Restoule, J.-P. (2008). The five R's of Indigenous research: Relationship, respect, relevance, responsibility, and reciprocity. *Wise Practices II: Canadian Aboriginal AIDS Network Research and Capacity Building Conference*, Toronto, Ontario.

Sherry, E., & Vuntut Gwitchin First Nation. (1999). *The land still speaks: Gwitchin words about life in Dempster country*. Vuntut Gwitchin First Nation.

Smith, L. T. (2021). *Decolonizing methodologies: Research and Indigenous Peoples* (3rd ed.) Bloomsbury Publishing. Retrieved 19 August 2024, from, https://www.bloomsbury.com/ca/decolonizing-methodologies-9781786998125

Smithers Graeme, C. (2014). Indigenous research and the non-Indigenous researcher: A proposed framework for the autoethnographic methodological approach. *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health*, *11*(3), 513–520.

Snow, K. (2018). What does being a settler ally in research mean? A graduate student's experience learning from and working within Indigenous research paradigms. *International Journal of Qualitative Methods*, *17*(1), 1609406918770485. https://doi.org/10.1177/1609406918770485

Thompson, K.-L., Reece, N., Robinson, N., Fisher, H-J., Ban, N. C., & Picard, C. R. (2019). "We monitor by living here": Community-driven actualization of a social-ecological monitoring program based in the knowledge of Indigenous harvesters. *FACETS*, *4*(1), 293–314. https://doi.org/10.1139/facets-2019-0006

Thompson, K.-L., Lantz, T., & Ban, N. (2020). A review of Indigenous knowledge and participation in environmental monitoring. *Ecology and Society*, *25*(2). https://doi.org/10.5751/ES-11503-250210

Vuntut Gwitchin First Nation, & Smith, S. (2019). *People of the lakes: Stories of our Van Tat Gwich'in Elders - Googwandak Nakhwach'ànjòo Van Tat Gwich'in* (1st ed.) University of Alberta Press.

Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Fernwood Publishing. https://fernwoodpublishing.ca/book/research-is-ceremony-shawn-wilson

Wolfe, B. B., Murray M. Humphries, M. M., Pisaric, M. F. J., Balasubramaniam, A. M., Burn, C. R., Chan, L., Cooley, D., Froese, D. G., Graupe, S., Hall, R. I., Lantz, T., Porter, T. J., Roy-Leveillee, P., Turner, K. W., Wesche, S. D., & Williams, M. (2011). Environmental change and traditional use of the Old Crow Flats in northern Canada: An IPY opportunity to meet the challenges of the new northern research paradigm. *ARCTIC*, *64*(1), 127–135. https://doi.org/doi:10.14430/arctic4092

Wong, C., Ballegooyen, K., Ignace, L., Johnson, G. (M. J.), & Swanson, H. (2020). Towards reconciliation: 10 Calls to Action to natural scientists working in Canada. *FACETS*, *5*(1), 769–783. https://doi.org/10.1139/facets-2020-0005

Xiiem, J. A. Q. Q., Lee-Morgan, J. B. J., & Santolo, J. D. (2019). *Decolonizing research: Indigenous storywork as methodology*. Bloomsbury Publishing. https://www.bloomsbury.com/ca/decolonizing-research-9781350348172

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Reflection

What's Love Got To Do With It: Renewing the Foundations of Conservation Science and Practice

At Saxán, Konnoronhkwa, Love, Miłość, Amare†

Abstract: We seek a renewing of the foundations of conservation science and practice with love as one of the main pillars. We trace how this has been embodied through histories, practices, knowledge systems, writings, and key figures throughout conservation science and practice. We see this work as a call to renew our vows to practise conservation science and practise with a deep love for the species and places we work with and for.

†Author Contribution Statement: Here we interrupt the regular hierarchical nature of journal authorship and present authorship to the concept of love translated into different languages. The word for love is listed as our authors in Tlingit, Kanien'keha, English, Polish, and Latin. The contributors to this paper include, in no particular order, Krystal Isbister (she/her, Yukon settler/western Europe, northern flora), Katarzyna Nowak (she/her, Polish return migrant/former asylee, hoofed mammals), Jared Gonet (he/him, Indigenous, Tlingit/Polish/Dene, ecosystems), Paul McCarney (he/him, settler/western European), and Dan Longboat (he/him, Mohawk Nation of the Rotinonshón:ni (People of the Longhouse) the Six Nations Confederacy). We see all as equal contributors in various ways that create a whole greater than the parts.

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Corresponding author: jared.gonet@gmail.com

"We address the Earth as Ieti'nihstenha, 'her to all of us has given us life.' The love, affection, respect, appreciation, and gratitude we have for our own Mother is the same feelings, emotions, connection, love, respect, honour, and gratitude that we give to our Mother the Earth" (D. Longboat, personal communication, May 26, 2024).

Love is foundational to conservation science and practice. Who among us entered the field in search of endless data and significant p-values? When we as researchers and practitioners pursue a mythical form of valueless, objective, neutral conservation science,[1] we hamstring our ability to exist together in respectful, loving relationships with place.[2] When we recognize and encourage love in conservation science, we create space for multiple world views[3] and mobilize some of the best parts of humanity in our work.[4] Here, we see some broad elements of love as the care for, sharing, and acknowledgement of the agency of places and life other than human. When we scan the diverse histories of conservation science and practice, we find many manifestations and expressions of love. As conservationists we will serve, honour, and uplift biodiversity by recognizing and reconnecting with understandings of love in conservation.

Science did not start out aiming for valueless, normative outcomes, and the effort to compartmentalize emotion and logic in conservation science is not a foregone conclusion. The full history of Western science—and certainly the history of conservation science—is replete with individuals and traditions that expressed deep care and love for the natural world, and this was not always seen as oppositional to good, rigorous, effective science. In fact, throughout the history of scientific practice in fields related to conservation, the normative values of objectivity and emotionless inquiry are a fairly recent invention. Love and other emotions were stripped from our sciences in the Enlightenment[5] by thinkers who saw a mechanistic, reductionist world. However, this is not the only world we live in.

Feminist[6] and Indigenous[7] bodies of thought emphasize the role of love and other emotions in successful conservation science and practice. For instance, Bond and Liboiron[8] "focus on the tension between the pressures on professional scientists to be detached and objective, and the emotional work of studying pollution." Bond notes that as a scientist, "you have to take a step back and almost detach yourself from the situation. But as a human being, when I cut open a dead bird and see bottle caps, tetra-pack lids and balloon clips gushing out of the stomach, it just breaks my heart."[9]

If we practice conservation science that respects Indigenous Knowledge systems[10] and pushes towards versions of anti-colonial science,[11] we must include the emotional element of those systems. In many Indigenous world views, love for non-human peoples and places is commonplace.[12] Anishinaabe Grandmother Teachings also speak of love, which John Borrows beautifully applies to constitutional law; according to Borrows, love should and must be a legal value that underlies our most basic laws (which ultimately informs all our work).[13] In the Canadian North, First Nations people are taught to "feel as much as you think,"[14] echoing the Maori saying of "Science with a heart."[15] Anishinaabeg environmental activist Winona LaDuke describes the sense of love at the root of Indigenous-led conservation, telling us that "our commitment and tenacity spring from our deep connection to the land" and the relations her culture maintains with the animals, fish, trees, and rocks.[16] In a recent report on Indigenous approaches to climate action, Reed et al.[17] argue that an Indigenous approach to climate action starts with recognizing key shared principles of Indigenous knowledge systems, "including hope, love, and respect for diversity."

Western academic approaches to conservation and popular environmental literature have also emphasized the value of love in conservation theories and successes.[18] Aldo Leopold set love as a foundation for his concept of a land ethic, arguing that "when we see land as a community to which we belong, we may begin to use it with love and respect."[19] The concepts of Topophilia and Biophilia both explore people's love of places and forms of life beyond the human.[20] The environmentalist and writer Wendell Berry highlights people who "are motivated by affection, by such love for a place and its life that they want to preserve it and remain in it."[21] The emergence of writing about ecological grief over the past decade shows the importance of love in conservation, as surely we don't mourn what we don't love. The term Solastalgia describes the distress felt by those who have become separated from the place and environment they love.[22]

Across the world, some of our greatest conservationists have pushed the bounds of what is possible with their obvious love for places and other species. Norma Kassi, a Vuntut Gwitchin Elder and Indigenous conservationist in the Yukon, has inspired generations of people in the North to safeguard boreal ecosystems and the Porcupine Caribou Herd, with which the Gwich'in People are inseparable.[23] Primatologist Jane Goodall helped push the bounds of interspecies kinship through divulging the lives of Gombe chimpanzees (thereby achieving what Charles Darwin could not through a theory of evolution alone). Kenyan environmentalist Wangari Maathai, founder of the Green Belt Movement, notably said, "We can love ourselves by loving the earth."[24] "Loving onto trees" epitomized the anti-deforestation movement in India led by Sunderlal Bahuguna.[25] Choosing to work from a place of love expands what is possible.

When we push for normative, valueless sciences, we detract from other ways of knowing and understanding. With the state of the world today it is clear we need to use all world views to make peace with nature.[26] The tools of conservation science have a critical role in this shift, but the job most often entails documenting (and feeling) the continuous loss of places and species.[27] Conservation scientists need to freely embrace love for the places and species we work with, enable mourning, and face the heartbreak without loss of purpose, conviction, and hope. Love is medicine for us and our Mother the Earth. A Kanien'keha word for love, Konnoronhkwa, is the medicine that, "works to restore, to renew, to restrengthen us. It's the thing that allows us to carry on with our responsibility, the sacred responsibility that we've been given to care for all life" (D. Longboat, personal communication, May 26, 2024). Love has been and is a powerful driver and motivator for conservation, engaging people, and driving true stewardship. We must rebuild, recognize, and renew a loving foundation of conservation science and practice. Much as people renew their vows to people they love, we must do so with the natural world we endeavour to steward.

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University of Alberta, Yukon University

Krystal Isbister
University of Alberta, Yukon University

Katarzyna Nowak
Mammal Research Institute Polish Academy of Sciences, Poland

Paul McCarney
Yukon University

Dan Longboat
Trent University

Notes

1. Glen Aikenhead and Herman Michell, *Bridging Cultures: Scientific and Indigenous and Ways of Knowing Nature* (Pearson Prentice Hall, 2011).
2. Sophie Caillon et al., "Moving Beyond the Human–Nature Dichotomy through Biocultural Approaches: Including Ecological Well-Being in Resilience Indicators," *Ecology and Society* 22, no. 4 (2017), https://www.jstor.org/stable/26799021.
3. Marisol de la Cadena and Mario Blaser, eds., *A World of Many Worlds* (Duke University Press, 2018), https://doi.org/10.1215/9781478004318; O. B. Campion, et al., "Balpara: A Practical Approach to Working with Ontological Difference in Indigenous Land & Sea Management," *Society & Natural Resources* 37, no. 5 (2023): 695–715, https://doi.org/10.1080/08941920.2023.2199690.
4. Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (Harper & Row, 1989).
5. Max Liboiron, *Pollution is Colonialism* (Duke University Press, 2021).
6. Merchant, *The Death of Nature.*
7. G. Cajete, *Native Science: Natural Laws of Interdependence* (Clear Light Publishers, 1999).
8. Alex Bond and Max Liboiron, "Science with Heart: Dealing with Pollution, Harm, and Suffering as a Scientist," *Discard Studies* (2018), https://discardstudies.com/2018/12/03/science-with-heart/.
9. Bond and Liboiron, "Science with Heart."
10. Deborah McGregor, "Indigenous Knowledge Systems in Environmental Governance in Canada," *KULA: Knowledge Creation, Dissemination, and Preservation Studies* 5, no. 1 (2021), https://doi.org/10.18357/kula.148.
11. Liboiron, *Pollution is Colonialism.*
12. Cristina Mormorunni/Issistsáakiiksi, "Models of Indigenous-Led Conservation—A Love Story," *Cultural Survival* 47, no. 4 (2023), https://www.culturalsurvival.org/publications/cultural-survival-quarterly/models-indigenous-led-conservation-love-story.
13. John Borrows, *Law's Indigenous Ethics* (University of Toronto Press, 2019).
14. The Council for Yukon Indians, *Together Today for Our Children Tomorrow: A Statement of Grievances and an Approach to Settlement by the Yukon Indian People* (The Council for Yukon Indians, 1973).
15. H. Moller, F. Berkes, P. O. Lyver, and M. Kislalioglu, "Combining Science and Traditional Ecological Knowledge: Monitoring Populations for Co-Management," *Ecology and Society* 9, no. 3 (2004): 2, http://www.ecologyandsociety.org/vol9/iss3/art2/.
16. Winona LaDuke, *All Our Relations: Native Struggles for Land and Life* (South End Press, 1999).
17. G. Reed et al., *For Our Future: Indigenous Resilience Report*, 2024, https://changingclimate.ca/indigenous-resilience/.
18. E. O. Wilson, *Biophilia: The Human Bond with Other Species* (Harvard University Press, 1994); D. W. Orr, "Love It or Lose It: The Coming Biophilia Revolution," in *The Biophilia Hypothesis*, ed. S. R. Kellert, E. O. Wilson, and P. Shepard (Island Press, 1993); Barry Lopez, *Arctic Dreams* (Vintage Books, 1986); Wendell Berry, *It All Turns on Affection* (Counterpoint, 2012).
19. Aldo Leopold, *A Sand County Almanac* (Ballantine Books, 1966).
20. Wilson, *Biophilia*; Orr, "Love It or Lose It"; Yi-Fu Tuan, *Topophilia: A Study of Environmental Perception, Attitudes, and Values* (Columbia University Press, 1990); T. Beery, K. Jönsson, and J. Elmberg, "From Environmental Connectedness to Sustainable Futures: Topophilia and Human Affiliation with Nature," *Sustainability* 7, no. 7 (2015): 8837–8854, https://doi.org/10.3390/su7078837.

21. Wendell Berry, "It All Turns on Affection," 2012 Jefferson Lecture, National Endowment for the Humanities.
22. Glen Albrecht et al., "Solastalgia: The Distress Caused by Environmental Change," *Australasian Psychiatry: Bulletin of Royal Australian and New Zealand College of Psychiatrists* 15 Suppl 1 (2007): S95–S98, https://doi.org/10.1080/10398560701701288.
23. Norma Kassi, "An Indigenous Perspective on Protecting the Canadian Boreal Zone," *Environmental Reviews* 27 (2019): 422–423, https://doi.org/10.1139/er-2018-0093.
24. Wangari Maathai, *Replenishing the Earth: Spiritual Values for Healing Ourselves and the World* (Doubleday, 2010).
25. Thomas Crowley, "Climbing Mountains, Hugging Trees: A Cross-Cultural Examination of Love for Nature," *Emotion, Space & Society* 6 (2013): 44–53, https://doi.org/10.1016/j.emospa.2011.10.005.
26. United Nations Environment Programme, *Making Peace with Nature: A Scientific Blueprint to Tackle the Climate, Biodiversity and Pollution Emergencies* (United Nations, 2021), https://doi.org/10.18356/9789280738377.
27. R. J. Hobbs, "Grieving for the Past and Hoping for the Future: Balancing Polarizing Perspectives in Conservation and Restoration," *Restoration Ecology* 21, no. 2 (2013): 145–148: https://doi.org/10.1111/rec.12014.

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Commentary

Baseline Data, Bill 5, and Development in the Ring of Fire, Ontario, Canada: Lessons from Quebec's James Bay Project

Robert J. Moriarity*

Abstract: Ontario's 2025 *Protect Ontario by Unleashing Our Economy Act* (Bill 5) authorizes the creation of special economic zones that suspend environmental assessment requirements for selected projects, including those in the mineral rich Ring of Fire region of the James Bay Lowlands in Northern Ontario. This policy directly conflicts with the ongoing federal regional assessment, co-led with fifteen Treaty 9 First Nations whose purpose is to establish baseline data and cumulative-effects frameworks before development begins. By allowing development to proceed in advance of these baselines, Bill 5 removes the scientific control condition required to distinguish natural variation from mining impacts and undermines Indigenous participation in environmental governance. Historical evidence from the 1975 James Bay and Northern Quebec Agreement demonstrates that accelerated project approvals without adequate baseline science produced decades of ecological and health harm. The Ring of Fire presents a comparable inflection point: safeguarding both scientific integrity and Indigenous self-determination depends on completing multi-year baseline studies before development proceeds.

*School of Occupational and Public Health, Toronto Metropolitan University
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