

Coordinating Diverse Environmental Interests: A Study of Bison Restoration

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## Introduction

I have always been fascinated by species of the recent past and disturbed by how quickly they are lost. Today extinctions occur at far faster than historical rates—irreplaceable changes in biodiversity. The problem is so vast that some scientists call it the sixth mass extinction, almost unprecedented in the history of the earth and almost certainly human-caused.<sup>1</sup> This new level of extinction arrives alongside climate change, deforestation, ocean depletion, and pollution—an accelerating environmental crisis.

Amidst this crisis, the plains bison seems to be a beacon of hope; their population has risen from under a thousand in the late 19th century to hundreds of thousands.<sup>2</sup> But this success is not as clear-cut as it may seem. As of 2002, only 4% of bison were in conservation herds. The rest are commercial stock. Out of all bison, just 1.5% are untouched by cattle genetics.<sup>3</sup> The lack of wild bison is particularly concerning because bison are a keystone species, vital to the rapidly disappearing North American plains ecosystems.<sup>4</sup> Still, there is continuous progress; a herd reintroduced in Alberta's Banff National Park, for example, and new conservation herds have been established throughout the United States, including Montana.<sup>5</sup>

The diversity of actors involved in bison conservation and restoration is astonishing. Bison range stretches across the US and Canada, so federal and state/provincial governments play a role, as well as the US National Park Service, US Fish and Wildlife Service, and Parks

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<sup>1</sup> Gerardo Ceballos et. al., "Accelerated Modern Human-Induced Species Losses: Entering the Sixth Mass Extinction," *Science Advances* 1, no. 5 (June 2015): e1400253, <https://doi.org/10.1126/sciadv.1400253>.

<sup>2</sup> Judith L McDonald, "Essay: Bison Restoration in the Great Plains and the Challenge of their Management," *Great Plains Research* 11, no. 1 (2001): 104, Accessed January 18, 2021. <http://www.jstor.org/stable/23775643>.

<sup>3</sup> Curtis H. Freese et. al., "Second Chance for the Plains Bison," *Biological Conservation* 136, no. 2 (2007): 177. <https://doi.org/10.1016/j.biocon.2006.11.019>.

<sup>4</sup> Nicholas A. Mcmillan et. al., "Plant Community Responses to Bison Reintroduction on the Northern Great Plains, United States: a Test of the Keystone Species Concept," *Restoration Ecology* 27, no. 2 (2018): 379–88, <https://doi.org/10.1111/rec.12856>.

<sup>5</sup> "Plains Bison Reintroduction," Parks Canada, Government of Canada, October 27, 2020, <https://www.pc.gc.ca/en/pn-np/ab/banff/info/gestion-management/bison.>; John Davenport, "Making the Buffalo Commons New Again: Rangeland Restoration and Bison Reintroduction in the Montana Highline," *Great Plains Quarterly* 38, no. 2 (2018): 199-225, doi:10.1353/gpq.2018.0024.

Canada.<sup>6</sup> Bison are significant to many Native American tribes, so tribal governments and agreements also play a part.<sup>7</sup> Finally, non-governmental organizations, scientists, and ranchers are all involved.<sup>8</sup> Each of these groups has different goals, metrics, and motivations.<sup>9</sup> This is a common thread across species conservation and other environmental issues: so many interests are involved that cooperation becomes both difficult and essential.<sup>10</sup>

At present, there is no overview or analysis of the stakeholders involved in bison restoration, including their motivations, methods, partnerships, and outcomes. Examining these actors may uncover restoration strategies for both plains bison and other at-risk species, particularly keystone species, culturally significant species, and cross-border species.

### **Research Question**

In my research this summer, I will ask: how have different actors worked to reintroduce plains bison in the United States (Montana) and Canada (Alberta)? What are their motives, methods, and efforts toward collaboration?

### **Outcomes**

Competing interests are a significant factor in environmental protection failures, particularly in biodiversity conservation.<sup>11</sup> I hope my key accomplishment with this research will

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<sup>6</sup> Freese et. al., "Second Chance for the Plains Bison," 180.

<sup>7</sup> "Treaty." Buffalo Treaty. Accessed January 18, 2021. <https://www.buffalotreaty.com/treaty>.

<sup>8</sup> "Saving Our Bison," Saving our Bison, University of Saskatchewan, Accessed January 18, 2021, <https://wcvvm.usask.ca/research/bison.php>; "About the CBA," Canadian Bison Association, Accessed January 18, 2021, <https://www.canadianbison.ca/producers/cba/association>.

<sup>9</sup> Judith L McDonald, "Essay: Bison Restoration in the Great Plains and the Challenge of their Management."

<sup>10</sup> Riikka Paloniemi et. al., "Biodiversity Conservation Across Scales: Lessons from a Science-policy Dialogue," *Nature Conservation* 2, (2012): 7-19, doi:10.3897/natureconservation.2.3144; Davenport, "Making the Buffalo Commons New Again: Rangeland Restoration and Bison Reintroduction in the Montana Highline."; Defries, Ruth, and Harini Nagendra. "Ecosystem Management as a Wicked Problem." *Science* 356, no. 6335 (2017): 265-70. <https://doi.org/10.1126/science.aal1950>.

<sup>11</sup> Riikka Paloniemi et. al., "Biodiversity Conservation Across Scales: Lessons from a Science-policy Dialogue,"; Freese et. al., "Second Chance for the Plains Bison,"; Martin Sharman and Musa C. Mlambo, "Wicked: The Problem of Biodiversity Loss," *Gaia* 21, no. 4 (2012): 274-277, <http://myaccess.library.utoronto.ca/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fscholarly-journals%2Fwicked-problem-biodiversity-loss%2Fdocview%2F1269157423%2Fse-2%3Faccountid%3D14771>.

be to expand knowledge about progress in situations where competing interests appear--both in bison restoration and in species conservation and restoration as a whole. Bison are in several unusual positions: commercialized, culturally significant, cross-border, and keystone. But they are not alone.<sup>12</sup> Animals around the world share these characteristics, and while every species has value, these animals are in particularly important positions. Ideally, my work can point toward possible action to restore them even when action appears difficult.

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<sup>12</sup> Eric W. Sanderson et. al., "The Ecological Future of the North American Bison: Conceiving Long-Term, Large-Scale Conservation of Wildlife," *Conservation Biology* 22, no. 2 (April 1, 2008): 253, doi:10.1111/j.1523-1739.2008.00899.x.

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