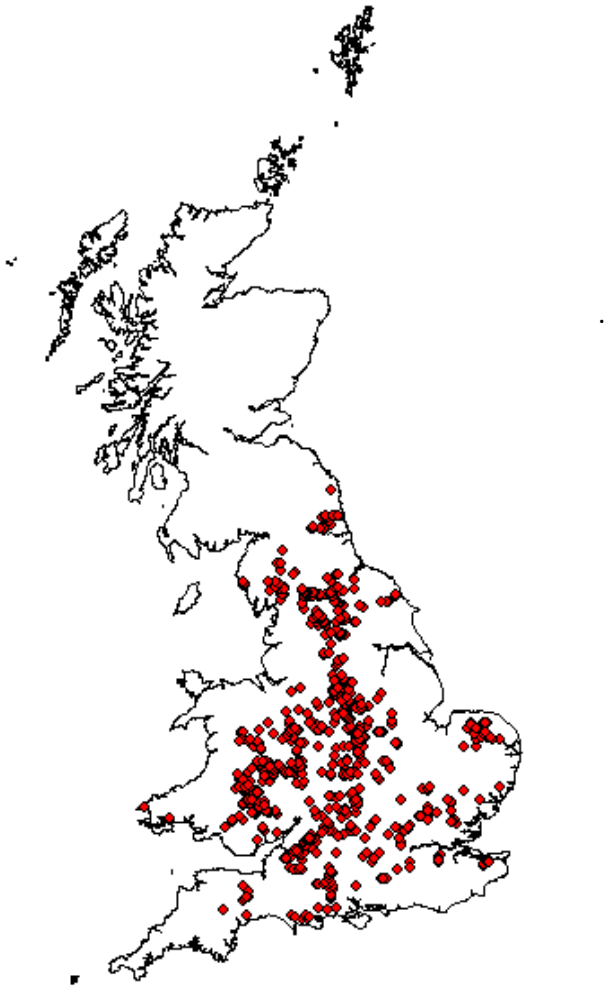
The distribution of crayfish species in the UK

The White-clawed crayfish (*Austropotamobius pallipes*) is the UK's only native species of crayfish. The species is threatened, primarily by competition for food and habitat from introduced invasive non-native crayfish species, and disease from their associated pathogens. Habitat degradation, pollution and changes to water quality have also contributed to the species' decline.

Populations of the White-clawed crayfish have dramatically declined over recent decades (Fig.1a, b), and the species is now classed as "endangered" by the IUCN.

1a)



1b)

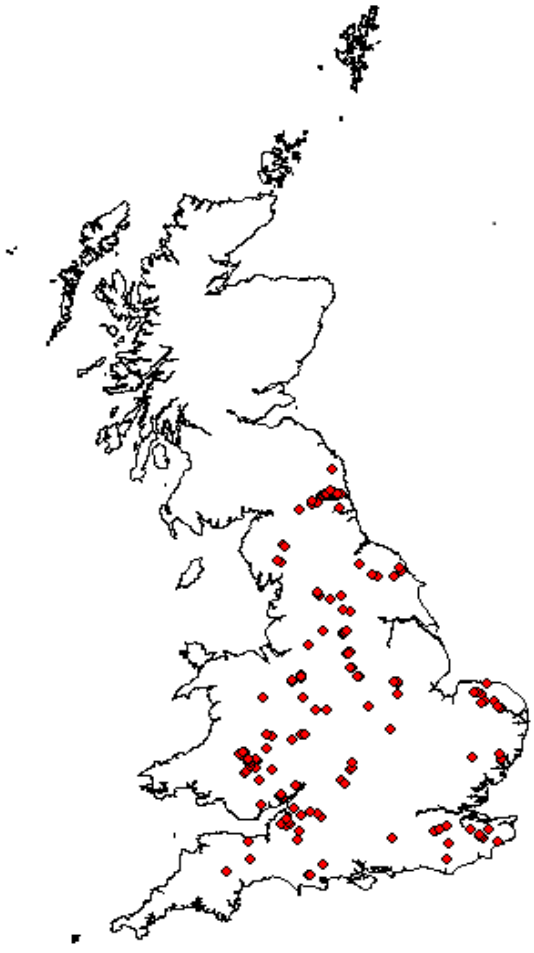


Fig.1: The distribution of native White-clawed crayfish (*Austropotamobius pallipes*) in the UK, a) before 1991 and b) from 2009 onwards (as these are the only populations we can be confident still exist)

This loss of our native White-clawed crayfish is largely attributed to the introduction of non-native alien crayfish species, in particular the North American Signal crayfish (*Pacifastacus leniusculus*). Signal crayfish were first introduced into the UK during the 1970s, and farmed for aquaculture. The Signal crayfish escaped into the wild and have since established and spread throughout most of England and Wales (Fig. 2a,b). Where Signal crayfish come into contact with White-clawed crayfish they typically displace them through competition for food or habitat, or by spreading disease, notably crayfish plague (*Aphanomyces astaci*).

2a)

2b)

Fig.2: The distribution of invasive Signal crayfish (*Pacifastacus leniusculus*) in the UK, a) before 1991 and b) all known records to current day (as we have no evidence of any populations reported before 1991 being eradicated).

In addition to the signal crayfish, six other non-native crayfish species have established viable wild populations in the UK (Fig. 3a,b). Alarmingly, four of these have been introduced since 1990. It is imperative that we determine how these non-native crayfish species will interact to assess future potential threats to our native crayfish species and the wider ecological communities of British freshwaters.

3a)

3b)

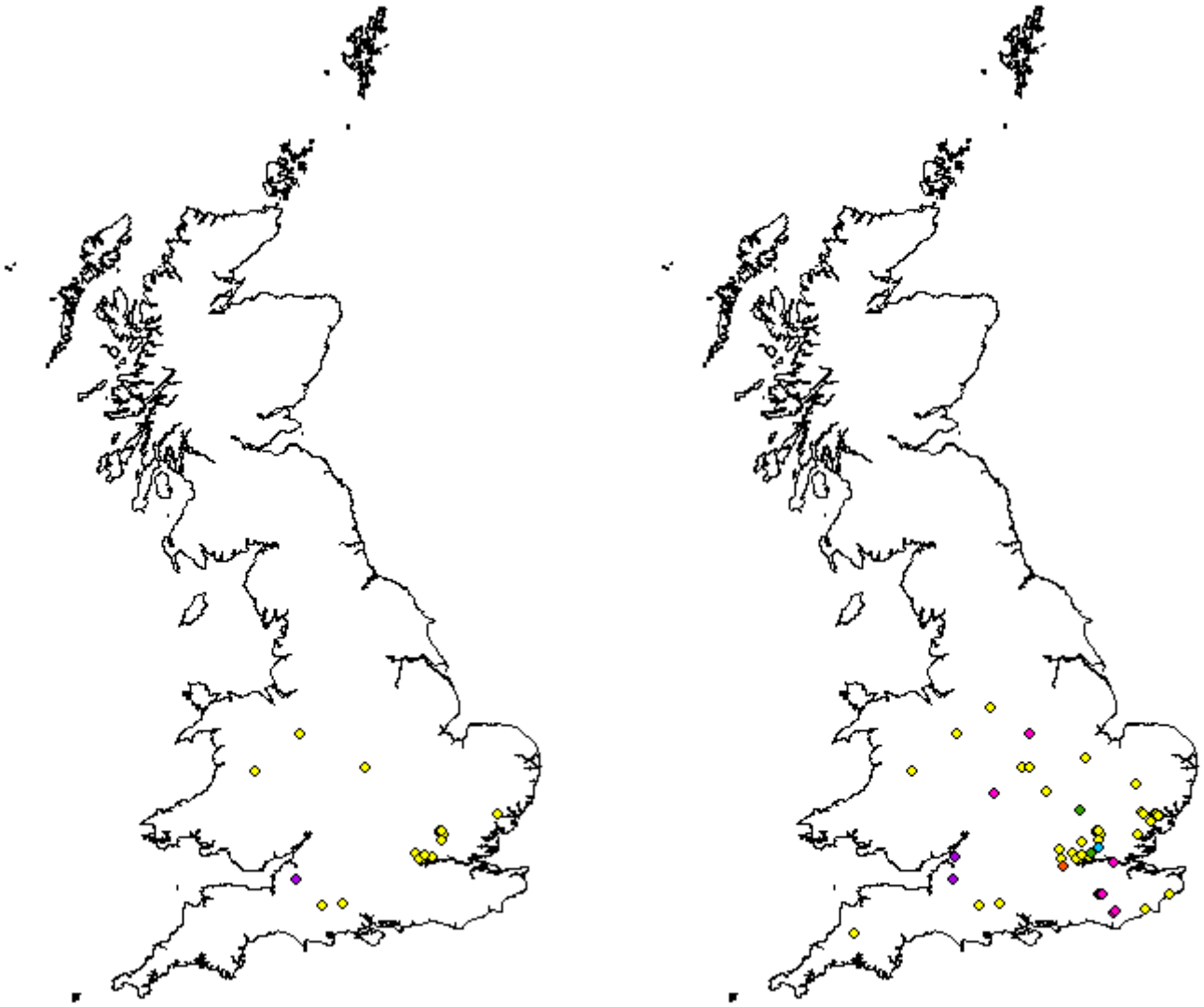


Fig.3: The distribution of Noble crayfish *Astacus astacus* (purple), Narrow-clawed crayfish *A. leptodactylus* (yellow), Spiny-cheek crayfish *Orconectes limosus* (pink), Virile crayfish *O. virilis* (blue), Red swamp crayfish *Procambarus clarkii* (green) and White river crayfish *P. acutus* (orange) in the UK, a) before 1991 and b) all known records to current day (as we have no evidence of any populations reported before 1991 being eradicated).

For further information:

UK Crayfish website: www.buglife.org.uk/uk-crayfish

Research on the status on UK crayfish: http://cripescardiff.co.uk/people/jo-james/

This report should be referenced as:

James, J. , Cable, J. , Slater, F. & Gilvear, J. (2015) The distribution of crayfish species in the UK. Buglife - The Invertebrate Conservation Trust.

Recommended reading:

James J., Slater F. & Cable J. (2014) A.L.I.E.N databases: Assessing the lack in establishment of non-natives databases. *Crustaceana*, **87**, 1192-1199.

Holdich D.M., James J., Jackson C. & Peay S. (2014) The North American signal crayfish with particular reference to its success as an invasive species in Great Britain. *Ethology, Ecology and Evolution*, **26**, 232-262.

Palmer, M. (2015) Non-native invertebrates: suggestions for amendments to Schedule 9 of the Wildlife and Countryside Act 1981 and for a ban on sale for certain species. Buglife - The Invertebrate Conservation Trust.