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Uniting hearts and lands: advancing conservation and restoration across the Yellowstone to Yukon region

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In view of the escalating anthropogenic impacts of climate change, habitat loss, and fragmentation, a broad consensus within the science community has identified large landscape conservation as critical to the future of nature and humanity. Recent commitments made at a global level offer an unprecedented opportunity for the conservation of biodiversity, particularly inasmuch as Canadian and US policies are aligned, ambitious, and clearly focused on ensuring that conservation work respects and supports the rights of Indigenous Peoples. These commitments align with and support the Yellowstone to Yukon (Y2Y) mission of connecting and protecting the 2,100-mile-long Yellowstone to Yukon region for people and nature to thrive, with the predominant approach of working with local communities and Indigenous Peoples to advance enduring conservation. Since the inception of the vision in 1993, significant progress has been made as indicated by the expansion of protected areas by more than 80 percent, the recovery of some species such as grizzly bears and wolves, and the ecological restoration of key lands across the region. While 25 percent of the Yellowstone to Yukon region is already managed or co-managed by Indigenous Peoples, today Indigenous Peoples are increasingly asserting their leadership and driving forward new restoration and conservation. New Indigenous-led conservation brings critical energy and visions that advance the Y2Y mission and arguably is a model for other parts of the world committed to achieving the 2030 UN Global Biodiversity Framework.

KEYWORDS

Canada, USA, large landscape, restoration, indigenous

Global to national policies

In December 2022, 196 countries committed to a set of ambitious targets in the Kunming-Montreal Global Biodiversity Framework (GBF) under the United Nations Convention for Biological Diversity. This mandate creates an opportunity to move the practice of biodiversity conservation and ecosystem restoration from a narrow focus on protected and conserved areas to a broader approach incorporating ecological networks that recognize and respect the rights of Indigenous and local people. While the GBF is complex with four long-term goals and 23 Targets, the following few sections are particularly relevant in this regard.

Some of the priorities particularly relevant for Y2Y region include protecting 30 percent of lands and waters by 2030 and doing so while respecting the rights of Indigenous Peoples and local communities. This is a significant step toward what nature needs, which others have identified as likely closer to 50 percent (Woodley et al., 2019).

Despite that the United States has not ratified the UN CBD global agreement, national priorities in the United States regarding nature conservation reflect those in Canada, both which align substantially with goals and targets in the GBF. As host of the December 2022 Conference of the Parties (COP) that resulted in the GBF, Canada's Prime Minister opened the conference by committing Canada to: halting and reversing the decline of biodiversity; committing to 30x30; providing up to $800 million for Indigenous-led conservation; and funding for an Indigenous Guardians network among other significant commitments that advance nature conservation and support and respect Indigenous rights (Weston and Greenfield, 2022). During the Conference, both the Yukon Territorial government and British Columbia committed to 30x30, and other provinces and territories are known to be exploring such commitments as well. Thus, goals and targets of the GBF are alignment from global to national to regional Canadian governments for nature conservation.

In the United States, the most current guiding document for nature conservation is *America the Beautiful*, an initiative released by the White House that guides efforts to restore, connect, and conserve 30 percent of lands and waters by 2030, parallel with GBF priorities. The document also ties this approach to a healthy economy as well as human health and well-being. Importantly, one of the key guiding principles in *America the Beautiful* is "honoring Tribal sovereignty and supporting the priorities of Tribal Nations," including respect and honor of sovereignty, treaty and subsistence rights and religious freedom in conservation and restoration work (USDOI et al., 2021).

The following section examines how these global and national commitments translate to on-the-ground action helping to rewild the Yellowstone to Yukon region.

Y2Y evidence of rewilding in the context of rewilding

In the early 1990s, a group of conservations and scientists set out a vision of a network of protected habitats along the spine of the Rockies, named Yellowstone to Yukon (Y2Y), that if established would allow wide-ranging species such as wolves (*Canis lupus)*, grizzly bears (*Ursus Horribilis)*, and golden eagles (*Aquila crysaetos*) to thrive now and into the future (Chester 2006, Hilty and Zenkewich, 2022). Early on Y2Y was a loose coalition of conservationists and scientists interested in achieving conservation at the scale that nature needs, looking beyond individual protected areas to a connected network of protected areas. Initial efforts focused on identifying key connectivity areas and forming relationships and building trust with and among the communities living within the region, including Indigenous People (Hebblewhite et al., 2021). To date, at least 734 different entities have engaged at different times to help advance this vision (M. Strebel pers. com.). Knowledge and collaboration remain underlying tenets of how to get this work done.

As one of the earliest large landscape concepts that has been actively promoting conservation for 30 years, Y2Y is a natural laboratory to address questions about the power of a large landscape vision in advancing conservation, including rewilding. A recent analysis showed that protected areas have increased by 80 percent in the first 25 years, double the rate of protected area growth across North America as a whole (Hebblewhite et al., 2021, Figure 1). At least a quarter of all the areas protected in the Y2Y region are managed or co-managed by Indigenous People. Whereas few designated wildlife road crossing structures in the Y2Y region existed in 1993, this large landscape now encompasses at least 126 designated wildlife underpasses and overpasses and associated fencing to help keep wildlife safely connected across busy roads — more such structures than any equivalent region (Hebblewhite et al., 2021; and updated analyses). While not all busy roads have yet been mitigated, a dozen more such crossings are advancing through the planning and design phases, and wildlife infrastructure is becoming more of a standard consideration in road infrastructure (e.g., Goldfarb, 2023; Montana Fish Wildlife and Parks, 2023). Private lands and co-existence work (see Cabinet Purcell case study below) also have concretely advanced implementation of the vision and rewilding. Correspondingly, grizzly bears in the U.S. and in Alberta have measurably rebounded in population size (Hebblewhite et al., 2021). Such advancements provide early evidence that a large landscape vision can inspire local conservation that is important at a large landscape scale.

To date, conservation progress in the Y2Y region has been substantial, and recent announcements indicate that this progress is building momentum in a way that realizes Indigenous rights. The Y2Y region overlaps with at least 75 Indigenous territories of First Nations, Inuit, Métis, and Native Americans. As with non-Indigenous communities, Indigenous People tend to focus their efforts within their individual traditional territories. For example, in Canada, Indigenous leadership driving forward protected area creation has accelerated in recent decades. Two prominent examples are the 1.17 million-acre (30,050 km^2) Nahanni and the 1.19 million-acre (4,895 km^2) Nááts'įhch'oh National Park Reserves, which became co-managed by Parks Canada and First Nations in 2009 and 2012 respectfully. As Dene member, Morice [Maurice in other references] Mendo, emphasizes, the relationship between Dene People and nature is inextricably linked: "*We, the*

FIGURE 1
The fuzzy-bounded Y2Y region: an area covering 1.3 million square kilometers, stretching 3,200 kilometers north to south and 500 to 800 kilometers east to west, and spanning across five American states, two Canadian provinces, two Canadian territories, and the traditional territories of at least 75 Indigenous groups. Map showing growth of protected lands (light green) in 1993 and after 2018 (dark green) see Hebblewhite et al., (2021).

Dene people and wildlife, need the land. Without the land there is nothing to talk about" (Parks Canada, 2017).

Indigenous leadership advancing protected areas has become more widely accepted, thanks to the Canadian federal government's commitment that Indigenous leadership will guide protected area efforts (Weston and Greenfield, 2022). Since 2019, support for Indigenous conservation has resulted in signed conservation agreements between the federal, regional, and First Nations governments on approximately 14 million acres (56,656 km^2) of what will be co-managed protected areas in the Y2Y region. These include the Peel watershed land-use plan in Yukon Territory; the Peace River Caribou Agreement to restore and rewild caribou (*Rangifer tarandus)* in northeastern British Columbia (see case study below); and Qat'muk, the home of the Grizzly Bear Spirit in the upper Columbia River in southeastern British Columbia (Y2YCI, 2021). Currently, implementation of these agreements are in federal, regional, Indigenous governmental processes including on-the-ground designation.

Just in the first few months of 2023, new efforts have gained publicity and traction. For example, three Indigenous-led conservation initiatives in B.C. have been announced, resulting in the intended protection of 4.4 million acres (17,806 km^2). These include a historic implementation agreement between B.C. and the Blueberry River First Nations; a Conservancy in the Incomappleux of B.C.'s rare inland temperate rainforest in the Upper Columbia region; and the Taku River Tlingit declaration specified their plan for an Indigenous and Conserved Protected Area in the Taku River watershed. In addition, the Dene K'éh Kusān is a protected areas vision by the Kaska Dena on ancestral lands and B.C.'s largest intact landscape of 3.9 million ha (9.6 million acres; Dena Kayeh Institute undated).

In the United States, tribal leadership on both the Wind River Reservation in Wyoming as well as the Confederated Salish and Kootenai Tribes in Montana established designated tribal wilderness areas on their respective reservations, in the 1930s and 1982. Within their reservation, the Confederated Salish and Kootenai have also insisted on and led the installation of one of the most progressive sets of wildlife road-crossing structures in the United States. Phase I of this work included 41 crossing structures, including one overpass, within a 90-kilometer stretch of road, and now at least 22,000 animals use these crossings annually (Christy and DiGirolamo 2022). The tribe is now initiating the second phase of the project, starting with a major structure to be installed where at least eleven grizzly bears have been killed in the last five years (Sagner, 2023). Also, in 2020, through congressional legislation, the National Bison Range that had been previously managed by the U.S. Fish and Wildlife Service was restored to ownership and management by the Confederated Salish and Kootenai (Smith, 2022; see also https://bisonrange.org/). The tribes have already started to update the Bison Range, such as overhauling the visitor's center to reflect the tribes' languages and their relationship with bison (Monares, 2022). In Montana, the Blackfeet worked with the conservation community to retire oil and gas leases in the Badger-Two Medicine region and discussions over the last decade suggest the area may be co-managed in the future (Lundquist, 2019). While not the same level of commitment as in Canada, the U.S. federal government has signaled the importance of Indigenous leadership in conservation, which could entail increasing opportunities for Native Americans to advance their conservation visions.

Given the increasing leadership role of Indigenous Peoples, the role of conservation NGOs and other partners has shifted from leading efforts to advance protected areas to supporting Indigenous leadership and their conservation visions where these align with their organization's priorities. This means supporting Indigenous efforts by helping to secure funding, advancing collaborative science, engaging in political strategizing and communications, organizing public engagement, and more. Many of these efforts necessarily involve rewilding as so often the ecosystems and habitats in question have been subject to intensive impacts. This restoration, often done collaboratively with the support of many groups over time, helps the landscape regain functional processes ranging from natural flooding, fire, and predator-prey interactions — as well as rebalancing Indigenous Peoples' relationship with the land.

The follow section highlights several case studies that are in progress, a subset of which highlight increasing Indigenous leadership in conservation.

Case study: Peace River Break and caribou conservation

In northeastern British Columbia, where the Boreal Plains meet the Northern Boreal Mountains and the Rocky Mountain Hart Range intersects with the Peace River, lies an area referred to as the Peace River Break (PRB). The PRB is a critical pinch-point in the continuity of ecologically intact and functioning landscapes along the north-south extent of the Canadian Rocky Mountains, yet less than 4 percent of the region had been designated with protected area status (Apps C, 2013). The PRB is experiencing industrial-caused disturbances at significant rates: forest harvesting, recreation areas (including heli-ski tenures), mining, agriculture, and seismic lines directly affect approximately 27 percent of the PRB, with the result that half of the PRB is within half a kilometer of roads, reservoirs, and/or oil and gas infrastructure (Mann and Wright, 2018). Human use pressures on this landscape have placed old-forest dependent species such as caribou. This species is dependent on the food source of arboreal lichens, which in turn require large areas of continuous tracts of undisturbed alpine and subalpine parkland habitats and mid-elevation old-growth forests (Johnson et al., 2004). Central and Southern Mountain populations of caribou are endangered, with most herds at precariously low levels and in decline while others have already been extirpated from the landscape (e.g., the Burnt Pine population). Since 1920 in British Columbia alone, caribou have dropped from 40,000 to 15,000 thousand animals (Oud, 2020).

Over much of the last decade, Indigenous governments, conservation organizations, and researchers have worked together to investigate and understand the extent of impacts in the area, and to support conservation initiatives such as the successful Klinse-za Caribou maternity pen initiative led by West Moberly and Saulteau First Nations (Apps C, 2013; Burkhart, 2018; Curtis, 2018; Mann, 2020). More recently, research and knowledge gathering were used to support significant conservation responses in the area (e.g., McNay et al., 2022). The leadership of the West Moberly and the Saulteau First Nations advancing their vision of caribou recovery through federal and provincial government negotiations led to a Caribou Recovery Partnership Agreement with the federal and provincial government in 2019 (ECC Canada, 2020), which in turn resulted in the tenfold expansion of the Klinse-za Provincial Park from 2,689 ha (26 km^2) to 28,000 ha (280 km^2) in February of 2020, with a further planned expansion to 206,000 ha (2,060 km^2). These expansions are surrounded by other land use agreements focused on restoration and conservation. In addition, the Partnership Agreement includes an interim moratorium on all new tenures and development on a further 550,000 ha (5,500 km^2) of high elevation caribou recovery area (Figure 2). Although interim, it can only be lifted if all parties agree — a very unlikely proposition given the long-term caribou recovery goals of the West Moberly and Saulteau First Nations as well as Canada's commitments under the Species at Risk Act (British Columbia, undated). These new Indigenous-led conservation efforts represent an important conservation gain for both caribou and climate change resiliency within the critical ecological pinch point of the Peace River Break. However, much work remains in rewilding this heavily disturbed landscape.

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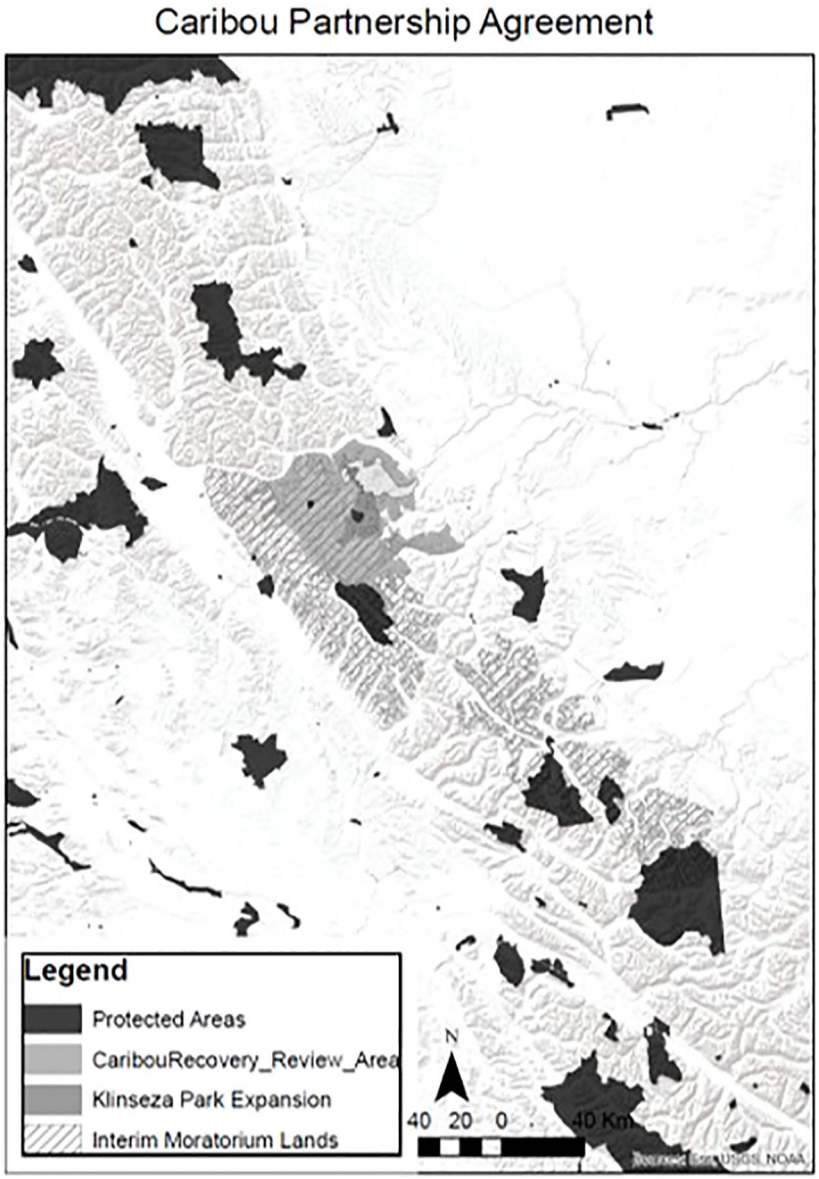

FIGURE 2
A map showing the conservation gains from the Peace River region Caribou Agreement, a signed agreement between the West Moberly and Saulteau First Nations and the British Columbia and Canadian federal government.

Case study: large carnivore rewilding in the southern region of Y2Y

During the inception of the Y2Y vision in the mid-1990s, many of the individuals at the founding meetings were concerned with the already extensive range loss across North America for both large carnivores as well as hooved animals (Harvey, 1998). As a mapping exercise by Laliberte and Ripple (2004) demonstrated, one of the last places where most of these animals still roam is within the Y2Y region.

Worldwide, applied research has increasingly shown that the loss of large predators leads to a cascade of ecological impacts affecting multiple parts of ecosystems (Smith et al., 2020). As one of the more well-studied ecosystems in the world, the Greater Yellowstone Area has been a *de facto* natural laboratory for a plethora of research on such trophic cascades. Specifically, due to the extinction of several large carnivores from all or parts of the ecosystem in the early 1900s and the subsequent restoration or rewilding of carnivores back into the system, researchers have been able to understand the role of carnivores by examining differences before and after their restoration.

The body of studies on the pre- and post-restoration of large carnivores in the Greater Yellowstone Ecosystem has covered a diversity of species and topics. While grizzly bears never completely disappeared from the Greater Yellowstone region, fewer than 150 were thought to persist by the 1970s (USNPS, 2020a). Following complete extirpation, wolves were reintroduced as an experimental population to Yellowstone in 1995. Mountain lions (*Felis concolor*)

and wolverines (*Gulo gulo*) were generally assessed as extirpated from the area, and genetics studies suggest that they naturally returned from more northern Canadian populations in the late 20th and into the 21st century (Yellowstone Science, 1994; McKelvey et al., 2014).

Studies of these animal recoveries have shown dramatic effects. For example, the expansion of grizzly bears back to Grand Teton National Park has led to the restoration of willows and an increase in the associated bird communities, as well as a shift in the age structure of a once senescing moose (*Alces alces*) population (Berger et al., 2001). Large carnivores can both reduce hooved animal populations and change their behavior — such as where they spend time in the landscape — resulting in a cascade of impacts in the ecosystem. Ongoing research details how the restoration of wolves has played an enormous role in shaping ecosystems, ranging from changing riparian vegetation and hydrological processes to altering the abundance of many different species across the park. Notably, the impacts and results are varied across the park where wolves now roam. As one of the world's most well-studied reintroductions, the findings of wolf reintroduction to Yellowstone offer lessons too numerous to expand on here, but overall the preponderance of evidence supports that the suite of large carnivore species that are now restored to Greater Yellowstone play a significant role in shaping the ecosystem itself (Smith et al. (2020) stands out amongst the myriad accounts of Yellowstone wolf reintroduction). Lesser known but also important was the wolf reintroduction to the Idaho wildlands complex by the Nez Perce at approximately the same time. The Nez Perce exercised their Treaty rights reintroducing wolves despite the misgivings of the state of Idaho. This wolf population continues to thrive although, like Yellowstone, management of the population continues to be politically controversial (Nez Perce Wildlife Division, undated).

The phenomenon of trophic cascades carries important implications for the Y2Y vision across the Y2Y region. With large carnivores absent or in low numbers in other parts of the Y2Y region, including the extensive Idaho wildlands complex where grizzly bear populations were exterminated in 1940s, restoring the full complement of carnivores to such large wild regions will also help to restore and maintain healthy ecosystems. In addition, scientific research indicate that maintaining such species in any part of Y2Y in isolation can be highly problematic since the habitat requirements of a viable long-term population often span beyond any individual subregion of Y2Y. Science has clearly demonstrated that even large ecosystems such as the Greater Yellowstone Ecosystem and the Idaho Wildlands complex are too small to sustain some large carnivores, and thus restoring connectivity between these wild regions is also a priority. Efforts by many different non-profits and government agencies have been ongoing for decades in a race against an onslaught of human development, thus keeping the opportunity for population connectivity open. As a consequence, Yellowstone grizzly bears are closer than ever to reconnecting with their northern relatives (Montana Fish Wildlife and Park Undated).

Case study: restoration of habitat and wildlife from the Transboundary Cabinet Purcell Mountain Region to Camas to Condors Corridor through collaboratives in the Pacific Northwest

The Cabinet Purcell Mountain Corridor Project is illustrative of how many partners, including government agencies, working on a shared goal can make significant progress (Proctor et al., 2018). In the early 1990s, the population of grizzly bears in the transboundary Cabinet Purcell Mountain region of Montana, Idaho and British Columbia was showing signs of isolating into smaller populations, with one group as low as 10 individuals in Montana's Cabinet Yaak Mountains. Grizzly bear science helped to prioritize where key core habitat and connectivity zones should be protected and restored. On the U.S. side, more than 1295 km^2 (129,500 ha.) of habitat were secured through road removal projects on U.S. Forest Service land. Ensuring connectivity among the remaining bear populations required securing private land through conservation easements and acquisitions, which significantly increased the security of three identified corridors.

Additionally, the state of Idaho purchased one priority corridor to be restored as a Wildlife Management Area, where the focus was both on restoring wetlands for endemic wildlife such as native bees, native toads and frogs, and other wildlife, as well as on increasing connectivity across the broader landscape for bears and other large mammals (https://idfg.idaho.gov/bees2bears; Figure 3). More than 20,000 shrubs and trees were planted in recontoured wetlands to help rewild a climate resilient landscape, and a grizzly bear print was found amidst the restoration during the summer of 2020 (J. Grossman, pers. com.). Other key efforts in the region to support grizzly bear restoration have included the installation of more than 170 electric fences to deter bears from attractants such as bee hives, chicken coops, and fruit orchards, educational efforts on preventing human-wildlife conflict, and other projects. With these efforts having built on several decades of work to increase grizzly bear connectivity in the area, recent research on tracked movements between the previously isolated populations and beyond those populations indicates that conservation efforts have already had an impact (Proctor et al., 2018; Hilty et al., 2019). Likewise, the Cabinet Yaak populations of grizzlies increased to over 60 individuals through the work of more than 50 entities in the collaboration.

The Nez Perce Tribe, which engaged in the Cabinet Purcell partnership, are today leading the Camas to Condors Corridor Project (NPTWRD, 2019). Modeled to a degree on the Cabinet Purcell partnership, this initiative entails landscape-level planning efforts by the Tribe in partnership with University of Idaho and non-profit partners that seek connectivity for wildlife and the restoration of cultural relationships with nature. The Camas to Condors project is based on the understanding that nature and people are inextricably linked, with, for example, the Nez Perce's

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FIGURE 3
A grizzly bear footprint remains in the sun-baked mud in the area of the bees to bears project, a wetland corridor restored in the northern Idaho panhandle to reconnect grizzly bears and help other wetland wildlife with a climate adaptation restoration project.

tending of camas (*Camassia*) helping the plant flourish and remain healthy, producing bulbs that fed not only the Nez Perce but also grizzly bears and other wildlife. One important aspect of this project is restoring connectivity between Nez Perce people, plants, and animals across the landscape. While this is a huge vision, the Nez Perce understand that it is about building on projects over time and starting and engaging in projects that invite in partners to help these projects advance and support the vision.

Case study: bison restoration

Bison (*Bison bison*) are a megaherbivore keystone species that literally shape the ecosystem they occupy. While the history of their collapse across North America is generally well-known, their current status and conservation challenges today are perhaps more complex and less understood by most of the public. Bison flourished across North America until the time of European invasion and the associated slaughter of bison that nearly drove them to extinction in the late 19th century (Sanderson et al., 2008). In 1905 when a few key individuals realized that bison were on the brink of extinction, they formed the American Bison Society to restore the species in various localities across North America. By the 1930s, about 20,000 bison had been restored in various conservation herds, a number similar to today (although approximately 500,000 bison are now found in "ranch" bison that were often cross-bred with cattle). What is less well known is that in some arenas, bison have been and remain anathema — so much so that their status as "wildlife" has been threatened, and many states and provinces still recognize bison as solely livestock (or in some cases, as livestock as well as wildlife). The result is that unlike any other wildlife in the Y2Y region, bison are subject to the unique restriction of confinement to particular areas within their range. They face an additional challenge of various levels of genetic heritage, with ranchers having long sought to interbreed bison and cows to obtain a more hardy but easy to manage animal. Additionally, some conservation herds are small populations that must be managed for inbreeding. A further challenge is that some

populations of bison have acquired diseases transmitted from cattle, most notably brucellosis in the Greater Yellowstone Ecosystem. The presence of disease presents challenges to relocating bison or allowing bison to roam and mix with cattle due to concerns over disease transmission back to now disease-free cattle (White et al., 2011).

These circumstances meant that for most of the latter half of the 20th century, the population status of bison conservation herds changed little (~20,000 bison), while bison ranching expanded enormously. In the late 20th century, conservationists re-awakened to the plight of bison conservation, taking a fresh look at where restoration of bison at scale could occur in key locations across North America (Sanderson et al., 2008). Three key places where bison restoration is advancing today are in the Y2Y region. The first is on the northern and western edges of Yellowstone National Park, a region where bison leaving Yellowstone National Park were once hazed back into the park or shot. Due to work of various entities, the state of Montana has created a buffer zone that allows bison to leave the park within these defined spaces. However, they are still limited in their movements outside the park, and Yellowstone bison are still slaughtered when their numbers are deemed too high to be supported by the habitats they are allowed to access (White et al., 2011; National Park Service, 2018). All the same tribes that have treaty rights to hunt these bison, such as the Nez Perce, as well as non-tribal members, have established limited bison hunts outside of park boundaries.

In 2017, an experimental population of bison was restored to the northern reaches of Canada's Banff National Park, with an initial soft release of 16 bison. Now there are approximately 80 bison that roam freely in the park (Parks Canada, 2022). However, like the situation in Montana and Yellowstone, the confines of jurisdictions that "allow" for wild bison are still restrictive in Alberta, and these bison are prevented from leaving the park. Although the Alberta government has created a buffer zone on adjacent non-park public lands, bison are still considered livestock beyond that buffer and currently cannot roam further — although many in the conservation community hope that this will change with time. Likewise, it is unclear how the relationship between this recovering herd and the area's Indigenous Peoples will develop. As both have deep, intermingled historical roots in this region, this relationship needs to be addressed in the near future.

Another inspiring rewilding bison project is envisioned by the Blackfoot Confederacy, a transboundary group of Indigenous Peoples living along the Montana-Alberta border who have been advancing the Iinnii Initiative since 2009. This effort seeks to conserve traditional lands, maintain Blackfeet culture, and enable bison, or Iinnii in Blackfeet language, to return to their lands (Blackfoot Nation, 2020). Recognizing that both people and bison are split by political boundaries, this initiative seeks a holistic approach to the restoration of lands, wildlife, and people (Blackfoot Nation, 2020). In June 2023, more than 40 bison were released to be free-roaming in the Chief Mountain area east of Glacier National Park (Scott, 2023). Someday in the not-too-distant future, bison may once again roam across broader Blackfoot Confederacy territorial lands, including in Canada and the United States and adjacent national parks such as Glacier and Waterton, and perhaps other jurisdictions.

Next steps

The vision for the Y2Y region is to connect, restore and protect the region so that both people and nature can thrive, and accomplishing it means both protecting extant nature as well as the rewilding and restoration of key ecosystems and species and maintaining and restoring human connectivity with nature. Today this work will be driven by community-level priorities although such efforts could be accelerated by higher-level enabling policies that better recognize and support large landscape conservation. Indigenous leaders are increasingly leading the call for new protected areas and, in some cases, also advancing connectivity conservation across their traditional territories. In Canada, there is unprecedented support for such Indigenous leadership. The approach of conservation NGOs and other entities are shifting to supporting Indigenous visions that align with their own organizations' missions. This work requires developing relationships, understanding where and how partnerships can be helpful, and moving both at the speed of trust as well as the capacity of communities.

While substantial and important rewilding is continuing to advance in the Y2Y region, there are still considerable ongoing challenges for conservation. Mountain caribou (*Rangifer tarandus caribou*) are found nowhere else on the planet except in the Y2Y region. In 2018, the loss of a transboundary herd between the U.S. and Canada meant there are no longer caribou in the lower 48 states. Many other populations of mountain caribou are suffering major declines in populations. While the Caribou Recovery Partnership Agreement in B.C.'s Peace River Region is a model for advancing their recovery, a challenge is to advance similar measures across the mountain caribou range. Many Indigenous communities are advocating for recovery of caribou as a culturally important species (e.g., Fraser Basin Council, 2023), so perhaps with their leadership and engagement we can see the revival of caribou populations and other species across the Y2Y region in the future.

Likewise, although ecosystem fragmentation from the human footprint of built infrastructure and the linear disturbances of roads and other corridors are the single biggest threat to ecological values, the human footprint from recreational use is an increasing issue (Larson et al., 2016; Vilalta Capdevila et al., 2022). The need to understand the cumulative impacts of development as well as increasing human activities is yet another challenge on this landscape. As these challenges increasingly fill the spaces between and around (and sometimes within) protected areas, they ultimately affect our capacity to achieve large landscape conservation instead of islands of conservation. We also need to continue to expand conservation to be more intersectional in addressing these challenges. This means not only engaging with western science, but also Indigenous and local knowledge, braiding together multiple ways of knowing to strengthen our collective approach to advance conservation.

Summary

The essence of rewilding remains core to advancing conservation in the Y2Y region. We also know that conservation of carnivores, core areas, and corridors requires engagement and commitment by people. Indigenous communities and governments across the region have been and increasingly continue to lead the way in connecting people to land and wildlife. Such projects restore and maintain a vital cultural value at a time where world and national commitments in North America are ambitious and aligned with many Indigenous People's vision for their lands. It is only if humanity invests in nature as the highest and greatest good in North America's most intact large mountain region, Y2Y (Theobald et al. accepted), that we will be able to maintain and restore both biodiversity and culture in this region.

Author contributions

JH: Conceptualization, Investigation, Project administration, Supervision, Writing – original draft, Writing – review & editing. CC: Conceptualization, Formal Analysis, Writing – original draft, Writing – review & editing. PW: Conceptualization, Formal Analysis, Writing – original draft, Writing – review & editing. KZ: Conceptualization, Formal Analysis, Writing – original draft, Writing – review & editing.

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