

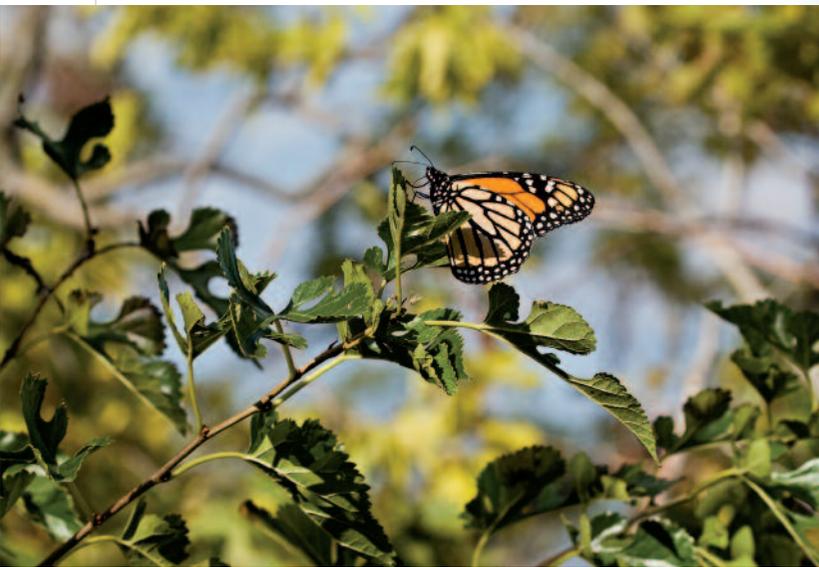
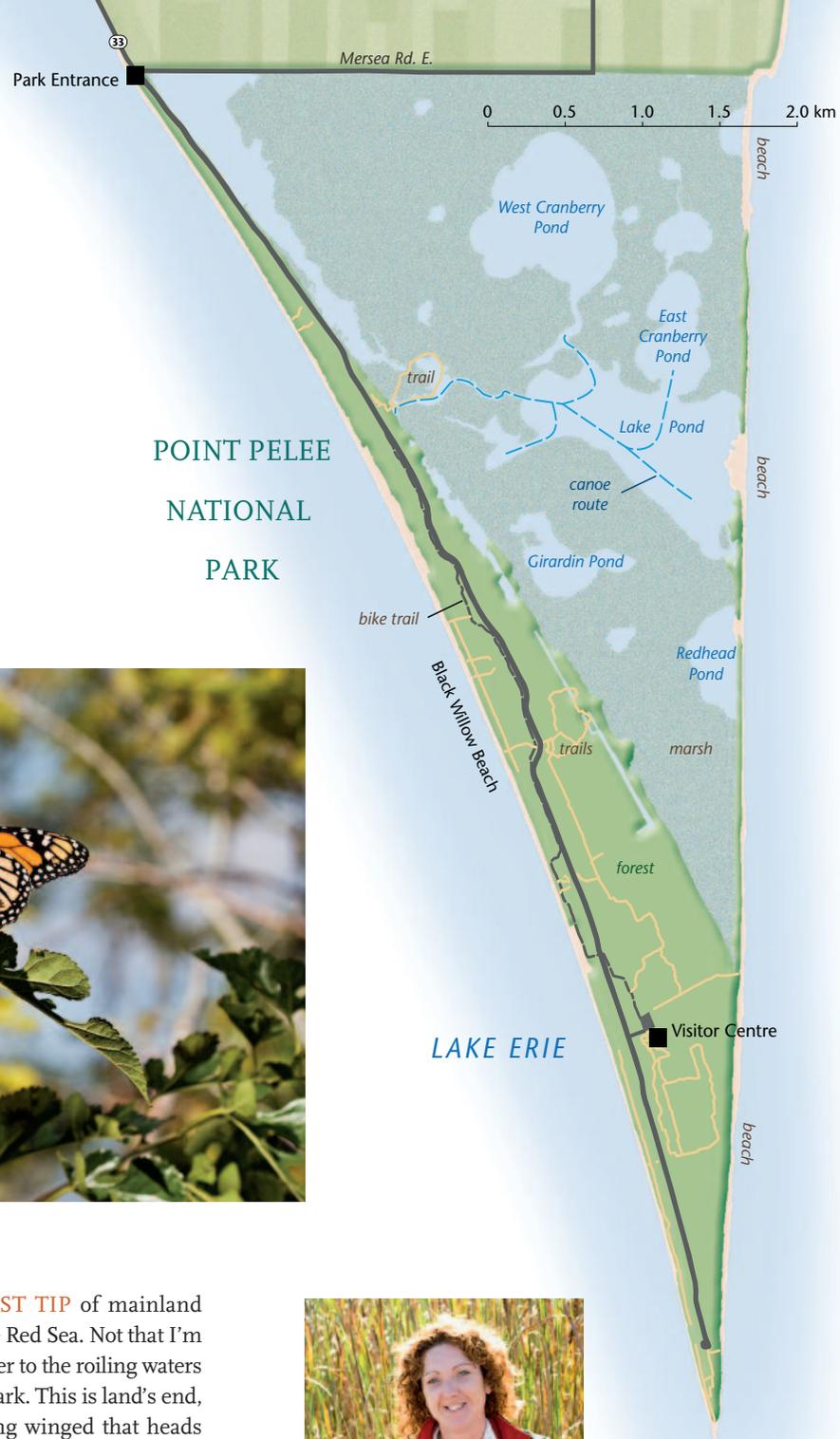
A wide-angle photograph of a sandy beach meeting a blue body of water. In the background, a small island covered in green trees sits in the water. Numerous seagulls are scattered across the beach and flying in the clear blue sky. The overall scene is bright and serene.

The butterfly effect

On the trail of
the great monarch migration,
nature's small mysteries
stole my attention

BY KATE BARKER WITH
PHOTOGRAPHY BY TOBI ASMUCHA

POINT PELEE



STANDING AT THE SOUTHERNMOST TIP of mainland Canada, I feel like Moses about to part the Red Sea. Not that I'm religious, but there's an otherworldly power to the roiling waters that collide here at Point Pelee National Park. This is land's end, the prime jumping-off place for anything winged that heads south for winter. Lake Erie beckons, like a siren. It wants you to keep going, to ignore the obvious "Danger — no swimming" signs, to take that leap of faith.

Canada's second smallest national park — only St. Lawrence Islands is smaller — is a 20-square-kilometre finger of land jutting out into Lake Erie, some 53 kilometres north, as the monarch flies, of Sandusky, Ohio. It is the terminus of a flat and fertile swath of southwestern Ontario known chiefly for its superior tomatoes and for being surrounded by Americans. The park is also distinguished by five unique ecosystems. There are plants and animals here that cannot be observed anywhere else in the wild in Canada, including the prickly pear cactus and the Lake Erie water snake, which are only in the park and on nearby Pelee Island. The temperate Carolinian zone that defines



Point Pelee National Park's Tammy Clarke (ABOVE) helps visitors learn about the mysterious ways of monarchs (TOP).



Since migrating species naturally follow the curve of shoreline, and Point Pelee is where the shoreline runs out, this is just about the best place in the world to spot migrating peregrine falcons, mountain bluebirds, green darner dragonflies, or, in the fall, a million monarchs.



The tip of Point Pelee (PREVIOUS PAGES) is a prime departure point for anything winged that heads south over Lake Erie. The park's marsh boardwalk (LEFT AND ABOVE) is a prime route for people who want a close-up look at the frogs, turtles and other animals in this small but incredibly biodiverse swath of habitat.

MAP: STEVEN FICK/CANADIAN GEOGRAPHIC



That dragonflies migrate is news to me. One species, known as the black saddlebag, bears a striking resemblance to flying miniature Harley-Davidsons.

the region represents less than a quarter of one percent of the total landmass of Canada, yet is home to more species than anywhere else in the country, including more than 50 species at risk, more than 70 species of trees, 20 species of reptiles and thousands of species of spiders and insects.

Southwestern Ontario is in the flight path of plagues and invaders that spread north as the world warms. Lyme disease-bearing ticks were first found at Long Point, Ont., about 200 kilometres east of Pont Pelee, in the early 1990s and West Nile virus-infected birds dropped dead from the sky in the same part of the province a decade later. Today, fishermen fear that Asian carp, having breached electronic barriers near Chicago, will soon wreak havoc on native species in these waters. Since migrating species naturally follow the curve of the shoreline, and Point Pelee is where the shoreline runs out, this is also just about the best place in the world to spot migrating peregrine falcons, mountain bluebirds, green darner dragonflies, or, in the fall, a million monarchs.

Thirty-five years ago, the monarch migration was a complete mystery. We knew that the unmistakable black-and-orange king of the lepidoptera, measuring up to 10 centimetres across, lived anywhere milkweed grows south of Hudson Bay in North America and travelled *somewhere* south to escape the killing frost. On January 2, 1975, American Kenneth Brugger made the greatest butterfly discovery of all time — hundreds of millions of monarchs roosting 3,000 metres above sea level in a remote oyamel fir forest 160 kilometres west of Mexico City. It would be another year before the grandfather of monarch research, the late Fred Urquhart, a zoologist at the University of Toronto, travelled to Mexico to

observe a branch so weighted with butterflies that it broke and fell to the forest floor. Urquhart stooped to examine a casualty and recognized his own work. He had found one among millions that had been tagged in Minnesota, proving that these butterflies were indeed the eastern North American population of monarchs that he had spent a lifetime studying. (The western population, separated by the great divide of the Rockies, follows a different migratory path to northern California.) Mystery solved. Almost.

Monarchs have been around for 146 million years, breeding four generations annually. The spring and early-summer generations live as adults for 40 days; they eat, mate and die in the usual insect way. But something compels the late-summer/early-fall generation to emerge from their chrysalises and fly south, more than 3,200 kilometres, where survivors live up to

six times longer than other generations, sheltering in Mexican fir trees over the winter months before beginning the return flight. They mate and die along the route and a subsequent generation completes the final leg back north. No one knows for sure why monarchs migrate and what triggers the migratory instinct. The enigma endures. And now I am about to witness them in all their clustering glory before they make that momentous push south. One problem: there isn't a single butterfly to be seen here at Monarch Central.

STAFF AT POINT PELEE NATIONAL PARK update butterfly sightings daily with voice messages throughout the fall migratory season. In late August last year, the official numbers were 1,000 for two days running — not great when they can easily be

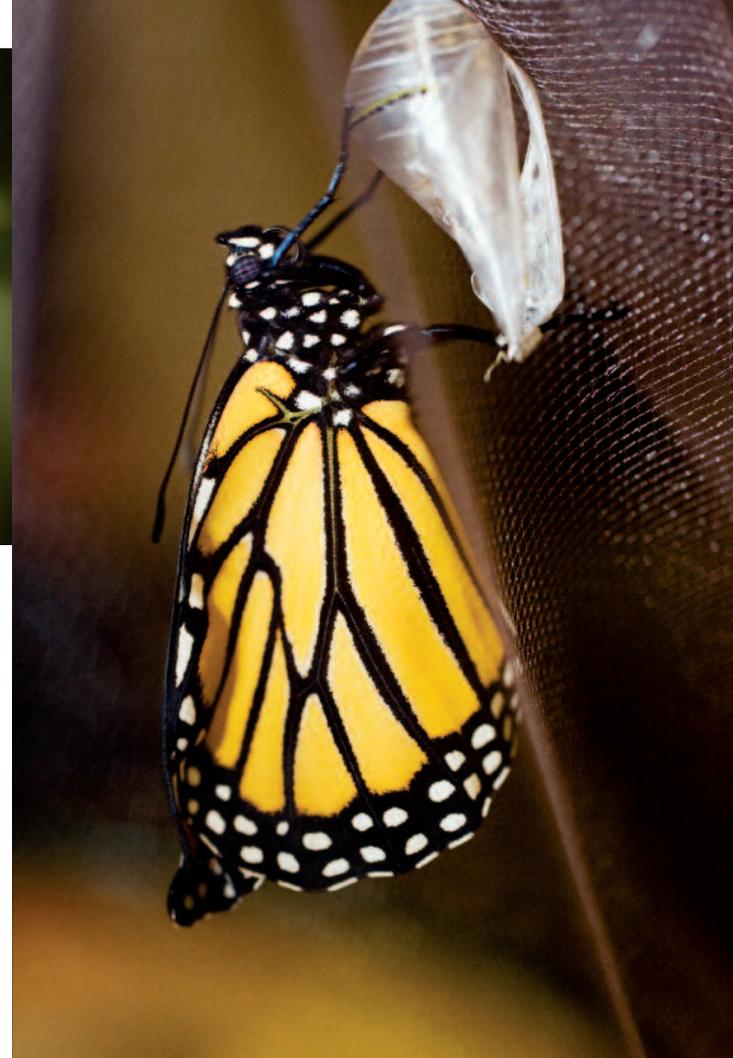


A photographer stakes out the marsh at sunrise (TOP), though more daylight is needed to spy a male 12-spotted skimmer dragonfly (ABOVE), another migrating species that uses the park as a launching point for trips south over the lake. A great blue heron hides in the marsh (OPPOSITE) at the end of the day; it too will fly south from the park.



POINT PELEE

Clarke holds a “newborn” monarch on a plate of sugar water (BELOW). The butterfly knows it’s near the sweet nectar because it can taste through its feet. The metamorphosis from caterpillar (RIGHT) to butterfly culminates in 12 to 14 days of cocooning, from which a fully developed monarch (OPPOSITE TOP) emerges. A coating of sugar water transforms Carter Tomkins’ nose (OPPOSITE BOTTOM) into an appealing perch.



beach meets forest floor and see nothing. “It’s right there,” she patiently insists after I scan futilely for several moments. Eventually, I make out a silver dollar-sized black turtle hatchling in the sand and begin to wonder if Kim has unnatural wildlife spotting powers. She does. Over the course of the next two days, she points out an alarming array of fauna, including a praying mantis along the DeLaurier Homestead trail, a 60-centimetre-long Lake Erie water snake intent upon eating a frog, a pumpnickel-sized map turtle sunning itself in a marsh where cattails rustle like wheat in the field, and a juvenile bald eagle riding the air currents high above the same wetland.

Other wildlife encounters are more obvious, such as swarms of migrating dragonflies. That dragonflies migrate is news to me. One species, known as the black saddlebag, bears a striking resemblance to flying miniature Harley-Davidsons. There are also 12-spotted skimmer and green darner dragonflies galore, all of them heading south across the lake. Migrating sharp-shin hawks dart distinctively by the dozens high above. They are also hard to miss, as are their prey.

A flock of blue jays screams by, swooping out over the lake, then retreats back to the relative safety of the point. They are nervous, Clarke says. With the hawks ready to pick them off and no tree cover to dart into, they are flummoxed by the vast expanse of water. We watch as they circle out again on another brief foray before flowing back. Eventually, one will lead them over the lake, but not this morning. The jays continue their nervous circling and squawking amid the hawks. Conflicted instincts make for high anxiety in the troposphere.

in the hundreds of thousands. I waited. The monarchs, it seemed, were running late. I postponed my trip. I waited some more. Finally, after an unseasonably hot start to September, the mercury began to dip at night while daytime temperatures remained warm: ideal conditions for spotting early-morning monarch clusters.

Monarchs don’t migrate en masse but flit off singly over the lake on their epic journey. If it’s too windy or cold, however, they wait it out together for more hospitable conditions, explains Tammy Clarke, education coordinator at the park. Then, once the sun rises and warms their wings, they will fly south. Sometimes, if conditions are right, they don’t linger at Point Pelee at all, but simply make their lonely way across the lake. Driving slowly past the park’s main gate and a gaggle of wild turkeys foraging at road’s edge on a mid-September morning, I squint into the trees in hopes of seeing “dead leaves” — aka monarchs — with their delicate wings folded. No luck. Clarke hasn’t seen any either. Instead, she shows me the live exhibit at the visitor centre.

Beneath a mesh dome, caterpillars cocoon in various stages of metamorphosis. Monarchs go through four stages of development from egg to adult. Females lay 100 to 500 microscopic football-shaped eggs on milkweed leaves. Eggs hatch after three or four days and the emerging caterpillar begins its two-week-

long binge by eating its own egg shell. After its initial meal, it will consume milkweed and grow 3,000 times its birth size to roughly the length of a man’s pinky. As it grows, it sheds its skin in five stages, or instars, before entering its pupal stage and forming a chrysalis.

A gecko-green chrysalis with shimmering golden seams hangs beside a black chrysalis in the park’s live display. This is the one to watch, apparently. Closer examination reveals that the chrysalis is actually transparent; the black comes from the wings of the immature monarch showing through. The process from chrysalis formation to monarch birthday takes 12 to 14 days. The two darkest pods have been cooking for almost two weeks already. They could crack open along their seams at any moment, Clarke tells me. Fascinating, but I am eager to catch the open-air shuttle to the tip of Point Pelee before the sun warms a million wings and I miss my chance to spot the motherlode.

“Oh, look!” my partner Kim exclaims on the short hike back from tip to shuttle after not a single sighting of the elusive *Danaus plexippus*.

“What? Where?” I almost drop a pair of borrowed binoculars in my excitement.

“I think it’s a snapping turtle,” she says serenely, pointing directly in front of me. I squint at a nondescript line where

By the time we return to the visitor centre, another drama has unfolded, literally. A brand new monarch hangs from the mesh of the display, airing its lovely wings. Damn. We missed the final stage of metamorphosis by a mere five minutes.





CANADA'S FIRST PARK WITH A PLAN

Point Pelee was among the country's first national parks, officially designated number nine in 1918. By the 1960s, however, Point Pelee was in danger of disappearing altogether, not beneath the waves of Lake Erie, but underneath tonnes of gravel, asphalt and destructive human feet. For decades, cottagers and campers converged on the tiny park, peaking at 781,000 in 1963. At that time, there were car parks for more than 6,000 vehicles on the little peninsula. To preserve the fragility of the point and its habitats, the country's first park master plan came into effect in 1972. Over the next few years, 300 cottages and other buildings were purchased and demolished or removed from the site. Parking was restricted, overnight camping prohibited and the park-operated shuttle became the only vehicle permitted near the tip. A restoration plan including the removal of non-native plants and the reintroduction of other species began. The flying squirrel was successfully reintroduced to the area in 1993. Habitats now protected and thriving within the park include one of the largest marshes in the Great Lakes region, beach, cedar savannah, dryland forest and wetland forest. In 2008-09, the park received nearly 200,000 visitors.

K.B.



BY THE TIME WE RETURN to the visitor centre, another drama has unfolded, literally. A brand new monarch hangs from the mesh of the display, airing its lovely wings. Damn. We missed the final stage of metamorphosis by a mere five minutes. I take a seat heavily in front of the last remaining dark chrysalis. And watch. And wait. It's more addictive than solitaire.

I stare at the chrysalis for the better part of an hour. I'm afraid to leave, convinced that the moment I do, a butterfly will emerge. A six-year-old shares my vigil for about 20 seconds, then lurches off. Kids and parents come and go. Park patroller Derrick Kersey pokes his head in and stares at the chrysalis for a second, on his way to somewhere else.

"Hey, isn't that a crack?" he asks casually. I am about to tell him he's wrong, that I have thought the same thing a dozen times, that it is an optical illusion, when suddenly, the main fault line erupts.

It's time. The six-year-old fortuitously stumbles back and the three of us witness a little miracle together. It takes less than a minute. From the split chrysalis, the adult monarch unfolds and hangs from its Sharpie-fine-pointed little black feet. Its abdomen is huge and pulsating, its wings shrivelled. We watch the abdomen empty, pumping the wings full of fluid. A couple of minutes later, the process is complete and a fully developed monarch, roughly the width of my hand, hangs upside down, drying its unfurled wings.

ON THE WEB

To watch videos and animations tracking the life cycle of the monarch and to see a photo essay documenting the pristine point, visit www.canadiangeographic.ca/parkscanada.



Monarchs prepare for takeoff at the tip of the park — *after* the author headed home.

The next day, Clarke and summer student Nycole Brebric carefully tag and release the temporary captives, including the male I was lucky to watch emerge. (I know it's a male because he has a spot — a scent sack — on his hind wing and because his veins are thinner than a female's.) Clarke gingerly tents her hand around the butterfly, as though it's an injured sparrow, and peels a confetti-sized self-adhesive tag from a sheet, then applies it gently to the mitten-shaped right-hind wing of each insect, MLB730 and MLB735 respectively.

Next, the boys are given a drink. Mine is coy and won't extend his curled proboscis, so Clarke "encourages" him to take a sip by caressing his hidden sap-sucker with a straightened paperclip. He knows there is good stuff to be had; he can taste through his feet and is currently standing monarch-knee-deep in sugar water. Still, he won't cooperate and eventually Clarke gives up. A clutch of kids cluster around her. She leads them

outside and Brebric follows with the monarchs. Clarke asks for a couple of volunteers and a cute gap-toothed boy named Carter steps up to get his nose coated in sugar water. One of the monarchs is then placed on the child's nose. Carter, well named, patiently hauls the butterfly around the park for the next half hour, giving it a free ride all the way to the tip to help kick start its long journey.

While watching that monarch emerge from its chrysalis, Kersey and I mirrored the six-year-old's wondrous smile, and the three of us were briefly united by an insect with a brain the size of a grain of sand. I came here to witness monarchs in the millions and was enthralled by just one.

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ETHAN MELEG

TAKE IT STRAIGHT TO THE TIP

Getting there Point Pelee National Park is about an hour's drive southeast of the Windsor International Airport and a four-hour drive southwest of Toronto. A seven-minute shuttle ride will take you from the visitor centre to the southernmost tip of the point every 20 minutes from April until October. The closest town is Leamington, Ont.

Staying there Contemporary meets cozy at the Wild Rose Guest House in Wheatley, Ont., about 15 minutes from the park. The B & B has three tasteful suites on a hectare of peaceful woodland, an in-ground pool and a personable host who runs guided tours in this prime bird-watching territory. For more info and reservations, visit www.wincom.net/~peleetom/. One can also enjoy the tranquility and landscape of southwestern Ontario at an array of nearby campgrounds and cottages. For a full list go to www.learmingtonchamber.com/accom1.html.

Playing there Discover the area's world-class birding in the spring during the Festival of Birds (friendsofpointpelee.com), or

take a freighter canoe tour through the marshes in the summer. Explore more than 12 kilometres of winding trails through cedar savannah, dryland and swamp forest year-round on hikes ranging from 15 minutes to four hours. For more info on the park's many natural attractions, go to www.pc.gc.ca/eng/pn-np/on/pelee/activ.aspx.