

## The virile crayfish, *Orconectes virilis* (Hagen, 1870) (Crustacea: Decapoda: Cambaridae), identified in the UK

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### Abstract

A population of the virile crayfish, *Orconectes virilis* (Hagen, 1870), has been recorded within the River Lee system of North London in the United Kingdom. First detected in 2004 and thought to be the spiny-cheek crayfish, *Orconectes limosus* (Rafinesque, 1817), a recent re-examination of the specimens has confirmed that this is the first recorded breeding population of *O. virilis* in the United Kingdom. A monitoring programme is being established to assess the rate at which the species colonises the catchment and its ecological impact.

*Key words:* crayfish, *Orconectes virilis*, River Lee, London

The virile crayfish, *Orconectes virilis* (Hagen, 1870), occurs naturally in many regions of the USA and Canada, but it has also been introduced to other regions in North America and into Chihuahua, Mexico (Hamr 2002). It is considered to be an invasive crayfish and there are currently concerns that it might displace native crayfish in eastern New Brunswick, Canada (McAlpine et al 2007).

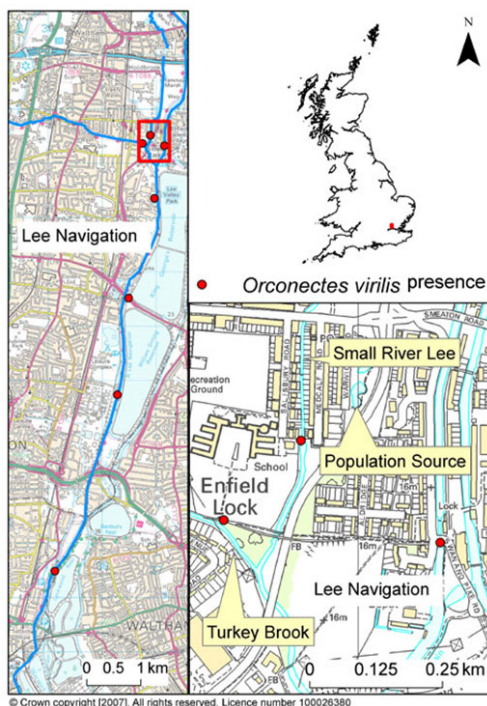
In Europe attempts were made to introduce it into France in 1897 and Sweden in 1960 but these were unsuccessful (Souty-Grosset et al. 2006). It has subsequently been recorded in the Netherlands where it is believed to have originated from the aquarium trade. Here it has established over recent years and is becoming more widespread with damage to dykes and submerged vegetation being a consequence of its

presence (Pöckl et al. 2006). It now appears that a similar event has taken place in the waterways of the River Lee catchment in North London where *O. virilis* is now established (Figure 1).

In 2004, crayfish originally believed to be the spiny-cheek crayfish, *Orconectes limosus* (Rafinesque, 1817), were discovered in a concrete lined pond in Enfield. These were locally reported to have occurred as the result of a local resident disposing of his collection of exotic aquarium pets prior to moving house. The watercourses in this area of the catchment form a complex network which link in and out of the Lee Navigation. Further populations have now been recorded in adjacent watercourses within a 7 km radius of the suspected point of introduction (Figure 2), suggesting a dispersal rate of more than 2 km a year.



**Figure 1.** A male virile crayfish, *Orconectes virilis*, collected from the Lee Navigation, North London in 2006 (Photo: DM Holdich). Note that the left cheliped is of a Form I sexually active individual, whereas the regenerating right cheliped is that of Form II sexually inactive individual. It should also be noted that the colouring of this specimen, which had been frozen, is not the same as that of a fresh specimen



**Figure 2.** The current distribution of *O. virilis* in the River Lee catchment, North London. The right hand map gives an overview of dispersal. The left hand map shows the source and its believed relationship to the watercourses where *O. virilis* is currently found. (Map: A. Ellis)

*Orconectes virilis* has been found in low numbers at the sites where it has been recorded and has not displayed the characteristically aggressive response of the signal crayfish, *Pacifastacus leniusculus* (Dana, 1852), when handled. Initial inspection of the catch returns from trapping have shown carapace lengths, measured from the tip of the rostrum to the base of the carapace, ranging from 29 mm to 79 mm.

The presence of *O. virilis* is a further threat to the UK's indigenous white-clawed crayfish, *Austopotamobius pallipes* (Lereboullet, 1858) (Holdich et al. 2004), as it is a potential vector of the crayfish plague, *Aphanomyces astaci* Schikora (Saprolegniales). As only the second known country of occurrence within Europe, it will be interesting to see which habitats this new resident occupies, if it burrows like *O. limosus*, if it continues to spread, and how it will interact with the already cosmopolitan communities within this network of watercourses. The following invasive species, Chinese mitten crab, *Eriocheir sinensis* (H. Milne Edwards, 1854), topmouth gudgeon, *Pseudorasbora parva* (Temminck et Schlegel, 1846) and zebra mussel, *Dreissena polymorpha* (Pallas, 1771), are recorded from the same watercourses as *O. virilis*. Within the River Lee catchment two other species of alien crayfish are also present,

*P. leniusculus* and narrow-clawed crayfish *Astacus leptodactylus* (Eschscholtz, 1823).

An on-going monitoring programme is being established to assess the progress of *O. virilis* within the River Lee catchment. It is hoped that the detection of this species in an early stage of its establishment will lead to an unusual opportunity to record, as comprehensively as possible, the potential impacts of *O. virilis*.

### Acknowledgements

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### Annex 1

Records of established populations of *Orconectes virilis* in England 2004-2007

Location	Record coordinates		First record date	Collector
	Latitude, °N	Longitude, °W		
Pond, London	51°40.13'	0°01.12'	2004	Environment Agency, UK
Small R. Lee, London	51°40.26'	0°01.12'	2004	Environment Agency, UK
Turkey Brook, London	51°40.02'	0°01.26'	2006	Environment Agency, UK
Lee Navigation, London	51°37.32'	0°01.58'	2004	Environment Agency, UK
Lee Navigation, London	51°36.01'	0°02.50'	2006	Environment Agency, UK
Lee Navigation, London	51°38.22'	0°01.57'	2007	Environment Agency, UK