

CONNECTIVITY CONSERVATION

SUSTAINING NETWORKS FOR ECOLOGY AND COMMUNITY

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Emerging policy opportunities for United States–Canada transboundary connectivity conservation



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ABSTRACT

In response to recent alignment of political leadership in Canada and the United States with respect to global nature conservation imperatives, a nascent and intentional dialogue has emerged on transboundary connectivity conservation between the two countries. In February and April 2021, two meetings were remotely convened, bringing together more than 160 participants from key government agencies,

non-governmental organizations and Indigenous Nations engaged in conservation in both countries. Participants generated 25 concrete ideas for key next steps and 11 broad strategies that, when considered together, comprise 11 priority policy directions.

Vinney Peak overlooking Waterton Lake, Waterton Lakes National Park, Canada.
JIM WITKOWSKI / UNSPLASH

Among these, four core policy imperatives include (1) prioritizing opportunities to coordinate within and among Indigenous communities, (2) creating formalized memorandums of understanding (MOUs) and funding commitments between the US and Canada, (3) mainstreaming connectivity into sectors and society, and (4) initiating systemwide changes in governance and economic structures. Together, these policy directions represent important strategies at this crucial inflection point. Only rarely are nations given historic policy alignment opportunities to redefine and reinvigorate their common conservation goals. Particularly salient is the drive to embrace transboundary connectivity conservation as a nature-based solution to climate change adaptation. We see this dialogue as a beginning in securing the peace that defines two countries and numerous Indigenous Nations that are inextricably linked by ecology and culture.

Keywords Transboundary connectivity; connectivity conservation; connectivity conservation policy; transboundary conservation policy; transboundary collaboration; continental conservation; climate adaptation

1. INTRODUCTION

The need for large-scale connectivity conservation is gaining recognition in international and national policy forums (UNEP-CBD 2010, 2020; ICE 2018; USDOJ 2021). Policy mechanisms are emerging to support ecological connectivity for wide-ranging and migratory species in terrestrial, marine, and freshwater systems (Convention on Migratory Species (CMS) Resolution 12.7 (UNEP-CMS 2017); Hilty et al. 2020; Lemieux et al. 2021a, 2021b). The imperative is clear: thresholds for biospheric integrity are at or near planetary limits, climate change exacerbates the situation, and costs are disproportionately and inequitably borne across societies (Steffen et al. 2015; IUCN 2017; WWF 2020). Transformative solutions are needed for restorative, resistant, and resilient connectivity conservation actions that are equitable and socially just (IPBES 2019; Kennedy et al. 2019). The scale of the effort transcends national and sub-national boundaries and jurisdictional mandates (UN 2021). Responding to these crises requires unprecedented conservation collaborations, resourcing, and political will, including nation-to-nation, within-nation, and with previously excluded or marginalized communities,

including Black, Indigenous, and people of color (Patterson et al. 2017; Moulton and Machado 2019).

At the global level, on 16 April 2021 the 75th session of the UN General Assembly adopted Resolution 75/271, “Nature knows no borders: transboundary cooperation a key factor for biodiversity conservation, restoration and sustainable use” (UN 2021). The resolution was unanimously supported by the 193 member states. It explicitly acknowledges that maintaining connectivity across ecosystems will often require cooperation within and beyond a single state or nation. At its core, it encourages member states to “maintain and enhance connectivity” through “transboundary protected areas” and “ecological corridors,” and to “promote initiatives” to strengthen existing ones. The General Assembly

Encourages Member States to maintain and enhance connectivity of habitats, including but not limited to those of protected species and those relevant for the provision of ecosystem services, including through increasing the establishment of transboundary protected areas, as appropriate, and ecological corridors based on the best available scientific data, in accordance with international law and national legislation, and to promote initiatives to strengthen the already existing ones and improve their effective management and other effective area-based conservation measures, thereby contributing to the maintenance of their functioning (UN 2021: 5).

With recent national/federal elections in Canada (CA) and the United States (US), the two nations are entering a new era for transboundary conservation. Both countries have committed to high protected area targets, aiming for 25% by 2025 and 30% by 2030 (Trudeau 2019; Governor General of Canada 2020; Biden 2021c, Executive Order (EO) 14008, Sec. 216, p. 7627). Both have earmarked substantial financial resources to nature conservation and protected areas. In Canada’s budget for 2021, these comprise CA\$2.3 billion over five years for direct protection of an additional 10% of Canada’s lands and waters, through initiatives such as Indigenous protected and conserved areas (IPCAs), Indigenous guardians programs, provincial and territorial protected areas, and protecting species at risk (Government of Canada 2021). This follows the previously unprecedented commitment of CA\$1.3 billion in the 2018 budget.

Another CA\$1.7 billion is earmarked for marine protected areas, natural infrastructure in urban areas, and nature-based disaster and climate adaptation and mitigation, exceeding CA\$4 billion in total (Government of Canada 2021).

On the US side, the federal government under President Joe Biden has launched a wide-ranging conservation program, signaling a clear departure from the previous administration's policies, which had included the significant reduction of protected areas (e.g., EO 13985, Sec. 1, 8; EO 13990, Sec. 3, 4; EO 14008, Sec. 214, 216, 219) (Biden 2021a, 2021b, 2021c, respectively). A preliminary report released by the Biden administration in May 2021—*Conserving and Restoring America the Beautiful*—identifies a strategy to foster collaboration through meaningful engagement between federal and state agencies, tribal governments, private landowners, and diverse stakeholders (USDOI 2021). It includes a target of at least 30% of US lands and waters conserved by 2030, which, like the international initiative, is colloquially referred to as “30x30.”

Early in 2021, at the February 23rd bilateral meeting with Canada's Prime Minister Justin Trudeau,

President Biden signaled that the US is back at the frontline in the fight to save nature and combat climate change (Schwartz 2021; Biden 2021c). He also observed, “We're all best served when the United States and Canada work together and lead together” (White House 2021e). Both countries were among the G7 nations who pledged to “build back better for all” in the global recovery from COVID-19, making climate change and biodiversity central to economic plans (Schwartz 2021; White House 2021b). As stewards of large proportions of the planet's last intact ecosystems, collaborative leadership by the US and Canada matters at a global scale (*Nature Ecology and Evolution* 2021). The two countries have a long history of shared conservation; the Migratory Birds Convention Act, for example, was adopted in 1917 (Schwartz 2021). With the new government in the US and new policies in Canada, there is unprecedented opportunity to support binational cooperation for renewed and improved US and Canadian trans-boundary conservation.

At the same time, new policy opportunities for conservation have emerged in the wake of the COVID-19 pandemic. The pandemic and societal responses to it show how quickly new situations

Goat Haunt Ranger Station is located on the border of Glacier National Park (US) and Waterton Lakes National Park (Canada), making it a hub of the international peace park. DAVID RESTIVO / US NATIONAL PARK SERVICE / FLICKR



can dominate global circumstances (World Health Organization 2020; Sutherland et al. 2021) and how quickly broad-scale policy change can be implemented on a massive scale through national and international collaborations (*Nature Ecology and Evolution* 2021). COVID-19 may have renewed public and political respect for science in many circles, which should give enhanced credence to the crucial role of science in decision making and messaging (*Nature Ecology and Evolution* 2021). Evidence is mounting for the role of healthy and intact landscapes in preventing zoonotic disease emergence, thereby supporting the need for connectivity conservation as a preventive measure (*Nature Ecology and Evolution* 2021; Plowright et al. 2021). Together these developments demonstrate that transformative changes are not only possible but crucial in the context of biodiversity conservation and transboundary connectivity conservation in particular.

Since the Durban Accord was adopted in 2003 by the International Union for the Conservation of Nature (IUCN) at the 5th World Parks Congress (IUCN 2003), there has also been an imperative to acknowledge and respect Indigenous Rights, governance, and Knowledge systems in advancing approaches to conservation that are more equitable and socially just (Stevens 2014; IUCN 2017; ICE 2018; M'sit No'kmaq et al. 2021). These standards of practice are furthered entrenched in the adoption of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP; UN 2007). They are explicitly represented in Aichi Biodiversity Targets 14 and 18 and relevant to others (e.g., Targets 11, 17), such as in the inception of other effective area-based conservation measures to account for conserved areas on Indigenous Lands (UNEP-CBD 2010, 2018; IUCN-WCPA 2018). These imperatives are further supported with the growing recognition that Indigenous Lands hold much of the world's remaining intact and biodiverse natural systems, borne of millennia of Indigenous governance and biocultural stewardship (Garnett et al. 2018; Schuster et al. 2019). In Canada, Indigenous-led conservation has been further supported through the Pathway to Canada Target 1 and particularly the Indigenous Circle of Experts (ICE 2018). Crucial components include IPCAs and the National Indigenous Guardians Network (Assembly of First Nations 2015, 2018). These are the leading models for Indigenous-

led research and land and resource stewardship in Canada, both within IPCAs and traditional Indigenous Territories as a whole (Artelle et al. 2019; Zurba et al. 2019).

In light of these and other developments, the Connectivity Conservation Specialist Group (CCSG) of IUCN's World Commission on Protected Areas is seeking to rapidly restart an action dialogue that connects Canada and the US to protect their common cultural and environmental heritage across the longest undefended national border in the world. In response, the chair and deputy chair of the CCSG, along with other collaborators, have initiated a series of informal yet intentional dialogues among leaders working on US and Canadian transboundary connectivity conservation. Conservation efforts at this scale were acknowledged as requiring communication and coordination across all boundaries and jurisdictions. In order to work effectively, a series of regional transboundary meetings were envisioned to coordinate data, policy, funding, and connectivity goals and approaches. Three conversations have been convened to date. This paper summarizes the key policy opportunities for US-Canada transboundary connectivity conservation that have emerged from these preliminary discussions. The conversations represent a beginning; future dialogues should build upon them and engage a wider range of geographic, cultural, and institutional vantages.

2. THE DIALOGUES: PROCESS AND INTENT

To gauge interest among key individuals and groups in engaging in intentional dialogue on US-Canada transboundary conservation, the CCSG chair widely distributed an e-mail inquiry on 7 January 2021. Following strong expressions of support from diverse groups on both sides of the border, two initial dialogues were convened through video conferencing on 1 February and 13 April 2021. Participants were invited from key transboundary partnership entities, scientists and land managers from government and non-governmental organizations (NGOs), Indigenous leaders and organizations, academia, working lands and community initiatives, private foundations, and key governmental decisionmakers on policy and funding priorities within Canada and US. Those receiving direct invitations were encouraged to forward the invitation to others.



Two Countries, One Forest is a collaborative organization with representatives from Canada and the United States that work to conserve and restore the forests and natural heritage of the Northern Appalachian–Acadian ecoregion. IRWIN BARRETT / TWO COUNTRIES, ONE FOREST

The Center for Large Landscape Conservation (CLLC) hosted the first dialogue. It was co-chaired by Gary Tabor (CLLC and chair, CCSG), Jodi Hilty (Yellowstone to Yukon Conservation Initiative and deputy chair, CCSG) and Jessica Levine (Nature United, Staying Connected Initiative). One anticipated outcome was to identify key leverage points for US–Canada transboundary conservation that could be proposed in various US conservation legislation and administrative policies. Potentially anticipated mechanisms were land conservation and protection, Indigenous-led initiatives, linear infrastructure issues, and management modalities such as joint ventures, landscape conservation cooperatives, and the International Joint Commission. The dialogue was kick-started with introductory presentations on the role of the WCPA, federal conservation efforts in each nation and across borders, and Indigenous perspectives. Together, 80 participants represented many of the key landscape groups and government agency professionals from the Arctic coastline of Alaska and Yukon, down to the Pacific Northwest and coastal British Columbia, and eastward to the Appalachian reach of the New England states and eastern Canadian provinces.

Because the initiative is intended to be an informal and bottom-up process, CLLC invited other organizations to organize and lead future convenings. The Northwest Boreal Partnership and Northern Latitudes Partnerships, which represent three of the remaining landscape conservation cooperatives in Alaska and northwest Canada, led the second meeting, co-chaired by Leanna Heffner, Aaron Poe, and Sijo Smith. It focused on key strategies that are critical to catalyze and support enhanced transboundary efforts across all regions. The format included an overview of the “Allies for Nature” alliance, panelists’ insights and updates on US 30x30 and Pathway to Canada Target 1 initiatives, and a “big ideas” discussion session. A diverse and larger group of 104 individuals participated. By the time the present paper is published, a third gathering will have been hosted in June 2021 by the Staying Connected Initiative with a focus on regional and/or thematic discussions.

At the conclusion of the initial dialogue on 1 February, participants were offered 10 days to submit a succinct (250-character maximum) response to the question “What is one concrete next step we

should pursue to jumpstart or amplify US–Canada transboundary connectivity conservation?” This “idea jam” generated 25 submissions. When considered together, they clustered around a set of themes (Table 1). They reflect key principles for effective future transboundary collaborations and preliminary mechanisms to be put in place to facilitate forward momentum. These “next step” ideas were distributed and presented at the second dialogue, which focused on identifying strategies that apply broadly to transboundary efforts across US–Canada in a general sense. Strategies that emerged in that discussion exhibited some overlap with those from the first dialogue but also opened up new ideas (Table 2). These broad strategies are distinct from regional strategies, which comprise the focus of the June dialogue. Three of the initial ideas submitted in the first idea jam represent regionally specific project ideas and were set aside for future consideration.

3. EMERGING POLICY OPPORTUNITIES

Together, the themes generated from the idea jam and the big idea sessions represent emerging policy opportunities for US–Canada transboundary connectivity conservation. In reflecting upon the ideas, we found that the topics and insights centered around seven themes focused on core principles and actions, and four focused on broad strategies. The two most prevalent next-step ideas from the idea jam, each representing 25% of submissions, were to “prioritize opportunities to coordinate within and among Indigenous communities” and “create formalized MOUs [memorandums of understanding] and funding commitments between US and Canada” (Table 1). The first reflects a key set of principles for ethical collaboration and the later represents a key set of actions for moving forward. Both are crucial to effective and socially just US–Canada transboundary connectivity conservation. Together with the broad strategies developed in the second convening (Table 2), these collectively comprise policy opportunities.

3.1. Key principles for ethical transboundary conservation collaboration and partnership

Twelve of the 25 next-step ideas identified various principles for intentional and ethical collaboration. When considered together, we found that they comprise three core policy principles for future endeavors.

1. Prioritize opportunities to coordinate within and among Indigenous communities; uphold Indigenous

Rights, governance, and Knowledge systems; build and strengthen Indigenous and non-Indigenous alliances.

Building and strengthening alliances between Indigenous and non-Indigenous people was identified as a key priority. Entering into ethical relationships entails respecting and upholding Indigenous Rights, self-governance, and Knowledge systems along with Western ones. To foster coordinated initiatives, cross-boundary dialogues should be sought in partnership with Indigenous Nations that straddle US–Canada boundaries. Dialogues should be pursued using “ethical space” principles (Ermine 2007; ICE 2018) and take place at the highest levels, respecting nation-to-nation relationships. Outcomes would aim to establish reciprocal relationships, priorities for action, and new co-developed approaches to transboundary connectivity conservation. Ultimately, they should reconnect Indigenous Peoples and the Land across Traditional Territories and uphold Indigenous-led governance and stewardship. Such a policy direction is consistent with existing Indigenous movements, such as “Land Back,” and consistent with state commitments in both Canada and the US, such as Canada’s commitments to UNDRIP and to implementing the calls to action of the Truth and Reconciliation Commission of Canada (TRCC 2015a, 2015b, 2015c).

One model with potential for broader implementation across other border regions is the cross-boundary bison-buffalo recovery initiative between the Blackfoot nation in Montana and others (Buffalo Treaty 2014). It covers a region that extends across several states and provinces in the Great Plains and prairies. Bison, caribou, and other such species are biocultural keystones, important to Indigenous food, lifeways, spirituality, and other reciprocal cultural and stewardship responsibilities and land-based systems and practices. Indigenous-led “international” IPCAs, which straddle the US–Canada border, much like international peace parks, may represent another means of moving forward. IPCAs were mentioned in both dialogues as a potential model developed in Canada (ICE 2018) that could be shared by both countries. Community-led Indigenous guardians programs provide a crucial parallel framework for Indigenous-led research and land and resource stewardship in Canada, and similar efforts are underway in Alaska (e.g., www.beringwatch.net). These examples represent potential ways to decolonize the political-colonial

Table 1. “Idea-jam” for next steps from session 1 (February 1, 2021) on US–Canada transboundary connectivity conservation.

KEY PRINCIPLES FOR ETHICAL COLLABORATION
<p>1. Prioritize opportunities to coordinate within and among Indigenous communities; uphold Indigenous Rights, governance, and Knowledge systems; build and strengthen Indigenous and non-Indigenous alliances</p> <ul style="list-style-type: none"> • Facilitate cross-border meetings/conversations for Indigenous leaders to identify priorities for action we can all support. • Engage tribes, governments, and relevant organizations to implement cross-boundary bison conservation as a model for similar transboundary efforts. • Start building relationships with Indigenous governments, listen to what they want for the land, and then move forward with any conservation initiatives that result. • Explore “International IPCAs” as a potential enormous opportunity to connect Indigenous Nations, and Canada and the United States, across borders. • Formalize the inclusive/multi-national process for IPCAs that will secure permanent protected transboundary areas. • Partner with Indigenous Nations that straddle US–Canada boundaries to initiate cross-boundary dialogues at a high level (i.e., national/federal) to reconnect people and the land across Traditional Territories, including Indigenous-led governance and stewardship.
<p>2. Work across jurisdictions; include local stakeholders and Indigenous Rights holders in a collaborative manner; ensure coordination at community, state, and federal levels to define mutually agreeable goals</p> <ul style="list-style-type: none"> • Work with local units to establish a peer network that spans boundaries—not as opposed to national dialogue but to complement it. This may help avoid the bureaucratic obstacles/impediments to meaningful collaboration. • Use connections to encourage government leadership to embrace a US–Canada initiative to elevate awareness and showcase best practices; Support/engage NGOs (including those involved in fishing and hunting) and recreation businesses in providing external and public pressure for that initiative. • Continue these transboundary discussion forums.
<p>3. Work with private landowners (including those of industrial properties) and rural communities to prioritize important areas</p> <ul style="list-style-type: none"> • Engage economists in the discussion to help figure out how to get political/federal/industrial support (economic incentives/government funding) for protecting/conserving areas within industrial lands and the broader landscape. • Establish revolving funds at the ecoregional scale to purchase land or acquire conservation easements. Focus on areas with high connectivity value and large intact blocks of forest threatened with conversion. Look to carbon mitigation for financing. • Link connectivity conservation to human health and sustainable agriculture that maintains ecosystems, processes, and species movement (ecosystem health); mimic the United States “Farm Bill” approach to link food security/health with ecosystem persistence.
KEY ACTIONS FOR MOVING FORWARD
<p>4. Create MOUs and funding commitments between US and Canada partnerships to increase support</p> <ul style="list-style-type: none"> • Develop mechanisms to facilitate the sharing of financial resources between governments across the international border. This currently is a major barrier. • Establish agreements between federal agencies allowing them to financially support transboundary conservation efforts. • Ensure that the US and Canada agree to fund a commission on transboundary conservation with a key focus on connectivity. Populate it with Indigenous, agency, and conservation leaders. • Embolden the North American Wilderness and Protected Areas Agreement (NAWPA) to lead and facilitate efforts among stakeholders on transboundary conservation. • Formalize agreements at the federal and regional levels for transboundary agreements to meet existing bottom-up visions (e.g., that of Yellowstone to Yukon).
<p>5. Revive and repair US initiatives, and join them to those Canada is already working on</p> <ul style="list-style-type: none"> • Bring in government funds to support current surviving landscape conservation cooperatives, and work with partners to revive discontinued ones. Incorporate lessons learned. House the coordinators at NGOs and Indigenous organizations (not in agencies). • Invest heavily in the Network for Landscape Conservation as a single entity of practitioners.
<p>6. Inventory existing initiatives; identify gaps and experimental regions before large-scale initiatives are enacted; ensure data can be shared effectively across projects and boundaries</p> <ul style="list-style-type: none"> • Consider incorporating Mexico into a North American agreement that supports some of the existing tri-national efforts. • Analyze existing genetic datasets to identify specific areas where conservation actions can be practically implemented to benefit a wide range of species. • Share data, prioritization, and investment strategies and actions.
<p>7. Consider transboundary environmental impact assessments</p> <ul style="list-style-type: none"> • Look at transboundary environmental impact assessments, as regulated by the Espoo Convention. Perhaps they can be a model for connectivity conservation as well.

Table 2. “Big ideas” for broad strategies from session 2 (April 13, 2021) on US–Canada transboundary connectivity conservation.

<p>1. Mainstream transboundary connectivity into society and sectors</p> <ul style="list-style-type: none"> • Connectivity conservation needs to be mainstreamed into society. Without the support of farmers, ranchers, foresters, hunters, landowners, and others, conservation efforts will not succeed. • Embed connectivity into the mandates of agencies that have substantial influence on connectivity, such as transportation and infrastructure departments. In Canada, mandates can be added through ministerial letters. With these, there would be incentive to work collaboratively, and there would be requirements for accountability. See the strategies developed by the Pathway to Canada Target 1 Connectivity Working Group for such strategies and others relevant and transferable to this context, and for extension/adoption by US counterparts. • Link infrastructure funding to connectivity objectives. Add “strings attached” for funding, such that connectivity must be retained or restored. For example, funding for highway developments should require retention of wildlife corridors, fencing, wildlife crossing structures, etc. Federal funding would trickle down to provinces and states through infrastructure funding. Infrastructure funding is at least two orders of magnitude higher than that for conservation.
<p>2. Build upon complementary initiatives and processes</p> <ul style="list-style-type: none"> • IPCAs in Canada provide a mechanism that is already well advanced. There are three legacy outcomes arising from the Iisaak Olam Foundation (https://www.iisaakolam.ca), University of Guelph, and collaborators in the Conservation through Reconciliation Partnership (https://conservation-reconciliation.ca). These are: (1) a Canadian IPCA Alliance; (2) a “Solutions Bundle” (based in the best of Western science and Indigenous Knowledge systems and worldviews; IPCAs as multilateral environmental agreements); and (3) IPCA Innovation Centers, to connect universities, civil society, Indigenous and non-Indigenous government agencies, etc. Look to these materials for strategic guidance that has already been developed through partnerships of Indigenous and non-Indigenous protection and conservation leaders. • Mechanisms are needed that support provincial, territorial, and state buy-in. Look to initiatives such as the New England Governors and Eastern Canadian Premiers Resolution 40-3, which is currently up for renewal. In the West, create a Western Premiers group to join with the existing Western Governors group. • Incorporate nature-based solutions and climate change messaging into transboundary connectivity conservation communications in order to increase support. Link transboundary connectivity to the nature-based climate solution lens. • To establish post-2020 30x30 targets and the equity aspects associated with them within the CBD, the efforts of the US are crucial. Although the US is not a signatory state to the CBD, the US has strong influence that could help galvanize global support within the context of the convention and its implementation on the ground.
<p>3. Stimulate funding mechanisms</p> <ul style="list-style-type: none"> • It is imperative to move quickly. There is now a time-sensitive, strategic opportunity with only a couple of years to show progress on the ground (i.e., before the next set of national elections). Move quickly to get good ideas in front of government leaders and decisionmakers. If the ideas are good, the funding will flow in federal budgets and from federal to provincial, territorial, and state governments through programs. • There is funding for nature-based solutions. • Funding is needed for coordination support on initiatives that span US–Canada borders. Reliable, long-term funding for NGOs and others is needed that can be used for core support and not just for projects on both sides of the border.
<p>4. Initiate systemwide changes in governance and economic structures</p> <ul style="list-style-type: none"> • Economics and other structural mechanisms are needed to support a system for addressing transboundary conservation. See the work of the Conservation through Reconciliation Partnership for economic mechanisms developed for IPCAs and other initiatives. These are relevant and transferable to transboundary conservation in both Canada and the US. Develop or refine these for the US context to match those developed in a Canadian context. • Internal interagency collaborations are needed both within and across countries.

barrier that the US–Canada border has imposed on both people and nature. These examples recognize traditional territories and food and lifeway practices that have always transcended political boundaries. Such initiatives would represent ethical spaces for upholding Indigenous Nations and nation-to-nation relations, including relations to lands and lifeways,

across national, provincial-territorial, and state boundaries.

2. Work across jurisdictions; include local stakeholders and Indigenous Rights holders in a collaborative manner; ensure coordination at community, state, and federal levels to have agreeable goals. Another prevalent set

of ideas was similarly concerned with building collaborations, networks, and initiatives to work across jurisdictions, including with and among Indigenous Peoples and Nations but also with local sectors and stakeholders. The aim is to foster and enhance coordination at local, community, state, and federal levels to define and work toward achieving mutually agreed-upon goals across jurisdictional and property boundaries. One specific idea is to establish new and support existing local or regional peer networks that span boundaries to help avoid the bureaucratic obstacles to meaningful collaboration and complement national dialogues and initiatives. Such initiatives should elevate awareness and showcase best practices. The collaborations should support and engage NGOs and community organizations, including fishing and hunting groups, along with nature-related businesses, such as in recreation and tourism. Together, they should help build external and public pressure for collaborative cross-boundary conservation initiatives.

3. Work with private landowners (including those of industrial properties) and rural communities to prioritize important areas. A third key principle is to work with private landowners (including large industrial landowners) and rural communities to build support for connectivity conservation on private lands, especially in priority cross-border areas. Respectful relationships with those who make management decisions on large areas of private land will be required in areas that are not under the direct control of Indigenous or non-Indigenous governments, especially in regions where percentages of public (federal/state/provincial/Crown) and Indigenous Lands are low. Private landowners have legitimate rights, interests, and concerns and no subset of landowners should bear a disproportionate share of the costs. Suggested ways forward include engaging economists to help identify and develop incentives and targeted government funding support for protecting and conserving connectivity areas within the broader landscape, including lands under industrial tenure or resource licenses. Funding mechanisms are needed to purchase or secure conservation easements for land protections, such as in areas with high connectivity value and large, intact natural landscapes threatened with conversion. Perhaps carbon mitigation financing has potential to achieve this.

3.2. Key mechanisms for implementing transboundary conservation

Thirteen of the 25 next steps centered on various concrete actions. When we considered them together, we found that they comprise four core sets of actions in order to move forward.

1. Create MOUs and funding commitments between US and Canada partnerships to increase support. The most prevalent set of ideas for concrete next steps had to do with creating formal MOUs and funding commitments between US and Canada partnerships to increase federal/national government support for transboundary efforts. There were eight specific ideas related to this theme, including mechanisms for sharing financial resources between governments across the US–Canada border, the lack of which is identified as a major barrier at present. A key step is to establish agreements between federal agencies, allowing them to financially support transboundary conservation efforts. One specific example would be for the US and Canada to agree to fund a commission on transboundary conservation, with a key focus on connectivity, populated with Indigenous leaders and agency and conservation leaders. Another example would be to ensure transboundary nature protection features as a key component of the agenda for US–Canada bilateral discussions.

2. Revive and repair US initiatives, and join them to those Canada is already working on. Mechanisms to revive and repair US initiatives were considered necessary to bring US initiatives back to an appropriate level for joining with and strengthening existing initiatives in Canada. Specific references were made to bringing back discontinued landscape conservation cooperatives (Mankowski et al. 2021, which is reprinted elsewhere in this issue of *Parks Stewardship Forum*) and considering implementation of a similar initiative in Canada. Such initiatives may be related to Pathway to Canada Target 1, perhaps through the Indigenous Circle of Experts; priority places for species at risk; and the Canadian government’s Connectivity Working Group.

3. Inventory existing initiatives, and ensure data can be shared effectively across projects and boundaries. Pragmatic mechanisms are needed for working effectively. Conducting an inventory of existing initiatives would help identify gaps and key areas



Kluane National Park and Reserve, Canada. KALEN EMSLEY / UNSPLASH

where conservation actions can be practically implemented to benefit a wide range of species before large-scale initiatives are enacted. Mechanisms to facilitate effective sharing of information across projects and boundaries would allow for transmission of data, methods for and results of prioritization processes, and investment strategies and actions.

4. Consider transboundary environmental impact assessments. One specific strategy considers implementation of transboundary environmental impact assessments (EIAs). EIAs, as regulated by the Espoo Convention (UNECE 2001), may serve as a model for those related to transboundary connectivity conservation. The Espoo Convention sets out the obligations of state parties (i.e., signatory countries) to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of state parties to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries. Major linear infrastructural projects, such as those

for transportation and energy, are potentially relevant because of their large influence on transboundary connectivity.

3.3. Broad strategies for US–Canada transboundary connectivity conservation

When considering broad strategies during the second set of US–Canada transboundary dialogues on 13 April 2021, participants observed that momentum is moving the agenda up the policy chain in the US, Canada, and beyond. Efforts are being advanced to: (1) connect 30x30 in the US to the Pathway to Canada Target 1 initiative; (2) enhance ecological connectivity between nations; (3) ramp up Indigenous conservation efforts across political borders; and (4) develop coherent climate mitigation and adaptation action between Canada and the US. As noted above, 11 “big ideas” for broad strategies were put forward (Table 2). When we reflected on these specific strategies, we found that they represent four broad strategic policy areas aimed at (1) mainstreaming transboundary connectivity into society and sectors, (2) building upon complementary initiatives and processes, (3)

stimulating funding mechanisms, and (4) initiating systemwide changes in governance and economic structures.

1. Mainstream transboundary connectivity into society and sectors. Connectivity conservation needs to be mainstreamed into society. Without the support of farmers, ranchers, foresters, hunters, landowners and others, conservation efforts will not succeed. Connectivity objectives need to be embedded into the mandates of agencies that have substantial influence on connectivity, such as agriculture, energy, mining, forestry, and transportation and infrastructure departments. In Canada, mandates may be added through ministerial mandate letters. With these, there would be incentive to work collaboratively, and there would be requirements for accountability. Examples of relevant strategies have been developed by the Connectivity Working Group as part of the Pathway to Canada Target 1, which may be transferable to the transboundary-connectivity context and provide a potential model for extension to and adoption by US counterparts.

One potentially promising mechanism would be to link federal infrastructural funding to connectivity objectives. Provisions could be attached to funding such that connectivity must be retained or restored. For example, funding for highway developments could require planning for retention of wildlife corridors, fencing, wildlife crossing structures, etc. Through federal infrastructure funding, support would trickle down to provinces and states. In both countries, infrastructure funding is at least two orders of magnitude higher than that for conservation, and as such would represent a substantial funding source for addressing the significant threats to connectivity posed by linear developments.

2. Build upon complementary initiatives and processes. IPCAs in Canada provide a mechanism that is already well advanced and may provide a model for similar efforts on the US side of the border. Three legacy outcomes of a collaboration between the Iisaak Olam Foundation (<https://www.iisaakolam.ca>) and the Conservation through Reconciliation Partnership (CRP) (<https://conservation-reconciliation.ca>) have laid out ways of moving forward. Strategies are described for (1) a nationwide IPCA Alliance; (2) a “Solutions Bundle” based in the best of Western science and Indigenous Knowledge systems and

worldviews, and situating IPCAs as multilateral environmental agreements; and (3) IPCA innovation centers, to connect universities, civil society, Indigenous and non-Indigenous government agencies, and other partners. They provide strategic guidance that has already been developed through partnerships of Indigenous and non-Indigenous protection and conservation leaders, with potential for extension across the US–Canada border.

Other existing initiatives provide models aimed at supporting provincial, territorial, and state buy-in across the US–Canada border. One example is the New England Governors and Eastern Canadian Premiers’ Resolution on Ecological Connectivity, Adaptation to Climate Change, and Biodiversity Conservation (Res. 40-3; NEG-ECP 2016), which is currently up for renewal and warrants support. A similar model could be implemented by creating a Western Premiers group to join with the existing Western Governors group. Support for transboundary connectivity conservation would also be enhanced by linking it to other relevant policy priorities, particularly the nature-based climate solution lens. Existing nature-based solutions and climate change messaging should be incorporated into transboundary connectivity conservation communications and initiatives in order to piggy-back onto these broader issues in the current policy attention cycle.

The Convention on Biological Diversity (UNEP-CBD 2010, 2020) remains an important and relevant initiative, supportive of transboundary connectivity conservation. To reinvigorate the CBD and establish post-2020 30x30 targets and the equity aspects associated with them, the efforts of the US are crucial. Although the US is not a signatory state to the CBD, the US has strong influence that could help galvanize global support for transboundary connectivity conservation within the context of the convention and its implementation on the ground. A US CBD delegation under the current administration may be more empowered and collaborative than under the previous administration and may potentially join most of the world’s nations in ratifying the agreement (*Nature Ecology and Evolution* 2021).

3. Stimulate funding mechanisms. It is imperative to move quickly. There is now a time-sensitive, strategic opportunity to show progress on the ground (i.e., before election cycles turn and momentum fades).

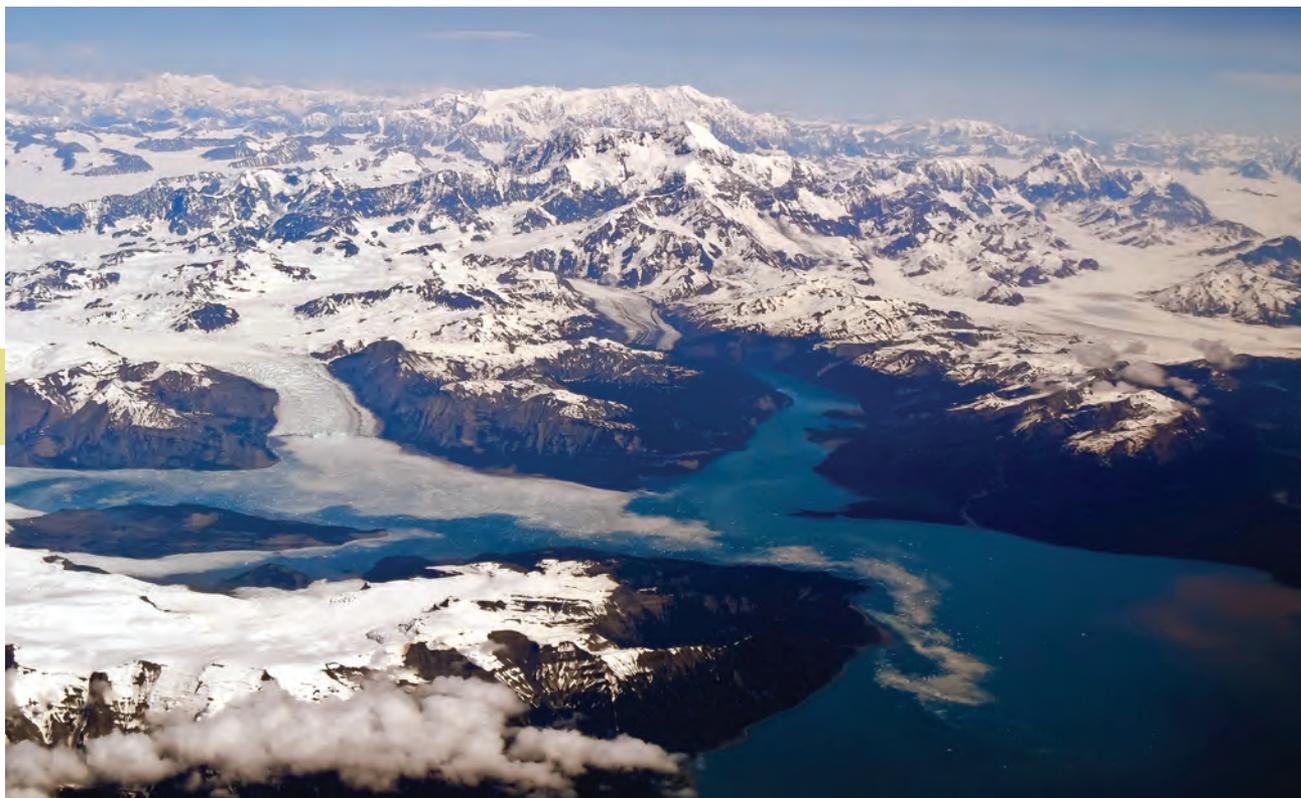
If good ideas are put in front of government leaders and decisionmakers at this crucial time, funding will flow in federal budgets and from federal to provincial, territorial and state governments through programs. Funding is needed for coordination support on initiatives that span US–Canada borders. Reliable, long-term funding for NGOs and other entities is needed that can be used for core support to facilitate broad, programmatic collaboration—and not just for projects—on both sides of the border. In line with the strategy of building upon complementary initiatives, opportunities for funding for coordination and other resources needed for transboundary connectivity conservation could be linked to funding for nature-based solutions.

4. Initiate systemwide changes in governance and economic structures. New systems of economics and governance are needed to support an institutional policy context for broad-scale initiatives like transboundary connectivity conservation. Other initiatives have grappled with strategies for systemwide reforms that may be relevant and transferable to transboundary conservation in both

Canada and the US. The structural mechanisms developed for IPCAs through the Conservation through Reconciliation Partnership’s “Economies, Infrastructure and Finance Stream” and “Solutions Bundle” (<https://conservation-reconciliation.ca>) represent one such set of examples, as does Nature United’s 2018 *A Blueprint for Action*. These provide models for potential refinement and application in the US context to match those developed in a Canadian context. Internal interagency collaborations are also needed both within and across the two countries. Resource and other agencies such as Natural Resources Canada and Environment and Climate Change Canada need to come together and develop cross-agency mechanisms for collaborating on connectivity. The same is true for agencies in the US, such as those within the Departments of the Interior, Agriculture, and Commerce.

The third dialogue in the series will focus on mainstreaming US–Canada transboundary connectivity conservation into sectors and society. Outcomes are aimed at identifying strategies that are grounded in regional priorities, partnerships, and opportunities.

The St. Elias Range spans Wrangell–St. Elias National Park and Preserve (US) and Kluane National Park and Reserve (Canada). The parks are part of the Kluane / Wrangell-St. Elias / Glacier Bay / Tatshenshini-Alsek World Heritage Site, a major transboundary protected area complex. US NATIONAL PARK SERVICE



Discussions will tackle four policy streams that emerged from the first two dialogues: (1) linking infrastructure funding to connectivity objectives; (2) embedding connectivity into the mandates of agencies that have substantial influence on this area, such as transportation and infrastructure departments; (3) mainstreaming connectivity into land management through financial and other mechanisms; and (4) integrating connectivity into environmental assessment processes. In this way, the conversations continue, building upon each other, adding nuance and detail to earlier ones and commanding hope for newly imagined possible futures at multiple scales and levels (Homer-Dixon 2020). And in the process, as Marilyn Baptiste—2015 Goldman Environmental Prize winner for North America and former chief of Xeni Gwet'in—reminds us, “the more we talk the smaller the world becomes” (Conservation through Reconciliation Partnership anniversary celebration, 8 May 2021).

4. CONCLUSION

The US–Canada border is the longest international boundary in the world at 5,525 miles or 8,891 km. It is also one of the most peaceful borders, in that it not only spans two countries but also a multitude of Indigenous Nations. Across this shared ecological and cultural landscape, an informal collaborative conservation coalition has begun a series of intentional dialogues to improve and solidify cross-border partnerships that support landscape conservation and stewardship policies. A set of policy opportunities has emerged from these continental-scale conversations around strengthening US–Canada transboundary and connectivity conservation efforts, especially in light of climate change. They represent important strategies at this crucial policy window, recently opened by heightened support for transboundary connectivity conservation in both countries and at the global level.

This is the time to work with governments and other organizations to enhance cross-border collaborations. Only rarely are nations given historic policy alignment opportunities to redefine and reinvigorate their common conservation goals. Now is such a moment, and it comes none too soon as we enter the third decade of the 21st century at the precipice of climate, biodiversity, and humanitarian crises. We see these conversations as a beginning in securing the peace that defines many nations—on both sides of the

boundary—that are inextricably linked by ecology and culture.

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Note to References

1. M'sit No'kmaq is a Mi'kmaw concept that represents a kin-relationship with the land, waters, and all living things. M'sit No'kmaq is designated as lead author to honor the collective and to acknowledge that all language and learning comes from the land. People are just the conduit. This follows Mi'kmaw cultural teachings to speak for collective intellectual rights.



The Interdisciplinary Journal of Place-based Conservation

Co-published by the [Institute for Parks, People, and Biodiversity](#), University of California, Berkeley and the [George Wright Society](#). ISSN 2688-187X

[Berkeley](#) Institute for Parks, People, and Biodiversity



Citation for this article

Beazley, Karen F., Gabriel Oppler, Leanna R. Heffner, Jessica Levine, Aaron Poe, and Gary Tabor. 2021. Emerging policy opportunities for United States–Canada transboundary connectivity conservation. *Parks Stewardship Forum* 37(3): 488–504.

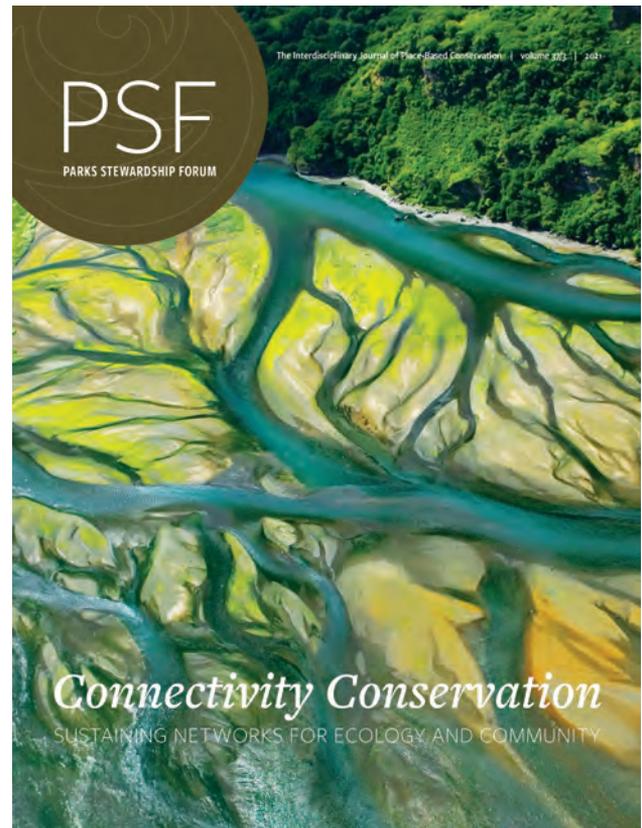
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The journal continues *The George Wright Forum*, published 1981–2018 by the George Wright Society.

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