MONTANA GRAY WOLF CONSERVATION AND MANAGEMENT PLAN

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

EXECUTIVE SUMMARY

2025

CONTENTS

SUMMARY

In accordance with Administrative Rules of Montana (ARM) 12.2.435(3), the agency shall prepare with each draft environmental impact statement (DEIS) a brief summary that is available for distribution separate from the DEIS.

S.1. BACKGROUND AND OVERVIEW

Pursuant to the applicable requirements of the Montana Environmental Policy Act or MEPA (Title 75, Chapters 1 through 3, MCA) and its implementing rules (ARM 12.2.428, et. Seq), this DEIS has been prepared by Montana Fish, Wildlife & Parks (FWP) to analyze and disclose potential impacts to the human environment associated with adopting and implementing the 2025 Montana Gray Wolf Conservation and Management Plan (2025 Wolf Plan).

FWP proposes to manage wolves within the state of Montana under the direction of the 2025 Wolf Plan. Through MEPA review and more specifically the Environmental Impact Statement (EIS) process, FWP determined the 2025 Wolf Plan is consistent with commitments made by existing agreements with federal, state, and tribal agencies. The foundations of the 2025 Wolf Plan are to:

- Recognize wolves as part of Montana's wildlife heritage;
- Approach wolf management similar to other wildlife species;
- Manage wolf populations across the state with flexibility;
- Address and resolve conflicts.

The 2025 Wolf Plan does not preempt the Montana Fish and Wildlife Commission's (Commission) authority to formulate annual rules, set hunting and trapping season regulations, or implement emergency actions in response to unexpected events or circumstances. Whereas the commission cannot modify the 2025 Wolf Plan per se, it does have statutory authority to evaluate and modify how certain elements of the 2025 Wolf Plan are implemented.

S.2. PURPOSE AND NEED

MEPA and its implementing rules, ARM 12.2.428, et. seq, require any DEIS prepared by a state agency include a description of the purpose and benefits of the proposed project. The purpose and benefits of the proposed project are described in the applicable sections below.

FWP's intent is to manage wolves within the state of Montana under a new programmatic plan. The 2025 Wolf Plan assures ongoing, contemporaneous, sound science-based, and flexible management methodologies through incorporation of the following elements:

- New wolf-related research and associated science-based information;
- New and available wolf management tools and methods employed by FWP;
- Continued public transparency related to wolf management practices in Montana;

- Compliance with existing laws, regulations, and policies, as well as inter-governmental commitments made by FWP and the commission;
- Recognition of the need for adaptable wolf management strategies to accommodate ever-changing wolf population dynamics influenced by:
    - Changes in wolf density and distribution in response to varying human-caused mortality;
    - Environmental factors;
    - Human developments;
    - Prey availability;
    - Contextual changes in the sociopolitical climate.

FWP has demonstrated successful management of wolves through the creation and implementation of the 2003 Wolf Plan, which serves as the backbone for the 2025 Wolf Plan. Although annual wolf reports have been published since the adoption of the 2003 Wolf Plan, as a means to provide transparency of wolf monitoring and management, the 2003 Wolf Plan fails to provide details on how wolves are currently monitored and managed cohesively. While the 2003 Wolf Plan allows for contemporaneous and scientific approaches to wolf management as well as flexibility to changing biological and sociopolitical environments, ultimately allowing FWP to monitor and manage wolves using the methods and tools employed today, it does not describe the history of the Montana wolf population and the evolution of how FWP monitors and manages wolves since its publication. More specifically, the 2003 Wolf Plan does not address recent research regarding monitoring methods and management strategies (e.g., iPOM, surveys on wolf tolerance, non-lethal preventative strategies), the authority of WS in making wolf-livestock conflict decisions, current population status and trends, changes in harvest structure and statutes, new tools to provide public information (i.e., dashboards), the transition of the population metric from breeding pairs to number of individuals, among other notable differences. Over the last 20 years, the wolf population has recovered and remained stable, withstanding a series of continually evolving harvest seasons adopted by the commission and new statutes developed through legislative action. Further, FWP has considered complex varying opinions on wolf monitoring and management, via public engagement processes, incorporating them as allowed within our legal bounds and as monitoring and management tools became available and were practically implementable to us.

Wolves are now well established on the Montana landscape and FWP remains committed to maintaining the long-term viability coexistence of wolves in their environment, consistent with a long history of wildlife conservation in the state. The challenge is balancing conflicting human values and addressing the diverse needs of wolves and humans. The proposed 2025 Wolf Plan provides the foundation for contemporary and future FWP recommendations and commission decisions regarding conservation and management of wolves that is flexible in addressing varying considerations, both biological and sociopolitical, at the state level.

S.2.1. BENEFITS

Approval and implementation of the 2025 Wolf Plan would provide the following federal, state, local, and resource benefits:

Federal Benefits

The 2025 Wolf Plan provides clear direction on how wolves are adaptively managed by the state. FWP implements flexible management strategies to ensure population sustainability and longevity in

response to ecological and regulatory changes. Management actions will incorporate new scientific developments and address statutory and regulatory direction into practical and applied management strategies. These commitments provide assurance to the United States Fish and Wildlife Service (USFWS), as well as affected federal land managers, that effective management will continue for this species, and that adequate regulatory mechanisms are in place to ensure long term population sustainability and viability – one of the five criteria used to evaluate whether protections under the ESA and a return to federal management of the species are warranted. The other ESA listing criteria (sufficient suitable habitat, no over-utilization of the species, disease is not a limiting factor for population longevity, and no other man-made or natural factors that could impact its existence) are described in DEIS under Alternative 2, the proposed action, and ensured through the monitoring and management of the population and its trends.

State Benefits

Adoption of the preferred alternative would provide the citizens and residents of Montana with a clear understanding of how wolves are managed by the state. Managing wolves as a resident native species according to state guidelines would allow the FWP to meet the goal of conserving and managing wolves while adapting to the needs and interests of all of Montana's citizens, residents, and visitors alike, regardless of their values related to wolves.

Local Benefits

Similar to state and federal benefits, the primary benefit of the preferred alternative is continued public transparency in how wolves are monitored and managed in the state and providing FWP with adaptability and flexibility. The preferred alternative would allow for implementation of varying wolf management strategies that address different local population objectives. For example, an area with ungulate population concerns may benefit from liberal wolf harvest regulations while an area that values ecotourism may benefit from conservative wolf harvest strategies. As a result, local benefits may differ across the state.

Resource Benefits

Adoption of the preferred alternative would ensure wolf population presence, sustainability, viability, and longevity. Wolf population monitoring and management can be executed effectively and efficiently to maintain a viable wolf population in the state of Montana, avoid the need for future ESA re-listing, and thereby maintain state oversight of wolf management practices.

S.3. AGENCY AUTHORITY AND ACTIONS

No other permits, certificates, licenses, or approvals would be required before implementation of the proposed action could begin.

Applicable Legal Statutes, Classifications, and Regulations

FWP has the authority under law (§ 87-1-201, MCA) to protect, enhance and regulate the use of Montana's fish and wildlife resources for public benefit now and in the future. The 2003 Wolf Plan was

approved by the USFWS in 2004. Nine years after having been declared recovered, and with a minimum wolf population of more than 1,600 wolves and 100 breeding pairs in the NRM, in April 2011, a congressional budget bill directed the federal Secretary of the Interior to reissue the final ESA-delisting rule for NRM wolves. On May 5, 2011, the USFWS published the final delisting rule designating wolves throughout the Distinct Population Segment (DPS), except Wyoming, as a delisted species. The wolf was then reclassified as a Species in Need of Management in Montana. Montana's laws, administrative rules, and state plan replaced the federal framework. Current statutes, classifications and regulations can be found on fwp.mt.gov (also see list of statutes, rules, and other applicable regulations below).

Montana Code Annotated – Title 87, Fish and Wildlife; Title 2, Government Structure and Administration; Title 81, Livestock

§ 87-5-131, MCA	Process for delisting of gray wolf
§ 87-5-132, MCA	Use of radio-tracking collars for monitoring wolf packs
§ 87-6-214, MCA	Unlawful contest or prize
§ 87-6-401, MCA	Unlawful use of equipment while hunting
§ 87-6-106, MCA	Lawful taking to protect livestock or person
§ 87-1-217, MCA	Policy for management of large predators
§ 87-1-304, MCA	Fixing of seasons and bag and possession limits
§ 87-1-901, MCA	Gray wolf management – rulemaking – reporting
§ 87-1-601, MCA	Use of fish and game money
§ 87-1-623, MCA	Wolf management account
§ 87-1-625, MCA	Funding for wolf management
§ 87-1-708, MCA	Assent to Pittman-Robertson Act
§ 87-2-101, MCA	Definitions
§ 87-2-813, MCA	Auction or lottery wolf license
§ 87-2-104, MCA	Number of licenses, permits, or tags allowed – fees
§ 87-2-523, MCA	Class E-1 – Resident Wolf License
§ 87-2-524, MCA	Class E-2 – Nonresident Wolf License
§ 2-15-3110, MCA	Livestock loss board – purpose, membership, and qualifications
§ 2-15-3111, MCA	Livestock loss reduction program
§ 2-15-3112, MCA	Livestock loss mitigation program – definitions
§ 2-15-3113, MCA	Additional powers and duties of livestock loss board
§ 81-1-110, MCA	Livestock loss reduction and mitigation accounts
§ 81-1-111, MCA	Livestock loss reduction and mitigation trust fund
§ 81-7-123, MCA	Voluntary wolf mitigation account

Administrative Rules of Montana – Title 12 Fish, Wildlife and Parks

ARM 12.9.1301	Commitment to Preservation of the Gray Wolf as Resident Wildlife in Need of Management
ARM 12.9.1302	Definitions

ARM 12.9.1303	Control Methods of the Gray Wolf Include Nonlethal and Lethal Means
ARM 12.9.1304	Allowable Nonlethal Control of the Gray Wolf
ARM 12.9.1305	Allowable Lethal Control of the Gray Wolf

Montana Administrative Rules – Title 36 Department of Natural Resources

ARM 36.11.430	Threatened and Endangered Species – Gray Wolf (REPEALED)

S.4. SCOPING AND KEY ISSUE IDENTIFICATION

Scoping provides an opportunity for public and agency involvement during the early planning stages of the EIS analysis. The intent of the scoping process is to gather comments, concerns, and ideas from those who have an interest in or who may be affected by the proposed action. These internal and public processes serve to fulfill the scoping requirements of MEPA.

According to the requirements of ARM 12.2.436(4)(a), an EIS must include an evaluation of the direct, secondary, and cumulative impacts on the physical environment including, where appropriate: terrestrial and aquatic life and habitats; water quality, quantity, and distribution; geology, soil quality, stability, and moisture; vegetation cover, quantity and quality; aesthetics; air quality; unique, endangered, fragile, or limited environmental resources; historical and archaeological sites; and demands on environmental resources of land, water, air and energy.

An EIS must also evaluate direct, secondary, and cumulative impacts on the human population in the area affected by the proposed action including, where appropriate, social structures and mores; cultural uniqueness and diversity; access to and quality of recreational and wilderness activities; local and state tax base and tax revenues; agricultural or industrial production; human health; quantity and distribution of employment; distribution and density of population and housing; demands for government services; industrial and commercial activity; locally adopted environmental plans and goals; and other appropriate social and economic circumstances.

Several strategies were used to inform the public about and solicit comments on the proposed action. FWP requested input from the public on the direct, secondary, and cumulative impacts on the physical environment and the human population. The 30-day public scoping period began with the publication of the Scoping Notice on Wednesday, March 22, 2023, and continued through Saturday, April 22, 2023. FWP considered all applicable input provided during the virtual public scoping meetings (Tuesdays, April 4 and 11, 2023, 6-8 p.m. MST) as well as all applicable input received (via email or through the FWP website) or postmarked by Saturday, April 22, 2023, in defining the scope of the DEIS.

ARM 12.2.436(4)(a) identifies several key Physical and Human Resource issues to be analyzed through the EIS process. These issues were also identified through the scoping process and were used to guide

the DEIS interdisciplinary team's analysis and alternatives development. These issues include the following:

- Key Issue 1: Terrestrial, Avian, and Aquatic Life and Habitats
- Key Issue 2: Water Quality, Quantity and Distribution
- Key Issue 3: Geology, Soil Quality, Stability, and Moisture
- Key Issue 4: Vegetation Cover, Quantity, and Quality
- Key Issue 5: Aesthetics
- Key Issue 6: Air Quality
- Key Issue 7: Unique, Endangered, Fragile, or Limited Environmental Resources
- Key Issue 8: Historical and Archaeological Sites
- Key Issue 9: Energy Use
- Key Issue 10: Social Structures and Mores
- Key Issue 11: Cultural Uniqueness and Diversity
- Key Issue 12: Access to and Quality of Recreational and Wilderness Activities
- Key Issue 13: Local and State Tax Base and Tax Revenue
- Key Issue 14: Agricultural, Industrial or Commercial Activity and Production
- Key Issue 15: Human Health
- Key Issue 16: Quantity and Distribution of Employment
- Key Issue 17: Demands for Government Services
- Key Issue 18: Distribution and Density of Population and Housing
- Key Issue 19: Locally Adopted Environmental Plans and Goals

S.5. ALTERNATIVES ANALYZED

Alternatives to the proposed action were considered based on requirements for the alternatives analysis pursuant to MEPA and its implementing rules (ARM 12.2.428, *et. seq*). MEPA does not specify the number of alternatives that need to be considered in an EIS; however, any alternative proposed must be reasonable, in that the alternative must be currently achievable and economically feasible, as determined solely by the economic viability for similar projects having similar conditions and physical locations and determined without regard to the economic strength of the specific project sponsor (MCA 75-1-201(1)(b)(iv)(C)). In addition, MEPA requires a meaningful analysis of the *No Action Alternative* in an DEIS.

Under MEPA, "alternative" means "an alternate approach or course of action that would appreciably accomplish the same objectives or results as the *proposed action*; design parameters, mitigation, or controls other than those incorporated into a proposed action by an applicant or by an agency prior to preparation of an EA or draft DEIS; no action or denial; and for agency-initiated actions, a different program or series of activities that would accomplish other objectives or a different use of resources than the proposed program or series of activities. The agency is required to consider only alternatives that are realistic, technologically available, and that represent a course of action that bears a logical relationship to the proposal being evaluated." ARM 12.2.429(2).

FWP evaluates two alternatives in this DEIS: Alternative 1 – No Action Alternative; Alternative 2 – Proposed Action. The proposed action is described in detail in **Chapter 2.4** of the DEIS.

Table S-1. Comparison of key issues between the alternatives.

Issue	1. No action (status quo)	2. Proposed action (FWP preferred)
Values associated with wolves: benefits and challenges of wolf presence in Montana	FWP currently monitors the wolf population (i.e., distribution and abundance), regulates harvest (i.e., hunting and trapping seasons), mitigates conflict including livestock depredation and other problem wolf control, coordinates and authorizes research (i.e., radio-collars packs), conducts public outreach, and utilizes contemporary population estimation tools in order to maintain a recovered and connected wolf population, reduce wolf-livestock conflicts, reduce wolf impacts on low or declining ungulate populations and ungulate harvest opportunities, and effectively communicate to all parties the relevance and credibility of the harvest while acknowledging the diversity of values among those parties would continue.	In addition to what is described in the *No Action Alternative*, FWP will provide continued transparency on how wolves are monitored and managed in Montana. The 2025 Wolf Plan would allow FWP biologists and managers to flexibly manage wolves as their densities and distributions change on the landscape in response to varying environmental factors, human-caused mortality, human development, and prey resource availability, as well as to contextual changes in the sociopolitical climate.
Population monitoring and research	FWP is committed to modern, scientifically valid, and financially efficient means of monitoring wolves. Research and collaborations to evolve such methods will be ongoing.	FWP would continue effectively monitoring the wolf population, using new and improved techniques as they become available, appropriate, and practical with implementation strategies. The 2025 Wolf Plan describes, in depth, iPOM as the preferred monitoring method due to accuracy, incorporation of uncertainty, and cost efficiency.
Population management	The flexible framework in the 2003 Wolf Plan provides FWP with the flexibility to adjust management contingent on wolf numbers, wolf distribution, public acceptance, prevailing landownership patterns, land uses, prey populations, and other considerations.	With the 2003 Wolf Plan as the foundation, the 2025 Wolf Plan includes the fundamentals of flexible management allowing FWP to accommodate changes in law, political leadership, and overall management strategy, as well as changes in biological, environmental, and sociopolitical environments.
Public harvest opportunities	Following the delisting, wolves have been managed under state authority as a species in need of management. Regulated hunting and trapping was implemented within a scientifically sound framework that maintains a viable and self-sustaining population. Over time, harvest rules and regulations have changed, but have	In addition to what is described in the No Action Alternative, FWP would continue to use harvest strategies as a wildlife management tool. Lethal management strategies, regulations and rules, and harvest structure parameters will continue to be flexible based on changing biological, ecological, and sociopolitical

	always been consistent with ensuring a minimum of 150 wolves and 15 breeding pairs.	environments, and maintain integrity based on science. FWP will ensure adequate forums and opportunities for diverse public input into annual harvest regulation decisions.
Other considerations	Travel and access management, den and rendezvous sites, and captive wolves or wolf-dog hybrids are monitored and managed as necessary.	Travel and access management, den and rendezvous sites, and captive wolves or wolf-dog hybrids are monitored and managed as necessary.
FWP staff and locations	FWP would continue supporting wolf specialists located strategically around the state.	FWP would continue supporting wolf specialists located strategically around the state.
Wolf-livestock conflicts	FWP sees no realistic future in which there will be no need at all for responding to wolf-livestock conflict. The 2003 Wolf Plan led to the Montana Livestock Loss Board (MLLB) Payments Program to address the economic impacts of verified wolf-caused livestock losses as well as the development of the FWP-USDA-WS MOU.	FWP would continue its active partnerships, maintain efficient responses to wolf-livestock conflict, and explore and adopt emerging technologies and methodologies to prevent and minimize wolf-livestock conflict. The FWP-USDA-WS MOU will be maintained.
Wolf-human conflicts	Human safety related to carnivores is a state priority and wolf-human conflicts will be addressed efficiently.	Human safety related to carnivores is a state priority and wolf-human conflicts will be addressed efficiently.
Education and outreach program	Efforts would remain aimed at people living, working, and recreating in wolf habitat, targeting both new and long-term residents. This includes various resources that address wolf-livestock conflict management, wolf harvest, and hunting/trapping regulations.	Building on current efforts, FWP will seek to continually improve transparency and provide information to the public to enhance public understanding of Montana's wolf monitoring and management strategies.
Wolf program funding	In order to maintain FWP's eligibility to receive matching federal funding under the Federal Aid in Wildlife Restoration Act (i.e., the Pittman-Robertson Act or PR), the Montana Legislature agreed to use hunting license revenue only for wildlife management (§ 87-1-708, MCA). Most of this funding is generated through excise taxes on firearms, ammunition, and archery equipment. State dollars are needed to match federal funding, which can be from any source that is non-federal, and state hunting license sales are used in the formula to determine what the state's allocation of federal funds are. Received federal dollars along with state hunting license revenue fund wildlife surveys, research, hunter education, and other	In order to maintain FWP's eligibility to receive matching federal funding under the Federal Aid in Wildlife Restoration Act (i.e., the Pittman-Robertson Act or PR), the Montana Legislature agreed to use hunting license revenue only for wildlife management (§ 87-1-708, MCA). Most of this funding is generated through excise taxes on firearms, ammunition, and archery equipment. State dollars are needed to match federal funding, which can be from any source that is non-federal, and state hunting license sales are used in the formula to determine what the state's allocation of federal funds are. Received federal dollars along with state hunting license revenue fund wildlife surveys, research, hunter education, and other management

	management activities (§ 87-1-601, MCA). Wildlife surveys and inventories and other approved projects typically receive 75% federal funding and 25% state funding from license revenues.	activities (§ 87-1-601, MCA). Wildlife surveys and inventories and other approved projects typically receive 75% federal funding and 25% state funding from license revenues.
Public engagement process	The public has several opportunities to participate in various legislative and commission processes. As part of the implementation process of such management actions via the commission, the public has been routinely encouraged to provide comment.	Building on current practices, FWP intends to enhance engagement and inclusion with the public and increase intergovernmental, interagency, and tribal coordination.

S.5.1. ALTERNATIVES NOT CARRIED FORWARD FOR DETAILED ANALYSIS

FWP's alternatives development process was designed to identify a reasonable range of alternatives for detailed analysis in the DEIS. FWP developed alternatives in accordance with its authorities (described in **Chapter 1.4** of the DEIS). Alternatives or alternative components were suggested by the public in scoping comments or by subject matter experts based on professional experience. Those considered during the development process, but not carried forward for detailed analysis, are discussed in the following sections.

Section 75-1-220(1), MCA, defines "alternatives analysis" to mean an alternate approach or course of action that would appreciably accomplish the same objectives or results as the proposed action; design parameters, mitigation, or controls other than those incorporated into a proposed action by an applicant or by an agency prior to preparation of an EA or draft DEIS; no action or denial; and for agency-initiated actions, a different program or series of activities that would accomplish other objectives or a different use of resources than the proposed program or series of activities. The agency is required to consider only alternatives that are realistic, technologically available, and that represent a course of action that bears a logical relationship to the proposal being evaluated.

To be considered, an alternative must meet all the following criteria (based on § 75-1-220(1) and § 75-1-201(1)(b)(4)(C), MCA. The alternative must:

- Appreciably accomplish the same objectives or results as the proposed action;
- Meet the purpose and need as stated in **Chapter 1.3** of the DEIS;
- Represent a course of action that bears a logical relationship to the proposal being evaluated;
- Be technically feasible (achievable by using current technology); and
- Be economically feasible (based on similar projects having similar conditions and physical locations, regardless of the economic strength of the specific project sponsor).

Table S-2. Alternatives not carried forward for detailed analysis (**Chapter 2.5** of the DEIS).

TROPHIC-CASCADE – Naturally Regulated Wolf Population	In this alternative, there would be no numerical wolf population objective or cap and the wolf population would be allowed to find a natural carrying capacity, regulated only by ecological processes. This management plan would solely focus on wolf conservation, reclassify wolves as species of concern, and eliminate the harvest of wolves through hunting and trapping seasons. Lethal-management strategies would be eliminated from utilization, aside from provisions for wolf-livestock conflict mitigation, protection of property (§ 87-6-106, MCA), or an actively threatening wolf (§ 87-1-901, MCA). Removal or take of wolves outside of these sideboards would be considered illegal, poaching. To uphold its obligation to protect, enhance, and regulate the use of Montana's fish and wildlife resources for public benefit now and in the future, it is imperative FWP maintains healthy populations of all species and habitats that may be directly or indirectly impacted by wolves. In order to maintain a stable ecosystem, management of classified species is necessary, and thereby, a trophic-cascade alternative is impractical and unreasonable. More importantly, FWP is mandated by law to implement legislation regarding wolves that includes hunting and trapping as an element of wolf management (§ 87-1-901, MCA). Thus, the trophic-cascade alternative was dismissed from further detailed consideration and analysis, as this alternative would require substantial legislative change.
NO-MANAGEMENT – Wolves Eliminated Throughout Montana	In this alternative, wolf presence would not be tolerated anywhere in Montana. This management strategy would focus on the elimination of wolves. In other words, there would be no need for state management authority to regulate take of wolves. A no-management alternative would not require the 2025 Wolf Plan to be developed and would not utilize the 2003 Wolf Plan. Wolves would be reclassified as predators or as non-game wildlife, meaning that harvest (i.e., hunting and trapping) would not be regulated by federal or state laws or regulations. Wolves could be harvested without a license year-round throughout Montana, with no quotas, thresholds, or bag limits. A no-management alternative would risk wolf population sustainability and maintenance above population levels mandated by the USFWS. FWP does not support increased pressure on wolves that would cause population declines below standards of established population viability and longevity that may warrant ESA-relisting and subsequent loss of state management authority for the species. More importantly, risking the loss of wolves on the landscape would have several negative impacts to both the wildlife communities to which they belong (see **Chapter 1.2** of the DEIS). Although this alternative would theoretically limit the potential for and presence of wolf-livestock conflicts, and abides by § 87-1-217, MCA, it would not abide with the requirements of § 87-1-901, MCA. As a result, FWP considers this approach impractical and biologically harmful. This alternative would impede FWP's obligation to protect, enhance, and regulate the use of Montana's fish and wildlife resources for public benefit now and in the future. Thus, the no-management alternative was dismissed from further, detailed consideration and analysis.

S.6. AFFECTED ENVIRONMENT

The DEIS summarizes and details multiple resource areas. The following paragraphs provide a brief summary of the resources, analysis areas, and baseline conditions described in **Chapter 3** of the DEIS.

Physical Environment and Human Environment Resources

The analysis area for direct, secondary, and cumulative impacts on the 9 physical environment resources (*Terrestrial, Avian, and Aquatic Life and Habitats; Water Quality, Quantity and Distribution*; *Geology, Soil Quality, Stability, and Moisture; Vegetation Cover, Quantity, and Quality; Aesthetics; Air Quality; Unique, Endangered, Fragile, or Limited Environmental Resources; Historical and Archaeological Sites, Energy*) and 10 human environment resources (*Social Structures and Mores; Cultural Uniqueness and Diversity; Access to and Quality of Recreational and Wilderness Activities; Local and State Tax Base and Tax Revenue; Agricultural, Industrial, or Commercial Activity and Production; Human Health; Quantity and Distribution of Employment; Demands for Government Services; Distribution and Density of Population and Housing, Locally Adopted Environmental Plans and Goals*) is the state of Montana (all 56 counties), and constitutes 147,040 mi^2 (380,832 km^2).

Lower elevation habitats below 6,000 ft. (1,829 m) vary greatly and include large areas of shortgrass/sagebrush prairie, mountain foothills, intensively cultivated areas (grain and hay field agriculture), natural wetlands/lakes, riparian plant communities ranging from narrow streambank zones to extensive cottonwood river bottoms, manmade reservoirs, small communities, and sizeable towns and cities. The mountainous portion above 6,000 ft. (1,829 m) contains 44 mountain ranges, including the Absaroka, Anaconda-Pintler, Beartooth, Beaverhead, Big Belt, Bitterroot, Blacktail, Boulder, Bridger, Cabinet, Castle, Centennial, Coeur d'Alene, Crazy, East Pioneer, Elkhorn, Flathead, Flint Creek, Gallatin, Garnet, Gravelly, Henry Lake, Highland, John Long, Lewis, Lewis and Clark, Little Belt, Livingston, Madison, Mission, Nevada, Ninemile-Reservation Divide, Purcell, Rattlesnake, Ruby, Sapphire, Salish, Sawtooth, Snowcrest, Spanish Peaks, Swan, Tendoy, Tobacco Root, and West Pioneer ranges. Mountainous habitats are dominated by coniferous forest (Douglas fir, lodgepole pine, Engelman spruce, western cedar, hemlock, whitebark pine, limber pine, ponderosa pine, juniper), and rocky subalpine/alpine communities found above timberline.

Western Montana, more commonly occupied by wolves, is characterized by river valleys divided by rugged mountain ranges. Elevations range from 1,820 ft. (555 m) where the Kootenai River enters Idaho near Troy, Montana, to 12,799 ft (3,904 m) on top of Granite Peak in the Beartooth Mountains. Major river drainages in Montana west of the Continental Divide include the Kootenai (which flows into the Columbia River in British Columbia), and the Bitterroot, Blackfoot, and Flathead (all of which flow into the Clark Fork, which itself flows into Lake Pend Oreille in Idaho, and from there into the Columbia River near the Washington/British Columbia boundary). East of the Continental Divide, major drainages in Montana include the Bighorn, Clark's Fork, and Tongue Rivers (all of which flow into the Yellowstone River), and the Beaverhead/Bighole (Jefferson), Gallatin, Judith, Madison, Marias, Musselshell, Sun, and Teton Rivers (all of which flow into the Missouri River). Additionally, the Belly, St. Mary, and Waterton Rivers, which originate in Glacier National Park, are tributaries of the Saskatchewan River system, ultimately flowing into Hudson Bay. Much of western Montana is protected public land (Table S-3).

Table S-3. State and federal protected land acreage within western Montana.

State or Federal Protected Lands	Acres
Bureau of Reclamation (BOR)	84,480
National Forest (USFS)	14,018,560
National Park (NPS)	1,173,920
National Recreation Area (USFS and NPS)	115,200
National Wildlife Refuge (USFWS)	76,804
Bureau of Land Management (BLM)	1,376,640
Wilderness (BLM, USFS, and USFWS)	3,300,480
Wilderness Study Area (BLM and USFS)	807,040
State Parks (FWP)	29,440
State Wildlife Management Areas (FWP)	413,440

Human Population

As of 2021, an estimated 1,104,271 people lived in Montana. The 2021 estimate also reflected a population increase of nearly 22% since the year 2000. During the years 2000–2021, population growth was highest in Broadwater, Carbon, Flathead, Garfield, Lincoln, Madison, Mineral, Musselshell, Petroleum, Ravalli, and Sanders counties; population declined modestly in nine counties (Table S-4).

Although still sparsely populated by national standards, the human population of Western and Central Montana and its associated developmental footprint has expanded greatly in recent decades. In 2018, Montana contained an estimated 344,365 single family homes, with approximately 123,490 built since 1990. Almost 1,324,800 acres (536,128 hectares) of previously open space was estimated to have been converted to residences during this quarter-century. Counties with the largest acreage of open space converted included Gallatin, Madison, Flathead, Lewis and Clark, Park, and Yellowstone (Headwater Economics 2020).

Table S-4. Montana counties: Population, area, and population density. *From Montana.gov (U.S. Census Bureau 2021). Counties are listed in descending order by 2021 population.*

County	Population, 2000	Population, 2021	Annual growth rate, 2000–2020	Area in miles (excluding large water bodies)	Population density
Yellowstone	129,570	167,146	1.30%	2,635	63.44
Gallatin	68,375	122,713	2.70%	2,608	47.06
Missoula	96,178	119,533	1.10%	2,598	46.01
Flathead	74,774	108,454	3.50%	5,098	21.27
Cascade	80,318	84,511	0.20%	2,688	31.44
Lewis and Clark	55,886	72,223	1.60%	3,461	20.87

Ravalli	36,301	45,959	3.60%	2,394	19.20
Silver Bow	34,571	35,411	0.70%	718	49.35
Lake	26,588	32,033	2.50%	1,493	21.45
Lincoln	18,818	20,525	4.00%	3,619	5.67
Park	15,710	17,473	1.60%	2,802	6.24
Hill	16,605	16,179	-0.40%	2,895	5.59
Glacier	13,183	13,785	0.30%	2,991	4.61
Sanders	10,287	12,959	4.10%	2,762	4.69
Big Horn	12,669	12,957	-0.70%	4,996	2.59
Jefferson	10,052	12,470	2.80%	1,657	7.53
Custer	11,678	11,916	0.50%	3,783	3.15
Fergus	11,902	11,617	1.40%	4,335	2.68
Richland	9,619	11,283	-1.90%	2,084	5.41
Carbon	9,561	10,847	3.20%	2,047	5.30
Roosevelt	10,623	10,821	0.40%	2,354	4.60
Beaverhead	9,204	9,524	1.60%	5,543	1.72
Deer Lodge	9,409	9,491	0.80%	731	12.98
Stillwater	8,247	9,044	0.40%	1,790	5.05
Madison	6,870	8,917	3.00%	3,587	2.49
Dawson	9,050	8,904	-0.20%	2,373	3.75
Rosebud	9,399	8,124	-2.10%	5,010	1.62
Valley	7,653	7,537	-0.20%	4,919	1.53
Broadwater	4,378	7,288	6.50%	1,189	6.13
Powell	7,203	6,999	0.90%	2,326	3.01
Blaine	6,968	6,980	-0.30%	4,218	1.65
Teton	6,436	6,269	0.40%	2,271	2.76
Pondera	6,384	5,994	1.90%	1,626	3.69
Chouteau	6,062	5,916	0.30%	3,965	1.49

Toole	5,261	5,011	0.90%	1,916	2.61
Musselshell	4,471	4,896	3.10%	1,866	2.62
Mineral	3,877	4,860	6.50%	1,220	3.98
Phillips	4,568	4,192	0.00%	5,123	0.82
Sweet Grass	3,633	3,723	1.40%	1,855	2.01
Sheridan	4,078	3,527	0.30%	1,669	2.11
Granite	2,849	3,344	1.10%	1,727	1.94
Fallon	2,816	3,017	-0.50%	1,620	1.86
Wheatland	2,243	2,059	-1.60%	1,422	1.45
Judith Basin	2,330	2,044	1.30%	1,870	1.09
Meagher	1,916	1,964	2.00%	2,392	0.82
Liberty	2,168	1,946	-0.70%	1,427	1.36
McCone	1,960	1,718	-0.90%	2,641	0.65
Powder River	1,847	1,702	0.50%	3,298	0.52
Daniels	2,005	1,686	1.70%	1,426	1.18
Carter	1,335	1,428	1.10%	3,339	0.43
Garfield	1,268	1,209	3.20%	4,668	0.26
Prairie	1,179	1,091	1.40%	1,736	0.63
Wibaux	1,072	934	0.60%	888	1.05
Golden Valley	1,019	831	1.30%	1,173	0.71
Treasure	854	768	0.90%	979	0.78
Petroleum	493	519	4.20%	1,651	0.31

Economics

From 2017-2021, the median household income in the United States was $69,021 and the per capita income in the last 12 months was $37,638. In Montana, the median household income was $60,560 and the per capita income in the last 12 months was $34,423, with 11.9% of persons below the poverty line. All but four ranked below the U.S. median household income.

Land ownership

The federal government owns 27,276,820 acres (29.3% of Montana), state government owns 5,196,400 acres (5.6% of Montana), and private entities own 60,682,580 acres. The majority of mountainous habitat (above 6,000 ft., 1,829 m) is located within publicly owned National Forests, corporate timber lands, Glacier National Park, and the Montana portion of Yellowstone National Park. Approximately 36% of Western Montana is managed by USFS, and just over 2% by NPS. National Forests include Bitterroot, Custer-Gallatin, Deer Lodge-Beaverhead, Flathead, Helena-Lewis and Clark, Kootenai, Kaniksu (part of the Idaho Panhandle National Forest complex), and Lolo. The Bureau of Land Management (BLM) manages just under 3% of lands in Western Montana. A small portion (just over 1%) of mountainous habitat is in state ownership (Montana Department of Natural Resources and Conservation [DNRC]). The Blackfeet Indian Reservation constitutes over 3% of total lands, and the Flathead Indian Reservation constitutes an additional 2.6%. Smaller amounts are managed specifically for wildlife by USFWS and FWP. Other lands are in private ownership, including private subdivisions, ranches, land trusts, ski resorts and timber company lands. Communities of various sizes also occupy several thousand acres of low-elevation river-valley habitat.

Agriculture

Montana supports a large agricultural economy. In 2017, there were an estimated 27,048 farms and ranches. By far the most common activities of these farms and ranches were raising beef cattle, growing forage (hay) for cattle, and growing grain crops (wheat, oats, barley). Sheep, hogs, and dairy cattle were also raised in smaller numbers. County-specific agricultural characteristics can be found at: https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Montana/index.php.

Sheep and beef cattle were grazed on privately owned grassland and on publicly owned (USFS, BLM, DNRC) grazing allotments. In 2021, an estimated 2,451,500 cattle (including calves) grazed in Montana, as well as some 287,300 sheep (including lambs). The largest populations of cattle were in Beaverhead (~ 125,000), Fergus (~ 115,000), and Yellowstone (~ 110,000) counties, and the largest number of sheep were in Carter (~ 19,000), Golden Valley (~ 15,300), Stillwater (~ 12,300), and Beaverhead (~ 12,200) counties. Cattle density was highest in Yellowstone, Carbon, and Judith Basin Counties; cattle outnumbered people by the greatest proportion in Carter, Garfield, and Powder River Counties (Table S-5).

Table S-5. Montana counties: Number and density of cattle, and ratio of cows to people. *From nass.usda.gov/mt (USDA, NASS, Mountain Region 2021). Counties are listed in descending order by 2021 number of cattle.*

County	Number of cattle	Cattle density	Cattle/person
Beaverhead	125,000	22.55	13.12
Fergus	115,000	26.53	9.90
Yellowstone	110,000	41.75	0.66
Carter	89,000	26.65	62.32

Rosebud	89,000	17.77	10.96
Custer	89,000	23.53	7.47
Powder River	83,000	25.17	48.77
Big Horn	82,000	16.41	6.33
Madison	79,000	22.02	8.86
Carbon	77,000	37.61	7.10
Phillips	75,000	14.64	17.89
Garfield	72,000	15.42	59.55
Judith Basin	70,000	37.44	34.25
Blaine	69,000	16.36	9.89
Cascade	63,000	23.44	0.75
Richland	62,000	29.75	5.49
Valley	61,000	12.40	8.09
Meagher	50,000	20.91	25.46
Lake	48,000	32.14	1.50
Prairie	47,000	27.07	43.08
Stillwater	45,500	25.43	5.03
Fallon	45,000	27.79	14.92
Teton	45,000	19.82	7.18
Glacier	43,000	14.38	3.12
Wheatland	41,000	28.83	19.91
Gallatin	40,000	15.34	0.33
McCone	39,500	14.95	22.99
Lewis and Clark	39,000	11.27	0.54
Musselshell	38,000	20.37	7.76
Chouteau	36,500	9.20	6.17
Park	36,000	12.85	2.06
Dawson	35,500	14.96	3.99

Powell	34,500	14.84	4.93
Sweet Grass	32,500	17.52	8.73
Treasure	27,500	28.09	35.81
Roosevelt	26,500	11.26	2.45
Ravalli	26,500	11.07	0.58
Jefferson	24,500	14.78	1.96
Pondera	23,500	14.45	3.92
Broadwater	22,500	18.92	3.09
Petroleum	21,500	13.03	41.43
Wibaux	20,000	22.51	21.41
Granite	18,900	10.94	5.65
Toole	17,800	9.29	3.55
Sheridan	17,300	10.37	4.91
Hill	16,400	5.67	1.01
Golden Valley	16,100	13.73	19.37
Sanders	15,200	5.50	1.17
Daniels	14,000	9.82	8.30
Liberty	10,000	7.01	5.14
Flathead	8,300	1.63	0.08
Deer Lodge	7,200	9.85	0.76
Missoula	5,700	2.19	0.05
Silver Bow	3,600	5.02	0.10
Lincoln	2,100	0.58	0.10
Mineral	400	0.33	0.08

Mining

Large mineral deposits, ranging from talc to gold, are located throughout Montana. Of these, metallic minerals provide the largest share of Montana's non-fuel mining income, with copper, palladium, and platinum leading the list of important metals (the latter two 2 being mined nowhere else in the United States). A breakdown of nonfuel mineral commodities can be found through the USGS National Minerals

Information Center (https://www.usgs.gov/centers/national-minerals-information-center/statistical-summary). In 2012, there were a total of 53 mines in production, development, standby permitting, or reclamation status, all but 7 of which were located within Western Montana (these 7 were predominantly coal mines; http://www.mbmg.mtech.edu/pdf/2012ActiveMines.pdf).

Wood products

The majority of Montana's forested lands (23 million acres) are located within the western part of the state. Nearly 4 million acres of these forest lands are permanently reserved as either Wilderness Areas or National Parks. Eleven million acres of the remaining forested land is administered by the USFS, with 5.2 million acres of this public estate designated by current forest plans as suitable for timber production. Private forest lands occupy approximately 6 million acres, with 2 million owned and managed by large timber companies. Another four million acres of private forest lands are owned by some 11,000-plus private individuals. Timber production by county can be found through University of Montana's Bureau of Business and Economic Research (https://www.bber.umt.edu/FIR/HarvestMT.aspx). In 1988, an estimated 1,163 million board feet (MMBF) were produced from Montana's forestlands; this declined to approximately 352 MMBF in 2009, before recovering slightly to 367 MMBF in 2018.

Sources for wood products, categorized broadly into public (USFS; state and other public), and private (corporate industrial timber lands; private, non-industrial and tribal) forestlands, has varied over time (Figure S-2). During the 1980s, most production came from U.S. Forest Service lands, being almost matched by private industrial forests, with very little coming from state lands. As production on USFS lands declined in the 1990s, the proportion coming from non-industrial and tribal lands increased (briefly becoming dominant in 1994). The relative contribution from private industrial lands peaks in about 1998 as USFS lands continued to decline, but other public lands made up some of that. However, the proportion contributed by private industrial lands has declined markedly in the past 20 years, with the other sources increasing in importance.

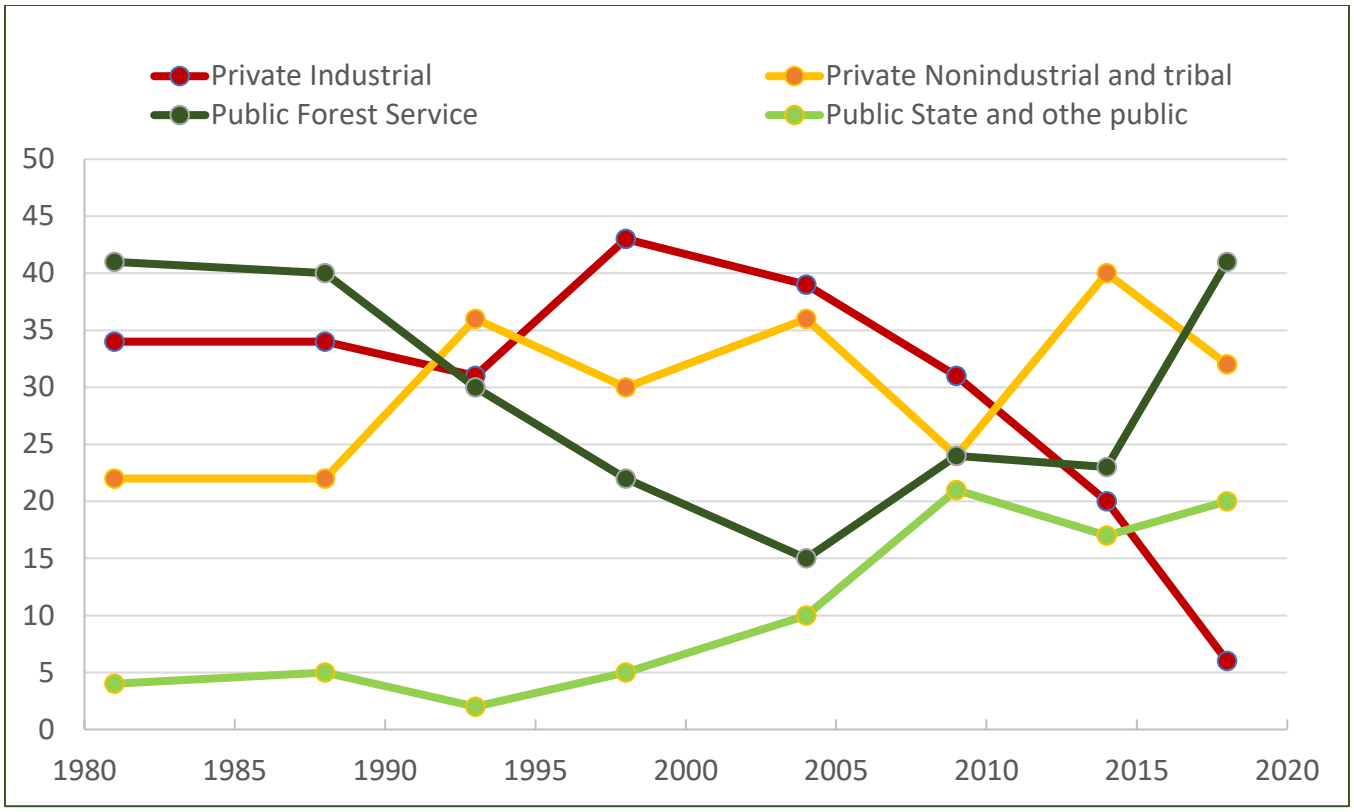

Figure S-2. Percentage of wood products from four categories of forest producing lands. *Data (1985–2020) from University of Montana Bureau of Business and Economic Research (BBER) 2020, http://www.bber.umt.edu/pubs/forest/fidacs/MT2018%20Tables.pdf*.

In 2018, the University of Montana Bureau of Business and Economic Research (BBER) estimated that Montana's forest industry accounted for just under 8,000 jobs in direct employment, and an additional 13,300 jobs indirectly associated with wood products.

Recreation

Outdoor recreation and tourism are major components of Montana's economy, which is nationally- and world-renowned for its high-quality fishing, hunting/trapping, camping, hiking, river floating, skiing, snowmobiling, wildlife viewing and sightseeing opportunities. Glacier and Yellowstone National Parks, Flathead Lake, and other public lands attract large numbers of people to the area every year. Many of these outdoor activities are made possible by public ownership of large tracts of mountainous habitat and additional access provided by many private landowners. Recreationists have largely unhindered access to millions of acres of undeveloped land. Quantifying recreation can be difficult because documentation (e.g., permitting or licensing) is not procedurally uniform for consumptive and non-consumptive types of recreation, and therefore cannot be compared. Impacts of wolf management can be beneficial or adverse, minor or significant depending on a particular individual's beliefs and values in regard to the specific recreation (consumptive or non-consumptive).

Values associated with wolves: benefits and challenges of wolf presence in Montana

Although largely rural (only the Billings and Missoula areas are considered "metropolitan" by the U.S. Census Bureau) and more ethnically homogenous (88.6% white, 6.4% Native American) and older than most states (23.2% 62 years or older), Montana contains a population with a diversity of values and attitudes toward wildlife. Based on a large-scale public opinion survey in 19 western states conducted in 2004, Teel and Manfredo (2009) developed a typology of value orientations they termed "traditionalists," "mutualists," "pluralists," and "distanced." "Traditionalists," also known as "utilitarian," scored high on measures valuing use of animals and hunting, and tended to emphasize that wildlife should be used and managed for the benefit of people. "Mutualists" scored higher on measures such as social affiliation and caring and tended to view wildlife as part of their extended social network. "Pluralists" scored high on both sets of measures, with context and situations controlling which might dominate in any given issue. Those categorized as "distanced" scored low on both sets of measures, and thus were more apathetic generally about wildlife.

A nationwide survey conducted in 2004 found that Montana had a greater percentage of respondents categorized as "traditionalists" than the national average (47.4%; Teel et al. 2005), which was similar to the 44.6% estimated using similar methodology in 2017. Montana also had a similar percentage of respondents categorized as "mutualists" than the national average (18.9%; Teel et al. 2005), which was similar to the 17.5% estimated using similar methodology in 2017. Manfredo et al. (2018) found the percentage of respondents to be down considerably for "traditionalists" (38.5%) and up considerably for "mutualists" (26.5%), although the methodologies employed were different, making direct comparisons difficult. Montana had among the highest percentage among the 19 western states categorized as "pluralists" (27.0-27.5%), almost unchanged from 2004. Montana had among the lowest percentage of respondents among western states categorized as "distanced" (7.0-7.5%). In short, Montanans don't all share the same value orientation toward wildlife, but very few are apathetic (Teel et al. 2005, Manfredo et al. 2018). Manfredo et al. (2018) also found that, among all 50 states, only Alaska (62.9%) and Wyoming (62.1%) exceeded Montana's 60.8% of respondents agreeing that local communities should have more control than they currently do over management of fish and wildlife by the state. Montana was among 6 states with the highest percentage of respondents agreeing that wolves that kill livestock should be lethally removed by state managers. Almost 14% of Montana respondents reported being active hunters, the 11th highest among the 50 states (Manfredo et al. 2018). FWP licensing data shows that in any 5-year period, 55% of eligible Montanans hold a hunting or fishing license. Thirty-seven percent of Montana respondents reported being active wildlife viewers, a percentage exceeded only by the 40.7% in Alaska. Montana, Alaska, and Wyoming stood apart as states with high percentages of active wildlife viewers while also having high percentages of "traditionalists" (who might otherwise be assumed to hunt wildlife but not watch it). Nationwide, trust in state wildlife agencies in 2018 (64%) far exceeded trust in state government generally (41%) or the federal government (25%). "Traditionalists" tended to trust state wildlife agencies more (65%) than "mutualists" (54%), although pluralists were the most trusting of state wildlife agencies (72%). In Montana, trust in the state wildlife agency was higher than the national average among both "traditionalists" (71.5%) and "mutualists" (62.3%), and was 69% among all respondents in 2018. In contrast, trust in the federal government among Montana respondents declined from 41% in 2004 to just 22% in 2018 (Manfredo et al. 2018).

Generally, attitudes towards wolves are based on experience with or proximity to wolves (Williams et al. 2002, Karlsson and Sjostrom 2007, Houston et al. 2010, Eriksson and Ericsson 2015), diversity of values and beliefs (i.e., the right for wolves to exist and corresponding emotional responses; Bright and

Manfredo 1996, Slagle et al 2012), and demographics (i.e., attitudes are often correlated with age, income, and urban or rural residence; George et al. 2016). Most world-wide studies have documented positive attitudes towards wolves and wolf reintroduction efforts in the last half century (Williams et al. 2002), as well as positive attitudes towards wolf presence and/or protections in more recent years (Slagle et al. 2017, public policy polling 2019, Niemiec et al. 2020). Visitors to YNP enjoy viewing wolves among other wildlife and scenery (USFWS 1994a). However, associating visitation exclusively with wolf-viewing is near impossible. Wolves were reported as “extremely important” or “very important” for 23-53% of respondent visitors to groups o YNP (National Park Service 2016), and 44% of visitors listed wolves as one of the top three species they would more like to see (Duffield et al. 2006). Additionally, 62% of respondents in a national survey indicated that they were satisfied just knowing that wolves would be present in YNP (Duffield et al. 1993). Additionally, civilians and recreationalists have embedded values regarding wolves on the landscape as wolf management indirectly impacts their livelihoods (i.e., ecotourism; Duffield et al. 2006) and experiences respectively. Most negative impacts (e.g., safety of pets, loss of big game hunting opportunities, and wolf-livestock conflicts) can be more easily quantified than subjective matters such as values and beliefs, and thereby are at times more often displayed in media coverage (Niemiec et al. 2020).

As a result, there is a large amount of contention surrounding the polarized perspectives of stakeholders. FWP has conducted regular surveys as part of human dimensions research specific to wolves and will continue to do so in systematic installments. In Montana, tolerance for has increased with time for general Montana residents, resident deer/elk license holders, and resident private landowners, but has remained constantly lower for resident wolf license holders. General residents are 74% tolerant or very tolerant of wolves on the landscape, compared to 41% in 2012 (Figure S-3; Metcalf et al. 2024). These findings echo other studies in other locations that documented significant increases in positive attitudes associated with wolves (Williams et al. 2002, George et al. 2016). Tolerance for wolf hunting is high for all respondent groups, but has increased for resident wolf license holders and decreased for general residents (71% in 2012 to 58% in 2023). Tolerance for wolf trapping in 2023 was steady or decreased for all respondent groups compared to 2017, with resident license holders and private landowners ranging from 69-92% tolerant or very tolerant and general residents 49% intolerant or very intolerant. Opinions on specific regulations varied. For example, 34% of deer/elk license holders, 43% of private landowners, and 79% of wolf license holders think the wolf hunting season is too short or much too short. Similarly, 30% of deer/elk license holders, 37% of private landowners, and 66% of wolf license holders think the wolf trapping season is too short or much too short. Comparatively, 34% and 40% of general residents think the hunting and trapping season lengths are too long or much too long. Thirty percent of deer/elk license holders, 45% of landowners, and 63% of wolf license holders think bag limits are too few or way too few, while 53% of general residents think bag limits are too many or way too many. In 2023, there were moderately low and largely unchanged levels of satisfaction with wolf management across all respondent groups (20.5-33.0%). Private landowners and resident wolf license holder reported the lowest levels of confidence in FWP to manage wolves, which had dropped from 2017, while general residents and resident deer/elk license holders reported the highest levels of confidence in FWP. Overall, general residents had the most positive attitudes toward wolves, followed by resident deer/elk license holders then private landowners, and resident wolf license holders held consistently negative attitudes toward wolves (Metcalf et al. 2024).

Other states have found a similar discrepancy between user groups; livestock producers and hunters and trappers more often support wolf harvest seasons and lethal management strategies to address wolf-related conflict compared to the general public, and the average demographics and experiences of these user groups likely play a role on their values and beliefs as well as trust in state government agencies. Like Metcalf et al. (2024), other studies have provided evidence of an association between liberalization of harvest policies and increasing negative attitudes (Browne-Nunez et al. 2015, Hogberg et al. 2016), however these studies also showed general support for lethal harvest of wolves. Despite diverse views toward harvest seasons and management strategies, survey results indicate widespread public misunderstanding and lack of knowledge about wolf population status, management strategies, and harvest regulations (Dietsch et al. 2018, Duda et al. 2019, Schroeder et al. 2020, Bradshaw et al. 2022, Riley et al. 2022).

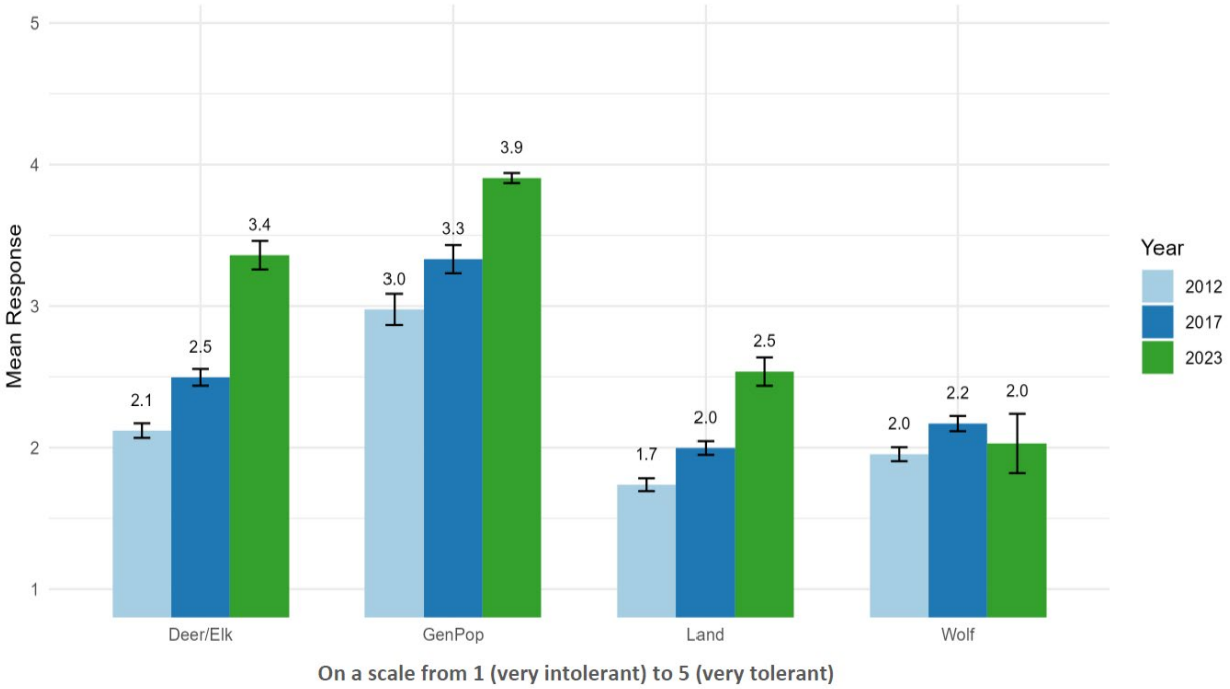

Figure S-3. Response to..."On a scale from 1 (very intolerant) to 5 (very tolerant), how tolerant are you with wolves being on the Montana landscape?" (Deer/Elk = Resident Deer/Elk License Holders; GenPop = General Residents; Land = Resident Private Landowners; and Wolf = Resident Wolf License Holders. Error bars show the standard error of each estimate; Metcalf et al. 2024).

Biological benefits and challenges

Predators such as wolves are influential to the integrity of many ecosystems (Estes 1996), though some ecological communities persist without apex predators. Interactions between top-level carnivores and prey species through evolutionary time has shaped and fine-tuned each one morphologically and behaviorally into what they are today. In the absence of those functional relationships, ecological systems may not be balanced (Fritts et al. 1994). Several ecological benefits and challenges of top-level

carnivores are described in depth in the Ecology of wolves section of this plan. Wolves provide carrion for other species, cull sick or weak animals, and indirectly release limiting factors for other flora and fauna. Wolves may also directly influence population dynamics of ungulates.

Today, wolf-prey relationships are influenced by many factors, including habitat modification by humans, land management activities, changes in prey species distribution and numbers, economics, and social and political factors, all of which, in and of themselves, are highly dynamic. Predator-prey relationships have been studied extensively; yet the results of each study are unique to the study area and the conditions prevailing at the time the research was conducted (e.g. predator species present, predator density, prey species present, prey density, winter severity). Predator and prey populations are expected to fluctuate and change through time due to a variety of compounding factors. Despite technological and quantitative advances, our ability to understand population dynamics and predict how predator and prey populations respond to management activities will always contain some degree of uncertainty due to the complex nature of interspecific interactions and relationships wildlife have with their environment.

Broader habitat management and conservation purposes are also served by the presence of large carnivores (Fritts et al. 1994). Providing and sustaining an adequate prey base for wolves, requires that ungulates be carefully managed and their habitats protected, which ultimately benefits entire plant and animal communities. Because wolves and their prey have large home ranges, attention should be focused on the habitat values of both public and private lands. Voluntary habitat conservation efforts, such as land or vegetation management plans and conservation easements will ultimately benefit many wildlife species.

Social benefits and challenges

The social, cultural, and aesthetic values people hold toward wolves today grow out of a long and colorful history of interactions between wolves and humans. Early Native Americans shared the landscape with wolves prior to human expansion, which ultimately led to their attainment of cultural significance. In the days of European settlement and for decades thereafter, settlers viewed wolves unfavorably because they killed livestock during a period of dramatic declines in native prey populations. Wolves were also perceived as a negative, controlling influence on prey populations. However, public opinion about predators, wolves in particular, evolved through the 1960s and 1970s. Wolves came to symbolize changing attitudes about wildlife, the environment, and public lands. With the passage of the ESA and similar laws in the US, changing attitudes were institutionalized. Increasingly, the national public embraced the wolf as a symbol of wilderness and the call to save imperiled species. Wolves symbolize the diversity of American thought, values, and opinions, coming full circle from persecution and extirpation to recovered sustainable populations. Yet, there remains a great diversity in the social, cultural, and aesthetic values that Montanans assign to wolves, as described in detail in the Values associated with Wolves in Montana section of this plan.

The greatest challenges of wolf management come from social and political issues rather than biological issues. Active management of wolf densities and distributions is necessary given their high reproductive potential and dispersal capabilities, and it is unrealistic to expect that wolves could exist in 21st century settings as they did in at the time of Lewis and Clark. Management, including non-lethal and preventative strategies as well as lethal removal, is necessary to address and reduce conflicts with livestock and humans (Mech 1995, Mech 2001). However, the same public sentiments that promoted

wolf recovery and protection often oppose management and lethal removal of wolves (Mech 1995). This dichotomy has led many wolf experts to emphasize the need for a balanced public outreach program that incorporates wolf control as a part of any wolf restoration program (Fritts et al. 1995).

Some livestock organizations and hunting advocates in the northern Rockies spoke out against wolf recovery and restoration efforts in the GYA and central Idaho, as well as against the legal protections afforded wolves by the ESA (USFWS 1994b). Opposition stemmed from concerns about wolf depredations on livestock and the associated economic losses, loss of management flexibility by federal land management agencies, land-use restrictions, impacts to big game populations, and reduced hunting opportunity. Despite many legal challenges, wolves were released in 1995. The USFWS worked to increase the tolerance and acceptance of wolves by those who expressed the greatest opposition or who would be affected the most by wolf presence. Resolution of wolf-livestock conflicts in a safe, efficient manner is still a federal and state priority.

Montana will continue to face similar challenges and polarization of opinions on the presence of wolves. With a dispersed rural population, an urban population concentrated in a few populous counties, an economy in which agriculture ranks among the top three industries, ecotourism, and expanses of public land that support wolves, the spectrum of human values and attitudes about wolves ranges from total protection of the species to total elimination. These values are highlighted by urban and rural differences, by differences between state residents and the national public, and by differences in the knowledge and understanding of wolf biology and the education of individual respondents (USFWS 1994a, George et al. 2016, Duda et al. 2019, Schroeder et al. 2020, Bradshaw et al. 2022, Riley et al. 2022). These differences in values, attitudes, and opinions create a challenging environment in which to manage a controversial species, such as wolves.

Economic benefits and challenges

Wildlife in Montana has contributed to increased tourist interest and visitation to the state. Visitors rated mountains, Glacier and Yellowstone national parks, rivers, open space, and wildlife as the top six attractions to the state, respectively (Parrish et al. 1997, Dillion and Nickerson 2000). In 2017, nonresident visitors to Montana spent $3.36 billion, supported 53,380 jobs and contributed to 58% of all dollars in the state. Montana ranks second of western US states in visitor spending per capita, with the travel industry focused in the western half of the state and 40% of vacationers participating in wildlife viewing (Nickerson et al. 2019). In 2022, about 12.5 million nonresident visitors spent an estimated $5.82 billion in Montana (Grau 2023). The 2019 Institute for Tourism and Recreational Research (ITRR) quantified that almost $237 million is spend in Park County, MT by out-of-state visitors, creating approximately 3,270 local jobs (Grau 2020). Six and a half percent of lodging facility use taxes from local spending by visitors financially contributes to the maintenance of state park facilities (§ 15-65-121, MCA), which totaled to $3,770,489 in 2022 (Montana Dept. of Commerce).

Since the reintroduction of wolves, the visitation to YNP has increased an estimated 3.7% due to wolf presence specifically (Duffield et al. 2006). Wolf sightings were driven by population size and proximity to den sites, as well as harvest pressure outside of protected area boundaries (Borg et al. 2016, Hebblewhite and Whittington 2020). Wolf centric ecotourism has brought an estimated $35.5 million (confidence interval of $22.4 to $48.6 million) additional tourism dollars into the local economies in the GYA (Duffield et al. 2006). The ITRR extrapolates that $82.7 annual visitor spending in the NRM states is attributed to wolves (Neher et al. 2022). Wildlife-viewing is associated with an influx of cash and sales

amounts during the third quarter of the year in western Montana, with spending predominately in retail and grocery (41%) and tourism (e.g., restaurants and lodging, 34%; Montana Dept. of Commerce 2021). However, these quantifications are not wolf-specific. The 2010 mean per capita income for Montana cities in the GYA ranged from $17,810-$31,618 (Gardiner, West Yellowstone, Red Lodge, and Cooke City; 2010 Demographic Profile Data, US Census Bureau 2010).

In contrast to the benefits wolves provide for the ecotourism industry, other segments of the economy are adversely affected by wolves. Livestock producers may experience significant direct and or indirect economic impacts due to wolf presence or depredation. In the most recent USDA published report, the percentage of calf deaths attributed to predators increased steadily from 3.5% in 1995 to 11.1% in 2015. In Montana, total cattle and calf losses from all causes cost about $55,135,000, with injuries due to predators costing an additional $223,000 in 2015. However, only 2.0% of cattle deaths and 9.8% of calf deaths were due to predators, with 10.2% and 12.8%, respectively, of those depredations attributed to wolves. This means that in Montana, about 0.37% of cattle and 1.31% of calf total losses were attributed to wolves (USDA 2015). Losses due to predators amounted to 5% of the 2020 sheep and lamb supply and 47.2% of all sheep and lamb deaths, costing about $3.57 million in losses, though coyotes are the primary culprit of sheep depredations (Sommer 2021). From 1987–2003, livestock producers in the NRM that experienced wolf-livestock depredations averaged $11,076.49 per year in losses (Muhly and Musiani 2009). For comparison, the average Montana farm income in 2022 was $46,889 (USDA NASS 2022). In 2023, the Montana Livestock Loss Board reported $221,150.18 in payments for 180 documented depredation events by wolves, grizzly bears, and mountain lions (2023 Livestock Loss Statistics). Specific annual wolf-livestock depredation compensation can be found in **Chapter 2.4** of the DEIS. Producers could have other losses beyond what is confirmed and documented, and it is difficult to estimate economic losses due to unconfirmed or undocumented livestock losses or the indirect economic costs associated with wolf presence. Indirect financial expenses of wolf presence may include costs associated with non-lethal predator control, increased human resources to prevent predator conflicts or mitigate behavioral responses of livestock, and stress-induced declines in livestock health and weight gain as a result of harassment by wolves (Cooke et al. 2013, 2017). While Ramler et al. (2014) found no evidence that wolf presence had any detrimental effects on calf weights and other non-wolf factors (e.g., climate, husbandry practices) better explained variation in calf weight, occurrence of a confirmed cattle depredation was negatively associated with average calf weight.

For hunting-related businesses such as outfitting, economic losses may be associated with decreased hunter opportunity (i.e., reduced tags) or fewer recreational days afield (i.e., shorter seasons), which ultimately may reduce hunter expenditures or participation rates. Based on hunter harvest data, declines in the 1994 EIS prediction of annual big game hunter spending associated with ungulate declines and restrictive harvest opportunities as a result of wolf predation was estimated to be $187,000 to $465,000 in the GYA (Duffield et al. 2006). Trump et al. (2022), however, found that ungulate harvest opportunity did not decrease with increasing predator populations. Hunter opportunity may fluctuate based on prey densities and distributions as they relate to population objectives, predator densities and community composition, the occurrence and frequency of poaching, environmental conditions, habitat quality and quantity due to habitat loss and fragmentation associated with population growth and urban development, public land accessibility, among other causes. Big game hunting opportunity may also influence local economies based on big game hunter spending at small businesses. The license dollars and revenue that funds wildlife and habitat management efforts, may be negatively impacted.

S.7. POTENTIAL ENVIRONMENTAL IMPACTS

This section summarizes and compares the potential direct, secondary, and cumulative impacts on natural, cultural, and human resources associated with Alternative 1 – No Action and Alternative 2 – Proposed Action. Under both the "No Action" alternative and the "Proposed Action" alternative, there would be no new direct, secondary, and cumulative impacts to any of the resources. No unavoidable adverse, irretrievable or irreversible impacts are identified for any of the resources under either alternative.

Under the proposed action, wolf management would look mostly the same as with the No Action Alternative (i.e., the 2003 Wolf Plan) except that it would incorporate current science as it becomes available and is most practical with implementable strategies, improved monitoring methods, changes in harvest management tools, or updated depredation response and mitigation (involving lethal and non-lethal strategies), as well as provide increased transparency and understanding to the public and capture a diversity of values in regards to wolves in Montana. The proposed action would not change the status of the existing area. No new impacts due to current and future activities in the existing area would occur.

FWP has demonstrated successful management of wolves through the creation and implementation of the 2003 Wolf Plan, which serves as the foundation of the 2025 Wolf Plan. Although annual wolf reports have been published since the adoption of the 2003 Wolf Plan, as a means to provide transparency of wolf monitoring and management, the 2003 Wolf Plan fails to provide details on how wolves are currently monitored and managed cohesively. While the 2003 Wolf Plan allows for contemporaneous and scientific approaches to wolf management as well as flexibility to changing biological and sociopolitical environments, ultimately allowing FWP to monitor and manage wolves using the methods and tools employed today, it does not describe the history of the Montana wolf population and the evolution of how FWP monitors and manages wolves since its publication. More specifically, the 2003 Wolf Plan does not address recent research regarding monitoring methods and management strategies (e.g., iPOM, surveys on wolf tolerance, non-lethal preventative strategies), the authority of WS in making wolf-livestock conflict decisions, current population status and trends, changes in harvest structure and statutes, new tools to provide public information (i.e., dashboards), or the transition of the population metric from breeding pairs to number of individuals. Over the last 20 years, the wolf population has recovered and remained above recovery criteria, withstanding a series of continually evolving harvest seasons adopted by the commission and new statutes developed through legislative action. Further, FWP has considered complex varying opinions on wolf monitoring and management, via public engagement processes, incorporating them as allowed within our legal bounds and as monitoring and management tools became available and were practically implementable to us.

Thus, while FWP has adopted new monitoring and management strategies over time, as the affected environment required, nothing in the proposed action will change wolf management, and, as a result, there will be no new impacts. The proposed action provides the opportunity to be more transparent with the public about what has changed over time since the publication of the 2003 Wolf Plan. This includes, but is not limited to: transparency about monitoring methods; changes in harvest management tools; updated depredation response and mitigation (involving lethal and non-lethal strategies); and inclusivity of Montanans diverse values as it relates to wolves on the landscape in Montana.

S.8. WHERE TO OBTAIN MORE INFORMATION

More information regarding the proposed project is available on FWP's website at:

https://fwp.mt.gov/aboutfwp/public-comment-opportunities/draft-wolf-mgmt-plan

If you have any additional questions or concerns, please contact:

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