

# THE GREAT OUTDOORS



*New Jersey chorus frog male inflates its vocal sac and sings in hopes of attracting a mate. The call produced is described as similar to passing a finger across the teeth of a comb. The din of a group of chorus frogs can be heard from half a mile away. Photo: Mike Burchett.*

## **New Jersey Chorus Frog**

*The New Jersey chorus frog a species of concern.*

By J. Morton Galetto, CU Maurice River

In the mid-'80s to mid-'90s I was a fan of *Calvin and Hobbes*, a newspaper comic strip by cartoonist Bill Watterson. The protagonists were featured in over 2,400 newspapers worldwide. Calvin was a six-year-old who owned a stuffed tiger named Hobbes, and to Calvin and his many fans

Hobbes was a real live tiger with anthropomorphic characteristics. Over a week's time, day by day, often a theme would play itself out in the strip. The topics were deeper than first appeared at face value, touching on philosophical quandaries and often having environmental themes.

One week Hobbes was lamenting about being unattached; he was on a quest to find a tigress. He finally realized that he was a member of an endangered species and proclaimed, "No wonder I can't get any dames." The old adage that many a truth is spoken in jest was exemplified in his proclamation. Limited mating possibilities and genetic diversity challenge the sustainability of rare species.

Last week we touched on some signs of spring and discussed the New Jersey chorus frog males, calling to attract "the dames." But the article was short on frog details and long on story. So this week I would like to delve into the chorus frog *Pseudacris kalmi* with greater clarity and information.

New Jersey has an advisory board, the Endangered and Nongame Species Advisory Committee, which by law reviews the recommendations of experts on different suites of species and makes periodic recommendations as to their population

status, whether common, special concern, threatened, endangered, or unknown. The experts maintain anonymity towards one another and a staff reviewer moderates the responses until a consensus is reached. These staff are the biologists of New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Endangered and Nongame Species Program. While this is not a thorough or legal explanation of the process it captures the gist of the process.

Rarer species are often inventoried and mapped for abundance or lack thereof by state biologists. They are often afforded safeguards that are tied to other regulations such as wetland buffers, Pinelands, Coastal Zone, Highlands, and similar areas. Many live in protected spaces like wildlife management areas, state parks and forests, and lands preserved by nonprofits: generally land trusts. On protected lands the habitat is often managed in a way designed to be advantageous to rare species. Of course, common species will normally benefit from habitat protections as well. Living creatures do not exist in a vacuum but are rather dependent on a community of plants and animals, so refuges like these are important to them all.

In 2016 herpetologists (experts in reptiles and amphibians) reached a consensus that

the New Jersey chorus frog should be listed as a *species of special concern*. In layman's terms you might describe this as being placed on a watch list: not given the same protections as threatened or endangered species, but still deserving a watchful eye and close population monitoring.

More specifically said, "*The term 'Species of Special Concern' applies to species that warrant special attention because of some evidence of decline, inherent vulnerability to environmental deterioration, or habitat modification that would result in their becoming a Threatened species.*" In this context "threatened" means rare and requiring specific protections.

A species status review by experts reported to staff that the chorus frog is declining or absent in northern areas of the state, secure but limited in distribution in the Pinelands and southern New Jersey, yet not common in the "core" Pinelands. Some concern was voiced about their often being found in unprotected habitats such as man-made burrow pits. Further security in the Pinelands does not equate to security in the rest of the state, and a number of small populations are disappearing.

Therefore when I hear a group of New Jersey chorus frogs (*Pseudacris kalmi*) singing my

ears perk up, because I know that just because they are locally present, it doesn't mean they are not very special, nor are they secure. Southern New Jersey is their stronghold; they are also found in Maryland, Virginia, and two counties in eastern Pennsylvania, although other species of chorus frogs do exist elsewhere in the United States.

The New Jersey Department of Environmental Protection maps vernal pools, their preferred breeding habitat. When organizations are acquiring land, the presence of a vernal pond clearly ups the desire to protect a specific property. As mentioned in prior articles vernal pools are temporary – caused by snows and by winter and spring rains. Because they dry up in the summer months, they do not support fish that would prey upon larva, tadpoles, and adult frogs, making them ideal nurseries for vulnerable amphibians.

The New Jersey chorus frog is in the hylidae or tree frog family (of which there are about 30 species in the United States). While they are characterized by sticky toe pads that allow them to climb, they spend most of their time on the ground or in low vegetation. Some other species perch at higher heights. Hardwood swamps, shallow wetlands, and grassy floodplains are their

preferred habitats. Southern New Jersey's abandoned sand mining areas often make ideal environments if shallows, submerged vegetation, and grassy woody banks are present. The more modern large, deep pits do not support them.



*Vernal pools like this one offer safer havens for frogs than permanent ponds. Photo: Author.*

A male calls to attract a female and also to delineate territory. When a female arrives he grasps her in an amplexus position. As she lays her eggs – some 8 to 140 in all - he fertilizes them. The eggs are not monitored and the parents do not have any further parenting responsibilities. The young hatch as tadpoles and metamorphose into mature frogs over a year's time.

Identification of all frogs is best made by the call, which can be heard from half a mile away. Often they are hard to see and if approached they usually fall silent. Most sources describe the chorus frog call as sounding like passing a fingernail along the teeth of a comb. Their vocal sac fills with air as they emit sound, and in most frogs it can be expanded to one third the size of its body or three times the size of its head.



Photo: Douglas Mills

If you happen to catch a glimpse of a New Jersey Chorus frog they are  $\frac{3}{4}$ "-1  $\frac{1}{2}$ " in size. They have a light stripe along their upper lip and a dark eye stripe which runs down the side of their body. There are three dark stripes on their back and a dark triangle between the eyes. They can range in color from orange, gray, or brown.

Frogs are especially vulnerable to pollution. Their skin is unique; through it they can drink and breathe. All their moisture comes through their skin; they do not drink per se. They have lungs but can achieve additional oxygenation through their skin, which accounts for all their respiration when submerged.

Frogs can also breathe through their nostrils, taking air into their lungs. But unlike a human they have no rib cage or diaphragm to help expand their chest. Instead they lower the floor of their mouth which expands their throat, and then the nostrils fill the cavity. When the nostrils close, the mouth floor is contracted which forces the air into the lungs. To exhale carbon dioxide the mouth's floor drops, pulling air from the lungs. Then the nostrils open, allowing it to escape.



Chorus frogs eat algae, plant fiber, and invertebrates, and are eaten by fish, birds, reptiles and other frogs.

I have found frogs to be unique creatures that amaze those who take the time to observe or learn more about them. So this spring I hope you open your eyes and ears to the world of frogs!

**Some Sources**

University of Brown:

<https://www.brown.edu/Departments/Engineering/Courses/En123/MuscleExp/Frog%20Respiration.htm>

Endangered and Nongame Species Program, New Jersey Field Guide to Reptiles and Amphibians, NJDEP, various editions J. Gessner, E. Stiles, D. Golden.

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