

**EXCLUSIVE  
GREAT TRAIL  
MAP**

**SPECIAL COLLECTOR'S EDITION**

# CANADIAN Geographic

## The GREAT TRAIL



Nunavut's iconic  
**ITIJJAGIAQ  
TRAIL**

The  
**LAKE SUPERIOR**  
Water Trail

The **EDMONTON  
RIVER VALLEY**

B.C.'s historic  
**COWICHAN  
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Malahat First Nation singers with TCT Foundation Co-Chair Valerie Pringle, TimberWest CEO Jeff Zweig, and TCT President & CEO Deborah Apps at the opening ceremony of the Sooke Hills Wilderness Regional Trail. Photo: Tricia Thomas

**We are honoured to contribute to the historic connection of The Great Trail — created by Trans Canada Trail and its partners — on Vancouver Island.**

TimberWest's financial support helped to link the remaining 21 km section of the Sooke Wilderness Trail.

This Trail connection now provides outdoor enthusiasts from across Vancouver Island and all over the world, with a safe, uninterrupted 100-km world-class trail that winds its way from the heart of Vancouver Island in the Cowichan Valley to the City of Victoria, BC's capital.

## COWICHAN CONNECTION

Built on the legacy of former rail lines and logging routes, the Cowichan Valley Trail now links its users to Vancouver Island's history, cultures and communities

By *Suzanne Morphet*

with photography by *Robin O'Neill*



## 34 FOLLOWING FUNDY

New Brunswick's Fundy Footpath traverses some of Atlantic Canada's last coastal wilderness, but increasing tourism and other development is always close at hand. How does the footpath find its balance?

By *Karen Pinchin*

with photography by *Nick Hawkins*

## 42 'OVER THE LAND'

It's the meaning of *Itijjagialq*, the trail that connects the communities of Iqaluit and Kimmirut across southern Baffin Island, spanning both age-old traditions and recent change

By *Ossie Michelin*

with photography by *David Kilabuk*

## 48 ALONG THE GREAT SEA

A photo essay celebrating the 1,000-kilometre Lake Superior Water Trail, the canoe route that skirts the ancient shores of the world's greatest freshwater expanse

Photography by *Gary and Joanie McGuffin*

with text by *Jake MacDonald*

## 54 RIBBON OF GREEN

It's an apt moniker for the Edmonton River Valley Trail, a route that plays an active role in the lives of many in the city

By *Tim Querengesser*

with photography by *Amber Bracken*

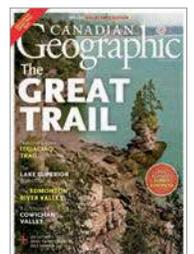
## 71 THE ULTIMATE GREAT TRAIL QUIZ

25 questions to test your knowledge of Canada's country-crossing, coast-connecting trail system

By *Nick Walker*

### ON THE COVER

Part of The Great Trail, the 41-kilometre Fundy Footpath runs through coastal wilderness along New Brunswick's Bay of Fundy.



# departments

CONTENTS



22

- 10 **BIG PICTURE**  
Celebrating Canada's grandeur
- 12 **EXPOSURE**  
Showcasing Can Geo's photo club
- 14 **IN A SNAP**  
Sharing Can Geo via Instagram
- 31 **POLAR BLOG**  
Ice road radar
- 32 **ON THE MAP**  
Exploring cartography



## DISCOVERY

- 19 **INTERVIEW**  
Sarah Jackson, the first woman to walk The Great Trail from Pacific to Atlantic
- 22 **WILDLIFE**  
A hotel wildlife haven, island conservation, return of the pelicans and more
- 24 **HISTORY**  
How George Dawson's surveys of the 49th parallel helped shape the nation
- 26 **PLACE**  
Quebec's Véloroute Marie-Hélène Prémont, a historical cycling route on the St. Lawrence River's north shore
- 28 **INFOGRAPHIC**  
How a Canadian wheelchair innovator is revolutionizing offroad accessibility
- 80 **YOUR SPACE**
  - COMMENT  
Your feedback
  - COVER VOTE  
Choosing our cover
  - WHAT'S THIS?  
Recognize this mystery object?



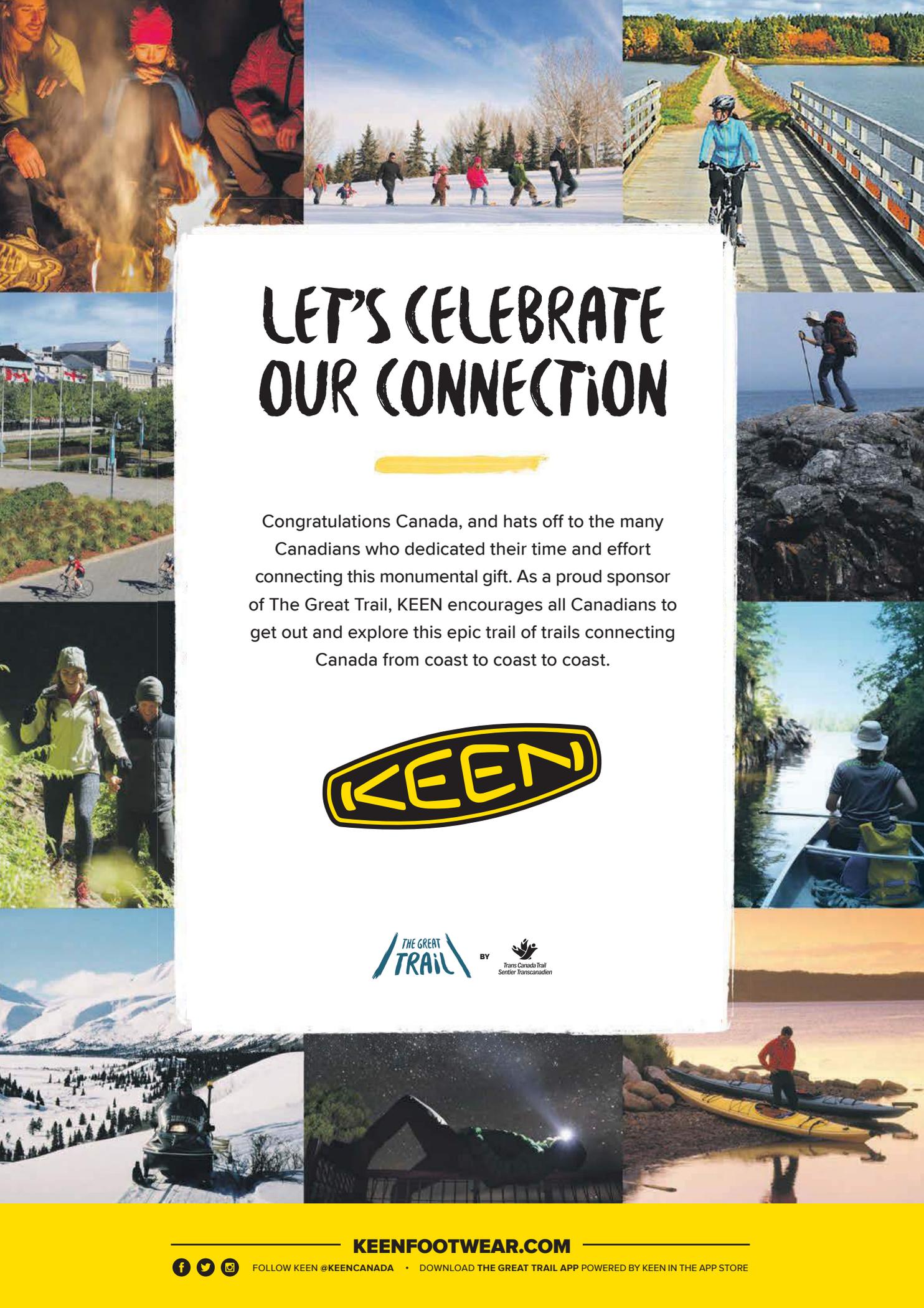
## 82 YOUR SOCIETY

News from The Royal Canadian Geographical Society

85 **NEXT ISSUE**  
March/April 2018, *Canadian Geographic* goes to the Yukon to explore wolf denning sites

86 **OUR COUNTRY**  
Paralympian and activist Rick Hansen on his love for Vancouver's Stanley Park

TOP TO BOTTOM: ISTOCKPHOTO; BEN POWLESS/CAN GEO; ASHLEY VOYKIN



# LET'S CELEBRATE OUR CONNECTION

Congratulations Canada, and hats off to the many Canadians who dedicated their time and effort connecting this monumental gift. As a proud sponsor of The Great Trail, KEEN encourages all Canadians to get out and explore this epic trail of trails connecting Canada from coast to coast to coast.



BY



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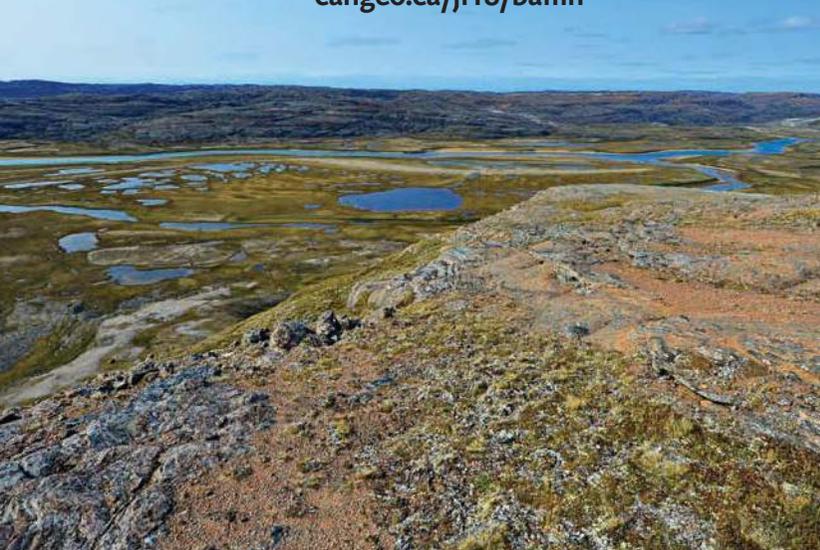
# digital

## CONTENTS

### BAFFIN 360

The southern portion of the Itijjagiq Trail follows the Soper River from Kimmirut deep into the heart of Baffin Island's Meta Incognita Peninsula. Explore this remarkable route via 360-degree videos and meet some of its stewards.

[cangeo.ca/jf18/baffin](http://cangeo.ca/jf18/baffin)



### SAVING A TRAIL TREASURE

The Kinsol Trestle in Vancouver Island's Cowichan Valley is an iconic part of The Great Trail. Meet the master carpenter who helped save the historic structure from demolition and learn why he has now set his sights on the Arctic.

[cangeo.ca/jf18/trestle](http://cangeo.ca/jf18/trestle)



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### 500 DAYS IN THE WILD

On July 1, 2015, filmmaker Dianne Whelan set out from St. John's with a goal to hike, bike and paddle The Great Trail from east to west. This past summer, she conquered the Lake Superior Water Trail. Watch a video highlighting her adventures on the trail so far.

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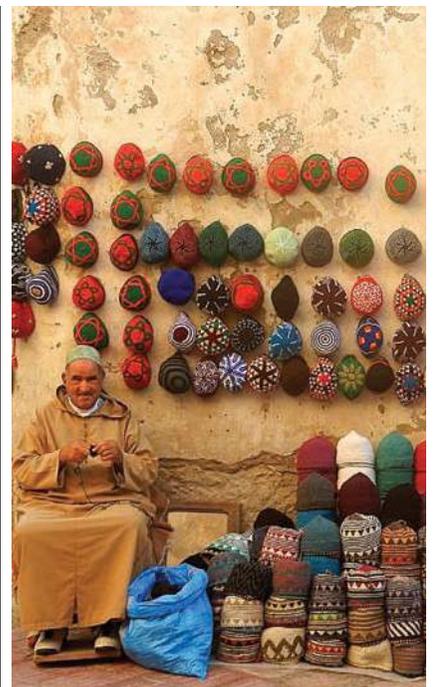
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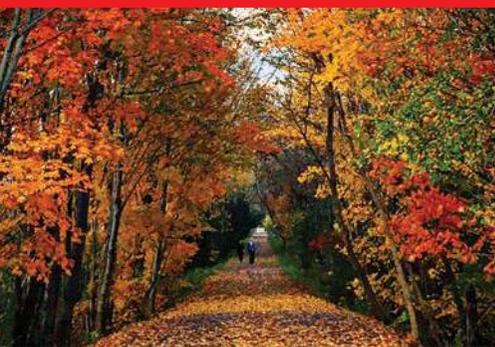


# QUENCH

TRIP DESIGN

PURVEYORS OF JOY + CURIOSITY SINCE 2005





## Great way points

**THE GREAT TRAIL** changed my life.

I moved from Oshawa, Ont., to Stittsville, a suburb on Ottawa's west side, in February 2010 for a job. One of my principal criteria for my new home: be close to work, so as to avoid anything approaching the daily four-hour commute to and from Toronto I was leaving behind. By April, I was riding my bike eight kilometres to my office in the neighbouring suburb of Kanata on a gravel path that's part of the Trans Canada Trail (as The Great Trail was then known).

Not only did The Great Trail indirectly help me reclaim hours of my life every day, it also helped me enjoy a more active lifestyle (and lose 40 pounds!) and get acquainted with my local landscape in a way I otherwise wouldn't have. The portion of the 23-kilometre Ottawa Carleton Trailway I rode had a forested stretch (where I'd watch leaves burst into autumn grandeur seemingly overnight each fall [ABOVE]), a section that transected farmland (where I'd regularly see white-tailed deer and one day nearly collided with a wild turkey) and crossed but one major road.

I know first-hand the power of our national pathway. Hopefully, you've experienced it too. This issue celebrates its importance — and its recent 25th anniversary and full connection last August — with a range of stories that speak to The Great Trail's diversity of landscapes, uses and, most importantly, users. If you're not already among us, you will be soon. 🌳

—Aaron Kylie



To comment, please visit [cangeo.ca](http://cangeo.ca) or email [editor@canadiangeographic.ca](mailto:editor@canadiangeographic.ca).



For inside details on the magazine and other news, follow editor Aaron Kylie on Twitter (@aaronkylie).

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Canadian Geographic is published by Canadian Geographic Enterprises on behalf of The Royal Canadian Geographical Society.

Subscriptions are \$28.50 per year (\$55.00 for two years or \$79.50 for three years), plus applicable taxes. For addresses in the United States, add \$8 per year. For other international addresses, add \$20 per year.

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 Hours: Mon.-Fri., 8 a.m.-8 p.m. (EST); Sat. 10 a.m.-5 p.m. (EST)

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Date of issue: January/February 2018 Copyright ©2018. All rights reserved.

Funded by the Government of Canada

Financé par le gouvernement du Canada



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PUBLICATIONS MAIL AGREEMENT #40065618, REGISTRATION #9654, CANADIAN GEOGRAPHIC, 1155 Lola Street, Suite 200, Ottawa, ON K1K 4C1

Canadian Geographic (ISSN No: 0706-2168, USPS No: 22573) Published six times a year (Jan/Feb, Mar/Apr, May/June, Jul/Aug, Sept/Oct, Nov/Dec) by Canadian Geographic Enterprises. US Office of Publication in the USA by Asendia USA, 701 Ashland Ave, Folcroft PA, and additional mailing offices. Periodicals postage paid at Philadelphia, PA. U.S. POSTMASTER: send address changes to *Canadian Geographic*, 701 Ashland Ave, Folcroft PA 19032.



Founded in 1929, the Society is a non-profit educational organization. Its object is to advance geographical knowledge and, in particular, to stimulate awareness of the significance of geography in Canada's development, well-being and culture. In short, the aim is to make Canada better known to Canadians and to the world.

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We connect more than three million Albertans to the power they need every day. We connect communities to new sources of electricity, including wind, solar and natural gas to bring forward a greener future. We're proud to support the connection of our country from coast to coast to coast through The Great Trail, enabling Canadians to experience the incredible natural landscapes we're proud to call home.

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PHOTO BY TODD MINTZ

Red fox kits observe passersby near their den along the Regina Trans Canada Trail, a 25-kilometre route across the Saskatchewan capital that includes walking, cycling and cross-country ski trails through Wascana Centre and other city parks. At one month old, red fox kits grow their distinctive rust-coloured coats — though they do come in other colour variants — and begin to play outside their dens. In another two months they are able to hunt for themselves, and will set out on their own.



Visit [photoclub.cangeo.ca/photooftheweek](https://photoclub.cangeo.ca/photooftheweek) to see the best of recent images submitted to *Canadian Geographic's* Photo Club.

# big picture

CELEBRATING CANADA'S GRANDEUR



# exposure

SHOWCASING CAN GEO'S PHOTO CLUB

PHOTO BY ZACHARY BERGAMIN

The Milky Way meets the Spray Lakes Reservoir south of Canmore in Spray Valley Provincial Park, Alta. Beneath the slopes of Windtower Mountain (from which this image was taken) runs the High Rockies Trail, a section of The Great Trail that follows the reservoir and heads south to the British Columbia border.



This image won the Trail Vistas category in *Canadian Geographic's* Great Trail Photography Competition. To view all of the winners, visit [greattrail.canadiangeographic.ca](http://greattrail.canadiangeographic.ca).



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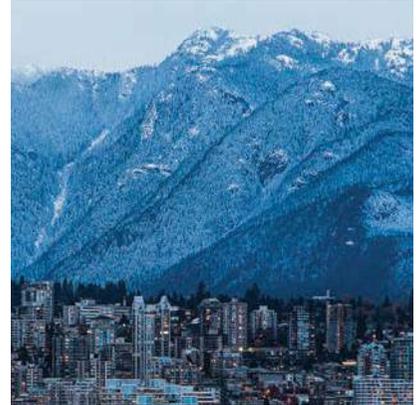
This issue's In a snap features nine photos taken on or near The Great Trail. Tag your photos #ShareCanGeo for a chance to be featured in the magazine or online.



**@ryanwunsch77** Ryan Wunsch  
Grain elevator, Northern Trails of Saskatchewan



**@julie\_audet** Julie Audet  
Red fox, Le Montagnard Trail, Quebec



**@seaside\_signs** Michael Thornquist  
Mount Seymour, North Vancouver Trail



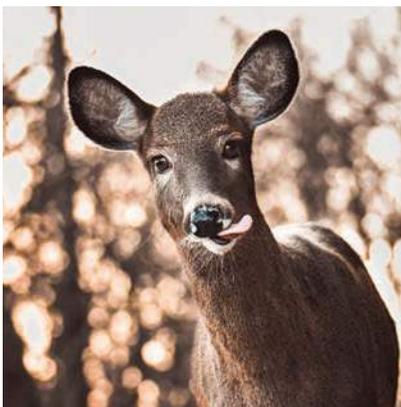
**@patkanephoto** Pat Kane  
Yukon Quest sled dogs, Klondike Highway Trail



**@ashvoykin** Ashley Voykin  
Mountains, Alberta's High Rockies Trail



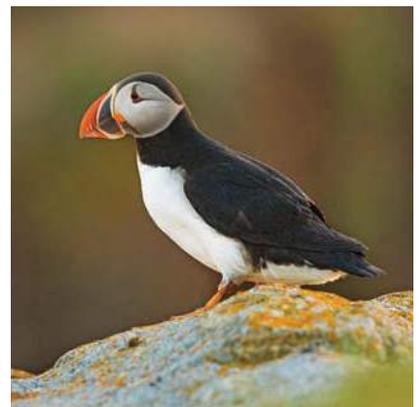
**@punkodelish** Kael Rebick  
Niagara Falls, Niagara River Recreation Pathway



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White-tailed deer, City of Saint John Trail



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Winter on the Edmonton River Valley Trail



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# THE GREAT TRAIL

## The Great Trail of Canada

Imagine if you could step outside your door and embark on one of the most magnificent and diverse journeys in the world.

With The Great Trail, that adventurous dream is now a reality.

Whether travelling east, west, north or south, The Great Trail – created by Trans Canada Trail and its partners – offers the natural beauty, rich history and enduring spirit of our land and its peoples.

Launched in 1992, the year of Canada's 125th anniversary of Confederation, The Great Trail was conceived by a group of visionary and patriotic individuals as a means to connect Canadians from coast to coast to coast.

Given Canada's vastness, varied terrain and sparse population, it was a bold – almost impossible – undertaking.

Today, the Trail stretches over 24,000 kilometres, giving Canadians, now and for generations to come, a way to honour our shared history by retracing many of the routes that charted our nation's development.

Paddlers can explore the rivers and lakes first traversed by Indigenous peoples and voyageurs; hikers, cyclists, cross-country skiers, snowmobilers and horseback riders can explore the paths travelled by the first settlers as well as the former railways that powered early industry.

With hundreds of sections, The Great Trail is a trail of trails, running through urban, rural and wilderness areas, including all provincial and territorial capitals and many of our country's provincial, territorial and national parks.

The Great Trail provides Canadians and visitors alike with free, accessible recreational opportunities promoting healthy living, active transportation and an appreciation for Canada's natural heritage.

Each Trail section also serves to shine the spotlight on that region's unique history, geographical charms and cultural heritage, making it an important asset for local tourism.

One of the most heartwarming aspects of the Trail is its grassroots nature. For decades, volunteer groups and communities from the Atlantic to the Arctic and the Pacific oceans have worked diligently towards realizing

the grand dream of connecting Canadians to their land and to one another.

These dedicated Trail builders overcame the challenges of difficult terrain and scarce resources through hard work and optimism, resulting in the creation of the world's longest trail; one that connects over 15,000 communities.

Bolstering their efforts have been municipal, provincial, territorial and federal governments, thousands of generous and loyal donors, and a host of dedicated patrons and Champions. Over the past 25 years, Trans Canada Trail Board members, including Paul LaBarge, our longest-serving volunteer, have effectively guided the organization while Foundation Board members, under the determined leadership of the founding co-Chairs Valerie Pringle and Hartley Richardson, have been instrumental in ensuring the success of our fundraising efforts. Their support has been critical to the development and connection of the Trail.

As our journey continues, Trans Canada Trail looks forward to welcoming new generations of Trail builders, board members and supporters to ensure The Great Trail remains a strong and emblematic vision of Canada. The Great Trail belongs to everyone, and all Canadians are encouraged to carry on the proud tradition of enjoying the Trail and improving it for many years to come.

On behalf of the people of Canada, Trans Canada Trail extends its heartfelt gratitude to each and every person who has helped to make this bold dream a reality. We are especially grateful for the longstanding and unwavering support of the Government of Canada.

While The Great Trail's cross-Canada connection is a significant marker of collective achievements over the last quarter-century, it represents even more importantly, the beginning of a new journey. As this fresh phase unfolds, the focus will shift to improving the Trail for generations to come.

The Great Trail is a place to stand and reflect, a place for discovery. It's a sacred place, steeped in Indigenous heritage that inspires respect. It's common ground that gives birth to new dreams and destinies.

**Find it. Use it. Treasure it.**





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Photos, clockwise from top: Confederation Trail, PEI, VJ Matthew; Sentier des caps, QC, Laval Poulin; Lake Superior Water Trail, ON, Guoqiang Xue; Alaska Highway, BC, Bruce Obee



## Sarah Jackson

The first woman to walk The Great Trail from the Pacific to the Atlantic shares memories of her epic trek

Sarah Jackson pauses in Bowring Park in St. John's shortly before completing her west-to-east transit of The Great Trail last June.

INTERVIEW BY JOANNE PEARCE

Days spent walking: 475  
Number of kilometres walked: 11,520  
Pairs of hiking boots used: seven

It's easy to reduce Sarah Jackson's successful west-to-east transit of The Great Trail to numbers. But the story of the woman who became the first to complete the coast-to-coast route when she arrived at Cape Spear, N.L., on June 1, 2017, is far richer than a simple column of figures. Here, the Edmonton native discusses the incredible breadth of experiences she had on the trail, why she made the journey, how it changed her and more.

### On what made her walk the trail

My uncle walked the Camino de Santiago trail in Spain when I was young, and that really stuck with me — it was the first time I'd heard about someone going on a journey like that. When I discovered there was something called The Great Trail here in Canada,

I knew I wanted to do it. The opportunity to learn more about the country where I was born and raised by walking across it was really important to me. There was so much I didn't know then — and still so much that I don't know now.

### On her biggest struggle

Physically, the weather was a challenge, especially when it was wet. When those conditions were paired with moments that I was alone on the trail, it was sometimes a struggle. People often ask me about the loneliness, and I guess at the start I did feel lonely. But there's a difference between being alone and being lonely. I eventually got to the point where when I was alone in nature, I didn't feel lonely at all — I felt like I was surrounded.

### On symbolic gestures

I touched the Pacific Ocean when I left Victoria on June 1, 2015, and I touched the

Atlantic when I arrived in St. John's on May 30, 2017. I thought it would feel like a bigger moment than it did, but in St. John's it was a blur because I was so close to the end and walking with family and friends. I felt it more after I'd finished, when I was reflecting on the experience. I don't think the emotions around completing the walk have fully sunk in; they come in waves, where I feel a sudden pang that I should be on the trail again.

### On her favourite trail memory

I went to bed every night in the most beautiful place in the world, whether it was under the stars in Saskatchewan's big open sky or in Quebec, which I really loved because of the culture. I would go back to all of it in a heartbeat. But the most beautiful encounters were with the people. I got to walk with so many different people, people who I'm friends with now, people who taught me a lot.

**On the inspiration of Dana Meise, who has spent nearly a decade walking the entire 24,000-kilometre length of The Great Trail**

I heard about Dana for the first time shortly before I started my own walk. It was incredible that he had the commitment to go back year after year. For two years, the trail was my life, but I just can't imagine doing what Dana has done — that's challenging in a whole different way. Imagine getting your trail legs then going back home. Then doing that again and again. It's incredible.

**On Dianne Whelan, the documentary filmmaker who started her attempt to bike, hike and paddle the entirety of the trail one month after Jackson began her walk**

I was following Dianne's journey because she was out there at the same time, although we began on opposite ends of the country. I think there's something special about having two women start their journey on the trail in the same year. Her experiences have been

and will be so different from mine, and I hope to cross paths with her when she passes through Edmonton.

**On what she feels she has accomplished**

I didn't set out to accomplish anything, because to be honest, I didn't know whether I would walk the whole way. I figured I'd keep walking and stop when it felt right. It wasn't finishing the trail that meant something to me — it was the process of walking it. I've grown so much, and the trail changed me in a way I never anticipated. There's not a lot that feels unattainable now. That's a really big deal for me because it's something I've never felt before.

**On what she'll miss about the trail**

Oh God — everything! Waking up outside, going to bed outside, the routine of walking, the people I met. That feeling when I was having a crappy day in my head but knew that I'd be in a new place farther along the trail by



Jackson cites Dana Meise, pictured here on The Great Trail near Grimshaw, Alta., in 2014, as a source of inspiration for her trek.

the end of the day. Even though the idea of taking one step at a time is a cliché, I think I'll always carry that feeling with me and hopefully apply it to other parts of my life. 🌍

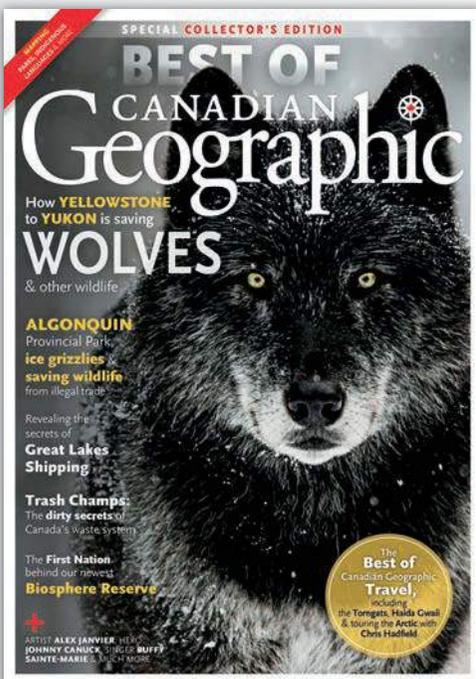


Read an interview with Dana Meise about his experience hiking The Great Trail at [cangeo.ca/jf18/meise](http://cangeo.ca/jf18/meise).

COURTESY DANA MEISE

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### CAPE BRETON GEM STAYS WILD

**MacRaes Island**, a 32-hectare patch of wetlands and hardwood forests that provides important habitat for wildlife such as bald eagles on Bras d'Or Lake, was acquired by the Nova Scotia Nature Trust in October. The trust will conserve the island, which is along The Great Trail's Bras d'Or Lake Water Route and is already part of the UNESCO-designated Bras d'Or Lake Biosphere Reserve.

**6** **THE NUMBER OF TREES** cut down to help create the Graves Wildlife Sanctuary Trail, a 2.13-kilometre segment of The Great Trail that winds through 121 hectares of old-growth forest near Pigeon Lake, Alta., about 45 minutes southwest of Edmonton. "Trail designers went to great lengths to minimize environmental impact and to disrupt local wildlife as little as possible," wrote the province's ministry of Environment and Parks in a blog post shortly before the trail opened in August.



### April 2

The date organizers of Saskatoon's annual Meewasin Pelican Watch Contest will have their eye on in 2018. If the American white pelicans that return to the South Saskatchewan River every spring arrive before then, it will be the earliest the birds have returned to the city since 1996, the year the Meewasin Valley Authority started the contest, which sees participants guess when the first pelican will arrive on the river. The pelicans draw throngs of birdwatchers to the Meewasin Trail, part of The Great Trail, every spring.



### 4,090

The area in hectares of the Sooke Hills Wilderness Park Reserve, a tract of land on southern Vancouver Island that became accessible after the Sooke Hills Wilderness Trail, part of The Great Trail, was completed in June. The reserve had been closed to the public for 15 years to help protect Greater Victoria's water supply and allow the regional government to create a master plan and secure infrastructure funding.

**'People panic, but yeah, you're literally next to a giant wildlife park — we're going to have otters, skunks, raccoons. Every now and then a coyote might run by.'**

**Caitlin Mark**, a chef at Vancouver's Westin Bayshore, on the hotel's location near Stanley Park. A portion of The Great Trail is just steps away from the hotel, which was recently awarded a wildlife-friendly habitat certification by the Canadian Wildlife Federation for including features such as gardens and an apiary on its grounds.

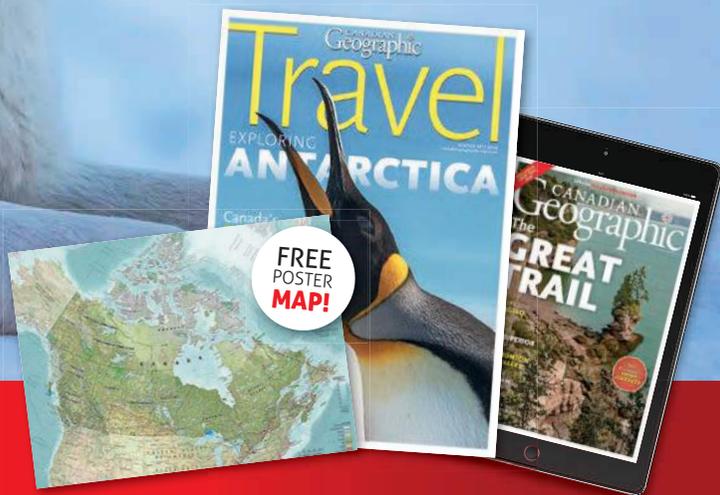


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### Beyond the boundary

How George Dawson's seminal work for the British North American Boundary Commission did far more than simply mark the 49th parallel

By Harry Wilson\*



**HAD TO MAKE** two portages past impossible jams. Next day got past Rouseau L. & out into a great treeless swamp where had to carry wood in canoe to cook. Slept on a mud bank in same where no place to put up tent. Rain & wind before morning. Got thorough ducking. Crept under Canoe.

One can only imagine how Anna Dawson might have reacted after reading in her brother George's letter of August 1873 this description of his recent canoe journey from Lake of the Woods, Ont., to Dufferin (see inset map), a base for the British North American Boundary Commission on the southern reaches of Manitoba's Red River.

Was she horrified that her brother, whose map of the route is shown above, was slogging through the wilds of a young province that was still very much a frontier? Amused that he had to shelter under a canoe? Or perhaps proud that he, at just 24 and with a childhood illness that had stunted his growth (he was 4'6"), curved his

spine and left him with chronic headaches, was helping delineate a nation?

During the two years he spent as a geologist and naturalist with the commission, which was marking the 49th parallel and surveying the lands along it for their resource potential, Dawson collected details on a nearly 1,300-kilometre portion of the boundary that stretched from Ontario's western border to British Columbia's Rocky Mountains. He spent part of that time operating out of Dufferin, which later became Fort Dufferin, a National Historic Site of Canada that's along the Crow Wing Trail section of The Great Trail.

In 1875, Dawson submitted his *Report on the geology and resources of the region in the vicinity of the forty-ninth parallel, from the Lake of the Woods to the Rocky Mountains* to the commission's chief, Donald Cameron, with whom he'd worked at Dufferin and who painted the

watercolour above, believed to depict the region. The report, today considered a classic work of Canadian geology, established Dawson as a scholar of note (he would go on to conduct extensive fieldwork in the West before being named director of the Geological Survey of Canada in 1895) and was used for everything from planning and building railways on the Prairies to promoting the region's agricultural potential. In short, as his entry in the *Dictionary of Canadian Biography* notes, "Dawson's work for the boundary commission is recognized as an important stimulus to the settlement of Western Canada." 🌐

\*with files from Erika Reinhardt, archivist, Library and Archives Canada



Read more stories about the maps in Library and Archives Canada's collection at [cangeo.ca/topic/map-archive](http://cangeo.ca/topic/map-archive).

MAP: SKETCH MAP SHOWING INDIAN CANOE ROUTE EXPLORED BY MR. G. M. DAWSON GEOLOGIST H.M.N.A.B.C., 1873. G. M. DAWSON, LIBRARY AND ARCHIVES CANADA, ED11161386-V8. PAINTING: OUR LUNCH CAMP (CAMP WITH CHILDREN, TEEPEES AND CARTS), 1873-1874, DONALD RODERICK CAMERON, LIBRARY AND ARCHIVES CANADA, E002013654-V6

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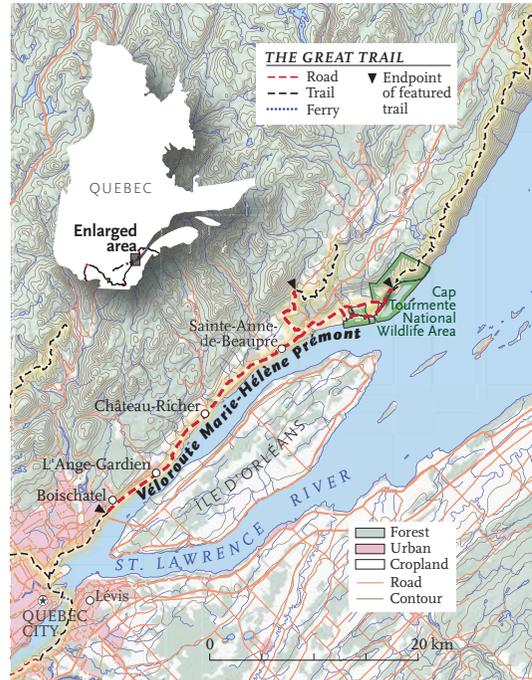
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## Mellow vélo

Cycling a historical route in Quebec's chilled-out countryside

By Sabrina Doyle



A cyclist on the Véloroute Marie-Hélène Prémont, part of The Great Trail, near the Cap Tourmente National Wildlife Area, Que.

**WHEN CANADA** was in its infancy, the Route de la Nouvelle-France was a lifeline that helped nourish the burgeoning colony, with farmers shuttling food from distant settlements along the north shore of the St. Lawrence River into Quebec City. Today, trundling wagons laden with produce are a rare sight on the road now known as Avenue Royale (a.k.a. Route 360), but come spring you'll see plenty of another kind of vehicle making its steady way along this historical thoroughfare: bicycles.

That's no surprise, given that part of Avenue Royale is on a 48-kilometre portion of The Great Trail known as the Véloroute Marie-Hélène Prémont, which in turn is a part of the Route Verte, Quebec's enormously popular 5,000-kilometre cycling network.

Named for the Canadian mountain biker who won a silver medal at the 2004 summer Olympics, the véloroute begins

in the impressive shadow of the 83-metre-high Montmorency Falls on the outskirts of Quebec City and ends at the Cap Tourmente National Wildlife Area, a coastal marsh that's home to more than 180 bird species and 30 mammal species. Along the way, it passes apple orchards, strawberry fields, vineyards, St. Lawrence River vistas and 400-year-old houses in towns such as Boischatel, L'Ange-Gardien, Château Richer and Sainte-Anne-de-Beaupré.

Although cyclists do abound on this section of The Great Trail, which is fairly flat and paved, with a 50-km/h speed limit, many walkers can also be seen making the pilgrimage to the colossal Basilica of Sainte-Anne-de-Beaupré, a renowned shrine dedicated to Saint Anne (believed to be the grandmother of Jesus) that welcomes almost a million visitors from around the world every year.

With sights such as these, this part of the trail may seem tailor-made for tourists, but David Doiron, a Côte-de-Beaupré tourism development advisor, believes it has mobilized locals to get out and explore their communities. "When I was young, there were only a few people riding this road," says Doiron. "Now there are many more, and a lot of them are local."

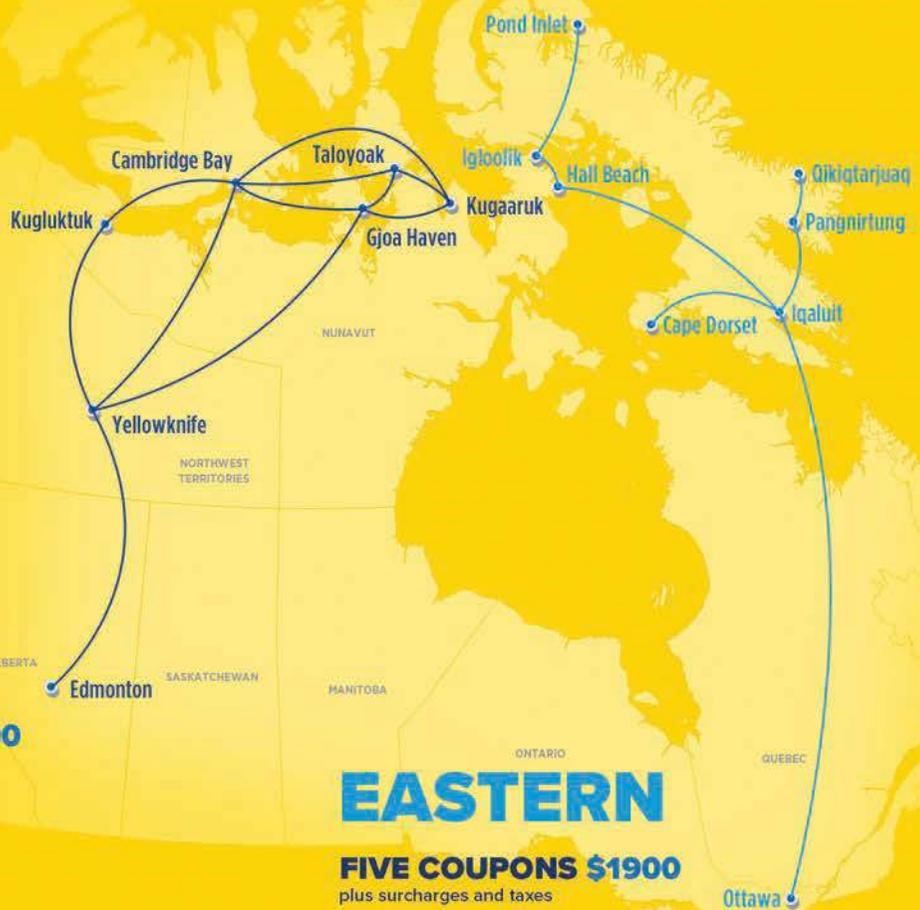
Whether you're a tourist or a local, having the opportunity to forge those community connections is part of what makes the véloroute special, says Richard Sénécal, the executive director of The Great Trail's Conseil Québécois du Sentier Transcanadien. "You constantly have something interesting to see and some way to take part in the life of the people who live here." 📍



See an interactive map of highlights on the véloroute at [cangeo.ca/jf18/veloroute](http://cangeo.ca/jf18/veloroute).

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# DISCOVERY

## INFOGRAPHIC

### True trailblazer

Icon Wheelchairs' three-wheeled 'Explore' can get people back into the backcountry

By Nick Walker

All of a sudden one day in 1996, Christian Bagg could no longer snowboard, mountain bike or hike the backcountry he loved so much.

A snowboarding accident broke the young Albertan's back, but he was soon using skills acquired as an apprentice machinist at the University of Calgary to build a wheelchair that actually fit his 6'5" frame. He started designing better equipment for medical tech companies, and by 2010, had founded Icon Wheelchairs with 13-time Paralympic medalist Jeff Adams.

Frustrated by attempts to navigate narrow backcountry routes in a sit-ski, Bagg started channelling his innovation into returning to the trails — and to do so at the same level as before.

About six years and 16 major design evolutions later (many tested around The Great Trail's West Bragg Creek routes), Bagg arrived at the Explore model illustrated here, an agile electric machine on which he can keep up with and even outpace experienced mountain bikers.

Provincial parks in Kananaskis Country and Pincher Creek are developing Icon-lending programs for their trails, and Bagg has built push-pull models for camps for kids with cancer and with disabilities. "My focus," he says, "is all about getting the people who can't get outside, outside."

Teachers! Bring this science innovation into your classroom by visiting [cangoeducation.ca/resources](http://cangoeducation.ca/resources).



ANDY MORAJ/CAN GEO

**EXPLORE OPTIONS** Icon also makes models with smaller rear wheels and less powerful motors than the Explore pictured here, as well as assisted push-pull versions for people with a variety of mobility challenges and disabilities.

**TRAIL ACCESS** The Explore's active "leaning" system (see "Slope-stick") means it doesn't require a wide base to remain stable. Only about as wide as the handlebars of a mountain bike, it can manoeuvre down narrow trails and over rocks and roots larger than curbs without tipping.

#### ICON EXPLORE SPECS

**Size** 1.8 m long X 0.8 m wide

**Weight** 45 kg (30 kg for push-pull version with no battery or motor)

**Top speed** Governed at 30 km/h (Bagg has tested his at 80 km/h)

**Steepest incline** 45 to 60 degrees, terrain dependent

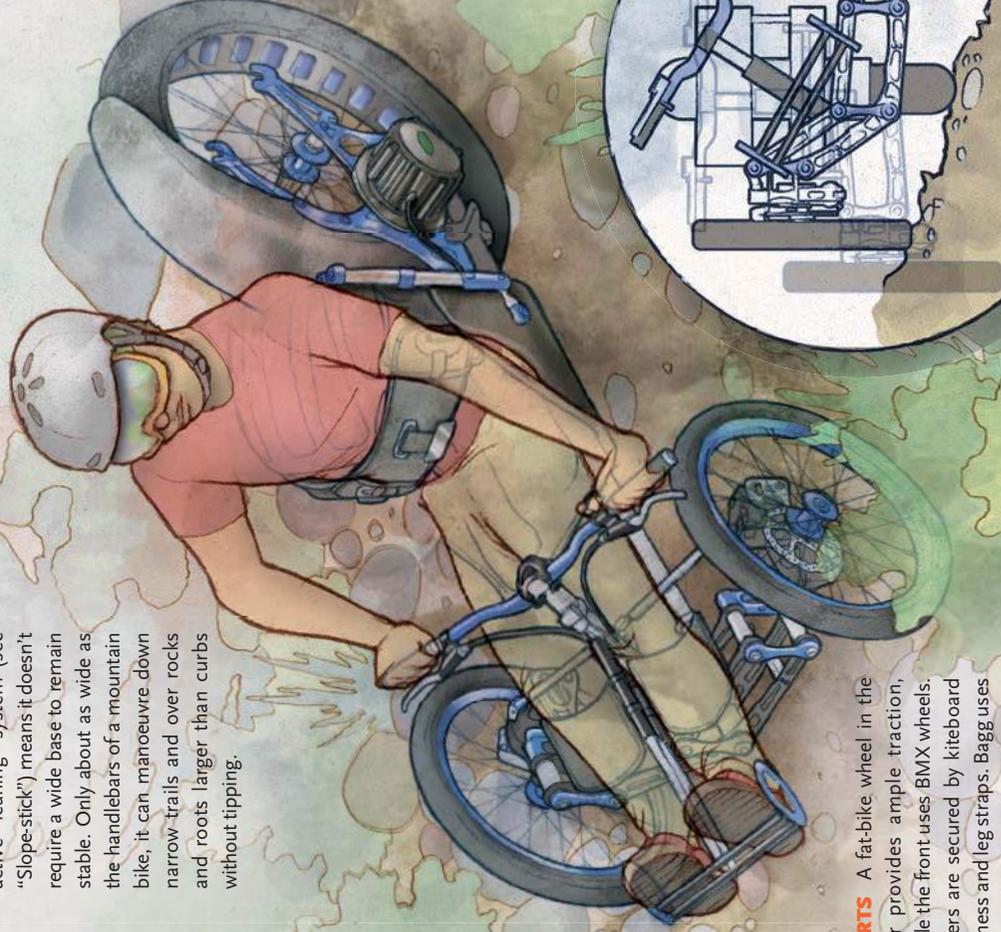
**Ground clearance** 15 cm

**Cost** ~\$14,000 (base electric model)

**POWERHOUSE** A 3,000-watt electric motor (powered by a 52-volt lithium e-bike battery) drives the Explore up inclines steeper than most mountain bikers can handle. One charge is good for a 20-kilometre trail, and riders can pack extra batteries for longer adventures.

**SLOPE-STICK** An articulating front mechanism allows the Explore to rip over rough and uneven trails, keeping the rider perpendicular to gravity on side slopes of up to 35 degrees.

"Even on skinny, off-camber trails, the Explore moulds itself to the terrain," says Bagg. "There really isn't anything else out there that deals with side slope like this."



**PARTS** A fat-bike wheel in the rear provides ample traction, while the front uses BMX wheels. Riders are secured by kiteboard harness and leg straps. Bagg uses top-end but widely available components wherever possible to simplify maintenance.

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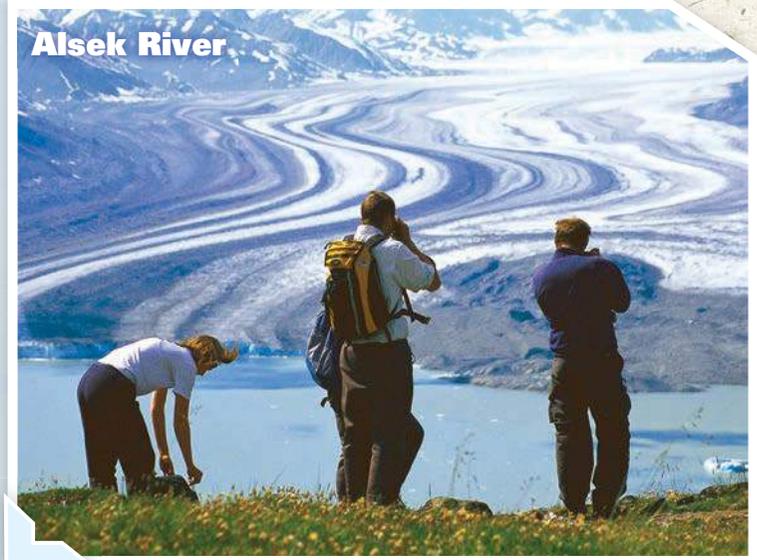
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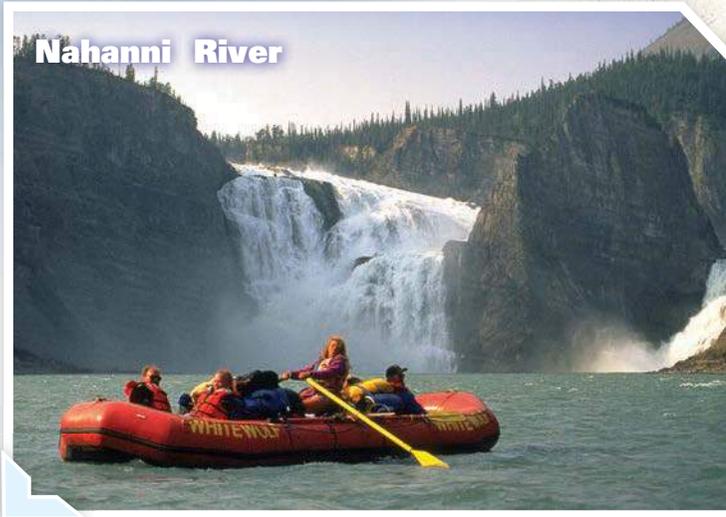
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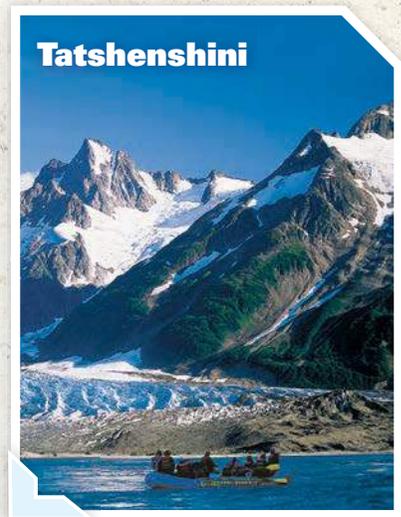
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# Ice-road radar

RESEARCHERS ARE TRACKING ICE DENSITY, CRACKS AND THE IMPACTS OF TRUCK TRAFFIC FROM SPACE

BY JOHN BENNETT

**EVERY YEAR**, scores of workers brave harsh conditions to build the winter roads that many Arctic communities and mines depend on. Climate change is shortening operating seasons — during which transport trucks cross frozen lakes, rivers and muskeg — and when the trucks aren't running, the only alternative is costly air freight. That means higher prices for northerners.

Joost van der Sanden, a scientist at Natural Resources Canada's Centre for Mapping and Earth Observation, is using satellite radar to study the 350-kilometre Tibbitt-to-Contwoyto winter road linking Yellowknife to mines in the Northwest Territories and Nunavut, to see whether the view from above can help road builders and users adapt to climate change.

"Unlike the limited view from the ground," says van der Sanden, "we can get a clear picture of extensive remote areas in any weather, day or night; and radar waves

penetrate clouds, ice and snow."

Radar can pinpoint cracks and indicate ice strength. "Heavy snow early in the season weighs down the ice and can cause it to crack," says van der Sanden. "Water flows up, mixes with the snow and freezes, forming a weaker snow-ice layer that is clearly visible with radar." His team is developing maps to help avoid these areas.

When the researchers first tried to gauge the ice thickness with radar, they found that wave-like patterns in the ice on the images were obstructing their measurements. The cause was the truck traffic on the Contwoyto road: "It was quite amazing," says van der Sanden, "to discover you can map vehicle-induced, centimetre-scale ice waves accurately from 500 kilometres high in space."

As a truck drives over ice, it displaces the ice and water beneath. A slow-moving truck creates a localized bowl-shaped depression, but fast-moving trucks trigger widespread

Truck drivers on the Tibbitt-to-Contwoyto winter road are benefiting from precise satellite-radar readings of ice characteristics.

ice and water waves that can crack the ice and cause a vehicle to break through.

Spacing and speed are strictly controlled. On the Contwoyto road, trucks must remain at least 500 metres apart, with loaded northbound trucks limited to 25 km/h and empty southbound trucks driving 60 km/h. But the radar images show that weight is not as important as speed. "It's the faster empty trucks that introduce the waves," says van der Sanden. "Slow-moving loaded trucks don't cause any."

That could make a difference for ice road users. In a joint study, van der Sanden and National Research Council researchers showed that loaded trucks can travel closer together without increasing the risk of breaking the ice. "If you spaced them at 250 metres, you could transport the same amount of supplies in a shorter period," he says. "That could lessen the problem of the shorter operating season." 🌐



Polar Knowledge  
Canada

Savoir polaire  
Canada



This is the latest in a blog series on polar issues and research ([cangeo.ca/blog/polarblog](http://cangeo.ca/blog/polarblog)) presented by *Canadian Geographic* and Polar Knowledge Canada, a Government of Canada agency with a mandate to advance Canada's knowledge of the Arctic and strengthen Canadian leadership in polar science and technology. Learn more at [canada.ca/en/polar-knowledge](http://canada.ca/en/polar-knowledge).

# on the map

EXPLORING CARTOGRAPHY

## The greatest trail

Charting the highlights of the world's longest recreational trail system

BY NICK WALKER

Start walking now, and you'd finish sometime in 2020. That's if you were to keep trekking at a brisk pace, through every weather and season, pitching your tent alongside converted railbeds, off backcountry footpaths and in wayside greenspaces. Perhaps in some cities and towns you'd pass nights in trailside B&Bs, hostels or hotels. On remote legs you might not meet another human for hours or days. On certain urban stretches you'd share the way with crowds of people, most unaware they were on a trail system that if stretched out would reach almost two-thirds of the way around the globe.

What started in 1992 as a Canada 125 legacy project — a grand plan to span the country from east to west by hicable and cyclable greenspaces — has evolved, as all big ideas do, in the quarter-century since its conception. Today, the Trail runs both east-to-west and south-to-north, a massive and ever-expanding network of multi-use trails and waterways as varied as the regions and communities through which they pass. Hundreds of trail groups, all levels of government and countless volunteers and donors gave it shape.

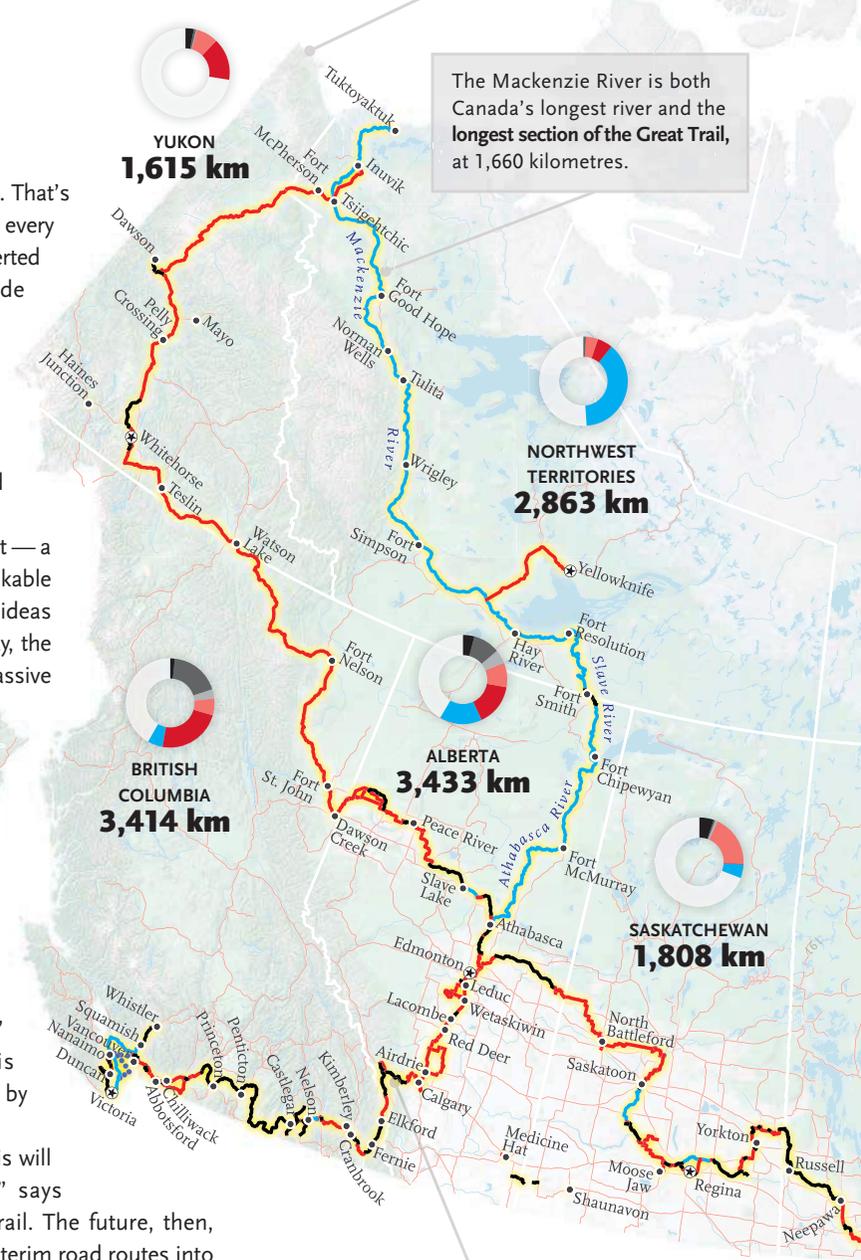
Officially connected in August 2017 for the 150th anniversary of Confederation, the 24,410-kilometre main “spine” of The Great Trail can now be continuously trekked, cycled and paddled from Atlantic to Pacific to Arctic coasts (with another 2,036 kilometres in honorary and “spur” sections such as Ottawa's Sussex Drive). This monumental adventure has already been undertaken by a handful of explorers (see page 19).

But “connected” does not mean “complete.” “This will continue to be a multi-generational endeavour,” says Deborah Apps, president and CEO of the Great Trail. The future, then, includes opening new loops and spurs, converting interim road routes into greenways, and improving accessibility for all. “Canadians are passionate about our country and its landscapes,” says Apps. “We believe we can count on their help to ensure that The Great Trail will thrive for generations to come.”

Explore the map to see how the longest recreational trail system in the world has taken shape. 🌐

While Yukon covers just 4.8 per cent of Canada's total area, the territory is home to almost seven per cent of The Great Trail.

The Mackenzie River is both Canada's longest river and the longest section of the Great Trail, at 1,660 kilometres.



The Kananaskis Country Trail is home to the highest level of elevation on the trail, at 2,185 metres.



Read how the GIS experts at Esri created the interactive version of The Great Trail map (found at [thegreattrail.ca](http://thegreattrail.ca)) at [cangeo.ca/jf18/trailmap](http://cangeo.ca/jf18/trailmap).

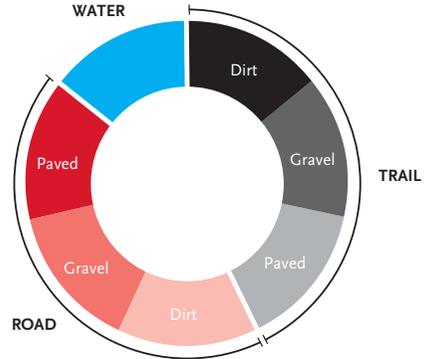
THE GREAT TRAIL  
24,410 km\*



OVER LAND  
74%

OVER WATER  
26%

PROVINCE/TERRITORY  
TRAIL GUIDE



On southern Manitoba's Crow Wing and Altona-Gretna-Rhineland routes, trail users literally walk along the Canada-U.S. border.



NUNAVUT  
177 km

Ontario has the longest share of The Great Trail — more than the Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland sections combined.



NEWFOUNDLAND  
AND LABRADOR  
1,192 km



MANITOBA  
1,709 km



QUEBEC  
1,698 km



P.E.I.  
446 km

Look a bit crowded? That's because 80 per cent of Canadians live within 30 minutes' travel of The Great Trail.



ONTARIO  
5,833 km



NEW  
BRUNSWICK  
907 km



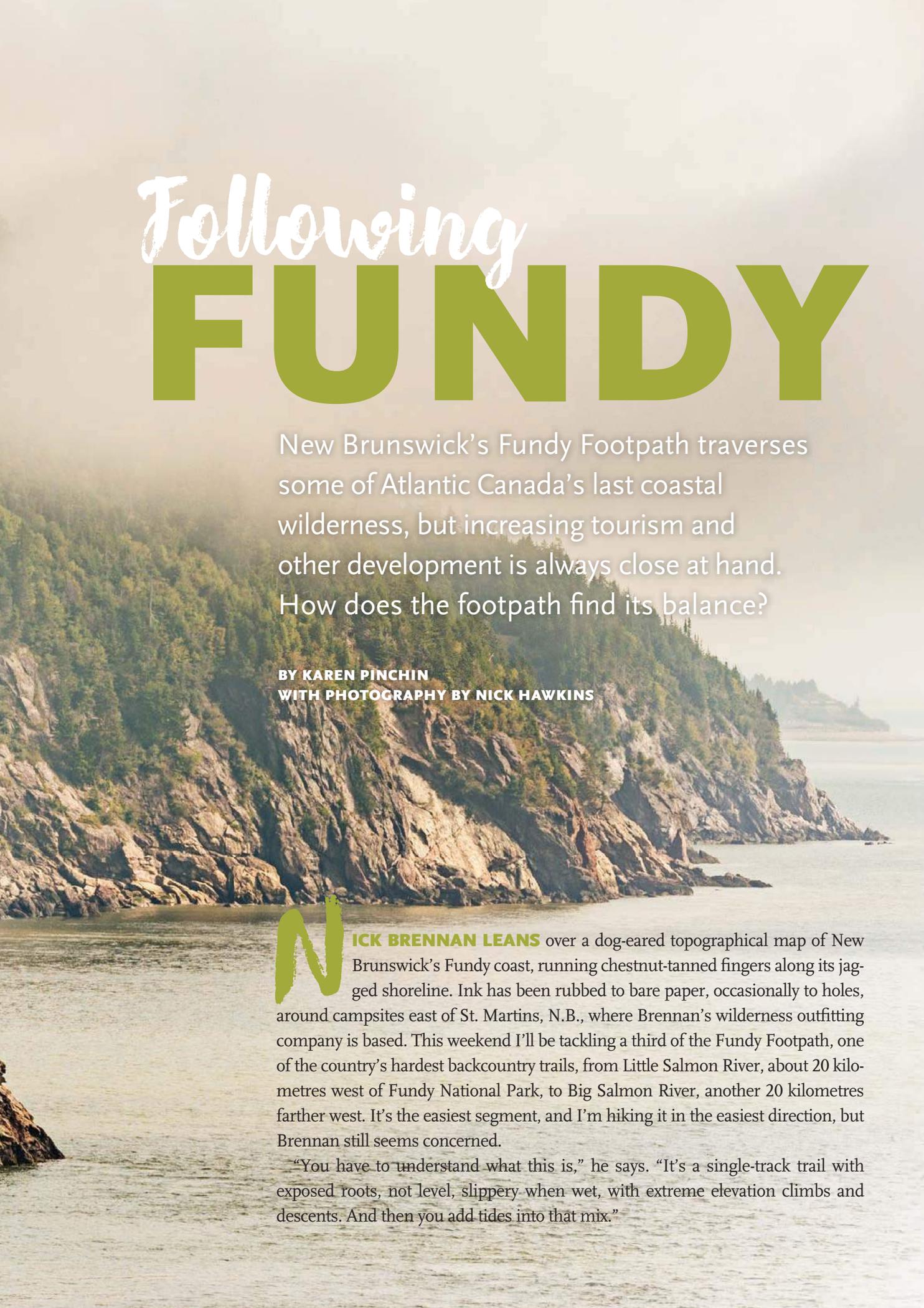
NOVA SCOTIA  
1,269 km



\*Does not include honorary and spur trails, which are reflected on main map



Cliffs along New Brunswick's southern shore shape the Fundy Footpath, part of the province's coastal Great Trail system.



# Following FUNDY

New Brunswick's Fundy Footpath traverses some of Atlantic Canada's last coastal wilderness, but increasing tourism and other development is always close at hand. How does the footpath find its balance?

BY KAREN PINCHIN  
WITH PHOTOGRAPHY BY NICK HAWKINS

**N**ICK BRENNAN LEANS over a dog-eared topographical map of New Brunswick's Fundy coast, running chestnut-tanned fingers along its jagged shoreline. Ink has been rubbed to bare paper, occasionally to holes, around campsites east of St. Martins, N.B., where Brennan's wilderness outfitting company is based. This weekend I'll be tackling a third of the Fundy Footpath, one of the country's hardest backcountry trails, from Little Salmon River, about 20 kilometres west of Fundy National Park, to Big Salmon River, another 20 kilometres farther west. It's the easiest segment, and I'm hiking it in the easiest direction, but Brennan still seems concerned.

"You have to understand what this is," he says. "It's a single-track trail with exposed roots, not level, slippery when wet, with extreme elevation climbs and descents. And then you add tides into that mix."



It's on the New Brunswick side of this enormous tidal basin, along steep, south-facing cliffs, where a 60-kilometre segment of The Great Trail winds and climbs through some of its most challenging terrain. Comprising some of the last pristine coastal wilderness in Atlantic Canada, the stretch is an amalgam of three separate yet intertwined trail systems. To the west is the Fundy Trail Parkway, accessible by car and open to day-trippers and cyclists, a curving snake of pavement slicing through thick forest. To the east is the Fundy National Park trail, which features a well-maintained spider's web of paths and trails and modern park amenities including signage, bathrooms and on-site interpreters. I will be trekking the volunteer-built Fundy Footpath — a narrow, remote, root-and-rock-strewn trail recommended for only the most-prepared hikers — that links the two.

Trail builders, entrepreneurs, environmentalists, First Nations groups and locals often carry competing visions for this area. Whether it's slated for development, protected by government or managed by teams of volunteers, determining who can enjoy and access this landscape has long been, and will remain, a fine balance. And yet, stuffing gear into my backpack, my first concern is whether or not I'm equal to even this short section of the footpath.

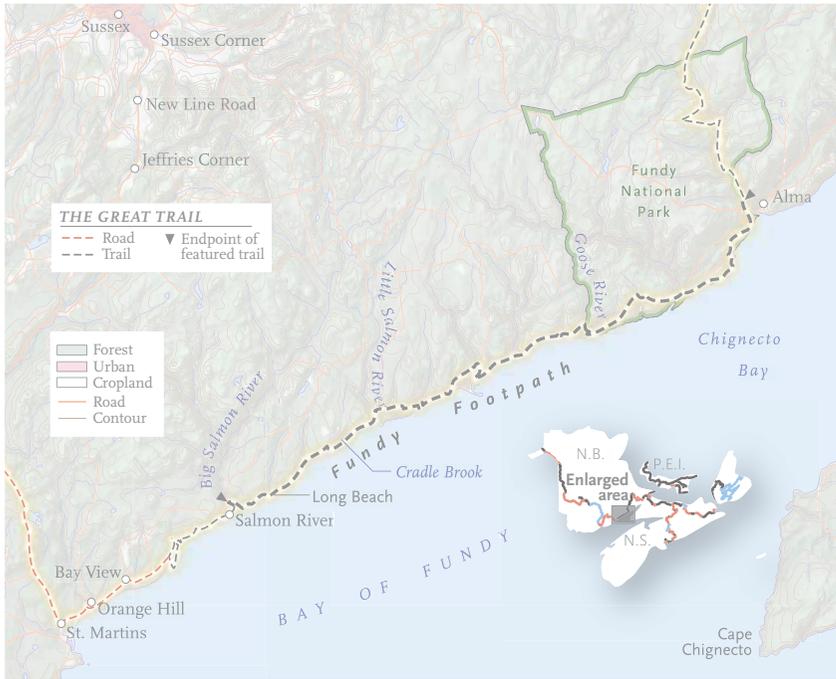
**IT'S THE BEAUTY** and potential of St. Martins, at the western end of the coastal trail, that drew Brennan here, and where he and friend Mike Carpenter, an experienced sea kayaker, started Red Rock Adventure in 2012. They run kayaking and boat tours along the winding coast's tide-carved caves and remote beaches, and offer guiding services and educational and therapeutic overnight trips in

New Brunswick's wildest corners. Over the past few years, they've seen tourism explode, visitors drawn to the area partially by the Fundy Footpath. "People are hungry to go to untouched places. That's the direction the global tourism industry is going in," says Brennan. "And we live in a province where there's more wilderness than people."

Long a territory travelled, harvested and fished by the Maliseet and Mi'kmaq First Nations, this coastline was a centre of the 18th- and 19th-century colonial shipbuilding trade. The pines here grow straight and strong, and make ideal masts for sailing ships; at one point, nearly every river or creek running to the ocean in this area was dammed for logging. This brought prosperity to St. Martins and other towns, but also devastated them when shipbuilding collapsed in the early 1900s.

By 2020, a brand-new paved Fundy Trail Parkway, which some call "the new Cabot Trail," will run parallel to the Fundy coastal trails, linking St. Martins and Alma, at the easternmost point of the national park. Right now, the only straight route between the two is by back-country hike. St. Martins gets about 70,000 tourists annually, says Brennan, compared with Alma's annual draw of around 300,000; a through road will transform this town from a detour to a destination. While tourists are increasingly

ACCESS TO THIS  
*landscape* HAS LONG  
BEEN *a fine balance.*



Clockwise from OPPOSITE: Red Rock Adventures founder Nick Brennan takes in a sunrise on the footpath; low tide in Fundy's Quaco Bay, near St. Martins; Seely Beach, considered one of the best hiking destinations in the UNESCO Fundy Biosphere Reserve; an aerial view of the newly constructed Fundy Trail Parkway.

flocking to the footpath, it's still a remote wilderness trail with all the inherent dangers: "I've pulled all sorts of people out of these woods," he says.

Starting our hike in the mid-afternoon, Brennan's truck roars toward a forest service road providing mid-trail access on this 2½-day hike. Driving past sweeping clear-cuts, peppered with stripped, sad skeletons of jack pines and spruce trees, it's hard to believe we're heading toward dense, intact Acadian forest. He offers an apple from a nearly empty five-kilogram bag stashed beside the driver's chair as his aging Brittany spaniel, who ordinarily rides shotgun, crouches resentfully in the back seat. The truck leaves a plume of dust, eventually stopping at a 2½-kilometre ridgeline access trail leading to two campsites near the mouth of Little Salmon River.

After tightening packs and adjusting hiking poles, we set off. Given the trail's steep, root-strewn terrain and the pace required to finish the trail in four days, a frequent piece of advice is "pack light." That means carrying dehydrated food, light tents and sleeping bags, and as few



frills as possible. Luckily, as long as hikers have water filtration, the path's many streams and brooks provide consistent opportunities to refill bottles and bladders. As soon as we arrive at our campsite and before we lose the sun, we walk upriver to fill a 10-litre water filtration bladder with fresh-running water.

Taking off my sturdy boots and sweaty hiking clothes, I dive into one of the river's deep pools. A stiff breeze blows up the valley, carrying a whiff of ocean brine. Sitting in shallow water, I run a rainbow of rocks through my fingers and watch them drift



to the bottom. The silence is profound, cut only by the pounding of a single helicopter, which careens overhead and quickly vanishes beyond the treeline. An eagle follows a few minutes later.

As it nears dark, three hikers cross the river heading west from Goose River, 23 kilometres along the footpath from the east. They all wear long pants and carry a pole in each hand. The lead hiker waves back while another snaps a photo. They disappear into the forest, a whale-shaped crest of emerald against a robin's-egg-blue sky. The sun sets high against the

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*Karen Pinchin (@karenpinchin) has written for The Walrus and National Geographic. Nick Hawkins (@nhawkinsphoto) specializes in science and conservation photography.*

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## FUNDY TRAIL

valley's ridge, the temperature plummets, and I retreat to my tent.

**THE MORNING** arrives with the small roar of insect wings. Following the Appalachian Trail standard, white blazes track this winding footpath. Inconveniently, the bark of many trees in this area also carry a look-alike white fungus, so hikers are warned to pay close attention.

"Most of the time, if you get lost on the trail, you've been talking or daydreaming, and, poof, you forget where you are," says Alonzo Leger, who, along with his brother Gilles, started building the footpath with a team of volunteers in the early 1990s. Although park ranger Jack McKay blazed a gruelling straight-up-and-down trail along the coast in the 1980s, it had fallen into disuse by the time the Leger brothers started their work.

Building switchbacks and cutting trails along perilous 200-metre-high ravines was difficult and painstaking, says Alonzo Leger, but with support from other volunteer trail builders across the province, including veterans of the Moncton-area Dobson Trail, the eastern section of the Fundy Footpath was completed in 1994. The western section — the part we're hiking — was finished four years later. From securing land permissions from private landowners to the thousands of volunteer hours spent building the trail, he's still amazed they actually did it.

These days, Leger says some of the footpath's veteran hikers are annoyed by the amount and scale of development invested in the western, driveable



parkway side of the trail, money they say would be better spent maintaining and improving the central footpath's aging stair ladders and signage. Another challenge, he says, is that all three sections bear the "Fundy" name, which often confuses tourists looking for day hikes or bike trails. "We get people who want to cycle it, and I have to say, 'No, it's a footpath,'" Leger says. "You'd be carrying your bike most of the time."

Passing through the sheltered inlet of Cradle Brook, we eat a leisurely, sunshine-drenched lunch of rehydrated food on the rocky beach, a pleasant change from the forest's thick, shady canopy. It's gorgeous on a calm day, but easy to see how a storm and high tide could pin unlucky hikers between ocean and dense shrubbery. Ascending the valley wall, the cable ladder is rotting and rickety, and quavers under our feet. We breathe a sigh of relief when back on solid ground, but our eyes widen at the steep trail winding upward.

When emergencies happen on the footpath, one person likely to get a call is

**The 84-metre-long Big Salmon River suspension bridge marks the western access point to the Fundy Footpath.**

Larry Adair, owner of Adair's Wilderness Lodge. He has a thick white beard and often wears a khaki shirt and glasses, giving him a Santa-Claus-on-summer-vacation vibe. He purchased this land, about 15 kilometres north of the Little Salmon River trailhead, in 1990 and built the lodge and restaurant in 1997. Cabins, motel units and a banquet room — featuring a painted mural in which Alonzo Leger appears — followed soon after. While Leger and other volunteers worked on the Fundy Footpath, Adair let them camp on his land for free.

"Before I opened this area, hardly anyone toured it," says Adair. Catering to ATV riders and motorcyclists, as well as hunters in the fall and hikers in the summer, the lodge hosts groups of snowmobilers and cross-country skiers in the winter. Adair, a longtime member of the Fundy Trail Parkway board, says the area will be the province's "number one tourism destination" when the connecting road is eventually finished. "If I can get everything rolling, in five years you'll see at least a 100-room hotel in here, motel, pool and spa," he says.

It's important that all types of visitors, from adrenaline junkies to easygoing day-trippers, are able to find activities and services they're comfortable with, says Adair. There's room in Fundy National Park for everyone, he says, and Brennan agrees. "Making sure everyone gets along,

'PEOPLE ARE  
HUNGRY TO GO TO  
untouched places.'



In this place

warmth is not

measured

in degrees

Celsius.

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## FUNDY TRAIL

that's a constant balancing act," says Brennan. "But it's remarkable that we all have access to this trail, even across private and public land. It's magic."

**NEARING THE END** of a second, grueling day on the footpath, my knees and feet feel the opposite of magic, but the sudden discovery of hundreds of wild trailside blueberries is still thrilling. I awkwardly stoop to pick some, filling my palms before moving on, and minutes later, the brand-new wooden guardrails of a road under construction emerge beside the trail. A wide, snaking asphalt path runs back toward where we've just walked, step after heavy, tired step. It's jarring to see smooth, fresh road after days of uneven single-track path.

When we trudge into Long Beach, a serene arcing bay at low tide, we're greeted by a brand-new facility containing washrooms, freshly plumbed showers and — even — croquet mallet rentals. A half-dozen cars pepper a freshly paved parking lot. A white-haired man in khakis crouches on a log, staring out at the ocean. A family stands around a black SUV, doors open, music playing. "Debbie, pass my water bottle," the female driver shouts. "Debbie!"

After miles of silent forest, it is a cacophony, and so distracting we accidentally hike a kilometre past the area's new campsites, the originals displaced by brand-new picnic shelters. It's too late to continue to Big Salmon, where our car is parked, so our night will be spent here. Dark clouds threaten as we rush to pitch our tents on a sheltered plateau overlooking the beach.



Growing up cutting trails with his father Alonzo, 37-year-old Marc Leger never anticipated working in this wilderness as an adult. But now, managing a trail revitalization project for Fundy National Park, he says a childhood spent in this forest has come in handy. The "worst part" of the Fundy Footpath used to finish in the park, he says, which is one reason they recently hired a world-renowned sustainable trail building consultant to reroute the segment of the coastal trail from Goose River, at the park's western border.

With grey-flecked hair, long limbs and a beard, Leger wears glasses and a green Parks Canada jacket and matching colored shirt. A former employee of The Great Trail — back when it was still the Trans Canada Trail — he currently sits on the board of the Fundy Hiking Trails Association and volunteers on the footpath. When The Great Trail was still in the planning stages, he says, this park was one of the first groups on board; it is still only one of a handful of national parks represented along the path.

**Tourists explore the St. Martins sea caves at low tide, a short trip from the western Fundy Trail Parkway.**

Striking a balance between longtime hikers and mountain bikers and Canadians new to exploring the country's wilderness, including day-trippers more comfortable in cars than in hiking boots, is one of his organization's goals, says Leger. "We have our coastal trails, and we have trails you can drive. We have trails that you can walk, trails you can walk and bike," he says, pointing to a bank of new, under-construction trail. "This goes through the exact same terrain, but will be more accessible. 'Fundy Footpath light' would be a good way to put it."

As the afternoon light dims, the park empties out, with one family arriving a half-hour before the 8 p.m. day-visiting closing time. Two older women in colourful saris take the stairs carefully down to the beach, bright fabric whipping in the wind. When they drive away, we are alone again, now surrounded by empty infrastructure. Sitting at a new-wood-smelling picnic bench at Long Beach, it's possible to see the allure of the footpath — not simply in making stretches of it more accessible, but in bringing more lucky people closer to Fundy's fairy-tale beaches, its confounding cliffs; who wouldn't want to rub up against this beauty and solitude? 🌿

'IT'S REMARKABLE WE  
ALL HAVE access to  
this trail. It's magic.'



See more of Nick Hawkins' images of the Fundy Footpath at [cangeo.ca/jf18/fundy](http://cangeo.ca/jf18/fundy).

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