



**News Digest of the Canadian Association of Geographers  
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**McGill U's Gail Chmura finds P.E.I.'s salt marshes are absorbing carbon, but emitting nitrous oxide:** Salt marshes in the world's coastal areas could be an important resource for pulling carbon out of the atmosphere, but recent research suggests that resource could be limited on P.E.I. The potential for salt marshes for carbon sequestration, known as blue carbon, is even better than for forests, because trees will hold the carbon only as long as they live. "The plants in salt marshes, like P.E.I. salt marshes that are grassy, store lots more carbon in their roots into the soil," said Gail Chmura, a geography professor at McGill University. "It makes it a very important carbon sink, because once it's in the soil it gets stored for a long time. We've shown, on P.E.I. hundreds of years, and in other places it's thousands of years." Four river systems were studied alongside Kouchibouguac in New Brunswick. The idea was to compare salt marshes from watersheds with heavy agricultural use to one with virtually none. "We found nitrogen in the water in the marsh, but we found nitrogen being transformed into nitrous oxide," said Chmura. As a greenhouse gas, nitrous oxide is 298 times more powerful than carbon dioxide, so while the salt marshes are still absorbing carbon, their overall value in mitigating climate change is greatly reduced. "They're releasing a greenhouse gas that's much more potent," said Chmura. In contrast, the salt marsh at Kouchibouguac was actually absorbing nitrous oxide, rather than emitting it. In some cases, the production of nitrous oxide in the marshes may entirely counterbalance the absorption of carbon dioxide. Chmura believes there may be a solution to this problem as world carbon markets mature. If nitrogen loading is decreased through changed farming practices — such as different crop rotations or larger buffer zones — that could increase the value of the salt marshes on carbon markets. [CBC News | Prince Edward Island](#)

**U Victoria's Chris Darimont awarded Raincoast Research Chair in Applied Conservation Science:** UVic conservation scientist and geography associate professor, Chris Darimont, uses applied research to confront problems and opportunities in sustainability in the Great Bear Rainforest on BC's central coast. Darimont was named the Raincoast Research Chair in Applied Conservation Science at the University of Victoria. The five-year chair role supports Darimont and his [Applied Conservation Science Lab](#) to grow their research, teaching and outreach programs in community-driven applied conservation science. The research lab, largely focused on wildlife and fish systems, is dedicated to generating evidence that complements existing forms of Indigenous knowledge. The interdisciplinary work is shaped by the values of Indigenous nations (Heiltsuk, Kitasoo/Xais'xais, Nuxalk, Wuikinuxv, and Gitga'at) from the west coast who work in close partnership with Darimont and the lab. Outreach

activities include youth training and internships, participation at science and culture camps, as well as engagement in environmental assessment processes. Included in the funding is the support for Indigenous students to attend a land-based field school co-taught by Darimont and Jessie Housty of the [Heiltsuk Nation's Qqs Projects Society](#). The course, affectionately known as the "University of Koeye," exposes learners to science, Indigenous Knowledge and resource management. Funding for the Raincoast Chair in Applied Conservation Science at UVic was provided by an anonymous donor and the [Raincoast Conservation Foundation](#). [UVic News](#)

**U Alberta urban and regional planning students pinpoint neighbourhoods that would benefit most from off-leash dog areas:** In an effort to ensure every Edmonton dog has its day, a new University of Alberta study has identified the neighbourhoods most in need of an off-leash area and located 11 possible sites within those communities. "It seems neighbourhoods farther away from the city core have a higher dog population, yet have the fewest off-leash opportunities," said Joseana Lara, who conducted the study with classmate Miguel Monsalve as a requirement for a senior-level advanced geographic information systems course that saw students systematically look into ways to make Edmonton more livable by relying on geospatial data. The pair's project combing Edmonton for prime off-leash areas began with a fun fact: the city has more households with pets than households with children. In 2017, there were 68,344 valid dog licences in the City of Edmonton. Lara says when you add in unregistered dogs, that number could easily double. "If that is the case, why not plan for more places for dogs to play at?" The duo used the city's open data catalogue and, based on addresses of those with valid dog licences, mapped the dog density per neighbourhood. What they found was dog density was greatest on the city's newer outskirts, which also happened to be the least served by the 42 existing Edmonton dog parks. From there, they compared opportunities and constraints based on what Edmonton's Dogs in Open Spaces Strategy considered significant. In the end, the team proposed 11 suitable sites within walking distance of neighbourhoods with the highest dog density. The communities include Glastonbury, Jamieson Place and Glenwood in the city's west end, Matt Berry and Evergreen in the northeast, Beverly Heights and Forest Heights just off the river valley to the east, and then Windermere, Terwillegar, Rutherford and Summerside on the southside. Lara said the city could always benefit from more off-leash areas, adding these 11 sites will give the city the most bang for its buck. "Besides the physical benefits for dogs and dog owners, dog parks create a sense of community; they are a place where everyone is welcome and visitors may share commonalities that can eventually lead to long-lasting friendships." The course was a requirement for [urban and regional planning program](#) in the Faculty of Science. [U Alberta Folio](#)

**U Toronto's Matti Siemiatycki analyzes Ontario party positions on transportation:** The NDP, Progressive Conservatives and Liberals have all pledged to move forward with Toronto's two most high-profile subway projects: the Relief Line, which would take pressure off the overcrowded Line 1 (Yonge-University-Spadina) by linking the eastern arm of Line 2 (Bloor-Danforth) to downtown, costing an estimated \$6.8 billion; and the controversial extension of Line 2 to the Scarborough Town Centre. Matti Siemiatycki, an associate professor at the University of Toronto who studies transportation policy, said the prominent commitments to a Relief Line indicate provincial leaders are finally paying attention to evidence Toronto's subway network is overburdened. "Probably in the last number of years the city has just started to feel way busier, and the transit system is really bursting at the seams," he said. But on the other hand, he suggested the leading parties' agreement on the Scarborough subway is a sign that politics still trumps evidence in transit planning. Although many experts argue Scarborough would be better served by a network of cheaper light rail lines that could extend further into the eastern suburb, only the Green party promises to scrap the subway in favour of a 27-stop light rail network. "Scarborough transit riders are tired of being used as a political football," said a Green spokesperson. "They need good transit options now." [The Star](#)



**McGill U's Oliver T Coomes, Graham K MacDonald and Yann le Polain de Waroux** call for the creation of a global database of land prices: Improved access to data on land prices is vital for future advances in global change science and policy. An open-access, global land price database would enable policymakers, scientists, and civic society to better grapple with the economic, social, and environmental challenges posed by global change. [McGill Channels](#)

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### Recent Theses and Dissertations

Elyse Mathieu. 2018. [The effects of fire on snow accumulation, snowmelt and ground thaw on a peat plateau in Subarctic Canada](#). MSc thesis. Department of Geography & Environmental Studies, Wilfrid Laurier University, Waterloo, Ontario. Supervisor: William Quinton.

Rituparna Nath. 2018. [Using flowband modelling to reconstruct volume change of Athabasca Glacier in the Canadian Rocky Mountains over the Last Millennium](#). MSc thesis. Department of Geography, University of Calgary, Calgary, Alberta. Supervisor: Shawn Marshall.

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### Hot Papers by Canadian Geographers

Oliver T. Coomes, Graham K MacDonald and Yann le Polain de Waroux. 2018. [Geospatial land price data: a public good for global change science and policy](#). BioScience. doi.org/10.1093/biosci/biy047

Robert Deering, Trevor Bell, Donald L. Forbes, Calvin Campbell and Evan Edinger. 2018. [Morphological characterization of submarine slope failures in a semi-enclosed fjord, Frobisher Bay, eastern Canadian Arctic](#). Geological Society, London, Special Publications, 477.

Jen Jones, Ashlee Cunsolo and Sherilee L. Harper. 2018. [Who is research serving? A systematic realist review of circumpolar environment-related Indigenous health literature](#). PLOS|One. doi.org/10.1371/journal.pone.0196090

Levan Tielidze, Ramin Gobejishvili, Bejan Tutberidze, Levan Maruashvili, Nikoloz Astakhov and Roger Wheate. 2019. [Long-term geomorphic history of Georgia](#). In: Geomorphology of Georgia, Geography of the Physical Environment. Edited by: L. Tielidze. Springer Nature. (ed.), Geomorphology of Georgia, Geography of the Physical Environment doi.org/10.1007/978-3-319-77764-1\_1

Zhaozhi Wang, T.Q. Zhang, C.S. Tana, P. Vadasb, Z.M. Qic and C. Wellend. 2018. [Modeling phosphorus losses from soils amended with cattle manures and chemical fertilizers](#). Science of The Total Environment 639:580–587.

Robert G. Way and Antoni G. Lewkowicz. 2018. [Environmental controls on ground temperature and permafrost in Labrador, northeast Canada](#). Permafrost and Periglacial Processes. doi.org/10.1002/ppp.1972

Yuyan Yang, Laura L.E. Cowen and Maycira Costa. 2018. [Is ocean reflectance acquired by citizen scientists robust for science applications?](#) Remote Sensing 10:835. doi.org/10.3390/rs10060835

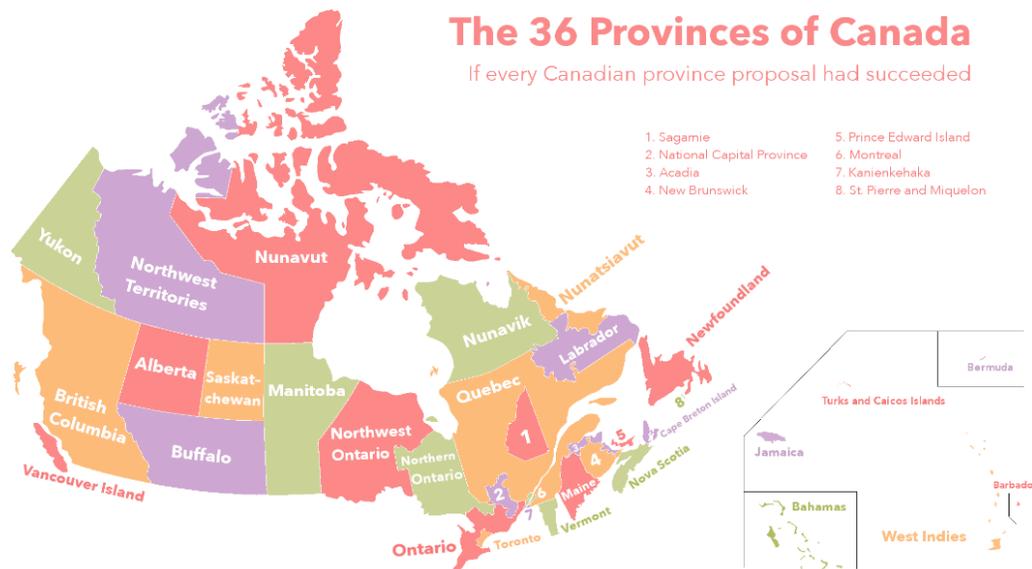
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## Other “Geographical” News

**Deal reached between Manitoba groups, Omnitrix for ownership of Churchill rail line:** The tracks have sat flood-damaged and idle for more than a year, but now a tentative deal has been struck to bring ownership of the Port of Churchill and the rail line to the northern Manitoba community on the shore of Hudson Bay back into Canadian hands. Two groups representing northern communities and First Nations — One North and Missinippi Rail LP — joined forces with Fairfax Financial Holdings and now have an agreement in principle to buy the beleaguered assets from American company Omnitrix, the federal government announced. [CBCNews | Manitoba](#)

**Invasive species in Ontario. The threat, the strategy, and the law:** As international communities and economies become increasingly inter-connected, introductions of non-native species have the potential to increase in frequency. With more and more real-world examples demonstrating the ecological and economic impacts that invasive non-native species can have, governments around the globe are becoming increasingly aware that action is necessary to address these threats. This paper reviews some of the key actions that Ontario has recently undertaken to tackle the invasive species issue, including implementing the Ontario Invasive Species Strategic Plan, and putting into force the Invasive Species Act. [The Forestry Chronicle](#)

## Some Not So “Geographical” News



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