuminatus* Clarapede et Lachman, 1858 and *Ophryoglena hemophaga* Molloy, Lynn et Giamberini, 2005 (Burlakova et al. 2006).

The expansion in the range of *H. anomala* through Europe may have been via different pathways and the first records in different regions most probably do not reflect the year of arrival. It was noted in the Danube River near Budapest in 1946 (Dudich in Kelleher et al. 1999), and later deliberately stocked in Lake Balaton in 1950 for forage for fishes. This also happened in Lithuanian lakes and reservoirs in 1960, and later, over a period 1963 to 1989, three mysid species, *Paramysis lacustris* (Czerniavsky, 1882), *Limnomysis benedeni*

Figure 2. Boat harbour where *H. anomala* was found (Photograph by Dan Minchin)

Czerniavsky, 1882 and *H. anomala* were stocked and had become established in one of these waterbodies, a reservoir, by 1967 (Arbaciaukas 2002). The next record from the Baltic region was from the Finnish coast in 1992 and may have been brought there via shipping (Salemaa and Hietalahti 1993). Since then, the species has

been recorded in Germany from the Rhine River in 1997 (Schleuter et al. 1998) and in the same year in The Netherlands (Faasse 1998), in Belgium in 1999 (Verslycke et al. 2000), France in 2000 (Devin et al. 2005) and England in 2004 (Holdich et al. 2006). While the species may have spread from the Danube River to the Rhine River by a canal link, it is also possible that it may have been spread from the Baltic Sea to the Rhine region by shipping. It is almost certain, from its arrival in the Great lakes of North America (Audzijonyte et al. 2008), that *H. anomala* was brought there by shipping, so transmissions by shipping within northern Europe (including Britain and Ireland) is possible. The capability of the species to survive in brackish water of up to 19 psu provides opportunities to invade estuarine port areas, from which it may then be spread.

Holdich et al. (2006) recorded the presence of *H. anomala* from some recreational water bodies, and it is unclear whether leisure craft may have been responsible, in a transmission as bilge or toilet water. Some Lough Derg specimens, held in a litre pot of water, survived sixteen days (30 April – 15 May), having declined from twenty down to three individuals. This could indicate a transmission in small amounts of water such as might be carried by leisure craft or, alternatively, with imports of ornamental aquatic plants.

It is possible that this mysid is more widely distributed in Ireland and further records of its occurrence may be expected.

Voucher specimens have been lodged in the National Museum of Ireland, NMINH: 2008.51.

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