



Eastern Rat Snake



Least Bittern



Snapping turtle



Flying Squirrel



Short-Eared Owl

LAM BER TIM



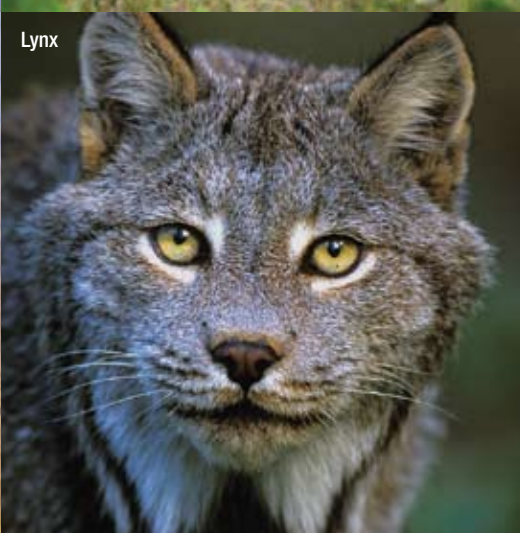
Loggerhead Shrike



White-Tailed Deer



Stinkpot Turtle



Lynx



Bald Eagle

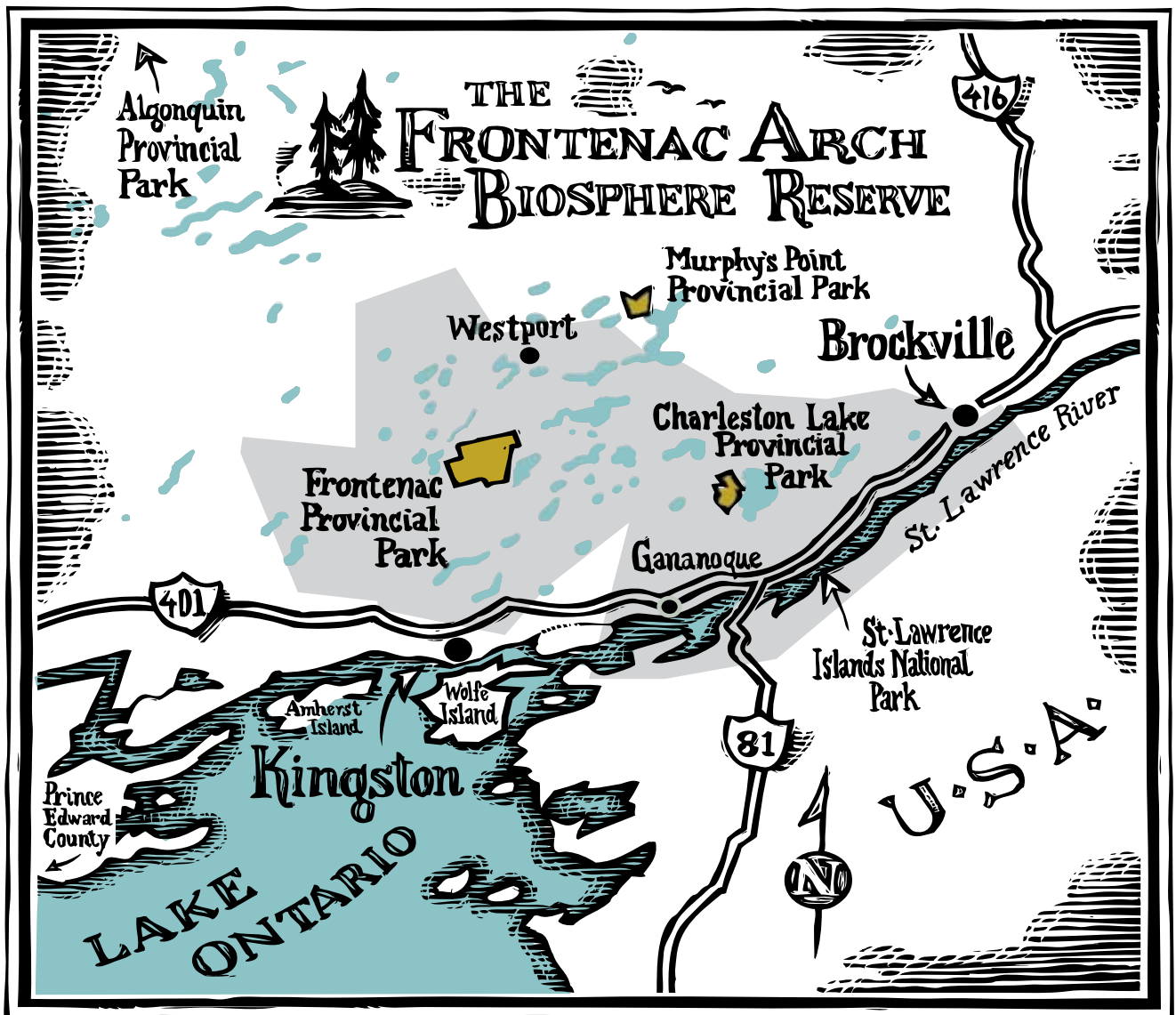
ND FORE ME

ONE OF ONLY FOUR UNESCO BIOSPHERE RESERVES IN THE PROVINCE, FRONTENAC ARCH IS A GEOLOGICAL WONDER CONTAINING ISLANDS THAT WERE ONCE MOUNTAINTOPS AND MORE RARE SPECIES THAN ANYWHERE ELSE IN THE COUNTRY. TODAY, A STEADFAST COALITION OF CONSERVATION ORGANIZATIONS, LANDOWNERS AND OTHERS, INCLUDING ONTARIO NATURE, ARE TRYING TO SAVE THIS UNUSUAL PLACE

BY ALEC ROSS

Wild kingdom: Frontenac Arch is one of the most ecologically abundant regions in the province and contains nearly three dozen at-risk species

PHOTOS: (TOP LEFT) RON ERWIN, (TOP MIDDLE AND RIGHT) JOHN REAUME, (BOTTOM LEFT) SCOTT D. GILLINGWATER, (ALL OTHERS) ROBERT MCCANN.COM



It's a sunny morning in April, and I'm hiking with my son and daughter beside Landon Bay, a fjord-like cove on the St. Lawrence River 32 kilometres east of Kingston. We stroll among bare-branched silver maples whose fallen leaves crunch underfoot. Little signs identify some of the other trees: red oak, basswood, shagbark hickory, blue beech, white ash, eastern white pine. A chittering red squirrel scurries up a leaning cedar. The trail weaves upward among granite boulders, and soon we reach the summit of the hill-mountain.

Below us is Landon Bay, dark blue and ringed by cattail marshes. To the south, white haze shrouds the St. Lawrence River and some of the 1,800 or so islands and islets that dot the waterway between Gananoque, five kilometres west, and Brockville, 45 kilometres northeast. Trees block our westward view, but to the north and east is an undulating landscape of conifers, naked hardwoods and dark granite cliffs. As we contemplate this vista, two hitherto invisible turkey vultures on a ledge below us suddenly lurch skyward, flapping clumsily, so close that we can see their wrinkled

TREASURE ISLANDS

Although small at 405 hectares, St. Lawrence Islands National Park contains a surprisingly high number of rare species and geologists have long been fascinated with the area.

Located in the St. Lawrence River in the heart of the Thousand Islands, the rounded islands that make up the park are the peaks of an ancient mountain range, exposed after the glaciers retreated.

Rich in biodiversity, the park is home to more than 30 species designated federally as being at risk, including the endangered king rail and eastern prairie fringed orchid. Three of Ontario's at-risk turtle species are also found there. As part of the Frontenac Arch, the more than 20 island and mainland properties that make up the park form a key part of the contiguous ecosystem that extends from the Canadian Shield to the Adirondack Mountains in New York State.

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red-skinned heads and hooked beaks.

"Awesome!" bellows my son, who has never seen such a big bird at such close range. "This must be a pretty special space, Dad."

Noah is right. Little does my six-year-old know that the eastern Ontario woodland surrounding us, which nearby St. Lawrence Islands National Park recently acquired, contains a diversity of plant and animal species that is among the richest in Canada. This extraordinary abundance is rooted in Landon Bay's location within the Frontenac Arch, an 80-kilometre-wide bridge of the Canadian Shield that connects Algonquin Provincial Park in Ontario with the Adirondack Mountains in New York State. Where it lies beneath the St. Lawrence River between Kingston and Brockville, this strip of granite bedrock forms the Thousand Islands. When glaciers retreated 10,000 years ago, the rounded tops of a Precambrian mountain chain were left exposed. As the St. Lawrence River poured through on its way toward the Atlantic Ocean, the mountaintops became islands that today are a popular summer playground for Canadian and U.S. cottagers, boaters and tourists.

Because wildlife can follow the Frontenac Arch roughly north and south, and the St. Lawrence corridor east and west, the Thousand Islands and the arch itself contain a veritable explosion of life, from lynx to bald eagles to painted turtles, and, strikingly, almost three dozen at-risk species. So noteworthy is the Frontenac Arch that the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated it as a World Biosphere Reserve in 2002. There are only three other such areas in Ontario – at Long Point, the Niagara Escarpment and the eastern coast of Georgian Bay – 13 in Canada and 507 in the world. “Most people are surprised to learn that there are more rare flora and fauna in this part of eastern Ontario than anywhere else in the country,” says Don Ross, a biologist and a former chief naturalist at St. Lawrence Islands National Park, which forms the epicentre of the arch's species diversity. “The Frontenac Arch really is a world-class ecological treasure. The big challenge is to keep it that way.”

Ross has a point. Only a tiny fraction of the significant forests and wetland habitats of the Frontenac Arch lie within protected areas such as St. Lawrence Islands National Park, Charleston Lake and Frontenac provincial parks, and a handful of nature reserves, conservation areas and provincial Areas of Natural and Scientific Interest (ANSIs). Together, they make up a mere 5 percent of the Biosphere Reserve area.

Herein lies the problem. These areas are widely separated, and the vast majority of land between them is privately owned. Cottages, year-round residences, marinas and other businesses line the Canadian and U.S. shores of the St. Lawrence, summer homes occupy a great many of the Thousand Islands and farms occupy large tracts of inland terrain. Such development is likely to increase, and, without pre-emptive action, so will environmental troubles such as the soil and water pollution that go along with it. Consequently, the future of the species at risk that inhabit the arch depends on the willingness of the region's people to live and prosper in ways that will not irrevocably jeopardize the existence of their non-human counterparts. That, in large measure, means creating and safeguarding as many wildlife corridors between the existing habitats as possible.

Wendy Francis, Ontario Nature's director of conservation and science, compares the Frontenac Arch to the Niagara

Escarpment and the Oak Ridges Moraine, southern Ontario's best-known geological features. “The Frontenac Arch is of similar import,” she says. “It also merits the same sort of public profile and policy protection as the others do.”

ROUGHLY THE SIZE OF P.E.I., the Frontenac Arch was shaped over eons by the uplifting of the earth's crust and subsequent advances and retreats of ice-age glaciers. Hence the arch's characteristic Canadian Shield topography: thin soil, rounded granite slopes, knobs and outcrops separated by shallow, steep-sided valleys with deeper soils, the erstwhile bottoms of postglacial lakes. Overall, about 40 percent of the arch region is forested, while 30 percent of it is lakes, rivers, streams and wetlands. Because of all the hills, rocks and water, agricultural land occupies only 15 percent of the arch; the rest of it consists of small towns, villages and other scattered settlements. The preponderance of relatively untrammelled natural habitats and micro-niche ecosystems gives the species that inhabit them a fighting chance to exist.

Denizens of the arch are a remarkably diverse lot. Canadian Shield species such as white-tailed deer, grey and red squirrel, and pileated and red-headed woodpeckers occur naturally, but, as a direct consequence of the crossroads phenomenon, several species also reach the limits of their normal range here. For example, the lynx, snowshoe hare and northern flying squirrel, creatures typical of northern boreal forests, reach their southern limits in the arch. Species common in southern regions such as cardinal, mourning dove, wood thrush and even opossum reach the boundaries of their northern range. Almost the entire Canadian population of pitch pine, a species characteristic of the pine barrens of New Jersey, is found in the Frontenac Arch. Red spruce and wire birch from the Atlantic coast reach their western limit here, while buttonbush, a shrub common in Florida swamplands, and the five-lined skink, Ontario's only lizard, extend no further east.

Tiny St. Lawrence Islands National Park, a 20-square-kilometre collection of 25 island and mainland properties between Kingston and Brockville, is a true melting pot of species. The park's islands, like the other islands in the region, act as stepping stones for birds, animals and other species migrating across the St. Lawrence, including 33 species that the Committee on the Status of Endangered Wildlife in Canada classifies as endangered, threatened or of special concern. Among them are the Henslow's sparrow

THE FRONTENAC ARCH

The Frontenac Arch, located in southeastern Ontario, is a UNESCO-designated World Biosphere Reserve largely because the area is so rich in biodiversity and contains many species at risk. These species include the endangered butter-nut tree, eastern loggerhead shrike, Henslow's sparrow, northern bobwhite and American ginseng.

Among the species designated as threatened are the black rat snake, golden-winged warbler, grey fox, least bittern and peregrine falcon. Species listed as being of special concern are the cerulean warbler, eastern milksnake, eastern yellow breasted chat, five-lined skink, monarch butterfly, northern ribbonsnake, red headed woodpecker and short-eared owl.

SHANNON WILMOT

and the eastern loggerhead shrike (endangered); the least bittern, stinkpot turtle, black rat snake and deerberry (threatened); and the southern flying squirrel, cerulean warbler, red-shouldered hawk and red-headed woodpecker (of special concern).

“We have a mix of species and ecologies here that is unique and highly susceptible to change,” says Gord Giffin, the park superintendent. “We also have 81,000 annual visitors to whom we’re supposed to provide a meaningful park experience. With our islands scattered far and wide and only so many staff to monitor the activities there... let’s just say [doing so] can be a challenge.”

THE CHALLENGE OF MARRYING THE needs of wildlife with, well, us, is much greater when you consider the arch in its entirety. This is where the Frontenac Arch Biosphere Reserve (FABR) comes in. It is more than a symbolic designation of the 3,000-square-kilometre rectangle of land bordered roughly by Kingston, Brockville and Westport; it is also the name of a non-profit body, headed by Ross, whose headquarters is a small office located a stone’s throw from the Ontario end of the Thousand Islands International Bridge, which spans the St. Lawrence 15 kilometres east of Gananoque. The organization’s three-person staff works to unite a 70-member coalition of conservation groups such as Ontario Nature and Nature Conservancy of Canada, landowners’ associations, the Akwesasne Mohawk Nation, tourism operators, land trusts, chambers of commerce, agricultural groups and municipalities under a common banner of sustainable environmental, economic and community development. “Since we have no legal jurisdiction, we operate mainly by helping people who might normally never talk to each other, talk to each other,” explains Ross. “You could call us ‘Networks “R” Us.’ ”

A lot more than talking is going on. FABR staff work with local school boards to structure curriculum – say, parts of geography lessons – about the unique features of the arch. To promote ecotourism, a group called 1000 Islands Water Trails has put together a network of nine kayaking and canoe routes in the region. Conservation groups are either lobbying or assisting the 10 municipalities within the arch to develop environmentally sound planning policies that will help them grow economically without undermining their ecological well-being, while other FABR partners, such as the Algonquin to Adirondacks Conservation Association (A2A), are battling habitat fragmentation. “There’s all this great habitat in the arch, but a lot of it is in isolated pockets,” says Emily Conger, A2A’s president. “We need to link them up so that animals and plants can move freely from place to place, the way they’re supposed to.”

Creating these links requires a lot of data gathering. One A2A project involved contracting Ross to hike both sides of Highway 401 between Gananoque and Brockville to learn where animals try, or rather, fail, to cross the road. In Banff National Park, A2A’s sister organization in the west, the Yellowstone to Yukon Conservation Initiative has shown that animal mortality can be reduced by erecting fences that direct animals into culverts under the high-

way or toward wildlife-only bridges over roadways. Conger hopes that Ross’s information will help indicate where such structures might be built, or improved, along the arch stretch of the 401 to offset the habitat-fragmentation effects of Canada’s busiest highway.

A 2003 St. Lawrence Islands National Park study suggested that the culvert solution might be a lifesaver for the arch’s turtles. Some species lay eggs beside roads, a habit that affects their survival not only because passing vehicles may flatten the mothers, but because foraging raccoons can easily find the eggs. Moreover, because turtles are slow growing, the loss of one female can have a disastrous effect on small localized populations like the ones known to exist in some arch wetlands (see “Field Trip,” page 36). “With some species, we may be at a tipping point,” says Shaun Thompson, a Ministry of Natural Resources biologist based in Kemptville who has studied the area’s musk, map, Blanding’s and painted turtles. “Even a slight drop in the number of females may make it impossible for the population to recover.”

St. Lawrence Islands National Park is also gathering vital habitat data. With the permission of local landowners, research crews from the park are surveying private properties near the St. Lawrence. This allows the crews to educate landowners on how to protect valuable flora and fauna on their property without being regulated to do so. It also yields data that analysts can use to create satellite maps that highlight different forest types and reveal potential linkages among these and other critical habitats. “We already know a fair bit about the habitat requirements of the key species, but the one thing that’s really missing in terms of knowledge is where those vegetation communities are on the landscape,” says Thompson. “If you’re going to do anything in terms of computer modelling or satellite mapping, that’s probably the most pivotal data set you need.”

The Frontenac Arch is a natural fit with Ontario Nature’s Greenway initiative, which seeks to connect major habitat areas in southern Ontario via a series of interconnected green corridors. That is why the organization is planning to become a member of the FABR partnership.

“There’s a whole spectrum of capacities, capabilities and missions among all our groups,” says Francis. “By moving forward together in support of one goal, but all doing it in different ways, we can ensure that the Frontenac Arch remains an amazing natural place.”

Intuitively, my children also know that. Already, they are eager to return and lay eyes on their first bald eagle. 🦅

Alec Ross is a Kingston, Ontario writer, canoeist and nature lover who has Precambrian granite in his bones.

For more information about the Frontenac Arch and the conservation efforts underway to protect it, visit these informative websites:

Frontenac Arch Biosphere Reserve: www.fabr.ca

The Algonquin to Adirondack Conservation Association: www.a2alink.org

The Landon Bay Centre: www.landonbay.org

Parks Canada: www.pc.gc.ca