Shell game

At stake is the survival of Nova Scotia’s rare Blanding’s turtle

A day or two out of the shell, these Blanding’s turtles are as precious as they are fragile — there are only about 130 adult turtles in Kejimkujik National Park — so scientists and park wardens are giving the hatchlings a helping hand.

Darkness is beginning to settle like curative smoke, deepening the salmon-pink tones of Kejimkujik Lake, as Ian Morrison and I scramble onto the cobble beach of Glede Island. Morrison, a warden at Kejimkujik National Park in Nova Scotia, has a miner’s lamp affixed to his baseball cap, lighting the way as we trundle down the beach under the whispering, scented branches of overarching pines. “There’s a girl now,” Morrison declares in a hushed voice, pointing the way with his light beam. I squint into the gloaming and suddenly a form takes shape in the jumble of oval, wave-washed stone. The form becomes a turtle — her slender, sulphur-yellow throat protruding from a 25-centimetre-long shell the shape and colour of an army helmet. She’s a Blanding’s turtle, one of only 130 odd adults left in Nova Scotia. The small population lives in this 403-square-kilometre park in the western
part of the province and Morrison and I are here to make sure the eggs the female lays are safe from predators. The eggs are the fragile hedge against extinction of Blanding’s turtles in Eastern Canada, and protective measures are critical to the turtle’s survival in Nova Scotia.

Separated from their kind in southern Quebec and Maine by a daunting expanse of geography, the turtles in the park are the most isolated of their species — a condition that predisposes any population to extinction. Yet such marginal groups are particularly important because they often house different genes from the main population — genes driving evolutionary changes that may lead to new species. Thus, when Blanding’s turtles received protected status in Nova Scotia in 1990, it wasn’t a moment too soon.

The Blanding’s turtle, named for the Philadelphia naturalist who identified it in the mid-1800s, is a northern reptile: the centre of its range is the Great Lakes basin, with patchy populations as far west as Nebraska and as far east as New England. Its north-south distribution, however, is one of the narrowest of any North American freshwater turtle. First discovered in Nova Scotia by biologist Sherman Beal in 1953, the Blanding’s population of the province is a relict of a warmer climatic period, 9,000 to 2,500 years ago, following the Wisconsinan glaciation.

As the climate moderated, a host of species such as the Blanding’s, only Kejimkujik remained a hospitable pocket within the Maritimes. On its inland plateau, warmer summers and milder winters add up to the highest mean annual temperature of the region — an area well suited to cold-blooded reptiles.

Even within the park, Blanding’s turtles prefer very specific micro-habitats. They are mostly found on slate bedrock rather than the granite that predominates east of Kejimkujik Lake. They also prefer dark, peaty stream beds rather than clear water because the former produce lots of the turtles’ preferred diet: aquatic insects, snails, tadpoles and small fish. In summer, Blanding’s and the more common painted turtles hang out at the mouths of these slow-moving streams. Spying turtles basking on the braided islands and deadhead logs of the Mersey and West rivers is one of the pleasures of canoeing Keji, as the lake is called.

The Blanding’s turtle is a flagship species because its disappearance could signal an ecosystem in jeopardy — and the beginning of the end for the other fragile inhabitants of the area.

“We think about … the history of its distribution, Blanding’s is a textbook example of a relict population,” says biologist Tom Herman of the Blanding’s recovery team, whose research is assisted by the World Wildlife Fund and Parks Canada. “It’s limited in space and living at the edge of its range. The relict group is one of the principal attributes of the park from a biological perspective: because the Blanding’s turtle exemplifies it, it represents what the park is all about.”

— H. T.
a candy-coated almond drops into the nest. The second egg, and each one thereafter, tinkles like the most delicate porcelain, as they kiss off each other. She lays an egg every two minutes until there are 12, then she begins trippingly covering the nest.

The turtle’s natural fecundity, however, is not enough to ensure the eggs’ survival. Morrison and I will wait until the mother-to-be has swept clean all signs of her ever having been there, then we’ll cover the nest site with a screen to guard against raccoons, the turtles’ chief predator. Morrison knows they lurk in the shadows of Glode’s pines with motives of their own — to slurp turtle yolk.

The creation of the national park in 1968 has been a trade-off in conservation terms. The park has minimized human impact on turtle territory — and that tips the balance in its favour. On the other hand, campers’ garbage has boosted the population of the raccoon and the few roads within the park also pose a real hazard. Turtles migrate across roadways during nesting season, and some even nest on the shoulder, supposedly because they believe it to be beach. Fortunately, turtle traffic fatalities are rare: only one nest of hatchlings and three adults have been run over in recent years.

Still, the death of even one Blanding’s is significant, and the loss of the juveniles was a particular blow. Until recently, very few juveniles had ever been found in the park — a distressing situation to biologist Tom Herman of Acadia University. When the young of a species dies off before reproducing, he points out, prospects are poor for the future of the whole population.

This past summer, however, Natalie McMaster, an Acadia University student, discovered 12 juveniles in a week — more than had been found throughout the entire 1980s. She tracked them to Atkins Meadow Brook, which she describes as “turtle heaven.” The glossy, aromatic foliage of sweet gale and leatherleaf overhang it, providing cover for the vulnerable young turtles. Here, juveniles loaf on so-called “veg mats” of sphagnum, hanging out like teenagers at a mall — sometimes for months on end. Sphagnum, or peat moss, seems to cater to all of their basic needs: juveniles bask on it, hide under it, and even eat it.

A true “turtle heaven” should also have a nesting beach; a slow-moving, dark-coloured stream for a safe place to hibernate, where turtles may cling to peaty banks without fear of being washed away; and a neighbouring sheltered cove where adults, especially females, can absorb the energy from the sun critical to the development of eggs. Atkins Meadow Brook has it all.

McMaster’s discovery of the juveniles has been heartening for conservationists. It signals that the systematic nest-protection program begun by the park in 1987 is paying dividends. Over the past three years, park staff also carried out a head-start program to improve overall survival of the young. They collected late-emerging hatchlings (which have poor chances of survival in the wild) and raised them in captivity over the winter, releasing them the following spring. They also closed off to tourists the Heber Meadows nesting area.

The rapid development of cottage country on the park boundaries pre-
Adjusting to environmental change is particularly difficult for long-lived species like Blanding’s turtles, which have a life expectancy of 70 years. Short-lived species of birds and mammals can evolve and adapt more quickly over several generations, an option the Blanding’s don’t have. Studies on Blanding’s turtles in the Great Lakes region, in Michigan and other north-central states, have shown that an increase in adult mortality by as little as 10 percent can pitch the population into serious decline and ultimate extinction. Of course, while fossil records tell us that all species eventually go extinct, the challenge for us in the late 20th century is to ensure that we’re not hastening that process.

The Pervasiveness of Human Activity makes it increasingly important to understand peripheral populations, such as Nova Scotia’s Blanding’s turtles, scientists say. As we lose more wilderness, peripheral populations cut off from others of their own species are becoming far more common. “In fact,” says Herman, “there are fewer and fewer populations that have large, continuous undisturbed ranges. For most species now, the world is a highly fragmented landscape.”

All of which is good reason to contemplate the humble Blanding’s turtle. On the nesting beach at Gloede Island, I had grown impatient at the deliberate female obsessively replaced what seemed like every pebble that she had excavated for her nest, until there was no trace that she had ever come to the beach. A hot-blooded mammal, I wanted her to hurry up. But such care, she knew in her evolutionary wisdom, was critical to the survival of her kind — and her kind have been around for some 24 million years. Now, Blanding’s turtles, like so many turtle species worldwide, are under pressure from the accelerating activities of humans. We might well take a lesson from the sure pace of the turtle, I thought: slow down.

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