By Philip Preville
Photography Daniel Ehrenworth

BEST ADVICE

IT'S A HARD KNOCK LIFE

For millennia, a nearly impenetrable shell was enough to keep turtles out of trouble. No longer

ROAD KILL.

That's what first crossed Bill Mallett's mind in the early hours of Friday, May 10, 2013, on a drive from his family's cottage in Port Franks, Ont., on the shores of Lake Huron. Mallett was on his way to meet a friend for breakfast when he spotted a turtle on the shoulder of Northville Road, not far from the skinny, reedy, elbow-jointed pond known as L Lake. The area is known to locals for its well-travelled turtle crossings, and Mallett had good reason to assume the worst. "I've seen 14 dead turtles around here in the last three years," he says.

But when he got out of his car, he discovered something worse: an adult snapping turtle, two feet long from head to tail, still alive despite grotesque injuries. The top of its carapace had a hole in it the size of Mallett's thumb, not punctured but sheared, as though sliced across the top with a knife. Worse still, the turtle had suffered multiple fractures to its upper and lower jaws. Mallett didn't imagine it could survive long. "I was going to put him out of his misery," he recalls. But when he walked around and tried to approach the turtle from behind, "that's when he turned and looked me straight in the eye."

Mallett, a 70-year-old retired electrician from London, Ont., who's spent his life's summers on Lake Huron, is a tough-skinned, gentle-souled kind of guy, a bit of a turtle himself. When he and the turtle locked gazes, the world went momentarily still. That's when he knew he had to try to save the animal instead, even though he had no idea how. He called 911, which put him through to the Ontario Provincial Police, who simply said, "Call the Kawartha Turtle Trauma Centre."

If any place could help his turtle, Mallett guessed, this would be it. The problem was that it was about 400 km away in Peterborough, Ont. He started calling the number the OPP had given him. What Mallett didn't know was that the trauma centre, despite its impressive clinical name, was actually a not-for-profit wildlife shelter operating on a shoestring budget. The lone person on staff that morning was too busy looking after injured turtles to answer the phone. Mallett left a message and waited by the side of the road. He feared the snapper would not survive long.

Turtle shells may be the Triassic era's greatest work of engineering. The first turtles evolved some 220 million years ago, long before most dinosaur species, at a time when the earth's continents were still part of a single land mass known as Pangaea. Their signature mutations included an extension of their spinal vertebrae into an arched carapace over their backs, an extension of their ribs to

Veterinarian Sue Carstairs prepares a dose of antibiotic. Turtles waiting for assessment, or with open wounds, rest on a comfy towel (opposite), rather than in water. Assessment can include a swab (below) to test for infection and an X-ray to check for fish hooks, fractures, internal injuries, and eggs. Above, turtles (visible or hiding), with their records and any drugs and fluids needed.

The trauma centre uses plastic bins; each can house a rescued turtle or a clutch of hatchlings. The lamps provide UV light and let turtles moderate their temperatures. Opposite, Mallett's turtle.

create a flat plastron underneath their bellies, and the fusion of the bones around the edges—moving everything else, including shoulder blades and collarbones, from the outside to the inside of their rib cages in the process.

When an evolutionary adaptation works, it sticks. The fossil record shows that the turtle shell has changed surprisingly little since its emergence. It hasn't had to. In 2013 a photographer captured an American alligator, a species whose bites can exert pressure of up to 2,900 pounds per square inch, trying to crack a live turtle in its jaws for 15 minutes before giving up.

Thanks to that shell, turtles have survived every competitor, predator, trap, continental rift, and mass-extinction event since Mesozoic times. Turtles predate *Tyrannosaurus rex* by about 135 million years, and they're still around. Slow and steady really does win the race. They are among the hardiest reptiles that have ever lived.

Bill Mallett didn't know any of that. He was standing on the side of the road, hovering over an injured snapper with which he'd made a silent pact, waiting for help. The turtle trauma centre couldn't call him back fast enough.

It happened to be Lindsay Maxim, one of the Kawartha Turtle Trauma Centre's few paid staff members, who retrieved Mallett's message that Friday morning. Maxim brought the news to Kate Siena, the trauma centre's executive coordinator, as soon as Siena came in. "It was obvious that Bill was very concerned," Siena says. "To be honest, we weren't looking forward to calling him back."

There is a stereotype that's often applied to wildlife conservationists: they are raccoon-hugging recluses who, in their tiny, smelly shelters, get along better with animals than people. Siena, 44, does not fit this description. A happily married mother of two, she is gregarious with friends and strangers alike. Though she's worked her whole career in wildlife conservation and has a special rapport with animals, she remains a committed scientist. Wildlife conservation, for her, is about ecology and biodiversity. Maxim, a 28-year-old Trent University graduate who studied biology, is cut from the same cloth. They don't give names to any of the animals they treat. They assign numbers instead, because it keeps them, and their volunteers, from getting emotionally attached. "They are wild animals, and the whole point is for them to stay wild animals," Siena says. "They are not pets."

Since Siena took over as coordinator of the centre in 2010, it's gone from treating about 50 turtles a year to admitting more than 800 turtles annually for treatment and rehabilitation. That's a lot of turtle trauma. Siena, having seen the worst the species can bear, has developed a very clinical, cutthroat sense of judgment. Her first question is always: can we help this turtle? If the answer is yes, she'll move heaven and earth for it. But if the answer is no, it's no—which can be devastating to roadside rescuers like Bill Mallett, who often develop an emotional bond with the injured animal.

Maxim drew the assignment of calling Mallett back. When she did, she learned that his snapper was still alive. Yes, they could help this turtle—in fact, they were the only wildlife centre in Ontario that could—but they had to move fast. "We usually give ourselves a 24-hour window to get an injured turtle to the centre," Siena says, so they'd already lost precious time. "If the turtle is still alive, then it's not the injuries that will kill it," she says. "What'll kill it is infection, the shock of the pain, and the fact that it can't drink."

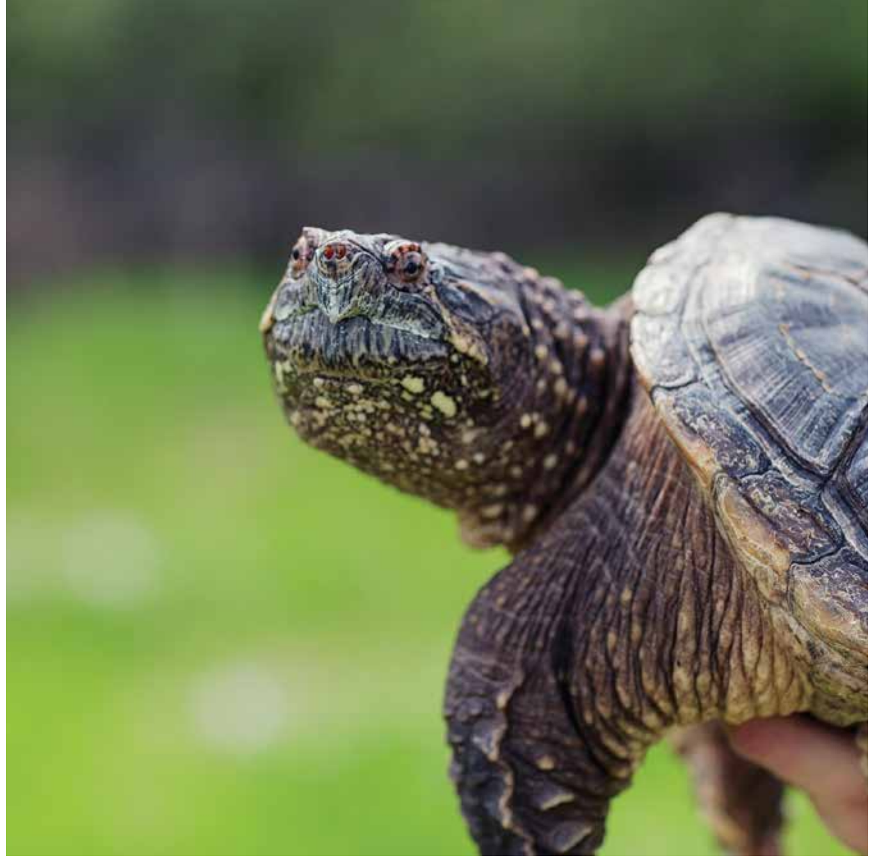
In recent years, the Kawartha Turtle Trauma Centre has trained staff at other Ontario wildlife centres—including the Rideau Valley Wildlife Sanctuary in Ottawa, the Sandy Pines Wildlife Centre in Napanee, and the soon-to-be-opened Georgian Bay Turtle Hospital just south of Orillia—to stabilize injured turtles for safe transport to Peterborough. Maxim recommended that Mallett bring the snapper to Heaven's Wildlife Rescue in

IF HE DIED, IT WOULD TAKE 1,500 EGGS AND 20 YEARS TO REPLACE HIM

PHOTO THIS PAGE COURTESY THE KAWARTHA TURTLE TRAUMA CENTRE

CAUTION
CROSSING

Watch for turtles on roads, especially in spring, when females nest. If you see an injured turtle, call the Kawartha Turtle Trauma Centre and they'll find a nearby clinic for urgent care. Transport an injured turtle in a dry, ventilated plastic box with a lid. Use a shovel or board to lift a snapper so it doesn't bite you. Always ensure your own safety (and that of other drivers) before stopping to help a turtle.



Oil Springs, whose staff also knows the injured-turtle drill, and which was just an hour's drive south from Port Franks.

Siena, meanwhile, fired off a mass email to her turtle taxi list—about 100 volunteers scattered across southern Ontario who shuttle injured turtles. But she and Maxim suspected that no single driver would be prepared to make the 400 km drive. It would have to be a relay.

Mallett brought the turtle to Oil Springs, where the male snapper received pain medication and fluids, as well as a name: Porter. The medicine extended the time frame for saving him: Siena and Maxim now had until around noon on Saturday. The name raised the emotional stakes. For the next two hours, they worked the phones and the email lines frantically, barking at each other without missing a beat, trying to set up a series of hand-offs that would bring Porter from Oil Springs to Peterborough. When they realized their regular volunteers wouldn't be able to complete the relay, they started branching out. "I've had my boyfriend drive hundreds of kilometres to pick up turtles," admits Maxim. But in this case he wasn't available. They could get Porter from Oil Springs to Guelph, but no farther.

That's when Bill Mallett, who hadn't come this far just to see Porter buried, stood up in the middle of Heaven's Wildlife Rescue and said aloud in desperation, "There must be a pilot who'll fly him!" It turned out there was. Pilots N Paws Canada, a volunteer organization that usually airlifts cats and dogs in need of rescue or medical attention, made an exception for Porter and hooked him up with Rick Woodall, a 46-year-old Windsor financial advisor and hobby pilot with his own single-engine, two-seater airplane. On Saturday morning, Woodall picked Porter up at the Sarnia airport and airlifted him to Peterborough, arriving just after noon. The relay had met its deadline. Now all Porter had to do was survive reconstructive surgery.

Bill Mallett can remember a time when turtles were everywhere around Port Franks. "Back when I was young, it wasn't uncommon for me to see 25 painteds and 10 stinkpots down here in the evening," he says. "That never happens anymore."

There are seven species of hard-shell turtles in Ontario, including painted turtles, identifiable by the red lines on their extremities, and musk turtles, which release a

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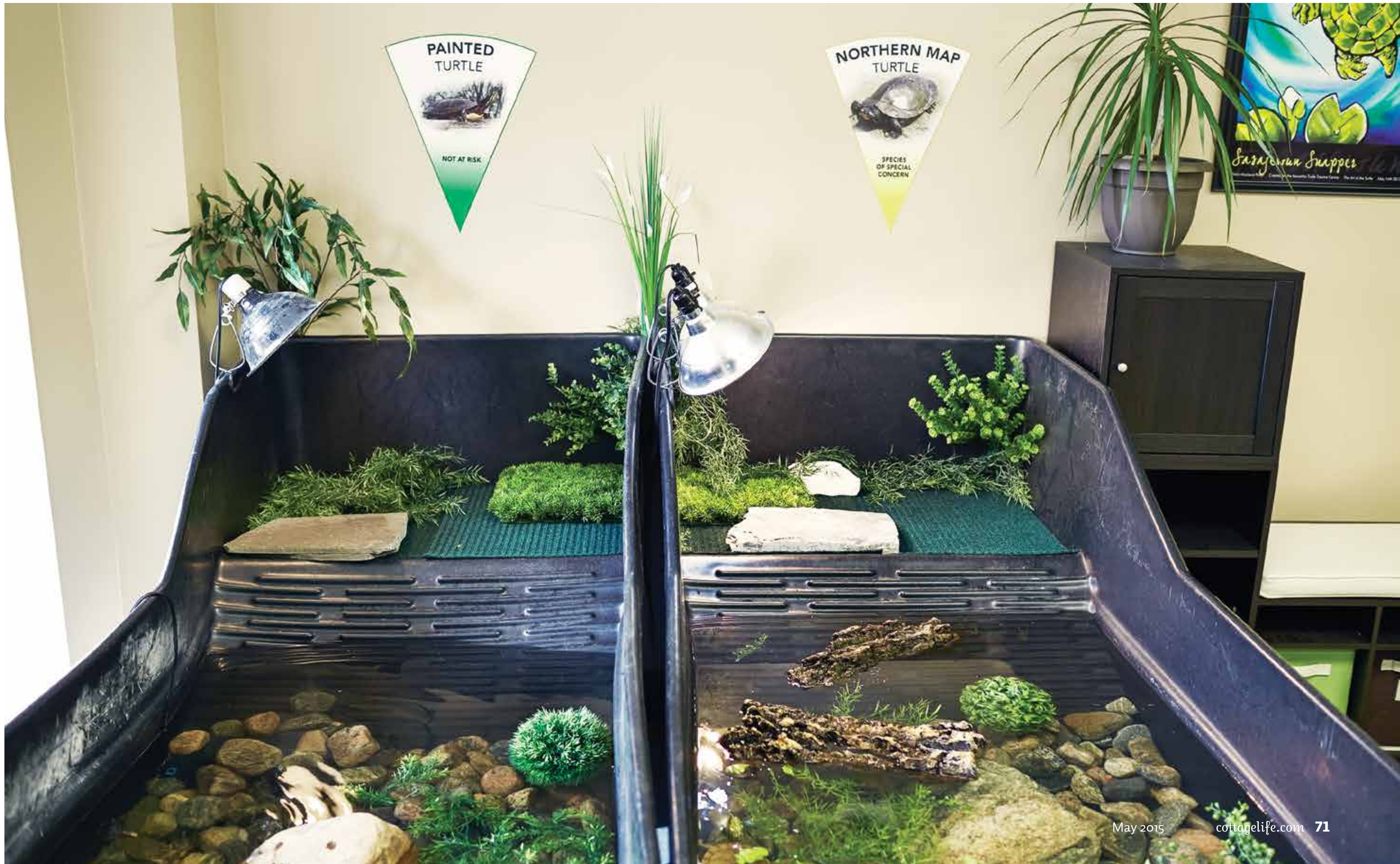
Blipp Kate Siena and Porter, above, to watch the centre in action



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foul-smelling goo when under threat—hence the "stinkpot" nickname. Of the seven, every species but the painteds (the most common) ranks somewhere on the conservation barometer: some are endangered, one is threatened, and some, such as the snapper, are "species of special concern." And Ontario isn't unique. After 220 million years without having to adapt anew, turtles everywhere have fallen on hard times.

Their shells have kept them alive this long, but they haven't been fun to lug around. They constrain their every move, making them slow on land. Young turtles survive by stealth. They are the shrinking violets of the animal kingdom, always hiding among the reeds and the lily pads, and in other messy nooks of the Ontario wilds. Once a turtle gets big enough, and its shell hard enough, it no longer has predators in the water, and could live past the age of 100. In Algonquin Park in the 1970s, wildlife scientists tagged a giant female snapper, B7. Forty years later, she is still laying nests of 40 eggs every year.

Still, turtles can't hide in the water forever. They move from pond to pond in search of food and mates, and they have to nest to lay eggs. And it's on land where they're vulnerable. Across southern Ontario, you are rarely more than two kilometres away from a road. Some studies show that the most active turtle species will amble across roads 20 times in a season. And that's where turtles encounter the mechanized predator that natural selection has yet to counteract: the car.

Road mortality is every freshwater turtle's biggest population threat. A 2010 study by students at Laurentian University along a 388 km stretch of Hwy. 69/400 from Barrie to Sudbury found that, during late spring and early summer, about 22 turtles are struck by cars per day. Sometimes turtles startle drivers with their sloth: they move so slowly that, by the time drivers realize that it's a live turtle in the middle of the road, it's often too late. Just as often, though, it's no accident. In 2007, scientists placed decoys in the middle of the road on the Long Point causeway near Lake Erie. They found that roughly half of all turtle road strikes were deliberate—the driver swerved, not to avoid the decoy, but to intentionally run over it.

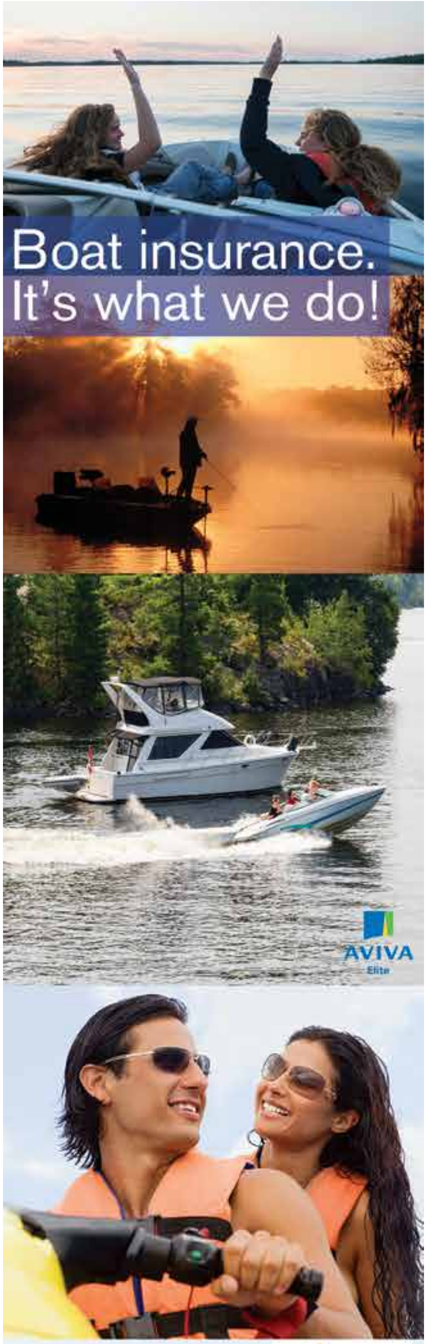
No matter the motivations of the killers, turtles cannot survive this increase in their mortality. Scientists estimate only one in 1,500 snapping turtle eggs makes it through to adulthood. Old B7 in Algonquin Park is a case in point: over her past 40 years laying eggs, scientists report only one survivor, now about 35 years old—and that turtle came from an incubated egg.

"There are lots of baby turtles every spring, but nature did not intend for most of them to survive," says Siena. They are like canapés for predators: small and served frequently. "Nature did, however, intend for the adults to live a long, long time in order to keep the reproduction cycle robust. The adults aren't supposed to die at this rate, and the species can't afford to lose them."

Snappers take 20 years to reach sexual maturity, about seven years longer than humans. If Porter died, it would take 1,500 eggs and 20 years to replace him in the breeding-adult snapper population—a steep uphill battle for a species in decline. If you were trying to protect the human race from extinction, you'd save the children. With turtles it's the opposite: save the adults.

As grim as the statistics are, there was some reason for optimism with Porter. The moment that Sue Carstairs, the resident veterinarian and turtle surgeon at the Kawartha Turtle Trauma Centre, laid eyes on him, she knew that she could help. For one thing, she'd seen turtles survive much worse. In addition, she says, "His injuries fit a pattern unique to snappers. I'd seen this hundreds of times."

When most turtles face imminent danger, they duck and cover, but snappers actually cannot fully retract into their shells, so their heads are left exposed (which is why they snap). When drivers try to avoid hitting a snapper by straddling it, in the hopes of passing over it, the collision often results in a sheared carapace and facial trauma. These were Porter's injuries, which convinced Carstairs that he hadn't been run over on purpose. She looked the turtle in the eye just as Mallett had, but with the clinical



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detachment of a seasoned vet; she stabilized him, administered anaesthetic, and went to work. "The shell is essentially bone," she explains. "It'll heal just like a broken leg would. It just needs to be secured and kept clean."

Carstairs is self-effacing about it, but she is probably among the world's most experienced turtle veterinarians. A graduate of the University of Guelph, she knew from the start that she'd rather work with wild species than with pets. She regularly borrows techniques from other medical disciplines, and gear as necessary from non-medical ones, to get the job done. She keeps her surgical supplies in a four-foot-tall, black-and-silver steel tool case donated by Home Depot. To bore holes in turtle shell pieces, she uses a dental drill, then loops orthopaedic stainless steel wire through them to hold the pieces in place. She sometimes wires other body parts back together too, but Porter's jaws were fractured in so many places that wire wasn't feasible, so Carstairs taped them back together and changed his dressings regularly.

The next 12 months were surely Porter's loneliest. All animals carry bacteria and parasites unique to their home ecosystem. To keep those organisms from spreading, Ontario law stipulates that a captured animal must be released within one kilometre of where it was found. Because the Kawartha Turtle Trauma Centre receives turtles from all around the province, it isolates every turtle that arrives. As a result, the majority of the centre consists of dark rooms filled with giant, black Rubbermaid tubs, each containing a single turtle in recovery, each with its own small UV lamp, like a turtle tanning salon.

The happiest room in the centre is the hatchery. The tubs are transparent, the lighting is bright and fluorescent, and the sound of bubbling water fills the room with glee. There's plenty to eat—lettuce, earthworms, smelt—and thumb-sized turtles are everywhere. The staff can harvest the eggs of a recently deceased female turtle from her oviduct, hatch them, and nurse the hatchlings to strength for a full year. In 2014 the centre released more than 700 hatchlings—about 60 per cent of them snappers—into the wild, almost double the number of the previous year. If it takes 1,500 eggs in the wild to replace one adult snapper, the hatchery is helping the odds.

Shortly after Porter's surgery, Kate Siena has to undergo surgery of her own, for cancer. Her recovery requires her to relinquish her duties at the turtle trauma centre—Lindsay Maxim ably takes over—but she's still active as a volunteer. And on a misty, overcast morning in May 2014, she makes the drive from Peterborough to Port Franks to meet up with Bill Mallett, reintroduce him to Porter, and then return the turtle to the reedy waters of L Lake. Seeing "his" turtle for the first time in almost a year, Mallett is impressed with the results of the surgery. Porter has visible scars on his shell and some nasty-looking ones on his jaws, but even if his good looks are now flawed, his potentially fatal wounds have functionally healed. He is, it is safe to say, one tough turtle.

When Siena takes Porter out of his Rubbermaid container, it's his first look at the outside world since Bill Mallett scooped him off the shoulder and put him in his trunk. He is alert and searching, as if recognizing the smells of home. Siena and Mallett are enchanted by him. Science has saved Porter, but science cannot explain the mystical power of his ilk. An adult turtle can hush a room simply by its presence. Turtle shells are also uncanny numerological artifacts. Their shells—not just snappers' but all hard-backed species—all have a total of 41 sections, or scutes: 28 around the edges and 13 in the middle. These numbers, Siena points out, correspond perfectly to the lunar calendar: 28 days to a cycle, 13 cycles a year. She has no idea why. No one does, she says. Turtles know something about the universe that science has yet to divine. It remains their secret.

Porter is eager for the water. As Siena holds him over the edge of the dock, he paddles his feet through the air, already swimming. She drops him gently into the lake. He makes straight for the tall reeds, and like magic he's gone.

Philip Preville is a National Magazine Award recipient. He lives in Peterborough with his wife and three kids. He brakes for turtles.