

# signal crayfish

## *Pacifastacus leniusculus*

Synonyms: North American signal crayfish

Other common names: crawfish, crawdad

Family: Astacidea

ITIS Serial No. 97326

### Description

*P. leniusculus* has a smooth, reddish-brown exoskeleton and bright red undersides to the chelae. The bright red coloration on the underside of claws, and a white or turquoise colored patch present at the base of each claw joint is distinctive to the Signal Crayfish (Riegel 1959; Larson and Olden 2011) Male crayfish can reach a length of 16 cm, while females can only achieve a maximum size of 12 cm. Age at maturity varies from 1 to 3 years, and a life expectancy of up to 20 years is possible.



*P. leniusculus* Photo by T. Renals

**Similar species:** There are no known species of crayfish native to Alaska.

### Ecological impact

**Impact on community composition, structure, and interactions:** Native crayfish species are frequently replaced due to having lower fecundities (Eng & Daniels, 1982), an inferior ability to compete for shelter leading to an increased susceptibility to

predation (Dunn et al., 2009), and vulnerability to reproductive interference leading to diminished recruitment (Westman et al., 2002). The spread signal crayfish throughout Europe has enabled select viruses to spread as well.

**Impact on ecosystem processes:** Associated with decreased biodiversity of native benthic invertebrates (Crawford et al., 2006). Signal crayfish densities have been correlated with low salmonid densities, suggesting a population level impact on fish communities (Peay et al., 2009). The burrows of signal crayfish lead to bank erosion and increased fluvial sediment mobilization, which could eventually contribute to bank collapse (Harvey et al., 2011).

### Biology and invasive potential

**Reproductive potential:** Native crayfish species are frequently replaced due to having lower fecundities (Eng & Daniels, 1982).

**Potential for long-distance dispersal:** This species is well-dispersed in North America and is the most widespread non-native crayfish in Europe

**Potential to be spread by human activity:** Evidence of introduction through intentional release or stocking (Johnsen & Taugbøl, 2010).

**Habitat requirements:** Small streams to large rivers and lakes. Tolerable of brackish waters along the Pacific Coast in salinities as high as 20 ppt (Riegel, 1959) and water temperatures up to 33°C. This species is highly adaptable to a range of different environments.

*Congeneric biota*: P. l. trowbridgii. P. l. klamathensis.

### Legal Listings

- Has not been declared invasive
- Listed invasive in Alaska
- Listed invasive by other states
- Federal invasive species
- Listed invasive in Canada or other countries

### Distribution and abundance

Found in a variety of habitats including streams, rivers, and natural lakes. It is also known to occur in brackish waters. Distributed from British Columbia in Canada at the northern part of its range, south to central California and east to Utah and Montana in the USA. Occurs in many countries from the UK and France in the west, to Russia in the east. The northern extent is Norway, Sweden and Finland, while the southern extent is the Iberian Peninsula. There are also satellite populations in Greece, Cyprus, and Japan. In Alaska, *signal crayfish* have been documented in the Pacific Maritime and Interior-Boreal ecogeographic regions (USGS, 2020).

### Management

High fecundity and local mobility make eradication attempts difficult. Mechanical, biological and chemical methods have been employed. In discrete water bodies biocides have proven to be most effective (O'Reilly, 2015)

### References

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