

Crayfish in Missouri



Crayfish are freshwater crustaceans that look like small lobsters and like to feed on animals and plant material.^{1, 11} 8 crayfish species are only found in Missouri, with some being currently considered endangered.

Missouri regulations do not allow release of crayfish anywhere other than where they are caught.¹¹ The U.S. Fish and Wildlife Service is currently considering listing two species of crayfish as “threatened” under the Endangered Species Act. [The Service will consider comments](#) from all interested parties received by May 26, 2021.

Highlights

- Different species of crayfish have different habitats. Crayfish offer a host of benefits to the ecosystem, such as providing a large food source for over 200 species of fish, reptiles, amphibians, birds, and mammals.¹⁸
- There are around 450 species of crayfish in the U.S. and about half of them are considered endangered or threatened.¹¹
- In Missouri, there are 38 species of crayfish, from which 23 species are considered as species of conservation concern at risk of endangerment.^{11,18}
- Crayfish tend to be competitive with other species, including different crayfish species, for the available habitat. One of the leading reasons why crayfish are at risk is because of their use as live bait, when they are caught and transported to different environments from where they were caught. And become invasive in these new environments.
- Missouri crayfish regulations permit harvesting of any crayfish species except those that are protected. If the listing rule for the two crayfish in Missouri is finalized as proposed, it may become illegal to possess, sell, deliver, carry, transport, ship, and import or export the two crayfish species.¹⁵⁻¹⁷

Research Background

Crayfish in Missouri

Crayfish are freshwater crustaceans that look like small lobsters and may also be referred to as crawfish, craydids, crawdaddies, crawdads, freshwater lobsters, mountain lobsters, mudbugs, or yabbies. There are around 450 species of crayfish in the U.S. and about half of them are considered endangered or threatened.¹¹ Missouri's crayfish species can be broken up into four broad categories based on habitat: stream dwellers; swamp, marsh, and pond dwellers; cave dwellers; and burrowers. Crayfish habitats vary based on several elements, such as water

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temperature and whether fresh water runs through their habitat. Clean, silt-free gravel and larger rock bottoms are the most important habitat for most crayfish in Missouri.¹⁸

Missouri crayfish of conservation concern

In Missouri, the term “species of conservation concern” is used to represent species that are at some level of risk of eventual extirpation within the lines of the state.¹⁸

The MDC collaborates with the U.S. Fish and Wildlife Service to protect at-risk species and currently, there are two species of crayfish that are considered to fall under the conservation concern list. In April 2021, the U.S. Fish and Wildlife Service reopened a public comment period on a proposed rule to list two species of Missouri crayfish, the Big Creek and St. Francis River crayfish, as threatened under the Endangered Species Act. Also, both species occur only in Upper St. Francis River Watershed in southeastern Missouri.¹⁵⁻¹⁷ If the listing rule for the two crayfish in Missouri is finalized, it will become illegal to possess, sell, deliver, carry, transport, ship, and import/export them either intentionally, or incidentally.¹⁵⁻¹⁷



Figure 1. A Big Creek Crayfish, Missouri Dept of Conservation¹⁷

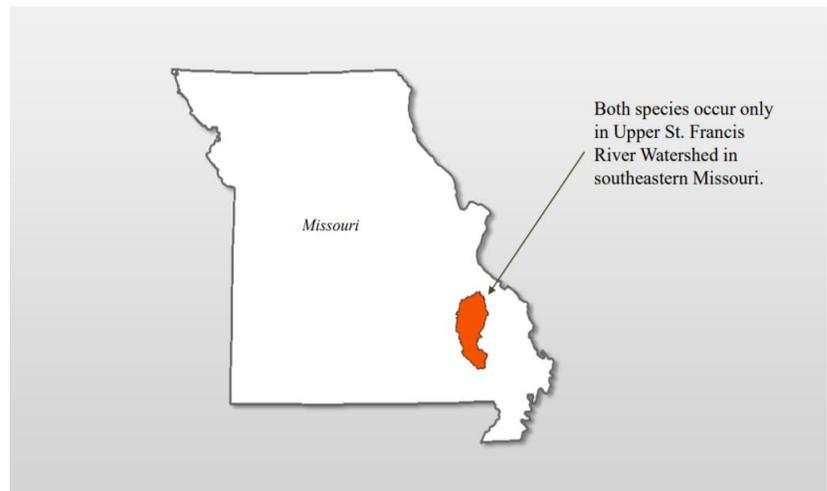


Figure 2. Locations of the two species, U.S. Fish and Wildlife Service¹⁷

Uses of crayfish

Humans consume crayfish worldwide. Globally, crayfish production is centered in Asia, with about 95% of the world's crayfish supply coming from China.³ In the United States, crayfish production is centered primarily in Louisiana, where 93% of crayfish farms are found.⁴

Crayfish are preyed upon by a variety of ray-finned fishes⁵ and are commonly used as bait, either live or with only the tail meat for catching catfish, smallmouth bass and largemouth bass,

striped bass, perch, pike and muskie.⁵⁻⁷ Using crayfish as live bait can introduce certain species into different environments where they are not typically found if remaining bait is released into these “new” environments after fishing.

Threats to crayfish and the ecosystem

Crayfish feed on animals and plants, which offers a host of benefits to the ecosystem. For example, when they eat both living and dead, rotting plant material, they break down some of the materials that are resistant to decay, thereby creating food for many other smaller species of fish and invertebrates. Another reason why they significantly impact the ecosystem is because they provide a large food source for other species. For example, it is found that crayfish are a source food for over 200 different species of fish, amphibians, reptiles, birds, and mammals.¹⁸

Within an available habitat, crayfish compete with other aquatic wildlife, including other crayfish species, for territory and food. When used as live bait, crayfish can be brought to and introduced into new habitats where they compete with, and sometimes eliminate, the native crayfish species and change the habitats.⁸⁻¹⁰ This can lead to various ecological problems if the newly transported crayfish become established in a new habitat and interrupt the natural ecosystem balance. This has been seen in some northern states such as Minnesota, when rusty crayfish (not found yet in Missouri), are introduced in non-native lake systems and kill out the native aquatic plants.

Last, crayfish are susceptible to infections such as crayfish plague and to environmental stressors including acidification, which is what happens when water or soil becomes too acidic. Some species are more susceptible to infections than others,⁹ and several factors, including acid rain, pollution, and eutrophication, can cause problems for crayfish across the world.

Regulations related to crayfish

Fishing regulations are in place in some states, including Missouri, where it is permitted to harvest any crayfish except the protected species, following similar rules for live bait. Missouri regulations also do not allow release of crayfish anywhere other than where they are caught.¹¹ If the listing rule for the Big Creek Crayfish and St. Francis River Crayfish is finalized as proposed by the MDC and the Service, it will become prohibited to possess, sell, deliver, carry, transport, ship, and import/export these species intentionally or incidentally.¹⁵

Similar rules apply in Iowa, with the addition that crayfish must be dead before transport.¹⁴ Minnesota regulations vary by crayfish species. For example, state native species, such as the rusty crayfish, are considered regulated invasive species in Minnesota, and like in Missouri, it is legal to possess, sell, buy, and transport, as long as it is not introduced or released in public waters. However, invasive species such as the red swamp crayfish is prohibited by Minnesota

state laws (a misdemeanor) to possess, import, purchase, transport, or introduce certain crayfish except under a permit for disposal, control, research, or education.¹³

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