

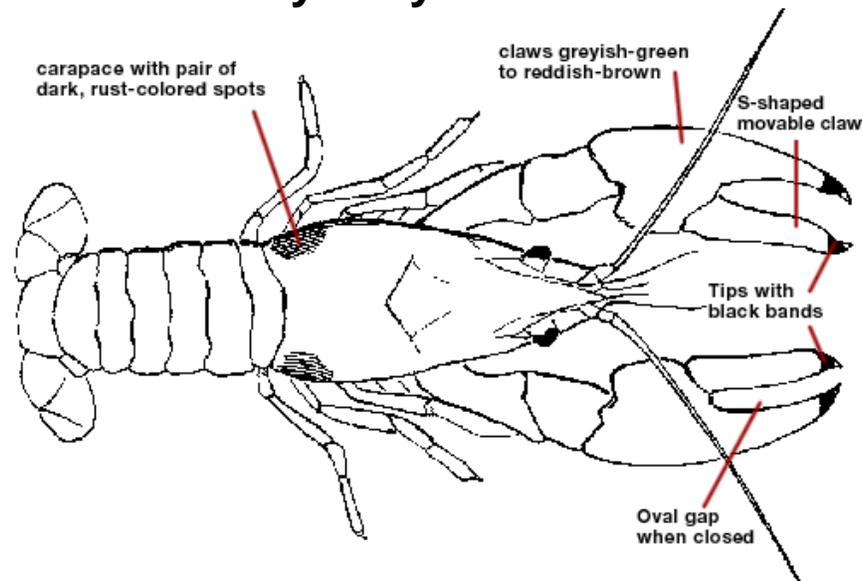
# Rusty Crayfish - (*Orconectes rusticus*)



## Information:

Rusty crayfish are invasive crustaceans spreading to lakes, rivers, and streams in several areas of North America. They are more aggressive than other native crayfish, better able to avoid fish predation, and can harm native fish populations by eating their eggs and young. They displace native crayfish, hybridize with them, and graze on and eliminate aquatic plants.

## Identification of Rusty Crayfish:

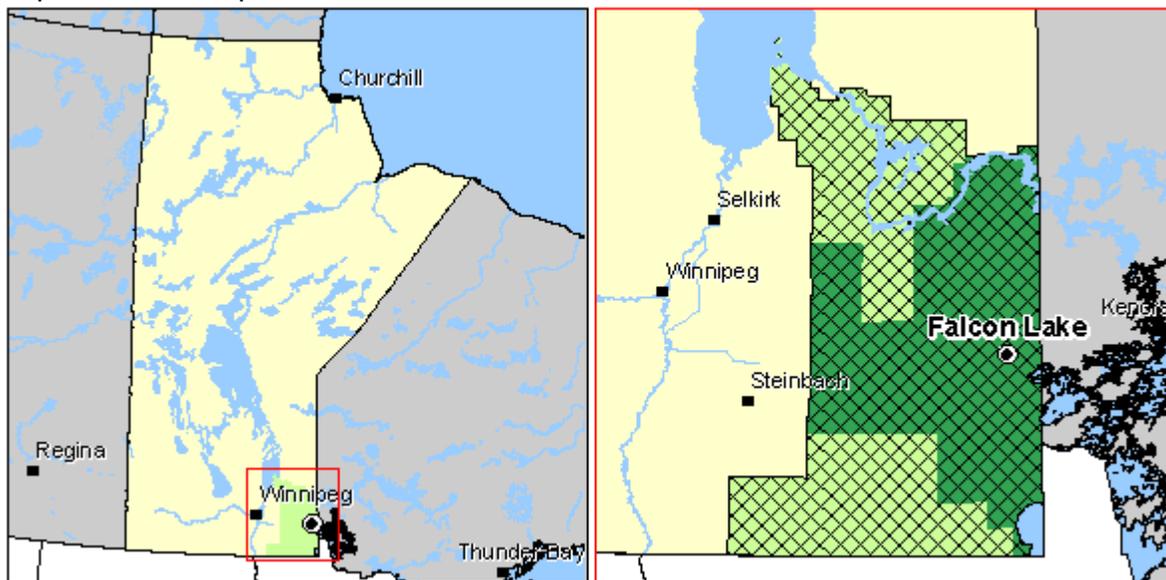


## General Characteristics:

- Adults generally are 3-5 inches (7-13 cm) long
- Claws larger and smoother than many other crayfish; usually without wart-like white bumps
- Claws with oval gap when closed; no distinct thin slit or notch present

## Rusty Crayfish Distribution:

There are over 350 species of crayfish in North America. Sixty-five of these species, including rusty crayfish, belong to the genus *Orconectes*. Rusty crayfish are thought to be native to the Ohio River Basin and the states of Ohio, Kentucky, Tennessee, Indiana, and Illinois. Rusty crayfish have spread to several other U.S. states along with Ontario and recently Manitoba (Figures#1 and 2). They have likely spread through bait bucket release by anglers, aquarium release by hobbyists, activities of commercial harvesters, and live study specimen release by teachers and students who buy them from biological supply houses. Females can carry fertilized eggs or a male's sperm allowing the release of a single female to establish a new population. Eradicating established infestations is impossible. Your help in detecting and reporting new infestations is vital to prevent their spread.



**Figure 1:** Location of rusty crayfish in Falcon Lake, Manitoba.

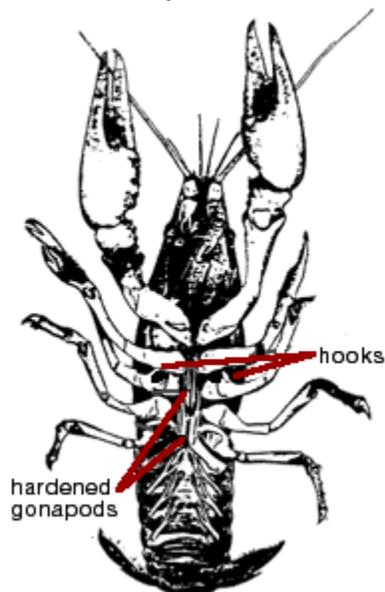


**Figure 2:** Geographic distribution of rusty crayfish. Adapted from *The Crayfish & Shrimp of Wisconsin* by Hobbs and Jass (1988).

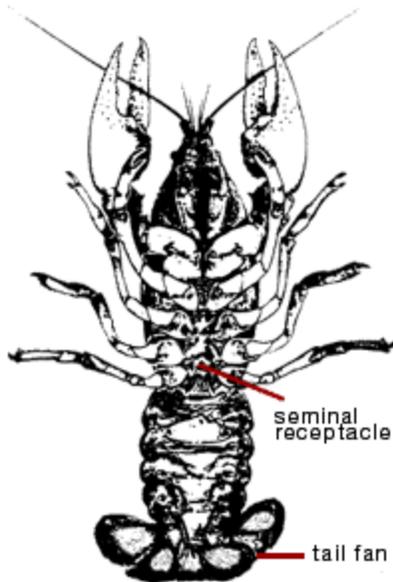
## Rusty Crayfish Biology:

Rusty crayfish inhabit lakes, ponds, and streams. They prefer areas that offer rocks, logs, or other debris as cover. Bottom types may be clay, silt, sand, gravel, or rock. Rusty crayfish inhabit both pools and fast water areas of streams. They generally do not dig burrows other than small pockets under rocks and other debris, although there have been reports of more substantial burrows. Unlike some species, which dig burrows to escape ponds that are drying up or becoming inhospitable, rusty crayfish need permanent lakes or streams that provide suitable water quality year round.

Mature rusty crayfish mate in late summer, early fall, or early spring. The male (Figure 3) transfers sperm to the female (Figure 4), which she then stores until her eggs are ready to fertilize, typically in the spring (late April or May) as water temperatures begin to increase. The stored sperm are released as eggs are expelled and external fertilization occurs. The eggs are then attached to the swimmerets on the underside of the crayfish's abdomen ("tail section"). Just prior to egg-laying, white patches appear on the underside of the abdomen ("tail section"), especially on the tail fan (Figure 4). These white patches are glair, a mucus-like substance secreted during egg fertilization and attachment. Rusty crayfish females lay from 80 to 575 eggs.



**Figure 3:** The underside of a Form I male crayfish showing one pair of legs with hooks (copulatory stylets) and hardened gonapods.



**Figure 4:** The underside of a female crayfish showing the seminal receptacle where the sperm capsule is held by the female until eggs are fertilized.

Eggs hatch in three to six weeks, depending on water temperature. Once hatched, young crayfish cling to the female's swimmerets for three to four molts (molting is when crayfish shed their old shell to allow growth). Young crayfish may stay with the female for several weeks. She offers them protection during this vulnerable life stage.

Eventually, the young leave the female. They undergo eight to ten molts before they mature, which may occur during the first year, but more likely the following year. Rusty crayfish reach maturity at a total length of one and three-eighths inches and reach a maximum length of about four inches (not including claws). They averaged two and one-half inches in Wisconsin collections (Hobbs and Jass 1988).

It is important to note that it is not necessary to have both a male and a female crayfish to begin a new infestation. One female carrying viable sperm could begin a new population if released into a suitable environment. Rusty crayfish readily mate in captivity so it is reasonable to expect that mature females, whether used as fishing bait or as science class study specimens, could produce offspring.

Growth slows considerably after crayfish reach maturity. While mature males molt twice per year, females usually only molt once. Females molt after the release of their young, typically in June or early July. In the spring, males will molt into a sexually-inactive form (called Form II) and then molt back into the reproductively-competent form (Form I) in summer. Form I males are characterized by large claws, a hook on one pair of their legs (Figure 3), and hardened gonapods. The hook and the larger claws are used for grasping females during mating. Because males have an additional molt each year, they are usually larger than females of the same age. A typical rusty crayfish lives three to four years.

Crayfish are considered opportunistic feeders. Rusty crayfish feed on a variety of aquatic plants, benthic invertebrates (like aquatic worms, snails, leeches, clams, aquatic insects, and crustaceans like side-swimmers and waterfleas), detritus (decaying plants and animals including associated bacteria and fungi), fish eggs, and small fish.

## What You Can Do:

- Learn to identify rusty crayfish
- Inspect and remove aquatic plants and animals from boat, motor, and trailer
- Drain lake or river water from livewell and bilge before leaving access
- Dispose of unwanted live bait and study specimens in the trash
- Never dump live fish or crayfish from one body of water into another

## Know the rules!

Specimens are needed to confirm sightings, but some jurisdictions prohibit or discourage possession and transport of rusty crayfish and other invasive aquatic plants and animals. In Saskatchewan, possession and transport of any aquatic species is illegal, except when providing them to the Ministry of Environment for identification. Unauthorized introduction of rusty crayfish, fish, or plants into the wild is illegal. Protect your property and our waters. Contact your nearest Ministry of Environment office, the TIP line at 1-800-667-7561 or Ron Hlasny, Aquatic Biologist with Fish and Wildlife Branch at 1-306-953-3242.

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