Where Do Turtles Go In The Winter?

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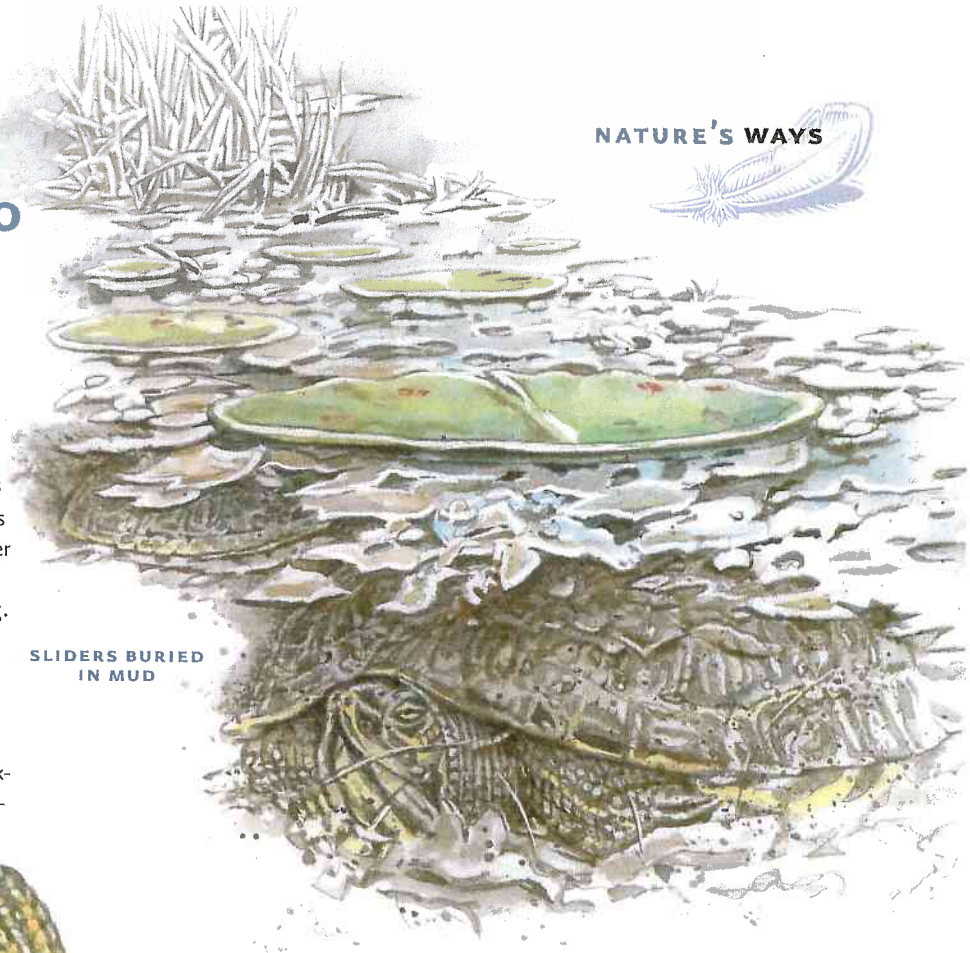
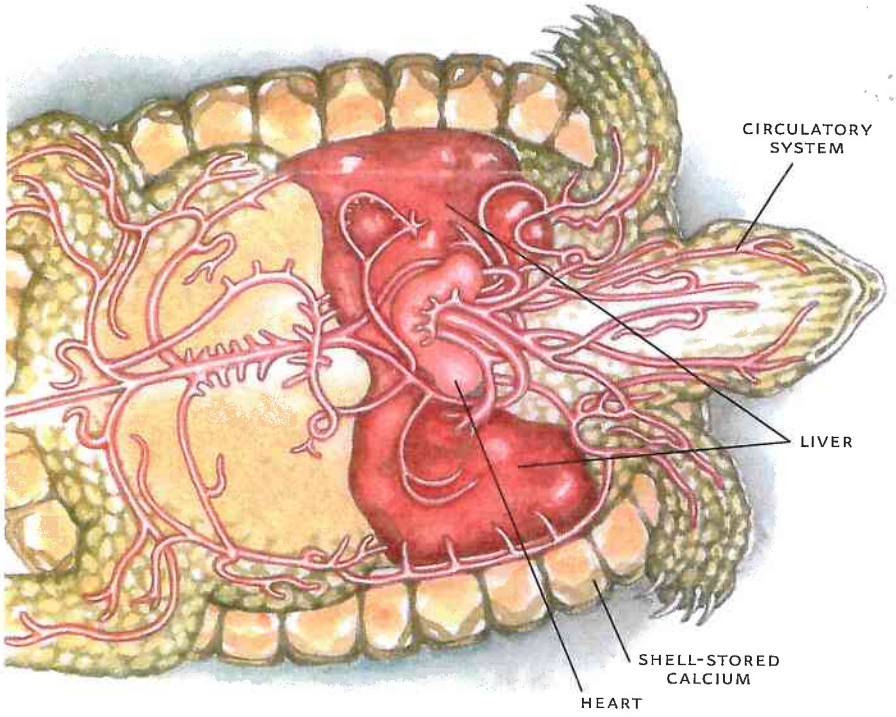
AIR-BREATHING, AQUATIC TURTLES like sliders and painted turtles seem to vanish when the weather turns cold. They haven't usually gone far, though, when the water temperature drops. They simply go to the bottom of the pond, where they may stay for weeks without surfacing. They have a number of adaptations that allow them to weather the frigid temperatures.



SLIDERS BURIED IN MUD

Turtles retreat to the bottom of the pond because, in the depths of winter, this is where the warmest (relatively speaking) water is. Water is densest at 39°F and sinks to the bottom of the pond at this temperature.

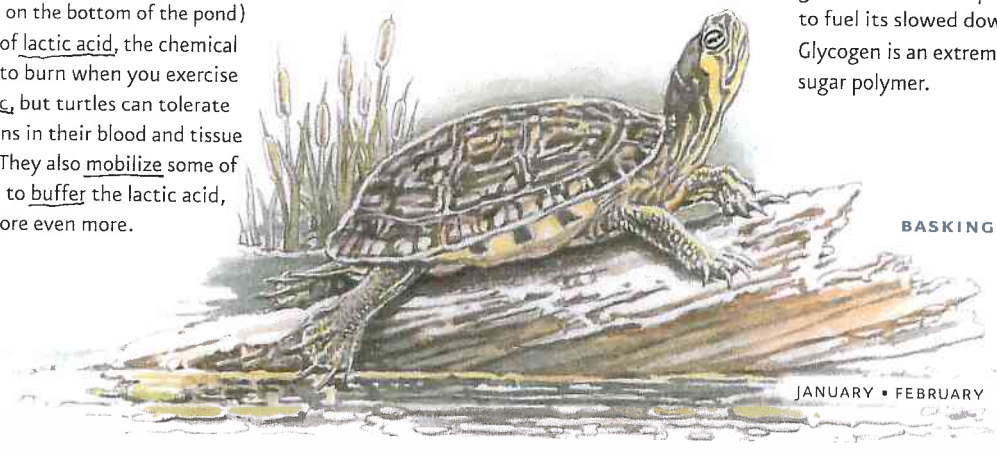


The biggest asset the turtle has is a really slow metabolism that consumes very little energy. Like most other reptiles, turtles are ectotherms—their body temperature is dictated largely by the temperature of the surrounding environment. The turtle's already slow metabolism drops precipitously when the water approaches freezing, since chemical reactions, and therefore biological processes, slow as temperatures drop. The heart of a 39° turtle only beats five or six times an hour.

North Carolina turtles have an advantage over those living farther north, where ponds freeze for the winter; on mild, sunny days in the middle of the winter, they can return to the surface of the pond, gather some heat from the sun, and clear some of the metabolic waste from their time on the pond bottom.

Metabolizing glycogen without oxygen (since the turtle isn't breathing there on the bottom of the pond) produces large quantities of lactic acid, the chemical that causes your muscles to burn when you exercise heavily. Lactic acid is toxic, but turtles can tolerate much higher concentrations in their blood and tissue than most other animals. They also mobilize some of the calcium in their shells to buffer the lactic acid, allowing them to safely store even more.

The turtle socks away large quantities of chemical energy in the form of glycogen in its liver. This provides the energy to fuel its slowed down metabolism. Glycogen is an extremely energy-dense sugar polymer.



BASKING TURTLE