

Researchers work to conserve habitat while uncovering the secrets of a little-known amphibian.

The Secret Life of the Illinois Chorus Frog

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Our need for exploration and discovery has sent us searching for life beyond our planet and to the ocean's bottom where inexplicable creatures survive at unimaginable depths. Yet there is still little-known life existing in our very midst—strange, mysterious beings that often face perilous futures.

One such creature is the Illinois chorus frog—a one-and-a-half-inch-long, state-threatened amphibian that burrows into the ground using its forelimbs like an Olympic swimmer performing the breast stroke. Existing within Illinois in only nine counties, this frog spends two-thirds of its life beyond human view—and beyond our knowledge of its actions.

They call the breeding pools of the Illinois chorus frog “ephemeral,” and this word could be used to describe the frogs themselves. Surviving in the Midwest within isolated pockets, they emerge from the ground during the fleeting



weeks between winter's close and spring's heyday, seeking pools that develop during a period extending roughly from the end of February to mid-May before drying up and disappearing. When the pools disappear, so too do the frogs. What happens next? Where do they go? No one knows for sure.

Despite the fact these frogs are little-known and rarely seen, they have likely been in Illinois for thousands of years. It is thought that the Strecker's chorus frog (*Pseudacris streckeri*), from which this subspecies evolved, most likely dispersed along the Mississippi River and through the valley of the lower Illinois River 8,000 to 5,000 years ago when extensive remnants of sand terraces and an overflow of glacial meltwater into the Illinois River valley allowed for optimal mobility. But climatic changes following the Wis-

Illinois chorus frogs are restricted to floodplains along the Illinois, Mississippi and Ohio rivers.

Peak breeding of the state-threatened Illinois chorus frog typically occurs from late February to late April.

consin glaciation isolated what became known as the Illinois chorus frog (*Pseudacris streckeri illinoensis*) from the original population, reducing its range to a few localities in Illinois, Missouri and Arkansas.

In this state, the Illinois chorus frog is restricted to sandy areas along the lower portion of the Illinois River floodplain in Tazewell, Mason, Menard, Cass, Morgan and Scott counties, with additional isolated populations found along the Mississippi River floodplain in Madison, Monroe and Alexander counties. Once isolated from the original population, these amphibians began evolving and adapting to fill restricted niches featuring sandy soils and ponds that dry seasonally, thereby eliminating many would-be predators.

However, restricted ranges often spell disaster for a species,



making it more vulnerable to habitat loss. In central Illinois, populations appear to be doing well despite their dependence on wetlands typically found in agriculturally productive areas. Yet, in Arkansas, the Illinois chorus frog's range shrank by 61 percent after a lengthy drought and the advent of laser land-leveling, which is used to increase crop production through the elimination of depressions that might otherwise develop into ephemeral ponds.

Therefore, the race has been on to protect and learn more about these quirky creatures that use what has jokingly been referred to as their "Popeye arms" to dig forward into the ground rather than using hind feet in a backward-burrowing motion like other frogs.

Bob Bluett, a wildlife biologist with the Department of Natural Resources, believes that providing a "safety net" will be cheaper and more effective than responding to a crisis such as the one Arkansas experienced, when habitat conservation might not be enough.

"We have a solid base of past conservation efforts," said Bluett. "We have several preserves that were designed and improved specifically for this species." In addition, land set aside for endangered Illinois mud turtles, which have similar

The Illinois chorus frog is a unique amphibian that, unlike other frogs, uses its forelegs in a breast-stroke motion to burrow into the ground.

needs, almost always provides additional habitat. "So we have some habitat out there in public ownership or dedicated as nature preserves (see www.dnr.state.il.us/INPC/index.htm) that are providing long-term benefits," Bluett said.

But as is so often the case in this state where more than 96 percent of the land is in private ownership, conservation challenges must be faced as a collaborative effort.

"Conservation of habitat on private lands is critical because that is where most populations of this frog occur," Bluett said. He explained that it does not take much habitat to provide what chorus frogs need and that most areas providing opportunities for conservation are too wet to provide consistent yields for producers.

Federal farm programs, such as State Acres for Wildlife Enhancement, already provide incentives for retiring wetlands from crop production and protecting them with buffers of prairie plants. In addition, areas that do not qualify for farm programs often are eligible for technical and cost-share assistance from the U.S. Fish and Wildlife Service or other sources.

"This is just what the doctor ordered for the Illinois chorus frog," said Bluett. "All we need to do is tweak things so these practices are concentrated in areas where they will do the most good." In turn, this win-win scenario provides optimism that we may continue to uncover more clues to the whereabouts of these mysterious creatures.

Partnership for chorus frogs

The restoration and protection efforts for the Illinois chorus frog are a partnership between federal, state and local agencies and private landowners. Landowners in Mason, Menard, Cass, Tazewell, Morgan, Scott, Madison, Monroe and Alexander counties who are interested in learning more about opportunities for creating or restoring wetlands should contact their local USDA Natural Resources Conservation Service office.

How far do they travel underground? No one knows. What do they do in the daylight hours when they are above ground during the breeding season? Their secretive behavior makes it nearly impossible to find out. People who conduct Illinois chorus frog surveys are forced to wait until the cover of night to conduct equally secretive nocturnal investigations, driving to remote areas where the frogs are thought likely to be breeding, listening for their distinctive breeding call, which, on a good night, can be heard from a mile away.

"If other endangered species screamed like they do, we'd know a lot more about them," joked Vern LaGessee, president of the Friends of the Sangamon Valley organization and who has been involved in conducting surveys. Many of the ephemeral wetlands the species rely upon are nothing more than flooded fields and ditches. Maps created by DNR's Andrew Hulin, a geographic information specialist, indicate potential sites of Illinois chorus frog habitat, with many sites found in Mason, Menard and Cass counties.

At one such site on a cool March evening, LaGessee returned to where the frogs had been heard calling. Again, their vocalizations rang out. He pulled to the side of the road and donned a headlamp in preparation for the seemingly impossible task of finding the diminutive, creatures in a water-filled ditch alongside a farm field.

The frogs fell silent.

"When you walk up, they will burrow right into the leaf litter or drop in the pool so you can't see them—it's not like



Eggs within a sticky jelly envelope are deposited by the female on small twigs or grass stems that emerge from the water at a 45-degree angle.

their eyes glow like a bullfrog's," LaGessee explained as he circled the water, his headlamp casting a narrow tunnel of illumination across the pool and into the surrounding vegetation, which is another important component of suitable habitat.

"What I found is that I can whistle for them," he said. And he explained that whistling at just the right frequency—a frequency he has mastered—would cause them to float to the surface and start calling. "There seems to be an acoustic range that stimulates them, and once I started calling them, they were no match for me," he chuckled. Sure enough, a mating pair soon appeared. Nearby, a mass of eggs swayed on a stem of grass.

Yet, beyond their breeding activities, these frogs continue to live covert lives. It is not known how quickly they go into hibernation after burrowing into the ground or how far they travel. Telemetry is impossible because they are too tiny for transmitters, and tracking them underground presents an even greater challenge. To tackle this challenge, LaGessee has been brainstorming with the Illinois EPA to determine if the ground-penetrating radar used to search for unexploded ordnance could pick up chorus frogs implanted with some type of metal.

Why go to so much effort? Well, one could cite the ongoing need for exploration, the need to know. But also, in a way, the Illinois chorus frog is an ambas-



sador because its threatened status helps anchor comprehensive conservation efforts that benefit waterfowl, game birds, songbirds, insects and other creatures that share wetlands and sand prairies with the Illinois chorus frog. Largely because of the chorus frogs, DNR expanded the Mason Sands Conservation Opportunity Area in 2009 to include all of Mason County and parts of Menard and Cass counties. COAs are tied directly to species in greatest need of conservation, and data gathered in the last two years about the habitat and distribution of the Illinois chorus frog was key to justifying the expansion.

Additional wildlife habitat also benefits another species—people. One private landowner who manages his land primarily for hunting used the Landowner Incentive Program to construct two, small wetlands to attract deer. LaGessee found a pair of Illinois chorus frogs breeding in one of the wetlands less than a year after it was completed. At a win-

ery in Oakford, where a series of wetland areas were created through the Partners for Fish and Wildlife program to battle erosion issues, patrons can now enjoy the spring sounds of a threatened species while sipping their wine.

"Our goal is the delisting [from threatened status] of the chorus frog by 2025, which is pretty exciting to me because I think we stand a fairly good chance of coming close to that," Bluett said.

Meanwhile, the frogs continue to divulge their secrets. It is now known that they are hibernating at a depth just below the frost line, this knowledge coming from genetic work showing that the dark marks on their skin are frost burn rather than a natural coloration. It is thought that continued genetic work might prove that the Illinois chorus frog is a new species rather than a subspecies, or variation.

"We're not looking to have frogs everywhere all the time," Bluett stated. "But if we can maintain a base of habitat for those frogs when they are ready to leap out and breed, I think we have accomplished a lot."

Private Landowner Assistance Opportunities

State Acres for Wildlife Enhancement

With a goal toward providing increased prairie and wetland habitat for wildlife such as pheasants, quail, waterfowl and songbirds, the SAFE program offers incentives for landowners to retire unproductive land. Restored grassland and wetland habitat additionally provides increased carbon sequestration, improved soil quality, reduced soil erosion, and improved water quality. More information is available at dnr.state.il.us/ORC/SAFE.

Partners for Fish and Wildlife

Partners for Fish and Wildlife is a U.S. Fish and Wildlife program that works with private landowners and other organizations to protect, enhance and restore important fish and wildlife habitats on private lands. For additional information, contact Gwen Kolb, Illinois State Coordinator at (217) 557-4474 or gwen_kolb@fws.gov.

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