

COLD COMFORT UNDERGROUND

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As we approach another winter, how many of us think about how a cold-blooded animal that relies almost completely on the temperature of its surrounding environment could possibly survive such formidable conditions?

Although most cold-blooded animals evolved in more tropical climates, some have adapted to more seasonal climates. Such is the case with the red-sided garter snake.

The garter snake is the most widespread and northerly species of reptile in North America. In Saskatchewan, they range from the arid prairie in the south to the cool muskegs of the far north. Like many animals that inhabit northern latitudes, garter snakes avoid our harsh winters by moving underground to hibernate.

Garter snakes spend their summers feeding and building up carbohydrate reserves in the form of body fat which must sustain their long hibernation. In late October, snakes seek out sheltered subterranean



Garter Snake

G.J. Smith

cavities, or hibernacula. Many snakes often converge into the same hibernacula. These may be located in animal burrows, hollows among tree roots, embankments, concrete masonry of man-made structures, or any other cavity below the frost line that is safe from frigid above-ground temperatures.

In some areas of their range, such as in the interlake region of south-central Manitoba between Lake Winnipeg and Lake Winnipegosis, garter snakes converge en masse into hibernacula in limestone sinkholes that may contain up to 8000 snakes!!

Near-freezing temperatures and total darkness inside the hibernacula slow the snake's metabolic rate in order to minimize the drain on stored fat reserves. A reduced metabolic rate is crucial in surviving long periods of hibernation. However, many snakes perish because they do not have enough fat reserves to sustain themselves over such a lengthy hibernation.

By late April, spring temperatures have warmed the ground sufficiently to cause the hibernating snakes to stir slowly out of their slumber. Driven by the urge to reproduce, they begin to leave their dens to perpetuate the existence of their species. Male garter snakes emerge first, often simultaneously, at large hibernacula; they can number in the

thousands. The females follow shortly after, but at a staggered pace. This is crucial in maximizing breeding success because as a female leaves the den, chemical signals emitted from her body immediately attract large numbers of male snakes anxious to breed.

What follows is a frenzy of activity as single female snakes intertwine with a dozen or more males, forming what are commonly called "mating balls." Only one male in this conglomeration of snakes will successfully mate with her.

Finally, after seven months of hibernation and a dangerously exhausting mating ritual, the snakes begin to feed in order to replenish their drained fat reserves. Through this behavioural modification, the feeding and survival of each individual snake is temporarily suppressed in order to ensure reproduction and perpetuate the species.

Garter snakes then seek out marshy areas where they spend their summers feeding on amphibians, insects and other invertebrates. Female snakes that have retained fertilized eggs bear 10-30 young in late August that reach maturity the following year. Soon after, garter snakes are on the lookout for wintering dens, completing their yearly life cycle.



Bird Names

Abert, James William (1820-1897), United States Army Major in the southwest U.S. — Abert's Towhee.

Baird, Spencer Fullerton (1823-1887), Secretary of the Smithsonian Institution, first U.S. Fish Commissioner, author and active naturalist — Baird's Sparrow.