

IOWA'S SECRETIVE LAND-DWELLING *Crayfish*

STORY BY KRISTINE NEMEC



This landlubber is the prairie crayfish—a species rarely seen, as they dwell mostly underground in burrows. They do and can travel on the surface, especially in humid and wet conditions. You are more likely to spot their chimneys (see right). Another land dwelling species, the devil crayfish, also makes chimneys. It is one thing to see a chimney, but it took the author two decades of casual looking before spotting her first prairie crayfish.

CRAYFISH LEFT AND MOUND BY PAUL FRESE; CRAYFISH RIGHT BY KRISTINE NEMEC

Many years ago, on a graduate school field trip to Oklahoma's Joseph H. Williams Tallgrass Prairie Preserve, I became intrigued by a creature I wouldn't see for two decades.

Our instructor mentioned there is such a thing as a land-dwelling crayfish—the prairie crayfish (*Procambarus gracilis*). I knew Dr. Bragg wouldn't lie, but it was hard to envision a lobsterlike creature scuttling around the expansive grassland before us.

The prairie crayfish became similar to morels for me, something elusive but enjoyable to casually search for. After finding none (of either) for many years, I decided to double down on my efforts to find prairie crayfish. I read extensively about them and talked to invertebrate biologists.

I learned prairie crayfish do require a water source, just like Iowa's other seven crayfish species. But instead of living along the edges of ponds, creeks or rivers, they dig burrows to reach groundwater. Because they access water through their burrow, they do not have to live close to an aboveground source of water.

Similar to prairie dogs, prairie crayfish have a disproportionately large role within a prairie relative to their numbers; in other words, they are a keystone species. Their complex burrows create habitat for frogs, toads, salamanders, snakes, insects and mammals; they help circulate nutrients throughout the soil; and they improve water infiltration. Prairie crayfish are a source of prey for many animals, including wading birds, raptors, raccoons and snakes.

As long as a crayfish's gills are moist, it can obtain enough oxygen to leave the burrow to find mates, supplement feeding of plant materials and animals such as worms that mostly occurs in the burrow, or travel to new habitat. Humid air alone can be sufficient to meet its oxygen needs for a short period of time. These forays onto land are the naturalist's best opportunity to observe them.

DNR wildlife technician Paul Frese says humid days in late spring or early summer when it has rained the day before and nighttime temperatures have been in the 60s and 70s are the best times to find prairie crayfish. You are most likely to see them crossing a road or a mowed trail in a field; they are also easier to find after a prescribed burn.

One caveat: Sometimes it can be tricky to distinguish the prairie crayfish from Iowa's other deep-burrowing species, the devil crayfish (*Lacunicambarus diogenes*). They both spend most of their lives underground and create chimney-shaped mounds outside the entrance to their burrows by using their claws and mouthparts to roll and stack pellets of mud.

Both are often reddish brown, although devil crayfish is



The telltale sign of land-dwelling crayfish are conical shaped mounds, aptly called chimneys. While prairie crayfish live on land, they do require water. Their burrows reach down into shallow groundwater.



With gills that require water or high humidity to respire, land-dwelling crayfish rely on deep burrows—some beyond six-foot depths—to reach shallow water table areas. This creates water-filled chambers. Burrows are typically in or near prairie, road ditches, marshes, banks along creeks and wetter, low-lying pasture. They do leave to venture out for food, mates and new habitat, especially after rains or humid conditions.



LEFTOVERS: Who doesn't love a shellfish meal? A source of prey for many animals, this prairie crayfish provided a late-night snack for a predator. Wading birds, raptors, fox, turtles, muskrats, raccoons, snakes and more will gladly accept needed calories.



Land-dwelling crayfish have a disproportionately large role within a prairie relative to their numbers; they are a keystone species. Their complex burrows create habitat for frogs, toads, salamanders, snakes, insects and mammals. They help circulate nutrients through the soil; and they improve water infiltration. Shown here is the prairie crayfish (*Procambarus gracilis*.)



more likely to be a uniform olive, brown, or tan color than prairie crayfish. Closer inspection reveals the claws of prairie crayfish are triangular and shorter than those of devil crayfish; the claws of the devil crayfish are more rounded.

Habitat provides another clue. If you are in a dry upland area that doesn't flood, it's most likely a prairie crayfish. Devil crayfish prefer wetter grassland areas with a high water table and live closer to waterbodies that may flood, although prairie crayfish may also occur in these conditions.

According to a 20-year multi-species inventory project that Frese is part of, southern and eastern Iowa tend to have more burrowing species. However, they occur in other parts of the state. The database for the inventory isn't publicly available, but you can search iNaturalist for sightings amateur naturalists and professionals have turned in.

Prairie crayfish occur in both remnant prairie that has never been plowed and restored prairie that has been planted on former cropland as long as there are poorly drained soils, a relatively high water table, and dense plants. For example, they occur at Neal Smith National Wildlife Refuge east of Des Moines, which consists mostly

CRAYFISH PHOTOS BY LAURA WALTER; DECAPITATED CRAYFISH BY KRISTINE NEMEC

of restored prairie and some patches of remnant prairie. Retired wildlife biologist Karen Viste-Sparkman recalled seeing prairie crayfish only two or three times in her 17 years at the refuge, "after flooding or enough rainfall to thoroughly saturate the soil, and I think they were forced to come above ground."

Scientists do not know how long it takes for prairie crayfish to inhabit newly restored prairie. At Irvine Prairie near Dysart, burrowing hole mounds were first noticed in 2025, three years after the section of prairie where they were observed was restored. However, because the inhabitants haven't been spotted yet, it's unclear which species created the mounds. Restoration and research program manager Justin Meissen with the Tallgrass Prairie Center thinks the crayfish may have traveled to the prairie through the adjacent roadside ditch.

Illinois crustacean and wetland biologist Caitlin Bloomer also suspects burrowing crayfish find new habitats by traveling along waterways or over land. The first signs will be chimneys in the low, wet points of the prairie where the groundwater is shallow. "As their population grows, they

should start to spread out across the drier parts. I have dug prairie crayfish burrows deeper than six feet, so they are definitely well-adapted to prairie living!"

After seeing the telltale chimney-shaped mounds in north central Iowa prairies a few times, I finally had a chance to see an actual prairie crayfish on a recent spring day. My coworker Laura Walter let me know a local naturalist had observed the prairie crayfish in grasslands near Waverly. After around 30 minutes of walking the mowed trails with Laura and Stacey, we spotted a reddish-brown crayfish that was crawling more than scuttling. On other parts of the trail we saw live crayfish or what was left of crayfish that had been consumed by predators.

It was thrilling to see a creature that rarely makes its presence known. I sent some photos to a crayfish expert with the Illinois Natural History Survey, who believed the individuals we saw were indeed prairie crayfish. Success!

If you want to see the prairie crayfish for yourself, I wish you luck in your search. Equipped with the information provided in this article, maybe it will take you less than 20 years to find them. 🐛