

Rusty Crayfish

Orconectes rusticus



Photo courtesy of Jeff Gunderson, Minnesota Sea Grant.

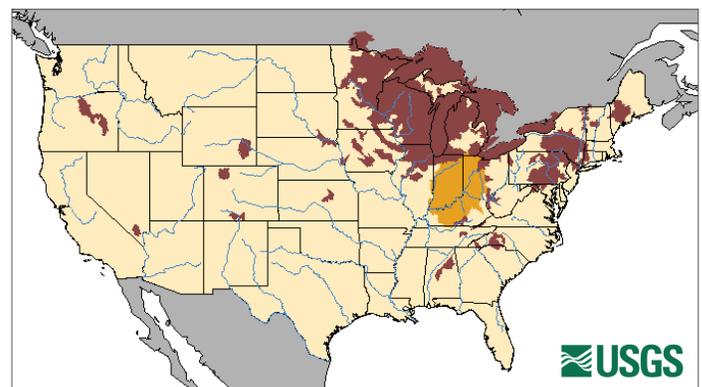
The rusty crayfish is an aggressive crayfish with a huge appetite. It has not only managed to outcompete native crayfish species, but has also devastated aquatic ecosystems in several states including Pennsylvania.

Species Description

Adult rusty crayfish are typically 7.5-13 cm (3-5 in) long with large, robust claws that display black banded tips. Coloration is typically a grayish-green. The best way to identify the rusty crayfish is by a set of dark rusty orange spots on each side of the carapace, which is its protective outer covering. The spots look as though the crayfish was picked up with a painted forefinger and thumb. Due to the hybridization of male rusty crayfish with female native crayfish, these spots may not always be present or well developed. Rusty crayfish also have smooth, instead of serrated mouth-parts.

Native & Introduced Ranges

The rusty crayfish is native to the Ohio River basin. Its range extends through the states of Ohio, Kentucky, Tennessee, Illinois, and Indiana. In the early 1960s, the rusty crayfish was found outside its native range in a number of Wisconsin lakes and streams, and by 1967 was found in Minnesota streams. Today the rusty crayfish has spread to Michigan, Missouri, Iowa, New Mexico, New York, New Jersey, Pennsylvania, the New England states, and Ontario, Canada. Rusty crayfish were first discovered in Pennsylvania in 1976 in the lower Susquehanna River with established populations documented in the south central region; however, surveys are still needed throughout Pennsylvania to determine the true extent of its range.



Biology & Spread

These invaders most likely spread by bait shops acquiring crayfish from out of state suppliers to use as bait for bass and trout. Anglers often then release the rusty crayfish after fishing. As a result, invasive populations of rusty crayfish have increased throughout the regions where they were sold. They were also distributed by biological supply companies, which sold them to schools who may have released them into the wild.

Habitat

Rusty crayfish can survive in a variety of habitats including lakes, rivers, ponds, and streams and prefer areas with adequate rock, log, and debris cover. They are often found in silt, clay, or gravel substrates, and are most active at temperatures above 46°F (8°C). Adult rusty crayfish mate in late summer, early fall, or spring. It is not necessary to have both a male and a female to establish a new invasion; a female carrying viable sperm could begin a new population if released into a suitable environment. The male transfers sperm to the female which she can store in her body until her eggs are ready to be fertilized, usually in the spring as water temperatures increase.

Impacts

Threat to Biodiversity

The rusty crayfish is very aggressive and often displaces native crayfish species. Studies show that rusty crayfish can eat twice as much as similar-sized native crayfish, consuming plants, aquatic worms, snails, leeches, clams, aquatic insects and crustaceans, decaying plants and animals, fish eggs, and small fish. Their food choices make them competitors with native crayfish as well as small fish. Rusty crayfish grow rapidly and quickly become too large for fish to eat, removing themselves from a critical part of the food chain. They also impact native crayfish reproduction as male rusty crayfish will mate with female native crayfish. This produces sterile offspring and reduces native crayfish populations. Perhaps the most serious impact of the rusty crayfish is destruction of aquatic plant beds. Rusty crayfish devour so much underwater vegetation that food, shelter, and spawning sites for other organisms are dramatically reduced.

Photo courtesy of U.S. Fish & Wildlife Service.



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Economic Costs

By destroying aquatic plant beds and affecting habitat, the presence of the rusty crayfish can result in reductions in fish production, including valued sport fish. In heavily infested lakes such as in Wisconsin and Minnesota, recreational swimming has declined due to rusty crayfish occupying favorite swimming areas during the day. Other crayfish species, even if abundant in these areas, do not deter swimmers because they are less conspicuous in daylight hours.

Prevention & Control

Many chemicals kill crayfish; however, none are currently registered for crayfish control and none selectively kill rusty crayfish without killing other crayfish species. The best way to prevent further ecological problems caused by the rusty crayfish is to prevent or slow their spread into new waters. Become knowledgeable about the crayfish species in your area and learn how to identify them. Never release live bait into any water body, and never transport any crayfish from one water body to another. It is illegal to possess, sell, barter or transport rusty crayfish in Pennsylvania.

References:

- Gunderson, J. 1998. Rusty Crayfish – a Nasty Invader. Minnesota Sea Grant.
- Wilson, K.A. 2002. Impacts of the invasive rusty crayfish (*Orconectes rusticus*) in northern Wisconsin lakes. Dissertation Abstracts International Part B: Science and Engineering. 63(4):1662.

Support provided by



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Pennsylvania Sea Grant is a partnership of the National Oceanic and Atmospheric Administration (NOAA) and Pennsylvania State University, 2023.