Cold-blooded in a warming world: Herptile Overview Brief

Intro to herptiles

"Herptile" (or "herp") is the term used to refer to reptiles and amphibians. In New England, this includes turtles, lizards, and snakes in the reptile group, and frogs, toads, salamanders, and newts in the amphibian group.

New England is home to a number of reptile and amphibian species (30 reptiles, or 35 if you count sea-turtles; and 23 amphibians). Some are conspicuous and familiar like spring peepers or garter snakes; some are infamous (timber rattlers, snapping turtles), and some inconspicuous or rare (Jefferson Salamander, DeKay's brown snake, bog turtle)

Different issues faced by herptiles

All herptiles are cold blooded, which means their body temperature is the same as their surroundings. Changing their temperature requires changing locations, and the need to regulate their internal heat is, perhaps, the strongest single influence on the behavior of many species.

This vulnerability to temperature means that herptiles can get frostbite on their internal organs, and also that they can overheat much more quickly than mammals and birds.

During reproduction, temperature also plays a role in gender determination, for example with turtles, if the eggs are kept above a certain temperature, the offspring will all be females, whereas with lizards, if the eggs are above a certain temperature, you're more likely to get males.

The most important factor in an amphibian's life is water. Their permeable skin allows them to take in moisture, and in some cases oxygen, directly from water or air, but it also means that they can dry out very easily. Toads have a slightly greater ability to

withstand dry conditions, but even they require water in order to breed.

As we will discuss further in the phenology brief, annual rain patterns play a key role in the reproduction of amphibians, not to mention their food supply. This need for water also drives movement patterns that leave amphibians vulnerable to predation, and death by humans.

Overview of three briefs

In this series, we will discuss three topics relating to herptiles and climate change:

Phenology **–** the study of seasonal behavior, how climate change affects that behavior, and is expected to affect it in the future.

Range shift **–** How herptiles' geographic range is currently influenced by climate, and how a change in climate may affect that range.

Citizen science – How ordinary citizens are involved in monitoring herptiles in New England, and how you can get involved.