

# The Bull

by Andrew L. Shiels

Frogs and toads are members of the Class Amphibia and the Order Anura, and researchers and hobbyists often call them "anurans." Pennsylvania's frogs are further grouped into the true frogs (Family Ranidae, six species, including the bullfrog) and the tree frogs (Family Hylidae, seven species). Our toads belong to two families, the Bufonidae (three species) and the Pelobatidae (one species). Worldwide there are some 3,500 known species of frogs and toads, although this number continues to increase almost

annually as new species are discovered in the rainforests of tropical regions around the world. In North America, there are some 81 species.

***Bullfrogs are a dominant predator in their realm. They eat just about anything they can catch and swallow, including insects, fish, crayfish, worms, snakes, frogs, and even small birds.***



Illustration: Tom Duran, Jr.

# I f r o g

As with most amphibians and reptiles, there is an inverse relationship between the number of species and distance from the warm, tropical regions. That is, as you travel toward the poles, species diversity declines. Pennsylvania's geographic position in a temperate climatological zone and a wide diversity of landforms ranging from the tidal coastal plain wetlands to the Appalachian highlands have created habitat conditions for a relatively diverse group of species.

Pennsylvania's 16 frog and toad species range in size from the tiny spring peeper, which reaches adult lengths of just over 1 inch, to the bullfrog, which tops out at 8 inches long. Spring peepers weigh less than a quarter-ounce, while adult bullfrogs can easily weigh over a pound.

Frog and toad habitats range from the totally aquatic bullfrog, which never strays more than a few feet from the water's edge, to the gray tree frog (*Hyla versicolor*), which spends much of its time in trees hunting for insects and invertebrates. The moist skin of most frogs restricts them to the water or wet environments and microhabitats where humidity is high and water loss through the skin is low.

Toads, on the other hand, have dry, warty skin, which minimizes water loss and lets them occupy habitats far from water and high humidity. Still, even toads need some moisture, and they possess specially modified feet with horny protuberances that assist their burrowing into the soil.

Pennsylvania's largest frog, the bullfrog, *Rana catesbiana*, reaches up to 8 inches in length. There are no dorsolateral ridges. The body is robust and often flabby in appearance. Basic colors are green, green with darker spots or mottles, and occasionally dark brown. There are often bars on the hind legs. The belly and underside of the throat are white or cream-colored. The tympanum is very obvious. In males it is larger than the eye, and in females it is the same size or smaller than the eye. Bullfrogs have huge hind feet, and large front feet with long but thick toes.

The bullfrog is a species of slow or still waters. Canals, ponds, lakes, backwaters, and other slow, soft-bottomed



photo-Andrew L. Shields

permanent waterways may all harbor bullfrogs. The bullfrog's range is statewide.

The peak of breeding occurs in June. The call is classically known as a deep, bass "jug 'o rum" bellow. Calling and mating usually occur at night. Males attract females and mating occurs in the water. Up to 25,000 eggs are deposited in a mass that attaches to submerged vegetation. Eggs hatch in about 14 days and the tadpoles metamorphose in one to two years. Before metamorphosis, tadpoles can reach lengths of around 5 inches.

Except for resting and basking on the edge of ponds, lakes, or rivers, this species is almost totally aquatic and is never found more than a few feet from the safety of the water. Bullfrogs often rest in or on mats of filamentous algae to bask in the sun and lay in wait for prey. Bullfrogs are a dominant predator in their realm. They eat just about anything they can catch and swallow, including insects, fish, crayfish, worms, snakes, frogs, and even small birds. To ensure conservation of this species, the Pennsylvania Fish & Boat Commission has instituted seasons, daily limits, and possession limits, and it has maintained a prohibition on the use of artificial lights to capture bullfrogs.

For more information on the bullfrog and all of Pennsylvania's amphibians and reptiles, visit the Commission's web site, [www.fish.state.pa.us](http://www.fish.state.pa.us). On the main page's left side, hold your cursor over "Non-game Species" and navigate to "Amphibians & Reptiles." ☐