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Methodological Analysis On Settler Territoriality And The Rise Of The Yellowstone Wild Bison Advocacy Movement

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Abstract

Bison bison, also known as the North American Buffalo, are a keystone species of endemic megafauna in the Great Plains prairie ecosystem. Bison were driven nearly to extinction in the late 19th century when millions of buffalo were massacred by settlers in order to starve Indigenous civilians and force them onto federally-managed Reservations as a step in the centuries-long ethnic-cleansing of Turtle Island. Such genocidal methods were a primary tool in erasing the land claims of Indigenous nations and colonizing the territories of Indigenous communities who depended on bison as a primary source of food and materiel for social reproduction. The only wild bison known to have survived the great slaughter were a herd of approximately two dozen who migrated into Yellowstone National Park where they remained isolated until the early twentieth-century. This small population grew into two genetically distinct breeding groups and starting in the 1980's, trail-grooming for winter recreation in Yellowstone led to a decrease of winter-related bison deaths, leading to population growth. As the bison population increased so did their migrations out of the park, bringing the wild bison herds into conflict with ranchers, private property owners and law enforcement officers in Montana.

For the past three decades, Montana state and federal agencies have culled Yellowstone's wild bison herds to maintain a population between two and five thousand individuals. This is done in spite of the dangerously low number of wild bison extant in contemporary North America. Such culling is intended to limit the territorial range of bison's instinctual migration patterns and is justified by claims of a rhetorical concern over transmission of *Brucellosis abortus* bacteria from wild bison to domestic cattle. Such claims are seen by concerned Indigenous and environmental groups as a bad-faith argument due to the few precautions that governmental and commercial actors have taken to prevent disease transmission between elk and cattle in state-regulated winter feedlots where the two species are allowed to intermix; which is the only recorded vector for *Brucellosis* transmission from wild ungulates to livestock in modern history.

Indigenous nations and environmental organizations continue to petition the Federal government to list bison as endangered and allow for the expansion of bison territory back into its formerly expansive area stretching from central Alaska down to central Mexico and from Nevada to Florida and New York. Activists point to the difference between the economic value of tourism for trophy elk hunting versus wild bison as a symbol of Indigenous autonomy and political sovereignty as a factor in why wild bison, who have never transmitted disease to cattle, are routinely relocated or killed for instinctually returning to spring birthing grounds on the same public land that infected-elk are allowed to pass through, graze, and mix with livestock within.

This project brings decolonial perspectives into conversation with historical and activist geographies to engage with postcolonial and settler-colonial discussion communities. This project critiques historical geography's engagement with the wild bison herds of Turtle Island. This thesis is informed by various scholarships on historical materialism, the production of space, and the social construction of nature. Last but not least, this project also benefits from the perspective of eco-feminism to ethically assess western ontologies and the manner in which they devalue non-human organisms through the dualistic and colonial epistemologies that have been used historically and into the present to perpetuate gender, ethnic, and racial discrimination and the dehumanizing of women, people with disabilities, Black, Indigenous, colonized, and other socially marginalized communities.

Keywords: Bison, Buffalo, Postcolonial, Settler-colonial, Logic of Elimination, Settler Moves to Innocence, White Possessive(ion), Agnotology, Anguishing, Settler Territoriality, Historicification, Shifting-Focus, Wild Bison Advocacy Movement, Historical Geography, Indigenous Studies, Activist Geography, Policy Studies, Buffalo Commons, Roam Free!

METHODOLOGICAL ANALYSIS ON SETTLER TERRITORIALITY AND THE RISE OF THE YELLOWSTONE WILD BISON ADVOCACY MOVEMENT

by

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ABBREVIATIONS

APHIS	US Department of Agriculture's Animal and Plant Health Inspection Services (federal)
BFC	Buffalo Field Campaign
BIA	Bureau of Indian Affairs (federal Dept. of Interior)
FWP	Department of Fish Wildlife and Parks (State of Montana)
DOL	Montana Department of Livestock (State of Montana)
FEIS	Federal Environmental Impact Statement (specifically 8/2000 "Buffalo report")
GAO	Government Accountability Office (federal)
GYE	Greater Yellowstone Ecosystem
IBMP	Interagency Bison Management Plan
ITBC	InterTribal Buffalo Council
IBMP	Interagency Buffalo Management Plan (various incarnations of lethal bison policy)
JMP	Joint Management Plan (original title of Montana state record of decision 2000)
NAS	National Academy of Science, specifically the 1998 "Buffalo report"
NFS	National Forest Service (federal Dept. of Agriculture)
NPS	National Park Service (federal Dept. of Interior)
SA	Signatory Agencies
TEK	Traditional Ecological Knowledge
TES	Two-Eyed Seeing
USDA	US Department of Agriculture

Remind yourself every morning, every morning, every morning:

"I'm going to do something, I've made a commitment."

Not for yourself, but beyond yourself.

You belong to the collective.

Don't go wandering off, or you will perish.

Rosalie Little Thunder, Lakota elder and
Co-founder of the Buffalo Field Campaign

When my granddaddy homesteaded this land,

there weren't no Indians,

there weren't no wolves,

and there weren't no buffalo!

And we plan to keep it that way!

Apocryphal statement commonly attributed
to a local cattle-rancher with a close familial
relation who was a regional Park Service
administrator.

CHAPTER I: INTRODUCTION

Human society is rarely as straight-forward, gentle, or benevolent as the wild bison herds are to one another. Outside of the rut season, bull bison collect in small groups with other bull bison, separated away from the more populous cow-calf mixed groups of mothers and juveniles of various ages. Both bachelor-bull and cow-calf groups are so fearlessly complaisant that they will approach and graze within arms reach of other species (including humans) who make no threatening moves towards them. I once witnessed an adult human jog through a cow-calf herd grazing on the shoulder of the highway. Even though there were several newborn calves in the herd, the wild bison slowly moved to either side as the jogger approached and allowed him to huff and puff his way up the hill, right through the middle of the herd, physically intact to the last even though he was well within the range of an easily-lethal kick from any one of the dozen brand-new mothers. Such events as this would likely be much more common, were it not for the fact that settler-colonial government policies continue to remove wild bison from the overwhelmingly vast majority of their historically documented natural range of habitat.

Once not so long ago, wild bison herds stretched across the prairie habitat of the Great Plains of Turtle Island from as far north as central Alaska, to as far south as central Mexico and from the high-altitude deserts of Oregon and Washington, to as far east as Georgia and Buffalo, New York. These wild bison were and are culturally and materially a species of crucial importance to many of the Indigenous nations' whose historically-recorded territories lay between the Appalachian and Rocky Mountains. The only wild bison known to survive the mass near-extinction event at the end of the nineteeth-century in the continental United States were those that took refuge in the high-prairie alpine meadows of Yellowstone, the only national park extant at the time.

The rugged physical geography, high-altitude, and remote isolation provided wild bison with much-needed sanctuary from buffalo-hunters during the decades prior to the early twentieth-century conservation effort to temporarily ensure wild bison's biological variability in hopes of avoiding their total-extinction. Since the National Park Service began active management of the Yellowstone wild bison herds, the rugged terrain and steep-elevation of the greater Yellowstone Ecosystem that formerly sheltered the wild bison herds from nineteenth-century buffalo hunters, began in the twentieth and twenty-first centuries to be used as natural bottlenecks in order to contain the migration of the buffalo herds. By hazing or shooting any individuals or groups that exit the national park, state and federal law enforcement officers physically prevent wild bison from returning to their former, far-reaching Great Plains prairie habitat across Turtle Island.

Each spring, the state and federal law enforcement officers explicitly target the cow-calf groups during the time when the buffalo mothers are giving birth. These cow-calf groups are the women and children of Buffalo Nation who carry within themselves the seeds of the future wild bison herds. These family-units are also made up of juvenile bison of both genders, who form a complex and inter-generational social matrix through which the young calves are protected during their first, most-vulnerable years of life. The time surrounding birth is the most defenseless time in a bison’s life, for the newly born calf and their mother. The targeted hazing of matriarchal family groups by law-enforcement officers during the vulnerable time that surrounds calving purposefully and unnecessarily creates unnaturally dangerous conditions for the mothers and their newborn calves.

Bison advocates have video-documented on multiple occasions the manner in which the hazing of wild bison increases the targeting of newborn calves by predators as large as grizzly bears and as small as coyotes. Additionally, the shotgun-launched firecrackers and use of a low-flying helicopter have been well-documented causing bison herds to stampede, exposing newborn calves to the increased

danger of being injured, maimed, and killed in the frenzied thundering of hooves that at times can quite-literally shake the ground itself as the herds flee along the steep, sandy bluffs along the Upper-Madison River or the high, rocky bluffs above the Yellowstone River. On many spring days I struggled on foot to keep up with horse-mounted state and federal law enforcement officers as they drove bison mothers with newborn calves across rivers, highways and rough alpine terrain. Some of the newborn calves were days old, others who were at times barely minutes old. It is a tragically common occurrence to witness calves being born to mothers who are forced into early labor by the brutal trauma of the haze itself. Mounted agents would isolate these birthing mothers from the rest of the herd to lessen the chance of them being trampled. The state and federal law enforcement officers would then drive the bison herds away from the isolated mothers, leaving each one completely alone in the rugged forested landscape as she experienced the most dangerous experience of her adult life–calving–without any support or defense from the other bison mothers and the juveniles who otherwise naturally act to keep watch for predators as a group.

Sometimes twice daily the state and federal law enforcement officers would haze the wild bison with horsemen, helicopters, snowmobiles, all-terrain vehicles, and gunfire as I and other buffalo advocates bore witness to the wild bison herds' struggle for life and death in the face of violent, settler-colonial, capitalist-driven aggression. For over twenty-five years wild bison advocates have documented these heart-wrenching events as they work to oppose the stated desire of private livestock and hunting interests for total elimination of wild bison from the Montana landscape.

For decades, wild bison advocates have borne witness to events in Yellowstone National Park and the surrounding GYE which embody the continuity of Eurocentric enlightenment ontologies of wasted-land, empty lands, and dualistic epistemologies that promote man-versus-nature paradigms and the paternalistic notions that the varied and diverse Indigenous cultures of Turtle Island were and are

scientifically and culturally backwards. These bison advocates claim that such out-of-date cultural chauvinism against Indigenous communities continue to inform state and federal wildlife management policies, embodied in the exclusion of Tribal governments and the BIA from participation in wild bison management policy.

In the analysis of the ongoing lethal management of the last wild bison herds in the United States, this project engages with specific terminologies that are likely to be new to many readers. This project uses the terms 'historicification', 'settler-territoriality', and the 'wild bison advocacy movement'. In brief, historicification identifies the way in which settler-scholars and governments use rhetorical pivots and illogical assertions to positions extant Indigenous communities–both human and more-than-human–as restricted to some previous historical period and alienated from the present day. Settler-territoriality describes the discursive manner in which settler-colonial structures claim the historically-recorded and treaty-recognized territories and natural resources of Indigenous nations and the material methods used by settlers to exclude Indigenous communities from such spaces, often through use of private property laws that position Indigenous territories and resources as belonging exclusively to settlers, either individually and corporately. The term wild bison advocacy movement refers to the disparate collection of local land owners, environmental activists, and advocates of Indigenous treaty-rights who work together or separately to buffalo herds to their former, massive range across Turtle Island [North America]. This thesis engages with the above terminologies in order to analyze state and federal policy documents regarding the total-exclusion and lethal-elimination of wild bison from the majority of their historically-recorded Great Plains habitat through a the settler-colonial lens of critique

This thesis explores the ongoing lethal management of the critically endangered wild bison herds in Yellowstone National Park as contextualized through the following lenses of critique within

the postcolonial and settler-colonial discussion communities. The four lenses of critique that I engage with are *Shifting-Focus*, the *Logics of Elimination,* the associated *Settler Moves to Innocence* of *anguishing* and *agnotology*, and *White Possessive(ion) theory*, which are all discussed in greater depth in the Literature review section of this thesis. In brief, *Shifting-Focus* is the discursive pivot by which one moves between hyper-specific and broad generalization so as to present a narrative in-line with preconceived notions regarding the facts. The *Logics of Elimination* present a critique of the manner in which settlers justify their nominal claims to Indigenous nations' territorial lands and natural resources using *ex post facto* motivated reasoning to *historicify* both the legitimacy of Indigenous communities' land claims as well as the ongoing genocidal actions of settler-states and structures. *Settler Moves to Innocence* are a collection of rhetorical pivots used to justify ongoing capitalist-colonization and settler-colonization of Indigenous national territories and the natural resources within them. *Anguishing* is a *Settler Moves to Innocence* in which settler and capitalist-colonial structures reposition the responsibility for the detrimental results of settler and/or capitalist-colonial actions onto the communities that such results affect. As such, *anguishing* attempt to discursively justify an increase in the detrimental actions under the nominal justification that more of the same will fix the socially constructed problems. *Agnotology* is a *Settler Moves to Innocence* that describes the purposeful production and spreading of disinformation so as to misinform the populace at-large about well-established facts in order to enrich or empower an elite few. Lastly, *White Possessive(ion) theory* critiques the way in which settler-colonists both individually and corporately chauvinistically claim Indigenous nations' territories and natural resources as the inherent and exclusive private property of European-coded settlers. The settler territoriality described by *White Possessive(ion) theory* targets Indigenous people and communities as anachronistic while also socially constructing non-white immigrants as a threat to the supposedly-western foundations of settler-colonial nations.

Research Questions

In order to analyze the foundation of lethal management policy of Yellowstone's wild bison herds, this project employs archival research of government documents concerning wild bison management policy in the Greater Yellowstone Ecosystem (GYE). This project contributes to a growing body of scholarship that focuses on TEK and decolonial theories such as the *Logics of Elimination*, *Settler Moves to Innocence*, and *White Possessive(ion) theory*. By responding to the following questions, this project seeks to shed light on the veracity and purpose of the Interagency Buffalo Management Plan (IBMP).

1) How does public bison management policy reflect the larger conflict in the United States between capitalist-colonial epistemologies embodied by industrial livestock agriculture and the science-based epistemologies of agroecology and environmental restoration?

2) How do the per-conditional objectives underpinning the establishment of the IBMP illustrate the capitalistic Enlightenment-era settler-colonial land ontologies motivating the public policy of bison management.

3) In what ways are state and federal claims regarding the need for bison management contradicted by the scientific evidence cited by the state and federal signature agencies (SA) to the Interagency Buffalo Management Plan?

4) How does modern wild bison management policy replicate and reproduce the nineteenth-century settler-capitalist land ontologies within a contemporary legal and ethical framework?

This project brings decolonial perspectives into conversation with historical and activist geographies to engage with the decolonial theories discussed above and in Chapter Two. Deeply informed by these ideas, my work critiques historical geography's engagement with the *Yŭnŭsh* (bison: Chickasaw) of Turtle Island. This thesis is informed by various scholarships on historical materialism, the production of space, and the social construction of nature. Last but not least, this project also benefits from the perspective of eco-feminism to ethically assess western ontologies and the manner in which they devalue non-human organisms through the dualistic and colonial epistemologies that have been used historically and into the present to perpetuate gender, ethnic, and racial discrimination and the dehumanizing of women, people with disabilities, Black, Indigenous, colonized, and other socially marginalized communities.

CHAPTER TWO: Literature Review

This thesis applies postcolonial and settler-colonial lenses in regards to the ongoing geographic discussion of wild bison habitat and Great Plains range management so as to analyze the racial and cultural constructs that emerge out of the capitalist-colonial ontologies of land as a space for resource extraction (Swyngedouw 2012; Moore 2015). This framing will reveal the underlying western ontologies and epistemologies that allow for a model of economic growth perpetuating ongoing settler-capitalist accumulation by dispossession (Andreuicci et al., 2017; McCreary, 2021).

This chapter begins by expanding on the specific terminologies mentioned previously in greater depth before reviewing background information concerning wild bison natural history, wild bison's place in the larger rangeland ecology, and traditional Indigenous ecological knowledge and methods such as prescribed seasonal burning of undergrowth and ladder fuels. Chapter Two continues by exploring the Theoretical Engagement in this thesis, followed by a discussion of the Four Lenses of postcolonial and settler-colonial critique. Next, this chapter will discuss the Two-Eyed Seeing and Textual Analysis methodologies used in this thesis. Chapter two will conclude with an exploration of the theoretical framework of this project and the ways in which the Four Lenses of Critique engage discursive with the rhetorical claims and material realities of the Interagency Buffalo Management Plan (IBMP)

2.1. Terminologies

This project presents several specific terms including historicification, settler territoriality, and wild bison advocacy movement, which will be discussed further below.

Historicification

Historicification is my particular terminology, coined from ideas presented by Australian settler-historian Dr. Patrick Wolfe and First Nations anthropologist Dr. Audra Simpson as well as other Indigenous and settler-scholars who are part of the wild bison natural history, postcolonial, and settler-colonial discussion communities (Trouillot, 1995; Isenberg, 2000; Byrd, 2011; Tuck & Yang, 2012).

To *historicify* refers to the manner in which the *Logic of Elimination* positions 'Indigenous rights as a historic residue' (McCreary, 2018). This *eliminatory logic* is founded upon the long held Eurocentric chauvinism that only wealthy, educated) Western (men) were fully human, while considering non-western cultures as backwards, savage, and thus subhuman (Smith, 1999). Within the *eliminatory logic* of *historicification,* non-western cultures, people, and the recognition of what is an 'authentic' Indigenous identity are relegated to the "dustbin of history" (Spivak, 1988). My goal in coining the term *historicify* is to contain in a single word the social construction referred to by multiple Indigenous scholars which Roxanne Dunbar-Ortiz describes as implying "an impossible ideal about Indians as frozen in an unchanging past, where they are unable to be both modern and Indian" (Dunbar-Ortiz, 2016, 2).

Historicification is used by settler-scholars as a method of e*rasure* that targets the legitimacy of well-documented, continuously-asserted Indigenous claims to lands and resources in favor of granting authority and power over the same to settler-states and their capitalistic corporate affiliates (Coulthard, 2014; Curley, 2021). Such *erasure* of indigenous legitimacy is presented by the Logics of Elimination as irrevocable, despite the inability of those making the assertion to specify when exactly the change was made and under what legitimacy. Claims to the irrevocability of settler-colonialism tie into claims made in *White Possessive(ion)* critique, while

claims to the legitimacy of settler-colonialism tie into the *Nahullo* (English) legal concept of *terra-nullius* (Byrd, 2011; Moreton-Robinson, 2015).

By relegating Indigenous nations, cultures, and governments into the past, settler-scholars and the *Nahullo* legal system can *erase* historically-recognized land claims and the constitutionally-recognized treaties that historically documented the legitimate legal status of Indigenous nations. In this way, *historicification* is an active tool of *settler territoriality*.

Settler Territoriality

'Settler territoriality' is a term that I use to describe a set of behaviors that fit into the larger concept of territoriality as explored in political geography (Painter, 1995; Johnston, 2001; Lacher, 2006). The idea of territoriality in the geographic fields stems from from the idea of territoriality in wildlife biology and behavioral ecology, and 'settler-territoriality' is not the first time that this idea has been engaged with in the field of animal geography (Buller, 2014). The concept of territory itself is a central focus of the entire field of geography, in so far as it gives name to an integral concept in geography, that being the space/nature/environment in which a given human culture engages.

In the fields of wildlife biology and behavioral ecology, territoriality describes the way in which a type of animal defines its living-space and excludes others from that area (Carpenter, 1958; Hinde, 1956). To quote a seminal work, territoriality is a "limited geographical area [that is] is settled upon and defended by an animal" (Nice, 1941 citing Crawford, 1939). This thesis contrasts the concept of wildlife territoriality discussed in wildlife ecology with settler territoriality as an area 'settled upon and defended' both physically and discursively by the settler-colonial state. In this way the idea of settler

territoriality gives name to the manner in which settler-capitalism claims the historically recorded and legally recognized territories of Indigenous nations and the natural resources contained within.

Settler-territoriality explores the ways in which the social legitimization of settler-colonial epistemologies are centered and normalized in the *Nahullo* discursive. *Settler-territoriality* discursively erases the modern existence of the Indigenous communities and the clan-based representative-governments. Indigenous nations are historically-documented, treaty-recognized national territories which settler-governments violently occupied in violation of contemporary and modern international laws, such as the Geneva conventions and the 1648 Treaty of Westphalia.

The United States and other settler-colonial *Nahullo* governments such as Canada and Australia are signatories to the most recent Geneva Conventions. The United States and European countries have endorsed and enforced the right of civilians to return to their homelands after cessation of conflicts and the return of annexed national territories taken in war in-line with the Geneva Conventions, throughout the later half of the twentieth-century. Such actions taken by settler-colonial governments make fine fodder for media accounts of global-north beneficence, however a closer look will reveal a glaring inconsistency when it come to the national territories and displaced Indigenous civilian communities in the Okloshi'homma lands of exile west of the Mississippi and on every Reservation in the settler-nation. Despite the fact that both historical treaties and international laws were drafted and signed by the settler-colonial governments themselves, Indigenous citizens continue to be and physically displaced from onto 'Reservations', 'traditional territories' and other such euphemistic feints used as *Logics of Eliminatory* to continue the illegal dispossessed of Indigenous national territories and economically disenfranchised from the natural resources of our legally-recognized and historically documented homelands. The ongoing disenfranchised of Indigenous nations from recognition in international bodies such as the United Nations occurs under the threat of Security Council veto by the

same settler-capitalist nation-states first responsible for the colonization and settlement of *Tashaiye Loksi'* [Chickasaw: Turtle Island, i.e. North America]. Through this and other methods, settler-states enforce their own territoriality in line with the ideology of Realpolitik and for the benefit of the settler-states' own relative geopolitical advantage vis-à-vis other capitalist-colonial and settler-colonial nation-states.

The critique of *settler-territoriality* in this project shines light on the mobile index of settler-capitalist expansion to annex, occupy, and exploit Indigenous communities, their natural resources, and national territories under the governing settler polities and their associated colonial-capitalist economic system. It is from dualistic and patriarchal western paradigms that modern wildlife management practices within and beyond the United States have grown. Therefore, *settler-territoriality* serves as a framework to describe, hypothesize, and analyze links among multiple dimensions of wild bison ontology from an intersectional perspective of animal geography, historical geography, public policy geography, and activist geographies. One social movement that exists at the intersection of environmental activism and Indigenous calls for Indigenous-settler treaty-enforcement is the wild bison advocacy movement.

Wild Bison Advocacy Movement

Throughout this thesis I use the term 'wild bison advocacy movement' to describe a disparate collection of environmental organizations, individual activists, tribal groups, and local landowners. This diverse and loose-knit collection of individuals, communities, and organizations have at-times over the course of the last three decades combined efforts to pursue a diversity of tactics and strategies to protest, resist, lobby, and bring lawsuits in pursuit of a realignment of federal and state wildlife

management policies regarding wild bison herds attempting to follow their natural instincts to seasonally migrate outside of the boundaries of Yellowstone National Park (YNP). While there is much diversity within the environmental activist community at-large, this project explores one intersection of environmentalist and Indigenous activism as well as the close relationships that exist between some tribal representatives and specific environmentalist groups advocating for the territorial integrity of Yellowstone bison (Brister, 2013; McDonald, 2022).

While these groups and individuals do not always agree with each other regarding specific tactics, they do all share an active desire to see wild bison migrating unabused outside the straight-lines-on-a-map boundaries of YNP and an unshakable belief in their own agency to personally engage with wildlife management policy to improve material conditions for wild bison herds. Some wild bison advocates are local landowners who enjoy seeing the wild herds grazing across their high-alpine prairie properties. Other bison advocates travel across the country and sometimes across the world to witness and take a stand against the violent treatment and brutal slaughter of the last tenaciously lingering survivors of what were once, not-so-long-ago in the historical record, endless herds of highly-intelligent, physically massive yet delicately gentle giants. Some wild bison advocates visit the GYE only once, other bison advocates return year after year to the stand in solidarity with the beautiful cow-calf mixed groups and mighty bachelor-bull groups as they mingle and separate in a complex inter-generational social matrix of interdependence.

Within modern settler-colonial societies, environmental and social activists such as those of the wild bison advocacy movement go forth into the cold, either metaphorically or at times quite literally. Environmental and social activists sacrifice their own physical energy to bring a new world into being. Every hour spent planning an action, writing a legal brief pro-Bono, or speaking at a public hearing, is one less hour of life to be spent earning money, enjoying one's friends and family, or practicing any

other leisure activity one enjoys. Sometimes activist even give of their own health, being bruised, bloodied, battered, and even suffering bones broken from violent Law Enforcement Officers (LEO's) who often show greater concern for corporate-profits or unconstitutional legal-statutes than they do for the dignity, well-being, or even survival of fellow human and more-than-human communities. Like the elder bulls of the wild bison herds during deep winter snow, activists such as the wild bison advocacy movement give of themselves, so that others may live.

2.2. Historical Background

Bison bison, aka the North American Buffalo, can smell grass from miles away even under the two to three meters of snow and ice that commonly cover Yellowstone during the long winter months. During this season, bachelor-bull groups are first out of the park in search of forage under the snow. These small collections of elder bulls break trails through the high snow banks at great caloric expense to themselves. Bull bison use their powerful necks and broad heads like plows, digging massive furrows in the ice and snow to reveal the last grasses of summer below to eat. The bachelor-bull groups also use their great strength and stamina to find and mark the safest paths through the narrow mountain valleys for those behind. Days or weeks behind the bachelor groups walk the cow-calf mixed groups. These 'co-ed' groups contain female bison of all ages as well as juvenile males too young to join the bachelor-bull groups, but still quite large and capable of defending their mothers, aunties, siblings, and cousins from predators. Cow-calf groups follow the trails in the snow left by the bachelor-bull groups that went on ahead of them. The cow-calf groups graze on the grasses that have been already exposed by the bull groups, who sacrifice their own precious fat and energy reserves to provide forage for the women and the children of Buffalo Nation during the bitter winters when temperatures can drop as low as -40°C (-40°F) for weeks or more at a time.

Due to their great size, wild bison face little threat from modern predators (smilodons may have been a different matter way back when) and even otherwise dangerous animals such as grizzly bears and wolves generally only target bison calves, not full-grown adults. Because of this, adult bison have no natural predators (except humans) and bull bison who are not killed by hunters most often die from what is colloquially known as ‘winter-kill’. Winter-kill is a catch-all term for animals found in the spring with no signs of depredation, and winter-kill makes up a large-portion of what grizzly bears in the GYE eat just after waking from hibernation to quickly gain weight without needing to spend calories chasing live prey. While winter-kill can be a product of any number of factors, two common general causes are sickness and hunger. There is a direct correlation between these two in that chronic hunger affects the efficacy of the mammalian immune system. Thus, the long trails leading to fields of grass that the bull bison uncover and then leave for the cow-calf groups represents not only an interesting natural adaptation that benefits survival of the community over the individual, but a very physical and tangible way in which the elders give of their own accumulated strength and wisdom to the collective, even at the inevitable cost of their own lives.

Wild bison are recognized by modern ecologists as a keystone species within the long-grass and short-grass prairie ecosystems of the Great Plains, Midwest, and arid-West bioregions (Vinton et al, 1993; Knapp, 1999; Truett et al., 2001; Geremia et al, 2019; Mueller, 2021). Prior to European colonization and settlement, tens of millions of bison roamed Canada, the United States, and Mexico, divided into three regional subgroups: plains, mountain, and wood bison (Franke, 2005, 13). These bison functioned as a keystone species for the arid High Plains region by directly aiding in the spread of the long and short-grass prairies that the Indigenous peoples also encouraged with the large-scale use of small, controlled-burns (Cronon, 1983; Mann, 2005; Mueller, 2021).

In the late nineteenth-century, the wild bison herds survived a *Nahullo* induced near-extinction event associated with the ethnic-cleansing of Indigenous peoples and cultures by the European settlers during their colonization of the Great Plains region (Brown, 1970; White, 2002). Bison were driven to the brink of extinction almost 150 years ago and during the 20th Century management policy focused on corralling bison in Yellowstone park, first in a manner similar to livestock and later like as a historical 'curiosity' for tourists to gawk at while contained within an unwalled-zoo designed "not as a functioning part of the plains environment" but as a prop for attracting tourists (Isenberg, 1997, 191).[1] Due to the privatization of Indigenous national territories by settler-capitalist *Nahullo*, the lack of contiguous unfenced prairie habitat capable of sustaining large-scale bison herd migrations like those in the historical record is now an issue of ongoing ecological concern. While analyses vary, some wildlife biologists think that continuing current management policies that maintain low population numbers of wild bison and restricting them in isolated mountain areas creates a danger of foreseeable damage to their ongoing genetic viability in the future (Lacy 1987, McDonald, 2022, 108).

Historically, Indigenous land management practices consisted of small-scale controlled burns over large areas which created a patchwork mosaic of park-like woodlands and open-savanna of mixed long and short-grass prairie ecosystems and their associated megafauna (e.g. bison, elk, and grizzly bears) that formerly transversed the woodland regions east of the Mississippi river, creating high biomass savannas stretching as far east as modern-day Georgia in the south and at least as far north as the once aptly-named Buffalo, NY (Cronon, 1983; Vinton et al, 1993; Knapp, 1999; Mann, 2005; Schuler et al, 2006; Allred et al, 2011; Dunbar-Ortiz, 2015; Mueller et al., 2021). This project looks at the wild bison of Yellowstone. The two separate breeding populations that make up the Yellowstone bison herds are genetically unique populations that have been physically isolated within Yellowstone

National Park since the massive settler-capitalist driven bison extermination event at the end of the nineteenth-century (Vinton et al, 1993; Brister, 2013).

Feed-Fight: the Terrorism of Hunger

Throughout the nineteenth-century wild bison herds were targeted for extermination across the continent of Turtle Island due to their material, cultural, and spiritual importance to Indigenous communities (Brown, 1970; Mowat, 1984; Oetelaar, 2014). According to historians, the elimination of wild bison as a way to starve Indigenous civilian communities into submission is called a 'feed-fight' and it was an extension of settlers' burning of Indigenous corn fields dating back to early colonial attacks of settlers upon Indigenous civilian communities (Grenier, 2005; Dunbar-Ortiz, 2015). Much like the bounties paid to rangers and militiamen by settler-governments in exchange for the dismembered bodies of Indigenous people, settler use of feed-fight tactics was a well-worn tactic of state-sponsored terrorism by the nineteenth-century, employed variously by colonial, state, and federal governments of the United States (Brown, 1970; Dunbar-Ortiz, 2015).

The nearly-countless population of bison was deliberately eliminated by United States cavalry soldiers, frontier militia irregulars, and unorganized squatter-settlers as purposeful targeting of Indigenous civilian populations with the violence of hunger (Brown, 1970; John Grenier, 2005; Dunbar-Ortiz, 2015). The annihilatory slaughter of wild bison herds continued en masse to the brink of their purposeful near extinction. In less than a century, the wild bison herds were reduced from a transcontinental mass of an estimated 50-100 million to less than two dozen wild, free-ranging individuals in the early 20th century (Mowat, 1984; Dunbar-Ortiz, 2015).

While it may never be known how many bison the historical long and short-grass prairies supported, a few facts are well-recorded. Over 75 million bison skins were sold by *Nahullo* buffalo hide "dealers" between 1850 and 1885, although modern historians estimate that those skinned represent only ⅓ of the total bison killed by *Nahullo* settlers, railroad, and cavalry men (Mowat, 1984, 142). Other historical accounts record the purposeless killing of bison, even when not being consumed or commodified. In 1843, Captain Howard Stansbury of the US. Army Corps of Topographical Engineers, "observed the wastefulness of the mountaineers… From Archibald's four [bison] kills, only the choicest parts were taken from three. The fourth was left untouched" (Utley, 1997, 268-269).

From these two accounts, one can estimate a population of 100-225 million total bison killed during less than forty years. It is unknown how many total individual bison existed on the historical prairies, however it has always been in the ideological interests of the settler-state to downplay the total number that would have been alive contemporaneously (Harvey, 1974, Wolfe, 2006, Tuck & Yang, 2012). It is important to note that such wasteful cruelty was not done inadvertently such as was the case with passenger pigeons' decline. Rather, the mass slaughter of buffalo was well-documented in the contemporaneous settler media to be intentionally-genocidal, with the stated purpose of erasing the Indigenous people's land claims and starving indigenous civilians in pursuit of the colonization of Indigenous national territories by Euro-American settlers (Brown, 1970; Mowat, 1984; Zontek, 2007 [quoting US Interior secretary Delano, 1873]; Dunbar-Ortiz, 2015).

Conservation Effort

The nominal restoration of the Yellowstone bison herds formed the first historical environmentalist project conducted by the US. Department of the Interior in 1902 (Franke, 2005). Although the wild bison as a species have survived from a genetic standpoint, they are maintained by the settler-capitalist governing policies and their professional policy makers as "effectively extinct at what are thought to be ecologically relevant scales" (Kohl et al., 2013, 728). The population of wild bison herds in Yellowstone remained steadily around a few thousand within the park until the 1980's when trail-grooming related to winter tourism led to a decrease of winter-related bison deaths (FEIS vol 1, 2000, xi). As the wild bison population began to grow, it led to an increase in migration outside of the boundaries of the park in search of forage and spring birthing grounds. This natural and instinctive migration of the wild bison herds led to the gentle and non-aggressive cow/calf family groups to be violent hazed and/or indiscriminately shot and killed in groups of a dozen or more individuals at a time by the Montana state Department of Livestock (DOL).

In the early 20th century, the National Park Service (NPS) managed Yellowstone bison like livestock, introducing genetically-pure herds from Montana and Texas (Morrisette, 2000, 3; Franke, 2005; Lancaster, 2005). Such management practices lasted until the late 1960s when the NPS instituted a policy of "natural regulation" to maintain population limits (Morrisette, 2000). At this same time, the NPS began a policy of restricting bison from leaving Yellowstone's park boundaries through the use of hazing and slaughter (Franke, 2022). Unlike most privately-owned bison herds, the Yellowstone wild bison herds do not contain cattle genes from livestock hybridization programs (Franke, 2005). Because ranched bison so commonly contain cattle genes, bison hybrids are referred to in the livestock industry as *beefalo* or *cattalo* (Isenberg,

1997). In contrast, the Yellowstone bison herds and the biologically related herds that have been reintroduced to other areas from Yellowstone, are referred to by environmental advocates as "genetically-pure*"* bison (Franke, 2005, 13). Due to this biological difference, ranched beefalo and bison hybrids form as measurably a distinct genetic population from wild Yellowstone bison that domesticated wolf-dog hybrids owned as pets in the United States differ from wild wolves in reintroduction programs.

Late 20th Century Yellowstone Bison Management

Despite the intense and abiding interest that Indigenous communities across Turtle Island have in the restoration of buffalo herds to their native prairies, wild bison population numbers remained low throughout the 20th century. This was due to the restrictive management policies of the NPS, including the corralling of wild herds around Mammoth in the Lamar River Valley of north eastern Yellowstone (Morrisette, 2022). The selective-hybridization of cattle genes into bison herds owned by private ranching interests has created a new, more domesticated subspecies. The thousands of individual bison hybrids ranched as livestock allow the federal government to resist listing 'genetically-pure' wild bison such as the Yellowstone herd under the Endangered Species Act (ESA). ESA listing would prioritize wild bisons' access to year-round habitat and ongoing genetic viability (Lancaster, 2005). Instead, the federal government, through the NPS, maintained a management policy of isolation and culling of bison herds within Yellowstone National Park throughout the 20th century (Isenberg, 1997). After 1966, bison management policy in Yellowstone also came to include a hazing component and in the 1990's a capture/test/slaughter and quarantine programs (Lancaster, 2005; Franke, 2005). This lethal management practice at the hands of the settler-colonial government continues to this day, despite

research showing the threat such culling poses to ongoing genetic viability of last continuously-wild and ‘genetically-pure’ wild bison herds in the United States (Lancaster, 2005, 449-450).

During the winter of 2022-2023, over 1400 wild bison were killed or are still being held for slaughter after crossing the border of Yellowstone searching for winter forage (BFC, 2023). This number represents roughly one-quarter of the total bison population of Yellowstone, which represent the entirety of the only wild bison herds extant in the United States. Even without this past winter's hunt and slaughterhouse kills, the population limit placed on Yellowstone wild bison herds is a fraction of the amount necessary to maintain ongoing genetic viability which bison advocates claim has “prompted the ongoing ‘threats analysis’ by the US. Fish & Wildlife Service under the Endangered Species Act” currently under review on the federal level (BFC, 2023).

Bison-Fire Ecology

Bison are a keystone species within the long-grass and short-grass prairie ecosystems and a crucial cultural and material touchstone to many of the Indigenous nations whose historically-recorded territories lay between the Appalachian and Rocky Mountains. Prairie and forested ecosystems are the dominant habitats throughout these inter-mountain, river-fed bioregions. The historical prairie habitat of the wild bison herds is recorded to have ranged as far north as Alaska, as far south as central Mexico, and from the central Oregon high desert to as far east as Georgia and Buffalo, New York (Mann, 2005; Dunbar-Ortiz, 2015).

Additionally, Indigenous nations and communities of the eastern woodland and western river-lands are known to have encouraged wild bison in their territories to supplement other resource

sources, including the Yakama Nation in modern-day Washington state (Oetelaar, 2014). Since the 1970's, many Indigenous tribes have begun advocating, some successfully, for the return of bison herds to tribal-held territories (InterTribal Buffalo Council, 2019; Zontek, 2007). Additionally, many of the Indigenous tribes of the northern Rocky Mountains region consider the Yellowstone area to be a particularly important cultural territory. Indigenous communities that share a relationship with bison extend hundreds of miles away to seemingly-distant locales, such as Walla Walla, WA (Marcus, 2022).

Modern researchers have shown that prescribed burns increase density and caloric value of native prairie grasses (Vinton et al., 1993; Allred et al., 2011; Larsonet al., 2013; Eisenberg et al., 2019; Muelleret al., 2021). Use of prescribed burns by Indigenous nations increased forage for grazing ungulates while decreasing ladder fuels in under-story. This had the effect of opening up more space in the forest canopy for the sun to penetrate, leading to a triple effect. The first effect of seasonal burns was a manicuring of large-scale landscapes into a complex, savanna-mosaic of multi-generational wooded stands interspersing open grassland (Man, 2005). The second effect is that by burning at specific times of spring and fall when the unwanted insects were in egg or larval stages and unable to escape the flames, the fire works as a natural pesticide (Eisenberg et al., 2019). The third effect is that the regular application of fire leads to increases in the annual yields of forage-able acorns, nuts, and fruit trees of the eastern Woodland regions (Mann, 2005). Increased prairie grasses for forage allowed for higher animal biomass from Indigenous Traditional Ecological Knowledge (TEK) such as the use of fire ecology than traditionally assumed by historical geographers (Mann, 2005). The positionality of settler-scholars influences their assumptions of nature and ecology grounded in enlightenment ontologies and epistemologies whose logic stems *ex post facto* from a need to justify the ongoing

colonization of the land begun by scholars and politicians stemming from within geography's own ideological pedigree (Harvey, 1974; 2001, 2005; Wolfe, 2006; Tuck & Yang, 2012).

Historical geographers are likewise not immune from their own positionality. Dr Andrew Isenberg is an example of a historian whose research regarding the historical geography of North American buffalo is considered highly influential works in this field by academics and wild bison advocates alike. This thesis cites Isenberg extensively and the following criticisms are meant in no way to detract from the importance of his research. However when drawing on fields outside his own, like many settler-scholars, Isenberg makes assumptions grounded in the *Logics Of Elimination* and *Settler Moves to Innocence* when he claims that Indigenous burning of the prairie led to a decrease in wild bison numbers (Isenberg, 2000). This project pushes back on unfounded, settler-scholar claims such as these that assert *Settler Moves to Innocence*, such as *anguishing* and *agnotology*, that run contrary to both the scientific data regarding fire-ecology, as well as the extensive historical record of government-funded mass slaughter of the wild bison for the contemporaneously-stated purpose of eliminating native tribal sovereignty through the use of civilian starvation. The modern claim that it was environmental factors and Indigenous people's actions such as burning of the prairie grasses which formed the causal factors for the near-extermination event of the once innumerably vast bison herds of Turtle Island stands as a bold example of how even well-informed settler-scholars at-times may fall into *Shifting-Focus,* the *Logics of Elimination*, and *Settler Moves to Innocence.* Regardless of settler-scholar intentions, it is important for Indigenous scholars to continually call out Indigenous *erasure* and *agnotology* whenever they rear their heads.

Far from limiting wild bison's access to foragable grasses as claimed by *Settler Moves to Innocence,* use of seasonal prescribed burns and other Indigenous TEK reproduced large-scale

landscapes of drought-resistant habitats that thrived through Indigenous managed inter-species symbiosis (Vinton et al., 199; Deloria, 1995; Allred et al., 2011; Larsonet al., 2013; Eisenberg et al., 2019; Muelleret al., 2021). Evidence for the purposeful and sustained use of fire ecology that contributed to the park-like savannas and promoted a biomass of wildlife unimaginable to western ontologies is easily found throughout the primary literature of western settler accounts (Nash, 1974; Cronon, 1983; Mann, 2005). This project moves past previous accounts of the destruction of the great bison herds which rely upon studious settler-scholar agnotology, not only of Indigenous TEK but also of the western historical record itself.

Traditional Ecological Knowledges

The study of Traditional Ecological Knowledge (TEK) by Indigenous and settler-scholars reveals a complex, holistic interrelationship between human and more-that-human communities that has existed within Indigenous methodologies and epistemologies for centuries or millennia. Despite the fact that TEK has existed long before settler-colonial occupation of Turtle Island, it is only now in the modern era that western science is beginning to comprehend and catch-up with Indigenous fields of agricultural, ecological, and medicinal science (Nicholas, 2018).

Recognizing the methods by which Plains and Woodland cultures use of TEK to produce controlled burns and reproduce the wooded-mosaic savanna pattern landscape of Turtle Island in forms long-recorded by historians however it is has only recently been that modern western science has begun to acknowledge and appreciate such Indigenous agroecology (Cronon, 1983; Nash, 1974; Vinton et al., 199; Deloria, 1995; Allred et al., 2011; Larsonet al., 2013; Eisenberg et al., 2019; Muelleret al., 2021; Mann, 2005). The long and short-grasses of the wooded savanna prairie system was of vital importance to anchoring the six-to-twelve foot of topsoil to the prairie ground that blew away in the Dust Bowl in

the 1930's after settler-capitalist *Nahullo* farmers plowed the prairie grass up for decades to grow cotton and other cash crops. Establishment of the factual historical background of Turtle Island allows modern science to interrogate colonial and extractive settler-capitalist epistemologies that chauvinistically denigrate or attempt to erase traditional Indigenous scientific knowledges and agroecology (Deloria, 1995; Mann, 2005; Dunbar-Ortiz, 2015; Zimmerer, 2017; McCune et al., 2021).

It has been well established in agroecology and Indigenous studies that TEK is of beneficial effect on both human and more-than-human communities in the ecosystems to which such methods are applied (Altieri & Toledo, 2011; Nicholas, 2018; McCune & Rosset, 2021). Claims that TEK endangered more–than-human animal communities is based upon the same ex post facto *Logics of Elimination, Shifting-Focus, and Settler Moves to Innocence* and are as empirically unfounded and logically inconsistent as the long-running eliminatory logic that Clovis technology rather than climate change is responsible for the extinction of the Ice-Age megafauna in North America, despite megafauna in Asia dying out at the same time and rate without exposure to Indigenous Turtle Island technologies. Far from endangering the survival of various species of megafauna, it has been shown that the migration of Indigenous people to Turtle Island occurred thousands of years prior to the mass-extinction of northern hemispheric megafauna (Deloria, 1995; Mann, 2005).

The claims of Clovis-based megafauna extinction events are clearly ideologically-motivated *Settler Moves to Innocence.* Just as the claims of Indigenous nations being recent arrivants from Asia as the 'Lost Tribes of Israel' was used as an early *Logic of Elimination* to claim Indigenous connotations had not valid land claims, so does the Clovis claim seek to equate the historically-recorded mass-slaughter of wild bison to the mythical mass-slaughter of mastodon and mammoth by Paleolithic hunters who could easily hunt smaller game with far less

risk to themselves. As observed above, the claim of a Clovis-caused extinction of megafauna can be easily dismissed out of hand merely by applying a minimum amount of critical thinking. The fact that eastern hemispheric megafauna went extinct en masse within the same time span as western hemispheric megafauna despite the former failing to ever be exposed to human cultures wielding Clovis technology means that there is no logical, much less empirical, basis upon which to ground the Clovis-extinction hypothesis.

While such basic logic should quickly disprove any such claims of Indigenous-led megafauna extinction events, the ideological expediency of the factoid promotes its reproduction in settler-society, even among well-meaning environmentalists as make up much of the wild bison advocacy movement. Just as the claim of a foot crossing of the Bering Strait is reproduced by settler-scientists despite its lack of empirical evidence and in the face of both empirical and archival evidence, so too does the myth of a Clovis-extinction provide a comfortable *Settler Moves to Innocence* that 'the extinction of the bison wasn't so bad… after all, even the natives did the same in driving the mammoths extinct' (Deloria, 1995; Mann, 2005). The reason for such *erasure* through *agnotology* of Indigenous history can seemingly best be explained by the need for settler-scholars to ex post facto justify their ongoing colonial structure through *Settler Moves to Innocence* and *Logic of Elimination* (Lowenthal, 1985; Mann, 2005; Chomsky, 2003; Wolfe, 2006, Tuck & Yang, 2012).

Indigenous Erasure

This project explores the easy in which *Settler Moves to Innocence* such as *agnotology* and Trouillot's *Shifting-Focus* playing out within the scholarship on the wild bison of Yellowstone, and in

the current political debate concerning bison-habitat versus government subsidized private livestock interests leasing grazing allotments on public lands. Settler-scholars who study the elimination of the bison are quick to use *agnotology* to ignore or downplay the benefits of Indigenous TEK, sometimes even claiming with no empirical or archival evidence that TEK practices known to stimulate the growth of MORE prairie grass actually **decreased** the prairie's carrying-capacity for large bison populations, and **contributed** to the nineteenth-century near-extinction of the bison (Isenberg, 2000, 10). Such claims *shift-focus* away from the effect of the historically-recorded and purposeful bison slaughter and onto unsubstantiated and non-falsifiable claims of correlations between Indigenous actions and the near-extinction event of bison.

Blatant *Settler Moves to Innocence* on the part of settler-scholars (such as Isenberg's claim) is a time-honored tradition dating back at least to the seventeenth century. *Settler Moves to Innocence* are necessitated by the settler-scholar's ex post facto need to justify historical and ongoing illegal occupations, land grabs, and ecosystem destruction by reproducing ignorance regarding regular and well-known Indigenous and English landscape management through fire within their own historical record (Nash, 1974, 80; Lowenthal, 1985; Deloria, 1997; Mann, 2005, 155). Such *Settler Moves to Innocence* go hand in hand with self-serving, empirically-unfounded, long-outdated, and wildly-illogical claims of Clovis-induced extinction of North American megafauna that ignores the extinction of Asiatic megafauna within precisely the same time-window despite the lack of Clovis technology located outside of Turtle Island (Isenberg, 2000, 12; Mann, 2005,185).

The claims of the negative effects of Indigenous TEK practice of prescribed burning on prairie ecosystems is in direct contradiction of modern scholarship of natural resource ecologists, rangeland and ecosystems biologists, and paleoethnobotanists on the topic (Vinton et al., 1993; Allred et al., 2011; Eisenberg et al., 2019; Mueller et al., 2021). While a general lack of interdisciplinary focus is

traditional in western scholarship, the beneficial effects of Indigenous prescribed burns on the environment is also a matter of established scholarship within the field of historical geography and landscape studies itself (Cronon, 1983). In spite of this, settler-scholars and the hegemonic power systems they speak on behalf of continue to *agnotologize* Indigenous, settler, and natural histories in a quest to justify their own inherited dominance over the historically-recognized and treaty-defined territories and resources of extant Indigenous nations (Isenberg, 2000, 12).

Indigenous ontologies and epistemologies of land and nature integrate with modern scientific thought and theory to a much greater degree than obsolete enlightenment ere ontologies and epistemologies of land and nature what continue to be used as foundational for public wildlife management policy within the United States (Nicholas, 2018). To analyze the conflicting ontologies and epistemologies of land and nature embedded in current wildlife management policy surrounding Yellowstone's wild bison herds, this project compares and contrasts the enlightenment-era western capitalist with modern western ecological research, and holistic Indigenous ontologies and epistemologies of land and nature embedded in TEK (Akram-Lodhi, A. Haroon, 2021; Rasmussen, Matias Borg and Christian Lund, 2021). The academic recognition by the settler-colonial hegemony of such an integration as this project proposes of different methodologies is helpful to Indigenous epistemologies in that it legitimizes their position in the academy and knowledge production.

While centering the voices of Indigenous scholars is important to giving voice to Indigenous communities and viewpoints, there is complex issue embedded in such politics of recognition since positioning the settler-colonial state or knowledge production system as authoritative merely replicates Eurocentric, white-supremacist, settler-colonial tropes of western universality and its superiority to the supposedly-subjective non-western other (Koukannen, 2000, Coulthard, 2014; Simpson, 2014, 11). Additionally, the growth of diversity discursives within the movement towards multicultural liberalism

functions as another *erasure* of the recognition of sovereignty and of the unique political position of Indigenous Nations enumerated in Article One of the US Constitution in favor of a shared slice of the multicultural-diversity pie (McCreary and Milligan, 2021, 739). Not only does multiculturalism function as erasure of Indigenous sovereignty, it also inflames white-supremacist animus within right-wing activist ideology and remains a reoccurring bogey-man of conservative anti-Indigenous and anti-black activist movements—from the Sagebrush Rebellion to the CRT pseudo-crises. While academic and settler-state recognition can be important to Indigenous communities in some contexts, the politics of recognition debate within Indigenous scholarship posits that western-recognition (even of non-assimilationist methodologies and epistemologies) cannot encapsulate the entirety of tactics that Indigenous resistance can take in our ongoing struggle for survival in the face of settler-colonial termination policies and the Logics of Elimination (Coulthard, 2014, 24, 439).

Direct actions of resistance that focus on increased Indigenous agency over the ways in which and times when traditional knowledge production becomes known and codified into western knowledge paradigms is likewise important. Indigenous agency directly pushes back on historical *erasure* and the ongoing silencing of Indigenous and tribal-government voices in policy making decisions over territories and resources within internationally-recognized historical borders of illegally occupied and continuously existing Indigenous nations (Rose & Redwood, 2016, 193-194). Exclusion of BIA-recognized tribal governments from multi-departmental decision-making processes such as the Inter-agency Buffalo Management Plan (IBMP) shows a continued policy of the settler-colonial government treating colonized Indigenous lands as *terra-nullius* and erasing tribal sovereignty, not to mention ignoring well-known cultural and historical relationships with bison (Le Camp, 1995).

2.3. Theoretical Engagement

This project explores several key methods and frameworks to facilitate the understanding of ongoing and persistent settler-colonial epistemologies and social construction of the values associated with land and nature that directly affect current wild bison management policy in the Yellowstone National Park and the Greater Yellowstone Ecosystem (GYE). This thesis seeks to shed light on the contemporary settler territoriality in conflict with the wild bison advocacy movement.

The three theoretical engagements that I explore in this thesis are designed to contextualize this project within the larger body of scholarship in Indigenous geography, policy studies, activist geography, and biogeography. The first theoretical engagement grounds this project in the larger discussion community of Indigenous methodologies, fire ecology, and rangeland management. The second engagement reviews ongoing theoretical scholarship within the postcolonial and settler-colonial discussion communities to explore the *erasure* of Indigenous history by the settler-state. The third theoretical question engages with the growing body of counter-mapping and activist geography to ground this project in ongoing discussions regarding the ways in which institutional structures assert power to reproduce themselves while working to neutralize the influence of dissenting voices.

The theoretical engagements of this project are as follows:

1) The manner in which traditional ontologies and epistemologies of Indigenous Plains and Woodland nations regarding bison and nature align with modern ecological epistemologies of nature as a holistic and symbiotic ecosystem.

2) The manner in which contemporary Yellowstone wild bison management policy be best understood is through the settler-colonial lens. The settler-colonial critiques engaged with in this thesis are *Shifting-Focus,* the *Logics of Elimination,* the *Settler*

*Moves to Innocen*ce of *anguishing* wild bison as a threat and replicating *agnotology* of Indigenous natural-history and their associated traditional ecological knowledge (TEK), and *White Possessive(ion).*

3) The manner in which the rhetorical tools of *Shifting-Focus*, the *Logics of Elimination,* the *Settler Moves to Innocen*ce and *White Possessive(ion)*) are used discursively by state actors to shape public perception and affect changes to fact on the ground.

The first theoretical engagement explores the scholarship regarding Indigenous history and the associated study of traditional ecological knowledge (TEK) and how they relate to modern scholarship regarding wild bison rangeland management, use of controlled burns, and prairie agroecology. This project explores the ways in which modern scholarship has proven that far from being a prehistoric wilderness untouched by human culture, Turtle Island is well-documented to have been a human-produced landscape designed to increase the habitat for and thereby population of large-game species of endemic wildlife. Additionally, this project seeks to compare modern ecological understanding of symbiotic relationships, environmental engineering, and keystone species with TEK and Indigenous epistemologies of nature as holistic relationships between humans and more-than-human communities. This thesis explores the ways in which Indigenous bison-fire-rangeland TEK affected large portions of the continent, most notably the woodland regions east of the Mississippi. The purpose and effects of such large-scale, decentralized, seasonal burns were well-known and hotly debated about among early *Nahullo* [Chickasaw: English-speaking] settlers and is well established in the historical and biogeographic scholarship. Modern scholarship regarding agroecology, fire ecology, and sustainable

rangeland management provide empirical support for the efficacy of historical Indigenous landscape-management, as well as modern TEK practices.

The second theoretical engagement engages with ongoing discussions in postcolonial, Indigenous, and settler studies including critical engagement with the postcolonial critique of *Shifting-Focus* with the settler-colonial critiques of the *Logics of Elimination, White Possessive(ion),* and *Settler Moves to Innocence*, particularly *anguishing* and *agnotology*. This project asserts that it is the *eliminatory logic* of *historicification* and *white possessive(ion)* that under-girds exclusion of tribal communities, their elected governmental representatives, and even the US Interior Department's Bureau of Indian Affairs from representation and participation in the decision making process concerning wild bison management policy as well as other wildlife and natural resources within Indigenous national territories. Through the interrogation of the scientific grounding of state and federal claims that lethal management of wild bison on the northwestern edge Greater Yellowstone Ecosystem (GYE) is necessary to prevent disease transmission events to livestock, this project intends to reveal the ways in which *Shifting-Focus* and *Settler Moves to Innocence* operate to *anguish* the problems of the settler-capitalist onto Indigenous communities such as wild bison herds while *erasing* the responsibility of settler-capitalists for their own historical and ongoing actions that promote further disease transmission events, such as the multiple recorded elk to livestock disease transmission events in state-managed winter feedlots on the southern edge of the GYE. In these ways, this thesis will explore the ways in which these self-serving *Logics* and *Moves* are used as rhetorical pivots in order to justify ongoing settler-capitalist material dispossession and political disenfranchisement of Indigenous citizens and their national polities across Turtle Island and around the world.

The third theoretical engagement looks at the way in which Montana state and US federal government signature agencies (SA) to the IBMP use the above rhetorical tools to obfuscate lethal

management of the Yellowstone bison from both park visitors and the public at-large. Yellowstone's wild bison herds are a popular draw for tourists nationally and internationally, making it important for the National Park Service and other SA to *Shift-Focus* of the media, academic, and public discourse away from dissenting voices among environmentalist, wildlife biologist, and Indigenous communities while using *Eliminatory Logics* and *Settler Moves to Innocence* to justify the ongoing lethal management of a keystone species in the prairie ecosystem that has yet to recover to even a plurality of its former population numbers or range of habitat since the recent, historically-recorded near-extinction event.

The claims asserted in the IBMP regarding the necessity for lethal management of wild bison to prevent disease-transmission events illustrates the method by which settler-capitalists, such private livestock interests, use *Eliminatory Logics* and *Settler Moves to Innocence* in an ideological conflict between enlightenment-era settler-capitalist ontologies of nature, land rights, and modern ecological principles supported by empirical science. This ideological conflict is tangibly embodied in the way ecology, biochemistry, and environmental sciences show the manner in which industrial agriculture degrades ecosystem equilibrium in pursuit of profit generation, creating unsustainable and sometimes catastrophic results for the natural world.

It is well documented in the historical record that the primary cause of the wild bison herds' nineteenth-century near-extinction event was the purposeful targeting of buffalo during the settler-colonial occupation of treaty-recognized Indigenous national territories of both the Great Plains and Woodland regions of Turtle Island by individual settlers and the settler-state in order to starve Indigenous communities into submission to the ongoing policy structures of ethnic-cleansing and the concentration of civilian populations into the physically and socially fragmented 'Indian Reservation' system. To underline the direct continuity of wild bison management from the nineteenth to the twenty-

first centuries, this project explores the ways in which the capitalistic private cattle-interests that settled the land as it was depopulated of wild bison in the nineteenth-century are embodied in modern day public wildlife policy through the centering of profit for private cattle-interests in the purpose statement and primary objectives of the IBMP (found in Appendix B). That private livestock interest lobby the same settler-state that purposefully attempted to exterminate all wild bison a century ago, in a modern effort to continue an eliminatory policy to exclude wild bison from public land in the buffalo herds' native prairie rangelands is a textbook example of historicifying Indigenous territory and natural resources in favor of viewing settler-colonized spaces as inherently and irrevocably *White Possessions*.

Through elucidating these engagements, I seek to establish a contextual matrix within which to situate the methodological questions explored below. While the methodological questions engage directly with the public policy documents governing wild bison management, the theoretical engagements explore the ways in which such wildlife management policy integrates with scientific and academic scholarship.

These theoretical engagements explore the ways in which government narratives form public discursives that materially affect the production of space, ecosystem health, and Indigenous treaty-rights. Additionally, these theoretical engagements contextualize the Four Lenses of Critique used to analyze the IBMP in this thesis.

2.4. Four Lenses of Critique

My project has been informed by a diverse body of literature in geography, political ecology, environmental studies, natural history, Indigenous, postcolonial and decolonial studies. Although many

of these sub-fields remain separate discussion communities, there exists a direct line of continuity from postcolonial studies to decolonial studies (Byrd, 2011; Coulthart, 2014).

Postcolonial discussion communities are primarily focused on the voices and perspectives of communities in capitalist-colonized regions often referred to academically as the 'global south'. This is due to the geographic origin of postcolonial intellectuals who critique the active and ongoing decolonization of their homelands in South and Southeast Asia, Africa, and various other English, French, and other European capitalist-colonial regions after World War II. Decolonization theory grows out of postcolonial theorizations while refocusing the lens of critique onto the ongoing settler-colonial occupation of Indigenous national territories across much of what some academics call the 'global north'.

Unlike the situation of shifting-power within a matrix of internationally recognized sovereignty described by postcolonial critique, Indigenous communities in the global north continue to struggle with ongoing colonization of their national territories by settlers claiming cultural continuity and legal sovereignty in line with European cultural identities, rather than with those of the continuously-extant nations within Turtle Island, Aotearoa, and other settler-colonial nations of the global north. Unlike postcolonialism's roots in both English, French, and other European-colonized communities, decolonial and settler-colonial theorizations primarily focus on the *Nahullo* (English-speaking) settler-colonial states within the global north.

First and foremost, I am indebted to the theoretical frameworks of postcolonial theory (Fanon, 1952; Trouillot, 1995; Smith 1999; Pulido, 2018). This project brings postcolonial perspectives into conversation with historical and activist geographies, and engages with the postcolonial critique of *Shifting-Focus* (Trouillot, 1995). This project also engages with settler-colonial theories of the *Logics*

of Elimination, Settler Moves to Innocence such as *anguishing* and *agnotology* of Indigenous natural-history (Wolfe, 2006; Altieri & Toledo, 2011; Tuck & Yang, 2012; Zimmerer, 2016; Murrey & Jackson, 2020, McCune & Rosset, 2021) and *white possessive(ion)* of Indigenous national territories and natural resources across Turtle Island, Aotearoa, and Australia (Moreton-Robinson, 2015). The following section discusses each of these ideas in the order in which they are presented above which reflects the chronological order in which they were published. The purpose of these critiques is to challenge the supposed objectivity of federal wildlife management policies in light of scholarly work on scientific positionality using the decolonial lens.

Shifting-Focus

Shifting-Focus, is a term I use for the analysis of Haitian historian Dr. Michel-Rolph Trouillot (1995). This Haitian scholar's work fits into the larger postcolonial discussion community, particularly the french-speaking intellectual tradition of Franz Fanon. Likewise, the concepts of *Othering*, and *Erasure* that I discuss throughout this thesis fit into the postcolonial discussion community that emerged in the global south during the middle and late twentieth century (Said, 1979; Spivak, 1988).

While many (and one hopes most) scholars attempt to reproduce in their work the most accurate portrayal of their understanding of events, *Shifting-Focus* critiques the way in which historicity, or the creation of history itself, requires settler-journalists and historians to alternate between detailed accounts and generalities in a manner that replicates a narrative in line with their own positionality (Trouillot, 1995). This thesis stresses that *Shifting-Focus* does **not** critique historicity as any manner of unethical scholarship. Instead, *Shifting-Focus* is a qualitative discursive tool by which to assess the inherent limits of subjective positionality in crafting scholarship. The research of even the strictest

scientists remains intrinsically subjective by semantic definition, regardless of the impeccability of their scientific ethics or intentions (Harvey, 1974)

Shifting-focus critiques the ways in which motivated reasoning and scholar positionality allow for the replication of ideas that existed in the past as partisan assertions to be replicated in the present as objective historical claims to fact (Trouillot, 1995). Even when historicity engages directly with primary source documents, the necessary requirement to narrow the scope of data to that which is replicable in a single document requires a deletion of or lack of engagement with a majority of the potential data. This is a situation quite analogous to that of cartography when map-makers must by necessity decide what details to include and which to leave out (Monmonier, 1991). While this thesis explicitly denies that it is making any direct accusation regarding any inherent dishonesty or the cherry-picking of data by any settler-scholars in any field, the inherent subjectivity of historical narratives enables the unwary to avoid inconvenient or uncomfortable facts regarding history whose discursive purpose and results overlap with those of the Logics of Elimination and *Settler Moves to Innocence*.

Logics of Elimination

One early critique of settler-colonialism in the decolonial discourse that this project engages with is the Logics of Elimination (Wolfe, 2006, Veracini, 2011; Macouna & Strakosch, 2013). the Logics of Elimination, which is a critique so-named by Wolfe (2006) and developed further by Indigenous scholars into Settler-Colonial theory within the larger settler-colonialism discussion community in Australia, Aotearoa, and Turtle Island (Coulthard, 2014; Simpson-A, 2014). Wolfe posits that ‘colonization is a structure, not an event’, making note of without using the word that the *historicification* of Indigenous nations is one of the key rhetorical tools within the Logics of

Elimination by which Indigenous people and communities are replaced by individual settlers and their communities *(*Wolfe, 2006). Briefly put, the *Logics of Elimination* posits that settler colonialism is an ongoing institutionalized 'structure, not an event' restricted to a historical period gone by (Wolfe, 2006). Additionally, Wolfe asserts that settler-colonialism differs from other forms of colonialism in that the settler seeks to replace the Indigenous communities within their own national boundaries. The *Logics of Elimination* operate as a structure of motivated reasoning to legitimate the continued occupation of the lands and territories of treaty-recognized, extant Indigenous Nations. The foundation of settler-colonialism is a western-chauvinist ideology which sees the lands and resources of Indigenous nations as an empty wilderness or unpopulated frontier to be claimed by the settler-capitalist economic system and 'defended' against challenges to its hegemonic commercial exploitation (Wolfe, 2006; Rasmussen et al., 2021). The defense of territory critiqued here is foundational to the conceptualization of settler territoriality.

The *Logics of Elimination* are inherent to settler-colonialism and intrinsically linked to both physical and cultural genocide (Wolfe, 2006). When viewing the eliminatory logics as applied to the racialization of different African and Indigenous nations, the logic of *blood-quantum* measurements to measure the supposedly 'authentic' Indianness become obviously eliminatory when compared to the *one-drop rule* view of Black identity (Alfred, 1999; Chang, 2010; Byrd, 2011; TallBear, 2013; Arvin, Tuck & Morril, 2013; Dunbar-Ortiz, 2016). Within the racialization of these two apartheid legal codes, interracial children of European settlers and Indigenous communities come to be identified *white* over time, while the children of African arrivants and either European settlers or Indigenous communities become racialized as *Black.* Thus blackness stands as an ever present threat to white supremacy, while Indigeneity is

constructed as a prize, or *white possession*, to be conquered and claimed, something that can be gained and possessed by settler-colonial society (Moreton-Robinson, 2015).

Inherent to the *Logics of Elimination* is the contention that colonization is relegated to an ambiguous point in the past, rather than engaged with as an ongoing structure. I designate this *Settler Move to Innocence* to be *historicification*, a type of *eliminatory logic* that regards "Indigenous rights as a historic residue" (McCreary, 2018). The *historicifying* of the modern Indigenous nations of Turtle Island can be seen in state and federal wildlife management policy through the lack of participation and decision making power that Indigenous tribal-nations and their federally-recognized governments are permitted by the settler-colonial government of the United States regarding matters of ecological restoration of the landscape, wildlife, and rangeland management policy, as explored in Chapter 3 of this thesis.

Despite the fact that the National Parks Bureau, the Bureau of Land Management, and the Bureau of Indian Affairs are all agencies in the Interior Department, tribal governments have no voice in the management of rangelands, waterways, and wildlife within the bounds of their internationally-recognized, historically-documented national borders. By *historicifying* colonialism and the sovereignty and autonomy of Indigenous nations to an ambiguous point in the past, settler-scholars *agnotologize* the history of Turtle Island into a myth of nomadic primitives wandering aimlessly through a static prehistory (Dunbar-Ortiz, 2015). Thus, Indigenous peoples and communities are *historicified* to a seemingly distant point in the past, *erasing* our assertion of social justice and land claims from consideration in the present which in turn relegates the resources, territories, and culture of Indigenous communities into a trophy or *White Possession* of the occupying settler-state (Wolfe, 2006, 388). In this way, settler-scholars and *Nahullo* politicians within settler-capitalist polities are able to explicitly admit to the facts of

war crimes, ethnic cleansings, purposeful and ongoing genocide, and the numerously enumerated crimes-against-humanity committed by the Nahullo government soldiers and settler militias during the seizure and illegal occupation of Indigenous nations' the territories across the globe, while condoning and collaborating with the actions and crimes of the ongoing para-military occupation and associated resource theft within the modern hyper-militarized borders of occupying settler-colonial police-states of the global north (Brown, 1970; Harris 1993, 1721).

In the same manner that the *Logics of Elimination* analyzes the structural need of settler-colonialism's self-justifying discursives, *Settler Moves to Innocence* explores specific tropes that are used in the perpetuation of *Eliminatory Logics.*

Settler Moves to Innocence

The persistent reliance of *Eliminatory Logics* on counter-factual claims creates a settler-discursive consisting of contradictory tropes whose only consistent through-line is the justification and legitimization of ongoing acts of genocide against Indigenous communities (Wolfe, 2006; Dunbar-Ortiz, 2015). Such use of tropes as a method of rhetorical defense for the ideology of settler-supremacy is known within the settler-colonial discourse community as *Settler Moves to Innocence* (Tuck & Yang, 2012; Murrey & Jackson, 2020). *Settler Moves to Innocence* are rhetorical pivots strategies whose intent is to remove feelings of responsibility and guilt for admitted crimes of the past and continuing illegal paramilitary occupations and resource dispossession in the present without loss to settlers of power, privileged, and the land claims to historically-recognized, Indigenous territories as property of nations-states rather than the historically-recognized, Indigenous tribal-nations (Tuck & Yang, 2012,10). In brief, *Settler Moves to Innocence* are rhetorical pivots comparable to the Logics of

Elimination and employed for the same purposes of legitimizing ongoing settler-colonial domination of Indigenous nations and their treaty-recognized territories (Tuck & Yang, 2012).

An early analysis of *Settler Moves to Innocence* includes a critique of *settler nativism* (mentioned in the Theoretical Literature), as well as *colonial equivocation* and *A(s)t(e)risk peoples* that intersects with the *Shifting-Focus* and *erasure* critiques in this thesis (Tuck & Yang, 2012, 17-18, 22). *Colonial equivocation* uses *erasure* of differences between Indigenous cultures, languages, and nations to erase our differences as a method of racializing Indigeneity as a step in the elimination of tribal sovereignty. By racialized Indigenous communities into a singular category of 'colonized minority' regardless of our dissimilarities to each other, *Shifting-Focus* can employed to deny treaty-protected legal rights and land claims on the grounds of 'equality before the law' within the settler-state (Tuck & Yang, 2012, Moreton-Robinson, 2015). There is an ongoing settler-colonial threat to cease recognition of tribal sovereignty and thus terminate legal recognition of the existence of Indigenous nations as a political unit. The method of this threat lies firstly in racializing Indigenous people and then by 'blood-quantuming' us into mathematical insignificance. The goal of this *Shifting-Focus* of authentic legitimacy is to discursively *erase* citizens of Indigenous nations and replace our cultural identities with the western-centrist identity of United States citizens.

Western settler-capitalist nation-states of the global north make territorial claims which attempt to supersede previously existing Indigenous nations' land claims by using the *Eliminatory Logic* of *historicifying* Indigenous nations so as to *agnotologize* Indigenous territorial sovereignty. This *Settler Move to Innocence* fits into the larger framework of the Logics of Elimination by *erasing* Indigenous nations and their territorial sovereignty by relegating them to the past by ignoring the key argument of the Logics of Elimination, that settler-colonialism is an ongoing modern structure of governance, not a historical event isolated in the past (Wolfe, 2006, 388). By erasing the existence of authentic

Indigenous communities from the minds of the larger settler, migrant, and immigrant populations of Turtle Island, the Logics of Elimination and *Settler Moves to Innocence* attempt to destroy the land claims of Indigenous nations by first discursively annihilating Indigenous polities and then through material disenfranchisement of treaty-recognized Indigenous territories and resources (Byrd, 2011,137; TallBear, 2013).

Anguishing & Agnotology

Further analysis of *Settler Moves to Innocence* in the decolonial discussion community has explored additional tropes that fall into the original *Settler Moves to Innocence*, including *anguishing* and *agnotology* used in the analysis of this thesis (Slater 2019, 23; Murrey & Jackson, 2020, 921, 925). *Anguishing* is the repositioning of responsibility for the consequences resulting from actions taken by colonial hegemonies onto Indigenous communities affected by the detrimental cost of ongoing settler-colonial or capitalist-colonial structures (Murrey & Jackson, 2020). *Agnotology* describes the purposeful 'reproduction of ignorance', seen here as it relates to pre-colonial nations, peoples, cultures, and landscape management practices (Murrey & Jackson, 2020, 921). In the sections below we discuss these ideas further and how they relate to the IBMP's lethal management of wild bison in Yellowstone.

Anguishing

As discussed above, the initial conception of Settler Moves to Innocence included the critique of *A(s)t(e)risk peoples. A(s)t(e)risk peoples* can be broken into two groups: *At-risk peoples* and *Asterisk peoples.* The critique of *at-risk peoples* the way in which *Settler Moves to Innocence* works to position

Indigenous communities as in decline, economically dysfunctional, and populated with self-destructive individuals. *At-risk peoples* critique has been expanded by later *Settler Moves to Innocence* scholarship using the analysis of *anguishing,* discussed further below. On the other hand, *asterisk peoples* critiques the manner in which Indigenous community *erasure* happens through subsuming of our national identities into a homogeneous group with unrelated Indigenous populations. The first effect of this statistical-erasure is to obfuscate material differences between Indigenous communities. The second effect of this statistical-erasure is to that rather than Indigenous statistics comparing quantitatively-comparable data sets of differing Indigenous populations, Indigenous populations are compared to much larger data sets of non-Indigenous populations that marginalizes us into 'footnotes' in the 'dominant paradigms' of settler discourse (Tuck & Yang, 2012, 22). This disproportionate representation functionally *erases* us from qualitative representations of quantitative data, often represented visually through the use of asterisks.

The critique o*f anguishing* comes from a later elaboration of *Settler Moves to Innocence* that also includes *agnotology*, discussed further below (Murrey & Jackson, 2020). *Anguishing* employs *Shifting-Focus* to redistribute responsibility for the purposeful or inadvertent consequences of settler actions onto Indigenous communities affected by ongoing settler-colonial or capitalist-colonial structures (Murrey & Jackson, 2020, 925). *Anguishing* socially constructs an Indigenous community or population as a victim of a given circumstance. *Anguishing* advances the white-savior trope through the claim that only colonial hegemonies have the ability to solve such problems that were in-fact socially constructed by themselves or a previous colonial hegemony (Murrey & Jackson, 2020). *Anguishing* socially constructs victimhood onto communities so as to infantilize their populations and deny them agency over their own lives and choices (Said, 1978; Spivak, 1988; Murrey & Jackson, 2020). Simultaneously, *anguishing* posits the cognitively dissonant claim that positions Indigenous

community and populations as responsible for the issues that a given colonial hegemony is seeking to rectify. This *Shifting-Focus* of responsibility operates as a form of victim-blaming in that is posits that the Indigenous community or population is at fault, using language such as 'failed states' to blame instability of postcolonial governments on the actions of the locals rather than the effects of actions and decisions made by the current or former capitalist-colonial structure.

In the case of the wild bison management, the *Settler Move to Innocence* of *anguishing* works by focusing blame for events from the perpetrators onto those being affected by events, which we can see happening in the wild bison-*Brucellosis* controversy. We witness *anguishing* at work in the IBMP to reposition 'low-risk' wild bison as a danger of disease transmission to livestock that are already vaccinated against the threat while *agnotologizing* the fact that all such Brucellosis outbreaks in the GYE (of which there are several on record to choose from) occurred in the area of and were empirically traced back to the unregulated co-mingling of livestock with seropositive elk in state-run winter feedlots, well-known to be the height of *Brucellosis* transmission risk.

It is well known that the settler-capitalist livestock industry was responsible for originally introducing *Brucellosis* into the greater Yellowstone ecosystems (FEIS, vol 2, 199 citation to: NAS, 1998; Whittlesey, 1995). By focusing the danger of transmission on the wild bison herds that have never been recorded to transmit Brucellosis, rather than on the livestock herds that ***have*** been recorded to transmit the disease, the livestock industry is able to erase its own responsibility in the continued spreading of *Brucellosis* at state-run winter feedlots. This *anguishing* of bison as a potential disease vector, ignores not only the historical record of elk to livestock and livestock to wildlife disease transmission, it also *erases* the current threat that unvaccinated livestock pose to each other as well as wildlife. As a form of historical erasure, anguishing also engages with *agnotology*, which is the purposeful replication of misinformation.

Agnotology

Agnotology describes the 'reproduction of ignorance', that is to say the purposeful dissemination of disinformation among the populace at-large with the purpose of perpetuating political power among a privileged few (Slater, 2019). *Agnotology* operates as a method of purposeful disinformation that acts as an *erasure* of basic facts among the populace at-large through the knowing reproduction of ignorance to empirical and historical facts regarding Indigenous cultures and natural history (Slater 2019, 23; Murrey & Jackson, 2020, 921). Similar to other analyses of *Logics of Elimination* and *Settler Moves to Innocence*, *agnotology* is a method used in order to legitimize the ongoing colonization, occupation, and settlement of the land and territories of extant Indigenous nations (Wolfe, 2006; Tuck & Yang, 2012; Murrey & Jackson, 2020).

In this thesis, *Agnotology* is used in the reproduction of preconceived biases, Eurocentric factoids, and erasure of non-Western and non-normative positionalities, narratives, and histories (Murrey & Jackson, 2020). This ignoring of seminal scholarship Indigenous TEK, pre-contact history, and documented settler history itself allows settlers to maintain an ignorance of the results of their own actions and ideologies upon material reality.

Settler nativism

Settler Moves to Innocence includes another named trope known as *settler nativism. Settler nativism,* also known as the *Pocahontas myth* or what Indigenous intellectual Vine Deloria Jr. named the *Indian-grandmother complex* (Tuck & Yang, 2012, Theobald, 2019,, 5). The *Move to Innocence* of *settler nativism* posits that since some Indigenous women were recorded as having children with

settlers and arrivants, this means that any given modern white citizens of settler-colonial states may feel justified claiming a distant ancestor to be a supposed ‘Indian-princess’. Putting aside that no such institutions as ‘King/Queen’ much less ‘prince/princess’ is known to have ever existed in Indigenous Turtle Island cultures, the assertion of Indigenous ancestry projects an intellectual colonization used by modern settler citizen to demand the supposed-benefits of Indigenous heritage despite a lack of material or cultural tie held by the individual making the assertion to the reputed mythical ancestor’s tribe, culture, or community.

Settler nativism positions not just Indigenous territories and natural resources as the property of settlers, but even attempts to discursively assimilate Indigenous culture into the settler ideology of Euro-centrism. While *settler nativism* is not referred to directly in the Four Lenses of Critique presented in this thesis, it conceptually overlaps with another settler-colonial critique that is feature in this project, that of *White Possessive(ion)* of Indigenous territorial, material, and cultural wealth.

White Possessive(ion)

White Possessive(ion) comes from Goenpul[1] scholar Dr. Aileen Moreton-Robinson. *White Possessive(ion)* critique looks at the rhetoric of the irrevocability of settler-colonization and the ways in which such settler-chauvinism is replicated in the modern day as a ‘defense’ of areas socially constructed as settler-colonized spaces (Moreton-Robinson, 2015). This concept of territorial defense in *White Possessive(ion) c*ritique overlaps and engages with the same positioning of *settler-territoriality* as found in the Logics of Elimination. Both critiques engage with the Euro-supremacist ideology that settler-colonists are the inherent and exclusively legitimate heirs to supposedly conquered

1 The Goenpul people are an Indigenous tribe of the Quandamooka nation on Stradbroke Island in the settler-colonial state of Queensland, Australia.

Indigenous nations' territories (Moreton-Robinson, 2015). This *eliminatory logic* of *White Possessive(ion)* views the territories, resources, and even physical space of Indigenous individuals, communities, and other people of color, as inherently belonging to European-coded settlers (Harris, 1993, 1721; Goeman, 2015, 74).

The ontology of these *possessive(ion) logics* view space, property rights, and even the concept of being 'fully-human' as the inherent and exclusive province of white people, with non-western communities and individuals being *othered* (Said, 1979; Smith, 1999; Moreton-Robinson, 2015). The *othering* of non-western cultures not only makes explicitly racist claims of difference between European and Asiatic cultures in the Mediterranean region, but also positioned all non-western nations and peoples as sharing an inherent and essential lack-of-whiteness (Smith, 1999). This *othering* extended to the colonizing western powers as viewing Egyptian, Persian, Hindu, and Chinese cultures as all equally, inherently, and essentially 'Oriental' (Said, 1979). By extensions, such *othering* also positions tribal people from Asia, Africa, Australia, & the western hemisphere as all indistinguishably Indigenous, despite linguistic, technological, and phenotypical differences between such nations and cultures.

Inherent to the development of the Eurocentric, white supremacist epistemology of *othering* is the chauvinistic social construction of non-western peoples and nations as 'subhuman' and thus lacking the same universal human rights supposedly guaranteed to all peoples by the enlightenment-era settler-colonial legal system (Smith, 1999, 69). As observed by Wolfe and Moreton-Robinson, these *Eliminatory Logics* are predicated on a desire by the settler system to justify its ongoing, illegal and immoral occupation of and violence to the territories, resources, citizens and descendants of historically-recognized Indigenous nations (Wolfe, 2006; Moreton-Robinson, 2015). As is observed in Red, White & Black: the Peoples of Early North America, "A second and more portentous way [than

forced land cessions] of answering the question of English rights to the land was to deny the humanity of the Indians" (Nash, 1974, 39).

This Eurocentric and western-chauvinistic view leads to opinions and behaviors which directly affect the ways in which *Nahullo* and other settlers *historicify* Indigenous communities as well as the manner in which non-white immigrants are viewed as different and lesser to European settlers (Byrd, 2011; Moreton-Robinson, 2015).*White Possessive(ion)* discursively removes recognition of Indigenous nations' sovereignty, as well as providing rhetorical fodder for the discriminatory restrictions and quotas concerning non-white immigrants into settler-colonial nations (Tuck & Yang, 2012; Moreton-Robinson, 2015).

White Possessive(ion) critique engages first with the assertion of the authority of white-coded individuals over non-white individuals, particularly those of Indigenous descent. Secondly, *White Possessive(ion)* critique engages with the manner in which modern settler-states enforce restrictive immigration laws based on country or origin with a clear Eurocentric bias as a reflection of the white supremacist undertones inherent in the historical and modern conceptions of what a 'real' Australian/American/Canadian/etc looks like as represented in the political discourse of the respective settler-colonial states. This view of non-white immigrants as in-authentic, i.e. not 'real' Australians or Americans, reflects the ways in which settler-colonized Indigenous territories are seen as white-only spaces that must be defended with the same genocidal force as they were originally stolen from the still-extant Indigenous nations.

The foundations ideologies upon which *White Possessive(ion)* rests have existed in practice since at least the *Nahullo* colonization of Australia. *Terra-nullius* as an idea was developed to bypass the pesky issue of following legally-recognized treaties with Indigenous communities, which had by

that time become problematic geopolitically in other colonies such as Canada (Moreton-Robinson, 2015). Thus, from expediency for colonization and genocide was born the explicitly dehumanizing ideological erasure of Indigenous peoples known as t*erra-nullius*.

While *terra-nullius* was a historical British colonial edict that affected Australia and Aotearoa but not Turtle Island, it is now commonly used in Decolonial and Setter-colonial discourse to describe the racist and easily-falsifiable claims made by both early and modern settlers that Indigenous peoples somehow lack legitimate title to territories and resources within the clearly defined and historically recognized boundaries of their respective nations (Byrd, 2008; Coulthard, 2014). Such claims of Indigenous nations as wandering nomads without permanent settlements or large-scale effects on the landscape contradict both empirical and archival records which record Indigenous land management practices, many of which where even recognized as such and written about by early European settlers (Nash, 1974; Cronon, 1983; Deloria, 1997; Mann, 2005, Dunbar-Ortiz, 2015). Despite this strong historical record, modern *Settler Moves to Innocence* like *agnotology and Shifting-Focus* work to under-gird the Logics *of Elimination* and *White Possessive(ion)*

2.5. Two-Eyed Seeing

This thesis is developed through the Indigenous methodological approach of Two-Eyed Seeing (TES). TES was designed to integrate modern western positivist epistemologies of natural sciences with interdisciplinary empirical methods of TEK and Indigenous epistemologies and ontologies (Martin et al., 2012; Hovey et al., 2017; Reid et al., 2021, Leonard et al., 2022). This project also uses the qualitative methodology of Textual Analysis to engage with public policy papers regarding the lethal management of the last remaining wild bison herd in the United States.

The use of double-vision methodology such as TES is not novel in subaltern critiques of colonialism (Mignolo, 1999). I will use the TES method to integrate the Indigenous approach to positionality known as *Social Location* with the similar but distinct Eco-feminist methodological critique of *Situated Knowledges* (Haraway, 1988; Walter, 2013). These different emancipatory methodologies share the goal of challenging and replacing the narrative of the supposed neutrality and objectivity of patriarchal settler-colonial knowledge production with methodological approaches that identify and address the intersectional positionality of the various actors involved, especially those of the researcher staff (Askin, 2018).

It is important to note that despite many similarities existing between the qualitative, emancipatory methodologies that human geography has embraced since the cultural turn, there are still epistemological and ontological, not to mention historical differences between settler-scholar paradigms and the epistemologies of various interdisciplinary Indigenous methodological approaches (Smith, 1999; Koukkanen, 2000; Cajete, 2000; Simpson-L, 2014; Nicholas, 2018; Kovach, 2021). While western and Indigenous emancipatory methodological approaches overlap in principles and methods they are foundationally grounded in different epistemologies and ontologies (Koukkanen, 2000). While the Eurocentric argument can be made that Indigenous methodologies fit within a large taxonomy of western emancipatory methodologies, such a western chauvinistic claim fails to account for the different epistemological grounding and developmental histories of Indigenous methodologies from their radical, critical, and post-structural counterparts (Kovach, 2021, 26-31). I am using TES to integrate social location and situated knowledge because articulating the similarities and differences between Indigenous and western emancipatory methodological approaches such as eco-feminism is a key component in the ongoing development of Indigenous methodologies within the academy (Dell, 2021).

2.. Textual Analysis

This project uses textual analysis to explore the *Shifting-Focus*, *Logics of Elimination*, *White Possessive(ion) theory*, and *Settler Moves to Innocence* within IBMP policy literature (Wolfe, 2006; Tuck & Yang, 2012; Murrey & Jackson, 2020). The methodological use of textual analysis in geography is in no small part grounded in the discursive analysis E.W. Said's exploration of 'imaginative geographies' as a tool of revealing Western Orientalization of various Asian cultures did not stem from objective historical analysis but rather the situated positionality of European hegemony relative to it's eastern neighbors (Said, 1978; Dittmer, 2010, 274).

As Chapter Four illustrates, textual analysis is the most useful methodological approach for analyzing wildlife management policy because public debate and management policy is shaped by the interaction between scientific data, ideological beliefs, and political rhetoric (Dittmer, 2010, 275). Policy in turn structures the production and reproduction of nature and landscapes across public and private lands (Lefebvre, 1991; Harvey, 2001; Smith, 2008).

The textual analysis in this project uses its own four distinctly identified rhetorical features (*i*)Logics of Elimination, (*ii*) *Settler Moves to Innocence,(iii) Shifting-Focus, (iv) and White Possessive(ion)* to analyze the arguments made in the Interagency Buffalo Management Plan (IBMP) records of decision and the associated Environmental Impact Statement (Cooper, 1993: 198; DeLyser et al, 2010, 280). This analysis will identify recurring tropes and persuasive rhetorical techniques within the IBMP that perpetuate Eurocentric ontologies of public lands, tribal sovereignty within treaty-recognized national territories, and wildlife management (Smith, 1999; Cajete, 2000; Wilson, 2008; Royal, 2014; Kimmerer, 2015). The textual analysis in this thesis will further show the use of

settler-capitalist epistemologies and ontologies as foundational for the IBMP, and will show that these scientifically obsolete tropes and euphemisms for interacting with land and nature form the backbone of the manner in which the IBMP shapes public lands and wildlife management policy while erasing tribal voices and policy-making statutes.

This project is also informed by various scholarships on historical materialism of land ontologies. (Scott, 1976; Harvey, 2003; Hall, 2021; Rasmussen & Lund, 2021; van der Ploeg, 2021). Western social constructions of land and private property continue to frame legal statutes, the production of space and the social construction of nature (Cronon, 1983; Lefebvre, 1991; Smith, 2008; Dunbar-Ortiz, 2015; Li, 2017; Mueller et al., 2021).

Last but not least, this work also benefits from the perspective of Black feminist thought, Indigenous feminism, and eco-feminism to analyze western epistemologies and ontologies that devalue non-human organisms (Crenshaw, 1991; Collins, 2000; Hernández Castillo, 2010; Misawa, 2010; Baba, 2013, Maile et al., 2013; Simpson L, 2014; Simpson, 2017; Anderson, 2020). Western ontologies and epistemologies of dualism have been used historically and in the present to perpetuate gender, ethnic, and racial discrimination, including the dehumanizing and objectifying women, people with disabilities, Black, Indigenous, colonized, and other socially marginalized communities (Kropotkin, 1902; Singer, 1975; Haraway, 1988, 1989, 2003; Mohanty, 1991; Smith, 1999; Smith 2003; Saavedra & Nymark, 2008; Sharma & Wright, 2008; Wilson, 2008; Driskill, et al., 2011; Chilisa, 2012; Million et al., 2013; Simpson A, 2014; Moreton-Robinson, 2015; Askin, 2018).

This project also explores the scientific literature cited by the IBMP that support, contradict, and in some cases calls into question the validity of empirical claims made by the IBMP signatory agencies (SA) regarding the risk of disease transmission and the carrying capacity of Yellowstone for

wild ungulate grazing. Such policy papers include the GAO reports and the federal Environmental Impact Statement (FEIS 2000, vol 1, 2, & Summary) cited in the original IBMP, as well as the later Environmental Assessment study conducted in 2010 which confirmed the previously well-known hypothesis that "bulls are likely not capable of venereal infection of females" of their own species, much less other species such as livestock (Frey et al., 2013, 3). As the USDA itself has stated in the 2010 Environmental assessment;

> "If venereal transmission by bison bulls does not contribute to the spread of Brucellosis, then resources and activities focused on limiting bison bull activities might not be warranted or could be modified to maximize risk mitigation activities." (McCluskey, 2010, 4)

Given that loss of *Brucellosis* free presents detrimental economic effects to the society and since the preponderance of the evidence suggests that the IBMP's lethal wild bison management does nothing to address this danger, this project explores the manner in which the IBMP fear mongers about illogical theoretical risks while failing to address ongoing and well-documented disease transmission events. In doing so this thesis interrogates the IBMP to discover the primary motivator of lethal removal that is in-fact driving wild bison management though migratory restrictions.

2.7. Theoretical Framework

This thesis is framed around Indigenous methodologies, decolonization theory, historical materialism, and eco-feminism because all three are situated in such a way as to challenge dominant patriarchal ontologies and epistemologies as they relate to wild bison herds in the GYE. *Shifting-Focus*, the Logics of Elimination, *Settler Moves to Innocence*, and *White Possessive(ion)* all operate not to

describe historical or empirical reality, but rather to to justify the continuation of settler-colonial and capitalist-colonial actions that were quite clearly based upon prioritizing economic profit for private industry rather than consistent biological, ecological, or epidemiological accuracy.

Settler-Colonial foundations of the IBMP

The ongoing exclusion of Yellowstone's wild bison herds from their historical territories and viable rangeland habitats is a product of capitalist-colonial ontologies and epistemologies that place the values of private property ownership and profit generation above the public interests in healthy wildlife and ecologically-stable habitat on publicly owned lands. Bison are well-known to be an environmental keystone species of the currently endangered long and short-grass prairie ecosystems across the Great Plains of Turtle Island.. The status of buffalo as cultural icons and material sources of food, shelter, and tools necessary for the social reproduction of sovereign Indigenous nations led to the slaughter of the vast bison herds in the late nineteenth-century as a tactic of the violent *Nahullo* invasion and settlement of the High Plains region. Non-empirically grounded ontologies of land and animals as objects for monetary gain continued to dominate western epistemologies. In line with these capitalist-colonial epistemologies comes the ongoing containment of bison in isolated genetic islands and the refusal of government agencies to allow bison the same free-ranging management policies applied to other native ungulates, such as deer, elk, and pronghorn 'antelope'.

Ongoing *agnotology* to Indigenous TEK and history provides the matrix in which western scholars and corporations practice *Settler Moves to Innocence* such as *anguishing*. *Anguishing* describes the weaponization of western *white-savior* tropes into a process by which discursives surrounding complex issues in non-western regions and cultures require authoritarian or extractive

interventions by western governments and corporations, usually the same ones who caused the anguished problems in the first place (Murrey and Jackson, 2020, 927). We can see *Settler Moves to Innocence* at work in the settler-colonial government's policy papers that position the livestock disease *Brucella*, first introduced into the Yellowstone ecosystem by capitalist-driven, settler-colonial ranchers, as a threat that wildlife such as bison pose to cattle and by extension international beef sales made by modern settler-colonial ranchers in the region (FEIS vol 1, 2, & Summary, 2000; IBMP, 2000). In these documents (analyzed in Chapter 3) we can see the economic incentives driving capitalist-colonial ontologies of resource extraction chosen as more important to the settler-colonist state than well-known and established science on rangeland ecology and other modern scientific fields.

Likewise, *Nahullo* society socially-reproduces an *agnotology* to many of the ongoing aspects of historical and colonial structures of the global north, even of the fire-method of landscape management recorded within early settler-colonist's own written histories (Cronon, 1983; Nash, 1974). In this way, *agnotology* of Indigenous and European history functions as a practice of reproducing knowledge of the past that allows for the acceptance of the existence of historical crimes and genocidal periods, without the recognition of their historical effects on (and ongoing effects in) the present. One method of practicing the *agnotology* of history is through a *Shifting-Focus* between hyper-specific details and broad sweeping generalities that allows for the cherry-picking of data that enables settler-scholars to avoid inconvenient or uncomfortable facts of history (Trouillot, 1995, 97). The practice of *agnotology* through *Shifting-Focus* allows settler scholars and colonial authorities to reproduce the eliminatory logic of *terra-nullius*, a form of erasure that posits that the territories of pre-colonial Indigenous nations were blank slates until the arrival of western settlers, which itself ignores Indigenous nations' history, science, and technological achievements in favor of a settler-colonial myth of Indigenous nomadism and the land as an empty, virgin-wilderness, despite the abundant primary-source material in the

historical archives to the contrary (Lowenthal, 1985; Bonita & Dua, 1995; Mann, 2005; Dunbar-Ortiz, 2015).

By the use of the *eliminatory logics* of *erasure* and *Shifting-Focus*, the historically well-attested environmental engineering of Indigenous nations engaging with the landscapes within their overlapping territorial boundaries of their the highly-managed production of nature using the intentional shaping of landscapes though complex ecological symbiosis between humans and more-than-human living and non-living natural phenomena, is presented as an accidental anomaly of ignorant savages (Dunbar-Ortiz, 2015). Modern rangeland ecology strongly attests to the positive benefits of both bison-grazing and seasonal fire application has to the long and short-grass prairie ecologies of Turtle Island (Vinton et al., 1993; Allred et al., 2011; Eisenberg et al., 2019; Mueller et al., 2021). In the face of the overwhelming evidence of positive biological benefits of fire, the use of *eliminatory logics* of *agnotology/erasure* and *Shifting-Focus* allow for the reconstruction of a narrative where those few settler-scholars forced to engage with the issues reconstruct seasonal burns by Indigenous communities as an active detriment to the very flora & fauna populations that such TEK practices are well documented to benefited (Isenberg, 2000).

Centering Indigenous ideas of sovereignty, nationhood, and community is also an important part of the ongoing dialogue between Indigenous and Black social justice activists (Lawrence & Dua, 2005, 132). While such conversations of intersectional dialogue may seem newfangled to some, the ongoing conversation, cooperation, and organizing between Indigenous and Black activists dates back at least as far as the 1960's (Nagel, 1996). Scholarship shows that the racialization of Black and Indigenous communities through blood-quantum and one-drop-rules developed dialectically in the context of a genocidal invasion and colonization of *Nahullo* settlers into the territorial boundaries of

Indigenous nations in the Mississippian shatter zone (Churchill, 1997; Ethridge & Shuck-Hall, 2009; Byrd, 2011; Tuck & Yang, 2012).

Through unspooling the *Logics of Elimination* and *Settler Moves to Innocence* and reasserting of traditional knowledge production systems, Indigenous epistemologies can recontextualize sovereignty and nationhood as emancipatory methodologies, autonomous of western ontologies of ethnostates and the inflammatory and bigoted *othering* of Indigenous, Black, and immigrant individuals and communities. Recognition and multiculturalism are not enough (Tuck & Yang, 2012). Justice for Indigenous nations and communities requires a return to full and uncontested national sovereignty, autonomy, and jurisdictional decision-making authority over the territories and natural resources, including wildlife management policy, within the historically documented, internationally-recognized, borders of both unceded and treaty-defined territorial boundaries of the continuously existing Indigenous nations of Turtle Island.

CHAPTER THREE: RESEARCH QUESTIONS & METHODOLOGY

This thesis explores the way in which settler discursives socially construct environmental threats to Indigenous human and more-than-human communities. This project analyzes public policy documents regarding the management of and biological threats to the continuity of the wild bison herds who continue to struggle for survival in the Greater Yellowstone Ecosystem (GYE). The obstacles to wild bison migration stems from political and legislative resistance by the same settler-capitalist polities that originally worked so hard to cause the nineteenth-century near-extinction event that removed wild bison from the vast majority of their former range across Turtle Island. This project speaks out against the lingering legacy of settler-colonial histories throughout the wildlife management policies of Turtle Island's two *Nahullo* (English-speaking) settler-colonial nation-states and embodied in the IBMP. This project is a significant contribution to the field of activist and animal geographies by providing a textual analysis of the public policy documents governing the ongoing environmental crises facing wild North American buffalo in Yellowstone National Park (YNP) and the settler-state's proactive prevention of freely-migrating herds of wild bison across Turtle Island.

3.1. Study Area

The areas of study in this research project focuses on the YNP boundary regions through which bison herds most commonly attempt to migrate, namely the Yellowstone and upper Madison river-valleys on the northern and north-western boundary regions of Yellowstone National Park, respectively (See Figures 1 and 2 in Appendix A). The tourist-focused towns of Gardiner, Montana and West Yellowstone, Montana operate as headquarters for engagement with wild bison herds in the respective

areas for both signature agency (SA) Law Enforcement officers (LEO's) as well as most of the on-location members of the bison advocacy movement.

Bison herd migration patterns often correlate to the river valleys through which the bison seasonally migrate in search of winter grazing and spring calving grounds. The northern entrance to Yellowstone lies within a narrow, high-desert valley approximately 15 miles long with steep cliff sides along much of the upper Yellowstone river. This steep-sided valley has multiple narrow bottle-necks between the cliffs above the Yellowstone river and the steep hill and cliff sides along the highway, especially to either side of the bridge at Corwin Springs and all through the northern end approaching and passing through Yankee Jim Canyon. Likewise, the relatively-speaking much-wider Upper Madison high-alpine valley also has a triple-narrowing formed first by the man-made titular lake that fills much of the Hebgen valley, secondly by the human-constructed Hebgen Lake dam, and thirdly a few miles down-river by tectonically-formed Quake Lake on the edge of the Madison Range mountains.

These river valleys bottle-necks are used by state and federal LEO's to contain the wild bison herds within the Special Management Areas (SMA's) (See Figure 3, 4, and 5 in Appendix A). These SMA's are the so-called 'tolerance-zones' within which seronegative and low-risk bison can seasonally migrate and graze. These SMA's make up a negligible fraction of the former habitat of the wild bison, and even this small pittance is denied them during the late spring and early summer months when the highest density of forage is available. Due to the preconditional objectives of the IBMP, Yellowstone and upper Madison river-valleys are the logical choice for geographic containment of wild bison herds.

The Yellowstone and Upper Madison river valleys are the two regions where the vast majority of the physical conflict between bisons' seasonal migration instincts and the lethal exclusionary state

and federal management policy meet with violent and tragic consequences for the last ‘free-ranging’ wild bison herds in the United States. Ongoing twentieth-century lethal-management focused wildlife policy such as the Interagency Buffalo Management Plan (IBMP) restricts bisons' naturally instinctual need to continuously look for fresh grass to forage on regardless of the arbitrary social constructs of unnaturally-straight demarcation lines that mark the boundaries of any national park, wilderness area, or preserve.

3.2. Significance of the Study

This project seeks to build on existing research in animal geography, biogeography, fire ecology, and rangeland management. These discussions include those of ‘Place’ and ‘Nature’, settler-colonial studies, activist geographies, and the political economics of the Buffalo Commons. Existing scholarly literature recognizes wild bison as keystone species of the currently endangered long and short-grass prairie ecosystems across the Great Plains of Turtle Island. Despite the abundance of scientific research on the benefits that wild bison herds have on prairie ecosystems, the political factors governing the prevention of wild bison from returning to their former Great Plains habitat have not been explored in nearly such depth.

This project attempts to leverage established knowledge in the fields of rangeland ecology and biogeography against the structure of ongoing erasure of Indigenous history and TEK within much of the sub-field of historical geography. The significance of this study is firstly to integrate the discussion community of historical geography with the ongoing discussion of wild bison and rangeland management policy. Secondly, this section explores wild bison as both a ubiquitous icon of wilderness and nature, as well as a living embodiment of the tenacious survival of Indigenous communities in the

face of material actions enforcing settler-territoriality and discursive violence inherent to *eliminatory logic*, *agnotology*, and *historicification.* Thirdly, this project explores the way in which the bison advocacy movement exists at the intersection of wildlife management policy, environmental activism, and Indigenous sovereignty.

Through the exploration of the ongoing settler-colonial mindset embodied in the Yellowstone bison management policy, this project contributes to the scholarly discussion of the legitimacy of incorporating TEK and evaluating ecosystem balance. In doing so, this project interrogates longtime settler-colonial narratives that justify the confinement of bison in an open-air prison made up of lines on a map rather than walls and barbed wire and how it counteract with the local ecosystem management. In this venue, this project uniquely explores the ways in which capitalist interests in livestock management continue to decay and degrade the natural ecology of the commons through federally subsidized cattle-grazing allotments that are used as an excuse to prohibit access of keystone species such as bison from grazing and living on publicly managed federal lands of the GYE the boundaries of Yellowstone National Park.

Theoretical Contribution

Historical geography in the settler-colonial academy has long focused on a framing that positions the history of North America as beginning with European colonialism. Such framing often positions settlers as the first and only fully human inhabitants of the landscape and the only ones to have acted upon it in a large-scale and dynamic way. This project builds upon work by geographers of ‘place’, landscape, biogeography, and the production of nature. All of these lenses combine to show how pre-Columbian Indigenous communities dynamically engineered their landscapes and the

environments in which they lived to promote their own material wealth and embody their cultural values. This project's decolonial framing engages with the extermination of wild bison in light of the buffalo's herds relationship to the centuries-long 'feed-fight' as part of the larger settler-government led ethnic cleansing campaign against the 11)Indigenous peoples of the Great Plains ecoregion.

This project is informed by a growing body of scholarship on TEK and decolonial theories including such fundamental concepts as *Shifting-Focus, Logics of Elimination, Settler Moves to Innocence*, and *White Possessive(ion)*. This project explores several key methods and frameworks to facilitate the understanding of ongoing and persistent settler-colonial epistemologies and social construction of the values associated with land and nature that directly affect current wild bison management policy in the Yellowstone National Park and the Greater Yellowstone Ecosystem (GYE).

Discursives Regarding Bison

This project's goal is to unite the discussions regarding the decades-long violent-culling of the wild bison herds in Yellowstone by settler-state LEO's with both the existing research in biogeography, fire ecology, and rangeland management, and the developing theoretical debate surrounding settler-colonial hegemony over historically-recorded and treaty-recognized territories of Indigenous nations and communities. To accomplish this, my project seeks to explore the transforming nature of public policy actions upon the biological continuity of the wild bison herds who continue to struggle for survival in the Greater Yellowstone Ecosystem (GYE) and the reestablishment of cultural relationships between Indigenous communities that recognize the Buffalo Nations as their relatives in the face of political and legislative resistance by the same settler-capitalist polities that originally worked so hard to cause the nineteenth-century wild bison near-extinction event. This project challenges the lingering

legacy of settler-colonial *historicification* throughout Montana state and US federal wild bison management policy as produced and reproduced through the historical, geographic, and the political evolution of the settler and capitalist-colonial epistemologies in both the academy and the popular imagination.

The ongoing discussion within 'society and the environment' geography that uses buffalo as a symbolic placeholder for megafauna in general within the discursive model of the Buffalo Commons. This project engages directly with the arguments for increased bison habitat made in the Buffalo Commons while additionally grounding the conversation around bison habitat in the physical locality of Yellowstone National Park where the last genetically-pure wild bison in the United States reside. Up to this point geography has interfaced with bison primarily as a historical phenomena or an abstract representation of ecological symbiosis and production of nature. This project attempts to engage these two conversations with each other, and with the larger literature of TEK and Indigenous epistemologies. This project seeks to take the discussion of Buffalo Commons, red-state economies, and rangeland management from the intellectually abstract into the physically embodied person of the bison herds themselves.

This work re-conceptualizes the ongoing conversation surrounding the Buffalo Commons within the fields of wildlife and rangeland management. The Buffalo Commons discussion has mostly focused on human and nature interactions that view the titular bison as iconic of the wildlife that could be returned to the range for economic or ecological value to the settler-state itself. This analysis of Buffalo Commons fails to strongly engage with the current material and policy challenges facing the last herd of genetically pure, continuous wild bison within the bounds of the United States. Such challenges include state-led culling of the last wild bison herds and lack of physical bison habitat on public lands within their historically recorded range justified through rhetoric of state and federal

disease management policies that anguish their own problems and responsibilities on to Indigenous communities of humans, wildlife, and flora. This project injects into the conversation regarding wild bison management and the Buffalo Commons, the call for Indigenous justice, recognition of treaties, and return of unceded lands to the jurisdiction of the federally-recognized tribal governments of extant Indigenous nations.

Wild Bison Advocacy

My exploration of the wild bison advocacy movement sheds light on a growing body of scholarly research into postcolonial, decolonial and pre-settler-colonial cultural and technological methodologies and epistemologies. Such research has shown the ongoing stability of pre-Columbian landscape management techniques, as well as the material methods taken by Indigenous communities to deal with environmental challenges such as the growth of irrigation networks and passive cooling architecture in the face of climatic changes across the arid Southwest. Likewise, research has shown that far from being ‘wasted’ or ‘empty-lands’, eastern woodland and prairie regions of Turtle Island that have been repeatedly documents to be environmentally engineered landscapes that embodied the Production of Nature while integrating human resource needs with the symbiotic ecological relationship between plants and animals and plants and fire. Examples of such relationships include the three-way symbiosis of bison, prairie-grasses, and fire; as well as the use of fire by woodland-region Indigenous nations to increase not only bison forage as previously mentioned but also hardwood nut production through decreased competition for available light sources within fire-thinned open-prairie savanna created through Indigenous landscape engineering. Such large-scale food production strategies undercuts both the settler-colonial fallacy that Indigenous peoples were scientifically-illiterate,

wandering nomads as well as the bad-faith capitalist argument that no other options exist to modern, highly destructive and unsanitary industrial agriculture and animal husbandry. This project shows the manners in which Indigenous nations practiced sustainable methods of food production and how such sustainable practices created the agricultural surpluses enjoyed by early settlers and lost during the infamous Dust Bowls of the late nineteenth and early twentieth century. Such evidence of historical permaculture supports a return to the agroecology of Indigenous-managed landscapes while undercutting eco-fascist and Neo-Malthusian fear mongering about inevitable food shortages if the global north trunks from it's unsustainable, the slow-violence of an ever-increasingly destructive industrial agriculture across the global north and the rapaciously violent primitive accumulation inherent in the racial capitalism that under-girds the neo-colonial model across the global south.

Activist Geographies

This project sheds light on the little known and less-studied realm of environmental activism and advocacy surrounding bison exclusion from federal lands in the GYE in favor of seasonal cattle grazing by private ranchers. This project engages with the ongoing conversations in the legal and political realms that concern wildlife and rangeland management policy in the Yellowstone region and the larger arid-west bioregion that it rests within. This project looks into the ways that state and local governments have adjusted policy in reaction to environmental activism and pressures from tribal governments, as well as casts light upon what strategies have been employed by state and federal bison management policy makers to shape public perception of events on the ground and portray their actions as in line with ongoing ecological and biological research regarding wild bison and *Brucellosis*. This

project looks into the ways that wild bison advocates have pushed back both materially and discursively on the actions taken and claims made by the SA of the IBMP.

Around the globe scientists are witnessing an ever-increasing pace of climate change and ecosystems collapse, from coral reef bleaching, to the impending risk of collapse of fisheries that feed millions of people, to the tangible risk of extinction faced by most of the world's large mammals not used as protein inputs in western industrial agriculture. As young citizens in the first world grow up learning about the scientific data and environmental risks regarding industrial society and its consequences to those it surrounds, they have an increasing incentive to study and learn from mass-protest movements of the last two hundred years, such as the female suffrage, Black civil rights, anti-war, anti-nuclear, and labor organizing movements. Modern grass-roots activism aims to challenge from below the hegemonic economic and political power of hyper-militarized settler-capitalist nation-states within the global north. The purpose of such a challenge is to build an ecologically-healthier and morally-just egalitarian future not just for the descendants of the privileged and powerful, but for all humans and non-humans around the world. With a shared vision of egalitarian-rights as the objective, a proliferation of positionalities have come to be reflected within the environmental and civil rights organizations that have developed. These organizations work together and separately to advocate for social change using a diversity of tactics and strategies to realize environmental restoration, tribal sovereignty, and recognition of the basic right of all persons to equal treatment and dignity in society, the economy and before the law.

Historicification of Sovereignty

This project explores the growth of non-violent social activism as a political force pushing for social progress and public policy changes in the United States. Such public activism has often been classified as either tied to social justice or environmentally focused. There is growing support for social justice and more egalitarian treatment of historically disenfranchised groups in the United States. While much of this has focused on Black and women's rights, there has been a notable increase in activist organizing within Indigenous communities and upon federally recognized tribal nations' territories. Decolonial geography has a record of challenging the political and cultural hegemony of settler-colonial states that continue to illegally occupy and colonize the territories of historically-documented, treaty-recognized, sovereign Indigenous nations. While Australian, Canadian, and United States courts have over the past several decades occasionally ruled in manners that could be construed as in favor of Indigenous communities' traditional land claims, no settler-colonial polities' judicial system have taken the next step, legally-mandated by the Fourth Geneva Convention Section III Articles 49, to which these three settler-colonial states are signatories. Such legal actions must entertain the return of territories illegally seized through the "mass forcible transfers, as well as deportations of protected persons from occupied territory" as it regards both confinement of Indigenous civilian populations within the federally-mandated Reservation system and the Indian Removal Act used in the ethnic-cleansing and ongoing disenfranchisement of the southeastern Indigenous nations of Turtle Island in order for the settler-colonial government to "transfer parts of its own civilian population into the territory it occupies" (ICRC, n.d.).[1]

Since the Treaty of Westphalia in 1648, European capitalist-colonial nations have written and held other nations-states to international statues, such as the Geneva Conventions. In the twentieth-century settler-colonial nation-states themselves have led the charge in international law enforcement, such as during the Nuremberg Trials. However, instead of following these international laws in regards

to non-western nations, settler-colonial occupational governments treat Indigenous nations as historical communities that they are unwilling to recognize the economic or political jurisdiction of in the present. This *historicification* of Indigenous nationhood is in direct contradiction to hundreds of federally-ratified treaties between sovereign Indigenous nations and the United States. Denial of nationhood to communities with whom settlers have entered into legally-binding treaties is a violation of international laws and treaties, such as the Geneva Convention, as well as Article 1 Section 8 of the US Constitution itself. After centuries of physical and cultural genocide, Indigenous peoples currently make up a small fraction of the population in many settler-colonial nations of the global north. Because of the low Indigenous demographics in settler-colonial nation-states there remains little public support within them to challenge the status of Indigenous peoples as second-class citizens denied basic property rights nominally granted in constitutional and statute law.

Despite the demographic challenge, there has been a growing number of Indigenous activist movements over the course of the last decade alone. The advocacy for legal rights, recognition of Indigenous sovereignty, and exercise of the jurisdictional powers of tribal governments have not been not confined within the settler-colonial borders. Indigenous communities have united to protest and petition for redress of grievances from Standing Rock in the United States to the Wet'suwet'en land claims and Mi'kmaq fisheries activism in Canada. This continued rising tide of Indigenous activism corresponds in time with ongoing feminist and racial social justice movements among the settler-colonial populations. The increasing diversity of grass-roots activist movements such as Me-Too, Black Lives Matter, and the record-breaking protests following the graphic murder of George Floyd may foreshadow a growth in intersectional activist movements as various stakeholders come together to advocate for change in a way unseen since Fred Hampton's short-lived 1969 Rainbow Coalition between the Black Panthers, the Young Lords, the Brown Berets, the American Indian Movement, the

working-class white-identity group the Young Patriot Organization, and the Students for a Democratic Society. The new social justice activism has been in tandem with the growth in the ever-changing environmentalist movement.

Settler-colonial land claims and the primitive accumulation of private property through enclosure closely correlates throughout the historical record with environmental racism and racial capitalism at local, national, and global scales. The principle underlying the Eurocentric view Indigenous nations' territories and the resources within them as inherently the *white possession* of capitalist-colonial and settler-colonial states was first laid down in western-international law centuries ago in the explicitly-racist Doctrines of Discovery. The Doctrine of Discovery is a collection of papal bulls that are still cited by the US. Supreme Court as legal precedent for the ongoing material and political disenfranchisement of Indigenous nations and communities as recently as the 2005 *Sherrill vs. the Oneida Nation* decision.

3.3. Research questions

In light of the theoretical concepts discussed in Chapter Two, this thesis employs textual analysis of public policy documents concerning Yellowstone's wild bison management policy to shed light on the veracity and purpose of the Interagency Buffalo Management Plan (IBMP). The analysis in Chapter Four explores the IBMP & FEIS public documents to answer this thesis's research questions. This section presents the four research questions and the corresponding results by which Chapter Four is structured. The last sentence of each section is the critical assertions of Chapter Four used to interrogate and analyze the IBMP through a decolonial lens.

Firstly, to answer the question of how public bison management policy reflects the larger conflict in the United States between capitalist-colonial epistemologies embodied by industrial livestock agriculture and the science-based epistemologies of agroecology and environmental restoration, this thesis analyzes how the IBMP compromises scientific integrity to economically benefit private livestock industry interests.

Secondly, to answer the question how do the objectives underpinning the establishment of the IBMP illustrate the capitalistic Enlightenment-era settler-colonial land ontologies motivating the public policy of bison management, this thesis analyzes the rhetorical manner in which the IBMP pre-conditionally requires the elimination of living bison and the exclusion of bison herds from public lands in favor of private cattle interests.

Thirdly, to answer the question of in what ways are state and federal claims regarding the need for bison management contradicted by the scientific evidence cited by the state and federal signature agencies (SA) to the Interagency Buffalo Management Plan, this thesis analyzes five empirically-falsifiable assertions in the IBMP regarding the supposed need for and biological efficacy of wild bison exclusion from public lands of the GYE. The IBMP asserts empirically-falsifiable positions regarding the supposed need for and biological efficacy of wild bison exclusion from public lands of the GYE in order to prevent the zoonotic threat of wildlife to livestock transmissions of the bacterial pathogen *Brucellosis abortus*. These assertions and positions are in direct contradiction to the evidence, positions, and findings put forward in the public policy documents cited by the IBMP to establish its own claims. The empirical evidence cited from scientific research for claims made in the IBMP and FEIS regarding the need for lethal management of wild bison herds do not support the claims made by the SA in the IBMP. There are even places where claims in the IBMP are directly contradicted by the scientific literature that the IBMP itself references.

Fourthly, to answer the question of how does contemporary wild bison management policy replicates and reproduces nineteenth-century settler-capitalist land ontologies within a modern legal framework upheld ideologically through the use of *Eliminatory Logics* and *Settler Moves to Innocence* to justify continuation rather than reform of the status quo, this thesis analyzes the supposed biological and ecological risks of disease transmission from wild bison to livestock posited by the IBMP as reasons for lethal bison management stems from socially produced conflicts and are in fact not a matter of biological necessity.

Using these questions to frame the analysis, this thesis explores the IBMP public documents in order to interrogate and analyze wild bison management through a settler-colonial lens.

3.4. Methodology

While qualitative methods such as interviews and textual analysis are well established in the social sciences, less time has been spent focusing on the topics of activist geographies and Indigenous methodologies. I am part of a small subset of scientists exploring activist and Indigenous geographies in general and perhaps the only geographer currently focused on the Yellowstone wild bison issue as an intersection of the environment activist movement, private property rights, and moves by Tribal governments to exercise more territorial sovereignty, both of which are in tension to ongoing bison management policy in the form of the IBMP.

This project uses the method of Two-Eyed Seeing to critically engage with both Indigenous and western epistemologies simultaneously. The focus of this critical analysis is the public policy documents concerning the ongoing lethal and exclusionary wild bison management in the GYE. After engaging with the core methodology and research documents of the IBMP, this section will discuss the preliminary findings and limitations of this project. In line with both Indigenous and ecofeminist

epistemologies, the final portion of this section discusses my own positionality as a Chickasaw geographer and wild bison advocate.

Two-Eyed Seeing

The methodology of Two-Eyed Seeing (TES) is a critical lens through which to view the empirical overlap between modern scientific recognition of holistic relationships between different living and non living natural phenomena, and Traditional Ecological Knowledges (TEK), agroecology, and other sustainable forms of Indigenous methodology, such as bison-fire-prairie landscape management in the Woodlands region east of the Mississippi, as documented by historical geographers, historians, and the contemporary settler-colonists themselves.

This thesis used the Indigenous methodology of Two-Eyed Seeing and the lens of decolonial geography to examine, interpret, and analyze Yellowstone wild bison management policy and its social and environmental ramifications through a number of decolonial aspirations and perspectives. The issue of Yellowstone bison territoriality brings together multiple sub-fields in the discipline of geography, just as the public policy issue unites a variety of community stakeholders in the field. Because of its intersectional positionality, I use the Two-Eyed Seeing method to simultaneously apply both qualitative Indigenous theories with the logical positivism of the ecology and natural sciences in the western paradigm when analyzing and critiquing the IBMP.

IBMP and Associated Documents

In this project I analyzed several of the public policy papers pertinent to the 2000 state and federal ROD's, known collectively as the IBMP. Across the last three decades there have been multiple policy names under which management of the wild bison herds of Yellowstone National Park has progressed. Some of the earliest documents analyzed here are titled as the 'Joint Management Plan' (JMP) by the state of Montana in their published record of decision (ROD) in 2000. It is simultaneously titled the 'Interagency Buffalo Management Plan' (IBMP) in the federal ROD release simultaneously in 2000. The plan has undergone changes in a more recent 20008 document titled the Adaptive Management Plan. However, due to the abundance of documents concerning wild bison management, only a non-exhaustive selection of those relating to the state and federal ROD's in 2000 are analyzed here. While there are few differences in titles between state and federal ROD's, for sake of specificity I will refer to the state ROD by its self-assigned title of JMP, and the federal ROD likewise by its self-assigned title of IBMP when referring to either of them in-text or in the footnotes and appendices. It is common for the SA and community activists to use 'IBMP' as a catch-all term for both the original 2000 ROD's and the later 2008 Adaptive Management Plan when referring to the overarching lethal management policy regarding Yellowstone's wild bison herds. Because of its vernacular use, IBMP will be the term I use to refer to the ongoing structure of lethal exclusion of wild bison from public lands in Montana and culling of the last two wild bison herds in the United States to herds to population numbers well-below the available forage carrying capacity of the Yellowstone National Park or the GYE, much less their former massive range across most of the Great Plains and Woodlands regions of Turtle Island.

I devote the focus of my analysis on the first incarnation of the various but similar management plans, as well as those documents cited in the 2000 IBMP as scientific and rhetorical evidence to support the claims of disease transmission risk made therein. The documents analyzed as part of this

collection include the 2000 federal Environmental Impact Statement (FEIS) volumes one, two, and summary; reports from multiple hearings of the government accountability office (GAO) regarding the IBMP, as well as the 1998 National Academy of the Sciences report "Brucellosis in the Greater Yellowstone Area" that is extensively cited by both state and federal ROD's and their associated federal Environmental Impact Statement from 2000. The GAO reports analyzed in this project feature expert testimony which was presented to the US Congress by scientists and other rangeland management professionals relating to wild bison and other ungulate habitat, and rangeland management in the GYE. Since the IBMP claims that it's management actions are 'based on the best available scientific information and are ecologically sound', the cited GOA testimony documents are included when reference in the IBMP or FEIS, whether it is by the signature agencies in support of the lethal and exclusionary management policy for wild bison, or in the public comments against this same policy (IBMP federal ROD, 2000, 8).[2]

The policy papers analyzed here are all publicly available for download at the IBMP website (http://www.ibmp.info/library.php). These policy papers are public-facing documents that archive information on the differing management options negotiated over time between the various signatory agencies (SA) of the IBMP. These state and federal signatory agencies include the Montana Department of Livestock (DOL), Montana Department of Fish, Wildlife and Parks (FWP), the National Park Service (NPS), National Forest Service (NFS), and the Animal Plant Health Inspection Services (APHIS), an agency of the US Department of Agriculture (USDA).

Preliminary Findings

This project has been informed by public policy papers regarding the IBMP in order to explore the ontologies of nature in play in the wild bison advocacy community. A full review of wild bison management policy papers must include multiple federal Environmental Impact Statements (FEIS), policy literature on the bison hunt and quarantine feasibility studies, adaptive management memos, Government Accountability Office (GAO) reports, the Study of Shedding and Venereal Transmission of *Brucella abortus* by Bison Bulls in the Greater Yellowstone Area (Environmental Assessment of 2010), and the various incarnations of the IBMP itself (2000, 2007, 2008, 2011, & 2015). Overall, there exists more than three decades of policy literature on the subject of Yellowstone National Park's various wild bison management activities. These include in the twenty-first century alone, no less than four different management plans (e.g. 2000, 2008, 2011, 2014) and additional GAO reports dating back at least as far as 1992 (IBMP docs: http://www.ibmp.info/adaptivemgmt.php, GAO: http://www.ibmp.info/library.php). Such an extensive review is outside the scope of this project. This project will focus on the IBMP, FEIS, NAS 1998, and GAO documents for reasons previously reviewed.

The early policy papers of the IBMP are an important place to begin the study of the current management policy because they contain the initial policy claims made by state and federal agencies regarding the purpose, possibilities, and scientific evidence supporting the use of spatial and temporal segregation of wild bison to prevent disease transmission events. Scientific evidence in these documents is cited to signify how such spatial and temporal segregation is necessary to maintain empirically sound and logically consistent methods by which to reduce or prevent know reservoirs of *Brucellosis* in the GYE from experiencing a zoonotic event (e.g. undulate fever) beginning with a disease transmission event from wildlife to livestock.

Additionally, these early policy papers show the original restrictions in management policy that wild bison advocates organized to oppose. These policy papers also showing the unrealistic, unfeasible, and ill-informed timetables predicted by the state and federal agencies in regards to their three-stage wild bison management plan, as well as showing that the scientific evidence available to the signatory agencies predicted that such timetables were unrealistic at best and often framed in a blatantly dishonest manner. For example, an in-depth look at all 5 incarnations of the IBMP would likely give a better perspective on the manner in which central claims of the plan's future, such as it's "adaptive" nature and what changes were necessary to move towards 'stage 3 tolerance levels', were followed through on and which proved to be based on social rather than biological factors. However, such a review and analysis falls outside the scope and size of this thesis and must therefore be set aside for a larger project in the future.

The scientific literature on bison and rangeland ecology is important to the political debate because it shows that ongoing policy restrictions to wild bison migration are not grounded in any empirically quantifiable risk of disease transmission from bison to livestock. Rather, current wild bison policy is grounded in agnotology and fear mongering regarding the economic costs caused by documented elk-to-livestock disease transmissions events, as well as deeply-seated epistemological beliefs regarding private property, authority over the public commons, the legitimacy of Indigenous cultural values, and possession of natural resources within the historically-recognized but politically disenfranchised national territories of federally-recognized Tribal governments (Coulthard, 2014; Curley, 2021).

While the IBMP and FEIS go to great lengths to repeatedly state that they 'consulted' with tribal governments, the statements by tribal government representatives in the FEIS explicitly contradict such claims. Instead, the FEIS records Tribal Government claims that the IBMP not only

failed to live up to the published claims but also violated federal law in their blatant disregard for legally required process and the signatory agencies dismissive presumption that bison are "not a cultural value" of Indigenous nations but rather a "natural resource of all citizens" (IBMP federal ROD, 2000, 58; FEIS vol 2, 2000, 236). This position is in clear contradiction to the historical facts concerning wild bison presented in the FEIS itself (FEIS vol 1, 2000, 362-365).

Additional evidence in conflict with the conclusions made in the IBMP comes from the expert scientific testimony presented to the five separate GAO committees, as well as data in the FEIS documents, which in many cases fails to support the stated governmental position regarding the IBMP as "based on the best available scientific information" and as being "ecologically sound" as it regards the lethal migratory restrictions on wild bison herds attempting to leave the artificially enforced boundaries of Yellowstone National Park (IBMP federal ROD, 2000, 9-A)[2].

3.5. Limitations

Due to time and resource constraints on this project, this thesis prioritizes early policy management literature that is central to my research on settler territoriality in the context of bison management in the Yellowstone region. While I decided not to pursue interviews in this phase of the research, I consider this project as a token of my life-time commitment to and endeavor for socio-environmental justice, and it will evolve along with my own growth and maturity as a scholar as much as an individual. Therefore, I look forward to further cultivating my relationship with future interviewees and collaborators prior to the commencement of the interview phase of this work, which could take the shape of my future PhD. dissertation project.

Undoubtedly, the incorporation of interviews and surveys into this project would signify further potential for exploration of this topic. I had originally planned to conduct semi-structured interviews with approximately two dozen people. Some of these individuals have each spent over a decade working as in-the-field advocates for Yellowstone bison's right to migrate, graze and calve outside of national park borders and others are Indigenous rights activists whose work and cultural histories also intersect with the wild bison herds of Yellowstone. Wild bison advocates I contacted include the two still-living co-founders of the Buffalo Field Campaign (BFC) which is the wild bison advocacy organization that created the Wildlife Database, who were both enthusiastic to be interviewed. I had also hoped to interview the current and former Executive Directors of the BFC. The former of which is a long-time Indigenous rights activist and the latter of whom has published a book regarding his experiences as a wild bison advocate, which is cited in this project. Additionally, I had hoped to interview individuals who worked as long-term volunteers, some of whom now serve on the Board of Directors for the BFC, as well as some local landowners who support wild bison habitat restoration. In the future, these interviews would provide important primary sources to explore the rise and development of the buffalo advocacy movement as a response to the lethal bison management policy of the Montana Department of Livestock and the National Park Service.

3.6. Positionality Statement

As a Chickasaw citizen and scholar, I am not a detached, dispassionate observer to the fate of the buffalo. As a citizen in a complicated jurisdictional overlap of representative democracies, even indifferent neutrality is itself a partisan position. As a bison advocate, I am not objectively situated relative to the topics of ecology and decolonization that I am in discussion with. As an Indigenous geographer who believes strongly in ecological science, I cannot be neutral when it comes to public

policy concerning wildlife management and preserving natural resources. My work with the bison is firmly grounded in the holistic, relational epistemologies embodied in Indigenous Methodologies as this thesis affirms.

My primary interest lies in the enduring ecological health of the extant wild bison who descend from the great buffalo herds with whom my ancestors maintained for millennia a holistically-interdependent relationship in which we shared with the Buffalo Nations our southern Woodland region of *Tashaiye Loksi'* [Turtle Island], east of the Mississippi river. I believe both in bisons' innate rights to live and migrate across their historic territory, as well as believing in the ecological and cultural benefits of continuing millennia-old relationships within which the Buffalo Nations participate with the other Indigenous human, plant, animal, and microorganism communities of the long and short-grass prairies of Turtle Island.

As a Chickasaw geographer who was raised in Portland, Oregon—the ancestral lands of Multnomah, Wasco, Cowlitz, and many other tribes who made their homes along the Columbia River—I feel it is important in this project to center the epistemologies and ontologies of the Indigenous Plains and Woodland nations who share a complex and long-enduring relationship with the Buffalo Nation. This project has evolved along with my own intellectual growth and personal development as an emerging geographer. The story I will share below is also a story of my own experience, observation, and immersion into the contested multi-species and multicultural space of contemporary Turtle Island.

Growing up in an urban environment in the Pacific Northwest, Oklahoma, the Homelands east of the Mississippi river, and my grandfather's Chickasaw family felt very distant to me. A transformative moment arrived soon after graduating high school when I first read Dee Brown's *Bury*

My Heart at Wounded Knee (1970). For the first time, I faced the ways in which my own family's modern history of military service and disconnection for tribal life and politics tied back into the assimilation tactics and eliminatory goals under-girding the Dawes Act. The Dawes Act was the federal law under which we Chickasaw and other Indigenous peoples of Okloshi'homma—those nations in federally-imposed exile west of the Mississippi River—were unilaterally and non-consensually disenfranchised of our collectively-held national territories by the United States federal legislature. Under the 'Dawes Act' the collectively held lands of Indigenous nations which we had traveled into exile to preserve the institution of, were broken up into private allotments that were recorded in the 'Dawes-Rolls'. So-called 'surplus' lands not allotted to Indigenous individuals under the 'Dawes Act' were stolen from the Indigenous nations and sold or given to *Nahullo* settlers, often under unlawful pretenses, such as in the well-known cases of the 'Oklahoma Sooners'. To bring the history of the 'Dawes Act' into the personal and the present, it is also the law under which my own Indigenous identity, and that of my ancestors and descendants, is recognized by the United States' settler-colonial government.

The second transformative moment in my journey down the trail of the *Okloshi Yŭnŭsh* (Buffalo Nation) came a few months later when I was introduced to the public advocacy surrounding the culling of Yellowstone's wild bison herds. I stayed up till dawn that night going through articles online. It would be a few years before I got on the Greyhound bus to take me to Montana, but I followed the wild bison advocacy movement from afar. The thing I remember best about the first winter I spent with the bison at nearly 7,000 feet of elevation was the cold. The second winter I recall the loneliness. The third winter I stayed so busy it's hard to recall much beyond my time in the high mountain alpine prairie valleys– sitting, filming, and being caught up in the Law Enforcement Officers' (LEO's) hazes with the wild bison. Surrounded by hundreds of pounding hooves, I held no fear of any

aggressive or vengeful actions from the buffalo herds. My only concerns were to be ever-vigilant for the possible behaviors and expectations of my fellow humans.

As those sevens winter's turned to spring I hiked, snow-shoed, skied, and jogged across remote and beautiful vistas to sit and stand with the migratory herds of wild buffalo as they searched for winter forage or safe birthing grounds with ample spring forage. There I worked with other bison advocates in video-documenting when government agents came to haze and cull the Yellowstone herds. I felt the land shake many times under the rumble of their gigantic hooves as buffalo family-units fled from the hollering and gunfire of state LEO's who drove the herds across imaginary lines denoting public park and public forest lands. Sadder days were the ones when we documented the LEO's herding bison into large cattle traps, from whence most would ultimately be sent to slaughterhouses far from the lands of their birth, the lands from which the agents were actively removing them.

It has been a decade since I left Montana with the intention of returning to college. I didn't expect that my work in cartography and human geography would return my focus to the wild buffalo herds of Yellowstone, but as I progressed in academia it became clear to me that research regarding Buffalo Nation was the next step in my ongoing relationship with them, my not-so-distant relatives. Much has changed in the last decade, including time spent with other tribal members in Oklahoma and in our eastern Homelands. Time I spent learning more about Chickasaw history, culture, and our relationship to the bison-prairie symbiosis that we spread across our territory through the seasonal use of controlled burns.

The motto of the Chickasaw Nation is "Unconquered and unconquerable". The first part of this statement recognizes the historical record of our military alliances and victories against invading settler-colonial polities including the Spanish, French, and English empires, as well as the United

States. Contrary to popular belief among the settler populace of Turtle Island, the fact is that like most Indigenous nations of Turtle Island, the Chickasaw Nation has never been defeated in battle by any settler military force, nor have we ever lost a single war against any settler-colonial polities. The second part of the statement asserts a claim to the strength of Indigenous cultural resilience that I strive to embody in this thesis. In the face of *eliminatory logics* and ongoing material dispossession of Indigenous communities that the settler-state seeks to legitimize, Indigenous life itself is a form of resistance. The perpetual survival of Indigenous communities–such as Chickasaw Nation and the Buffalo Nations–shows not only the strength of our epistemologies, but also the legitimacy of our claims to the right to exist. In the face of those whose *Settler Moves to Innocence* seek to *historicify* Indigenous people and communities as dead and lost to the past, Indigenous scholars and activists boldly stand forward and claim: '**We still exist!**'

As survivors of what is quite likely the largest-scale and longest-running genocide in recorded world history, Indigenous scholars refuse to allow our communities, knowledges and lifeways to be buried alive under the *agnotological* reproduction of *Nahullo* ignorance regarding Indigenous natural-history and TEK in the same manner that *Nahullo* museums, settler-state governments, and universities across this country continue to shamefully hide Indigenous bones (the grave-robbed and cannibalized bodies of our family members!) in their moldering basements, in blatant disregard to the Native American Graves Protection and Repatriation Act of 1990.

CHAPTER FOUR: FINDINGS

This chapter sheds light on several key methods and frameworks of the Logics of Elimination, *White Possessive(ion) theory*, and *Settler Moves to Innocence* within some of the earliest public policy documents concerning current wild bison management policy in the Greater Yellowstone Ecosystem. The use of *Shifting-Focus* regarding tribal consultations and data-mining of scientific claims at work in the IBMP clearly embodies the application of *eliminatory logics*, *erasure*, and the *Settler Moves to Innocence* of *anguishing* wild bison and *agnotology* of Indigenous history and cultural values, as well as assertions of *white possession* over the resources of Indigenous nations, as explored in Chapter Two of this thesis.

By analyzing the material history and cultural matrix of settler territoriality we can better come to understand the factors which led to the rise of the Yellowstone wild bison advocacy movement in opposition to the settler-capitalist epistemologies of the IBMP. This work was performed to further enhance our understanding of ongoing and persistent settler-colonial epistemologies and values associated with wild bison management policy as it reflects the notion of settler territoriality. In so doing, Chapter Four explores the ongoing way in which reactionary settler-capitalist hegemonies weaponize and misappropriate scientific discursives to reproduce and reinforce settler-colonialist ontologies and epistemologies within wildlife and wildland management policy.

4.1. Background

Throughout Chapter Four, the focus of my analysis is on the wild bison management documents themselves. This begins with a review of the preliminary research findings before continuing on to an analysis of the public policy papers that concern the 2000 until current day lethal wild bison management activities by state and federal Law Enforcement Officers (LEO's). These documents include the Interagency Buffalo Management Plan (IBMP) including both state and federal records of decision, the associated federal Environmental Impact Statement (FEIS), multiple early Government Accountability Office (GAO) reports regarding the IBMP, and the National Academy of the Sciences (NAS) report from 1998, "Brucellosis in the Greater Yellowstone Area", cited repeatedly in the IBMP.

Chapter Four begins with a review of my preliminary research findings before analyzing the IBMP documents using the Four Lenses of Critique discussed in Chapter Two. I will use these Lenses to analyze the IBMP documents in line with the following four assertions that I have developed, based upon my preliminary and methodological findings. For the purposes of being concise, several related findings have been collated into subcategories of the third and fourth assertions and as such will be further broken down in those sections as appropriate.

This project found the following regarding the 2000 Interagency Bison Management Plan. Firstly, that it compromises scientific integrity to economically benefit private livestock industry interests. Secondly, the IBMP pre-conditionally requires the elimination of living wild bison and exclusion of migratory buffalo herds from public lands in favor of private cattle interests.

Thirdly, this project finds that the IBMP asserts empirically-falsifiable positions regarding the supposed need for and biological efficacy of wild bison exclusion from public lands of the GYE including but not limited to the following:

- A lack of any empirical or archival evidence of documented wild bison-to-livestock *Brucellosis* transmission event whatsoever.
- No empirical evidence for the 'not-zero' risk claim of disease transmission regarding 'low-risk' bison.
- Ignoring the equivalency of wild bison and elk seropositive rates within the GYE.
- No quantitative empirical or epidemiological metric to quantify supposed bison-to-livestock transmission risk.
- No adjusting of tactics by the IBMP after continued confirmed *Brucellosis* transmission events from elk-to-livestock and none from wild bison-to-livestock.

Fourthly, this project finds that the supposed biological and ecological risks of disease transmission from wild bison to livestock posited by the IBMP as reasons for lethal bison management stems from socially produced conflicts and are in fact not a matter of biological necessity. Evidence that supports such a conclusion stems from:

- The high vaccine efficacy in livestock compared to much lesser efficacy of such livestock vaccination in research done on cattle-bison hybrids, also known as '*beefalo'* (specific vaccines remain untested on genetically-pure wild bison). bison
- The repeated Brucellosis transmission events from elk-to-livestock in state-run winter feedlots on the Wyoming side of the GYE which are well-recorded and much-discussed in the research cited and misconstrued by the IBMP, in order to justify lethal bison management with total disregard to ongoing elk transmission events.
- Erasure of public comments regarding SA of the IBMP not fulfilling statute laws regarding the environmental conservation of endangered nature and erasure of the unilaterally-imposed fiduciary trust-duties that federal agencies are legally bound to enforce including

> protection from state and settler interference and destruction of recognized Indigenous cultural resources such as healthy and freely migrating wild bison herds.

Although these finding may be controversial to some, Chapter Four of this thesis goes into great depth and detail to methodologically analyze and record the many places and ways the IBMP concedes, openly ignores, and explicitly asserts these very positions itself before *Shifting-Focus* away to other excuses or applying *Logics of Elimination* and *Settler Moves to Innocence* to claim *White Possession* over historically-documented and treaty-recognized territorial lands and natural resources of the Indigenous nations of Turtle Island whose cultural ties to the GYE and wild bison stretch back thousands of years.

4.1.1 Findings in Preliminary Research

For decades, wild bison advocates have borne witness to events in Yellowstone National Park and the surrounding GYE which embody the continuity of Eurocentric enlightenment ontologies of wasted-land, empty lands, and dualistic epistemologies that promote man-versus-nature paradigms and the paternalistic notions that the varied and diverse Indigenous cultures of Turtle Island were and are scientifically and culturally backwards. These bison advocates claim that such out-of-date cultural chauvinism against Indigenous communities continue to inform state and federal wildlife management policies, embodied in the exclusion of Tribal governments and the BIA from participation in wild bison management policy.

The preliminary findings in this project begin with an exploration of the historical and cultural context of the Inter-Tribal Buffalo Council as a representative organization of Indigenous activism

which focuses on the struggle of Indigenous communities for autonomy and sovereignty as it relates to the relationship between Buffalo Nation and the dozens of Indigenous nations and Alaskan villages that make up the Inter-Tribal Buffalo Council. Next, these preliminary findings review the IBMP signature agencies, which represent both state and federal jurisdictions within the United States. Next, these preliminary findings discuss the ideological and discursive conflict between established empirical methods of biological, epidemiological, and ecological science on the one side and settler-colonial epistemologies prioritizing the profits of private industry. Lastly, these preliminary findings explore the history of the wild bison advocacy movement and the diversity of tactics they employ in order to challenge the lethal management of wild bison in Yellowstone.

Inter-Tribal Buffalo Council

Activist movements between the 1950-1970's led to changes in civil rights recognition across the United States for Black, Chicanx/Latinx, & Indigenous communities. One part of this shift towards egalitarian treatment of Indigenous communities included more recognition of tribal sovereignty, cultural legitimacy, and some increase of the power of tribal governments relative to that of the federal and state governments. One manifestation of this tribal autonomy has been an increase in Indigenous advocacy for bison interests, as seen in the formation of the Inter-Tribal Buffalo Council.

Many Indigenous tribal nations, from the Yakama and Nez Percé Nations of the Columbia River watershed to the Cherokee Nation and Seminole Nation of Oklahoma, have deep cultural ties to the bison community. This significance was revealed by the founding of the InterTribal Buffalo Council (ITBC) in 1991 with the stated mission: "To restore bison on Tribal lands for cultural and spiritual enhancement and preservation" (ITBC, 2019). The ITBC was founded with 58 member tribes

in 19 states, from Alaska to California, and all across the Great Plains. Indigenous tribal citizens participate in bison harvesting under the jurisdiction of Bureau of Indian Affairs (BIA) tribal police and tribally determined hunting regulations, rather than the State of Montana Department of Fish Wildlife and Parks (FWP) jurisdiction. While this bureaucratic separation may seem minor, it is relevant in that the Montana FWP is a signatory member of the IBMP while neither the BIA tribal police nor the tribal governments whom they work for are direct participant agencies in the interdepartmental policy making body. Many tribal nations that are part of the ITBC do not hunt bison in the public lands adjacent to Yellowstone. Likewise, not all of the tribes that do exercise their treaty rights to hunt bison in the GYE are members of the ITBC. As can be seen from this brief summary, the topic of the identity and policy position of various Indigenous stakeholders in Yellowstone bison wildlife management is itself a complex matter.

IBMP Signature Agencies

In response to bison migrations onto federal and privately owned lands of Montana state and federal agencies currently employ violent and often lethal hazing, hunting, and quarantine programs to limit the territorial range of bison's instinctual migration patterns. The state and federal agencies that are signatories to the IBMP are as follows:

Montana Department of Livestock (DOL)

Montana State's Fish, Wildlife, and Parks commission (FWP)

National Forest Service (NFS)

National Park Service (NPS)

Department of Agriculture's Animal and Plant Health Inspection Services (APHIS)

These agencies form the decision making body of wild bison management policy for the last wild bison herds in the United States. The total spatial exclusion of wild bison from public lands outside of Yellowstone is managed by these agencies out of a rhetorical concern over the risk of transmission of the *Brucellosis* bacteria from wild bison to domestic cattle. Due to the prevalence of *Brucellosis* in wildlife of the GYE and the targeting of only wild bison for lethal management, concerns regarding the risk of disease transmission are seen by many Indigenous communities and environmental groups as a bad faith argument.

Yellowstone Bison Hunting

Further criticism of the current Interagency Buffalo Management Plan (IBMP) is grounded in the fact that the policy severely limits bison leaving the park outside of limited time-windows, such as the 'canned' hunting season put on by the state of Montana for economic profit. The 'canned hunting season' is so called by bison advocates who point out that wild bison are the only species in Montana, and perhaps the entire US, who are allowed within the boundaries of the state *only* during the time period of the hunting season. There are no other types of big game animals, not even predators like puma, wolves, and coyote, which are categorically excluded as a species from their native habitat and rangeland year round except when by being allowed entrance the state can directly profit economically

from their deaths. Even the predator species previously listed which have strong opposition from the same ranching and livestock interests that oppose freely-migrating bison, are allowed habitat within the public lands of Montana and other western states. Such exclusionary bias against bison on the behalf of ranching and livestock interests continues into the 21st century, despite the abundance of evidence showing that bison have less economic impact on cattle ranching via natural competition that wild rabbits that currently share rangeland with livestock currently do (Ranglack, et al., 2015). Such anti-bison bias in the face of empirical data shows the elimination logic at work within the framework of settler-territoriality.

The Montana state regulated hunt is politically and legally different from the 'treaty hunt' structure under which Indigenous tribes have during the past twenty years begun asserting their treaty-protected rights to harvest bison, elk, and other big game from the public lands of the GYE. Indigenous treaty-hunters follow laws and statues outlined by their respective nation's tribal governments. Each tribal nation sets its own dates and statues for their 'treaty-hunts' in a manner similar to how management policy within the bounds of their tribal reservations. These treaty-hunts show an extant example of tribal sovereignty exercised in historically recognized territories of Indigenous nations currently occupied by settler-capitalist governing polities. The Montana state regulated hunt takes place from mid-November to mid-February and represents the only examples of seasonal tolerance for wild bison on public lands of the GYE outside of Yellowstone boundaries.

Additional criticism leveled against the signatory agencies of the IBMP stems from the comparatively nonexistent precautions taken to prevent non-bison wildlife to livestock disease transmission by the IBMP signatory agencies. The hypocrisy of disease control as the goal of government bison management policy becomes clear when comparing the differences between management of bison to elk. It is empirically indisputable that all recorded cases of *Brucellosis*

transmission to cattle in the wild have been exclusively tied to cattle mixing with elk and deer within feedlots, never to bison migration patterns (Proffitt et al., 2010).

Conflict Between Ecological Science and the Profits of Private Industry

Preliminary data was obtained from media sources and press statements issued by bison advocates and collected by this researcher during time personally spent as a wild bison advocate prior to admission at Syracuse University in 2021. This primary data suggests that choice of United States and Canadian federal and state and territorial governments to prioritize agricultural interests over bison reintroduction across their former range stems from Western colonial ontologies of land, animals and other non-human nature (Lancaster, 2005, 423; Zontek, 2007, 91-95; Brister, 2013). While modern ecologists note the importance of bison migration to the health of the currently endangered prairie ecosystem of the Great Plains region (Knapp et al., 1999; Eyheralde, 2015; World Wildlife Fund, 2021), the financial interests of privately-owned livestock producers to graze their cattle on public lands allotments take precedence, despite the historic record of damage that such cattle raising has had on the fragile ecosystems of these arid regions (Steuter & Hidinger, 1999). Due to the dominance of Western capitalist-colonial ontologies concerning land in current bison management policy rather than an application of Indigenous ontologies of bison, the National Park Service developed a culling program to keep bison numbers low and lethally eliminate those individuals who attempted to migrate outside Yellowstone's borders.

The primary citation used by the IBMP to support their unverifiable claim of a biological necessity of lethal bison management for the prevention of disease transmission in fact explicitly states directly the opposite findings. According to the National Academy of the Sciences (1998) research

"Brucellosis in the Greater Yellowstone Area", it is elk herds in the GYE that pose a far greater risk of a *Brucellosis* transmission event to livestock founded upon empirically quantifiable and demonstrable evidence. Likewise, the same seminal research study also states that lethal wild bison management is unnecessary, potentially damaging to bison genetic viability, and would in no way decrease the potential disease-transmission risk. Rather than lethal management of Yellowstone's wild bison herds, the IBMP's own scientific citations conclude that the problem of recurrent elk to livestock transmission events are well-recorded and constitute the single greatest threat of Brucellosis outbreaks in livestock in the GYE. The study also points out that the location and cause of the recurrent *Brucellosis* outbreaks are quite clearly the conditions within Wyoming state-run winter feedlots on the southern edge of the GYE.

History of the Bison Advocacy Movement

Preliminary data provided in video footage from bison advocates also suggests that the particularly graphic methods used by the Montana Department of Livestock to cull Yellowstone bison herds in the name of disease control played a direct part in the coming together of disparate local, tribal, and environmental stakeholders to advocate for changes in bison management policy (Lavigne, 2002, 287; Zontek, 2007, 95; Brister, 2013, Frank, 2022, 12). Despite the implementation of the IBMP in 2000, and associated changes in the culling practices around the park borders that include implementation of the bison quarantine facility and limited reintroduction program, some bison advocates, such as the Buffalo Field Campaign (BFC), continue to call for a complete cessation in the culling of the last genetically pure, continuously wild bison herds left in the United States.

Additionally, advocates call for the expansion of public lands management to include bison habitat, and the return of the remaining 3,000 genetically-pure bison to their historical role as an environmental and cultural keystone species across their historic range of High Plains prairie landscape, which at the time of the Lewis and Clark Expedition–after centuries of increased depredations brought on by the European settler invasion–still contained an estimated 60 million bison, albeit ranging over a diminished area of the High Plains rather than the former range spanning from central Alaska south through central Mexico, and from the high desert plateaus of Oregon, east to Georgia and the at-the-time aptly-named Buffalo, New York (Brister, 2013, Dunbar-Ortiz, 2015). This data demonstrates that bison advocates' use of modern digital technologies, including websites, a community mapping project called the Wildlife Database, email list-serves, and social media platforms, to expand the reach of traditional activist methods also used such as tabling in on-site workshops to educate the public on the plight of the Yellowstone bison herds.

The history of the bison advocacy movement exists at the intersection of three convergent movements in the modern United States:

1) A growing social interest in sustainable ecological development,

2) A growing field of scientific evidence that establishes the existence and stability of long-lasting human economic and cultural systems that don't endanger global resources, and

3) An increase in public activism for environmental preservation and social justice in the Global North.

The bison advocacy movement operates as an example of long-term, grass-roots environmental activism and a growing assertion of historical treaty rights of Indigenous nations which has had a

measurable effect on changes in the public management policy of bison over the last thirty-plus years. The bison advocacy movement stands as a testament to the development, policy successes, and ongoing struggle of private citizen activists, using modern technologies such as conventional, digital, and social media outreach to agitate for public policy changes and environmental reforms.

The bison advocacy movement unites both environmental justice and Indigenous activism in a call for federal wildlife policy to be updated to manage free-roaming bison like all other types of wild ungulates across Turtle Island. This dynamic and shifting coalition works to pressure state and federal agencies to allow wild bison access to public lands outside of Yellowstone National Park. Some members of the coalition also work to recognize and recenter Indigenous tribal governments in the policy planning and decision-making processes that concern the wildlife, flora, and nonliving natural resources within the historically-recognized territories of Indigenous nations. There is further research that can be done into the intersection of these three modern social movements as embodied through the past three decades of bison advocacy, civil disobedience, and multimedia public activism. In contributing to the field, this project has attempted to build on the gains made by bison advocates using public data collection, social media, and counter mapping, in challenging the authority of settler-capitalist polities over the natural resources continued within historically-recognized territories of Indigenous nations in a manner that can be generalized to create an outline that will be used in future wildlife advocacy, water protection, or other spatially-grounded civil rights campaigns.

Diversity of Tactics

The history of the wild bison advocacy movement shows the benefits of employing a diversity of tactics including the combination of digital and conventional media messaging strategies to exert

public pressure on state and federal politicians, policy makers, and LEO's to limit the enforcement of specifically grotesque aspects of IBMP, such as the targeting of new-born calves with lethal methods of spatial removal. Websites and social media pages host streaming video and photographic images of the hazing, quarantine, and shipment to slaughterhouses of bison herds supposedly classified by the IBMP as "wild, free-ranging" populations (IBMP federal ROD, 16, 48; FEIS vol 1 15, 42, 82, 804). In addition to the continually updated online presence, wild bison advocates use email to send out weekly 'Updates from the Field' and organize grassroots letter write-in campaigns which can be seen to have amplified viral messaging in tandem with conventional public mobilization strategies such public press releases, radio interviews, and 'Make your voice heard to the Yellowstone Park hot-line' call-in campaigns to exert public pressure for specific material goals.

One particularly effective multi-media blitz in the spring of 2007 concerned the targeting of new-born calves and their family groups for lethal elimination. The SA of the IBMP formally announced the release of all mothers and calves unharmed after AP and European news services picked up the story from the BFC and spread the word to save the herd so far and fast that the anecdote told since by wild bison advocates is that the Yellowstone Park email and phone services were taken offline for a few day due to the immense volume of angry and disappointed call and messages from settler citizens across the global north who en masse advocated for material expansions of the wild bison herds' range within their native habitat. The benefit of modern widespread access to digital and social media means that photographic and video footage of violent treatment of wild bison by LEO's, in the wild and in IBMP captivity, can be disseminated far more widely and uncensored of its graphic content than permissible by traditional corporate media outlets such as the national press or broadcast and cable news.

While emotionally disturbing in nature, graphic images and audio allow the public at-large to see the tangible facts-on-the-ground that are so often erased and obscured in the much of the media and public discourse surrounding wild bison management policy. The IBMP's use of *Shifting-Focus* in regards to scientific data and euphemistic word choices create a rosier-than-life picture of the methods and effects of lethal bison management policy upon Yellowstone's wild bison herds. These graphic images of the violent treatment and at-times tragic demise of Yellowstone bison belie the claims of public policy makers contained within the IBMP that ongoing settler-capitalist structures of total elimination and exclusion of wild bison from public lands in Montana represents management actions that are are "based on the best available scientific information and are ecologically sound" (IBMP federal ROD, 2000, 8). By engaging in grassroots supported media activism, wild bison advocates are able to help reshape the perceptions held by Nahullo settler-colonists living across Turtle Island and beyond, far from the GYE, in a manner that engages with tangible facts rather than vapid claims of goodwill.

Analysis of policy papers (IBMP, FEIS, NAS, GAO)

I make the following four assertions to organize my analysis of the IBMP. The *Logics of Elimination*, S*hifting Focu*s, *White Possessive(ion),* and *Settler Moves to Innocence* such as *agnotology*, *anguishing*, *erasure* and are so interrelated and inter-reliant that I do not try to separate the arguments or evidences presented here using them as the metric for organization. Rather I use the four distinctly identified rhetorical features explored in Chapter Two as the lens through which to analyze the IBMP within the structure of four qualitatively-defensible assertions.

The four assertions will provide the road map for the rest of Chapter Three:

- The IBMP compromises scientific integrity to economically benefit private livestock industry interests.
- The IBMP pre-conditionally requires the elimination of living bison and the exclusion of migratory bison herds from public lands in favor of private cattle interests.
- The IBMP asserts FIVE empirically-falsifiable positions regarding the supposed need for and biological efficacy of wild bison exclusion from public lands of the GYE.
- The supposed biological and ecological risks of disease transmission from wild bison to livestock posited by the IBMP as reasons for lethal bison management stems from socially produced conflicts and are in fact not a matter of biological necessity.

4.2. Compromising scientific integrity to economically benefit private livestock industry interests

As the disconcertingly anti-democratic circumstances around the presidential elections of 2000, 2016, and 2020 in the United States have shown, the misuse of scientific data and propagating of misinformation done in service of short-term reactionary political gain has long-ranging social implications far beyond the policies governing rangeland management. In the same manner, from its inception the significance and fairness of socio-environmental justice of IBMP has been deeply troubling and obfuscatory. The IBMP uses *Shifting-Focus* in order to distort its record of ignoring legally required and scientifically supported ecosystem reports. Such reports explicitly stated the precondition purpose of their management plan is to prevent that very bison spatial interaction necessary for healthy prairie ecosystems (IBMP federal ROD, 2000, 17; Vinton et al., 1993; Knapp et

al., 1999; Truett et al., 2001; Mann, 2005; Allred et al., 2011; Larson et al., 2013; Dunbar-Ortiz, 2015; Eisenberg et al., 2019; Geremia et al, 2019; Muelleret al., 2021; World Wildlife Fund, 2021).

The IBMP purpose statement reads: "[we] provide for the conservation of bison in Yellowstone National Park and provide protection for the economic interest and viability of the livestock industry in the State of Montana" (IBMP federal ROD, 2000, 8)[2]. In the following analysis I will show that the IBMP does *not* provide for the conservation of bison, and that it in fact acts as an active threat to the biological, ecological, and genetic viability of future wild bison herds. It is within the second half of the IBMP purpose statement in which the true intention of the plan is wasting public tax-dollars on environmentally detrimental wildlife management in the name of supposed 'protection for the economic interest' of the private livestock industry.

The IBMP is grounded in an *agnotology* that implicitly claims to know what is best, regardless and in spite of scientific evidence to the contrary, while using *Shifting-Focus* to claim a need to "continue research… while protecting Montana's Brucellosis class-free status" (IBMP federal ROD, 4). The social construct of 'Brucellosis class-free status 'could be designated to Montana according to the 'two-zone solution' without the need to slaughter wild bison en masse. Regardless of this simple fact, both Montana and APHIS predicate their wildlife management policies on total exclusion of wild bison from public lands in Montana (FEIS vol 1, 2000, 39, 51). The "economic interest and viability of the livestock industry in the state of Montana" is tied directly to the maintenance of a class-free designation by APHIS (IBMP federal ROD, 2000, p. 8). The hypothesized economic problem can be addressed using the split state solution accompanied by federally subsidized vaccination and testing as the IBMP outlines. It is important to note that the discussion on social construction of the wild bison issue is discussed further in section four of this chapter.

A primary motivator behind the purpose statement of the IBMP is the supposed (and still yet unrealized despite multiple *Brucellosis* outbreaks since 2000 in the GYE) economic threat to livestock producers. The FEIS provides the historical context for the centering of economic interest as a core feature of settler-capitalism: “Europeans introduced a radically different notion of land use that emphasized resource-dependent, extractive industries" (FEIS, vol 1, p 363). This perspective problematizes the ongoing supremacy of wealth over truth.

Firstly, the IBMP prioritizes private-property rights over biologically consistent epidemiology. The IBMP prioritizes settler-capitalistic epistemologies regarding the social construction of land and nature are grounded in private property ideals that employ *eliminatory logics* to justify non-empirical claims continuing to supersede science in state and federal wildlife management policy. “Montana would seek landowner permission to shoot or otherwise remove bison from private land” (IBMP federal Rod, 2000, 55). This clearly shows private property rights superseding APHIS and LEO authority to manage disease risk among the wildlife populations. Another example is how the IBMP takes a non-empirical position regarding the vaccination of wildlife that wild bison and livestock vaccinations are equal in use and necessity (FED ROD, 11). This claim is in direct contradiction to the evidence and conclusions presented by the scientific data cited within the IBMP and FEIS reports.

Secondly, claims to the existence of a ‘safe wildlife vaccine’ made by the IBMP do not conform to cited evidence. While scientific reports validate livestock vaccines work and are safe they also indicate that wildlife vaccines don't work to prevent pathogen spread and are dangerous for the wildlife populations to which they are administered (GAO, 1997). Based on multiple studies, the IBMP places vaccine efficacy at 70% in cattle and 25% in bison. At least one of the studies returned a vaccine efficacy in bison of 9% (IBMP federal ROD, 2000, 62)[3]. Were disease transmission risk as important

to the SA as the IBMP claims, then cattle vaccination would be the top goal, rather than the spatial denial of habitat for wild bison.

Thirdly, the IBMP fear-mongers about the monetary costs to livestock interests who "could not sustain the economic effects of having their cattle herds depopulated or quarantined" after a *Brucellosis* transmission event (FEIS vol 2, 2000, 56). Such statements shift focus from the fact that the Animal Plant Health Inspection Services (APHIS) already covers the full cost of cattle vaccination and testing within the special management areas (SMA's) around Yellowstone due to the Brucellosis in the ecosystem (IBMP federal Rod, 2000, 32). In reality, there is no economic risk to cattle interests because APHIS fully subsidizes the vaccination and testing costs, thus it is the taxpayers and not private industry that foots the bill of less than fifty-thousand dollars it would take to vaccinate all livestock within the GYE's SMA (FEIS vol 1, 2000, 456)[4]. The claim of economic damage to the livestock industry is, a farcical bugbear in light of APHIS subsidizing of the testing and vaccination program and the lack of any quantifiable evidence of economic damages from any of the *Brucellosis* outbreaks of the past several decades (JMP state ROD, 2000, 10-11). While the primary stated motivator in the purpose statement is economic threat posed to livestock producers, such a threat is nonexistent because the plan outlines the ways in which federal money is already spent on regulation of Brucellosis free status. Livestock ranchers are only exposed to *Brucellosis* threat if they refuse to take federally-subsidized medicinal preventatives already available and widely used in other states adjacent to the GYE, which the IBMP allows to remain voluntary for unexplained and illogical reasons.

The IBMP uses *Shifting-Focus* to make the claim that the negative and potential catastrophic ecological impacts on wild bison from denying them access to necessary prairie habitat is "not to achieve short term gains" in direct contradiction to claims of $1-2 million dollars in savings spread

across several multi-million dollar livestock-raising interests and to be reimbursed by APHIS (FEIS volume 1, 2000, page 456). Lethal management of a genetically unique and at-rick iconic species is quite clearly impacting wild bison herds negatively when compared to allowing for their natural and instinctually-driven migration across their historically-recorded range of millions of square miles. The IBMP repeatedly states this program is for economic profitability, which is the textbook definition of 'short-term gains'. Statements made throughout the federal Environmental Impact Statement however, support the assertion that the IBMP is founded on prioritizing capitalist profits, rather than consistently applied empirical research findings.

> "Because *Brucellosis* can be transmitted from bison to cattle when the two species are confined together, it is clearly a biological possibility. *Although differences in behavior and habitat may normally keep the two species from intermingling in the wild,* it takes only one exception to this normal behavior to result in infection of a bovine cow. *Transmission in the wild from bison to cattle may or may not* have occurred, and it is true that it may or may not occur without management to keep the species separate. However, *because the economic impacts of transmission would be significant, the agencies must assume* Yellowstone bison are a possible source of *Brucellosis* infection to area cattle, and they must take action to continue to keep them separate." (FEIS vol 2, 2000, 189, emphasis added).

This quote shows that economic costs to livestock interests are of vital importance and demotes the value of ecological science as the focus of the IBMP. I argue here that such claims of a biological risk of wild bison to livestock *Brucellosis* transmission events are fallacious, however even if one were to accept them that would still be placing economic factors over empirical biological and ecological research.

As discussed further later on in this paper, such assumptions of wild bison as a disease vector in need of lethal management are not consistently applied to seropositive elk herds in the GYE. Such blatant hypocrisy in the face of empirical evidence discussed below shows the manner in which *eliminatory logics* are constructed as seemingly reasonable statements but are foundationally intended to *anguish* socially produced *Nahullo* issues onto wild bison in a manner at odds with other wildlife in the GYE. Since elk hunting and public lands are both socially constructed as *white possessions,* they are not constructed as a threat to the livestock industry in the way that wild bison are, despite repeated *Brucellosis* transmission events from elk to livestock at state-run feedlots.

The use of *Eliminatory Logics* and *Shifting-Focus* allow for the state of Montana and federal SA to ignore repeated proof positive of elk transmission to livestock, neither calling for nor employing any sort of exclusionary plan for elk even after repeated disease transmission events. If prevention of *Brucellosis* is the supposed reason for the whole IBMP, why is there a continued *agnotology* within wildlife policy management regarding the actual source of repeated *Brucellosis* outbreaks in the GYE during the enforcement of the IBMP total bison exclusion?

Fourth, It is important to note that the *Brucellosis* issue is constructed by the state of Montana to *anguish* bison and create a perception of need for lethal management where none before existed. This case study can be interpreted by the principle of *eliminatory logics*. According to Logic of Elimination, disease transmission risk is assigned to bull bison according to a minuscule and purely theoretical amount of pathogen that can be quantified only in a non-transmissible state.

> "No documented cases of Brucellosis transmission from wild, free-ranging bison to cattle. No documented cases exist of wild, free-ranging male bison transmitting Brucellosis to domestic cattle" (FEIS vol 1, 2000, 29).

Despite such additions to a lack of scientific evidence for claims made, *Eliminatory Logic* is used to justify lethal exclusion of bison bulls lacking physical anatomy necessary to transmit *Brucellosis,* while allowing for untested elk from herds with a seropositive rate in the double digits to mix with livestock in state-run winter feedlots during the biologically most contagious time-window is ignored. The IBMP even explicitly recognizes the lack of evidence in support of their plan. Despite such additions of lack of risk, the IBMP continuously asserts a 'not-zero' risk, even from 'low-risk' individuals that are known to have zero quantifiable risk of *Brucellosis* transmission (discussed more below in section CCCC). In fact, as discussed more below, the IBMP's stated approach to recorded *Brucellosis* outbreaks in livestock around the GYE is to maintain pre-transmission standards of wild bison management (Appendix C). The IBMP explicitly states that proof of elk transmission of disease *maintains* current lethal bison exclusion without any additional measures in elk management, such as discounting the purposeful allowance of untested pregnant elk into state-run winter feedlots (Appendix C).

The IBMP creates a year round exclusion for what their evidence states is a seasonal risk of disease transmission in a manner which is non-scientific and illogical. Seasonal disease risk factors not taken into consideration in the IBMP spatial segregation of wild bison cannot actively be biologically contagious at a time when they are not pregnant and thus cannot transmit the disease (FEIS vol 2, 2000, 55, 189). Total denial of grazing habitat of the bison within the state of Montana (Zone 3) based on the claimed risk of disease transmission that ignores the seasonality of active contagion cannot seriously claim to be grounded in scientific evidence. Instead of scientific factors, we can see from the IBMP that the spatial denial of public lands habitat to wild bison is based on the economic whims of cattle interests. Bison are "becoming infectious usually just before or after a birth or abortion event" (FEIS vol 2, 2000, 55-B)[5]. Bison birthing happens in May and abortions would by temporal necessity happen

earlier still. The IBMP haze-back date already accounts for the time necessary for dispersal of bacteria from placenta remains after the birthing season (IBMP federal ROD, 2000, 53). This means that seropositive (not to mention low-risk) bison *decrease* in contagiousness during the *only* time cattle and other livestock are even being actively grazed within the GYE ecosystem, due to snow covering forage-able rangeland and other such environmental constraints during winter in the high mountains.

If seasonality is a factor in disease transmission risk as stated by the SA in the IBMP, why is that not reflected in more tolerance for bison during times of decreased risk? The total spatial denial of habitat on public lands in Zone 3 of Montana to wild bison, based on a unknown, unrecorded, actively suppressed contagiousness whether or not cattle are even present around shows flagrantly the way in which the IBMP views public lands in Montana as White Possessions. In the same vein, the taking of lethal management actions in contradiction to the scientific data cited by the IBMP itself displays flagrant *Logics of Elimination* as it relates to wild bison, their innate instincts to roam over vast distances, and their inherent right to life that justifies their ability to so thusly.

Fifth, the *Logic of Elimination* is shown in the supposed "adaptability" of the IBMP which allows for weather factors to allow earlier but not later spatial exclusion of wild bison from public lands. The *Logics of Elimination* seek to justify only what harms the overall health of wild bison herds. 'Adaptability based on the science' is acceptable when used to eliminate wild bison from the landscape earlier than called for but it cannot be used to allow for later tolerance for wild bison herds based on biological and ecological imperatives such as food or calving.

Since the IBMP is not grounded in biological, ecological, or empirical science, however, the lethal management plan itself accounts as an active detriment to the economic goals stated. One might claim that the IBMP is merely overly-cautious and overzealous in efforts to prevent *Brucellosis*

outbreaks. However, the facts support the contention that the IBMP shows a blatant and negligent disregard for the active threat posed by seropositive elk herds in state-run winter feedlots as a recorded and repeated transmission vector of *Brucellosis* to livestock, as recognized in documents cited in the IBMP itself! The *Shifting-Focus* away from empirical evidence of elk risk so as to *anguish* blame onto wild bison herds has direct ecological and social consequences. There have been multiple Brucellosis outbreaks in the GYE since the initiation of the IBMP in 2000, all linked to elk and none linked to wild bison. Despite these facts the IBMP continues its over twenty-year policy of lethal management and violent culling of the last genetically-pure wild bison in the United States.

To summarize, the IBMP embodies the *Logics of Elimination* and *White Possession*. This pattern is deeply rooted in the history of settler territoriality to commodify bison through state hunting seasons but never provide habitat for wild bison. Their population as they value exclusion of the bison population and tolerance of bison based on population numbers and not disease transmission risk. The IBMP even explicitly admits that 'tolerance limits' are "not based on carrying capacity limits, but on logistical feasibility, risk management and risk to private property." (IBMP federal Rod, 2000, 58). This admission to placing private property and profit above the well-being of the wild bison herd itself shows that the true purpose of the IBMP is to pre-conditionally exclude wild bison from public lands in Montana and by extension public lands across the former extents of their historically recorded habitat.

4.3. The IBMP pre-conditionally requires the elimination of living bison and exclusion of migratory bison herds from public lands in favor of private cattle interests

The ideas of exclusion, elimination, and population control are integral to the bison management policy. The first and second of the nine listed objectives in the IBMP (found here in

Appendix B) are population control and total exclusion of wild bison from public lands outside of Yellowstone.

> "1. Address bison population size and distribution; have specific commitments relating to size of bison herd… 2. Clearly define a boundary line beyond which bison will not be tolerated" (FEIS vol 1, 43).

While eliminatory and lethal logics are put to the front, the objective to "maintain a viable population of wild bison…as defined in biological, genetic and ecological terms" is placed in seventh priority, well below the eliminatory logics in first and second places and the economic factors listed as three, five and six (FEIS vol 1, 44). Meanwhile the following "scientific" and "factual information" are placed in 8th priority, just above the "need for coordination" among SA (FEIS vol 1, 45, excerpt from objective nine in Appendix B of this thesis).

Lethal management of bison is a stated precondition of the wild bison management plan. The Section titled "Impacts on the Bison Population" on page 39 of the federal IBMP record of decision (ROD) states that "all alternatives" evaluated in the FEIS "assessed the impacts of lethal management to the bison population". While the IBMP claims that it "includes non-lethal management, tolerance of bison on some public lands adjacent to the park, and hazing" (IBMP federal Rod, 2000, 39)[6]. Such claims of tolerance for wild bison servers as a cover so the public at-large doe not realize the extent of lethal bison management display Trouillot's *Shifting-Focus* since it is elsewhere repeatedly stated that bison that do not respond to hazing are subject not to tolerance but to lethal measures (FEIS vol 1, 2000, xxiii). This *Shifting-Focus* allows the IBMP to admit to lethal management while retaining the pretension that non-lethal rather than lethal management options are the policy norm within Zone 2 and Zone 3 of Montana.

Another way to witness the pattern of the preconditional nature of wild bison exclusion lies in the supposed bison tolerance limits of the special management areas (SMA) (Appendix A of this project). The IBMP zoning for Yellowstone's wild bison population exemplifies the settler colonial and settler territorial ideals, such as the *white possession* of public lands inherent in viewing as positive the implementation of winter tolerance Zone 2 to accommodate only a small fraction of the total hungry bison that may wish to exit the park searching for food under the heavy winter snows. While up to a hundred wild bison are allowed in the Zone 2 SMA during the winter when no cattle are present in the GYE, the exclusion of seronegative bison looking for forage in winter over 100 individual tolerance limits shows that the primary goal of the IBMP is containing bison in Yellowstone (FEIS vol 1, 2000, xxiii)[7]. Were the actual goal of the IBMP to preserve spatial segregation of wild bison from cattle, there would be no upper cap for wild bison in Zone 2 since no livestock can survive outside in such a climate and thus no cattle are grazed in the GYE during the months of winter snow cover.

If spatial and temporal separation of wild bison and livestock is the actual purpose of Zone 2 tolerance, why does the IBMP not accommodate all wild bison individuals searching for winter forage in a livestock-free landscape? One piece of evidence to answer this question is that stated population caps for wild bison in Yellowstone are not based on biologically determined ecological carrying capacity of the GYE rangelands (Rezendes, 1997, 10)[8]. This contradiction reveals the true nature and objective of the policy—to maintain wild bison as a functionally extinct species across the majority of their extant prairie habitat. The maintenance of wild bison numbers at levels so low as to create a risk of genetic bottlenecking is not a new problem for the management of the Yellowstone bison conservation project (Isenberg, 1997; Lancaster, 2005).

The IBMP gives a wild bison population cap of 3,000 (FEIS vol. 2, 2000, 93). Population control can be shown to be the core purpose of the plan after empty claims of economic risk and disease transfer have been eliminated as credible positions. The precondition of such a limited population firstly fails to recognize the historical and cultural significance of these particular wild bison herds (FEIS summary 2000, v, 59, 80-82; FEIS vol 1, 2000, 362-364). Secondly, the precondition of a population cap displays elimination logics because it knowingly endangers the ongoing viability of the Yellowstone wild bison. Evidence cited in the IBMP itself states that the risk of the wild bison population falling too low is a possible result from the "unnecessary slaughter of bison" and that the IBMP's management actions have a high likelihood to "negatively affect the genetic viability" of Yellowstone's future wild bison herds[10] (Rezendes, 1997, 11-12). Despite the obvious and catastrophic possible rick of total wild bison extinction, the stated preconditionaly goal of the IBMP to maintain culling of all wild bison below 3,000 (a number acquired from cattle not wildlife grazing habits) regardless what scientific research and empirical evidence show regarding ongoing genetic viability of wild bison shows another instance in which the IBMP is decidedly ***not*** based upon the 'best available science'.

Factual claims regarding carrying capacity and target population size of wild bison are not backed up by cited evidence. Claiming the carrying capacity around 2,700 as "healthy" rely on dishonest quote mining of NAS 1998. The IBMP claims that, "[b]ased on average forage production, winter severity, and other factors, Yellowstone National Park will support a long-term average of 2,700 bison" (FEIS vol 1 377). Likewise, the IBMP uses *Shifting-Focus* to claim that population control will help manage migration behavior. This argument rests on the claim that few bison migrate when the herd population drops under 3,000 individuals (FEIS vol 1, 377). The following claim is the grounds upon which their lethal management policy requiring culling above 3,000 rests.

> "In general, bison movement beyond park boundaries, and hence removals, was significantly related to bison population size above 3,000 animals. At populations below 3,000, substantially fewer bison moved beyond park boundaries and bison movement appeared unrelated to winter weather conditions. At populations above 3,000, the amount of snow was strongly related to bison movements beyond the park." (FEIS vol 1, 2000, 377)

This statement however, is in direct contradiction to the views stated in the FEIS that the IBMP claims to be grounded in. Less than a dozen pages later the FEIS contradicts this *Shifted-Focus* generalization of *eliminatory logic* with empirical data from the years 1988–89, 1991–92, and 1996–97. While the IBMP uses *Shifting-Focus* on the claims of maximum wild bison population numbers based on carrying capacity cited to NAS 1998, these citations do not conform to the evidence presented in NAS 1998.

The NAS 1998 document actually states that stochastic (e.g. unpredictable) weather events are the cause of bison migrations out of Yellowstone National Park. These stochastic weather events are generally related to snow and cold weather in the winter and spring. Such extreme weather conditions naturally disallow the keeping of livestock outdoors in such weather, so wild and domestic animal interaction during these seasons is at its lowest, according to the seasonal timeline of the IBMP. Furthermore, NAS 1998 states that,

> "Zero elk migration (on average) is at about 8 in. of SNOW; this suggests that elk are more easily moved by snow than are bison (17 in.)" (NAS, 1998, 75).

While not particularly earth shaking news to those familiar with elk and bison winter foraging habits, the fact that NAS 1998 notes elk being more affected by stochastic events becomes important later

when the IBMP uses *Shifting-Focus* to downplay the risk of elk and play-up the risk of bison to livestock using this citation.

To further illustrate the way in which *Shifting-Focus* is used to undergird *eliminatory logics* are the following quote from the Federal Environmental Impact Statement, Volume 1.

> "Bison movements on the northern range are highly variable. They are not correlated with population size, but appear to be influenced by extremely severe winter weather, particularly deeper than normal snow combined with saturated and frozen snow conditions or ice layers." (FEIS vol 1, 2000, 388)

The claim of population size affecting bison migration is the grounds upon which rests the entire lethal management policy precondition requiring culling above 3,000 bison. However, according to empirical data, migration is "not correlated with population size" but rather is influenced historically by "extremely severe winter weather", referred to elsewhere in the FEIS and this thesis as 'Stochastic weather events' (FEIS vol 1, 2000, 388)[9]. Thus the empirical evidence cited by the IBMP here directly undermines one of its own central claims.

Additionally, NAS 1998 states that at a population number of 3,600 head of bison, the individual bison culled were still healthy and had fat reserves that indicated a surplus of available rangeland habitat even above 3,600. The IBMP thus misconstrues scientific evidence showing a carrying capacity of over 4000 wild bison as evidence to keep the population under 2,700. Based on such numbers one could easily project more than 1,400 bison per year could have potentially flourished within YNP over the last 30 years if not killed by IBMP management actions using dishonest claims of

evidence. Thus, *Shifting-Focus* on the facts is used as logical justification to eliminate thousands of bison from the landscape precisely where the plan claims they are allowed to be 'free-ranging'.

The IBMP states that critically low population numbers within the Yellowstone bison herds triggers tolerance on public lands in Montana for low-risk bison (FEIS vol 1, 2000, 38). Such tolerance for 'low-risk' bison being predicated on low population numbers is in line with the assessment of this thesis that the purpose of the IBMP is to maintain a low population of wild bison in the park as a strategic method to exclude wild bison from public lands in Montana. Perhaps the greatest indication of the Logics of Elimination and *White Possession* at work in the IBMP is that the lethal exclusion of bison from public lands in Montana is maintained indefinitely into the future, despite ongoing and unanimous scientific proof of the lack of efficacy that lethal wild bison management has in preventing *Brucellosis* transmission events from elk to livestock in Wyoming's state-run winter feedlots.

4.4. The IBMP asserts empirically-falsifiable positions regarding the supposed need for and biological efficacy of wild bison exclusion from public lands of the GYE

Although the IBMP repeatedly claims that it is based on scientific evidence and biological considerations, this is not supported by any evidence presented. The claims made by the IBMP of the risk of disease transmission from wild bison to cattle rely entirely upon the 'tiger-rock' logical fallacy (discussed below) to assert without evidence or metric that "without agency actions to minimize the risk, transmission could occur" (IBMP federal ROD, 2000, 4)[10]. Such reasoning not only lacks empirical or historical evidence, but also fails even as a logical hypothesis. Such logically fallacious

claims run in the face of cited evidence that suggests wild bison may be ***physically and biologically incapable*** of transmitting *Brucellosis* to cattle[11] .

> "It is possible that, although Brucellosis may be endemic in the Yellowstone area bison herd, few of the animals are capable of transmitting the disease… The primary route of transmission among cattle (abortions and birthing events) may be different from that among bison. In bison, the bacteria may be transmitted through milk (Meyer and Meagher 1995a)." (FEIS vol 1, 2000, xi)

Additionally, at the time of the IBMP's inception there were "preliminary results by Roffe et al. (1999)" in a study that the IBMP themselves referred to as being considered the "gold standard", biologically speaking (IBMP federal ROD, 2000, 54-55). The Roffe et al., 1998 research document cited in the Draft Environmental Impact Statement notes that "some researchers believe the primary route of transmitting antibodies and/or bacteria in the Yellowstone bison herd may be through mother's milk" (FEIS vol 2, 2000, 201)[12].

Such citations in the IBMP shows the utter lat of biological foundation for a non-quantifiable claim to a "not-zero' risk of disease transmission *anguished* on the wild bison by the IBMP. Such citations should be the end of discussion concerning any spatial segregation of wild bison from public lands until more research on whether there actually ***does*** exist a 'not-zero' risk of wild bison-to-livestock disease transmission. The IBMP claims that "under natural conditions, the risk of transmission from bison to cattle is very low, but the appropriate quantitative risk assessments have not been done" (NAS 1998, 80).

Thus, the IBMP uses the logical fallacy: Appeal to the Unknown to cite the lack of 'appropriate quantitative risk assessments' as the necessary evidence for lethal management and total spatial denial of wild bison habitat on public lands in Montana. As shown above and following, such citing of NAS 1998 as evidence of claims is on very shaky grounds as NAS 1998 reached entirely **different** conclusions than those stated in the IBMP.

Despite the *Shifting-Focus* used to make generalized claims of risk based and away from the specific citations that entirely debunk such claims, the IBMP explicitly admits that there are:

I) No historical or biological evidence of bison to cattle transmission outside of laboratory conditions;

II) No evidence for a quantifiable risk of disease transmission events from 'low-risk' bison regardless of 'not-zero' risk language used;

III) No significant difference in wild bison and elk seropositive rate despite radically different treatment regarding their ability to spatially mix with livestock;

IV) No empirical or biological metric to quantify risk of a wild bison-to-livestock disease transmission event;

V) No plans to stop lethal bison exclusion nor begin lethal elk exclusion, even in the face of empirical evidence of elk to cattle transmission event.

4.4.1. Lack of Documented Wild Bison-to-Livestock Transmission Events

While laboratory researchers have infected cattle with Brucellosis contaminated placental tissue, there is no historical evidence of bison ever transmitting Brucellosis to livestock under any

natural conditions, i.e. in the wild. According to the FEIS vol 1, there are "no documented cases of Brucellosis transmission from wild, free-ranging bison to cattle"[15] (FEIS vol 1, 2000, 29). In fact, some researchers cited by the IBMP have claimed that bison are functionally immune to Brucellosis and biologically incapable of transmitting Brucellosis to cattle or other livestock (FEIS vol 1, 2000, xi).

The *agnotology* concerning bison disease transmission risk is underscored by the IBMP admitting that the "Almost no controlled research has been conducted on the mode of transmission or the probability of transmission among free-ranging wildlife and cattle" and stating that its citation "(NAS 16, 45)" refers to the only data "cited as evidence that transmission in the wild has occurred" was "ambiguous," "circumstantial," and "not intended to meet the rigorous standards imposed by scientific research"" to describe what little evidence was presented showing the correlation of the existence of bison to outbreaks of Brucellosis in livestock (FEIS vol 2, 2000, 189)[13].

There are repeated claims throughout the IBMP of a 'not-zero' risk of disease transmission with only the NAS 1998 report cited to support such a claim. Instead, a citation by FEIS vol 2 189 to NAS80 to claim 'not-zero' risk is not in line with the claims presented in NAS 1998[17]. The FEIS *shifts-focus* to *erase* the actual claim of NAS 2039600 that explicitly states that "appropriate quantitative risk assessments have not been done" (NAS, 2000, 80).

The FEIS cites multiple examples of the IBMP's inability to empirically or biologically connect multiple contemporary *Brucellosis* transmission events to bison, including some that indicated albeit inconclusively that elk herds rather than bison were the active and ongoing disease vectors (FEIS vol 2, 2000, 396)[14]. Thus, the IBMP asserts with evidence born out only under "experimental conditions" within a laboratory that there remains a 'not-zero' risk of disease transmission from wild bison to cattle

under natural conditions while dismissing out of had the risk of the same from elk (FEIS vol 2, 2000, 189).

Furthermore, the data on "Bison to Cattle" disease transmission risk in the NAS 1998 cited throughout the FEIS itself posits that much of the 'not-zero' risk assessments comes from only in a single study operating under "experimental conditions". While laboratory conditions do not negate the findings, the experimental laboratory conditions do not accurately reflect the reality of disease transmission in natural ecosystems. Additionally, all other examples cited by the NAS 1998 and used for the assessment of not-zero risk are caused by ***livestock to livestock transmissions***, not wild bison to cattle transmission events!

> "Transmission of Brucellosis from naturally infected captive bison to cattle has been reported; captive bison under range conditions in North Dakota were in contact with beef cattle during the winter (Flagg 1983). Bison-to-cattle transmission in Arkansas has also been reported." (NAS 1998, 80)

Arkansas has no wild bison herds, ergo this reference of bison-to-cattle transmission is referring to ranched bison, also known as 'beef-alo' or 'cattalo'. Beef-alo are genetically-distinct domesticated-livestock that have been intergenerationally hybridized with cattle by the livestock industry in order to "combine the meat-producing capacity of domestic cattle with the efficient grazing ability of the bison" (Isenberg, 1997, 187).

The IBMP explicitly recognizes the difference between wild bison and beef-alo, yet uses *Shifting-Focus* to obscure this difference in order to make a claim unsupported by the empirical data.

> Cattle mitochondrial DNA was not found in bison from Yellowstone National Park. If bison-cattle hybrids are added to a bison population, the population can no longer be considered pure, and some of the bison genetic material contained in that population will be lost." (FEIS vol 1, 2000, 287)

Here it can be seen that the IBMP can appreciate the biological differentiation of wild bison from ranched beef-alo when it doesn't serve their purposes to obscure the difference through *erasure* and *agnotology*. Use of domestic 'beefalo' livestock to cattle livestock transmission events as the only 'in the wild' transmission cited in all the IBMP documents shows a strong use of Trouillot's *Shifting-Focus* to *anguish* responsibility for disease transmission events caused by livestock ranchers into supposed problems caused by wild bison that must be dealt with using eliminatory logics and total exclusion of wild bison from the *White Possession* of public lands in Montana and beyond.

Additionally, continued assertions as made in the IBMP of 'not-zero' risk fly directly in the face of evidence presented to and cited by the IBMP which directly states that;

> In the scientific literature, there is ***no documentation of Brucellosis transmission from elk or bison to cattle in a wild, uncontrolled setting***. Furthermore, although the ***risk of such transmission has never been quantified***, the Park Service maintains that it is likely to be very low. Hence, park officials believe that ***testing and slaughtering*** infected wildlife to eradicate a potential source of infection for cattle ***is not necessary*** in Yellowstone and could result in the ***unnecessary slaughter of bison*** and ***negatively affect the genetic viability*** of the herd. (Rezendes, 1997, 11-12, emphasis added)[30].

Despite their own expert testimony and scientific evidence countering Montana's position, the IBMP flies directly in the face of biological empiricism concerning both disease transfer risk and the negative effects that such lethal management will have on the wild bison herds violently contained within the arbitrary bounds of Yellowstone National Park.

4.4.2 No evidence for 'not-zero' risk claim regarding 'low-risk' bison

Bison biologically assessed as 'low-risk' make up the vast majority of Yellowstone's wild bison herds, most notably during the time period that the IBMP requires total spatial segregation of bison from Zone 2 and 3 (i.e. the entirety of public lands in Montana). According to wildlife biologists and other such rangeland professionals,

> "Bull bison, calves, or postparturient female bison (with newborn calves and who have passed all membranes) do not present a significant risk of transferring Brucellosis to livestock" (FEIS vol 2, 2000, 55).

Postparturient female bison include all females between the point during calving season when they expel placental tissue, all summer long until the rutting season when they may become impregnated. For those unsure of the seasonality of bison breeding, calving takes place in May and the rut takes place in the fall. This means that the *totality* of the Yellowstone bison herds can be *biologically classified as 'low-risk' all summer long*. Despite the scientific evidence to the contrary, spatial segregation of wild bison occurs during the summer months when livestock are capable of surviving the harsh alpine weather to access alpine meadows as publicly-subsidized forage for privately owned cattle. Despite the low-risk status of wild bison disease

transfer events during the summer season due to their biological inability to act as disease vectors, the IBMP *only* removes wild bison from the Montana landscape during this time window and explicitly only through the justification of preventing biologically-impossible disease transmission events.

There is no evidence of any existing or historical disease transmission events from 'low-risk' bison, such as bulls. According to the FEIS vol 1, there is "no documented cases exist of wild, free-ranging male bison transmitting Brucellosis to domestic cattle" (FEIS vol 1, 2000, 29). Additionally, "none of the studies on Brucellosis transmission from bovine bulls reported transmission from infected bulls to cows" (FEIS vol 2, 2000, 55). Furthermore, recently testing has also found that the "presence of small numbers of bacteria in the ejaculates suggest that bulls are likely not capable of venereal infection of females during the early spring" and calls for further studies to determine is any such risk exists during other seasons (Fret et al., 2013, 716). Again we see the *agnotology* of using a lack of evidence to insist wild bison have a 'not-zero' risk number that is otherwise non-quantifiable.

Despite the lack of data showing any actual empirical risk of disease transmission, the SA practice agnotology within the IBMP by using no evidence of risk as the stated reason for lethal management of wild bison. The SA relies on the 'anti-tiger rock' logical fallacy of confusing correlation with causation (Simpsons S7 E23, 1996).[16] The IBMP claims that "without agency actions to minimize the risk, transmission could occur," despite failing to provide any historical or empirical support for such a claim (IBMP federal ROD, 2000, 4).

The only evidence presented by the IBMP for assessing the risk of disease transmission from wild bison to cattle is asserting the 'not-zero' risk is based that upon the basis of not enough research or scientific data to rule out the risk despite the "National Academy of Sciences report also notes the risk

of transmission from bulls to cattle appears to be “vanishingly small” (FEIS vol 2, 2000, 55). The lack of evidence presented in NAS 1998 as a reason *not* to lethally manage elk is thus misconstrued and cited in the FEIS as a reason *to* lethally manage wild bison.

Rather than engage with biological empiricism, the IBMP chooses to rely on illogical hypotheses that rely on *agnotology* that contradict cited empirical evidence presented of the ‘low-risk’ of bull transmission. Due to limited data documenting the presence of B. abortus in bison semen;

> “None of the studies on brucellosis transmission from bovine bulls reported transmission from infected bulls to cows during normal coitus. The report also cites a study concluding that shedding in the semen of bison is extremely rare. The report itself concludes that due to limited data documenting the presence of B. abortus in bison semen, ‘the risk of transmission from bull bison, though logically small, cannot be entirely eliminated on existing information’.” (FEIS vol 2, 2000, 54-55)[30]

Here we can see the IBMP does rely not on quantifiable biological empiricism, but rather logical hypotheses based on a **lack** of evidence. Contained in this last statement is the explicit admission by the IBMP that the **lack of existing evidence** is the primary support for lethal elimination of a keystone species necessary to critically endangered prairie ecosystem (Vinton et al., 1993; Knapp et al., 1999; Truett et al., 2001; Mann, 2005; Allred et al., 2011; Larson et al., 2013; Dunbar-Ortiz, 2015; Eisenberg et al., 2019; Geremia et al, 2019; Muelleret al., 2021). A keystone species that continues to be ecologically excluded from the vast majority of its historically recognized range, according to the IBMP documents themselves (FEIS summary 2000, 80-81).

Although here we see not-zero numbers used as reason for lethal management policy and total spatial exclusion, we do not see the same treatment of elk that are also quite well known to exist as a 'not-zero' threat. Elk in GYE also display seropositive at similar rates to bison, however elk are not spatially or temporally segregated from cattle or excluded en masse from virtually all public lands in Montana. In fact, untested elk from seroprevalent herds are actively encouraged to enter state-run winter feedlots in Wyoming during the season that they are most infectious, despite repeated and well-recorded *Brucellosis* transmission events.

4.4.3. Wild Bison and Elk Seropositive Rates

The same risk variables seen as an acceptable risk for elk is given as justification for lethal management for wild bison. Swap the word elk into the following quote and it's equally true according to all science presented in documents reviewed here.

> "When ~~bison occasionally~~ [elk regularly] migrate from the park, usually in the winter, the risk of transmission of Brucellosis from ~~bison~~ [elk] to cattle increases. Without agency actions to minimize the risk, transmission could occur." (FEIS ROD, 2000, 4, strike-throughs added)[24].

Despite the statement being scientifically true for both species, it is used as evidence to lethally manage only one species of wildlife with spatial segregation while allowing the others that winter in packed feedlots in WY and ID to freely cross into Montana unrestricted by spatial/temporal segregation to prevent mixing with unvaccinated cattle (Rezendes and United States, 1997, 7). The IBMP explicitly admits that like bison, elk in the GYE also pose a non-zero risk of disease transmission to cattle and

other livestock. Using of Trouillot's *Shifting-Focu*s, the SA chooses not to use the term 'not-zero risk' in regards to elk (thus positioning them the same as bison for risk transmission) but rather refer to "some risk of transmitting *Brucellosis*" from elk to cattle in the GYE (FEIS vol 2, 2000, 54)[17].

The 'not-zero' risk used as evidence of need for the lethal management of wild bison, but the same report (NAS 1998) also gives non-zero risk for elk to cattle transmission is deemed acceptable by state and federal agencies. Compare the framing of the quotes below, specifically those parts in italics.

> *The report concludes that the risk of transmission from bison to cattle is very low, but because Brucellosis has been transferred from bison to cattle under experimental conditions, the risk is not zero* (NAS pp. 43, 80)." (FEIS vol 2, 2000, 189)

And:

> *Although elk also pose some risk of transmitting Brucellosis*, the low seroprevalence rate in northern Greater Yellowstone Area elk herds suggests the risk is lower than from bison. Therefore, *elk in the Montana portion of the Greater Yellowstone Area are not considered to present enough of a risk of transmission to warrant management actions like those proposed for bison*, and are allowed free movement." (FEIS vol 2, 2000, 54, emphasis added)

As we can see from the second quote, the IBMP rests its exclusion of elk from lethal management and total spatial denial on public lands in Montana on the claim that elk pose a smaller risk of disease transmission to cattle than bison do. This claim of lower risk is not supported with the evidence cited in NAS 1998. Instead the claim of elk's lower rate of seroprevalence requires Shifting-Focus and erasure of actual evidence cited in NAS 1998.

History has shown that continued Brucellosis outbreaks have occurred in the intervening decades, mostly centered around the geographic area holding the elk seroprevalence rates *erased* through *Shifting-Focus* of the IBMP.

The IBMP uses *Shifting-Focus* to *anguish* wild bison as a disease vector while *erasing* the facts that elk infection rates are within the same range as bison while elk herds are not target for lethal management focused on total spatial segregation and exclusion from public lands in Montana. While there have been many studies, the range of bison disease infection rate varies widely.

> "YNP bison herds have had little or no contact with outside bison since the early 1900s. Serologic surveys show seroprevalence rates of 20-73% (Rush 1932; Tunnicliff and Marsh 1935; Clark and Kopec 1985; Pac and Frey 1991; Aune and Schladweiler 1992; Aune et al. 1997)." (NAS, 1998, 80)

Given the extreme difference in variability of a range of one-fifth to three-quarters, it is easy for the IBMP to cherry-pick which data it wished to use, thus creating a public perception at odds with the actuarial position of the documents cited.

The IBMP uses repeated citations from and references to NAS 1998 to make the point of a 'not-zero' risk in bison. However, the NAS 1998 itself addresses this idea and dismisses the risk of bison to cattle transmission stating that "domestic cattle adjacent to the park are vaccinated"[25] and thus not at risk of a disease transmission event (NAS, 1998, 81). Such dishonesty in citing the documents that clearly state the opposite conclusion as the only empirical evidence of disease transmission risk shows the lack of evidence on which the IBMP rests. While the IBMP repeatedly claims that elk are less of a threat of disease transmission due to their lower infection rate, their own cited evidence shows that

"[b]oth bison and some elk in the Greater Yellowstone Area have seroprevalence rates higher than 25%" (FEIS vol 2, 2000, 199). Instead of engaging honestly with the biological evidence, the IBMP uses *Shifting-Focus* to shape the perception of the public in a way that is reductive and misleadingly presents a false representation of the threat than supported by the actual scientific evidence cited.

The IBMP uses *Shifting-Focus* to erase the similarities in bison and elk herd infection rates. This is done to create a narrative that bison are a 'not-zero' risk of causing a disease transmission event while elk are ignored as a species to be concerned about, despite the cited materials of the NAS 1998 pointing to a greater danger from elk in feedlots than from bison herds natural migration patterns.

The IBMP *agnotologizes* using the logical fallacy: Appeal to the Unknown to construct the argument that wild bison must be lethally managed due to a 'not-zero' possibility of disease transmission while noting on the same page that "elk also pose some risk of transmitting Brucellosis" (FEIS vol 2, 2000, 54)[17]. While the IBMP goes on to claim that the risk of elk to livestock transmission is less due to the "low seroprevalence rate in northern Greater Yellowstone Area elk herds suggests the risk is lower than from bison", the cited evidence for this comes from NAS 1998 that made the precisely ***opposite*** conclusion regarding both the specific claim of lower seroprevalence in the northern elk herd (that migrates into Montana) as well as the general claim of elk's lower risk, as will be discussed further below (FEIS vol 2, 2000, 54).

The IBMP uses Shifting-Focus to erase the actual findings of the NAS which state that the lower seroprevalence rates among elk herds are a product of seasonal fluctuations. Montana *does not* require elk *equal or higher risk* than "low-risk" bison to be managed using the same lethal management justified through *eliminatory logics* as applied to wild bison herds.

> "According to a 1998 NAS report, elk are the only other species of concern in the Greater Yellowstone Area with respect to the risk of transmission of Brucellosis to cattle. The low seroprevalence rate of the northern Greater Yellowstone Area elk herds (1%–2%), *despite occasional seasonal concentrations that result in densities similar to those found on winter feeding grounds*, suggests that the risk of transmission from northern Greater Yellowstone Area elk to cattle is lower than that from bison (NAS 1998). Therefore, elk in the Montana portion of the Greater Yellowstone Area are not considered to present enough of a risk of transmission to warrant risk management actions such as those being proposed for bison" (FEIS vol 2, 2000, 395, emphasis added)

While not specifying that the transmission risk of elk increased during the winter season, the cited FEIS document makes clear the IBMP is aware of the risk of disease transmission posed by seropositive elk herds. Instead of addressing this human-created risk, the IBMP instead *anguishes* wild bison while *shifting-focus* away from the scientific evidence in order to make an eliminatory policy of wild bison exclusion from the public lands in Montana that the IBMP constructs to ontologically be a *white possession*.

The claims of 'not-zero' risk of a disease transmission event to livestock from low-risk bison, such as bulls, that are made by the IBMP are not grounded on quantifiable values, empirical data, or even logically consistent arguments. Instead the IBMP fear-mongers around the lack of data available to back up their claims as evidence used as reason for total exclusion.

> "Although the transmission potential of infected bulls is believed to be quite small, it remains unknown. For these reasons, the agencies have measures to ensure temporal and

> spatial separation of Brucellosis -affected bison and uninfected cattle." (FEIS vol 2, 2000, 54, emphasis added) [27]

A claim of 'not-zero' risk backed up with a lack of evidentiary data is a clear logical fallacy known as the Appeal to the Unknown. The IBMP makes the 'not-zero' risk claim based on the hypothetical possibility of disease transmission event from a high-risk seropositive bison as a reason to exclude all wild bison, even those such as males who lack the physical anatomy by which to transmit the disease to livestock in any known manner and non-pregnant females who are likewise unable to transmit Brucellosis, according research cited in the IBMP for the opposite conclusions. The IBMP relies uponLogics of Elimination and *Shifting-Focus* to construct an elaborate 'just-so' story of how bison bull reproductive fluids might somehow hypothetically infect livestock, in contradiction to all known scientific research data, while ignoring the high-risk feedlots just across the state border with a well-known and well-documented history of passing diseases between elk and livestock discussed in the cited NAS 1998 document.

In contrast to the IBMP's zero-tolerance for wild bison based on a 'not-zero' risk policy, there is not a similar precaution taken when it comes to elk herds. This difference in treatment of the two seroprevalent species occurs despite regularly recorded elk-to-livestock disease transmission events in the GYE. Instead, the IBMP attempts a complete erasure of the actual epidemiological threat assessment given in the NAS 1998 using Shifting-Focus to give a false impression of the facts regarding elk seroprevalence rates. This *Shifting-Focus* is accomplished by giving the general rates of elk seroprevalence rather than the known rates of those in contact with livestock in state-run feedlots. In doing so the NAS 1998 conclusions of the **inability to manage or prevent documented and well-known elk-to-livestock transmission events** so long as state-run winter feedlots are maintained for

seropositive elk herds in Wyoming is *agnotologized* and replaced with a claim that elk are not a risk factor while wild bison pose such a risk that total spatial denial of all public lands outside of Yellowstone park boundaries is necessary for the safety of Montana's economy and other *white possessions.*

The recorded history of elk to cattle transmission events in feedlots seem to be treated as acceptable to state and federal animal health regulators in exchange for the economic and settler-cultural benefits of elk hunting to the states like Wyoming and Montana. While disease tolerance seems to be deemed acceptable for elk, it is simultaneously used to justify lethal removal and exclusion of wild bison from virtually all public lands in Montana.

The IBMP uses *Shifting-Focus* to downplay the risk of elk, ignoring the empirical data while making deceptive statements with ambiguous weasel-words, such as the claim that elk herd pose a lower risk due to the fact that "[e]lk in the northern range adjacent to Montana have lower seroprevalence levels, in the 1%–2% range for the most part." (FEIS vol 2, 2000, 199, emphasis added). This claim of a lower seroprevalence rate (which is repeated throughout the documents in the face of public criticism of the elk/bison hypocrisy) is based on a citation from NAS 1998.

There is also *Shifting-Focus* in the choice that a particular elk herd used as evidence for lower rates is not the entirety of the elk in the GYE capable of disease transmission. The NAS 1998 cited source specifically notes in the section directly following the above quote that the northern elk herd is a political football prone to be used in rhetorical arguments despite it's negligible size and lack of epidemiological importance to the ongoing transmission of *Brucellosis* to livestock in Wyoming state-run winter feedlots on the southern boundary of the GYE .

> "Because of the controversy over the National Park Service's natural-regulation policy, the most attention paid to elk is paid to the northern-range herd in YNP, but that herd constitutes less than 20% of the elk in the GYA [Greater Yellowstone Area]."[28] (NAS, 1998,76).

The IBMP does not engage at all with the section that this page 76 quote is the opening sentence from, titled 'Other Elk Herds in the GYA'. In this two-page section the NAS 1998 outlines the evidence that supports the conclusion that it is in-fact elk tolerance in Wyoming feedlots that poses the greatest quantitative risk of a disease transmission event.

The NAS 1998 notes a seasonal increase in the risk of disease transmission and how this has a notable effect on the low seropositive rates of the northern herd given in the section just previously.

> "[I]t will be difficult to reduce elk density on the feeding grounds enough to prevent transmission from abortions and avoid ***maintaining a problematic level of infection***."(NAS, 1998, 77, emphasis added)

The IBMP uses the NAS 1998 as the primary and seemingly *only* citation for the 'not-zero' risk claim of wild bison-to-livestock transmission which is in turn used to justify lethal bison management.

The IBMP likewise uses the NAS 1998 as the primary and seemingly only scientific document upon which to dismiss elk spatial segregation. However, the NAS 1998 document does ***not*** assert either of those conclusions regarding disease transmission risk. The NAS 1998 states that elk herds in the GYE exist as a current threat to livestock that needs to be reduced with adjustments in management strategy.

> "Presumably, reduction of density on the feeding grounds would reduce the likelihood that elk would come into contact with ineffective products of abortion due to Brucellosis and would reduce the rate of transmission of B. abortus." (NAS, 1998, 77)

As shown here, the NAS 1998 states that it is the almost two dozen feedlots on the Wyoming side of the GYE that are responsible for the current and ongoing risk of Brucellosis transmission to livestock from wildlife. In contrast, the NAS 1998 asserts that wild bison should not be seen as a problem (NAS, 1998, 81).

The IBMP uses Shifting-Focus to erase the actual position of the evidence they cite and instead rely on *Logics of Elimination* to irrationally construct a unquantifiable 'not-zero' risk of wild bison to livestock transmission, in spite of the utter lack of historical or biological evidence for such an event happening outside of laboratory conditions. Instead of reliance on the 'best available science', the IBMP *anguishes* the risk of disease transfer to livestock onto wild bison who have never been known to be responsible for a *Brucellosis* outbreak, rather than the elk herds that pose a quantifiable and recorded risk of transmission. Thus, we find an example of the IBMP using NAS 1998 citation to posit claims that are not supported if one is to actually read the evidence cited by the IBMP and FEIS.

Additionally, in evidence presented on bison management options in the congressional GAO kept in the IBMP online database, Rezendes states that the lower seropositive rate cited in the northern herd only applies to elk that are ***not*** near feedlots. Contrary to this empirical research, there are almost two-dozen feedlots maintained by the state of Wyoming on the border of the GYE in which seroprevalence elk herds are able to mix with cattle during the most dangerous season for *Brucellosis* transmission to livestock.

> "[T]he 22 cattle feedlots that allow elk to mingle with the livestock "complicates issues by concentrating their [elk] populations and increasing the risk of disease transmission." (Rezendes, 1997, 7)

This GAO report, as well as conclusions from the NAS 1998, states that the biological evidence support a conclusion that it is in all actuality the nearly two dozen state-run winter feedlots in Wyoming that very much increase the risk of a *Brucellosis* transmission event from elk to cattle who are *not* spatially segregated with federally-mandated lethal management and temporal segregation measures. This difference in allowance for elk herds mixing with livestock stands in spite of the winter being the season known to wildlife biologists and cited in the IBMP as the time of the year in which there stands the ***highest*** risk of a disease transmission event to livestock by seroprevalent wildlife! From the GAO and the NAS 1998, which again form seemingly the entirety of the biological evidence cited as evidence for conclusions in the IBMP and FEIS, the only empirically supportable conclusions to draw are that current elk management increases disease transmission risk while wild bison migration has been empirically shown to not pose a *Brucellosis* risk to livestock.

Despite these scientific facts, what is seen an acceptable risk when winter feeding elk herds to artificially inflate their population numbers at the known and not insignificant risk of elk to cattle transmission, is claimed to be a "not-zero risk" of bison transmission event possibility used as justification for lethal management for wild bison just a few dozen miles away across an arbitrarily-defined state border that in no way prevents elk or pathogen spread. The total spatial and temporal segregation of bison from cattle is in no way reflected by the incentivizing of seroprevalent elk herds to spend their *most infectious* time period "from January to April" (NAS 1998, 76). This late winter to early spring time period exactly overlaps with the time in which feedlot concentration of livestock and "elk would come into contact with infective products of abortion due to Brucellosis" (NAS 199877).

Thus, while the federal and Montana state government spend millions to prevent natural migration by wild bison herds, the state of Wyoming directly next door virtually ignores *Brucellosis* transmission risk in favor of actively baiting seroprevalent elk with food during the winter into a closer vicinity with cattle in twenty-two state-run feedlots.

We can see from the behaviors of and within state-run winter feedlots that the total spatial and temporal quarantine of wild bison from cattle is not based upon empirical seroprevalence rates, since the elk birthing and aborting in Wyoming feedlots are far more of a risk of disease transmission than 'low-risk' wild bison sharing the range during summer months when cattle are in the SMA public lands within Montana. Swap the word elk into the following quote taken from the IBMP and the claims equally valid and in accordance with all science presented in documents reviewed here.

> "When ~~bison occasionally~~ [elk regularly] migrate from the park, usually in the winter, the risk of transmission of Brucellosis from ~~bison~~ [elk] to cattle increases. Without agency actions to minimize the risk, transmission could occur." (FEIS ROD, 2000, 4, changes added).

Despite the statement being scientifically true for both species of wildlife in the GYE, the claim of 'not-zero' risk is used as evidence to lethally manage only one of these wildlife species with 'total spatial and temporal segregation' while allowing the elk that winter in packed feedlots in Wyoming freely cross into Montana totally unrestricted by hazing or lethal management actions to prevent mixing with unvaccinated cattle.

According to the IBMP documents themselves which explicitly admit that there exist, "[n]o documented cases of Brucellosis transmission from wild, free-ranging bison to cattle" existing within the known historical record (FEIS vol 1, 2000, 29). It should be noted that the wildlife species shown

tolerance to disease transfer risk is the one for which evidence exists of historical disease transmission events (NAS, 1998, 77). Meanwhile the wildlife species totally excluded from Montana's public lands is the one to whom no historical evidence of disease transmission event exists; such is the work of *eliminatory logics*.

It should be further noted that the species shown tolerance in the face of recorded historical disease transmission from wildlife to cattle according to NAS 1998 is one of the most *prolific* large-game species in North America with healthy wild populations in many western states. The species shown zero-tolerance is the wild bison, an ecological keystone species which suffered a purposeful, settler-capitalist caused near-extinction event within the last century and which still exist only on a tiny slice of its former massive range. The idealization of wild bison as a symbolic icon of indigenous cultures, as seen in the oft-told settler-anecdote of 'Indians using every part of the buffalo', while the elk are seen as the civil property of the settler-capitalists state and it's hunters very much encapsulates the eliminatory logics of *white possession* at work in the *anguishing* of bison and the *Shifting-Focus* used in regards to elk disease transmission risk.

4.4.4. No Empirical or Biological Metric to Quantify Risk of Disease Transmission

Perhaps the most outstanding and outrageous admissions in the IBMP is the total lack of empirical, biological metrics for the claimed 'not-zero' disease transmission risk of wild bison to cattle. This lack of empirical metrics means that the IBMP has no scientific ability to measure increase/decrease of risk.[19]

> "By its nature, a plan using adaptive management requires monitoring and adjustments as new information is obtained… [t]he Joint Management Plan does not, however, identify how the agencies will measure success or failure." (IBMP federal Rod, 2000, 42)

Without such an empirical metric there is no evidence by which to determine a metric of change necessary prior to institution of the promised adaptive tolerance levels.

Additionally, the FEIS and the IBMP itself **explicitly admits to having no ability to accurately test the multiple alternatives for statistical differences,** despite themselves setting the standards for such.

> "Realistically, bison migrations (and therefore capture, slaughter, and decreased seroprevalence rates) follow stochastic events, such as weather changes and forage production in a given year. Since the seroprevalence estimate in any alternative for a particular year might or might not be realistic, **alternatives cannot be accurately tested for statistical differences**" (IBMP federal Rod, 2000, 62, emphasis added).

This quote and others elsewhere show that stochastic weather events drive wild bison's seasonal exit from the park during the winter when there are no cattle nearby. Thus, the scientific evidence is clear that it is not population size nor lack of sufficient carrying capacity (i.e. foragable food) inside Yellowstone that govern winter bison migrations out of the park (FEIS vol 2, 2000, 90; cites: NAS 1998; Singer et al. 1998; Angliss n.d.).Together, these facts form a tactic admission that population control and bison exclusion from the rangeland habitats on public lands within Montana are the true purpose of the IBMP, not lessening of disease transmission risk nor prevention of economic loss. Without any quantitative metric given, all claims made by the IBMP to 'lessen transmission risk' used

throughout the documents ring hollow due to being based on emotional feelings of irrational fear and non-empirical logical hypotheses, rather than biological or epidemiological evidence.

Stunningly the IBMP admits to a total lack of biological empiricism regarding disease transmission risk. The IBMP cites studies stating that there is no existing metric to quantify success or failure of the management actions taken by SA to prevent disease transmission events. “The risk of such transmission has never been quantified” by scientists (Rezendes, 1997, 11)[30]. This means that while the IBMP repeatedly claims to reduce the risk of disease transmission, there are no viable scientific metrics by which to measure any increase or decrease in transmission risk since no quantifiable risk value exists! Not only this, but also the repeated claim to low-risk bison still posing a non-zero risk, such claim has no quantitative validity, thus undermining the entire reasoning for lethal management of low-risk wild bison.

Perhaps just as outrageously, the IBMP does not quantify any metric by which SA can measure the increase or decrease of risk transmission within the SMA. “The Joint Management Plan **does not, however, identify how the agencies will measure success or failure.**” (IBMP federal Rod, 2000, 42, emphasis added). This means that there is no quantitative metric to measure lowering or raising the risk of transmission presented in this document.

The only quantitative figure that IBMP gives to the disease transmission risk of wild bison to cattle is ‘not-zero’ and the IBMP even explicitly states that its policies do not lower the disease transmission risk to zero.

> "The actions of the proposed management plan were never intended to accomplish Brucellosis eradication from the Greater Yellowstone Area… the final plan will not eliminate the disease even from bison "(FEIS vol 2, 2000, 199)".

According to the IBMP there are no empirical metrics presented for how the assertion it makes that lethal bison management and total spatial exclusion of wild bison from public lands in Montana lowers the disease transmission risk. It can be shown in the historical record of the years since the IBMP was signed that a 'not-zero' number better applied to elk herds than wild bison, as measured by the multiple livestock outbreaks of *Brucellosis* in Wyoming and Montana in the years since this plan was instituted nominally to prevent just this event.

The IBMP also uses Trouillot's *Shifting-Focus* to obscure the lack of empirical metrics, claiming that "the [signature] agencies will monitor to determine if the agencies are separating bison and cattle successfully, and, thus, lowering the risk of transmission of *Brucellosis*." (IBMP federal Rod, 2000, 42)[19]. Despite these claims to observe for a lowering of risk, with no quantitative metric to measure the increase or decrease in risk of transmission, such claims amount to lift past obscuring the facts by *Shifting-Focus* from specific details to vague generalities that feel good to say and to hear.

The IBMP makes claims of 'adaptive management' and 'expanded tolerance' of wild bison in Steps 2 and 3 of the plan, "The adaptive management framework would allow the agencies to adjust this tolerance limit based on new information and experience." (IBMP federal Rod, 2000, 52). Such claims of tolerance *Shift-Focus* away from the fact that without empirical metrics, there can be no scientific standard by which SA of 'adaptive' management plan can measure success or failure of previous/current policy in order to make educated decisions on policy changes. This can likewise be born out by showing that 30 years later, the supposedly adaptive tolerance limits have not

geographically changed. The lethal exclusion of all wild, free-roaming bison (regardless of seropositive, seronegative, or low-risk status) from Montana's public lands as a precondition of wild bison management remains in place to this day.

Another telling issue is what actions the IBMP employs in the face of biological evidence of a disease transmission event. According to the IBMP, there are no changes in policy or management actions, even in the face of empirical evidence (discussed more below in section V). IBMP takes the same lethal management practices for the purpose of spatial denial of public lands in Montana before and after *Brucellosis* outbreaks, and source of outbreak in no way ends, lessens or modifies total bison exclusion from Zone 3.

4.4.5. No Adjusting of Tactics After Confirmed Disease Transmission Events

Despite the claims to be grounded in the 'best available science', the IBMP does not adapt its management policy in any notable manner in reaction to actual documented disease transmission events that it is nominally supposed to be preventing. The IBMP projects its lethal, low-population cap for wild bison management policy to continue into the indeterminate future, even in the face of new empirical evidence regarding wild elk responsibility for disease transmission events.

The IBMP makes no plans to stop lethal bison exclusion nor begin lethal elk exclusion, even in the face of empirical evidence of elk to cattle transmission event. The SA relies upon the 'tiger-rock' logical fallacy to assert without evidence or metric that "without agency actions to minimize the risk, transmission could occur" (IBMP federal ROD, 2000, 4). The IBMP contingency plan (Appendix C of

this document) for future recorded *Brucellosis* outbreaks is that they officially recognize seronegative bison as low-enough-risk to allow outside of park despite transmission event.

> "During the post-disclosure period only seronegative non-pregnant bison will be allowed in Zone 2 up to the prevailing tolerance limit… If the investigation finds that either cattle or elk were the source of infection or that bison were not the source of infection, the agencies will continue with the Joint Bison Management Plan. (federal ROD, 2000, 33)

The continuation of lethal exclusion of wild from public lands in Montana in the face of continuing evidence of no quantitative threat of wild bison as a disease vector shows that the IBMP is not actually 'based on the best scientific evidence' after all.

The IBMP claims it allows 'limited tolerance' in Zone 1 and Zone 2 to seronegative and untested bison, however the tangible methods employed by the LEO's under the IBMP is a management policy of regularly hazing *all* wild bison in the area. Hazing and capturing to prevent wild bison herds from leaving Zone 2 happens regardless of serostatus (IBMP federal ROD, 2000, 13)[7].

> "The [signature] agencies would remove to quarantine, seronegative bison attempting to leave the park and not amenable to hazing when either the population exceeds 3,000 or tolerance levels outside the park have been met or exceeded. If the quarantine facility were full or otherwise unavailable, the agencies would send the bison to slaughter." (FEIS vol 1, 2000, xxiii)

In fact, while all seropositive bison captured are killed whenever identified, seronegative buffalo are likewise killed en masse with no regard to biological necessity whenever wild bison numbers exceed

the physical limits of the available space in IBMP wildlife traps, particularly during stochastic winter weather events (IMBP federal ROD, 2000, p. 62)[20].

Since the IBMP suggests no ways to differentiate seronegative wild bison from untested wild bison, the implication that tolerance of only of seronegative bison in Zone 2 being a restriction due to a disease transmission event to livestock is clearly another example of Trouillot's *Shifting-Focus*[21]. According to the IBMP *Brucellosis* contingency measures listed in Appendix C;

> "If the investigation finds that the (1) Yellowstone bison were the source of the Brucella abortus infection or (2) eliminates cattle as a likely source but the source cannot be definitively determined (e.g. source unknown), the agencies will allow only seronegative, nonpregnant bison outside the Park in both the west and north boundary areas." (IBMP federal ROD, 2000, 32-33).

The standard of the IBMP is already to destroy any captured bison that test seropositive. Without a stated method to effectively and permanently mark seronegative bison <u>at a distance</u> in the wild, claiming that allowance of only seronegative bison after a recorded disease transmission event that bison are shown to be biologically responsible for is neither in line with 'the best available science', nor is it logically coherent.

The fact that the IBMP retains effectively the same policies regarding wild bison tolerance and exclusion. Such actions taken by the IBMP happen regardless of whether empirical, biological evidence from potential future (now past) *Brucellosis* transfer events shows that wild bison or winter feedlot elk herds are responsible for disease transmission events. This illogical position is an incredibly powerful indication that the IBMP is not grounded in empirically-defensible epidemiological evidence,

but rather is a product of *Settler Moves to Innocence*, the view of public lands outside of Yellowstone as *White Possessions* rather than as historically recognized wild bison habitat, while using *Shifting-Focus* to move the discussion between *eliminatory logics.*

The IBMP's insistence in ignoring the GYE elk herds as a *Brucellosis* transmission vector, while using lethal management to maintain total spatial denial of public land outside of Yellowstone to the last genetically-pure wild bison herds in the United States shows an irrational differentiation of wild bison and elk herds produced by the Logics of Elimination and *white possession*, enforced through the use of *Shifting-Focus* and *Settler Moves to Innocence* such as *anguishing* the bison as a disease transmission vector when, in actuality it is the state-run winter feedlots that create the largest quantifiable risk of *Brucellosis* transmission from wildlife to livestock. The total exclusion of wild bison simultaneously to the total lack of exclusionary management for elk position is taken by the IBMP despite the fact that elk herds in the GYE display seroprevalence at similar rates to wild bison. The fact that seroprevalent elk herds are not spatially or temporally segregated from cattle or excluded en mass from Zone 3 (i.e. virtually all of Montana) shows that the prevention of disease transmission events as a method of preventing economic harm to Montana livestock industry is merely an excuse given by the IBMP, and is not the true purpose of the lethal bison management.

The fact that the IBMP takes the same measure regarding wild bison before and after *Brucellosis* outbreaks, and the source of the outbreak in no way ends, lessens or modifies total bison exclusion from Zone 3 show the manner in which it lacks empirically-verifiable biological grounding. Additionally, future recorded outbreaks in livestock do not trigger loss of statewide '*Brucellosis*-class free status' according to the IBMP.

> "It is possible that if Brucellosis infection in cattle herds in the Yellowstone vicinity occurred, it would result in a split status in Montana, i.e., only a portion of the state would be downgraded to class A." (FEIS vol 1, 2000, 38)

Thus, we can see that even in the case of a *Brucellosis* outbreak, the threat of economic loss is limited to the SMA region, in which very few livestock are kept. Such a 'split status' system, when combined with the previously discussed federal subsidies for testing and vaccination of livestock in the SMA, provide all the economic protection available from this plan, without any necessitating of lethal management of wild bison to enforce total spatial segregation from potential livestock on public lands in Montana. Thus it can be seen that both the biological and economic risks of Brucellosis are just so much smoke in the wind. This conclusion in turn raises the question, for what purpose are these millions of dollars spent each year for over twenty years just to eliminate a dangerously low-population of an ecological keystone species from the very prairie habitat that is benefited by their endemic presence?

4.5. The supposed biological and ecological risks of disease transmission from wild bison to livestock posited by the IBMP as reasons for lethal bison management stems from socially produced conflicts and are in fact not a matter of biological necessity.

Brucellosis transmission risk is a socially constructed issue stemming from settler-colonial *Logics of Elimination* and *White Possession*, rather than the biological and economic purposes claimed by the IBMP. The current issues surrounding the lethal management policy of wild bison in the Greater Yellowstone Ecosystem is not a matter of biological or scientific necessity but rather a socially constructed issue of human design and perpetuated through settler-capitalist epistemologies and

ontologies of public lands, private property, and Indigenous wildlife's right to exist within a settler-colonial occupation of the territories and natural resources of extant Indigenous nations.

While the IBMP portrays the wild bison of Yellowstone as a threat to the livestock industry, it is very much the opposite. The ongoing threat that wildlife reservoirs of *Brucellosis* supposedly pose a risk of disease transmission to livestock is a socially produced problem. This threat of disease is *anguished* onto wild bison as a *Settler Move to Innocence* and the supposed threat of disease transmission could be solved most easily by Montana asserting restrictions on private property instead of public wildlife.

In this critical assertion this project will first explore the efficacy of livestock vaccines for Brucellosis. This assertion then looks at the *erasure* of dissent from Indigenous communities and of the fiduciary trust that the federal government unilaterally grants itself over Indigenous nations and their economic resources. This assertion then looks at the *erasure* of public dissent regarding enforcement of statute authority regarding environmental and ecological health of public lands. This assertion then looks at the rejection of empirical biology by the IBMP, and lastly addresses the manner in which the purposeful baiting of wild elk into state-run winter feedlots in Wyoming are well-recorded as an ongoing *Brucellosis* transmission vector, contrary to any evidence of the same regarding wild bison migration outside of Yellowstone.

While the IBMP recommends that livestock in the SMA be vaccinated for *Brucellosis*, it does <u>not require</u> any such vaccination. Since livestock vaccines have high efficacy, the vaccination of all livestock can be expected to prevent all future transmission events as has been noted by researchers quote-mined by the IBMP (NAS, 1998). This would be a very simple solution to institute and would

seem to be a basic requirement in the IBMP for the state of Montana and APHIS to require private livestock interests to participate in the federally funded vaccination for all livestock within the SMA's.

Additionally, the legal status and management position of wild bison would be greatly improved were the federal SA's to assert their authority for buffalo over that of the state veterinarian, based on the legal jurisdiction of wild bison as a Tribal trust resources that the federal government has a fiduciary duty to preserve on behalf of the Indigenous nations with whom it has treaty-obligations as identified and required in the US Constitution.

Vaccine Efficacy

In the current system of settler-capitalist livestock industry, it is well established that the best way to prevent a *Brucellosis* disease transmission event is to vaccinate livestock (NAS 1998). Not only this but the fact that vaccination is recognized by the IBMP to be far more effective when used on cattle and far less effective on bison and other wildlife (Davis et al., 1989; Davis et al., 1991; IBMP federal ROD, 2000, 62). As is easily seen, the livestock industry has the most power to prevent disease transmission events since the vaccination for livestock against *Brucellosis* are both highly effective and already widely used for just this purpose. Additionally, the cost of vaccination and testing of livestock in the supposed 'danger-zone' of the GYE SMA's are all fully funded by public subsidies by APHIS who "has agreed to provide funding to certify eligible cattle herds within the bison management area as brucellosis-free" (IBMP federal ROD, 2000, 55)[22]. Thus, the entire risk of disease transmission could be prevented simply by requiring livestock interested in the GYE SMA to administer the federally

subsidized *Brucellosis* vaccine to livestock in the supposed 'risk-area', rather than leaving vaccination of livestock voluntary in the supposed 'danger-zone'.

Compared to vaccination, the IBMP has a farcical return on investment. Such a waste of money would never be permitted by the free market that capitalism claims to support, however it is precisely the settler-capitalist epistemologies that underlay the foundation of spending public tax money for private economic gains. Millions of dollars in public funds are spent every year on lethal management and hazing of wild bison to benefit the livestock industry when the cost saved to 'affected producers' in the private livestock industry located in the GYE SMAs is less than eleven thousand dollars per producer (four thousand dollars after APHIS subsidy) and less than thirty-five thousand dollars total!

> "Including veterinary and handling expenses, it was estimated that vaccination costs for producers would total about $5 to $10 per female calf (with APHIS paying for the ear tags). With about 2,019 cow-calf pairs of cattle… yearly vaccination costs for these producers was estimated to total between $5,050 and $10,100.1 Presumably, without the perceived threat posed by Yellowstone bison, rates of vaccination in the study area would more nearly match the current statewide rate of about 60%. Therefore, an additional annual cost of about $2,020 to $4,040 (or the 100%–60% = 40% of vaccination costs) would be borne by affected producers. …. Costs of Brucellosis testing twice yearly near Yellowstone National Park was estimated to total between $15,528 and $34,938.2" (FEIS vol 1, 2000, 456, emphasis added).

As can be seen from these numbers regarding the total cost of cattle vaccination (which biological studies cited in the IBMP have shown are more effective than wildlife vaccination or spatial segregation) is far less the IBMP annual budget, which started at two-and-a-half million dollars per

year in 2000 and has increased since (Kilpatrick et al, 2009). Unfortunately, much like addressing the state-run winter feedlots that spread *Brucellosis* from elk to livestock, vaccination requires ranchers and the settler-state to take accounting of its own actions, rather than illogically and empirically *anguishing* the responsibility for a European diseases spread to unvaccinated European livestock onto wildlife that neither spread nor are affected by the disease itself, according to the best biological science.

State-Run Feedlots

It has been biologically shown in research cited by the IBMP and FEIS that the risk of a disease transmission event is affected not by the actions or lethal management of bison, but by the current systemic actions taken by human actors providing for inflated populations of elk through reduced 'winter-kill' in Wyoming (NAS 1998). This reduction of 'winter-kill' is facilitated through the winter feeding of elk in close quarters to livestock at nearly two-dozen state-funded facilities maintained within the GYE, that causes the highest noted risk of cattle-to-livestock infections (NAS 1998).

The settler-capitalist livestock industry's responsibility for both the historical and ongoing risk of is erased in the IBMP and FEIS through the use of *Shifting-Focus* regarding the arbitrary state borders (social constructs themselves of *White Possession* ontologies) by which Montana lethally excludes bison herd from virtually all public lands in the state over a supposed risk of disease transmission that is actively being encouraged among elk and livestock just across the border in Wyoming (NAS, 1998, 77). As discussed above, Wyoming Game and Fish Department (WGFD) maintains 22 feeding grounds precisely the most dangerous season for disease transmission (NAS, 1998,76).

The *Shifting-Focus* to *erase* the winter feedlots in the IBMP is not due to some inability for Montana to recognize the ties between Wyoming feedlots and *Brucellosis* transmission risk they entail. The IBMP uses the research from *Brucellosis* outbreaks in the feedlots to set the time-frame of bison exclusion from Montana public lands.[23]

> "Research in Wyoming on B. abortus Strain RB51 bacteria (used as a surrogate for field strain Brucella abortus in the research) and data on field strain B. abortus in Yellowstone National Park indicate the bacteria are highly unlikely to survive after an approximate 45-day period (or less depending on research results) due to heat, ultraviolet light, and a number of other factors." (JMP state ROD, 2000, 11)

Oblique reference to 'research in Wyoming on B. abortus Strain RB51 bacteria' is a reference to research cited in NAS 1998 and discussed above as evidence for elk herd transmission risk. This quote shows that far from being unaware of such a risk, the IBMP plans to keep close tabs on it to justify further *Logics of Elimination* for wild bison, while simultaneously ignoring it as a disease transmission risk. Again, such *erasure* of elk transmission risk is done in the face of repeated and well-recorded disease outbreaks caused by the winter feedlot situation. The lack of lethal management to ensure spatial and temporal segregation of elk and livestock is at ***precisely*** the season of highest risk of transmission (FEIS vol 2, 2000, 55). This is in contrast to wild bison herds that are excluded from Montana public lands that are recognized as an integral part of their historical range during the season where they pose the lowest risk of disease transmission (FEIS vol 2, 2000, 54-55).

The 'temporal segregation' of wild bison herds happens when buffalo are at the scientifically determined LOWEST point of biologically risk of disease transmission (low risk defined with post pregnancy females here). This obvious bias towards tolerance for elk and total segregation for bison

shows the lack of scientific grounding for claims made by Montana, if interest in reducing risk of disease transmission. Instead, there is a greater issue of bison exclusion and elimination which is a settler-capitalist social construct issue. The nature of this social construction of *anguishing* wild bison lays upon the foundation of capitalist epistemologies, *Logics of Elimination* and *Settler Moves to Innocence* which position wild bison herds as a hypothetical threat to livestock while *erasing* the documented threat of elk in winter feedlots, due to the view of seroprevalent elk herds as a *White Possession* of settler-state licensed big-game hunters, rather than viewing wild bison as the cultural and legal properties of Indigenous nations, communities, and their elected Tribal governments.

Erasure of public comments and Indigenous fiduciary trust resources

Despite the lack of any tangible evidence and in the face of empirical evidence to the contrary presented then ignored by the FEIS report, the federal SA of the IBMP condoned the State of Montana's refusal to recognize the scientific evidence, while denying Indigenous tribal governments their legally mandated representation on this issue. This displays a *Shifting-Focus* where the IBMP claims to 'follow the science' and their mandates while simultaneously signing onto Montana's claim to follow the science in their state ROD while refusing to do the same in the attached memorandum (Appendix D).

The IBMP position that federal possession of wild bison as 'park resources' rather than tribal 'trust resources' with cultural value to Indigenous nations shows that *Settler Moves to Innocence* through *White Possession* supersedes Indigenous cultural values that are historically recorded and cited by the IBMP. Such actions violate multiple federal mandates, Acts of Congress, and the US Constitution itself in the IBMP's failure to provide for federal fiduciary protections for tribal 'trust

resources'. Likewise, the SA refused to include policy input from tribal government consultations into decision making for the IBMP since the Indigenous nations all demanded non-lethal management policy for wild bison however tolerance on public Lands in Montana are pre-conditionally excluded from the IBMP. This preconditional exclusion in done, as discussed above, through *settler move to innocence* such as *anguishing* of the wild bison as a potential risk to livestock regardless of the lack of evidence for such a claim, *white possession* of historically-recognized territories and natural resources of indigenous nations, and *Logics of Eliminatio*n that require wild bison to be confined to YNP rather than wild and free-roaming across their historically-recorded and currently-endangered prairie habitat.

The IBMP employs *Shifting-Focus* to ignore federal authority in favor of state powers when it claims that federal agencies such as APHIS lack authority over state veterinarians. In this way, without citing any statute law to support the assertions, the IBMP grants authority over wild bison Montana, removing the statutory, fiduciary trust duty the federal government has to Tribal nations. This *Shifting-Focus* allowed federal SA to claim that they are following their respective mandates (IBMP federal ROD, 58; FEIS vol 1, 2000) while the state of Montana openly stated in appendix G of FEIS (vol 1, 2000, 767) that Montana will ignore all scientific evidence presented in regards to low-risk bison as foundational for their lethal wild bison-exclusion policy.

The IBMP practices the *Settler Moves to Innocence* of *erasure* and *agnotology* as well as the claim of *White Possession* when it states that United States citizens rights to bison ownership supersedes the historically-recognized cultural values bison have for Indigenous communities and tribal nations (FEIS vol 1, 2000 233-236).

> "As indicated in the FEIS (see vol. 2, pages 233-236), *the NPS does not consider bison a trust resource to manage for one or more tribes' benefits*. Rather, they are a natural

> resource of the park, managed for the <u>*benefit of all citizens of the United States*</u>." (IBMP federal ROD, 58, emphasis added)

and

> "The National Park Service *does not consider the bison in Yellowstone National Park a trust resource to manage for one or more specific tribes*. The National Park Service must manage the bison in Yellowstone, like the other natural resources in the park, for the *benefit of all citizens of the United States*." (FEIS vol 2, 236, emphasis added)

Such positioning of wild bison herds as the *white possessions* of the settler-capitalist state that is responsible for the recent and ongoing near-extinction event, in blatant disregard for all archival evidence and public comments presented in the FEIS volumes one, two and summary that states wild bison are very much recognized as a cultural resource of Indigenous nations and communities. The IBMP's repeatedly stated hard-line position that wild bison are the *White Possession* of the citizenry of the specific settler-state whose previous explicit goal relating to wild bison was the attempted, purposeful extermination for the political purpose of denying food to noncombatants during wartime (i.e. terrorism). The blatant disregard for the truth necessary to put forward such claim of wild bison as the natural resources of all settler-state citizens as the reason to practice lethal management that prevents wild bison from returning to their historical prairie rangelands across Turtle Island is a stunning example of the Logics of Elimination, *Shifting-Focus*, *White Possessive(ion) theory*, and the *Settler Moves to Innocence* of *agnotology* and *erasure.*

This *eliminatory logic* is build upon the denial of fiduciary trust responsibilities though *agnotology* of the facts that allows for an *erasure* of legal requirements by *Shifting-Focus* away

from the historical facts and legal requirements so as to intellectually-colonize the wild bison into *White Possessions* that to paraphrase Aileen Moreton-Robinson are 'emptied of Indigenous ways' so as to be remade into the property of the settler-state "in the form of citizen and human rights" (Moreton-Robinson, 2015, 192). By claiming bison for the 'benefit of all citizens' rather than a tribal trust resource, the SA *erases* and *agnotologizes* their own fiduciary duty to protect tribal cultural trust resources such as wild bison on behalf of the Indigenous communities and their tribal governments that clearly demanded such during the nominal consultation process.

The IBMP uses the language of freedom and human rights to *logically eliminate* and *erase* legal fiduciary trust duties owed to Indigenous nations and tribal governments as outlined in congressionally-approved federal treaties. According to the United States Constitution, the federal government recognizes treaties with tribal nations as legally on-par with those of foreign nations such as those of Europe (Article 1 Sections 8). Additionally, it is noted as part of the infamous 'three-fifths' compromise that Indigenous national citizens and explicitly their legal properties and real estates, exist outside the taxable authority of the US Government (Article 1 Sections 2). This constitutional grounding of Indigenous national sovereignty means that according to the 'highest law of the land', Indigenous nations, governments, and their citizenry are legally distinct from other US citizenry and their laws.

The assessment of wild bison as a natural park resource and thus a *white possession* of the settler state is in direct violation of numerous federal laws, statues, mandates, and Acts of Congress requiring government-to-government relationships[24]. Although the IMBP claims to be following mandatory statutes regarding tribal consultations, citations in the FEIS with tribal comments show a very different story (Appendix E).

> Exclusion of tribal nations from this process is not only a violation of federal trust responsibility and President Clinton's commitment to consult and confer, it also violates the consultation requirements under the National Historic Preservation Act [as well as the US. Constitution and American Religious Freedom Act statues as follows]. (16 USC 470-1(3); 16 USC 470a(a)(1)(A); 36 CFR 800.1(c)(iii)(106); 16 USC 470a(d)(6)(A); 42 USC 1996); 6 CFR 60.4). (FEIS vol 2, 236, emphasis added)

Despite claims made in the IBMP using *Shifting-Focus* to *erase* tribal input and *agnotologize* lethal bison management into something seemingly conforming to both biological and legal parameters, the input from tribal representatives presented in the FEIS indicates that the claimed tribal input were rather boilerplate public consultations that ignored tribal governments in contradiction to US statute law. Multiple tribal nations' governmental representatives issued statements noted in the FEIS. The Indigenous representatives unanimously stated that their input, objectives, and legally-required consultations were ignored by the SA who instead used the time to outline plans and pre-conditions for lethal wild bison management that had been made without tribal input and in direct contradiction to the non-lethal manner in which tribal nationals and their governments stated they wanted wild bison to be managed.

By classifying wild bison as 'natural resources of the park' rather than federally mandated fiduciary 'trust resources' of Indigenous Tribal nations, the IBMP uses *Shifting-Focus* to maintain *White Possession* over wild bison in the face of recognized historical evidence in the IBMP and FEIS documents themselves. The denial of Indigenous tribal cultural and historical values is in direct contradiction to fundamental statements made in the same FEIS regarding the history and cultural value of bison to Indigenous nations and communities (FEIS vol 1, 362-364).

> Bison were and still remain critical to the indigenous cultures of North America and were an important part of the landscape covering over half of the continent. (FEIS vol 1, 363)

The prioritizing of settler-rights to the very species to whom the violent *Nahullo* settlement purposefully caused a near-extinction event provides a precise case study of the Settler Move to Innocence of White Possession.

Such claiming of historically recognized Indigenous cultural keystones as "not a trust resource" (FEIS vol 2, 2000, 236; IBMP federal ROD, 2000, 58) is precisely in line with that outlined in Moreton-Robinson's book that states 'Indigenous people must be emptied of our ways' to make room for the equality of all citizens to access Indigenous territories and resources that were unlawfully occupied and settled within the historical record.

> As things that are possessed, Indigenous people must be emptied of our ways of being in order to come into existence as the homogeneous Indigenous subject created through a racialized rights discourse, first in the form of treaties, then in the form of citizen and human rights. (Moreton-Robinson, 2015, 191-192)

The federal government thus uses the violent history of genocidal dispossession of tribal nations, which itself directly caused the original near extinction event for the wild bison as part of the purposeful 'feed-fight' of settler-colonists against Indigenous noncombatants, to assert its own superior right of possession to wild bison over the historically recognized cultural interest of Tribal nations.

Another exercising of power by the settler-governments is the insultingly bald-faced erasure of Indigenous community voices when the IBMP makes the claim that it is "the position of the agencies

that government to government consultation has occurred, as indicated in appendix I (volume 1) of the EIS" (IBMP federal ROD, 58). This claim is a blatant example of *Shifting-Focus* and the *erasure* of Indigenous voices. The FEIS vol. 2 states that the Shoshone-Bannock Tribes official position was that despite the "trust obligation due and owing by all federal agencies to the tribes" that "[p]roper consultation with the tribes did not occur" (FEIS vol 2, 236).

Additionally, the Yankton Sioux Tribe Business and Claims Committee issued the following,

> "[D]emands [to] the US. government to immediately initiate official government consultations with the Yankton Sioux Tribe on this [lethal bison management] matter, as stipulated by Executive Order No. 13084." (FEIS vol 2, 236)

Rather than engage with these tribal demands as legally required by the 'highest law of the land', the IBMP uses *Shifting-Focus* to erase the voices of Indigenous communities and their federally recognized representatives by citing FEIS volume 1, appendix 1.

Because no page number is listed for the FEIS volume 1 appendix citation in the ROD, this is (fairly safely) assumed to be referring either to the list of "HISTORY OF NATIVE AMERICAN CONSULTATION" on pages 722-786 and/or the "Summary of Comments from Native American Tribes and Tribal Organizations" tables from pages 787-798. The first section details outreach to various tribal governments concerning 5 consultation meetings in the summer of 1998, as well as the dates, locations, and number of attendees (FEIS vol 2, 772). Directly after the first section is the "Summary of Comments from Native American Tribes and Tribal Organizations' " tables which seem to show a 'cut-and-paste' of general summary of Tribal representatives, rather than direct quotes. Such *erasure* of Tribal voices shows the entitlement to authority on behalf of the SA in regards to the right of Tribal government representatives to participate in wild bison management policy. The comments

listed in these tables are either ignored wholesale by the IBMP, or have their terminology redefined into meaningless platitudes (IBMP federal ROD, 2000, 48; FEIS vol 2, 2000, 92).

It would be optimistic to conclude that the responses from the Tribal groups would be considered by the SA as part of the consultation process. However, the IBMP blatantly ignores the voices of the Tribal representatives that responded with a nearly unanimous call of the Yellowstone bison to remain "wild and free-roaming" and that wild bison should be "managed by wildlife professional" rather than the Montana Department of Livestock with whom the IBMP paradoxically places ultimate authority over wild bison management (FEIS, vol 1, 787-798).

Since the IBMP has both total exclusion of wild bison from public lands and the authority of the state of Montana over bison with the rejection of bison as a federal fiduciary 'trust resource', the IBMP can in no way claim to have consulted in good faith with Indigenous Tribal nations. Such lack of good faith consultations with tribal governments (called out by multiple tribal governmental representatives in FEIS vol 2, 236) is in clear violation of the listed federal laws, statutes, and mandates. Rather than engage with such criticism the IBMP instead *Shifting-Focus* with the claim their position to be that 'government to government consultation has occurred'" with a reference to the location in the FEIS where it shows the opposite. In this way the IBMP *erases* the overwhelmingly negative response from the Tribal consultations and *agnotologizes* the criticisms of tribal governments recorded in FEIS out of the IBMP itself while directly contradicting the truth (IBMP federal ROD, 58).

Despite the institutional mandates, legal statutes, and Acts of Congress that compel the federal SA to protect and converse wild bison for future generations, and in the face of the Constitutionally-mandated fiduciary trust duty held by federal agencies to federally-recognized tribal nations and their governing bodies, the IBMP disavows the cultural trust of bison to Indigenous communities and

peoples and uses *Shifting-Focus* to absolve federal SA of failure to uphold their mandates and the various federal statutes, international treaties, and Acts of Congress cited in the IBMP (IBMP federal ROD, 2000, 9)[29]. The federal SA ceded authority for wild bison to the state of Montana without citing any appropriate statute law to support this position. The IBMP makes the claims that "[o]utside the park the State of Montana has the management authority over the bison." (IBMP federal ROD, 2000, 6)[25]. Meanwhile, the FEIS cites a statement accredited to Montana state officials who have claimed authority over bison[26].

> "Montana has responsibilities to state laws and regulations and for the economic health of the state. It also has the responsibility and authority to manage bison that enter nonpark areas of Montana. These responsibilities are Montana's and cannot be delegated to any other agency." (FEIS vol 2, 2000, 52)

This claim of Montana's authority over wild bison runs directly in the face of public mandates, statute laws and Acts of Congress cited above and taken from the IBMP documents themselves.

As discussed previously in this thesis, in cases of *Brucellosis* outbreak in livestock since its enactment, the IBMP does not call for changes to zero-tolerance for wild bison nor elimination of total tolerance for wild elk. Such consistency of lethal wild bison management occurs in the face of scientific evidence regarding which species caused such transmission events (NAS, 1998). While the IBMP claims to be adaptive, the only changes possible allowed by it are increased lethal actions to wild bison, rather than increased tolerance, as is fallaciously asserted.

If the IBMP can ever prove that wild bison are responsible for disease transmission to livestock, they still need to justify why this makes wild bison more of a threat to livestock than elk herds that are

currently known to have an extensive history of *Brucellosis* transmission events with livestock in the GYE. Such wild bison to livestock event remains unlikely even without the millions of dollars wasted each year in enforcement of the IMBP, as historical evidence has always suggested. However, while a wild bison-to-livestock transmission event would be used as an excuse for Montana to employ even more lethal and eliminatory exclusionary policies to wild bison, the correlating increase in tolerance due to than lack of such evidence is never delivered by the IBMP, despite claims of increased tolerance and adaptation of the plan to further scientific research..

Despite claims made throughout the IBMP that pre-conditionally lethal and exclusionary wild bison management policy is grounded in ecologically sound science, the document itself admits that Montana's authority to kill wild bison is totally disconnected from empirical science and entirely about fears concerning economic effects to private industry. In the hypothetical and never-known-to-happen-in-the-real-world case of *Brucellosis*-related economic sanctions;

> "Montana may, in Montana's sole discretion, implement bison management actions necessary to allow for the free marketability of livestock transported from the state" (IBMP federal ROD, 2000, 33)[27]

Here we see that despite all claims to the contrary regarding empirical science that Montana retains the right to explicitly violate it's own negotiated IBMP policy in pursuit of private livestock interests economic gain. This is a direct violation of claims of the IBMP to be empirically grounded in ecological science and wildlife biology. The IBMP compromises federal policy by allowing its own authority to be superseded by state power for no cited scientific or legal reason.

Despite the fact that APHIS has the power to require various state's to follow federal policies in order to maintain 'Brucellosis class-free status' for economic benefits, federal SA refuse to use such authority to require states to allow for free roaming wild bison in a manner consistent with other wildlife (FEIS vol 2, 2000, 42). Rather, APHIS and other federal SA use their distributed authority to pre-conditionally require policies of population control at potentially dangerous levels and lethal elimination of wild bison from public lands outside of Yellowstone National Park bison exclusion (FEIS vol 2, 2000, 43).

No statutes are cited by the IBMP to justify why federal policy in disease management and transmission prevention is superseded by economic policy decisions made by state-level bureaucrats and political appointees. Instead the IBMP uses *Shifting-Focus* to paper-over the ways in which the IBMP does not conform to its own claims. The IBMP claims that "APHIS or the other federal agencies involved in this plan are not in a position to dictate policy to state veterinarians" without any cited statutes as evidence (FEIS vol 2, 2000, 52)[26]. Such a claim seems to be a direct violation of APHIS's interstate authority "to control and prevent the spread of communicable and contagious diseases of livestock" (IBMP federal ROD, 6)[25].

The statement in response to public comments above and the memorandum from Montana state Veterinarian below (Figure 5, FEIS vol 1, 2000, 769, Appendix G) together abridge the NFS's state authority over wildlife in non-park 'forest system lands'.

> When the bison are on national forest system lands, the US. Forest Service has responsibilities under federal laws to provide habitat for the bison, a native species. (IBMP federal ROD, 6)

Since a ‘not-zero’ portion of Montana’s public lands are part of the ‘forest lands system’, it is disingenuous to claim that granting primary authority to wild bison on such lands to state livestock LEO’s is in anyway in-line with federal statutes, policy, or SA mandates nor that Montana’s ultimate and absolute authority over wild bison is not based on any federal mandate statutes cited in the IBMP. By *shifting-focus* from jurisdictional authority over wild bison into the messaging of an economic-threat, federal agencies wash their hands of responsibility and shift federal statute powers onto Montana state agencies and institutions. This *Shifting-Focus* on authority over wild bison allows SA to claim following both federal statute law and scientific principles in a manner based upon the ‘best available scientific information’ and in a way that is ‘ecologically sound’ while simultaneously signing off on a declaration by Montana's veterinarian to ignore the science in favor of anti-empirical, pathos-driven conspiracy-mongering.

While the IBMP claims repeatedly to follow the ‘ecologically sound’ ‘best science’, Montana explicitly ignores scientific evidence and instead refuses to “accept the federal government definition of low risk” stating that Montana “has the responsibility and authority to manage bison that enter a non-park area. These responsibilities are Montana’s and cannot be delegated to any other agency” (FEIS vol 2, 2000, 52)[26].

Appendix G of the FEIS vol 1, 769 (Appendix D of this document) lists a formal declaration by the Montana state veterinarian to ignore any and all empirical science, established ecological principles, and ongoing research in favor of the empowerment of livestock industry interests (and presumably their lobbyists working in the state capital of Helena, as per the state veterinarian’s letterhead) to continue to influence state policy through fear, bias, and ignorance.

This letter from Montana's state veterinarian Appendix D states that "definition proposals by federal agencies of low risk bison has not been adopted by State agencies of Montana for the following reasons" before going on to state four hypothetical situations already addressed by scientific evidence presented within the same FEIS in which Appendix G is contained. Montana's rejection of such empirical evidence is not grounded on any cited scientific or archival data, but rather upon its own "discretion to determine whether, and when, to remove untested bison" (FEIS vol 1, 2000, 769). Such discretion, as explored above, is granted to Montana by the federal SA in direct violation to the repeatedly disavowed by the federal agencies policy mandates and their Constitutionally-grounded fiduciary trust duties to federally-recognized tribal governments.

The Montana state veterinarian's letter does not ground its livestock-interest driven policy in scientific claims or historical evidence. Instead of presenting empirical or archival evidence, the Montana state veterinarian couches their argument within the logical fallacy: Appeal to the Unknown. The letter appeals to the unknown by stating no evidence for its claim of future sanctions against the state nor any empirical or archival evidence of *Brucellosis* transmission under natural, non laboratory, conditions. Instead of engaging with scientific evidence recognized and cited *within its own state record of decision*, the Montana state veterinarian's letter instead makes hypothetical, unsubstantiated, and non-empirical claims that reject the 'low-risk' status of male, seronegative, and other bison categorically incapable of disease transmission to livestock according to the heavily cited NAS 1998, as discussed above. These claims by the Montana state veterinarian's letter regarding wild bison disease transmission risk are in direct contradiction to the cited evidence nominally accepted by the SA. The four claims made in the state veterinarians memorandum had at the time of publishing already been addressed and empirically falsified with research such as Roffe et al. 1999, cited within the IBMP itself as the biological "gold-standard" (IBMP federal ROD, 2000, 54-55; FEIS vol 2, 2000, 201). In

this way, the Montana state veterinarian's letter replicates illogical, pathos-drivenLogics of Elimination, grounded in *Settler Moves to Innocence* including *agnotology*, *white possession*, and the *anguishing* of Yellowstone's wild bison, and the federal SA condone the behavior of such in their execution of the currently-constructed IBMP

Despite the lack of any empirical or archival evidence of the possibility of a bison-to-livestock disease transmission event, all SA explicitly accept and thus condone the Montana state veterinarian's letter's *Logics of Elimination* and *Settler Moves to Innocence*. This can be seen in the way that the SA accept as the top two objectives in wild bison management the total bison exclusions from public lands in Montana and dangerously low population levels of this iconic and historically threatened keystone species (found in Appendix B). Such acceptance by the SA of the rejection of ecological and biological science as foundational to the IBMP stands in the face of multiple GAO and FEIS reports to the contrary, as discussed throughout this paper. In this way, all SA to the IBMP de facto condone the State of Montana's refusal to recognize the scientific evidence.

Additionally, the IBMP claims that without lethal bison management private livestock would suffer economic consequences as "producers statewide could suffer the marketing consequences of the disease" (FEIS vol 2, 2000, 37). This *Logic of Elimination* is based upon the human construct of federal policy, not natural law or empirical evidence. APHIS has the ability to use it's authority over the assignment of *Brucellosis*-class free status for states to require bison habitat on public lands and reintroduction to the rest of its historical range as part of a deal to grant Montana "split status" protections within the SMA (FEIS vol 1, 2000, 38).

Such a requirement for restoration of bison habitat to its historical extents would be in line with NPS mandates to "manage park resources and values in a manner that will leave them unimpaired for

future generations" (IBMP federal ROD, 2000, 9-B). Instead APHIS preconditions economic protections regarding *Brucellosis*-class free status on bison exclusion from Montana with "a boundary line beyond which bison will not be tolerated" (FEIS vol 1, 2000 p 43). Such explicitly exclusionary preconditions for economic protections reveal the implicit *Logics of Elimination* which positions the public lands of Montana as *White Possessions*, rather than the natural and necessary habitat for indigenous communities of wild bison.

In light of the fact that APHIS has the power to cover one-hundred percent of the costs of Brucellosis vaccination and testing at less total expense to the public than the cost associated with total exclusion of wild bison from public lands in Montana, the argument from economic benefit falls as flat as the arguments for biological and epidemiological necessity debunked above.

CHAPTER FIVE: Conclusions

The high-mountain alpine prairies that typify much of the public lands in Montana are a recognized component of wild buffalo's historically-recorded habitat. The public and tribal comments recorded in the Environmental Impact Statement clearly show a shared position by the *Nahullo* public at-large and Indigenous communities across the region calling for the return of freely roaming wild bison herds to public lands across the Great Plains of Turtle Island. In the early twentieth-century, wild bison of Yellowstone were the first public conservation effort undertaken by the United States government and that original effort laid the groundwork for later environmental preservation legislation in the, such as the Endangered Species Act.

The descendants of the wild bison that survived the horrific nineteenth-century *Nahullo* extermination event are today the iconic and prototypical example by which preservationists, conservationists, and rangeland professionals in the United States can show that settler-capitalists are capable of combining resources to bring a species back from the brink of extinction where they had been driven by the purposeful and genocidal war-crimes of the selfsame settler-government perpetrated during its invasion and continued occupations of hundreds of Indigenous nations. Today's wild bison in Yellowstone deserve to be listed under the Endangered Species Act, rather than the continued actions by the settler-capitalist governments who use *Shifting-Focus* to misconstrue the total number of wild bison by obfuscating with populations of domestic bison ranched as livestock.

While bison are an iconic park of United States history, their presentation in contemporary government and scholarly documents is usually one of being *historicified* to the past, in a manner not dissimilar to the treatment of Indigenous nations, communities, and jurisdictions when it comes to wild bison management. In doing so, the modern plight of genetically pure, free-ranging wild bison is

obfuscated in favor of a feel-good story of successful environmentalism and a model for further top-down, government-driven species reintroduction. Despite the public and tribal calls to follow legal statutes and agency mandates calling for the restoration of bison to the entirety of their historical range, the IBMP insists upon dangerously-low population caps and total exclusion of wild bison from public lands as preconditions to their wildlife and rangeland management goals.

The IBMP *anguishes* the risk of disease transmission onto wild bison, when in fact it is the actions of settler-states allowing pregnant and often seropositive elk in winter feedlots for livestock that presents the largest ongoing threat of disease transmission risk in the GYE. In spite of the strong and reoccurring evidence for elk to livestock transmissions over the years before and since it's institution in 2000, the IBMP bases its lethal and exclusionary wild bison management policy upon the unquantifiable claim of a 'not-zero' risk, even from biologically low-risk bison physically incapable of disease transmission. Likewise, the total spatial segregation of wild bison from livestock happens only during the summer season when bison are at the biologically-known lowest risk of disease transmission and the entirety of the wild bison herds are classified as low-risk (IE biologically incapable of disease transmission) and identified as such in epidemiological research cited by the IBMP itself.

This thesis engages with textual analysis of public policy documents concerning Yellowstone's wild bison management policy in order to shed light on the efficacy and ideological grounding of the Interagency Buffalo Management Plan (IBMP). The IBMP fallaciously asserts positions that are in direct contradiction to the evidentiary findings of empirical research cited by the IBMP to establish the claimed necessity of lethal wild bison management put forward in the public policy documents analyzed here.

My critical analysis of IBMP documents found firstly that the IBMP compromises scientific integrity to economically benefit private livestock industry interests. Secondly, my analysis found that the IBMP pre-conditionally requires the elimination of living bison and the exclusion of migratory bison herds from public lands in favor of private cattle interests. Thirdly, my analysis found that the IBMP asserts no less than five empirically-falsifiable positions regarding the supposed need for and biological efficacy of wild bison exclusion from public lands of the greater Yellowstone Ecosystem. Lastly, my analysis found that the supposed biological and ecological risks of disease transmission from wild bison to livestock posited by the IBMP as reasons for lethal bison management stems from socially produced conflicts and are in fact not a matter of biological necessity.

In order to explore the ways in which modern wild bison management policy replicates and reproduces nineteenth-century settler-capitalist land ontologies within a contemporary legal and ideological framework, this study investigated the roles played by state and private actors in producing the lethal public policy that *anguishes* wild bison as potential vectors of disease transmission to livestock in contradiction to all scientific and historical evidence to the contrary. This study brings together the diverse fields of historical geography, society and the environment, activist geography, prairie ecology, rangeland management, and Indigenous TEK with the goal of contextualizing modern bison management policy within the greater settler-colonial epistemologies and ontologies of animal rights, land rights, public land-use policy, and capitalistic profit-seeking. This project analyzed settler-colonial and capitalist land ontologies, motivations, and practices of state/private interests participating in the crafting of state and federal wildlife management policy using the decolonial lenses of the Logics of Elimination, *Shifting-Focus*, *White Possessive(ion) theory*, and *Settler Moves to Innocence* in the analysis. An elucidation of the manner in which institutional relationships underpins the establishment of the Interagency Bison Management Plan (IBMP) illustrates capital-focused settler-colonial land ontologies central to the current, lethal wild bison management. This study explores the driving forces

of the Logics of Elimination, *Shifting-Focus*, *White Possessive(ion) theory*, and *Settler Moves to Innocence* on the IBMP as well as the *agnotology* to the benefits of wild bison herds for ecological balance across the Great Plains and *erasure* of Indigenous voices of protest against the lethal management of wild bison herds.

My findings regarding the ways in which modern natural science and rangeland management research align empirically with methodologies of Indigenous TEK and the mitigation of human impact on the surrounding habitat support the conclusion that Indigenous ontologies and epistemologies form a parallel understanding of ecosystems balance to that of modern natural scientists. Historical land ontologies, motivations, and landscape management practices of Plains and Woodlands nations, far from leaving an undisturbed wilderness for Euro-American settlers to 'discover', in fact produced and reproduced a a large-scale, decentralized, and complexly integrated landscape of diverse plant and animal biomass without the use of petrochemicals, corporate shareholders, or private property ontologies. By engaging with this literature, this study has shed light on the continuity of Indigenous ecological practices that are directly linked with the future sustainability of the bison population in the Yellowstone region.

The IBMP takes an unscientific position with the support of precisely zero evidence of recorded transmission events nor modern empirically-quantifiable biological risk of wild bison-to-livestock transmission event under any but human-induced, laboratory conditions, while ignoring the recorded risk of the same posed by wild elk. For these reasons this study concludes that the continued containment of wild bison to Yellowstone National park, instead of allowing them to freely roam like other wildlife across the entirety of their recorded historical range is unscientific, unethical, and based fundamentally upon fallacious claims.

Additionally, this project finds that the IBMP does not serve the economic interests of either the state of Montana, nor the federal government and citizenry. Millions of dollars have been spent on the IBMP budget per year for over two decades. In this time there have been multiple *Brucellosis* outbreaks in the GYE, none of which have been traced back to wild bison, with some creditably supporting the claim of elk herds as the vector of transmission. The high cost for lethal bison management that does nothing to address existing, ongoing, and well- recorded elk-to-livestock disease transmissions is a terrible investment for the federal government. This terrible investment becomes all the more obvious given the low cost of several thousand dollar price tag associated with APHIS requiring and subsidizing vaccination of livestock in and around the Special Management Areas (SMA). Since such a vaccination program is already fully funded within the IMBP decision, any additional gaps in funding for livestock industry that currently exist in the document could be easily filled administratively, with no need for physical hazing and slaughter of wild bison. A fully-subsidized livestock vaccination program, although slightly more expensive than the subsidies in the current IBMP, would come significantly cheaper overall in the form of direct subsidies to livestock growers like those which currently exist in the IBMP, rather than the millions of dollars wasted yearly in applying a physically exclusionary policy.

This project concludes that the goal of settler-capitalist interference in wild bison migration and the wholesale exclusion of wild bison herds from virtually the totality of the native prairie habitat they formerly inhabited show a strong tradition of settler-capitalist epistemologies and ontologies of land, property, and wildlife that are in contradiction to and conflict with modern biological understandings of wildlife ecology and holistic rangeland management in line with empirical research cites here. This project shows that far from fulfilling statute law, agency mandates, international treaties, and Acts of Congress, modern wild bison management policy uses the reproduction of biological ignorance and

economic fears based not on empirical evidence, rather only on hypothetical claims supported by logical fallacies and misrepresentations of scientific research.

While this study contributes to the field of geography and environmental history in the reinforcement of decolonial issues and epistemologies, I am aware of the importance of carrying out fieldwork and conducting in-depth interviews to validate the points I have highlighted above. Interviews with wild bison advocates and review of their three-decades worth of press statements and weekly newsletter updates will augment the significance of my findings and the analyses I have detailed in the chapters of this thesis. It is my goal to incorporate these bison advocate voices in future research rooted in my ongoing collaborative relationship and conversations with the communities associated with the Yellowstone bison management agendas. It is my sincere hope that–by bringing decolonial perspectives into conversation with historical and activist geographies, and engaging with the decolonial theories in a specific case study—this project serves as a hope and inspiration for future generations of First Nations and Indigenous scholars who wish to play an active role in establishing public policies that are relevant to their own communities' well-being and cultural resilience, the survival and empowerment of Buffalo Nation, and the autonomy and sovereignty of both across Turtle Island.

This study laid a foundation for a future research that will elaborate on how environmental groups, Indigenous communities, and local residents have come to speak out for a change in management policy in response to the state and federal actor's lethal management practices. Some of the key future questions are:

- What are the ideological and material ties between environmentalist groups and Indigenous communities and/or tribal members and organizations?

- What are the elements and actors behind and within the wild bison advocacy movement
- In what ways do environmentalist organizations relate to and with Indigenous tribes engaging in political and legal challenges to state and federal policy in recent decades in a bid for more control over resource management within their traditional territories?

In addition to exploring these questions, by juxtaposing modern policy choices and historical management policies, my future agenda includes an investigation of how settler ontologies concerning land and animals have carried through the period of European colonization of Turtle Island, even in the face of modern science's recognition of the holistic relationships in ecology and environmental relationships.

Further, these settler ontologies continue to inform and motivate the institutional relationships between private agricultural interests and public agencies underpinning the establishment of the IBMP and how its ongoing bison management policies continues to illustrate the dominance of capitalist-colonial land ontologies over scientifically-driven ecological management as well as over the various public and cultural interests of tribal stakeholders, environmental activists, and small property owners in the region. I also recognize the importance of analyzing the differing opinions of public agencies and in what ways governmental actor’s differing departmental mandates affected the ontological differences of their management policy preferences in IBMP planning. This public record will also provide information on the institutional relationships underlying the nineteenth-century settler land ontologies that prioritizes private livestock corporation’s economic interests over the cultural interests of tribal stakeholders, as well as over the ecological interests of public lands and the bison themselves, as advocated for by environmental activists.

As I finalize this thesis, clouds of smoke fill upstate New York where I attend university. From the Canadian border as far south as the city, the air quality index here has been in the triple digits all week as smoke drifts south from wildfires currently raging across Quebec. The smokey haze creates a perpetual twilight and there is a rumored uptick of car collisions with deer as the corpuscular animals flee in panic from the smoke, only to find the sooty smell increasing no matter in which direction they turn. From out west, stories filter through telling heart-breaking tales of elders and families leaving everything behind in the evacuations of First Nations communities in Alberta and British Columbia, fleeing from the ravages of wildfires there as well. As my neighbors speak of the impersonal violence of the natural world, it is not lost to me that the Indigenous use of TEK such as prescribed burns prevented this very problem for thousands of years prior to the genocidal settler-colonization of Turtle Island.

Settler-colonization requires the elimination of native society to make room for the settler's exogenic culture. The goal of *historicifying* native people's communities, and culture is to remove us from the present to legitimize the continued occupation and capitalistic exploitation of the historically-documented and legally-recognized territorial lands and natural resources of extant Indigenous nations. In doing so, settler-colonization doesn't just steal cultural relationships with wildlife and material property in the form of minerals, water, and timber, from Indigenous peoples and communities. *Historicification* robs Indigenous communities and nations of the recognition and respect for our scientific knowledges, representative governmental structures, agricultural, medicinal, and technological developments. From genetic engineering and symbiotic ecology to aspirin, antibiotics and brain surgery; and from circuit boards to semiconductors, Indigenous scientists working in collaboration with their own communities anciently held TEK have contributed the intellectual and material components used to build the modern world that pseudo-conservatives and reactionary

political militias ignorantly ascribe to ‘western-chauvinism’. Additionally, by discursively removing us from the present and assigning our cultures and languages to the past, settler-colonial *historicification* seeks to steal the future from Indigenous communities as well.

There is a growing body of Indigenous scholarship and literature that both inspired and grounds this thesis. Taking back our voices by ‘writing back to empire’ is the first step in regaining control over knowledge production regarding our own Indigenous culture and history. In doing so, Indigenous scholars and authors reclaim the present for Indigenous communities and future generations. In literature, much of the Indigenous-futurism genre has its roots in the Black-futurism genre, in a corollary to the way in which much of decolonial theory is grounded in African postcolonial intellectuals, such as Fanon. Likewise, the modern legal recognition of many Indigenous nations by the United States federal government (including Chickasaw nation) stems from lawsuits grounded upon the Civil Rights Act of 1964. Tribal recognition was paid for in large-part with the blood, energy, and lives of tens of thousands of Black civil rights activists that most Indigenous citizens will never know the names of. The Chickasaw Nation today continues to reside in exile in Oklahoma because Indigenous sovereignty was for centuries a threat to the barbarous and unconscionable institution of chattel-slavery. To this very day, the deep ties between Indigenous and Black communities of Turtle Island continue to shape the destinies of us all.

Indigenous scholars must recognize the contributions of Black Americans and Black Indigenous citizens to the history and culture of Indigenous communities across Turtle Island. I cannot speak for any other Oklahoma tribes, but I call on Chickasaw Nation not to tarry in fulfilling our promised obligations to the Chickasaw Freedmen. We should not stall on fulfilling own own ontologies and epistemologies regarding our own citizens, nor should we wait until the settler-colonial structures themselves support an anti-racist position that Indigenous communities first pioneered. If we are to

grow in sovereignty and cultural resilience, we must do so by including all of our community members as equals, not dividing along the lines of settler-colonial structures such as ‘blood-quantum’ and ‘one-drop’ rules. Through recognition of Black citizens of settler-colonial nations as autochthonic communities in their own right, scholars can push back on the racialization of Indigeneity by settler legal structures while also engaging more deeply with our extensively shared histories.

Developing multi-linguistic Indigenous pedagogy is integral to the education of our communities and future generations. While many Indigenous languages of Turtle Island–including Chickasaw–are in danger of extinction, the mosaic of languages across the continent is complexly nuanced. There are many dialects of larger languages families and the family of *Imoklasha* that includes Chickasaw is shared by Indigenous nations as far away from the our Memphis homelands as Oregon, as well as being closely related to the languages of the Maya people of Mesoamerica. Indigenous language education must not be limited within our individual tribes. We must teach and learn each other's native languages, including hand-talk.

Just as the wild bison seek to roam widely, an Indigenous future cannot be bound by settler-colonial defined borders. We must engage with our brothers and sisters across Turtle Island, from the icy shores of Nunavut to the steamy jungles of Chiapas. There is strength in cooperation and Indigenous nations must draw on our long history of political alliances across cultural and linguistic barriers. Sovereignty cannot be limited to rural isolation. In honor of the hard-fought gains that all peoples of Turtle Island owe to the Black community, I end with quotes from three famous Black activists who have inspired me over the years, two of whom paid the ultimate price in the struggle for universal rights and freedom.

* * *

“Armed with the knowledge of our past, we can with confidence charter a course for our future. Culture is an indispensable weapon in the freedom struggle. We must take hold of it and forge the future with the past.”

Malcolm X

* * *

"True peace is not merely the absence of tension; it is the presence of justice."

Martin Luther King Jr.

* * *

“If you hear the dogs, keep going. If you see the torches in the woods, keep going. If there's shouting after you, keep going. Don't ever stop. Keep going. If you want a taste of freedom, keep going.” Harriet Tubman

Endnotes

1) Page 78: Fourth Geneva Convention: Article 49 - Deportations, transfers, evacuations

Individual or mass forcible transfers, as well as deportations of protected persons from occupied territory to the territory of the Occupying Power or to that of any other country, occupied or not, are prohibited, regardless of their motive.

Nevertheless, the Occupying Power may undertake total or partial evacuation of a given area if the security of the population or imperative military reasons so demand. Such evacuations may not involve the displacement of protected persons outside the bounds of the occupied territory except when for material reasons it is impossible to avoid such displacement. Persons thus evacuated shall be transferred back to their homes as soon as hostilities in the area in question have ceased.

The Occupying Power undertaking such transfers or evacuations shall ensure, to the greatest practicable extent, that proper accommodation is provided to receive the protected persons, that the removals are effected in satisfactory conditions of hygiene, health, safety and nutrition, and that members of the same family are not separated.

The Protecting Power shall be informed of any transfers and evacuations as soon as they have taken place.

The Occupying Power shall not detain protected persons in an area particularly exposed to the dangers of war unless the security of the population or imperative military reasons so demand.

The Occupying Power shall not deport or transfer parts of its own civilian population into the territory it occupies.

2) Page: 84-85, 88, 110: IBMP federal ROD, 2000, page. 8

"The management actions we adopt here comply with the requirements of federal law, including those statutes listed above. They are based on the best available scientific information and are ecologically sound. They will provide for the conservation of bison in Yellowstone National Park and provide protection for the economic interest and viability of the livestock industry in the State of Montana. Moreover, they include a commitment by the federal and state agencies to work together on meeting these objectives."

(IBMP federal ROD, 2000, p. 8)

3) Page 112: IBMP federal ROD, 2000, page. 62

"The efficacy (preventing infection) of Strain 19 vaccine in cattle has been estimated at approximately 65% (Davis et al. 1991), and about 9% in bison calves (Davis et al. 1989). Twenty-five percent of bison vaccinated as calves were protected from having abortions when injected with a challenge dose of

Brucella bacteria (Davis et al. 1989). Based on the ability of the vaccine to protect adults from infection and from having abortions, efficacy values used in the model were 70% and 25%, respectively."
(IBMP federal ROD, 2000, 62)

4) Page 112, 154: FEIS vol 1, 2000, page. 456

"Including veterinary and handling expenses, it was estimated that vaccination costs for producers would total about $5 to $10 per female calf (with APHIS paying for the ear tags). With about 2,019 cow-calf pairs of cattle grazing to the north and west of Yellowstone National Park (herds located within SMA boundaries for the largest analysis area; see Alternative 2 map), yearly vaccination costs for these producers was estimated to total between $5,050 and $10,100.1 Presumably, without the perceived threat posed by Yellowstone bison, rates of vaccination in the study area would more nearly match the current statewide rate of about 60%. Therefore, an additional annual cost of about $2,020 to $4,040 (or the 100%–60% = 40% of vaccination costs) would be borne by affected producers. Brucellosis testing of Idaho herds grazed in the West Yellowstone area was estimated to cost between $7.50 and $15 per head per test, including veterinary charges. This amount is more than the cost of vaccination because vaccinations usually take place after the calves have already been gathered for weaning or other purposes. The rate at which cattle could be tested and the risk of an animal becoming crippled or otherwise injured in the process would depend largely on the handling facilities available. Costs of brucellosis testing twice yearly near Yellowstone National Park was estimated to total between $15,528 and $34,938.2 Since this testing requirement was not made of"
(FEIS vol 1, 2000, 456).

5) Page 117, 158: FEIS vol 2, 2000, page. 55

"Comment: Continue studies on bison that test positive for brucellosis, because not all positive-testing bison are carrying the disease in an active and contagious form.
Response: A study is underway on the epidemiology and pathogenesis of brucellosis in Yellowstone bison. See "Bison: Brucellosis Transmission and Public Perception" and "Brucellosis Testing" for more information. However, although seropositive bison may not be actively contagious at a particular time, seropositive pregnant female bison have the potential of becoming infectious usually just before or after a birth or abortion event. Representative Comment: 14947B"
(FEIS vol 2, 2000, page. 55).

6) Page 119: 8 Impacts on the Bison Population IBMP federal Rod, 2000, page. 39

Although all alternatives evaluated in the FEIS assessed the impacts of lethal management to the bison population, the Joint Management Plan is very similar to the Modified Preferred Alternative in that it includes non-lethal management, tolerance of bison on some public lands adjacent to the park, and hazing as methods to manage the distribution of bison and management and reduction of the risk of brucellosis transmission from bison to cattle. The Joint Management Plan calls for the vaccination with

a safe and effective vaccine of vaccination eligible bison using a safe and effective delivery system according to established criteria and protocols. The vaccination program will reduce seroprevalence of brucellosis in the bison population throughout the life of the plan, which is a major positive benefit. The Joint Management Plan will maintain a wild, free-ranging bison population that is 1% to 15% greater than under the no-action alternative, allowing the bison population to approximate the long-term ecological potential within the park. The cumulative effects from other actions affecting the bison population are negligible (FEIS, vol. 1 pp 389-390). There are no identified irreversible or irretrievable commitments of resources and no loss in long-term availability or productivity of the bison population to achieve short-term gain."
(IBMP federal Rod, 2000, 39)

7) Page 120, 150: **FEIS vol 1, 2000, page. xxiii**

"The agencies would maintain the spatial and temporal separation by monitoring both boundary areas 7 days a week. As bison move further from the park, management would become more intensive. Agency personnel would haze all bison outside the park in these areas back into the park in the spring, approximately 45 days before cattle return to these same lands. As an additional risk management measure, the agencies would maintain a population target for the whole herd of 3,000 bison. This is the number above which the NAS (1998) report indicates bison are most likely to respond to heavy snow or ice by attempting to migrate to the lower elevation lands outside the park in the western and northern boundary areas. The agencies would remove to quarantine, seronegative bison attempting to leave the park and not amenable to hazing when either the population exceeds 3,000 or tolerance levels outside the park have been met or exceeded. If the quarantine facility were full or otherwise unavailable, the agencies would send the bison to slaughter. If the bison population is low, the National Park Service would hold bison, up to the capacity of the Stephens Creek capture facility, until weather moderates or until spring green-up begins. The NPS then would release the bison back into the park."
(FEIS vol 1, 2000, xxiii)

8) Page 112: **Rezendes, 1997, page. 10**

"Critics familiar with the principles of commercial range management for the production of livestock believe that the number of grazing animals in Yellowstone should be reduced to balance the available forage. They cite a 1963 survey of Yellowstone's northern range conducted by what was then the U.S. Department of Agriculture's Soil Conservation Service. This survey concluded that the range could support no more than 5,000 elk and 350 bison. According to the survey, populations of bison and elk in excess of these numbers would cause severe damage to the range and riparian areas. However, park officials said that the 1963 survey used commercial standards for domestic livestock to assess the park's carrying capacity. According to park officials, they and other leading wildland ecologists believe these standards should not be applied to wildlife."
(Rezendes, 1997, p. 10)

9) Page 123: FEIS vol 1, 2000, page. 388

"Bison movements on the northern range are highly variable. They are not correlated with population size, but appear to be influenced by extremely severe winter weather, particularly deeper than normal snow combined with saturated and frozen snow conditions or ice layers. These conditions occurred in the winters of 1988–89, 1991–92, and 1996–97 and correspond to years of very high removals of bison when most of the northern herd moved to lower elevations and exited the park. Consequently, at current population levels, movements on the northern range appear to be highly influenced by extreme winter weather events, which sometimes result in episodic movements of most bison to lower elevations of the northern winter range."
(FEIS vol 1, 2000, 388).

10) Page 125, 132, 134, 144, 149: IBMP federal ROD, 2000, page. 4

"Lands adjacent to Yellowstone National Park include national forest system lands where cattle graze under federal permits and private lands where cattle use also occurs. When bison occasionally migrate from the park, usually in the winter, the risk of transmission of brucellosis from bison to cattle increases. Without agency actions to minimize the risk, transmission could occur."
(IBMP federal ROD, 2000, 4)

11) Page 123-124, FEIS vol 1, 2000, xi

"It is possible that, although brucellosis may be endemic in the Yellowstone area bison herd, few of the animals are capable of transmitting the disease. This suggestion is supported by noting the discrepancy between the number of bison that test seropositive for brucellosis but culture tissue negative (Roffe et al. 1999). This discrepancy and the infrequency of observed abortions in the Yellowstone bison herd (usually required for transmission of the disease between cattle) has led to the theory that the primary route of transmission among cattle (abortions and birthing events) may be different from that among bison. In bison, the bacteria may be transmitted through milk (Meyer and Meagher 1995a)."
(FEIS vol 1, 2000, xi)

12) Page: 125 FEIS vol 2, 2000, page. 201

"C Comment: Roffe et al. (1999) provided evidence that although brucellosis may be endemic to Yellowstone bison, few animals may actually be capable of transmitting the disease. These authors note the discrepancy between the number of bison that test seropositive for brucellosis but culture tissue negative, suggesting that bison transmit the disease only through infected milk and are therefore no threat to other species, including cattle.

Response: Preliminary results by Roffe et al. (1999) indicate that 46% of the seropositive bison samples in a study of pregnant female bison were also culture positive. This study is considered the "gold standard," that is, many types of tissues were cultured, and the group most likely to have high numbers of bacteria (and therefore offer the greatest chance of finding and culturing them) was used for study. In contrast, examination of 17 bulls testing seropositive revealed only two culture-positive animals (Yellowstone National Park, unpublished). The Draft Environmental Impact Statement (p. 20) notes that some researchers believe the primary route of transmitting antibodies and/or bacteria in the Yellowstone bison herd may be through mother's milk. However, Roffe et al. (1999) found bison mammary glands less likely to be culture positive than cattle mammary glands. There was only one positive culture from milk of Yellowstone and none from mammary glands, suggesting this is not an important route of transmission. Representative Comment: 2669B, 4558A"
(FEIS v2, p. 201)

13) Page 127, 128, 134 FEIS vol 2, 2000, page. 189

"H Comment: Since transmission has not been documented, statements in the Draft Environmental Impact Statement such as risk of disease transmission, threat of brucellosis, or probability of transmitting it to cattle outside the park should be watered down in the final environmental impact statement.

Response: As noted in the Draft Environmental Impact Statement (p. 19), there is considerable disagreement regarding the risk of B. abortus transmission from bison to livestock. In "Alternative Interpretation of Risk" (DEIS, p. 20), some of these disagreements are explained. However, no conclusions on the degree of risk are included in the Draft Environmental Impact Statement. Since the time the draft document was released, a team of scientists contracted by the National Academy of Sciences released a final summary report of available information on brucellosis in bison and the risk of its transmission to cattle (NAS 1998). Many of the unknowns that the Draft Environmental Impact'"'Statement references are also reported in the NAS study. It noted, for instance, that almost no controlled research has been conducted on the mode of transmission or the probability of transmission among free ranging wildlife and cattle (NAS p. 16). It has also helped to elucidate some aspects of risk. For instance, the report states that only bison with reproductive tract infections present a risk (NAS p. 19), that the presence of the bacteria in bison semen and urine has not been adequately documented (NAS p. 25), and that the risk of transmission by bull bison appears to be "vanishingly small" (NAS p. 27). The NAS report also states that the epidemiological evidence of transmission between wildlife (presumably elk) and cattle in the Jackson Hole area (which some have cited as evidence that transmission in the wild has occurred) was "ambiguous," "circumstantial," and "not intended to meet the rigorous standards imposed by scientific research" (NAS p. 45). The report concludes that the risk of transmission from bison to cattle is very low, but because brucellosis has been transferred from bison to cattle under experimental conditions, the risk is not zero (NAS pp. 43, 80). Also, see the response to 2A above. Representative Comment: 581E"
(FEIS vol 2, 2000, 189).

14) Page 128 **FEIS vol 2, 2000, page. 396**

"[D]ue to the lack of clear evidence, "wildlife cannot be determined to be the source of brucellosis infection in these six cases" (NAS 1998). One case of confirmed brucellosis was reported in a horse that had contact with elk on a winter feeding ground in Wyoming"
(FEIS vol 2, 2000, 396).

15) Page 130, 131, 132 **FEIS vol 2, 2000, page. 54-55**

"Comment: Bison with nonreproductive tract infection do not generally pose a risk of transmission to elk or cattle. The environmental impact statement should acknowledge these low risks and accommodate bull bison outside the park.
Response: An informational report, Risk of Transmission of Brucellosis from Infected Bull Bison to Cattle, was prepared by the Greater Yellowstone Interagency Brucellosis Committee (GYIBC). It notes that none of the studies on brucellosis transmission from bovine bulls reported transmission from infected bulls to cows during normal coitus. The report also cites a study concluding that shedding in the semen of bison is extremely rare. The report itself concludes that due to limited data documenting the presence of B. abortus in bison semen, "the risk of transmission from bull bison, though logically small, cannot be entirely eliminated on existing information." The National Academy of Sciences report also notes the risk of transmission from bulls to cattle appears to be "vanishingly small" (NAS 1998). Although these reports conclude the risk of transmission is small even from direct contact between bison bulls and cattle, all alternatives call for the spatial and/or temporal separation of bison and cattle. Because bull bison, calves, or postparturient female bison (with newborn calves and who have passed all membranes) do not present a significant risk of transferring brucellosis to livestock through environmental contamination, the federal agencies agree that if they cannot be captured and tested, they fall into the low risk category and should be allowed out of the park under certain conditions stated in the alternatives (see volume 1, appendix G). The state of Montana disagrees and has presented the rationale for their disagreement in the environmental impact statement (see volume 1, appendix G). Representative Comment: 15420ZZ"
(FEIS vol 2, 2000, 54-55)

16) Page 132

"Much Apu About Nothing" is the twenty-third episode of the seventh season of the American animated television series The Simpsons. It originally aired on the Fox network in the United States on May 5, 1996.

17) Page: 134, 137 **FEIS vol 2, 2000, page. 54**

"Comment: Low-risk bison should be allowed free movement like elk and other wildlife.

Response: The agencies are committed to managing bison as other wildlife are managed, recognizing that, unlike other wildlife, a major component of managing Yellowstone bison is related to the risk of disease transmission to cattle. Although elk also pose some risk of transmitting brucellosis, the low seroprevalence rate in northern Greater Yellowstone Area elk herds suggests the risk is lower than from bison. Therefore, elk in the Montana portion of the Greater Yellowstone Area are not considered to present enough of a risk of transmission to warrant management actions like those proposed for bison, and are allowed free movement (see "Wildlife: Brucellosis in Other Wild Ungulates" p395 in this volume for more information). Representative Comment: 10475AE."
(FEIS vol 2, 2000, 54)

18) Page: 141, 144, 157 NAS, 1998, page. 77

"Presumably, reduction of density on the feeding grounds would reduce the likelihood that elk would come into contact with infective products of abortion due to brucellosis and would reduce the rate of transmission of B. abortus. Whether those measures will be sufficient to reduce the incidence of brucellosis in elk remains to be seen. It seems likely that if females abort away from the feeding grounds, the rate of transmission will be reduced, leading to a reduction in the overall herd infection rate. Nevertheless, it will be difficult to reduce elk density on the feeding grounds enough to prevent transmission from abortions and avoid maintaining a problematic level of infection."
(NAS, 1998, 77)

19) Page: 145 D. Monitoring IBMP federal Rod, 2000, page. 42

"By its nature, a plan using adaptive management requires monitoring and adjustments as new information is obtained. The provisions of the Joint Management Plan identify the factors that the agencies will monitor to determine if the agencies are separating bison and cattle successfully, and, thus, lowering the risk of transmission of brucellosis. The Joint Management Plan does not, however, identify how the agencies will measure success or failure. Set out above is our requirement that the agencies meet twice annually to evaluate the operations of the prior winter and determine if modifications are necessary. This also is the appropriate time for the agencies to determine if the management efforts were successful and, thus, allowing the agencies to either move forward to the next step or, if at Step 3, continue at that step. We agree that the agencies will undertake in good faith to resolve all disputes reasonable at the local management level, elevating them only if there is an impasse. The agencies will use the best available scientific information to assist them in resolving such disputes."
(IBMP federal Rod, 2000, 42)

20) Page 150 IMBP federal ROD, 2000, page. 62

However, because the models are based on average migration, capture, and slaughter rates, the actual numbers might not be accurate in the short term. Realistically, bison migrations (and therefore capture,

slaughter, and decreased seroprevalence rates) follow stochastic events, such as weather changes and forage production in a given year. Since the seroprevalence estimate in any alternative for a particular year might or might not be realistic, alternatives cannot be accurately tested for statistical differences." (IMBP federal ROD, 2000, p. 62)

21) Page 151 **IMBP federal ROD, 2000, page. 13**

"Step Three would allow bison to leave the park and enter management zones without the agencies first testing them. The agencies, therefore, would allow untested bison up to a tolerance level of 100 in both the northern and western boundary areas to freely range in both the western and northern boundary areas, and manage them as described above."
(IMBP, 2000, 13)

22) Page 155: Topic: Actions on Private Land **IBMP federal ROD, 2000, page. 55-B**

"Commentors indicated private landowners should be compensated to take care of bison, rather than run cattle, or to run non-breeding cattle. Private land could be fenced with money from the government. Livestock operators on private land could receive special labels for their meat as "bison safe" if they take active measures to allow bison on their lands during the winter. Others noted the pattern of land use, domestic grazing and political realities would change in the 15 years of the plan. One commentor indicated agencies must keep bison off private land unless they have specific permission to remain, while other indicated bison should be left alone on private land unless the landowner requests they be removed.

Response: The idea of compensating private landowners to run non-breeding cattle is examined in alternative 2 in the EIS. The intent of the final plan is to provide tolerance for some bison on public land during winter. Bison would not be allowed on private land where cattle graze and current Montana law provides several options for removing bison from private land if the landowner chooses. Although the idea of "bison safe" beef is intriguing, most livestock operations in the analysis area are cow-calf or breeding cattle operations. For breeding cattle operations, APHIS has agreed to provide funding to certify eligible cattle herds within the bison management area as brucellosis-free. The agencies are aware that patterns of land use may change over 15 years and if there are significant ramifications for bison management because of these changes, the plan may need to be updated as well. The actions Montana DOL can and must take on private land are described on page 91 of volume I of the FEIS. Generally, Montana would seek landowner permission to shoot or otherwise remove bison from private land."
(IBMP federal ROD, 2000, 55-B)

23) Page 158 **JMP state ROD, 2000, page. 11**

"These actions will ensure that sufficient time (initially approximately 45 days or less depending on research results) passes so that the B. abortus bacteria are unlikely to have survived when cattle return

to graze in the summer. Research in Wyoming on B. abortus Strain RB51 bacteria (used as a surrogate for field strain Brucella abortus in the research) and data on field strain B. abortus in Yellowstone National Park indicate the bacteria are highly unlikely to survive after an approximate 45-day period (or less depending on research results) due to heat, ultraviolet light, and a number of other factors. The release of untested bison outside the park (i.e., Step Three) in the Joint Management Plan, however, relies on research sufficient to allow the agencies to determine an adequate temporal separation period."
(JMP state ROD, 2000, 11)

24) Page 162 **IBMP federal ROD, 2000, page. 58**

"Topic: Consultation during the Planning Process Commentators (13) expressed concern that government to government consultation never occurred during the planning process, and/or that the agencies never requested members from federally recognized tribes to be part of the team. One commenter indicated the federal commitment to fulfill the trust doctrine far outweighs that to the farm or ranching community or the State of Montana. A large majority (1,725) indicated an interagency/tribal/public advisory board of wildlife professionals or independent scientists should be established to help review results of research and assist in decision-making on issues such as the size of the population, haze-back dates, and tolerance levels.
Response: As indicated in the FEIS (see vol. 2, pages 233-236), the NPS does not consider bison a trust resource to manage for one or more tribes' benefits. Rather, they are a natural resource of the park, managed for the benefit of all citizens of the United States. It is the position of the agencies that government to government consultation has occurred, as indicated in appendix I (volume 1) of the EIS. The agencies do not feel the planning or management process would particularly benefit from a citizens' advisory group, as indicated on 233 [sic][236] of volume 2 of the FEIS."
(IBMP federal ROD, 2000, 58)

25) Page 165-6, 168, 170: **IBMP federal ROD, 2000, page. 6**

"When bison leave Yellowstone National Park and enter Montana, the management responsibilities and authorities change. Within the boundaries of Yellowstone National Park, the Secretary of the Interior has exclusive jurisdiction to manage the park's natural resources, including the bison. Outside the park the State of Montana has the management authority over the bison. When the bison are on national forest system lands, the U.S. Forest Service has responsibilities under federal laws to provide habitat for the bison, a native species. Federal law requires APHIS to control and prevent the spread of communicable and contagious diseases of livestock. Because of these mandates, the agencies recognize that a coordinated, cooperative management regime would provide consistency and reliability to the process. Even so, the agencies recognized that their diverse mandates would fuel public discourse and criticism of agency action. By necessity, due to limited authorities, each agency had to reconcile their

goals, such as providing for a free-ranging bison herd, with other goals such as reducing the risk of transmission of brucellosis from bison to cattle."
(IBMP federal ROD, 2000, 6)

26) Page 168, 170, 171: FEIS vol 2, 2000, page. 52

Comment: Montana and other states should accept the federal government definition of low risk.
Response: APHIS or the other federal agencies involved in this plan are not in a position to dictate policy to state veterinarians. The agencies have asked Montana to accept the federal low-risk definition. However, state officials have indicated that "Montana has responsibilities to state laws and regulations and for the economic health of the state. It also has the responsibility and authority to manage bison that enter nonpark areas of Montana. These responsibilities are Montana's and cannot be delegated to any other agency." APHIS has stated that, should Montana accept the definition and should a state contemplate import sanctions against Montana cattle because of that acceptance, APHIS would attempt to convince the state that such sanctions are not supported by accepted science and would not be needed to protect their livestock. No state has additional import restrictions on Montana cattle at this time, and Montana has managed the risk of brucellosis transmission by maintaining separation of bison and cattle. Representative Comment: 14432E, 7615A"
(FEIS vol 2, 2000, 52)

27) Page 169: 33. Animal Health Authority Sanctions IBMP federal ROD, 2000, page. 33

"In the event other jurisdictions impose sanctions on livestock from Montana as a result of the implementation of this plan the following will occur:

a. Montana in conjunction with APHIS will consult with animal health authorities of those jurisdictions and seek removal of any sanctions;

b. If those jurisdictions refuse to remove the sanctions imposed on the movement of livestock, Montana may, in Montana's sole discretion, implement bison management actions necessary to allow for the free marketability of livestock transported from the state;

c. The federal agencies retain the discretion to cease endorsing and participating in activities leading to lethal control measures or other joint actions outside the Park should Montana exercise its rights under paragraph 33.b.
(IBMP federal ROD, 2000, 33)

28) Page 170, 201: IBMP federal ROD, 2000, 54-55

"The plan would attempt to minimize capture, test, and slaughter within the constraints imposed by agency mandates by moving toward Step 3, where untested bison are able to exit the park up to the tolerance levels in each management area. Whenever the agencies need to haze, capture or otherwise handle bison, humane methods will be used as described in the FEIS (see vol. 1, pages 88-89 and vol. 2, pages 70-77). As indicated in volume II of the FEIS (p. 45), bison who test seropositive are not

likely to be those with natural immunity to brucellosis, so selective removal will not reduce the segment of naturally immune animals in the population. Although a single blood test cannot definitively prove that an animal is infected with Brucella abortus, it is important to recognize that in a known infected herd, the screening tests are critical and useful to detect early infections. Therefore, although bacterial isolation is the "gold standard" in proving infection, one should not expect a high rate of bacterial isolation from some animals since they may be too early in the course of infection for culture attempts to be successful. Testing is not confined to a single card test, but agencies use a multiple battery of tests to determine seropositivity (please see the FEIS, vol. 2, Brucellosis Testing, pages 168-179 for more information). Card tests are processed under standardized conditions in heated buildings at or near capture facilities to minimize inaccurate results. A recent comparison of field vs. lab results showed about 2% (3) false positives and 2% (3) false negatives in a sample of 157 tests (M. Philo, pers. comm., 11/2000). The plan provides that bison being held at Stephens Creek will not be retested before being released into the park in the spring."
(IBMP federal ROD, 2000, 54-55).

29) Page 172, : (IBMP federal ROD, 2000, 9)
Under the Forest Service Organic Act, the Secretary of Agriculture is given general authority to regulate the use and occupancy of the national forests so as to achieve the objectives for which they were reserved. The Multiple-Use Sustained-Yield Act of 1960 broadened the purposes for which national forests were established and are managed to include outdoor recreation, range, timber, watershed, and wildlife and fish purposes. That act also established the concepts of multiple use and sustained yield as the guiding principle underlying national forest management. Multiple use means the management of all the various renewable surface resources of the national forests in the combination that best meets the needs of the American people. Sustained yield means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land. The Forest Service achieves these objectives for each national forest through the development and implementation of a Land and Resource Management Plan ("Forest Plan").
In the Endangered Species Act, Congress recognizes that species of fish, wildlife, and plants facing extinction are of aesthetic, ecological, educational, historical, recreational, and scientific value to the United States and its people. The purposes of this act are to **provide for the conservation of ecosystems upon which threatened and endangered species depend,** to provide a program for the conservation of such species, and to **take appropriate steps to achieve the purposes of international treaties and conventions** aimed at protecting these species. Under the ESA, all federal agencies must use their authorities in furtherance of the purposes of the act by carrying out programs for the conservation of endangered and threatened species. Additionally, each federal agency must consult with the Secretary of the Interior and insure that any agency action is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. Interrelated provisions of the NPS Organic Act and the NPS General

Authorities Act of 1970, as amended, provide the most important statutory directive for the National Park Service.

The Organic Act requires the Secretary of the Interior to manage park resources and values in a manner that will leave them unimpaired for future generations. The General Authorities Act prohibits the Secretary from managing units of the National Park System in derogation of the values and purposes for which the various areas have been established, except as Congress may directly and specifically provide. The National Park Service considers these two mandates (no impairment and no derogation) as defining a single standard for the management of the National Park System Recently the director of the National Park Service issued guidance interpreting the National Park Service Organic Act (16 U.S.C. 1), and the 1978 amendments to the General Authorities Act (16 U.S.C. 1a-1). These are the fundamental provisions of law with which NPS managers must comply when authorizing activities to occur within areas of the National Park System. Generally, **these two provisions direct the Secretary of the Interior to manage parks for conservation purposes and public enjoyment without impairment.** The mandate to conserve park resources and values is separate from the prohibition on impairment. The conservation mandate, thus, applies even when there is no risk that park resources or values may be impaired. Although park managers must seek ways to avoid or minimize adverse impacts on park resources and values, they have discretion to allow impacts when necessary and appropriate to fulfill the purposes of a park. **This discretion exists, however, only so long as the impact does not constitute an impairment of the affected resources and values.** Finally, the purpose of providing enjoyment of park resources and values to the people of the United States ensures enjoyment of park resources and values by all people of the United States. This includes people who directly experience parks and those who appreciate them from afar. It also includes deriving benefit and inspiration from parks.

Congress has provided that when there is a conflict between conserving park resources and values and providing for the enjoyment of them, conservation is predominant. Additionally, although Congress has provided the secretary with limited discretion to allow certain impacts within parks, that **discretion is limited by the statutory requirement that the Park Service must leave park resources and values unimpaired,** unless a particular law directly and specifically provides otherwise. The NPS, thus, must manage park resources and values to allow them to continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

(IBMP federal ROD, 2000, 9, emphasis added)

30) Page: 129 **Rezendes, 1997, page. 11-12**

"According to Park Service officials, in the scientific literature, there is no documentation of brucellosis transmission from elk or bison to cattle in a wild, uncontrolled setting. Furthermore, although the risk of such transmission has never been quantified, the Park Service maintains that it is likely to be very low. Hence, park officials believe that testing and slaughtering infected wildlife to eradicate a potential source of infection for cattle is not necessary in Yellowstone and could result in the unnecessary slaughter of bison and negatively affect the genetic viability of the herd. Park officials

also object to the use of vaccines that were developed and tested for cattle but have not been proven effective for bison. They contend that the untested vaccines may be ineffective and/or unsafe for the herds and other wildlife that may come into contact with them. Park officials also question whether the disease can be eliminated from wildlife. For example, they note that the disease may be impossible to eliminate from bison because elk and other mammals can carry brucellosis, which could then find its way back into bison. Unless brucellosis is eliminated from all of these mammals, park officials and others have stated, some chance remains that the disease will be transmitted back to the bison." (Rezendes, 1997, 11-12)

Appendix A

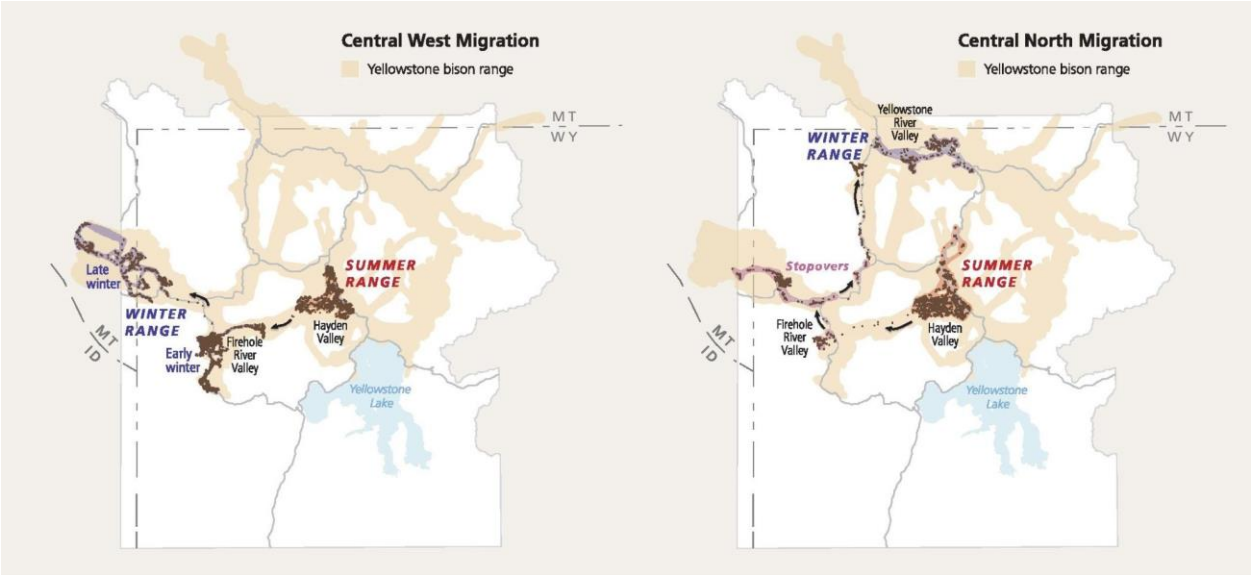


Figure 1. Western and Central Migration Areas, Atlas of Yellowstone (Marcus, 2022)

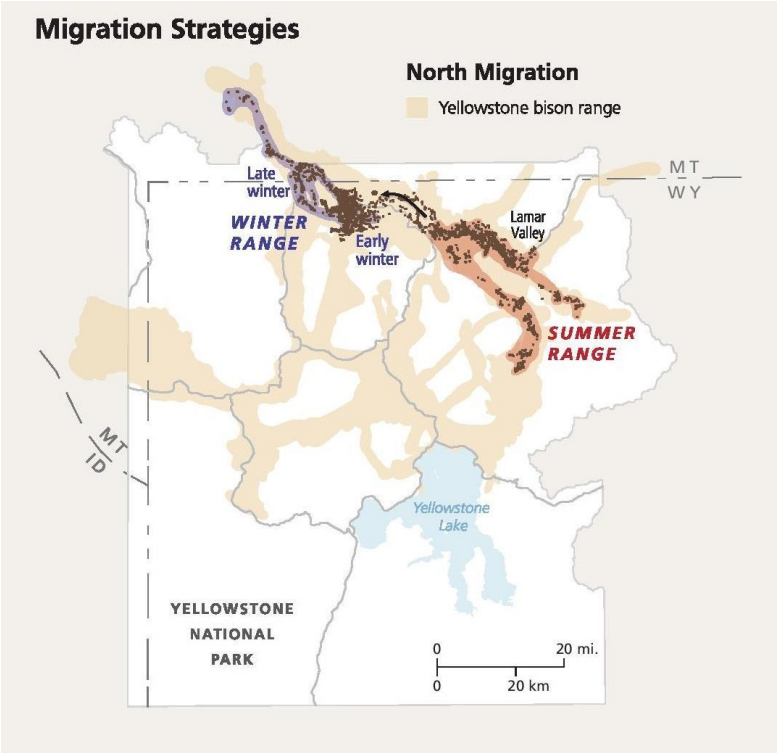


Figure 2. Northern Migration Area, Atlas of Yellowstone (Marcus, 2022)

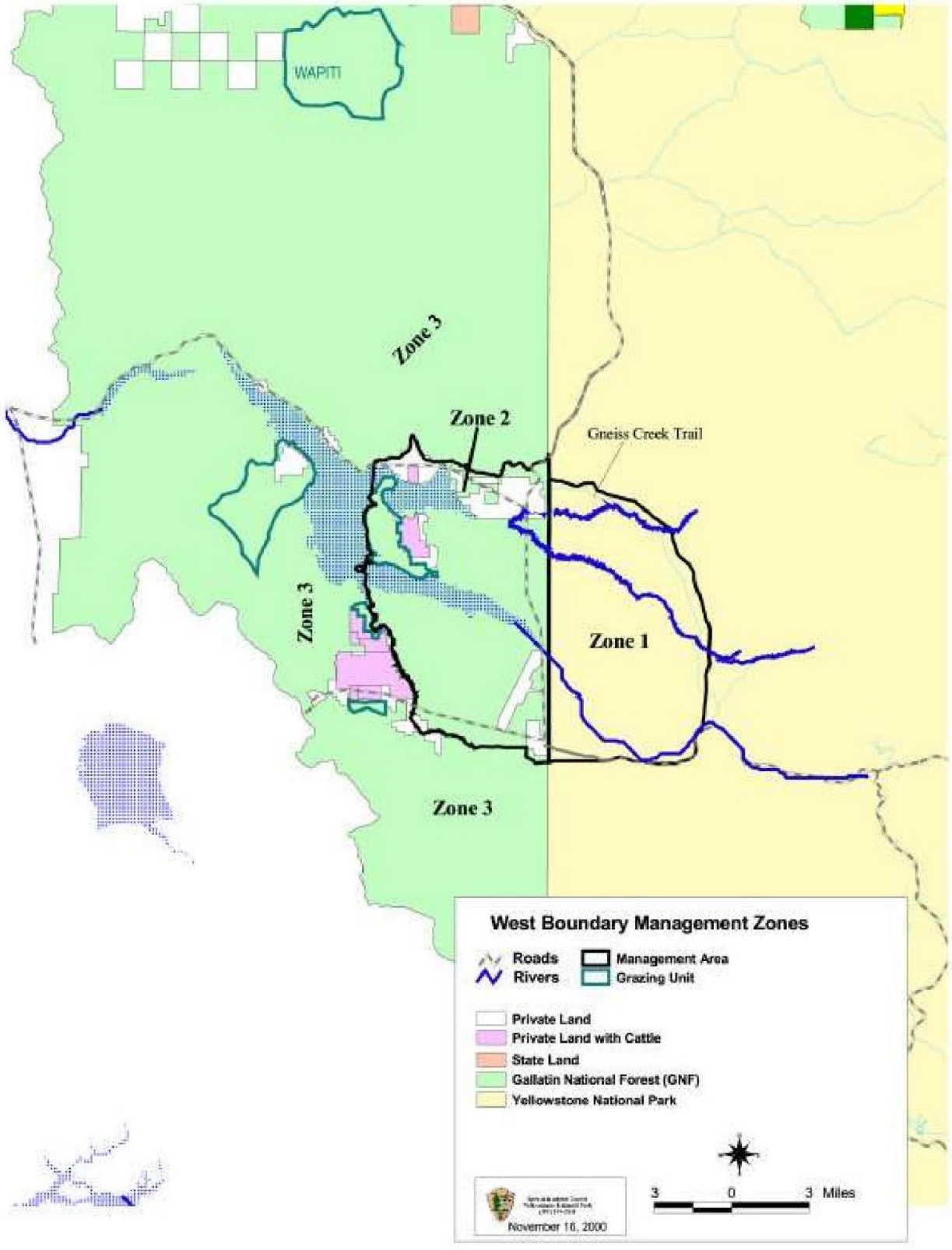


Figure 3. Western Special Management Area (SMA) (IBMP, 2000, 24)

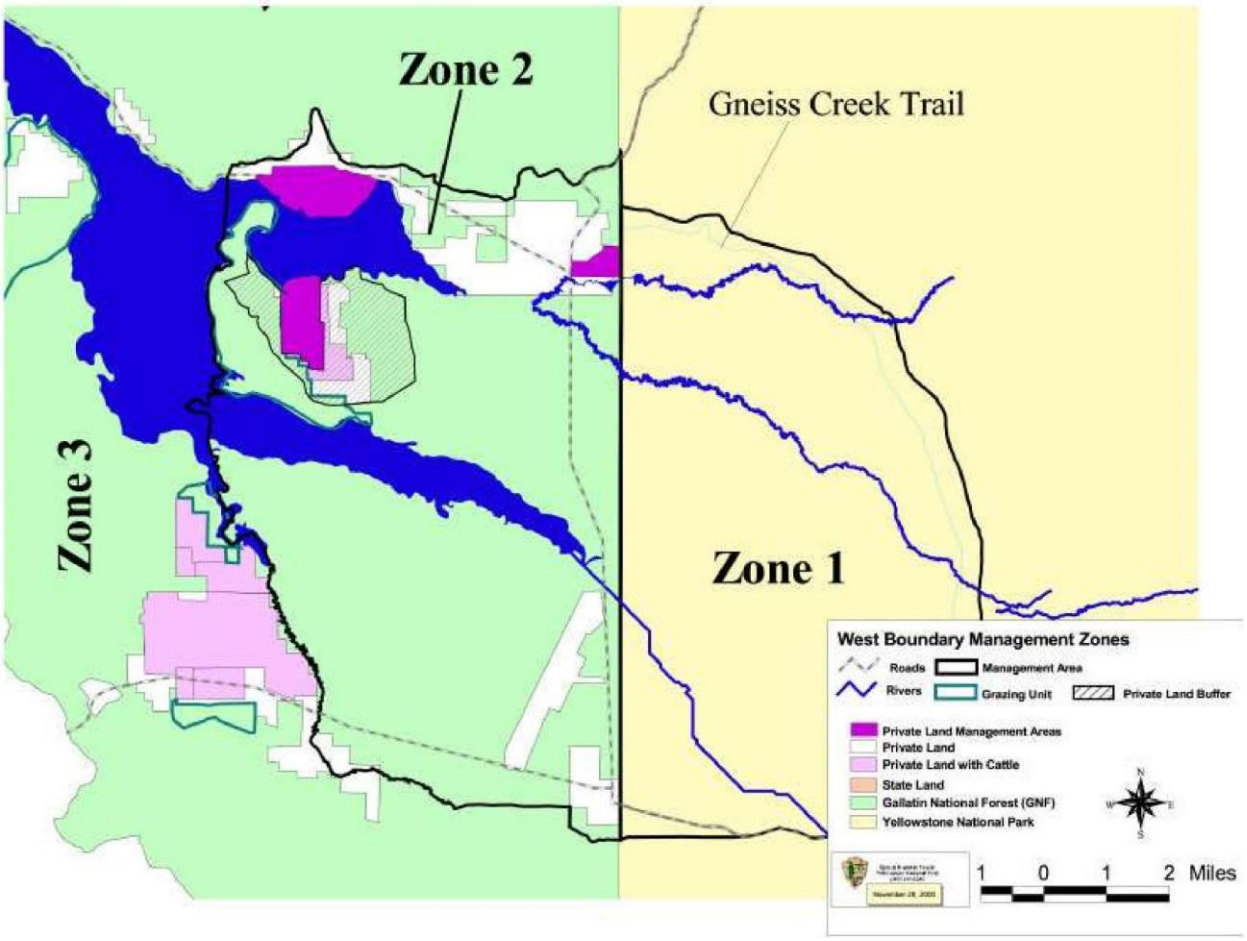


Figure 4. Western Special Management Area (SMA) (IBMP, 2000, 25)

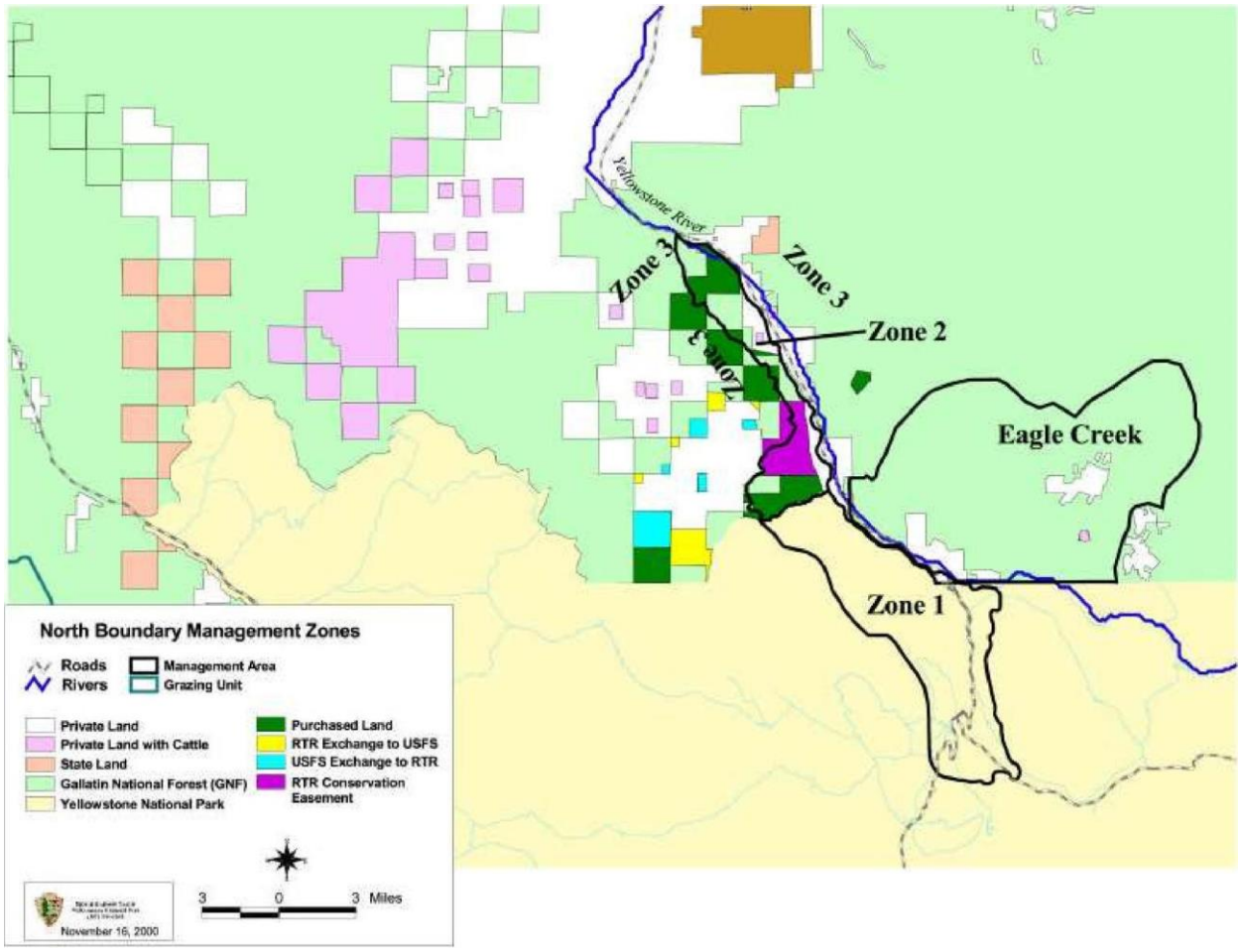


Figure 5. Northern Special Management Area (SMA) (IBMP, 2000, 29)

Appendix B

Nine preconditional objectives of the IBMP lethal management policy of total spatial denial of public lands to the last genetically-pure wild bison in the United States as quoted from FEIS volume 1, pages 43-45.

"The nine objectives that the interagency team agreed would be used to help determine reasonableness of each alternative, and that would be applied to the selection of a preferred alternative are as follows:

1. Address bison population size and distribution ; have specific commitments relating to size of bison herd — The policies of the National Park Service direct that native populations of wildlife be managed by natural processes in a relatively undisturbed setting to the maximum extent possible. Therefore, inside the park, bison population sizes would be determined by weather, winter snow depth, competition for forage, predation, and other environmental conditions. However, since uncontrolled movements of bison outside the park would be inconsistent with the purpose of the plan, each alternative also includes measures to control bison distribution. Each alternative also includes measures to prevent the population from dropping below low numbers as a result of increased kills by agencies controlling bison entries into the state. The agencies used mathematical models published in scientific literature to estimate the number of bison, based on plant forage production and winter severity, the park could support (Boyce and Gaillard 1992); see "Environmental Consequences: Impacts on Bison Population." The modified preferred alternative has a set of measures designed to maintain the herd size at or near this number.

2. Clearly define a boundary line beyond which bison will not be tolerated Each alternative defines a boundary on both the west and north where management actions take place. In some cases, the boundary is maintained through hazing or shooting; in others, capture facilities are also used.

3. Address the risk to public safety and private property damage by bison — The risk to public safety and private property damage by bison outside Yellowstone National Park is addressed as an environmental issue in the "Affected Environment" (part 3) and "Environmental Consequences" (part 4 of this document. With permission from the Department of Livestock, current state law allows private landowners to shoot bison occurring on private land and causing damage or considered a threat to safety.

4. Commit to the eventual elimination of brucellosis in bison and other wildlife The interagency team concluded that the elimination of brucellosis, even in bison, is not within the scope of this management plan. This is because elk in the Greater Yellowstone Area also carry the disease, and it is potentially mutually transmissible between the two species. However, all agencies are committed to the eventual eradication of brucellosis from the Greater Yellowstone Area. This management plan is one of several steps in that process. The eventual elimination of brucellosis from the Greater Yellowstone Area may be discussed in the future in a plan with a larger scope. The interagency EIS team agreed actions in the bison management plan must not detract from this objective, and must demonstrate progress toward it." (FEIS vol 1, 2000, 44)

5. Protect livestock from the risk of brucellosis — All alternatives include specific measures aimed at meeting this objective.

6. Protect the state of Montana from risk of reduction in its brucellosis status The interagency team agreed this objective was referring to the federal status conferred by the Animal and Plant Health Inspection Service. Montana is currently identified as class-free. Producers are able to ship their cattle interstate to national and international markets with minimal program restrictions. Any change in this status could mean significant economic impacts for the livestock industry in Montana.

7. At a minimum, maintain a viable population of wild bison in Yellowstone National Park, as defined in biological, genetic, and ecological terms Currently available information indicates that the bison population should be maintained above 580 animals in order to preserve minimum genetic integrity. This number in no way represents a management objective or goal for the herd, but is the lowest level to which the herd would be allowed to fall. Agencies would undertake actions beforehand to ensure that this number is not reached. This number is based on research from a private bison herd that determined the population size and structure needed to ensure random intermixing of breeding animals and avoid significant inbreeding (Knowles, unpubl. data). The number may be adjusted as ongoing research provides new information.

8. Be based on factual information, with the recognition that the scientific database is changing — Professionals in the fields of wildlife science, livestock disease, wildlife disease, livestock management, and wildlife management do not agree on the central issues relating to brucellosis in Yellowstone bison. The disagreements include (1) the degree of risk of transmission from the bison to

livestock, (2) the level of prevalence of brucellosis in the bison, (3) the safety and effectiveness of existing brucellosis vaccines, and (4) which management actions to take with regard to the disease in the bison. The agencies have agreed to support research to help resolve these issues and will update the bison management plan as new information becomes available. A list of research topics approved by the Greater Yellowstone Interagency Brucellosis Committee is found in appendix D.

9. Recognize the need for coordination in the management of natural and cultural resource values that are the responsibility of the signatory agencies The agencies have interpreted this objective as a requirement for the cooperative compliance with statutes designed to protect cultural and natural resources that may be affected by bison management actions proposed in the plan. Impacts are most likely to come from actions called for in various alternatives, effects on bison populations, and effects from actions proposed such as construction and operation of capture or quarantine facilities or acquisition of additional range. Future site-specific NEPA analysis (including public review) may be required. In addition to the objectives, the agencies have also recognized, as noted in the "Need for Action" section, that Yellowstone National Park is not a self contained ecosystem for bison. Lower elevation range could provide areas for bison to winter adjacent to the park as well as additional management options. Three of the alternatives (2, 3, and 7) analyzed in this environmental impact statement include provisions for such possible acquisitions, and the modified preferred alternative already includes acquisition of lands to the north of the Reese Creek boundary on the Royal Teton Ranch (see Royal Teton Ranch Land Conservation Project map). Although the agencies agree any acquisition of grazing rights, easements, or property from willing sellers could be by a public entity, Yellowstone National Park has no plans for expansion of the park boundary." (FEIS vol 1, 2000, 43-45)

Appendix C

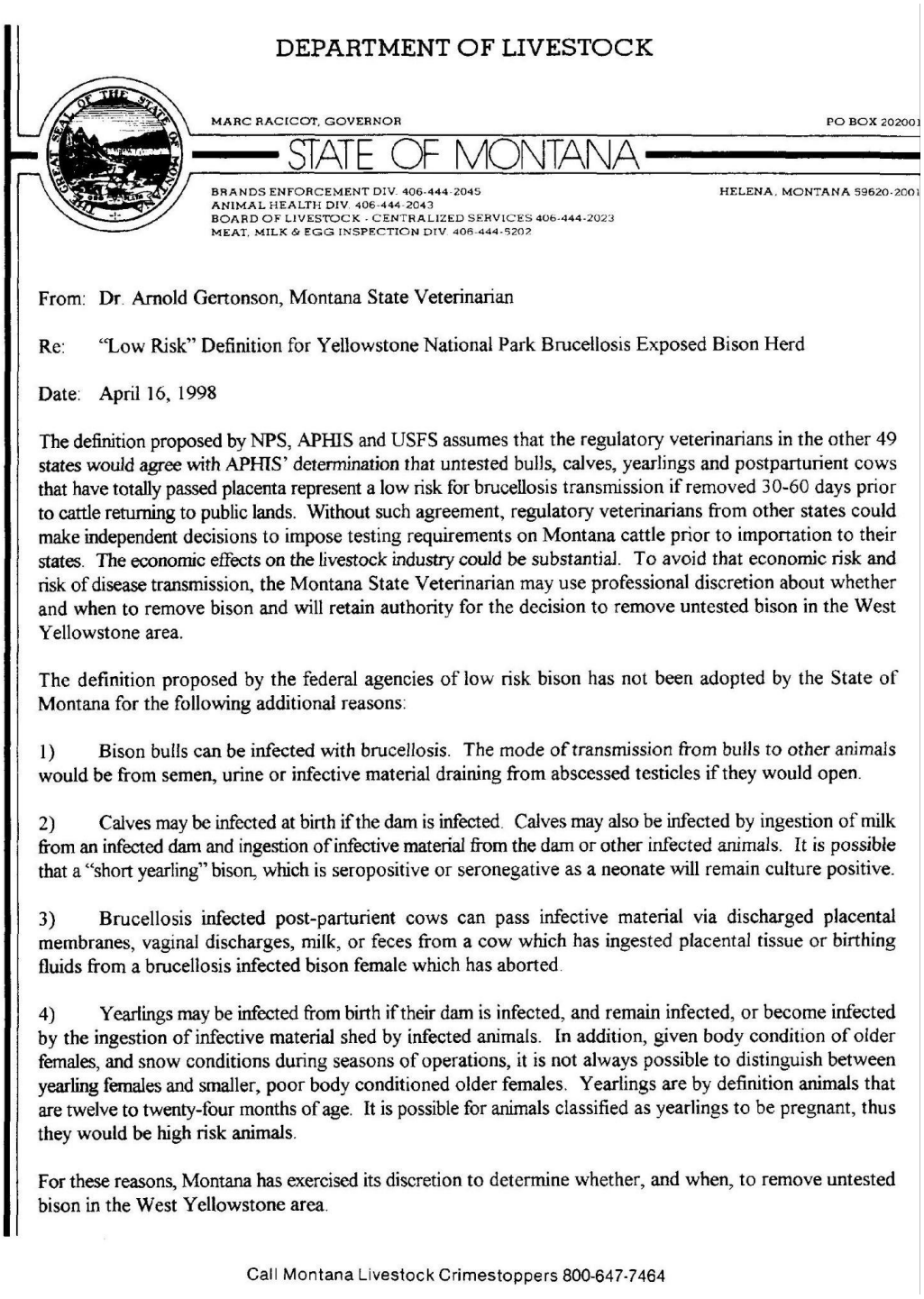
Contingency Measures

32. Transmission: Upon disclosure of (1) a brucellosis-affected cattle herd in a management area or (2) a brucellosis-affected cattle herd outside the management areas but for which APHIS and the Montana State Veterinarian concur that the source is traced back to a management area, the agencies will implement modified management measures pending the completion of an investigation expected to last 60 days or less, during which Montana and APHIS animal health authorities will conduct an epidemiological investigation to determine the source of infection. Disclosure of a brucellosis-affected herd means that an APHIS-approved Designated Brucellosis Epidemiologist has determined that an animal that is part of the herd is infected with field-strain B. abortus. The Management Areas for purposes of this provision is defined as Zone 2 plus 5 miles within Montana depending on terrain.

a. Modified Management Measures During Investigation: During the post-disclosure period only seronegative non-pregnant bison will be allowed in Zone 2 up to the prevailing tolerance limit. The agencies will employ non-lethal measures whenever possible to ensure that only seronegative, nonpregnant bison remain outside the Park during the post-disclosure investigation. Upon the initiation of the post-disclosure investigation period, the agencies will determine whether to apply the modified management measures described above in both the western boundary and Reese Creek northern management areas, or only to the area associated with the brucellosis-affected herd. As warranted by information from the investigation, the agencies can adjust the area(s) outside the park to which the modified management measures are applied. The final decision on the areas outside the park to which the modified management measures will be applied will be made by the Montana State Veterinarian, in consultation with APHIS. The agencies may agree that more or less conservative measures are necessary based on the knowledge and experience gained to date through the adaptive management framework, including but not limited to Brucella viability, spatial and temporal separation, and seroconversion rate(s).

b. Investigation results: Post-investigation bison management will depend on the results of the investigation. i. If the investigation finds that either cattle or elk were the source of infection or that bison were not the source of infection, the agencies will continue with the Joint Bison Management Plan. ii. If the investigation finds that the (1) Yellowstone bison were the source of the Brucella abortus infection or (2) eliminates cattle as a likely source but the source cannot be definitively determined (e.g. source unknown), the agencies will allow only seronegative, nonpregnant bison outside the Park in both the west and north boundary areas. The agencies may agree that the modified management measures are required only in the western boundary area or in the Reese Creek portion of the northern boundary area. They may also agree that more or less conservative measures are required based on the knowledge and experience gained to date through the adaptive management framework, including but not limited to Brucella viability, spatial and temporal separation, and seroconversion rate(s). ” (IBMP federal ROD, 2000, 32-33)

Appendix D



DEPARTMENT OF LIVESTOCK

MARC RACICOT, GOVERNOR

PO BOX 202001

STATE OF MONTANA

BRANDS ENFORCEMENT DIV. 406-444-2045
ANIMAL HEALTH DIV. 406-444-2043
BOARD OF LIVESTOCK - CENTRALIZED SERVICES 406-444-2023
MEAT, MILK & EGG INSPECTION DIV. 406-444-5202

HELENA, MONTANA 59620-2001

From: Dr. Arnold Gertonson, Montana State Veterinarian

Re: "Low Risk" Definition for Yellowstone National Park Brucellosis Exposed Bison Herd

Date: April 16, 1998

The definition proposed by NPS, APHIS and USFS assumes that the regulatory veterinarians in the other 49 states would agree with APHIS' determination that untested bulls, calves, yearlings and postparturient cows that have totally passed placenta represent a low risk for brucellosis transmission if removed 30-60 days prior to cattle returning to public lands. Without such agreement, regulatory veterinarians from other states could make independent decisions to impose testing requirements on Montana cattle prior to importation to their states. The economic effects on the livestock industry could be substantial. To avoid that economic risk and risk of disease transmission, the Montana State Veterinarian may use professional discretion about whether and when to remove bison and will retain authority for the decision to remove untested bison in the West Yellowstone area.

The definition proposed by the federal agencies of low risk bison has not been adopted by the State of Montana for the following additional reasons:

1) Bison bulls can be infected with brucellosis. The mode of transmission from bulls to other animals would be from semen, urine or infective material draining from abscessed testicles if they would open.

2) Calves may be infected at birth if the dam is infected. Calves may also be infected by ingestion of milk from an infected dam and ingestion of infective material from the dam or other infected animals. It is possible that a "short yearling" bison, which is seropositive or seronegative as a neonate will remain culture positive.

3) Brucellosis infected post-parturient cows can pass infective material via discharged placental membranes, vaginal discharges, milk, or feces from a cow which has ingested placental tissue or birthing fluids from a brucellosis infected bison female which has aborted.

4) Yearlings may be infected from birth if their dam is infected, and remain infected, or become infected by the ingestion of infective material shed by infected animals. In addition, given body condition of older females, and snow conditions during seasons of operations, it is not always possible to distinguish between yearling females and smaller, poor body conditioned older females. Yearlings are by definition animals that are twelve to twenty-four months of age. It is possible for animals classified as yearlings to be pregnant, thus they would be high risk animals.

For these reasons, Montana has exercised its discretion to determine whether, and when, to remove untested bison in the West Yellowstone area.

Call Montana Livestock Crimestoppers 800-647-7464

Figure 6. Montana State Veterinarian's letter rejecting the empirically-supported scientific data (FEIS vol 1, 2000, Appendix G, 769)

Appendix E

The following is an excerpt from the federal Environmental Impact Statement showing the disagreement of Indigenous representatives over both the IBMP plan itself and the lack of proper consultation with the tribes prior to implementation.

"**Cultural Resources — Archeology/Cultural Landscapes/Ethnography (CC-31) Issue 1: Government-to-Government Consultation A**

Comment: Proper consultation with the tribes did not occur. Although efforts were made by National Park Service representatives to present the Draft Environmental Impact Statement to the tribes, true consultation did not occur. In addition, other federal agencies did not participate in the meetings with the tribes. There is a trust obligation due and owing by all federal agencies to the tribes, and all agencies must strive to properly execute that obligation both individually and as one federal government.

Response: The National Park Service continues to meet with the many tribes that have expressed interest in the management of bison in and around Yellowstone National Park. The National Park Service plans to continue these meetings as it implements the final long-term bison management plan. The National Park Service does not consider the bison in Yellowstone National Park a trust resource to manage for one or more specific tribes. The National Park Service must manage the bison in Yellowstone, like the other natural resources in the park, for the benefit of all citizens of the United States. Prior to, and during the course of drafting and release of the Draft Environmental Impact Statement to the public, the agencies conducted government-to-government consultations with Native American tribes, as described in volume 1, appendix I of the final environmental impact statement.

Representative Comment: 14775H [Shoshone-Bannock Tribes xlvi]." (FEIS vol 2, 236)

"**Issue 2: Executive Order #13084**

A Comment: The Yankton Sioux Tribe Business and Claims Committee demands the U.S. government to immediately initiate official government consultations with the Yankton Sioux Tribe on this matter, as stipulated by Executive Order No. 13084, dated May 14, 1998, entitled "Consultation and Coordination with Indian Tribal Governments" and as mandated by NEPA stipulations that federally recognized tribes be given special consideration and that tribes are not to be considered as "the general public."

Response: As described in appendix I of the final environmental impact statement, the National Park Service has met with the tribes expressing an interest in the management of bison in and around Yellowstone National Park. The National Park Service plans to continue these meetings as it implements the final long-term bison management plan.

Representative Comment: 14701F {Upper Sioux Community xxxvi}" (FEIS vol 2, 2000, 236)

Issue 3: National Historic Preservation Act, U.S. Constitution, American Religious Freedom Act
A

Comment: Exclusion of tribal nations from this process is not only a violation of federal trust responsibility and President Clinton's commitment to consult and confer, it also violates the consultation requirements under the National Historic Preservation Act. (16 USC 470-1(3); 16 USC 470a(a)(1)(A); 36 CFR 800.1(c)(iii)(106); 16 USC 470a(d)(6)(A); 42 USC 1996); 6 CFR 60.4)

Response: The National Park Service recognizes that, although the bison in Yellowstone National Park are significant to many tribes, they are not a trust resource that would trigger a federal trust responsibility. The National Park Service also believes that the management of the bison herd, in and of itself, does not trigger compliance obligations under the National Historic Preservation Act. Additionally, the National Park Service continues to consult with tribes on bison management issues.

Representative Comment: 15368G" {Smith and Doherty, PLLC xl}" (FEIS vol 2, 2000, 236)

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