

## Birds of the Boreal

### *Marathon migrations*

# Incredible journeys

The razing of the world's forests has turned the marathon migration of our boreal songbirds into a race for survival. Saving the birds will mean protecting habitat at both ends of the voyage

By Bridget Stutchbury  
Portrait by William Ciccocioppo

A palm tree in northern Ontario waving its massive fronds in the gusts of a cold May wind? This unlikely image popped into my mind on southwestern Ontario's Pelee Island last spring, as the wind howled across Lake Erie and I caught a glimpse of a small yellowish brown warbler at the edge of a sheltered clearing. The tail wagging and conspicuous rufous cap gave it away – unmistakably a palm warbler, which overwinters in the southern United States and the Caribbean, and was on its way north to the Canadian boreal forest. The names of other boreal birds may also strike you as odd: Connecticut warbler, Philadelphia vireo, Cape May warbler, Nashville warbler, Tennessee warbler and magnolia warbler, the last one named in Mississippi after a southern tree. All were described during fall or spring migration by ornithologists who had little idea where these intrepid travellers lived during the rest of the year.

Migratory songbirds are citizens of two worlds – a Canada warbler feels as much at home singing boldly from a dense thicket of spruce trees as it does a few months later looking for insects in a rainforest in Colombia alongside resident tropical gnatcatchers, forest elaenias and white-winged tanagers, as well as other migrants such as the Blackburnian warbler. Migratory songbirds depend on lush forests in both their wintering and summering grounds, to fatten up for their arduous, biannual journeys. They also require “bird hotels” along the way – forest stands where they can stop to rest and refuel. But destruction of songbird habitat – in the north, south and along migratory routes – has made their already challenging lives all the more difficult.

Results from the Breeding Bird Survey (BBS), migration monitoring at bird observatories and the Ontario Breeding Bird Atlas project show that dozens of species of migratory songbirds are in trouble. We should be very worried that the numbers of birds as diverse as olive-sided flycatchers, Canada warblers and Swainson's

thrushes, just to name a few, have plummeted since we began counting them in the 1960s. The BBS in Canada shows that, from 1966 to 2007, Canada warblers declined by 2.6 percent a year and olive-sided flycatchers by 3.7 percent a year, a cumulative and stunning loss of 50 and 75 percent, respectively, within my own lifetime. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recently listed both species as threatened, and they are on the Audubon Society's Watch List.

These and other migratory songbirds are modern-day canaries in the coal mine, only, in this case, the “coal mine” stretches for some 10,000 kilometres. At one end is the Canadian boreal forest, home to three billion migratory songbirds and a quarter of the world's intact forests. Those trees, an enormous storehouse of carbon, are critical to the survival of our planet in this era of climate change, yet almost one million hectares are cut each year. At the other end, Latin American countries have been clearing about four million hectares of tropical forest each year. The dramatic decline in migratory songbirds warns us that our forests are under siege, and that we urgently need to protect what remains to help songbirds and, ultimately, ourselves.

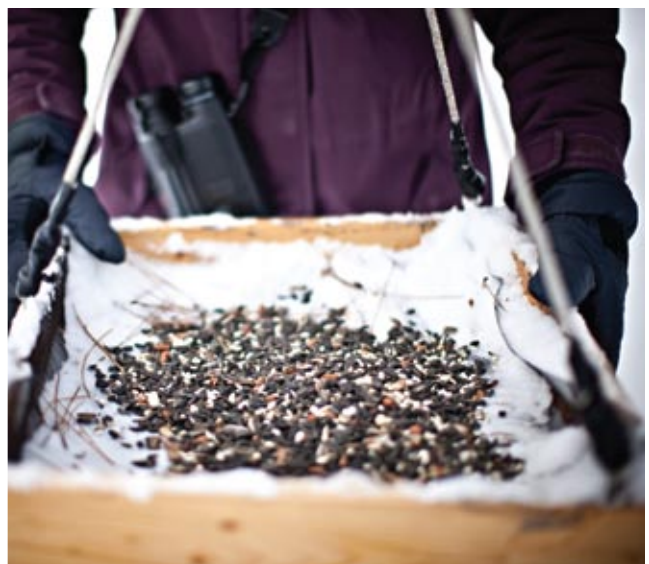
My work as a researcher of migratory birds dictates that I follow the songbirds on their journey, to understand the threats they encounter along the way. I admit I have been spoiled by many years of working in central Panama, where there is still extensive lowland rainforest near the canal and adjacent national parks. Outside of these protected areas, though, little rainforest remains. The same is true for the region near the small town of San Isidro, in southern Costa Rica, where I am now collaborating on a win-win project to restore forested habitat, save songbirds and help coffee farmers.

San Isidro is home to the Alexander Skutch Biological Corridor. Alexander Skutch pioneered the study of tropical





Bridget Stutchbury, professor of biology at Toronto's York University, observes that Canada warblers and olive-sided flycatchers have declined by 50 and 75 percent respectively within her own lifetime



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birds and lived near San Isidro; his former home, Los Cusingos, is now a Neotropical Bird Sanctuary and the site of a migratory bird monitoring program that the Faculty of Environmental Studies at York University and I run. On my first visit to the sanctuary a few years ago, I was surprised to see that Los Cusingos is a small, isolated forest patch surrounded by sugarcane fields and coffee plantations. If you are game for a long, bumpy car ride, twisting past recently cleared forests that are now cattle-filled pastures, you can visit large uncut forests still standing far up the valley in Chirripó National Park and the adjacent Las Nubes Biological Reserve.

For the past three years, local residents, banding experts and York University students have been banding migrants in the Alexander Skutch Biological Corridor. A central figure in this project is coffee grower and naturalist Luis Angel Rojas, who has a small house across the river from Los Cusingos. He became an avid bird lover when binocular-toting students began visiting the forest reserve, and he saw his first field guide to the birds of Costa Rica. Rojas owns one of the few shade-coffee farms in the region and proudly grows his beans under native tropical trees and without pesticides.

We selected netting sites in mature rainforest and coffee plantations so we can find out how migrants use these different habitats and to what extent they hopscotch between isolated patches. About 10 to 15 species common to Ontario's boreal forest in summer use scattered fragments of habitat in the Skutch corridor, where they fly into the nets hidden among the shrubs and trees. Some species of migrants live here all winter, such as Tennessee warblers and chestnut-sided warblers, but most rely on the remnant forests as bird motels during spring migration. In 2007, we caught only two dozen Swainson's thrushes in January and February, as few overwinter in the region, but we banded over two hundred individuals in April when migration was in full swing.

But the razing of forests around the Skutch corridor has been both hard on these birds and typical of what has been happening in Latin America. More primary rainforest has been cleared since 1950 than during the entire two hundred years that came before. In countries at the northwestern corner of South America, where many boreal songbirds overwinter, total forest loss stands at 70 percent or more.

Research shows that songbirds that spend the winter in such dry, scrubby habitat have elevated stress levels and lower body weights and survival rates than songbirds in the interior of a rainforest. Among territorial species, competition for prime real estate is fierce, and the losers are the females and young, inexperienced birds migrating to the tropics for the first time. One study found that American redstarts forced into poor habitat usually lost weight in their winter territory, departed for the north two weeks later than usual in spring, and also arrived in their breeding territories one to two weeks later. As a result,

they suffered lower breeding success, losing one to two young per nest.

A primary cause of the deforestation of Latin America is coffee. Although North Americans drink three hundred million cups a day and import over 1.5 billion kilograms of beans each year, few people have ever seen a real coffee plant. And few of us have ever considered what makes a better brew – for songbirds and our environment.

A shade-coffee plantation is a lifeboat for migratory songbirds, a mini-ecosystem with towering tropical trees that shelter the coffee plants below, fertilize the soil and prevent soil erosion during heavy downpours. Shade-coffee farms provide alternative habitat for plants and animals, including migratory songbirds, which normally live in tropical forests.

But in the past few decades, shade trees in coffee plantations throughout much of Latin America have been cut down to make way for “sun” coffee. Most commercial coffee farms resemble a cornfield rather than a forest, and farmers cannot grow sun coffee without heavy chemical inputs of fertilizers and pesticides. Not surprisingly, only a few migratory songbird species can endure such stark conditions.

In the Alexander Skutch Biological Corridor, the local coffee cooperative and the York University team encourage coffee farmers to grow coffee sustainably, by using fewer chemicals and planting shade trees. Costa Rica's Ministry of Agriculture certifies the beans as sustainable and Timothy's World Coffee markets the “Las Nubes” brand throughout Canada, with some of the profits going to support environmental education in Costa Rican schools, research projects in the corridor and sustainable farming practices. There are now more than 60 certified farms in the corridor, compared with none only a few years ago. Coffee lovers who drink the shade-grown brew can breathe in the rich, satisfying smell and imagine a Swainson's thrush looking for insects among soggy leaves that litter the forest floor, or a drab Tennessee warbler flitting along branches, pausing to sip nectar from the blossoms of an avocado tree.

My work at other times of the year often takes me to a tiny woodlot across the road from my office at York University. Last fall, I spent several mornings here banding birds with my undergraduate and graduate students. This woodlot is a hot spot for migrants making their way through the urban jungle of the Greater Toronto Area in spring and fall. I often think, where else would my urban students have the privilege of seeing and even holding boreal birds such as Connecticut warblers, magnolia warblers and gray-cheeked thrushes? As we banded and released a young Swainson's thrush, I thought of the gauntlet of forest patches the bird would have to pass through on its long journey to Brazil, then back, before breeding for the first time.

These boreal songbirds do not have much wiggle room



Many migratory songbirds, like this Tennessee warbler, overwinter in Latin America where approximately four million hectares of tropical forest are cut down every year, and traditional shade coffee plantations

when it comes to sustaining population numbers, because they encounter so many threats during migration. Many studies have shown that birds that stop over in small forest patches take longer to refuel and are in poorer condition than birds that rest in a large national park, a bird's five-star resort. Maintaining population numbers year to year – with new recruits added via breeding minus losses from adult deaths – is a delicate balance, and migratory birds are already on a downhill slope.

The long-term future of these birds depends on our providing them with the best possible nursery by protecting vast areas of the boreal forest. But less than 15 percent of Canada's boreal forest has been protected and nearly a third has been allocated for logging, mining and other developments. Large-scale logging of older stands forces birds to move elsewhere or attempt to breed in regenerating forest. A recent study comparing the bird community of Pukaskwa National Park in north-central Ontario with surrounding logged landscape found the abundance of ovenbirds, bay-breasted warblers and black-throated green warblers was 50 percent to 90 percent lower outside the park.

Logging may threaten even songbirds that frequent edges and open areas. Olive-sided flycatchers, which nest in forest edges, bogs and burned forests, are often attracted to regenerating logged areas. A study in the western

United States, however, found that the nesting success of birds living in logged forests was 50 percent lower than that in natural habitat.

Fast-paced, unsustainable resource extraction continues to gobble up Canada's bird nursery. Two-thirds of logging in the boreal forest goes to the pulp and paper industry, which makes disposable paper products such as toilet paper, facial tissue and short-lived reading materials. Each year, some 17 billion glossy catalogues, most made from boreal trees, are mailed out to North American households. The United States buys about 80 percent of Canada's timber exports and almost 50 percent of U.S. newsprint comes from the boreal forest. It is being logged at a rate of several hectares a minute to satisfy demand for these paper products. But consumers can reduce their consumption of boreal trees by pressing mail-order companies and magazines to use post-consumer recycled paper and by using online subscriptions. Think green in the grocery store and buy toilet paper and paper towels made from recycled paper.

We can also improve forest harvesting techniques and protection. To lessen its impact on bird and wildlife communities, the forestry industry is developing more sustainable cutting methods, based on approximating forest losses from such natural disturbances as fires and insect devastation. A study in western Canada found that a single forest harvest that left 12 to 34 percent of the trees standing, as well as some patches untouched, came closest to attaining the bird community one would find after fire. But the same study found that one-third of the bird species differed greatly in abundance in the burned

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The Nashville warbler, pictured here, breeds in a shrinking boreal forest, which is logged at a rate of several hectares a minute. Nearly 50 percent of U.S. newsprint comes from boreal trees

site compared with the logged site. Bird communities in logged areas are dominated by generalists that nest on the ground or in the thickly growing shrub layer, whereas post-fire areas attract cavity-nesting birds in standing snags. It takes some 60 years for post-harvest bird communities to become similar to bird communities in post-fire areas. The steep decline of many boreal birds tells us that we cannot afford the luxury of waiting this long for bird communities to regenerate. Conservation of boreal songbirds will need a two-pronged approach – setting aside huge areas of wilderness and, where logging is permitted, using the most sustainable practices available.

Acclaimed naturalist and author Scott Weidensaul thinks there is hope that we can turn this situation around and save the boreal forest and its inhabitants. “Because this region is so huge ... we have a chance to get it right this time – to upend the typical approach to conservation,” says Weidensaul. “Instead of protecting a few patches of natural habitat, we have the opportunity to save immense, functioning ecosystems as the matrix, with islands of carefully managed development in between.” We have no excuse for not getting it right; we know what needs to be done and the sense of urgency has never been higher. Protection of the boreal forest – for the sake of birds, nature and the health of human society – should take priority over short-term economic crises. Last summer, Ontario

premier Dalton McGuinty took an important first step by announcing plans to protect more than 20 million hectares of boreal forest wilderness in northern Ontario. But an even bigger line must be drawn to save one of the last, extensive wilderness areas on the planet.

Last spring, during that birding trip on Pelee Island, my eyes feasted on the sight of a male scarlet tanager. He was foraging low, oblivious to his audience. Word travelled fast: “Did you see the tanager?” Those who missed him may have seen the flaming Blackburnian warbler or gaudy Cape May warbler instead. I would have missed a Tennessee warbler myself had another birder not pointed it out. The drab little bird was perched in a shrub right over my head, too close to see with binoculars. But that spring weekend was slow for birds, and we were thankful to see any migrant – when really we should have been seeing dozens at a time.

At the end of the day, I tucked away my binoculars and field guide and went to join the wait for the ferry leaving Pelee Island. I thought about the dozens of people who had come to the island to enjoy the songbirds during their fantastic journey. We who love birds can help them complete their journey by buying shade-grown coffee and recycled paper products, and help ensure that future generations can also enjoy the wonder of seeing songbirds pour north in spring. 🐦

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**Bridget Stutchbury** is a biology professor at York University, in Toronto, and author of *Silence of the Songbirds* (HarperCollins, 2007), which was short-listed for a Governor General's Award.

## Birds of the Boreal

Conservation in action

# Natural inns

Ontario Nature's reserves provide a much-needed rest stop for tired avian travellers

By Mark Carabetta

They offer a restful night's sleep in a forest canopy, an early morning breakfast of juicy caterpillars and a cool, fresh drink from a stream or wetland. Ontario Nature's 21 reserves – more than 2,000 hectares of protected land across southern and eastern Ontario – provide much-needed pit stops and even nesting habitat for millions of migratory birds that travel between tropical winter homes and their summer nesting grounds in Ontario.

Ontario Nature began protecting land in 1961, when it acquired the Dorcas Bay Nature Reserve on the Bruce Peninsula. Since then, Ontario Nature has been steadily building its system of nature reserves through purchases, donations and bequests of ecologically significant lands.

Some nature reserves serve as important stepping stones – pockets of forest cover within urban and agricultural areas and even on islands in the Great Lakes. Stone Road Alvar on Pelee Island, Willoughby Reserve in Caledon, Cawthra Mulock Reserve in King Township and Lawson Reserve south of Ingersoll are all critical stopovers and offer birders in southern Ontario an opportunity to view boreal birds during migration. Many warblers – including the palm, Tennessee, bay-breasted, Canada and blackpoll – will spend a night recharging in these forest canopies before continuing northward to Ontario's vast boreal forest. The best time to see such birds is in early spring, just as deciduous trees are beginning to leaf.

Still other migratory birds make nature reserves their destination. The black-throated blue warbler, ovenbird, blue-headed vireo and scarlet tanager all nest in Ontario Nature's reserves. Ontario Nature's larger reserves – Altberg Wildlife Sanctuary in the City of Kawartha Lakes (471 hectares), Kinghurst Forest in Grey County (280 hectares), Lyal Island in Lake Huron (305 hectares) and Quarry Bay on Manitoulin Island (391 hectares) – offer these birds large tracts of unfragmented, interior forest habitat.

The black-throated blue warbler's recent recovery in southern Ontario underscores the importance of protecting and restoring such intact forested areas. By the late 1900s, after widespread clearing of, mature tracts of deciduous forests for agriculture and urban development, the black-throated blue warbler was almost completely

## Staff picks: the best of the best in birding books

In an office full of keen birders, there is no shortage of opinion among staff when it comes to the best birding books around.

"Best in Show" goes to *The Atlas of the Breeding Birds of Ontario (2001–2005)*. The most comprehensive resource on breeding birds in Ontario, the atlas paints an interesting – and often disturbing – picture of the province's ever-changing avian landscape. Ontario Nature's executive director, Caroline Schultz, who puts the atlas at the top of her list, also swears by *The Sibley Guide to Birds*, by David Allen Sibley. "This is a bit large for field use," says Schultz, "but it also comes as separate eastern and western North America field guides, which are compact and pocket friendly – what we call 'baby Sibleys' at home." For the less experienced birder, Schultz recommends Sibley's *Birding Basics*. "It's a great book to study before getting out in the field."

Conservation science manager Mark Carabetta says that his must-have birding resource is *Birds of the World: A Checklist* by James F. Clements. "Essentially it's a massive checklist of the 9,800 or so bird species that occur around the world, broken down into subspecies and their respective ranges. If you like to keep track of how many birds you've seen, when and where, this is a great resource. I'm at 435 species."

Anne Bell, our senior director of conservation and education, loved Mark Obmascik's *The Big Year: A Tale of Man, Nature, and Fowl Obsession*. "It is a really funny true story," says Bell, "and it totally captures the obsessive nature of birding." Bell also recommends Dominic Couzens's *Extreme Birds*, which is filled with interesting and often hilarious anecdotes about birds from all over the world. "It separates its subjects into categories like 'strongest stomach,' 'longest tongue' and 'laziest feeder.' It's like the *Guinness Book of World Records* for birds," says Bell.

Do you have a book you'd like everyone to know about? Visit our online forum and let us know what birding resource you can't live without. Go to [ontarionature.org](http://ontarionature.org) and click the "Online Community" link.

**Jim MacInnis**

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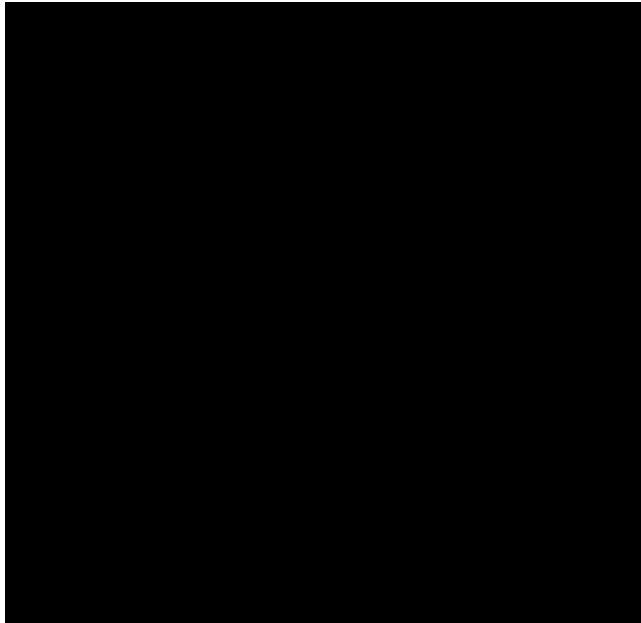
### Conservation in action

absent as a breeding bird south of the Canadian Shield and Bruce Peninsula. Recent data indicate, however, that the warbler is once again nesting in southern Ontario, along the Niagara Escarpment and the Oak Ridges Moraine, and in other areas with intact forest. To that end, Ontario Nature is seeking to add more land to its existing reserves and establish new ones that protect imperilled and vulnerable habitats in Ontario.

All the reserves are open to the public. To learn more about Ontario Nature's reserves, visit [ontarionature.org](http://ontarionature.org).

**Mark Carabetta** is Ontario Nature's Conservation Science Manager.

DDT ravaged bird populations until it was banned in North America in the 1970s. Reintroduction efforts have since led to the recovery of species like the peregrine falcon (pictured)



## Making a comeback

At a time when many of us feel bombarded with bad news about the loss and decline of species and ecosystems, it is heartening to learn that, with effort, political will and time, species can recover.

The resurgence of the bald eagle and the peregrine falcon are two such conservation success stories. The populations of both species (as well as others) plummeted as a result of the widespread and heavy use of DDT that ultimately led to abnormalities in the development of eggshells, which were so thin that the weight of the incubating parent would crush them. By the 1960s, not a single breeding pair of the eastern subspecies of peregrine falcon could be found in eastern North America including in Ontario.

Eventually, DDT was banned. Peregrine falcons were bred and chicks released at former or potential nesting sites

## What you can do

We may catch only a glimpse of boreal songbirds as they migrate between their wintering grounds in Latin America and the boreal forest, but we can still affect their ability to survive through our actions and purchases. Here's how all of us can protect boreal songbirds at home:

**Reduce fuel consumption.** The Alberta tar sands are a few of many petroleum-extraction projects that are responsible for large-scale habitat destruction. According to a report by the Natural Resources Defense Council, the Boreal Songbird Initiative and the Pembina Institute, these projects could be responsible for the deaths of 160 million birds over the next few decades. By reducing our fuel consumption, we reduce the demand for oil from tar sands.

**Buy organic.** Many of the fruits and vegetables found in a typical grocery store are grown using harmful pesticides, which are bad for us and bad for birds. Look for organic food options; many are produced locally, so eating organic can also mean reducing fuel consumption.

**Buy shade-grown coffee.** Most mass-produced coffee is grown in sun-drenched fields – often the result of extensive clearcutting – and heavily treated with fertilizers and pesticides. Shade-grown coffee operations provide healthy canopies for birds, often in areas where there is little forest cover.

**Use Forest Stewardship Council (FSC) certified paper products.** While reducing the use of paper products is the most effective way to prevent logging boreal habitat, FSC certification is proof that lumber is logged in a responsible and sustainable manner.

**Sign the "Save Our Boreal Birds" petition.** Over 55,000 people from Canada and around the world have already made it known to the Canadian government that it needs to protect more of the boreal forest for the billions of birds that depend on it. Join us and sign the petition at [www.saveourborealbirds.org/sign.html](http://www.saveourborealbirds.org/sign.html)

across North America. A 2005 survey found an astonishing 78 peregrine falcon nesting sites in Ontario alone.

Bald eagles have also bounced back after dramatic population losses due to DDT use. The number of active nests in Ontario was estimated at more than 1,000 in 1998, with the highest concentration in the boreal forest, especially around Lake of the Woods. Even farther south the birds have rebounded – the number of active territories in the lower Great Lakes rose from three in 1983 to 43 in 2005.

Today, we have the opportunity to recognize ecological problems and apply the same kind of positive solutions that have brought back bald eagles and peregrine falcons. Our natural world is a resource that our children and grandchildren deserve. History shows that we can indeed make things better.

**Jeffrey Wells**

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*State of the forest*

# The fall of the wild

One of the world's last wild places, the sprawling boreal region is a breeding bird nursery that supports more birds than anywhere else on earth. So why is so much of it turned into catalogues and junk mail?.

By Jeffrey Wells

We took off from the wilderness lodge at Miminiska Lake in northern Ontario's Albany River watershed with all our gear stowed in a big Twin Otter float plane. I was here to document, in sound recordings, a still pristine part of Canada's boreal forest before it is lost. That forest, which stretches from coast to coast across northern Canada, is one of only three or four forested ecosystems left on earth where vast tracts of habitat remain untouched. Its half a billion hectares represents fully a quarter of the world's uncut forests and is home to massive numbers of birds.

Our goal was to paddle along a 32-kilometre stretch of the Albany River, which flows along the edge of the boreal wilderness, recording when breeding bird activity, including birdsong, is at its peak. The recordings would be archived forever at the Cornell Lab of Ornithology's world famous Macaulay Library of Natural Sounds. North of here, there are no roads and few humans. But to the south of us, the industrial frontier lies only 50 to 60 kilometres away. It is very possible that roads and logging will transform life along the Albany within a scant 10 to 20 years.

Our float plane deposited us on Petawanga Lake. As the plane disappeared over the treetops, that calming quiet you can find only in places like the boreal forest enveloped us. The harsh squawks of Bonaparte's gulls hung in the still air. Then, from the spruce-lined shores came the rising flutey songs of Swainson's thrushes and the clear whistled "Oh-Sweet-Canada-Canada-Canada" songs of white-throated sparrows.

The next morning, we were woken by a song sparrow, so close that he may have been sitting on the top of our tent. While beating our way through the thick tangle of blow downs in the forest behind our camp, we were surrounded by birdsong: northern waterthrushes, winter wrens, ruby-crowned kinglets, red-eyed vireos, Swainson's thrushes, white-throated sparrows, northern flickers, pileated woodpeckers and warblers – bay-breasted, Tennessee, magnolia, yellow and yellow-rumped. A flock

of white-winged crossbills flew overhead, their "dit-dit-dit" calls tapping like an old-fashioned telegraph machine.

The boreal region supports more birds than anywhere else on earth – an estimated one to three billion breeding individuals. Nearly 50 percent or more of the global populations of about 100 bird species rely on these northern forests. This incredible reservoir of abundance is why people in southern Canada and the United States can experience the thrill of seeing trees filled with warblers, wetlands brimming with ducks and backyards stirring with sparrows and finches during the annual migration of

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Tranquil Triangle Lake in the southern boreal forest is the perfect setting for recording bird calls

