

DRAFT ENVIRONMENTAL IMPACT STATEMENT COLORADO GRAY WOLF 10(j) RULEMAKING

Prepared for
U.S. Fish and Wildlife Service

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EXECUTIVE SUMMARY

This draft environmental impact statement (EIS) analyzes the U.S. Fish and Wildlife Service's (Service) proposed action to address a request from the State of Colorado to designate a gray wolf population that would be reintroduced into Colorado as an experimental population under section 10(j) of the Endangered Species Act of 1973 (ESA), as amended (16 United States Code [USC] 1531 et seq.). The Service has regulatory authority under the ESA to manage the conservation and recovery of federally listed threatened and endangered species, including the federally listed endangered gray wolf. This authority extends to creating rules and regulations and permitting legitimate activities that would otherwise be prohibited by federal law. Development of this 10(j) rule is considered a major federal action requiring review under the National Environmental Policy Act of 1969 (NEPA). This EIS has been prepared in accordance with NEPA and its implementing regulations (40 Code of Federal Regulations [CFR] 1500–1508). The Service has prepared an EIS for this proposed action due to the level of public interest in the State Plan to reintroduce gray wolves to Colorado and the potential for public controversy.

The proposed section 10(j) rule would provide management flexibility to the Service and its designated agents for the reintroduction and management of the gray wolf (*Canis lupus*). The Service uses the term “gray wolf” to refer to *Canis lupus*, separate from the Mexican wolf (*Canis lupus baileyi*). The gray wolf and Mexican wolf are listed as separate entities under the ESA, and the term “gray wolf” as a listed entity encompasses several subspecies, with the exception of the Mexican wolf. Definitions of technical and regulatory terms used in this EIS are provided in Appendix A.

On November 3, 2020, Colorado voters approved Proposition 114 (codified as Colorado Revised Statute 33-2-105.8), a citizen-initiated ballot measure requiring the Colorado Parks and Wildlife (CPW) Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species' historical range in Colorado by December 31, 2023. As part of the reintroduction process, CPW requested the Service designate the gray wolf population that would be reintroduced to Colorado as experimental under section 10(j) of the ESA. Designating the population as experimental would allow the Service to tailor ESA protections for the population to provide management flexibility and better address stakeholder concerns.

PURPOSE AND NEED FOR ACTION

The purpose of this action is to respond to Colorado's request to designate the gray wolf population that would be reintroduced to Colorado as experimental under section 10(j) and to further the conservation of the species. This reintroduction effort is a result of Colorado Revised Statute 33-2-105.8, passed on November 3, 2020, which directs the CPW Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species' historical range in Colorado by December 31, 2023.

The need for this action is to provide management flexibility to the Service and its designated agents. Currently, the gray wolf is listed as endangered under the ESA in Colorado. To facilitate reintroduction efforts, the State of Colorado has requested the Service designate the gray wolf population that would be reintroduced as an experimental population under section 10(j) of the ESA. This designation would reduce the regulatory impact of reintroducing a federally listed species in a specific geographic area (an experimental population boundary). This EIS evaluates the use of the 10(j) process for this reintroduction.

PROPOSED ALTERNATIVES

Three alternative approaches for the proposed regulatory framework were chosen for analysis in the EIS:

- **No-action alternative** – Under this alternative, the Service would not approve the 10(j) rule, and no management flexibility would be provided to the Service and its designated agents. Under the no-action alternative, the State of Colorado would still reintroduce the gray wolf on the Western Slope in accordance with Colorado Revised Statute 33-2-105.8.
- **Alternative 1** – Provide the Service and its designated agents management flexibility and provide for conservation of the species by approving a section 10(j) rule for the gray wolf population in Colorado, including any gray wolf living in, dispersing into, or reintroduced to the state.
- **Alternative 2** – Provide the Service and its designated agents management flexibility and provide for conservation of the species by approving a section 10(j) rule for the gray wolf population that would be reintroduced in a limited territory and issuing a permit under section 10(a)(1)(A) for an existing gray wolf population, should one become established, outside the designated experimental population boundary in the state.

The three alternatives addressed in the EIS were developed during internal scoping. The two action alternatives are consistent with section 10 of the ESA. The State of Colorado could request to be approved as a designated agent of the Service under either alternative 1 or 2; therefore, these alternatives meet the purpose and need for the proposed action. The Service developed alternative 2 to manage gray wolves that would be reintroduced to Colorado and any established, pre-existing wolf populations in the state, should they occur, consistent with section 10 of the ESA. The term “population” is defined in section 1.4 of the EIS. Pre-existing wolf populations include wolves living in the state and wolves that naturally have dispersed into the state before finalization of the section 10(j) rule and meet the definition of a population. The no-action alternative is included in compliance with Council on Environmental Quality regulations implementing NEPA (40 CFR 1502.14[c]). The no-action alternative considers implementation of the State Plan subject to restrictions under section 9 of the ESA. Under the no-action alternative, the Service would not issue a section 10(j) rule or section 10(a)(1)(A) permit and would continue to manage gray wolves in Colorado as an endangered species under the ESA. The alternatives are summarized in table ES-1.

The Service has identified alternative 1 as the Preferred Alternative for implementing the proposed action. Alternative 1 would provide a consistent federal regulatory framework and take provisions across the state for managing gray wolves that would be reintroduced and gray wolves living in or naturally dispersing to Colorado. This alternative would provide the management flexibility requested by the State of Colorado within the experimental population boundary, which would include the entire state. Management flexibility would be provided statewide because, although gray wolves would be reintroduced on the Western Slope in accordance with Colorado Revised Statute 33-2-105.8, wolves can disperse long distances and may eventually occur throughout the state. See section 2.4.2 for additional detail on alternative 1.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The draft EIS analyzes the potential environmental consequences of alternatives that would implement the proposed action to develop a regulatory framework at the request of the State of Colorado to assist in its wolf reintroduction program. The analysis in the EIS compares the potential impacts of the action alternatives (alternatives 1 and 2) to conditions under the no-action alternative. The no-action alternative recognizes that the State of Colorado can move forward without a regulatory framework from the Service and considers the impacts of managing gray wolves that would be reintroduced to Colorado as an endangered species under the ESA. Table ES-2 summarizes the impacts of these alternatives to special status species, other wildlife, Tribal cultural resources, socioeconomics, and environmental justice concerns.

Table ES-1. Comparison of Alternatives

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Regulatory Management Framework Used	All ESA protections apply.	Section 10(j) throughout entire state of Colorado	If an existing population is documented before a section 10(j) rule is finalized, the State could apply for a permit, and the Service could issue the State a section 10(a)(1)(A) permit in the portion(s) of Colorado in which an existing population (as defined by the Service) is located, if discovered. For analysis purposes, this alternative is based on the following State of Colorado Big Game Management units: 161, 6, 7, 16, 17, and 171, which occur in Jackson County and the western part of Larimer County (see figure 2-2). An experimental population boundary would be established for the remainder of the state outside this area that would be wholly separate geographically from the existing population.
Listed status of wolves	Endangered	Threatened	Threatened within the experimental population boundary. Endangered in area covered under the section 10(a)(1)(A) permit.
Consultation (per section 7)	Federal agencies are required to consult with the Service for any project or action they authorize, fund, or carry out that may affect federally listed endangered gray wolves in Colorado.	Not required unless those actions are on lands of the National Park System or the National Wildlife Refuge System (16 USC §1539(j)(2)(C)(i)).	Within the experimental population boundary, not required unless those actions are on lands of the National Park System or the National Wildlife Refuge System (16 USC §1539(j)(2)(C)(i)). Required in areas covered by the section 10(a)(1)(A) permit.
Take in self-defense	Any person may take a gray wolf in defense of the individual's life or the life of another person.	Same as the no-action alternative.	Same as the no-action alternative.
Agency take of wolves determined to be a threat to human life and safety	The Service or designated agent(s) may promptly remove any wolf that the Service or designated agent(s) determines to be a threat to human life or safety.	Same as the no-action alternative.	Same as the no-action alternative.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Opportunistic harassment	May be authorized under a separate authority (section 10(a)(1)(A) of the ESA [16 USC §1539(a)(1)(A)]).	Any person may conduct opportunistic harassment of any gray wolf in a non-injurious manner at any time. Opportunistic harassment must be reported to the Service or designated agent(s) within seven days.	Within the experimental population boundary, non-injurious take of problem wolves by a private landowner or grazing permittee would be the same as alternative 1. Within the 10(a)(1)(A) permit area, non-injurious take of problem wolves by a private landowner or grazing permittee would be the same as the no-action alternative.
Intentional harassment	No lethal or injurious nonlethal take would be permitted.	After the Service or designated agent(s) has confirmed wolf activity on private lands, on a public land-grazing allotment, or on a Tribal reservation, the Service or designated agent(s) may issue written take authorization valid for not longer than one year, with appropriate conditions, to any landowner or public land permittee to intentionally harass wolves. The harassment must occur in the area and under the conditions as specifically identified in the take authorization. Intentional harassment must be reported to the Service or a designated agent within seven days.	Within the experimental population boundary, same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.
Taking of wolves “in the act” of depredation on private land	No lethal or injurious nonlethal take would be permitted.	Consistent with state or Tribal requirements, any landowner may take a gray wolf in the act of attacking livestock or dogs on his or her private land, provided the landowner provides evidence of livestock, stock animals, or dogs recently (less than 24 hours) wounded, harassed, molested, or killed by wolves, and the Service or designated agent(s) is able to confirm the livestock, stock animals, or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule.	Within the experimental population boundary, take of wolves “in the act” of depredation on private land would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Taking of wolves “in the act” of depredation on public land	No lethal or injurious nonlethal take would be permitted.	Consistent with state or Tribal requirements, any livestock producer and public land permittee who is legally using public land under a valid federal land-use permit may take a gray wolf in the act of attacking his or her livestock on the person’s allotment or other area authorized for his or her use without prior written authorization. The Service or designated agent(s) must be able to confirm the livestock or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule. Any person legally present on public land may immediately take a wolf that is in the act of attacking the individual’s stock animal or dog, provided conditions noted in “taking of wolves in the act on private land” are met. Any take or method of take on public lands must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent within 24 hours.	Within the experimental population boundary, take of wolves “in the act” of depredation on public land would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Additional taking by private citizens on their private land	No lethal or injurious nonlethal take would be permitted.	At the Service's or designated agents' direction, the Service or designated agent may issue a "shoot on-sight" written take authorization of limited duration (45 days or less) to a landowner or their employees to take up to a specified (by the Service or designated agent) number of wolves on their private land if: (1) the landowner has had at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent within the last 30 days; and (2) the Service or designated agent has determined that problem wolves are routinely present on the private land and present a significant risk to the health and safety of livestock; and (3) the Service or designated agent has authorized lethal removal of wolves from that same private land. These authorizations may be terminated at any time once threats have been resolved or minimized. Any lethal or injurious take must be reported to the Service or a designated agent with 24 hours.	Within the experimental population boundary, shoot-on-sight of problem wolves for a private landowner would be the same as alternative 1. Within the 10(a)(1)(A) area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Additional taking by grazing permittees on public land	No lethal or injurious nonlethal take would be permitted.	At the Service's or designated agent(s) direction, the Service or designated agent(s) may issue a shoot-on-sight written take authorization of limited duration (45 days or less) to a public land-grazing permittee to take problem wolves on that permittee's active livestock grazing allotment if: (1) the grazing allotment has at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent(s) within the past 30 days, and (2) the Service or designated agent(s) has determined that problem wolves are routinely present on that allotment and present a significant risk to the health and safety of livestock, and (3) the Service or designated agent(s) has authorized lethal removal of problem wolves from that same allotment. These authorizations may be terminated at any time once threats have been resolved or minimized. Any take or method of take on public land must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent with 24 hours.	Within the 10(j) boundary, shoot-on-sight of problem wolves for a grazing permittee would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Agency take of wolves that repeatedly depredate livestock	No lethal or injurious nonlethal take would be permitted.	The Service and designated agent(s) may carry out harassment, nonlethal control measures, relocation, placement in captivity, or lethal control of problem wolves. The Service or designated agent(s) would consider: (1) evidence of wounded livestock, dogs, or other domestic animals, or remains of livestock, dogs, or domestic animals that show that the injury or death was caused by wolves, or evidence that they were in the act of attacking livestock, dogs, or other domestic animals; (2) the likelihood additional wolf-caused losses or attacks may occur if no control action is taken; (3) evidence of unusual attractants or artificial or intentional feeding of wolves; and (4) evidence that animal husbandry practices recommended in approved allotment plans and annual operating plans were followed.	Within the experimental population boundary, shoot-on-sight of problem wolves for a private landowner would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.
Incidental take	No incidental take would be permitted.	Take of a gray wolf is allowed if the take is accidental and incidental to an otherwise lawful activity and if reasonable due care was practiced to avoid such take, and such take is reported to the Service or designated agent within 24 hours (the Service may allow additional time if access to the site of the take is limited). Shooting a wolf as a result of mistaking it for another species is not considered accidental and may be referred to the appropriate authorities for prosecution.	Within the experimental population boundary, same as alternative 1. Within the 10(a)(1)(A) permit area, same as the no-action alternative.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Additional taking provisions for agency employees	No lethal or injurious nonlethal take would be permitted.	Any employee or agent of the Service may take a wolf from the wild if such action is (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to dispose of a dead specimen; (4) to salvage a dead specimen that may be used for scientific study; (5) to aid in law enforcement investigations involving wolves; or (6) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.	Same as alternative 1 for areas within the experimental population boundary. For areas covered under the 10(a)(1)(A) permit, the following forms of take may occur: (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to dispose of a dead specimen; (4) to salvage a dead specimen that may be used for scientific study; (5) to aid in law enforcement investigations involving wolves; or (6) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.
Agency take to reduce impacts on wild ungulates (Optional – not currently in the draft rule)	No lethal or injurious nonlethal take would be permitted.	If wolf predation is having an unacceptable impact on wild ungulate populations (deer, elk, moose, bighorn sheep, mountain goats or antelope) as determined by the respective State or Tribe, a State or Tribe may lethally remove the wolves in question. “Unacceptable impact” is defined as an “Impact to ungulate population or herd where a State or Tribe has determined that wolves are one of the major causes of the population or the herd not meeting established State or Tribal management objectives.” States or Tribes must submit a science-based report showing the action meets regulatory standards. The Service must determine that an unacceptable impact to wild ungulate populations or herds has occurred and that the proposed lethal removal is science based and not in conflict with the State Plan.	Within the experimental population boundary, agency take to reduce impact to wild ungulates would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Table ES-2. Comparison of the Potential Environmental Impacts of the Alternatives

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Biological Resources – Species of Special Concern – Wolves	Under the no-action alternative, wolves would remain listed as endangered, and regulated take would be limited to instances where wolves pose a threat to human life or safety. The wolf population is expected to increase in size and distribution in areas where habitat suitability is high (i.e., sufficient wild prey and limited contact with humans).	Alternative 1 could have adverse environmental impacts to individual wolves through regulated take but is not expected to hinder recovery or have population-level effects in the long term. Alternative 1 would provide management flexibility, which would contribute in the long term to achieving statewide management objectives for wolves.	Alternative 2 would provide added protection for wolves in the 10(a)(1)(A) permit area, which may lead to an increase in growth and distribution of the reintroduced wolf population in the short term. In the long term, the potential environmental impacts would be the same as under alternative 1 because of natural dispersal outside the 10(a)(1)(A) permit area.
Biological Resources – Other Species of Special Concern (Including Other Federally Listed and State-listed Species)	The lack of flexibility for the management of reintroduced wolves could result in short- or long-term, adverse effects on prey species. However, adverse impacts to species of special concern are not likely because substantial population declines of species of special concern have not been documented as a result of previous wolf reintroductions elsewhere in North America.	Potential environmental impacts would be the same as those described under the no-action alternative because management flexibility for reintroduced wolves under alternative 1 would not include provisions for the take of wolves for the purposes of protecting or managing species of special concern. Therefore, alternative 1 is not likely to result in adverse effects on species of special concern.	Potential environmental impacts would be the same as under alternative 1.
Biological Resources – Other Wildlife (Elk, Deer, and Other Ungulates)	The lack of flexibility for the management of reintroduced wolves could result in short- or long-term, adverse impacts to prey populations because the Service and its designated agents would not have the ability to manage wolves for the purposes of managing other wildlife populations for conservation.	Under the draft rule as written, potential impacts to prey populations would be similar to those described under the no-action alternative. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, alternative 1 could have long-term, beneficial impacts on prey populations. If wild ungulate population levels decline below established State or Tribal management objectives as a result of wolf reintroduction, management flexibility, including nonlethal and/or lethal take, afforded to the Service and its	Under the draft rule as written, potential impacts to prey populations would be similar to those described under the no-action alternative. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, potential environmental impacts under alternative 2 would be similar to those under alternative 1 with the optional provision, except that lethal take would not be permitted in the 10(a)(1)(A) permit area. The Service and its designated agents would otherwise have a similar amount of flexibility in management of reintroduced

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
		designated agents under the optional provision would allow them to take wolves as a means to achieve established goals for the statewide management of wild ungulate populations, if the Service determines that wolf predation is having an unacceptable impact on wild ungulate populations.	wolves to achieve management goals for wild ungulate populations.
Cultural Resources – Tribal Cultural Resources	<p>Under this alternative, damage to archaeological and historical resources may occur in locations where the presence of wolves coincides with that of these resources. For instance, denning activities may damage surface or subsurface resources if these locations are used by wolves, and the presence of wolves may inhibit the potential for Tribal access to these resources.</p> <p>The reintroduction of wolves could also affect natural resources (e.g., wildlife) of importance to Tribes in part due to competition resulting in changes to predation habits or habitat selection.</p> <p>The reintroduction of wolves could affect wildlife species that are hunted or used by the Tribes, such as elk, deer, and other ungulates. Elk and deer populations could decline in response to unmanaged predation and other pressures as a result of wolf reintroduction. These animals would be impacted over the long term because the Service and its designated agents would not have the flexibility to manage wolves to limit elk and deer population</p>	<p>Potential impacts to Tribal cultural resources would be similar to those described for the no-action alternative, although for some resources, including livestock, potential impacts could be reduced due to the management flexibility available under the 10(j) rule. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, management flexibility to address decreases in ungulate populations below established State or Tribal goals could reduce impacts to wildlife species that are hunted by the Tribes.</p>	<p>Potential impacts to Tribal cultural resources would be similar to those described for alternative 1 due to the management flexibility that would be provided by the section 10(j) rule. If an existing population were identified within a reservation, lethal take of wolves would be prohibited within the section 10(a)(1)(A) permit boundary. Alternative 2 would still provide the designated agents, including Tribes, flexibility to manage an existing population of gray wolves to mitigate impacts to livestock. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, management flexibility to address decreases in ungulate populations below State or Tribal goals could reduce impacts to wildlife species that are hunted by the Tribes.</p>

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
	decline or facilitate recovery; the same could occur for pronghorn, wild sheep, and moose.		
Socioeconomic Resources	<p>Due to the lack of management options under the no-action alternative, outdoor recreation, agriculture, and livestock producers would experience the most socioeconomic impacts. Lethal or nonlethal methods to address wolves if they reduce the population of ungulates below State or Tribal management objectives would not be available as a management tool. Outfitters and guides could experience long-term localized consequences from the lack of flexibility for take. A decline in hunting applications could lead to decreased wildlife revenue for CPW.</p> <p>An estimated 83 cattle and 31 sheep statewide and 26 cattle and 13 sheep in the 21 focal counties would be killed or injured assuming a population of 200 wolves. This would result in estimated loss of \$229,419.91 in the statewide study area and \$98,399.92 in the 21 focal counties annually under the no-action alternative, which represents 0.0067 percent (Colorado) and 0.0029 percent (21 focal counties) of the total market value of cattle and sheep in Colorado. Annual livestock predation would result in \$42,968.64 in forgone economic contributions to the local economies in the 21 focal counties.</p>	<p>Under alternative 1, the Service and its designated agents would manage the reintroduction of wolves with the greatest degree of flexibility. Alternative 1 would result in fewer direct long-term costs to livestock producers. Implementation of alternative 1 may not fully offset indirect economic losses caused by livestock stress from wolf predation. Additionally, livestock producers could incur costs for implementing nonlethal take strategies. Impacts to outdoor recreation outfitters and businesses would be similar to those under the no-action alternative under the draft rule as written. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, alternative 1 could result in long-term benefits for Colorado outdoor recreation outfitters and businesses compared to the no-action alternative.</p>	<p>The socioeconomic impacts under alternative 2 within the experimental population boundary would be the same as those described for alternative 1. The impacts for outfitters and guides would be similar to those described in the no-action alternative within the 10(a)(1)(A) permit area. Due to the limited options for implementing management, big game hunting demand may shift to areas without gray wolves. Alternative 2 would allow for lethal and/or nonlethal take under the provisions of the section 10(j) rule in most areas of the state, except for Jackson County and western Larimer County, which would be subject to a section 10(a)(1)(A) permit (see table ES-1). Under alternative 2, livestock producers within the section 10(a)(1)(A) permit boundary may face disproportionately higher direct and indirect costs from wolf depredation.</p>

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Environmental Justice	<p>Under the no-action alternative, if wolves are present within the Brunot Area lands or on Tribal reservations, localized impacts could be disproportionately high and adverse for Tribal members, particularly those who rely economically on livestock production or hunting and those who rely on subsistence hunting. This alternative could result in localized disproportionately high and adverse impacts to low-income and minority livestock producers and outfitters and guides, particularly in the focal counties due to the presence of suitable ecological conditions for gray wolves. Under this alternative, these impacts would not be mitigated because reintroduced gray wolves would be managed as an endangered species under the ESA.</p>	<p>Disproportionately high and adverse impacts could occur on low-income outfitters and guides, subsistence hunters, and Tribes in local areas based on the factors discussed under the no-action alternative. These impacts may be reduced if the optional provision to allow take of wolves to address impacts to ungulates is adopted. Direct costs to livestock producers over the long term resulting from depredation would be lower under this alternative, compared to the no-action alternative.</p> <p>Implementation of alternative 1 may not fully mitigate against indirect economic losses or incurred costs to implement nonlethal take strategies. However, the potential for disproportionately high and adverse impacts would be reduced under alternative 1 compared to the no-action alternative.</p>	<p>Under alternative 2, potential impacts to population groups of concern would be the same as described under alternative 1 for areas within the proposed experimental population boundary, which would cover most of the state.</p> <p>While lethal take of wolves would be prohibited within the section 10(a)(1)(A) permit boundary, alternative 2 would still provide the Service and its designated agents flexibility to manage an existing population of gray wolves to address livestock depredation. Within the section 10(a)(1)(A) permit boundary, impacts to low-income and minority livestock producers would be slightly reduced compared to the no-action alternative; however, these impacts may still be disproportionately high and adverse due to the cost of implementing nonlethal take measures. Impacts to outfitters and guides and subsistence hunters would be similar to impacts described under alternative 1. These impacts may be reduced if the optional provision to allow take of wolves to address impacts to ungulates is adopted.</p>

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ACRONYMS AND ABBREVIATIONS

CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPW	Colorado Parks and Wildlife
EIS	environmental impact statement
ESA	Endangered Species Act
FR	<i>Federal Register</i>
MWEPA	Mexican Wolf Experimental Population Area
NEPA	National Environmental Policy Act
NPS	National Park Service
OAHP	(Colorado) Office of Archaeological and Historic Preservation
OHV	off-highway vehicle
SAG	(Colorado Wolf Management Plan) Stakeholder Advisory Group
Service	U.S. Fish and Wildlife Service
SGCN	Species of Greatest Conservation Need
State Plan	Colorado Wolf Restoration and Management Plan
SWAP	(Colorado's) State Wildlife Action Plan
TWG	(Colorado Wolf Management Plan) Technical Working Group
USC	United States Code
USDA	United States Department of Agriculture
USEPA	U.S. Environmental Protection Agency
WTGMA	Wolf Trophy Game Management Area

CHAPTER 1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The U.S. Fish and Wildlife Service (Service) is evaluating a range of alternatives to address a request from the State of Colorado to designate the gray wolf population that would be reintroduced to Colorado as experimental under section 10(j) of the Endangered Species Act of 1973 (ESA), as amended (16 United States Code [USC] 1531 et seq.). The section 10(j) designation would provide management flexibility to the Service and its designated agents for the reintroduction and management of the gray wolf (*Canis lupus*). The Service uses the term “gray wolf” to refer to *Canis lupus*, separate from the Mexican wolf (*Canis lupus baileyi*). The gray wolf and Mexican wolf are listed as separate entities under the ESA, and the term “gray wolf” as a listed entity encompasses several subspecies, with the exception of the Mexican wolf. The gray wolf is currently listed as endangered in 44 states, including portions of Arizona, New Mexico, Oregon, Utah, and Washington, and threatened in Minnesota under the ESA. Wolf populations in Montana, Wyoming, Idaho, and the eastern portions of Washington and Oregon and a small portion of north-central Utah are not listed under the ESA. On November 3, 2020, Colorado voters approved Proposition 114 (codified as Colorado Revised Statute 33-2-105.8), a citizen-initiated ballot measure requiring the Colorado Parks and Wildlife (CPW) Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species’ historical range in Colorado by December 31, 2023. As part of the reintroduction process, CPW has requested the Service designate the gray wolf population that would be reintroduced as experimental under section 10(j) of the ESA. Designating the population as experimental would allow the Service to tailor ESA protections for the population to provide management flexibility and better address stakeholder concerns. Definitions of technical and regulatory terms used in this EIS are provided in Appendix A.

The Service has regulatory authority under the ESA to manage the conservation and recovery of federally listed threatened and endangered species, including creating rules and regulations and permitting legitimate activities that would otherwise be prohibited by federal law. Development of a 10(j) rule is considered a major federal action requiring review under the National Environmental Policy Act of 1969 (NEPA). This environmental impact statement (EIS) has been prepared in accordance with NEPA and its implementing regulations (40 Code of Federal Regulations [CFR] 1500–1508). The Service has prepared an EIS, rather than an environmental assessment, for this proposed action due to the level of public interest in the State Plan to reintroduce gray wolves to Colorado and the potential for public controversy. Appendix B includes descriptions of other federal, state, and international laws, policies, and treaties that are relevant to the proposed action and analysis in the EIS. The EIS assesses the environmental impacts that may result from implementing either of the action alternatives, which would designate the gray wolf population that would be reintroduced to Colorado as an experimental population under section 10(j) of the ESA, or from the State-led reintroduction of the species without a section 10(j) rule (the no-action alternative).

1.2 PURPOSE OF THE ACTION

The purpose of this action is to respond to Colorado’s request to designate the gray wolf population that would be reintroduced to Colorado as an experimental population under section 10(j) and to further the conservation of the species. This reintroduction effort is a result of Colorado Revised Statute 33-2-105.8, passed on November 3, 2020, which directs the CPW Commission to take the steps necessary

to begin reintroductions of gray wolves to a portion of the species' historical range in Colorado by December 31, 2023.

1.3 NEED FOR THE ACTION

The need for this action is to provide management flexibility to the Service and its designated agents. Currently, the gray wolf is listed as endangered under the ESA in Colorado. To facilitate reintroduction efforts, the State of Colorado has requested the Service designate the gray wolf population that would be reintroduced as an experimental population under section 10(j) of the ESA. This designation would reduce the regulatory impact of reintroducing a federally listed species in a specific geographic area (an experimental population boundary). This EIS evaluates the use of the 10(j) process for this reintroduction.

1.4 BACKGROUND

Gray wolves were common in Colorado prior to the early 1900s. After bison (*Bison bison*), elk (*Cervus canadensis*), deer (*Odocoileus* spp.), and other native ungulate species were decimated by unregulated hunting and settlement, wolves and other large predators threatened the expanding livestock industry when the populations of their natural prey declined. By the 1940s, government-sponsored predator control programs and overhunting eradicated wolves across most of the species' historical range in the contiguous United States. The last known wolf in Colorado was killed in Conejos County in 1945.

Subspecies or regional populations of subspecies of the gray wolf were first listed under the Endangered Species Preservation Act of 1966 and the Endangered Species Act of 1969, predecessors of today's ESA. However, because modern taxonomists recognized fewer subspecies, the entire species was listed in 1978 as an endangered species throughout the contiguous United States, except in Minnesota where wolves were listed as threatened (85 *Federal Register* [FR] 69778). As enacted by Congress, the purposes of the ESA are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take steps as may be appropriate to achieve the purposes of the treaties and conventions set forth..." The ESA "further declared to be the policy of Congress that all Federal Departments and agencies shall seek to conserve endangered species and threatened species and shall use their authorities in furtherance of this Act." The ESA also states "the Secretary shall develop and implement plans (herein, referred to as 'recovery plans') for the conservation and survival of endangered species..."

The Service implemented three gray wolf recovery programs in specific regions of the country within the species' historical range—the northern Rocky Mountains, the southwestern United States, and the eastern United States—to establish and prioritize recovery of regional populations of gray wolves. In the northern Rocky Mountains, gray wolves were designated as an experimental population and reintroduced into two of three recovery areas. Gray wolves began to naturally recolonize the third recovery area in northwestern Montana. This population initially was managed as an endangered species under the ESA. Mexican wolves were also designated as an experimental population and reintroduced into the southwestern United States. Recovery of gray wolves in the eastern United States relied on natural recolonization from an extant population in Minnesota (85 FR 69778 2020). The wolf population in the northern Rocky Mountain region, found in Montana, Wyoming, Idaho, the eastern portions of Washington and Oregon, and a small portion of north-central Utah, has since been delisted from the ESA, in 2009 and 2012 (74 FR 15123 2009; 77 FR 55530 2012).

In 2019, the Service evaluated the classification of gray wolves in the contiguous United States (lower 48 states) and Mexico under the ESA and proposed to delist the gray wolf due to the biological recovery of the species. Following that evaluation, in 2020 the Service published a final rule in the *Federal Register* to remove the species in the contiguous United States and Mexico from the Lists of Endangered and Threatened Wildlife and Plants (85 FR 69778 2020). The final rule to delist the species was based upon review of the best scientific and commercial data currently available, which indicated that current and foreseeable threat factors for the species, including human-caused mortality, habitat and prey availability, disease and parasites, and the effects of climate change, were not likely to result in reductions in gray wolf numbers or habitat (85 FR 69778 2020).

The Service finalized the rule to delist the gray wolf (85 FR 69778) in 2020, removing all gray wolves in the lower 48 states from the lists of species protected under the ESA. However, the final delisting rule was vacated by court order (*Defenders of Wildlife v. U.S. Fish & Wildlife Serv.*, No. 21-CV-00344-JSW, 2022 WL 499838 [N.D. Cal. Feb. 10, 2022]) on February 10, 2022. With this court order, gray wolves outside the delisted northern Rocky Mountains population in Wyoming, Montana, Idaho, the eastern portions of Washington and Oregon, and north-central Utah were once again protected under the ESA. Gray wolves are listed as threatened in Minnesota and endangered in 44 additional states. Any take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of wolves in these areas without a permit or other authorization is prohibited by federal law (USFWS 2022a).

After wolf reintroduction in the northern Rocky Mountains, unconfirmed wolf sightings became more common in Colorado. However, the first confirmed wolf in Colorado in modern times was struck and killed by a vehicle near Idaho Springs in 2004. Although four additional lone wolves have been confirmed in Colorado since 2004, no resident groups were documented in the state until 2019. In January 2020, CPW field personnel followed up on sighting reports from the public and confirmed at least six wolves traveling together in extreme northwest Colorado. This group was down to a single individual later that year and, at present, there is no indication that any wolf or wolves remain in the northwest corner of the state. Separately, in north-central Colorado, an individual wolf from Wyoming was first documented during summer 2019 and paired up with another wolf during winter 2020. This pair produced offspring in spring 2021, becoming the first documented reproductively active group in Colorado in recent history. At present, this group contains the only known wolves in the state and is composed of seven to eight individuals.

The Service defines a wolf population as “at least two breeding pairs of wild wolves successfully raising at least two young each year (until December 31 of the year of their birth), for two consecutive years” (USFWS 1994). Only one breeding pair had been identified in Colorado as of 2021, and no reproduction was observed in the spring of 2022; therefore, these two criteria have not been met. According to this definition, no gray wolf populations have been documented in the state.

As noted above, on November 3, 2020, Colorado voters approved Proposition 114, a citizen-initiated ballot measure requiring the CPW Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species’ historical range in Colorado by December 31, 2023. On December 9, 2022, the CPW Commission released the draft Colorado Wolf Restoration and Management Plan (the State Plan) for public review (CPW 2022a). Details of the draft plan are incorporated into the action alternatives discussed in Chapter 2 of this EIS and assessed in Chapter 4, Environmental Consequences.

While the federal government typically leads (or co-leads) reintroduction programs for species listed under the ESA, Colorado's gray wolf reintroduction plan is different in that the effort is citizen-directed and State-led. Reintroduction of gray wolves to Colorado is not an identified strategy in the Service's recovery programs for the species. However, because gray wolves remain listed as endangered throughout the state of Colorado, any management program with expanded take authorization would require some involvement by the Service, and CPW has requested that the Service develop a 10(j) rule under the ESA to provide increased management flexibility for the gray wolf population that would be reintroduced to Colorado. Under section 10(j) of the ESA, the Service may designate a population of a listed species as an experimental population. This designation would reduce the regulatory impact of reintroducing a federally listed species in a specific geographic area (experimental population boundary), while still contributing to the species' conservation. Section 10(j) of the ESA is described further under section 1.6.1, below.

1.5 PROJECT LOCATION AND DESCRIPTION

CPW is planning to reintroduce gray wolves to a portion of the species' historical range in the state of Colorado. Historically, gray wolves occurred across Colorado in all the state's major habitat types. Potential reintroduction sites are discussed in the State Plan. However, the study area for this analysis includes the entire State of Colorado, or the area in which the federal regulatory framework that would be implemented under alternatives 1 or 2 would apply.

1.6 PLANNING AND EIS PROCESS

The Service prepared this EIS to evaluate the impacts of the proposed action on the human environment, consistent with the purpose and goals of NEPA (42 USC 4321 et seq.) and pursuant to the Council on Environmental Quality's (CEQ) implementing NEPA regulations at 40 CFR Parts 1500–1508 (as amended). Additionally, the EIS was prepared consistent with the Department of the Interior's NEPA regulations (43 CFR Part 46), long-standing federal judicial and regulatory interpretations, and Administration priorities and policies including Secretary's Order No. 3399 requiring bureaus and offices to use "the same application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect."

The following sections describe the planning and EIS process, including public involvement in the process. Development of the alternatives evaluated in the EIS and detailed descriptions of the action alternatives and the no-action alternative are provided in Chapter 2. A discussion of the scoping of issues to be addressed in detail in the analysis is included in Chapter 3.

1.6.1 Scope of the EIS

This EIS evaluates the potential environmental effects of the Service's proposed action to address the State of Colorado's request to issue a section 10(j) rule, consistent with section 10 of the ESA, to provide management flexibility for the Service and its designated agents in reintroducing and managing a population of gray wolves in a portion of the species' historical range, while still providing for conservation of the species. The reintroduction effort is directed by Colorado Revised Statute 33-2-105.8, which requires the CPW Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species' historical range in Colorado by December 31, 2023. The State may reintroduce wolves with or without further action by the Service, in compliance with the State's cooperative

agreement under section 6 of the ESA; therefore, considering an alternative to not pursue active wolf reintroduction efforts is outside the Service's legal authority and outside the scope of the EIS.

Furthermore, the State of Colorado is leading the development of the reintroduction and management plan for gray wolves. As such, elements directly related to the reintroduction of wolves, such as how many wolves would be released, where they would be released, and target population objectives are outside the scope of the EIS. The proposed section 10(j) rule would address the potential for take resulting from State-led activities associated with reintroduction and management of gray wolves in Colorado. These activities are described in the draft State Plan (CPW 2022a). Reintroduction and management of gray wolves in Colorado is not an identified priority of the Service's previous national wolf strategy outlined above; therefore, the Service is not proposing any additional management measures for the gray wolf population that would be reintroduced by the State of Colorado.

1.6.2 Scoping Process and Public Participation

Following publication of the Notice of Intent to prepare an EIS, the Service held a public scoping period from July 21, 2022, to August 22, 2022, to invite interested members of the public to ask questions and provide input on the proposed action and alternatives and issues to be considered in the EIS. Three in-person public meetings were held in Gunnison, Silverthorne, and Craig, Colorado, on August 2, August 3, and August 4, 2022, respectively. A virtual public meeting was held on August 10, 2022. The numbers of participants and summaries of comments received at each of these meetings are included in the Public Scoping Summary Report (Appendix C). In general, comments received during public scoping included suggestions for the range of alternatives (e.g., lethal vs. nonlethal management, boundary of the 10(j), listing status of the gray wolf); ecosystem dynamics and the role the gray wolf plays; socioeconomic and environmental justice, including impacts to livestock producers, outfitters, and tourism; components of the NEPA analysis, including purpose and need and the scope of analysis; impacts to other federally listed species, such as the Mexican wolf and other sensitive species; impacts to other wildlife, including ungulates; and impacts to Tribal cultural resources and Tribal consultation.

CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

Chapter 2 describes the proposed action and the alternatives developed to address the purpose and need for the proposed action, defined in sections 1.2 and 1.3, in accordance with regulations implementing NEPA at 40 CFR 1502.14.

2.2 PROPOSED ACTION

Following approval of Proposition 114 by Colorado voters in November 2020, the State of Colorado requested that the Service develop a section 10(j) rule to provide management flexibility for the State-led gray wolf reintroduction and management efforts. In response to this request, the Service is proposing to promulgate a section 10(j) rule, consistent with section 10 of the ESA, to provide management flexibility for the reintroduction and management of a population of gray wolves in Colorado. The Service would establish this framework in the fall of 2023 to meet the deadline established in Colorado Revised Statute 33-2-105.8, which requires the CPW Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species' historical range by December 31, 2023. The section 10(j) rule would remain in place unless the species is federally delisted.

The Service has identified alternative 1 as the Preferred Alternative for implementing the proposed action. Alternative 1 would provide a consistent federal regulatory framework and take provisions across the state for managing gray wolves that would be reintroduced and gray wolves living in or naturally dispersing to Colorado. This alternative would provide the management flexibility within the experimental population boundary, which would include the entire state. Management flexibility would be provided statewide because, although gray wolves would be reintroduced on the Western Slope in accordance with Colorado Revised Statute 33-2-105.8, wolves can disperse long distances and may eventually occur throughout the state. See section 2.4.2 for additional detail on alternative 1.

2.3 ALTERNATIVE SCOPING

The scope of the alternatives included in the EIS takes into consideration recommendations in the State Plan and comments received during internal and public scoping for the NEPA process.

2.3.1 Development and Evaluation of Alternatives

Internal scoping considered the types of regulatory frameworks, consistent with section 10 of the ESA, that the Service may implement based on federal authority under the ESA, federal priorities for management of gray wolf recovery, and the best available scientific information. Alternative frameworks were identified through internal scoping and are described in the sections below. The federal regulatory framework developed by the Service would address gray wolf reintroduction and management measures included in the State Plan. CPW began development of the State Plan following approval of Proposition 114 in November 2020. The State facilitated a public engagement process to invite feedback on the plan and convened a Technical Working Group (TWG) and Stakeholder Advisory Group (SAG), which both began meeting monthly in June 2021. CPW considered and incorporated this feedback, including management recommendations from the two groups and concerns raised in public comments, into the draft State Plan, released December 9, 2022.

Participants in the public scoping process for this EIS identified various alternative regulatory frameworks and management measures that should be considered. Public comments related to proposed alternatives are summarized in the Public Scoping Summary Report (Appendix C). The Service considered all proposed alternatives identified during public scoping, but all of these alternatives are not evaluated in detail in the EIS. Alternatives addressed in the EIS and other identified alternatives that are not evaluated further are described briefly below.

2.3.2 Alternatives Addressed in the EIS

Three alternative approaches for the proposed regulatory framework were chosen for analysis in the EIS:

- **No-action alternative** – Under this alternative, the Service would not approve the 10(j) rule, and no management flexibility would be provided to the Service and its designated agents. Under the no-action alternative, the State of Colorado would still reintroduce the gray wolf on the Western Slope in accordance with Colorado Revised Statute 33-2-105.8.
- **Alternative 1** – Provide the Service and its designated agents management flexibility and provide for conservation of the species by promulgating a section 10(j) rule for the gray wolf population in Colorado, including any gray wolf living in, dispersing into, or reintroduced to the state.
- **Alternative 2** – Provide the Service and its designated agents management flexibility and provide for conservation of the species by promulgating a section 10(j) rule for the gray wolf population that would be reintroduced in a limited territory and issuing a permit under section 10(a)(1)(A) for an existing gray wolf population, should one become established prior to finalization of the section 10(j) rule. The 10(j) rule would exclude the area occupied by an existing population of wolves from the section 10(j) boundary.

The three alternatives addressed in the EIS were developed during internal scoping. The two action alternatives are consistent with section 10 of the ESA. The State of Colorado could request to be approved as a designated agent of the Service under either alternative 1 or 2; therefore, these alternatives meet the purpose and need for the proposed action. The Service developed alternative 2 as an alternative for managing the gray wolf population that would be reintroduced and any established, pre-existing wolf populations in the state (should one be identified prior to finalization of the section 10(j) rule proposed under alternative 1) consistent with section 10 of the ESA. The term “population” is defined in section 1.4. Pre-existing wolf populations include wolves living in the state and wolves that naturally have dispersed into the state before finalization of the section 10(j) rule and meet the definition of a population.

The no-action alternative, is included in compliance with CEQ regulations implementing NEPA (40 CFR 1502.14[c]). The no-action alternative considers implementation of the State Plan subject to sections 6 and 9 of the ESA. Under the no-action alternative, the Service would not issue a section 10(j) rule or section 10(a)(1)(A) permit and would continue to manage gray wolves in Colorado as an endangered species under the ESA. Detailed descriptions of the alternatives evaluated in the EIS are discussed below.

2.3.3 Alternatives Identified During Scoping, but Not Evaluated Further

Twelve additional alternatives or alternative elements were identified during internal and public scoping that are not evaluated further because they are outside the Service’s legal authority or would not meet the purpose and need for the proposed action. These alternatives are summarized below, along with the reasons they are not included for consideration in the EIS.

1. **Apply a Section 10(j) Rule to a Smaller Geographic Area (Experimental Population Boundary)** – The Service considered evaluating an alternative to establish a smaller experimental population boundary in Colorado. However, this alternative is not evaluated further because it may pose undue restrictions on the ability of CPW to provide adequate habitat for gray wolves as their population within the state grows or to manage wolves that disperse outside the experimental population area to other parts of the state.
2. **Establish a Candidate Conservation Agreement or Other Cooperative Agreement** – Establishing a Candidate Conservation Agreement or other cooperative agreement with the State was not evaluated further in the EIS because these agreements would require the gray wolf to be delisted under the ESA, which is outside the scope of the proposed action.
3. **No Wolf Reintroduction** – The Service considered an alternative under which the gray wolf would not be intentionally reintroduced in Colorado. The recovery of the gray wolf in the state would rely on natural recolonization and population growth, and the Service would continue to manage the species as endangered under the ESA. However, this alternative is outside the Service’s legal authority. The CPW Commission is required to comply with Colorado Revised Statute 33-2-105.8 and take the steps necessary to begin reintroductions of gray wolves to a portion of the species’ historical range in Colorado by December 31, 2023. Therefore, each of the alternatives evaluated in the EIS assumes that the planned reintroduction and management of gray wolves will move forward, led by the State of Colorado.
4. **Variations on Statewide Permits Issued by the Service** – During public scoping, commenters suggested variations on Statewide permits such as developing a section 10(a)(1)(A) permit for the entire state, a section 10(a)(1)(B) permit for the entire state, or a section 10(j) rule with no lethal take. Part of the purpose of this effort is to provide management flexibility for the reintroduction process. Use of a section 10(a)(1)(A) permit would not provide for full management flexibility because the permit would not allow for lethal take statewide. The Service has previously included purposeful, lethal take in a 10(a)(1)(A) permit, which the courts later invalidated (*Humane Soc’y of U.S. v. Kempthorne*, 481 F. Supp. 2d 53 (D.D.C. 2006), *vacated sub nom. Humane Soc. of U.S. v. Kempthorne*, 527 F.3d 181 (D.C. Cir. 2008)).

The Service considered the use of all regulatory frameworks, including the 10(a)(1)(B) permit; however, this permitting tool is not used for recovery actions, such as the gray wolf reintroduction. The section 10(a)(1)(B) permit is issued at the conclusion of the Habitat Conservation Plan process as a mechanism to permit incidental take of a species; therefore, this is not an appropriate regulatory mechanism to consider for this effort.

In regard to considering a section 10(j) rule with no lethal take permitted, this management approach would best be accomplished through a different regulatory framework, such as a Safe Harbor Agreement. The section 10(j) rulemaking process is most effective when it provides a range of management flexibility, including lethal take; therefore, the Service did not consider a scenario with a section 10(j) rule and no lethal take. Establishing a Safe Harbor Agreement would not meet the purpose and need for the proposed action because it would limit management flexibility throughout the state; therefore, this regulatory mechanism was not considered.

5. **Alternative Elements Related to Wolf Release, Management, Compensation, and Education** – Commenters provided suggestions on where wolves should be reintroduced, the use of radio collars to track wolves, how many wolves should be introduced, providing a compensation program for livestock producers, providing various education programs on conflict reduction, the ecological importance of wolves, relocation of wolves that leave specific geographic areas, and management tools for livestock producers to address wolves. All of these elements are directly related to the reintroduction of the gray wolf, rather than the development of a regulatory framework, and are not within the scope of this EIS. These elements were addressed in the draft State Plan, issued December 9, 2022.

The relocation of gray wolves to reduce conflicts in neighboring states, including the relocation of gray wolves to mitigate potential impacts on the Mexican wolf population and recovery of that population, would be addressed by separate permits issued by the Service to the State of Colorado and other designated agents, and not under the 10(j) rule. See section 4.9.2 for a description of permitting approaches that would be used to mitigate potential impacts on the Mexican wolf.

6. **Population Goals or Thresholds** – Commenters suggested various ways to implement population goals and/or thresholds, including allowing for 1,000 wolves on the landscape, creating a limit on lethal control actions if wolf populations are not meeting certain goals, implementing ecosystem recovery targets as an indicator of wolf recovery, and setting population goals and timelines for the delisting of the gray wolf. The determination of how many wolves would be released per year and the goals for total numbers of wolves are outside the scope of the Service’s effort, which is focused on the section 10(j) rulemaking process. These issues are addressed in the draft State Plan. Additionally, the Service has not established a recovery plan or population goals for the gray wolf in Colorado. Setting population goals related to the federal delisting of the gray wolf is a planning effort that is also outside the scope of this section 10(j) rulemaking and would involve a planning process that is larger than the reintroduction of the gray wolf to Colorado (e.g., a recovery plan for the species in the lower 44 states).
7. **Mexican Wolf Interactions/Management** – Commenters provided a variety of comments related to the Mexican wolf, including keeping the two populations of wolves separate, allowing them to intermingle, and reintroducing a subpopulation of the Mexican wolf to Colorado. Issues related to gray wolf and Mexican wolf interactions are addressed in the EIS under section 4.4, Species of Special Concern, and section 4.9, Cumulative Impacts and Other Considerations. The Service recognizes the potential for interactions between the two species, and managing these interactions would occur in coordination with the Mexican Wolf Recovery Program. The specific suggestion of including reintroduction of the Mexican wolf under the section 10(j) rulemaking is outside the scope of analysis. Reintroduction of the Mexican wolf is considered and written off as an alternative under the State Plan in the final report prepared by the TWG (Colorado Wolf Management Plan TWG). Colorado is planning to reintroduce the gray wolf, and this 10(j) process is considering the regulatory framework for managing gray wolves that would be reintroduced to Colorado, rather than the Service reintroducing the species.
8. **Use of Trapping and Foothold Traps** – Commenters requested that the section 10(j) rule allow for the trapping of gray wolves and the use of foothold traps. The Service considered this element in the planning process since it has been used in other section 10(j) regulations for species reintroductions. However, State policy only allows for the use of foothold traps for scientific investigations. Should State policy change, the range of alternatives does not include anything that dictates what tools can or cannot be used, and the State would be able to use foothold traps as

a management tool. Therefore, this element was not specifically included in the range of alternatives.

9. **Reproductive Control** – Commenters suggested that reintroduced wolves should be spayed and neutered because the population is experimental. Because the gray wolf is listed under the ESA as an endangered species, reproductive control would be contrary to the goals of the ESA and the mission of the Service with regard to promoting the recovery of listed species; therefore, this element was not considered in the range of alternatives.
10. **Lethal Take of all Gray Wolves Prior to the Population Being Deemed Essential** – Commenters suggested that the rule include an “escape clause” that would allow the Service to lethally take all wolves in the experimental population if the nonessential status were to become at risk. However, the gray wolf is listed under the ESA as an endangered species; therefore, lethal take for this purpose would not be consistent with the ESA, the mission of the Service, or recovery goals for the species and was not considered as an alternative element. Once an experimental population is designated as essential or nonessential, there is no regulatory mechanism to change the essential/nonessential designation.
11. **Public Land Management** – Commenters suggested various ways to manage public lands to address conflicts with wolves, including removing all livestock from public lands and forbidding lethal take on public lands. The removal of grazing/livestock leases on federal lands is not within the jurisdiction of the Service, and instead, falls to other agencies such as the Bureau of Land Management and U.S. Forest Service. Lethal take on public lands would occur within the same regulatory framework and same restrictions as lethal take on state and private lands.
12. **Variations on the 10(j) Boundary** – Commenters suggested that the experimental population boundary be expanded to include a buffer zone around Colorado’s state borders to prevent unregulated take where wolves lack ESA protection, such as in Wyoming. Special management provisions are only applicable within the experimental population boundary where an ESA-listed species is present. If the gray wolf is not federally listed as endangered in a state, designation of a section 10(j) rule and creation of an experimental population boundary is not applicable, and these regulatory tools would not change the designation of wolves in that state to offer more protection. Furthermore, a section 10(j) rule and experimental population boundary cannot be applied in areas where existing populations of a species are present. Colorado coordinated with adjoining states during the State’s planning process for reintroduction, and these states did not express a desire to be included in the section 10(j) designation. For these reasons, this element was not carried forward for analysis.

2.4 ALTERNATIVES CONSIDERED IN DETAIL IN THE ENVIRONMENTAL ANALYSIS

The no-action alternative and the two action alternatives are described below. A comparison of the alternatives is provided after the description of the alternatives in table 2-4. Under each of the alternatives, the provisions of the ESA would remain in effect, except as provided by the proposed rule under alternatives 1 and 2. Under each alternative, except as provided by the proposed rule, permits would be available and required for handling, transporting, or otherwise managing gray wolves for scientific purposes, enhancement of propagation or survival, educational purposes, or other purposes consistent with the ESA (50 CFR 17.32).

In the event the gray wolf is delisted from the ESA before the final section 10(j) rule is issued, the take provisions noted below would no longer apply, and Colorado would likely apply to the Service for a Candidate Conservation Agreement with Assurances and accompanying section 10(a)(1)(A) permit with no other regulatory framework applied to the gray wolf in Colorado. The Candidate Conservation Agreement would identify specific conservation measures that the State would voluntarily undertake to conserve gray wolves in Colorado. If approved, assurances would be authorized by a section 10(a)(1)(A) permit and would specify that no additional land, water, or resource use restrictions, aside from any restrictions identified in the agreement, would be applied should gray wolves be listed under the ESA in the future (USFWS and NOAA 2016).

The State Plan would direct the population goals and management of gray wolves in Colorado. Initial planning indicates that the State intends to release 10 to 15 wolves per year, for 3 to 5 years beginning in 2023. According to the State Plan, “the total number of wolves relocated in any year and in total will depend on capture success, continued participation by cooperating states, and the degree to which relocated animals remain in Colorado and survive” (CPW 2022a). The State has identified target thresholds of either (1) a minimum count of 150 wolves anywhere in Colorado for two successive years, or (2) a minimum count of 200 wolves anywhere in Colorado with no temporal requirement, which must be met before the species would be delisted from the State’s list of threatened and endangered species and managed as a delisted, nongame species (CPW 2022a). If the gray wolf is delisted by the State but remains federally listed under the ESA, the provisions of the implemented federal regulatory framework would remain in effect.

2.4.1 No-Action Alternative

Background

CEQ regulations (40 CFR 1502.14[c]) require an EIS to evaluate the no-action alternative. The no-action alternative provides a benchmark that enables decisionmakers to compare the potential environmental effects of the proposed action alternatives with conditions that are likely to occur in the absence of the proposed action. Under the no-action alternative, the proposed action would not occur. This means that the Service would not establish a section 10(j) rule or issue a 10(a)(1)(A) permit to provide management flexibility for the Service or its designated agents in reintroducing a population of gray wolves to Colorado and provide for conservation of the species. The no-action alternative would not meet the purpose and need for the proposed action but is being analyzed in the EIS to provide a reference point against which the potential effects of the action alternatives can be compared.

Summary

Under the no-action alternative, the Service would not issue a section 10(j) rule or other federal regulatory framework consistent with section 10 of the ESA. An experimental population boundary would not be created in Colorado, and the gray wolf would be considered endangered throughout the state.

Detailed Description

Under the no-action alternative, in compliance with Colorado Revised Statute 33-2-105.8, the CPW Commission would still take the steps necessary to begin reintroductions of gray wolves by December 31, 2023, but gray wolves would be reintroduced as a federally endangered species. Under the no-action alternative, the State of Colorado would be able to reintroduce a population of gray wolves without authorization from the Service. The State may capture gray wolves from the federally delisted population in the northern Rocky Mountains region (i.e., Idaho; Montana; Wyoming, or parts of Washington, Oregon, or north-central Utah) to be reintroduced to Colorado. Federally delisted populations are

managed under state laws and regulations and not under the authority of the ESA. Additionally, the State of Colorado is authorized under its cooperative agreement with the Service, pursuant to section 6(c) of the ESA, to establish programs for the conservation of resident endangered or threatened species of fish or wildlife, including gray wolves.

The Service would manage the population of gray wolves that would be reintroduced and gray wolves living in or dispersing into Colorado as an endangered species in the state. This means that:

- State-led management actions and any actions that have the potential to result in a take of the species would be regulated under section 9 of the ESA, which establishes prohibitions related to endangered species.
- Federal agencies would be required to consult with the Service under section 7 of the ESA if reintroduced gray wolves may be present in the area of effect for a proposed federal action.
- The Service may issue section 10(a)(1)(A) permits to individuals or organizations for scientific activities or activities that support recovery of the species. The types of permits that may be issued are discussed in section 2.4.4. The Service would not issue a section 10(a)(1)(A) permit to the State of Colorado under this alternative.
- If appropriate, an applicant could pursue a section 10(a)(1)(B) permit for incidental take in the course of otherwise legal activities. The Service may issue a section 10(a)(1)(B) permit through a separate process.

The specific actions allowed under the no-action alternative are shown in table 2-1.

Table 2-1. Actions Permitted under the No-Action Alternative

Situation	Alternative Element
Consultation (per section 7)	Federal agencies are required to consult with the Service for any project or action they authorize, fund, or carry out that may affect federally listed endangered gray wolves in Colorado.
Listed status of wolves	Endangered
Take in self-defense	Any person may take a gray wolf in defense of the individual's life or the life of another person.
Agency take of wolves determined to be a threat to human life and safety	The Service or designated agent(s) may promptly remove any wolf that the Service or designated agent(s) determines to be a threat to human life or safety.
Opportunistic harassment	May be authorized under a separate authority (section 10(a)(1)(A) of the ESA [16 USC §1539(a)(1)(A)]).
Intentional harassment	No lethal or injurious nonlethal take would be permitted.
Taking of wolves "in the act" of depredation on private land	No lethal or injurious nonlethal take would be permitted.
Taking of wolves "in the act" of depredation on public land	No lethal or injurious nonlethal take would be permitted.
Additional taking by private citizens on their private land	No lethal or injurious nonlethal take would be permitted.
Additional taking by grazing permittees on public land	No lethal or injurious nonlethal take would be permitted.
Agency take of wolves that repeatedly depredate livestock	No lethal or injurious nonlethal take would be permitted.

Situation	Alternative Element
Incidental take	Incidental take could be permitted or exempted under other ESA authorities.
Additional taking provisions for agency employees	No lethal or injurious nonlethal take would be permitted.

2.4.2 Alternative 1, Preferred Alternative

Background

Section 10(j) of the ESA includes provisions for establishing an experimental population of a federally listed species. The designation “experimental population” had its origin in a 1982 amendment to the ESA, which created section 10(j). Before the 1982 amendment, the Service could reintroduce endangered species into unoccupied historic range, but reintroduction efforts were often met with public resistance. One reason for this opposition was that the Service had no management tools to address the potential for the listed species to disrupt land management options. The “experimental population” designation gives the Service more flexibility to manage endangered species by relaxing “take” prohibitions and consultation requirements under the ESA.

An experimental population may be designated as “essential” or “nonessential.” An essential population is considered essential to the continued existence of a federally listed threatened or endangered species (USFWS 2018).

If a reintroduced population is designated experimental and nonessential under section 10(j), both take prohibitions under section 9 and consultation requirements under section 7 of the ESA are relaxed. Other federal agencies are required only to confer with the Service on federal activities affecting a nonessential population that are likely to jeopardize the species (16 USC 1536). The exception would be for federal actions in national parks and national wildlife refuges that may affect a nonessential population, which would still require consultation with the Service under section 7. Management of a nonessential experimental population can be tailored to specific areas and specific local conditions and concerns. The experimental population rule has been used to reintroduce Mexican wolves to southern Arizona and New Mexico, red wolves to Alligator River National Wildlife Refuge in North Carolina, and gray wolves to the central Idaho and the Greater Yellowstone Area recovery areas in the northern Rocky Mountain region.

Summary

Under alternative 1, the Service would designate the population of gray wolves that would be reintroduced to Colorado as an experimental population under section 10(j) of the ESA. The Service would establish an experimental population boundary to include the entire state of Colorado, which would outline the geographic area to which the section 10(j) rule would apply. National park and national wildlife refuge lands in Colorado would be included in the experimental population boundary. However, site-specific regulations may apply on some federal ownerships. For instance, federal land management agencies such as the National Park Service (NPS) or the Service may prohibit use of firearms or other methods of lethal take in national parks or national wildlife refuges. Any take or method of take on public lands must be consistent with the federal rules and regulations on those public lands.

The section 10(j) rule would define the allowable take of gray wolves in response to the management activities proposed in the State Plan (see the detailed description of this alternative below for more information). The Service would determine, on the basis of the best available information, whether the population is essential to the continued existence of an endangered species or a threatened species in accordance with section 10(j)(2)(B) of the ESA during the process of developing the section 10(j) rule.

This determination is a component of the draft rule published in the *Federal Register* but not part of the NEPA process. Currently, the draft section 10(j) rule does not provide for take of wolves to mitigate potential impacts to ungulate populations; however, a provision to address potential impacts to ungulates has been included as an option in this alternative, should it be included in the final rule.

An experimental population must be established in an area that is wholly separate geographically from nonexperimental populations of the species. The Service has determined that the population of gray wolves that would be reintroduced in Colorado would be geographically separate from the delisted northern Rocky Mountains population and federally listed gray wolves in the remaining lower 44 states. Although a single group of gray wolves has been identified in Colorado as of September 2022, this group does not constitute a population, according to the definition provided in section 2.4.3. The nearest known pack of wolves in Wyoming is more than 124 miles from the Colorado border, which is more than two times the average dispersal distance for gray wolves. Gray wolves in most of Wyoming, outside the wolf trophy game management area (WTGMA), are considered predators and can be killed legally with no limit on such lethal take. Therefore, wolves are unlikely to persist in portions of Wyoming where they are designated as predatory animals (85 FR 69778, November 3, 2020). Despite these challenges, it is possible that gray wolves dispersing from the northern Rocky Mountains population could reach Colorado. However, these movements likely would be infrequent given Colorado's distance from existing populations of gray wolves, the difficulty of dispersal across most of Wyoming, and the normal dispersal distances of gray wolves.

Detailed Description

Under alternative 1, the Service would designate the population of gray wolves that would be reintroduced by the State of Colorado as an experimental population. The extent of the proposed experimental population boundary would be the entire state of Colorado (see figure 2-1). Gray wolves may disperse long distances from the State's initial reintroduction sites, and including the entire state in the experimental population boundary would provide consistent regulatory management of take across the state.

Under the section 10(j) rule, the population of gray wolves that would be reintroduced to Colorado, wolves living in the state, or wolves that naturally disperse into the state, would be managed under special regulations inside the proposed experimental population boundary. If the proposed 10(j) rule is finalized, "take" as defined under the ESA, would be allowed to occur in some instances. "Take" under the ESA means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Provisions related to take that would be included in the section 10(j) rule are displayed below in table 2-2.

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Draft Environmental Impact Statement
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Table 2-2. Actions Permitted under Alternative 1

Situation	Alternative Element
Listed status of wolves	Threatened
Consultation (per section 7)	Not required unless those actions are on lands of the National Park System or the National Wildlife Refuge System (16 USC §1539(j)(2)(C)(i)).
Take in self-defense	Any person may take a gray wolf in defense of the individual's life or the life of another person.
Agency take of wolves determined to be a threat to human life and safety	The Service or designated agent(s) may promptly remove any wolf that the Service or designated agent(s) determines to be a threat to human life or safety.
Opportunistic harassment	Any person may conduct opportunistic harassment of any gray wolf in a non-injurious manner at any time. Opportunistic harassment must be reported to the Service or designated agent(s) within seven days.
Intentional harassment	After the Service or designated agent(s) have confirmed wolf activity on private lands, on a public land-grazing allotment, or on a Tribal reservation, the Service or designated agent(s) may issue a written take authorization valid for not longer than one year, with appropriate conditions, to any landowner or public land permittee to intentionally harass wolves. The harassment must occur in the area and under the conditions as specifically identified in the take authorization. Intentional harassment must be reported to the Service or a designated agent within seven days.
Taking of wolves "in the act" of depredation on private land	Consistent with state or Tribal requirements, any landowner may take a gray wolf in the act of attacking livestock or dogs on his or her private land, provided the landowner provides evidence of livestock, stock animals, or dogs recently (less than 24 hours) wounded, harassed, molested, or killed by wolves, and the Service or designated agent(s) is able to confirm the livestock, stock animals, or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule.
Taking of wolves "in the act" of depredation on public land	Consistent with state or Tribal requirements, any livestock producer and public land permittee who is legally using public land under a valid federal land-use permit may take a gray wolf in the act of attacking his or her livestock on the person's allotment or other area authorized for his or her use without prior written authorization. The Service or designated agent(s) must be able to confirm the livestock or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule. Any person legally present on public land may immediately take a wolf that is in the act of attacking the individual's stock animal or dog, provided conditions noted in "taking of wolves in the act on private land" are met. Any take or method of take on public lands must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent within 24 hours.

Situation	Alternative Element
Additional taking by private citizens on their private land	At the Service's or designated agents' direction, the Service or designated agent may issue a "shoot on-sight" written take authorization of limited duration (45 days or less) to a landowner or their employees to take up to a specified (by the Service or our designated agent) number of wolves on their private land if: (1) the landowner has had at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent within the last 30 days; and (2) the Service or designated agent has determined that problem wolves are routinely present on the private land and present a significant risk to the health and safety of livestock; and (3) the Service or designated agent has authorized lethal removal of wolves from that same private land. These authorizations may be terminated at any time once threats have been resolved or minimized. Any lethal or injurious take must be reported to the Service or a designated agent with 24 hours.
Additional taking by grazing permittees on public land	At the Service's or designated agent(s) direction, the Service or designated agent(s) may issue a shoot-on-sight written take authorization of limited duration (45 days or less) to a public land-grazing permittee to take problem wolves on that permittee's active livestock grazing allotment if: (1) the grazing allotment has at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent(s) within the past 30-days, and (2) the Service or designated agent(s) has determined that problem wolves are routinely present on that allotment and present a significant risk to the health and safety of livestock, and (3) the Service or designated agent(s) has authorized lethal removal of problem wolves from that same allotment. These authorizations may be terminated at any time once threats have been resolved or minimized. Any take or method of take on public land must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent with 24 hours.
Agency take of wolves that repeatedly depredate livestock	The Service and designated agent(s) may carry out harassment, nonlethal control measures, relocation, placement in captivity, or lethal control of problem wolves. The Service or designated agent(s) would consider: (1) evidence of wounded livestock, dogs, or other domestic animals, or remains of livestock, dogs, or domestic animals that show that the injury or death was caused by wolves, or evidence that they were in the act of attacking livestock, dogs, or other domestic animals; (2) the likelihood of additional wolf-caused losses or attacks may occur if no control action is taken; (3) evidence of unusual attractants or artificial or intentional feeding of wolves; and (4) evidence that animal husbandry practices recommended in approved allotment plans and annual operating plans were followed.
Incidental take	Take of a gray wolf is allowed if the take is accidental and incidental to an otherwise lawful activity and if reasonable due care was practiced to avoid such take, and such take is reported to the Service or designated agent within 24 hours (the Service may allow additional time if access to the site of the take is limited). Shooting a wolf as a result of mistaking it for another species is not considered accidental and may be referred to the appropriate authorities for prosecution.
Additional taking provisions for agency employees	Any employee or agent of the Service may take a wolf from the wild if such action is (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to salvage a dead specimen that may be used for scientific study; (4) to aid in law enforcement investigations involving wolves; or (5) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.

Situation	Alternative Element
Agency take to reduce impacts on wild ungulates (Optional – not currently included in the draft rule)	If wolf predation is having an unacceptable impact on wild ungulate populations (deer, elk, moose, bighorn sheep, mountain goats, or antelope) as determined by the respective State or Tribe, a State or Tribe may lethally remove the wolves in question. “Unacceptable impact” is defined as an “Impact to ungulate population or herd where a State or Tribe has determined that wolves are one of the major causes of the population or the herd not meeting established State or Tribe management goals.” States or Tribes must submit a science-based report showing the action meets regulatory standards. The Service must determine that an unacceptable impact to wild ungulate populations or herds has occurred and that the proposed lethal removal is science based and not in conflict with the State Plan.

Individual gray wolves that disperse from, or leave, the experimental population boundary would have the status under the ESA that applies to wolves in the geographic area to which they travel. For example, wolves that travel outside the experimental population boundary to Nebraska would be managed as federally listed endangered species pursuant to the ESA, while wolves that travel into Wyoming would be managed pursuant to state rules and regulations because the species is not listed under the ESA in Wyoming.

2.4.3 Alternative 2

Background

The Service developed alternative 2 to address the possibility that an existing population of gray wolves is identified in Colorado before the section 10(j) rule is finalized. An existing population, as defined by the Service, may include wolves that are living in the state and wolves that naturally disperse into the state. If an existing population of gray wolves is determined to exist in Colorado before the section 10(j) rule is finalized, the State could apply for a permit, and the Service could issue the State of Colorado a permit under section 10(a)(1)(A) of the ESA for management of the existing population on state and private land. Any section 10(a)(1)(A) permit issued to the State would not apply to federal lands, and if an existing population of gray wolves is identified on federal lands before the section 10(j) rule is finalized, these wolves would be managed as an endangered species outside the 10(a)(1)(A) permit area.

A section 10(j) rule would be developed for the remainder of the state in an area that is wholly separate geographically from the existing population. Lands managed by the NPS and national wildlife refuge lands in Colorado would be included in the experimental population boundary depending on the location of any existing population in the state. The section 10(j) rule would be applied differently by individual federal land management agencies on federal lands.

As noted in section 1.4, one reproductively active group of gray wolves had been documented in Colorado as of the end of 2021, and no reproduction was observed by this group in 2022. The Service has determined that gray wolves known to occur in the state as of September 2022 do not meet the definition of a population. CPW biologists continue to monitor wolves in the state using different techniques, including Global Positioning System or very high frequency telemetry collars, when available and functional, to confirm locations and movement patterns; fixed-wing aircraft surveys; trail cameras; field observations; and investigations of reports from the public. CPW maintains a wolf sighting form online (<https://cpw.state.co.us/learn/Pages/Sighting-Forms.aspx>). When a report is submitted, the information is shared with field staff, who may follow up, depending on details provided in the report. Reports that have

substantial detail and credibility are prioritized for investigation. If scat or hair samples are available, CPW analyzes those samples for genetic confirmation of species. CPW regional staff investigate claims of depredation due to wolves and use a variety of tools to gather evidence to make a conclusion. Information from the public, livestock producers, and agency staff is considered when evaluating the potential presence of wolves. Through all efforts, CPW has only confirmed the presence of wolves in the North Park area as of October 2022 (Odell 2022).

Alternative 2 considers the potential for previously unknown breeding groups of gray wolves to be identified in the state before the end of 2023 when the 10(j) rule is expected to be finalized. Section 10(j) of the ESA requires an experimental population to be established wholly separate geographically from nonexperimental populations of the same species, determined based on whether a population of the species is currently present in a geographic area. The Service defined a wolf population in the 1994 EIS for the *Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho* (USFWS 1994), as follows:

A wolf population is at least two breeding pairs of wild wolves successfully raising at least two young each year (until December 31 of the year of their birth), for two consecutive years.

Section 10(a)(1)(A) of the ESA allows the Service to issue permits for the purposeful or direct take of a federally listed species “for scientific purposes or to enhance the propagation or survival of the affected species.” The Service may issue several types of permits under section 10(a)(1)(A), depending on the proposed activity and the status of the affected species under the ESA. These types of permits include:

- An Enhancement of Survival Permit, which is applied for species listed under the ESA and is accompanied by a Safe Harbor Agreement detailing the baseline of the species and management actions to be implemented to benefit the species,
- A Candidate Conservation Agreement with Assurances, which is applied for non-listed or candidate species, or
- A Research and Recovery permit, which is applied for proposed activities including the capture, handling, and transport of a listed species for scientific purposes.

Summary

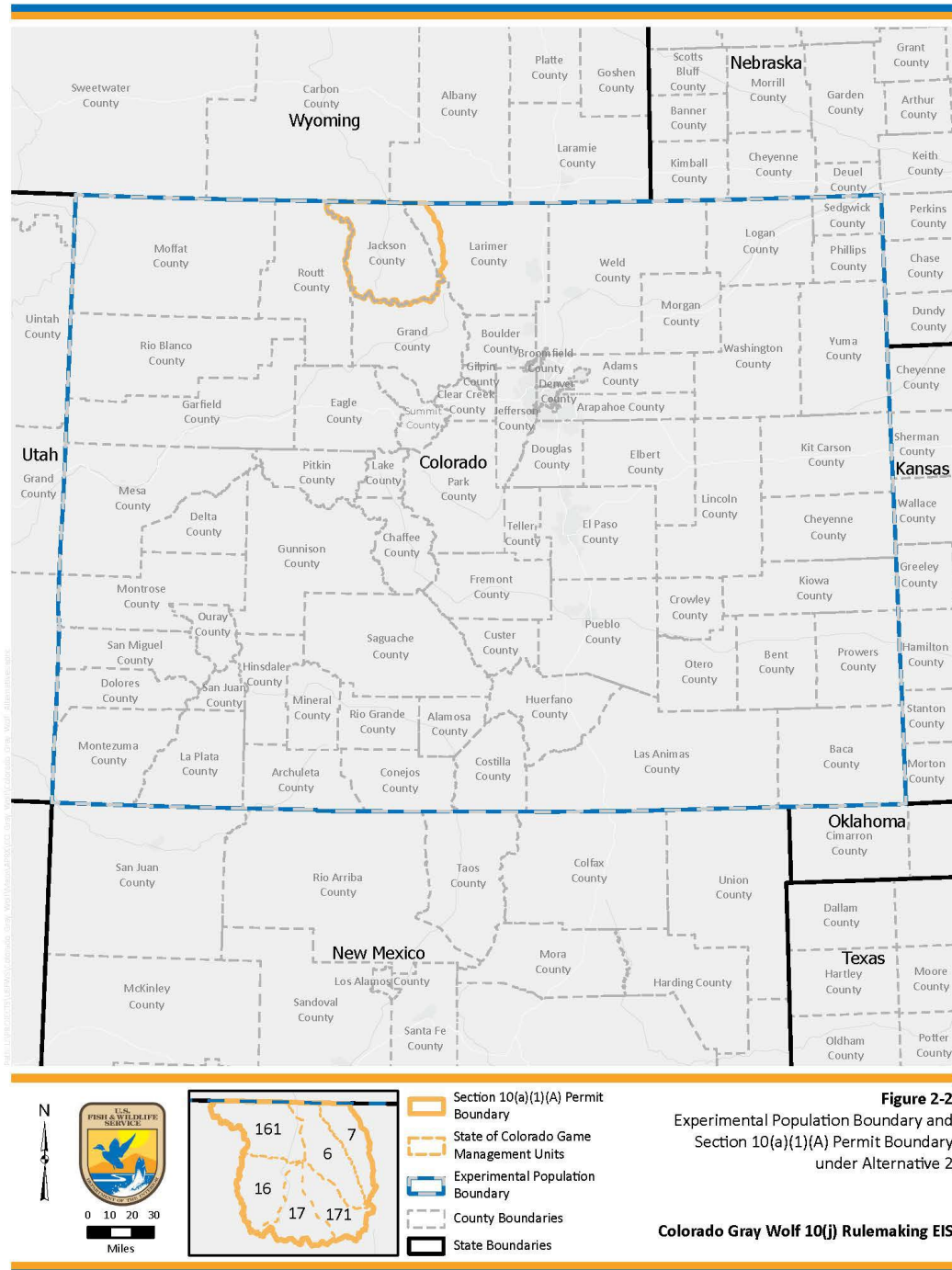
Under alternative 2, if an existing population of gray wolves is determined to exist in Colorado, the Service would issue a section 10(j) rule for the population of gray wolves that would be reintroduced to Colorado in a limited territory and issue a permit under section 10(a)(1)(A) of the ESA for management of the existing gray wolf population in Colorado on state and private lands in an area that is wholly separate geographically the experimental population boundary. Section 10(a)(1)(A) authorizes the Service to develop conservation agreements to further conserve the species. Similar to a section 10(j) rule, a section 10(a)(1)(A) permit allows management flexibility for populations of federally listed threatened or endangered species while providing for conservation of the species as a whole. A section 10(a)(1)(A) permit is applied to existing populations, rather than reintroduced or experimental, populations. If an existing population is not identified before a section 10(j) rule is issued, existing wolves living in or naturally dispersing to Colorado before that time would be managed under the section 10(j) rule; a separate section 10(a)(1)(A) permit would not be issued following promulgation of the section 10(j) rule.

The geographic boundaries for the 10(a)(1)(A) permit area would be delineated based on natural or human-made geographic features (i.e., mountain ranges, rivers, interstates) that encompass the range of the existing population to ensure that the existing, nonexperimental population is wholly separate geographically from the population of gray wolves that would be reintroduced by the State. For the

purposes of analysis, an example boundary for a section 10(a)(1)(A) permit could follow the boundaries of the State of Colorado's large game management units in areas where gray wolves are currently found, where these boundaries follow geographic features. For example, and for the purposes of this analysis, it is assumed that the following big game units in Jackson and Larimer Counties would make up the geographic boundary of the section 10(a)(1)(A) permit: 161, 6, 7, 16, 17, and 171. These units represent the area where wolves are currently found in Colorado. Figure 2-2 shows the big game units that are used for analysis under alternative 2. Depending on the locations where an existing population is identified (if one is identified), the boundaries of the 10(a)(1)(A) permit area may change from the boundaries depicted in this EIS.

The Service would issue a section 10(j) rule for the proposed experimental population of reintroduced wolves and an experimental population boundary that would include a smaller geographic area in which the final rule would apply. Within the experimental population boundary, federal regulations for the gray wolf population that would be reintroduced would be the same as those as described above under alternative 1. Similar to alternative 1, under alternative 2, the draft 10(j) rule does not provide for take of wolves to mitigate potential impacts to ungulate populations; however, a provision to address potential impacts to ungulates has been included as an option in this alternative and could be adopted in the final rule. The experimental population boundary would be established in those areas of the state not encompassed by the section 10(a)(1)(A) permit and outside any federal lands that are part of the range of an existing population of wolves, see figure 2-2.

Figure 2-2. Experimental Population Boundary and Section 10(a)(1)(A) Permit Boundary under Alternative 2



Detailed Description

The section 10(a)(1)(A) permit under alternative 2 would exempt many of the same management tools from take as those that would be exempted in the section 10(j) rule, except lethal take. No lethal take of gray wolves would be permitted within the section 10(a)(1)(A) permit boundary. Allowed take in the experimental population boundary and section 10(a)(1)(A) permit boundary is included in table 2-3.

Likewise, under this alternative, individual dispersing gray wolves that leave the experimental population or section 10(a)(1)(A) permit boundary would have the status under the ESA that applies to gray wolves in the geographic area to which they travel.

Table 2-3. Actions Permitted under Alternative 2

Situation	Alternative Element
Listed status of wolves	Threatened within the experimental population boundary. Endangered in the area covered under the section 10(a)(1)(A) permit.
Consultation (per section 7)	Within the experimental population boundary, not required unless those actions are on lands of the National Park System or the National Wildlife Refuge System (16 USC §1539(j)(2)(C)(i)). Required in areas covered by the section 10(a)(1)(A) permit.
Take in self-defense	Any person may take a gray wolf in defense of the individual's life or the life of another person.
Agency take of wolves determined to be a threat to human life & safety	The Service or designated agent(s) may promptly remove any wolf that the Service or designated agent(s) determines to be a threat to human life or safety.
Opportunistic harassment	Within the experimental population boundary, any person may conduct opportunistic harassment of any gray wolf in a non-injurious manner at any time. Opportunistic harassment must be reported to the Service or designated agent(s) within seven days. Within the 10(a)(1)(A) permit area, non-injurious take of problem wolves by a private landowner or grazing permittee may be authorized under a separate authority (section 10(a)(1)(A)) of the ESA [16 USC §1539(a)(1)(A)].
Intentional harassment	Within the experimental population boundary, after the Service or designated agent(s) have confirmed wolf activity on private lands, on a public land-grazing allotment, or on a Tribal reservation, the Service or designated agent(s) may issue a written take authorization valid for not longer than one year, with appropriate conditions, to any landowner or public land permittee to intentionally harass wolves. The harassment must occur in the area and under the conditions specifically identified in the take authorization. Intentional harassment must be reported to the Service or a designated agent within seven days. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.
Taking of wolves "in the act" of depredation on private land	Within the experimental population boundary, consistent with state or Tribal requirements, any landowner may take a gray wolf in the act of attacking livestock or dogs on his or her private land, provided the landowner provides evidence of livestock, stock animals, or dogs recently (less than 24 hours) wounded, harassed, molested, or killed by wolves, and the Service or designated agent(s) is able to confirm the livestock, stock animals, or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Situation	Alternative Element
Taking of wolves “in the act” of depredation on public land	<p>Within the experimental population boundary, consistent with state or Tribal requirements, any livestock producer and public land permittee who is legally using public land under a valid federal land-use permit may take a gray wolf in the act of attacking his or her livestock on the person’s allotment or other area authorized for his or her use without prior written authorization. The Service or designated agent(s) must be able to confirm the livestock or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule. Any person legally present on public land may immediately take a wolf that is in the act of attacking the individual’s stock animal or dog, provided conditions noted in “taking of wolves in the act on private land” are met. Any take or method of take on public lands must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent within 24 hours.</p> <p>Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.</p>
Additional taking by private citizens on their private land	<p>Within the experimental population boundary, at the Service’s or designated agents’ direction, the Service or designated agent may issue a “shoot on-sight” written take authorization of limited duration (45 days or less) to a landowner or their employees to take up to a specified (by the Service or designated agent) number of wolves on their private land if: (1) the landowner has had at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent within the last 30 days; and (2) the Service or designated agent has determined that problem wolves are routinely present on the private land and present a significant risk to the health and safety of livestock; and (3) the Service or designated agent has authorized lethal removal of wolves from that same private land. These authorizations may be terminated at any time once threats have been resolved or minimized. Any lethal or injurious take must be reported to the Service or a designated agent within 24 hours.</p> <p>Within the 10(a)(1)(A) area, no lethal take would be permitted. Only nonlethal take would be allowed.</p>
Additional taking by grazing permittees on public land	<p>Within the experimental population boundary, at the Service’s or designated agent(s) direction, the Service or designated agent(s) may issue a shoot-on-sight written take authorization of limited duration (45 days or less) to a public land-grazing permittee to take problem wolves on that permittee’s active livestock grazing allotment if: (1) the grazing allotment has at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent(s) within the past 30 days, and (2) the Service or designated agent(s) has determined that problem wolves are routinely present on that allotment and present a significant risk to the health and safety of livestock, and (3) the Service or designated agent(s) has authorized lethal removal of problem wolves from that same allotment. These authorizations may be terminated at any time once threats have been resolved or minimized. Any take or method of take on public land must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent within 24 hours.</p> <p>Within the 10(a)(1)(A) permit area, no lethal take would be permitted. Only nonlethal take would be allowed.</p>

Situation	Alternative Element
Agency take of wolves that repeatedly depredate livestock	<p>Within the experimental population boundary, the Service and designated agent(s) may carry out harassment, nonlethal control measures, relocation, placement in captivity, or lethal control of problem wolves. The Service or designated agent(s) would consider: (1) evidence of wounded livestock, dogs, or other domestic animals, or remains of livestock, dogs, or domestic animals that show that the injury or death was caused by wolves, or evidence that they were in the act of attacking livestock, dogs, or other domestic animals; (2) the likelihood of additional wolf-caused losses or attacks may occur if no control action is taken; (3) evidence of unusual attractants or artificial or intentional feeding of wolves; and (4) evidence that animal husbandry practices recommended in approved allotment plans and annual operating plans were followed.</p> <p>Within the 10(a)(1)(A) permit area, no lethal take would be permitted. Only nonlethal take would be allowed.</p>
Incidental take	<p>Take of a gray wolf is allowed if the take is accidental and incidental to an otherwise lawful activity and if reasonable due care was practiced to avoid such take, and such take is reported to the Service or designated agent within 24 hours (the Service may allow additional time if access to the site of the take is limited). Shooting a wolf as a result of mistaking it for another species is not considered accidental and may be referred to the appropriate authorities for prosecution.</p> <p>Within the 10(a)(1)(A) permit area, no incidental take would be permitted.</p>
Additional taking provisions for agency employees	<p>Within the experimental population boundary, any employee or agent of the Service may take a wolf from the wild if such action is (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to salvage a dead specimen that may be used for scientific study; (4) to aid in law enforcement investigations involving wolves; or (5) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.</p> <p>For areas covered under the 10(a)(1)(A) permit, the following forms of take may occur: (1) for scientific purposes; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to salvage a dead specimen that may be used for scientific study; (4) to aid in law enforcement investigations involving wolves; and (5) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.</p>
Agency take to reduce impacts on wild ungulates (Optional – currently not included in the draft rule)	<p>Within the experimental population boundary, if wolf predation is having an unacceptable impact on wild ungulate populations (deer, elk, moose, bighorn sheep, mountain goats, or antelope) as determined by the respective State or Tribe, a State or Tribe may lethally remove the wolves in question.</p> <p>“Unacceptable impact” is defined as an “Impact to ungulate population or herd where a State or Tribe has determined that wolves are one of the major causes of the population or the herd not meeting established State or Tribe management goals.” States or Tribes must submit a science-based report showing the action meets the regulatory standard. The Service must determine that an unacceptable impact to wild ungulate populations or herds has occurred and that the proposed lethal removal is science based and not in conflict with the State Plan.</p> <p>Within the 10(a)(1)(A) permit area, no lethal take would be permitted. Only nonlethal take would be allowed.</p>

1 **Table 2-4. Comparison of Alternatives**

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Regulatory Management Framework Used	All ESA protections apply.	Section 10(j) throughout entire state of Colorado	If an existing population is documented before a section 10(j) rule is finalized, the State could apply for a permit, and the Service could issue the State a section 10(a)(1)(A) permit in the portion(s) of Colorado in which an existing population (as defined by the Service) is located, if discovered. For analysis purposes, this alternative is based on the following State of Colorado Big Game Management units: 161, 6, 7, 16, 17, and 171, which occur in Jackson County and the western part of Larimer County (see figure 2-2). An experimental population boundary would be established for the remainder of the state outside this area that would be wholly separate geographically from the existing population.
Listed status of wolves	Endangered	Threatened	Threatened within the experimental population boundary. Endangered in area covered under the section 10(a)(1)(A) permit.
Consultation (per section 7)	Federal agencies are required to consult with the Service for any project or action they authorize, fund, or carry out that may affect federally listed endangered gray wolves in Colorado.	Not required unless those actions are on lands of the National Park System or the National Wildlife Refuge System (16 USC §1539(j)(2)(C)(i)).	Within the experimental population boundary, not required unless those actions are on lands of the National Park System or the National Wildlife Refuge System (16 USC §1539(j)(2)(C)(i)). Required in areas covered by the section 10(a)(1)(A) permit.
Take in self-defense	Any person may take a gray wolf in defense of the individual's life or the life of another person.	Same as the no-action alternative.	Same as the no-action alternative.
Agency take of wolves determined to be a threat to human life and safety	The Service or designated agent(s) may promptly remove any wolf that the Service or designated agent(s) determines to be a threat to human life or safety.	Same as the no-action alternative.	Same as the no-action alternative.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Opportunistic harassment	May be authorized under a separate authority (section 10(a)(1)(A) of the ESA [16 USC §1539(a)(1)(A)]).	Any person may conduct opportunistic harassment of any gray wolf in a non-injurious manner at any time. Opportunistic harassment must be reported to the Service or designated agent(s) within seven days.	Within the experimental population boundary, non-injurious take of problem wolves by a private landowner or grazing permittee would be the same as alternative 1. Within the 10(a)(1)(A) permit area, non-injurious take of problem wolves by a private landowner or grazing permittee would be the same as the no-action alternative.
Intentional harassment	No lethal or injurious nonlethal take would be permitted.	After the Service or designated agent(s) has confirmed wolf activity on private lands, on a public land-grazing allotment, or on a Tribal reservation, the Service or designated agent(s) may issue written take authorization valid for not longer than one year, with appropriate conditions, to any landowner or public land permittee to intentionally harass wolves. The harassment must occur in the area and under the conditions as specifically identified in the take authorization. Intentional harassment must be reported to the Service or a designated agent within seven days.	Within the experimental population boundary, same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.
Taking of wolves “in the act” of depredation on private land	No lethal or injurious nonlethal take would be permitted.	Consistent with state or Tribal requirements, any landowner may take a gray wolf in the act of attacking livestock or dogs on his or her private land, provided the landowner provides evidence of livestock, stock animals, or dogs recently (less than 24 hours) wounded, harassed, molested, or killed by wolves, and the Service or designated agent(s) is able to confirm the livestock, stock animals, or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule.	Within the experimental population boundary, take of wolves “in the act” of depredation on private land would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Taking of wolves “in the act” of depredation on public land	No lethal or injurious nonlethal take would be permitted.	Consistent with state or Tribal requirements, any livestock producer and public land permittee who is legally using public land under a valid federal land-use permit may take a gray wolf in the act of attacking his or her livestock on the person’s allotment or other area authorized for his or her use without prior written authorization. The Service or designated agent(s) must be able to confirm the livestock or dogs were wounded, harassed, molested, or killed by wolves. The carcass of any wolf taken and the area surrounding it should not be disturbed to preserve the physical evidence that the take was conducted according to this rule. Any person legally present on public land may immediately take a wolf that is in the act of attacking the individual’s stock animal or dog, provided conditions noted in “taking of wolves in the act on private land” are met. Any take or method of take on public lands must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent within 24 hours.	Within the experimental population boundary, take of wolves “in the act” of depredation on public land would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.
Additional taking by private citizens on their private land	No lethal or injurious nonlethal take would be permitted.	At the Service’s or designated agents’ direction, the Service or designated agent may issue a “shoot on-sight” written take authorization of limited duration (45 days or less) to a landowner or their employees to take up to a specified (by the Service or designated agent) number of wolves on their private land if: (1) the landowner has had at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent within the last 30 days; and (2) the Service or designated agent has determined that problem wolves are routinely present on the private land	Within the experimental population boundary, shoot-on-sight of problem wolves for a private landowner would be the same as alternative 1. Within the 10(a)(1)(A) area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
		and present a significant risk to the health and safety of livestock; and (3) the Service or designated agent has authorized lethal removal of wolves from that same private land. These authorizations may be terminated at any time once threats have been resolved or minimized. Any lethal or injurious take must be reported to the Service or a designated agent with 24 hours.	
Additional taking by grazing permittees on public land	No lethal or injurious nonlethal take would be permitted.	At the Service's or designated agent(s) direction, the Service or designated agent(s) may issue a shoot-on-sight written take authorization of limited duration (45 days or less) to a public land-grazing permittee to take problem wolves on that permittee's active livestock grazing allotment if: (1) the grazing allotment has at least one depredation by wolves on livestock that has been confirmed by the Service or designated agent(s) within the past 30 days, and (2) the Service or designated agent(s) has determined that problem wolves are routinely present on that allotment and present a significant risk to the health and safety of livestock, and (3) the Service or designated agent(s) has authorized lethal removal of problem wolves from that same allotment. These authorizations may be terminated at any time once threats have been resolved or minimized. Any take or method of take on public land must be consistent with the rules and regulations on those public lands. Any lethal or injurious take must be reported to the Service or a designated agent with 24 hours.	Within the 10(j) boundary, shoot-on-sight of problem wolves for a grazing permittee would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Agency take of wolves that repeatedly depredate livestock	No lethal or injurious nonlethal take would be permitted.	The Service and designated agent(s) may carry out harassment, nonlethal control measures, relocation, placement in captivity, or lethal control of problem wolves. The Service or designated agent(s) would consider: (1) evidence of wounded livestock, dogs, or other domestic animals, or remains of livestock, dogs, or domestic animals that show that the injury or death was caused by wolves, or evidence that they were in the act of attacking livestock, dogs, or other domestic animals; (2) the likelihood additional wolf-caused losses or attacks may occur if no control action is taken; (3) evidence of unusual attractants or artificial or intentional feeding of wolves; and (4) evidence that animal husbandry practices recommended in approved allotment plans and annual operating plans were followed.	Within the experimental population boundary, shoot-on-sight of problem wolves for a private landowner would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.
Incidental take	No incidental take would be permitted.	Take of a gray wolf is allowed if the take is accidental and incidental to an otherwise lawful activity and if reasonable due care was practiced to avoid such take, and such take is reported to the Service or designated agent within 24 hours (the Service may allow additional time if access to the site of the take is limited). Shooting a wolf as a result of mistaking it for another species is not considered accidental and may be referred to the appropriate authorities for prosecution.	Within the experimental population boundary, same as alternative 1. Within the 10(a)(1)(A) permit area, same as the no-action alternative.

Components of the Alternatives	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Additional taking provisions for agency employees	No lethal or injurious nonlethal take would be permitted.	Any employee or agent of the Service may take a wolf from the wild if such action is (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to dispose of a dead specimen; (4) to salvage a dead specimen that may be used for scientific study; (5) to aid in law enforcement investigations involving wolves; or (6) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.	Same as alternative 1 for areas within the experimental population boundary. For areas covered under the 10(a)(1)(A) permit, the following forms of take may occur: (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to dispose of a dead specimen; (4) to salvage a dead specimen that may be used for scientific study; (5) to aid in law enforcement investigations involving wolves; or (6) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.
Agency take to reduce impacts on wild ungulates (Optional – not currently in the draft rule)	No lethal or injurious nonlethal take would be permitted.	If wolf predation is having an unacceptable impact on wild ungulate populations (deer, elk, moose, bighorn sheep, mountain goats or antelope) as determined by the respective State or Tribe, a State or Tribe may lethally remove the wolves in question. “Unacceptable impact” is defined as an “Impact to ungulate population or herd where a State or Tribe has determined that wolves are one of the major causes of the population or the herd not meeting established State or Tribal management objectives.” States or Tribes must submit a science-based report showing the action meets regulatory standards. The Service must determine that an unacceptable impact to wild ungulate populations or herds has occurred and that the proposed lethal removal is science based and not in conflict with the State Plan.	Within the experimental population boundary, agency take to reduce impact to wild ungulates would be the same as alternative 1. Within the 10(a)(1)(A) permit area, no lethal take would be permitted; only nonlethal take would be allowed.

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

Chapter 3 describes the resources and existing conditions that may be affected by one or more of the alternatives described in Chapter 2. For this affected environment analysis, environmental conditions for each resource are evaluated using the best available data for that specific resource. Depending on the resource and the availability of data, discussion of the affected environment may vary. For example, the discussions of socioeconomic conditions and environmental justice communities use the most recent U.S. Census Bureau data available. For some topics, the 2020 decennial census provides the most recent information, while other topics must rely on the 2016 to 2020 five-year American Community Survey or the 2017 Census of Agriculture. Biological resource discussions use the most current and best available species data sets, surveys, and studies to inform the analysis.

The Service considered all potentially relevant resource areas for analysis in this EIS. In compliance with NEPA, its implementing regulations (40 CFR 1500–1508), and CEQ guidance for implementing NEPA, the discussion of the affected environment focuses only on those environmental resources that may be impacted by the proposed action. Section 3.1.1, below, provides more detail on which environmental resource areas were considered for analysis in the EIS.

3.1.1 Scoping Issues and Concerns

Introduction

An “issue” describes the relationship between actions and environmental resources (natural, cultural, and socioeconomic). Issues are adverse or beneficial effects that any of the action alternatives or the no-action alternative might cause or that may currently exist. Issues may also be questions, concerns, or other relationships, including beneficial ones. Environmental resources and issues addressed in the EIS were identified during internal and public scoping in compliance with NEPA and its implementing regulations (40 CFR 1501.9).

Some environmental resources and issues were analyzed in detail in the EIS, while others were not. The decision to analyze an issue in detail was made solely based on the issue’s relevance to the decision being made or based on the best scientific judgment that the issue is related to the decision being made. For instance, the decision regarding whether to issue a section 10(j) rule for gray wolves in Colorado would affect livestock producers and outfitters and guides. Consequently, potential socioeconomic impacts on livestock producers and outfitters and guides are evaluated in detail in the EIS, among the other issues listed in table 3-1, below. Other commenters were concerned about the use of lethal management measures, the reintroduction in general, or about the population levels of gray wolf that could be sustained in Colorado. These issues are outside the scope of this EIS or do not meet the purpose and need for the proposed action as described in section 2.3.3; therefore, they are not analyzed in the EIS. Explanations are included below for issues that are not analyzed in detail in the EIS.

Issues related to the reintroduction in general are not part of the scope of the analysis of this EIS process because the State of Colorado would reintroduce gray wolves to a portion of the species’ historic range in the state in compliance with Colorado Revised Statute 33-2-105.8, regardless of the alternative implemented, and would be able to reintroduce the species without additional authorization by the Service, as discussed in section 2.4.1. However, impacts of the State’s reintroduction of gray wolves are considered under the cumulative impacts section of this EIS (section 4.9).

Environmental Resources and Issues Evaluated in the EIS

Environmental resources and issues analyzed in detail in the EIS are listed in table 3-1.

Table 3-1. Environmental Resources and Issues Analyzed in Detail in the EIS

Environmental Resources	Issues
Biological Resources – Species of Special Concern	Potential impacts on the gray wolf (e.g., from hazing and take), and other species of special concern.
Biological Resources – Other Wildlife	Potential impacts on elk, deer, and other ungulate species from the presence or absence of management flexibility.
Cultural Resources – Tribal Cultural Resources	Potential impacts identified through consultation with Tribes and the presence or absence of management flexibility to address impacts to sacred sites, hunting on lands with Tribal treaty rights, and livestock production by Tribes or Tribal members.
Socioeconomic Resources	Potential impacts on ranch operations, outfitters, guides, and hunting from the presence or absence of management flexibility.
Environmental Justice	Potential impacts on minority and low-income population groups of concern in the study area from the presence or absence of management flexibility.

Environmental Resources and Issues Not Evaluated in Detail the EIS

Environmental resources and issues that are not analyzed in detail in the EIS are listed in table 3-2. The reasons why these resources and issues are not evaluated in detail are described.

Table 3-2. Environmental Resources and Issues Not Evaluated in the EIS

Environmental Resources	Issues
Air – Air Quality	Providing flexibility for reintroduction and management of gray wolves in Colorado would not result in actions that would affect air quality.
Biological Resources – Non-native or Exotic Species	Providing flexibility for reintroduction and management of gray wolves in Colorado would not result in the spread or management of non-native or exotic species.
Biological Resources – Vegetation	Providing flexibility for reintroduction and management of gray wolves in Colorado would not affect vegetative communities. As discussed under the affected environment and cumulative impact sections, the number of ungulates on the landscape could impact vegetation, but providing regulatory flexibility is not expected to cause changes in ungulate populations that would result in noticeable impacts to vegetation.
Biological Resources – Ecosystem Dynamics	While the introduction of wolves by the State could result in potential changes in vegetation communities, watersheds, water quality, and other ecosystem dynamics due to changes in wildlife populations, providing management flexibility through a regulatory framework is not expected to result in impacts to ecosystem dynamics. These impacts are further discussed in cumulative impacts.
Cultural Resources – Archaeological Resources	Providing management flexibility for reintroduction and management of gray wolves in Colorado would not result in adverse effects on archaeological resources.
Cultural Resources – Cultural Landscapes	Providing management flexibility through a regulatory framework for the gray wolf in Colorado is not expected to change or impact cultural landscapes. Issues related to sacred sites are addressed under Tribal Cultural Resources.
Geological Resources – Geologic Features	Providing management flexibility for gray wolves that would be reintroduced to Colorado would not result in localized or widespread ground disturbance that would affect geologic features.

Environmental Resources	Issues
Geological Resources – Geologic Processes	As noted above, the proposed action would not result in localized or widespread ground disturbance.
Lightscares	The proposed action would not affect lightscares or views of the night sky.
Human Health and Safety	While human encounters with wolves have the potential to result in human injury, this is very rare. The ESA allows for take of individual wolves for personal protection. Wolves can also transmit disease, which can affect other wildlife species. Also, like many other mammals, wolves are susceptible to rabies, which can increase the likelihood of attacks on humans. Overall, wolves do not pose a serious risk to human health and safety through disease transmission or provoked/unprovoked attacks. The proposed action would not result in changes in the way risks to human health and safety are managed; therefore, this issue is not evaluated in detail in the EIS.
Soundscapes	Providing management flexibility through a regulatory framework may result in short-term noise disturbance during management actions, however, these would be localized and intermittent, and direct impacts would be minimal. Therefore, impacts to soundscapes are not analyzed in detail.
Viewsheds	Providing management flexibility through a regulatory framework may result in intermittent, localized visual impacts during management activities. These impacts would be minimal and are not evaluated in detail in the EIS.
Recreation – Recreational Resources	The proposed action would not affect overall access to or the quality of recreational resources in Colorado. The presence of gray wolves may attract wildlife watchers to areas where wolves are present. The provision of management flexibility under a regulatory framework from the Service would not affect the ability of the public to engage in hunting, hiking, birdwatching, or viewing wolves; therefore, recreational resources are not discussed in detail in the EIS.
Water Resources - Floodplains	No impacts to floodplains are expected as a result of actions permitted under a regulatory framework issued by the Service.
Water Resources – Marine or Estuarine Resources	No marine or estuarine water resources are located in the project area.
Water Resources – Water Quality or Quantity	The provision of management flexibility under a regulatory framework would not impact water resources including water quality or quantity, or wetlands.

3.1.2 Study Area

The study area for the affected environment analysis includes the entire state of Colorado. The affected environment (Chapter 3) and environmental consequences (Chapter 4) sections of the EIS provide information and analysis at this statewide level. In addition to the statewide analysis, the Service identified 21 focal counties for more detailed study in the EIS. The focal counties have high ecological suitability for gray wolves, as determined by a 2022 study by Ditmer et al. The Service overlaid a map of Colorado counties on modeling of ecological suitability in summer and winter to determine the list of focal counties (Ditmer 2022). See Appendix D. While the Service recognizes that gray wolves that would be reintroduced to Colorado may occur outside this area, these areas are anticipated to contain the most suitable habitat.

The focal counties include Colorado counties in proximity to suitable reintroduction sites identified by the State in the Western Slope and counties to which wolves are most likely to disperse based on suitable habitat and prey density. Areas with high ecological suitability for gray wolves may have low or high risk for human-wolf conflicts. The Service identified 21 focal counties: Archuleta, Custer, Delta, Dolores, Eagle, Garfield, Grand, Gunnison, Huerfano, Jackson, La Plata, Larimer, Mesa, Moffat, Montezuma, Montrose, Ouray, Rio Blanco, Routt, Saguache, and San Miguel. These counties are shown on figure 3-1. While these counties encompass potential reintroduction sites on the Western Slope (e.g., Delta, Dolores, Eagle, Garfield, Grand, Gunnison, La Plata, Mesa, Moffat, Montezuma, Montrose, Ouray, Rio Blanco, Routt, San Miguel and portions of Archuleta or Saguache Counties) or areas where gray wolves are most likely to disperse based on the ecological factors noted above, wolves can disperse long distances and may disperse to areas of the state outside the focal counties. The Service is proposing to implement regulatory flexibility consistent with section 10(j) of the ESA statewide to account for dispersal of gray wolves away from reintroduction sites; therefore, the analysis of the affected environment and potential impacts in this EIS considers both the statewide study area and the focal counties.

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3.2 SPECIES OF SPECIAL CONCERN

Species of special concern include federally listed species; those that are federally listed or proposed to be listed as endangered or threatened or that are candidate species for protection under the ESA; and those listed as endangered or threatened at the State level in Colorado or identified as Species of Greatest Conservation Need (SGCN) in Colorado's State Wildlife Action Plan (SWAP; CPW 2015).

The proposed 10(j) rule to manage take of gray wolves following their reintroduction in Colorado would cover the entire state, and regulatory flexibility regarding the management of take would be needed statewide because gray wolves may disperse long distances from reintroduction sites. Modeling has indicated that certain regions of the state, primarily the Western Slope, provide the most suitable habitat for gray wolves that would be reintroduced to Colorado based on a suite of ecological and social factors (Ditmer et al. 2022). Section 3.1.2, above, provides more detail on regions of the state with greater ecological suitability for gray wolves and the methodology used to define these areas by identifying focal counties. This discussion of existing conditions for species of special concern and the analysis that follows focuses on the 21 focal counties but also considers the potential for statewide impacts (figure 2-1). The following section discusses the federally listed gray wolf, followed by other federally listed species. When considering other federally listed species, listed fish, insects, flowering plants, and vegetation were not evaluated in detail because the management of gray wolf take would not affect them.

3.2.1 Gray Wolf

History

The gray wolf historically inhabited most of North America, including Colorado, until it was nearly brought to extinction in the 1930s as a result of predator control programs and bounties in the lower 48 United States and southern Canadian provinces (USFWS 2022b). Gray wolves were listed as endangered under the U.S. Endangered Species Preservation Act in 1966 and legally protected under the ESA in 1973. Since then, the Service has managed gray wolves as an endangered species in Colorado under the authority of the ESA. See section 1.4 for a detailed description of how the status of the gray wolf in Colorado has changed over the years.

Given their adaptability as habitat and prey generalists, wolves have been able to recolonize certain parts of their historic range in North America and Europe (Mech 2017); as of 2020, about 6,000 gray wolves are estimated to live in the lower 48 states (USFWS 2020a). Following the successful reintroduction of gray wolves to Yellowstone National Park and Idaho in the 1990s (Fritts et al. 1997), and the subsequent expansion of stable and healthy populations into adjacent states (Jimenez et al. 2017), gray wolves were delisted in Montana, Idaho, Wyoming, eastern Oregon and Washington, and parts of Utah (USFWS 2022b). Wolves remain listed as endangered in Colorado under the ESA and under the State's Nongame, Endangered, or Threatened Species Conservation Act (CO Rev Stat § 33-2-101).

Current Population Status and Distribution

The Service and the NPS reintroduced gray wolves to central Idaho and Yellowstone National Park in the 1990s, and by 2015, approximately 2,000 wolves were estimated to inhabit the northern Rocky Mountains. In addition, wolf populations have been established in smaller numbers in Washington, Oregon, and Northern California (Smith et al. 2010; USFWS 2020a). Dispersing wolves from the northern Rocky Mountains population have been documented in Colorado; however, Colorado is geographically separate from the northern Rocky Mountains.

CPW receives approximately 100 sightings of wolves per year, although not all are valid. Since 2004, lone wolves have been confirmed numerous times in Colorado, although no resident groups were documented in the state until January 2020, when CPW confirmed a group of at least six wolves in Moffat County near the Wyoming and Utah border. That group was visually observed, and genetic tests were conducted on scat samples near a scavenged elk

carcass, which confirmed at least four related individuals in the group (CPW 2020a). Separately, a collared adult female from the Snake River Pack in Wyoming was documented in north-central Colorado in July 2019, and CPW collared an adult male in January 2021 in Jackson County. In June 2021, a litter of six pups was observed with the Snake River female and the CPW-collared male (now dubbed the “North Park pack”). In February 2022, one of the yearling female wolves from that litter was collared in North Park (CPW 2022b).

Wolves have been confirmed in Colorado, including one breeding pair, although at this time, a wolf population has not been recognized in the state because it does not meet the Service’s definition of a wolf population, which is “at least two breeding pairs of wild wolves successfully raising at least two young each year (until December 31 of the year of their birth), for two consecutive years” (USFWS 1994).

Ecology

Physical Characteristics. Gray wolves are a highly adaptable species and were once the most widely distributed mammal in the world (Ginsberg and Macdonald 1990). They are the largest member of the canid species; they typically range in weight from 16 to 60 kilograms and are 1.3 to 1.5 meters long (Ginsberg and Macdonald 1990). Pelt color varies, but in the northern Rocky Mountains, wolves are most commonly grizzled gray and black (USFWS 1994).

Group Sizes and Territories. Gray wolves are a social species that live in groups led by a dominant breeding pair (alphas). Groups consist of the breeding pair’s offspring from previous years and their new pups, as well as other breeding-aged adults. Group size varies and may include more than 30 animals (Ginsberg and Macdonald 1990); however, average group sizes are typically smaller (e.g., 9.8 individuals in Yellowstone National Park [NPS 2022a]; 5.92 individuals in the northern Rocky Mountains [Sells et al. 2022]). Wolves may live in the wild up to 13 years (Mech 1988), but more commonly have a lifespan of 2 to 5 years; only 18 percent of wolves in Yellowstone National Park reached 6 years of age or older (NPS 2022a).

Wolf density may be naturally controlled by prey density (Mech and Barber-Meyer 2015) or intrinsically self-regulated because of social strife and territoriality (Cariappa et al. 2011; Cubaynes et al. 2014). Or as expected to be the case in Colorado, wolf density may be extrinsically regulated as a result of social carrying capacity¹ (TWG 2022a).

A wolf group’s home range/territory size varies by season and by year. From spring to fall, the home range is smaller because activity is centered around the den and rendezvous sites. By October, pups are able to travel and hunt with the group, thus increasing the size of the home range. Prey availability, intraspecific competition with nearby groups, and landscape characteristics (both biotic and abiotic) all influence wolf territory size. Wolf group territory sizes in the northern Rocky Mountains have ranged from 24 to 934 square miles (Colorado Wolf Management Working Group 2004).

Reproduction. Wolves reach reproductive maturity at approximately two years of age (Ginsberg and Macdonald 1990), and breeding typically occurs only between the dominant male and female in a group (although groups with additional reproductively mature females have been documented with more than one litter per year; Mech and Boitani 2003; USFWS et al. 2001). Wolves establish one or several den sites up to one month prior to giving birth (Paquet and Carbyn 2003), and pups are born in April. Litter sizes can range from one to nine (Pletscher et al. 1997), but the average is five pups (Mech 1970; Ausband et al. 2017). Pup survival increases when ungulate

¹ “Social carrying capacity” is a concept developed by social scientists and extended to wildlife management to describe human tolerance for wildlife (Decker and Purdy 1988). Also coined “wildlife stakeholder acceptance capacity” (Carpenter et al. 2000), the concept is connected to social receptivity to wildlife conservation and management goals and human willingness to coexist with wildlife, particularly large carnivores (Peyton et al. 2007; Madden and McQuinn 2014; Young et al. 2015b).

prey are abundant (Fuller et al. 2003) and when they are in larger groups with more nonbreeding adults (Brainerd et al. 2008). Pup survival is reduced when the breeding individuals of a pack are removed as a result of harvest or management-led lethal control; these actions typically lead to smaller group size and breeder turnover, which decreases pack stability and pup survival (Brainerd et al. 2008; Ausband et al. 2017).

Dispersal. Wolves can disperse across long distances (Ditmer et al. 2022; Morales-Gonzalez et al. 2022), which has allowed them to recolonize former habitats where human-caused mortality sources are limited. Lone long-distance dispersals have been documented in nearly all states within the historical gray wolf range (USFWS 2020b). Both male and female subadults will disperse hundreds of miles; radio collar data have demonstrated wolves moving more than 600 miles straight line distance (Mech and Boitani 2003; Jimenez et al. 2017; Morales-Gonzalez et al. 2022). Wolves that have been confirmed in Colorado are thought to have dispersed from Wyoming (Ditmer et al. 2022) and Montana (CPW 2022c).

Genetics. Taxonomic relationships of wolves in North America have been studied extensively, although researchers disagree about the genotypic relationship between western gray wolves, eastern wolves, and red wolves (USFWS 2020b; Carroll et al. 2021). Wolves that have dispersed to Colorado are part of the Western United States metapopulation, which is also connected to the large population (>15,000) of wolves in western Canada (Jimenez et al. 2017; USFWS 2020b). The behavioral characteristic of young wolves to disperse when they reach sexual maturity enables extensive genetic exchange through immigration and emigration with adjacent populations (Colorado Wolf Management Working Group 2004).

Food Habits. Gray wolves are opportunistic carnivores, and although they will prey on small mammals and birds, carrion, and even plant matter, they tend to focus on large ungulates (Fuller 1989; Colorado Wolf Management Working Group 2004; Stahler et al. 2006; Newsome et al. 2016). However, wolves have demonstrated the ability to shift their diet to take advantage of seasonally available food sources, e.g., beavers (*Castor canadensis*; Gable and Windels 2018; Gable et al. 2020).

Depending on the size of prey, adult wolves may consume from 10 to more than 20 ungulates (i.e., elk [*Cervus canadensis*], mule deer [*Odocoileus hemionus*]) per year, including newborn/juvenile calves (Fuller 1989; NPS 2022a). Ungulate densities in Colorado exceed those in other states where wolves maintain a viable population (Ditmer et al. 2022), and wolves are most likely to prey upon elk, mule deer, and white-tailed deer (*O. virginianus*; Colorado Wolf Management Working Group 2004). Colorado has the largest population of elk in any state (>300,000 individuals; Lukacs et al. 2018; CPW 2021a). The deer population was estimated to be 416,426 in 2021 (CPW 2021b), which is a decrease from the early 2000s and less than the State's population objectives (CPW 2020b).

Other ungulates that wolves may prey upon in Colorado include moose (*Alces alces*), pronghorn (*Antilocapra americana*), bighorn sheep (*Ovis canadensis*; *O. canadensis nelsoni*), and mountain goats (*Oreamnos americanus*). These species are not expected to be a major food source for wolves in Colorado in the near term. See section 3.3.2 for a more detailed description of other ungulate populations in the state.

Domestic Prey Species/Livestock Depredation. In addition to wild ungulates, wolves are known to kill and prey on livestock (most commonly cattle and sheep) and other domestic animals. The extent to which this occurs depends on the density of wolves, the group size, and the density and spatial overlap of wild ungulate populations and livestock. In addition, livestock husbandry practices, land cover type, human and road density, the severity of winters, and local hunting pressure all contribute to the likelihood of depredations (DeCesare et al. 2018; Janeiro-Otero et al. 2020; Gese et al. 2021). Livestock depredation may be a learned behavior by individual wolves who become repeat offenders (Bradley et al. 2015; DeCesare et al. 2018). DeCesare et al. (2018) found the strongest predictor of wolf depredation in Montana was the occurrence of depredation in the previous year; however, the authors noted that may have been as a result of animal husbandry practices and increased spatial overlap with

livestock in certain districts as much as an intrinsic learning behavior by individual wolves. Generally, wolves primarily prey on native ungulates but sometimes shift toward depredating livestock (Colorado Wolf Management Working Group 2004; Bradley et al. 2015; DeCesare et al. 2018), which can be detrimental to the affected livestock operations (TWG 2022a). Three separate wolf depredation incidents on cattle were confirmed on a ranch in Jackson County, Colorado, between December 2021 and January 2022 (CPW 2021c, 2022d), and an investigation is ongoing (as of December 2022) of a potential depredation on White River National Forest lands near Meeker (CPW 2022e). See section 3.5 for a more detailed discussion of the socioeconomic impacts of depredation.

Habitat Preferences. Wolves are habitat generalists and can inhabit many types of ecosystems if sufficient prey populations are available, and they are able to spatially separate from humans to avoid conflict (Sazatornil et al. 2016; Mech 2017; Mech et al. 2019). Colorado has sufficient ecologically suitable habitat to sustain an ecologically functional wolf population (Carroll et al. 2006; Ditmer et al. 2022); however, the areas in Colorado with highest habitat suitability (e.g., the northern Western Slope) may also have the lowest human tolerance as a result of livestock grazing and agricultural activity on the land (Carroll et al. 2003; Ditmer et al. 2022). As stated in Colorado Revised Statute 33-2-105.8, reintroduction of wolves by the State of Colorado is proposed to occur west of the Continental Divide but it is expected that wolves would disperse east of the Continental Divide, into the plains and southeastern canyonland habitats (Ditmer et al. 2022).

Mortality. Wolf mortality may occur from natural causes or as a result of interactions with humans. Natural sources of mortality for wolves include inter-and intraspecific strife and natural causes (e.g., old age, disease, parasites, accidents; Colorado Wolf Management Working Group 2004; Murray et al. 2010). Wolves may be killed by other carnivores while competing for prey (Ballard et al. 2003) or from aggressive interactions with other wolves (Cubaynes et al. 2014). Gray wolves in Colorado are likely to be exposed to and affected by viral and bacterial diseases and parasites, including canine distemper, canine parvovirus, rabies, leptospirosis, tularemia, blastomycosis, heartworm, intestinal worms, echinococcosis, sarcoptic mange, lice, and ticks, similar to the rest of their range (Johnson et al. 1994; Brand et al. 1995; Mech et al. 2008; Michigan DNR 2015). In other wolf populations, these diseases and parasites are not considered limiting at the population level (Michigan DNR 2015). It can be difficult to assess the direct and indirect influences of diseases unless wolves are being closely monitored (Brand et al. 1995), but it is possible that a disease outbreak may affect dispersal and colonization of new areas if a high percentage of pups are infected (Mech et al. 2008).

Human-caused mortality typically accounts for more than 80 percent of all wolf mortality (Fuller 1989; Murray et al. 2010). The rate of illegal harvest of wolves is uncertain because unreported killing cannot be precisely quantified, and not all individual wolves in a population are monitored closely to determine cause of death. In Minnesota, 17 to 31 percent of wolf mortality was attributed to illegal human-caused mortality (Fuller et al. 2003), while a review of 21 studies across North America estimated 23 percent of mortalities of monitored wolves was due to illegal harvest (Hill et al. 2022). Depredation of livestock is a primary source of conflict, as is lack of tolerance of wolves in both the United States and Canada (Mech 2017; Morehouse et al. 2018). Areas with a high density of roads have negatively affected wolf persistence by increasing human access (Mladenoff et al. 1995; Kohn et al. 2001; Smith et al. 2010; Hebblewhite and Whittington 2020); the exception being if high road density is near large areas of intact wolf habitat with few or no roads, e.g., wilderness areas or national park units (Mech 1989). Wolf survival in areas of high road density is also affected by landscape features (terrain, topography, cover), traffic, road distribution, and human tolerance (USFWS 1994).

Wolf populations have demonstrated strong resilience to mortality because of the compensatory nature (see definition in Appendix A, Glossary) of natural and human-caused mortality factors and because of wolves' high reproductive potential (Fuller et al. 2003). The range of sustainable human-caused mortality rates varies due to biological and ecological conditions of specific habitats and wolf populations. Previous research in Minnesota and

Alaska indicated that wolves could withstand human-caused mortality rates up to 28 percent before a population decline is detected (Fuller 1989; Adams et al. 2008), while modeling the effects of human-caused mortality on northern Rocky Mountain wolf population growth estimated a sustainable rate of 45 percent (Gude et al. 2012). In the final rule for removing wolves from the ESA, the Service identified the adaptable nature of the pack social structure as enabling wolf populations to rapidly overcome pervasive human-caused mortality or disease (USFWS 2020b). Recruitment rate has been identified as an important variable in population-level responses of wolves to human-caused mortality (Gude et al. 2012).

Interactions with Other Species. Wolves may directly compete with other predators for prey or habitat, including coyote (*Canis latrans*), mountain lion (*Puma concolor*), black bear (*Ursus americanus*), lynx (*Lynx canadensis*), bobcat (*Lynx rufus*), and wolverine (*Gulo gulo*) (Ballard et al. 2001; Griffin et al. 2011; Forrester and Wittmer 2013; CPW 2022f). These predators may kill or be killed by wolves (Ballard et al. 2003; Kortello et al. 2007; Elbroch et al. 2020). In some areas where wolves have been restored, competitors have changed their predation habits or habitat selection to avoid competition with wolves (Smith et al. 2003). When wolves were reintroduced to Yellowstone National Park in 1995 after being absent for approximately 70 years, they were expected to compete with other predators, including coyotes, mountain lions, and grizzly bears for prey resources. In the absence of wolves during the preceding decades, these predators likely expanded their niche spaces and habitats to include spaces vacated by wolves (Ruth et al. 2011; Bartnick et al. 2013). Because elk and deer populations at Yellowstone were at or near all-time highs when wolves were reintroduced, prey resources were not limited, which likely buffered the effects of interspecific competition among predators in the short term.

Eventually, studies on interspecific competition between wolves and mountain lions following the natural recolonization and reintroduction of wolves to the northern Rocky Mountains documented behavioral changes in mountain lions due to the presence of wolves. Observed changes included avoidance behaviors, changes in prey selection, and shifts in space use (Bartnick et al. 2013). Between wolves and mountain lions, wolves tend to be the dominant predator, and mountain lions tend to avoid areas where wolves are present. With the increased presence of wolves, mountain lions shifted their habitat use to higher elevations and used other habitats farther removed from wolf home ranges and kill sites. In addition, mountain lions preyed on a higher proportion of mule deer, whereas elk had been their primary prey species in the absence of wolves. This shift in prey selection was likely a result of increased mountain lion-mule deer encounters as mountain lions shifted their habitat use to higher elevations (Bartnick et al. 2013). This interaction is known as competitive interference.

Competition between wolves and grizzly bears was also observed at Yellowstone following the reintroduction of wolves (Ballard et al. 2003; Gunther and Smith 2004). However, grizzly bears have been extirpated from Colorado (DMNS 2022).

Black bears occur throughout most of the western two-thirds of Colorado (CBI 2011a). Although they are omnivores, black bears are considered to be apex predators in some ecosystems. There have been fewer documented interactions between wolves and black bears compared to other predators. Wolves have been documented to kill black bears on occasion. In the majority of these cases, wolves have outnumbered black bears, giving them a competitive advantage in combat. Wolves were the more dominant species in approximately 70 percent of the documented wolf-black bear interactions (Ballard et al. 2003).

Complex interactions among wolves and coyotes have also been observed. Following reintroduction of wolves at Yellowstone, Merkle et al. (2009) observed wolf-coyote encounters over a 12-year period from 1995 to 2007. Wolves were observed to be the more dominant species in interactions with coyotes, with wolves initiating most encounters (Merkle et al. 2009). In most observed encounters, wolves chased coyotes away, but killed them in some encounters. Wolf-coyote interactions decreased over time as the size of the wolf population increased, suggesting that coyotes adapted to the presence of wolves by altering their behaviors or declined in number through dispersion (Merkle et al. 2009). Although wolves do not hunt coyotes as prey, coyotes are reported as the

carnivore being most commonly killed by wolves, further demonstrating the need for coyotes to adapt their behaviors in the presence of wolves (Palomares and Caro 1999; Merkle et al. 2009). However, coyotes also benefit from the access to carrion left behind at wolf kill sites (Ballard et al. 2003; Merkle et al. 2009; NPS 2022a). Interspecific competition has not yet been documented with wolves and other predators in Colorado.

Wolf Recovery and Potential Ecosystem Response. As noted above, wolves have been reintroduced or naturally recolonized portions of their historic North American range. Notable examples of reintroduction include Yellowstone National Park and central Idaho (USFWS 1994), whereas natural recolonization occurred in northern Wisconsin (Callan et al. 2013), Isle Royale National Park in Michigan (McLaren and Peterson 1994; except for reintroductions that began in 2020 [NPS 2018]), and Banff National Park in Alberta, Canada (Hebblewhite et al. 2005). The following discussion provides an overview of the role of wolves in ecosystems and describes ecosystem-level effects that have been documented elsewhere following reintroduction and recovery efforts. It should be noted that ecosystem response to wolf reintroduction can vary greatly among regions and ecosystems depending on biotic and abiotic factors and complex interactions.

As an apex predator, wolves may exert a strong top-down influence on the trophic structure of the ecosystems they inhabit (Ripple and Beschta 2012). This means that wolves may influence ecosystem structure either directly (e.g., predation) or indirectly (e.g., behavioral modification of prey species and mesocarnivores [predators that occupy mid-levels of food webs]) by altering herbivore abundance and/or distribution on the landscape. This can, in turn, positively or negatively influence vegetation communities and drive ecosystem structure, although most research indicates positive changes related to the effects of wolves (Estes et al. 2011; Ripple and Beschta 2012; Ripple et al. 2014). This process is known as a trophic cascade. Although there are documented examples of trophic cascades across a diversity of ecosystems, they are a topic of debate in the body of scientific literature because of the many variables and complex interactions that can otherwise affect ecosystem structure (Mech 2012; Smith et al. 2019).

Since 1995, when wolves were reintroduced to Yellowstone National Park, changes have been documented that have resulted in improved habitat conditions, including a resurgence of woody browse species such as willow (*Salix* spp.), aspen (*Populus tremuloides*), and cottonwood (*Populus* spp.) in some areas (Smith et al. 2003; Hollenbeck and Ripple 2007; Ripple and Beschta 2012). An increase in the abundance and diversity of riparian bird species in portions of Yellowstone National Park was observed during the same period (Smith et al. 2003; Hollenbeck and Ripple 2007). However, the exact mechanisms and the role that wolves have played in contributing to these changes continues to be debated (Mech 2012; Smith et al. 2019). Changes in ecosystem structure and dynamics following reintroduction or natural recolonization of wolves have been observed in other ecosystems throughout North America including northern Wisconsin (Callan et al. 2013), Isle Royale National Park in Michigan (McLaren and Peterson 1994; NPS 2018), and at Canada's Banff National Park in Alberta (Hebblewhite et al. 2005).

3.2.2 Other Federally Listed Species

Colorado is home to 38 federally listed species, including the gray wolf (USFWS 2022c). Some federally listed species are found throughout the state, while others have limited distribution or occur only in specific habitats. Table 3-3 lists the federally listed mammals and birds that occur in Colorado along with their statuses and provides a summary of their habitat preferences. Table 3-3 also notes in which of the 21 focal counties these species are known to occur or likely to occur. Table 3-3 does not include federally listed fishes, insects, and plants that may occur in Colorado because the proposed action is not likely to affect these species.

Colorado also contains critical habitat for 14 federally listed species. Table 3-4 lists designated critical habitat in Colorado and indicates in which of the 21 focal counties critical habitat is located. Critical habitat is designated based on the presence of primary constituent elements. Primary constituent elements are those specific elements

of physical and biological features that provide for a species' life-history processes and are essential to the conservation of the species. As noted above, the proposed action is not expected to affect federally listed fishes, insects, and plants; therefore, critical habitats for these species are not included in table 3-4.

Table 3-3. Federally Listed Species in Colorado

Common Name	Scientific Name	Status	Habitat Requirements	Occurrence in the Study Area
Mammals				
Black-footed ferret	<i>Mustela nigripes</i>	Endangered	Black-footed ferret occurs in semi-arid grasslands and is closely associated with occupied prairie dog habitat.	Distribution is limited to northern Colorado, including Larimer, Moffat, and Rio Blanco Counties in the focal counties.
Canada lynx	<i>Lynx canadensis</i>	Threatened	In the continental United States, Canada lynx occurs in subalpine and boreal/hardwood forests. Lynxes prefer areas with deep snow and high populations of their key prey, snowshoe hares.	Canada lynx distribution includes portions of all 21 focal counties.
Mexican Wolf	<i>Canis lupus baileyi</i>	Endangered/ Nonessential Experimental Population	The Mexican wolf occupies mountainous woodlands and deserts. It has been extirpated throughout much of its historic range.	Mexican wolf does not occur in Colorado but is present in the neighboring states of New Mexico and Arizona where it was reintroduced beginning in the late 1990s.
New Mexico meadow jumping mouse	<i>Zapus hudsonius luteus</i>	Endangered	The New Mexico meadow jumping mouse inhabits riparian and wetland zones, particularly scrub-shrub and persistent emergent herbaceous wetlands. The New Mexico meadow jumping mouse nests in dry soils.	Distribution is limited to southern Colorado, including La Plata and Archuleta Counties in the focal counties.
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Threatened	Preble's meadow jumping mice inhabit riparian areas and wet meadows with dense ground cover. They typically hibernate in burrows at the base of vegetation.	Within the focal counties, Preble's meadow jumping mouse only occurs in Larimer County.
Birds				
Eastern black rail	<i>Laterallus jamaicensis ssp. Jamaicensis</i>	Threatened	The Eastern black rail occurs in dense emergent marshes and beaver ponds.	Distribution in the focal counties is limited to Grand, Jackson, and Larimer Counties.
Gunnison sage-grouse	<i>Centrocercus minimus</i>	Threatened	Gunnison sage-grouse are dependent on sagebrush-dominated habitats.	Distribution in the focal counties includes portions of Delta, Dolores, Gunnison, Mesa, Montezuma, Montrose, Ouray, Saguache, and San Miguel Counties.

Common Name	Scientific Name	Status	Habitat Requirements	Occurrence in the Study Area
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	Mexican spotted owls inhabit mixed conifer forests, pine-oak forests, and rocky canyons. Nesting typically occurs in Douglas-fir trees, forests with high canopy closure, caves, or on cliff ledges.	Distribution is widespread throughout the western half of Colorado. The Mexican spotted owl occurs in all focal counties except Saguache.
Piping plover	<i>Charadrius melodus</i>	Threatened	In Colorado, piping plover habitat is limited to sandy reservoir shores and gravel pits.	Distribution in Colorado is limited to Bent, Crowley, Kiowa, Otero, and Prowers Counties in the southeastern portion of the state. The species does not occur in the focal counties.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Southwestern willow flycatchers are typically found in shrubby floodplains and other riparian areas with dense shrubs and open water. The species is closely associated with willows, tamarisk, and Russian olive trees.	Species distribution is concentrated in the lower southwest portion of Colorado, including Archuleta, Dolores, La Plata, Mesa, Montezuma, Ouray, Saguache, and San Miguel Counties in the focal counties.
Whooping crane	<i>Grus americana</i>	Endangered	Whooping cranes live in mudflats in agricultural areas and around mudflats. They nest in wetlands dominated by bulrush.	Distribution is limited to north-central Colorado. In the focal counties, whooping cranes could occur in Grand, Jackson, Larimer, and Routt Counties. However, whooping cranes have not been seen in Colorado since 2010.
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened	Yellow-billed cuckoos in Colorado are considered riparian obligates and are closely associated with areas where cottonwoods form the upper-story.	Species distribution in Colorado is primarily in the western portion of the state, including Archuleta, Delta, Dolores, Eagle, Garfield, Grand, Gunnison, Jackson, La Plata, Mesa, Moffat, Montezuma, Montrose, Ouray, Rio Blanco, Routt, Saguache, and San Miguel Counties in the focal counties.

Source: USFWS 2022c,d

Table 3-4. Critical Habitat in Colorado

Species	Description of Critical Habitat	Overlap with Focal Counties
Gunnison sage-grouse	Critical habitat was designated on November 20, 2014 (79 FR 69311 69363). The designation covers 1,429,551 acres of primarily sagebrush habitats.	Critical habitat in Colorado is located in parts of Delta, Dolores, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Saguache, and San Miguel Counties. Critical habitat for this species overlaps with the focal counties in Delta, Dolores, Gunnison, Mesa, Ouray, Saguache, and San Miguel Counties.
Mexican spotted owl	Critical habitat was designated on August 31, 2004 (69 FR 53182 53298). The designation covers approximately 8.6 million acres of canyon and forest habitat.	Critical habitat in Colorado includes portions of El Paso, Teller, Fremont, Custer, Pueblo, Huerfano, Douglas, and Jefferson Counties. Critical habitat for this species overlaps with the focal counties in Custer and Huerfano Counties.
New Mexico meadow jumping mouse	Critical habitat was designated on April 15, 2016 (81 FR 14264). The designation covers 13,973 acres along 169.3 miles of flowing streams, ditches, and canals as critical habitat in eight units.	Critical habitat in Colorado is limited to portions of Las Animas, Archuleta, and La Plata Counties in the extreme southern portion of the state. Critical habitat for this species overlaps with the focal counties in Archuleta and La Plata Counties.
Preble's meadow jumping mouse	Critical habitat was designated on December 15, 2010 (75 FR 78430 78483). The area encompasses 662 kilometers of rivers and streams and 34,935 acres.	Critical habitat was designated in parts of Boulder, Broomfield, Douglas, El Paso, Jefferson, Larimer, and Teller Counties. Critical habitat for this species overlaps with the focal counties in Larimer County.
Southwestern willow flycatcher	Critical habitat was designated on January 3, 2013 (78 FR 344 534). About 1,975 stream kilometers and the adjacent flood-prone and 100-year floodplains were designated as critical habitat for a total area of 208,973 acres.	Critical habitat in Colorado is limited to Alamosa, Conejos, Costilla, and La Plata Counties in the southern part of the state. Critical habitat for this species overlaps with the focal counties in La Plata County.
Yellow-billed cuckoo	Critical habitat was designated on April 21, 2021 (86 FR 20798 21005). Approximately 298,845 acres in Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah were designated as critical habitat.	Critical habitat in Colorado is limited to Mesa and Delta Counties. Critical habitat for this species overlaps with the focal counties in Mesa and Delta Counties.

Source: USFWS 2022c,d

3.2.3 State-Listed Species

Seventy-four species are listed as endangered or threatened at the State level in Colorado (CPW 2022f). CPW designates State-listed species in accordance with Colorado's Nongame, Endangered, or Threatened Species Conservation Act. Some federally listed species occurring in Colorado are also listed at the State level. Therefore, there is considerable overlap between the lists of federally and Colorado State-listed species.

In addition to those species protected under the Colorado Nongame, Endangered, or Threatened Species Conservation Act, many others are considered SGCN. Colorado's most recent SWAP identifies 159 vertebrate animal and mollusk species and 76 non-mollusk invertebrates as SGCN. The SWAP also identifies 117 plant species as Plants of Greatest Conservation Need. Colorado's SWAP groups species into one of two categories based on conservation priority within the state: Tier 1 and Tier 2. Tier 1 species are considered to be of higher conservation priority than Tier 2 (CPW 2015). Colorado's SGCN list includes species listed as endangered or threatened at the federal or State level.

Colorado's Tier 1 SGCN list of vertebrate animal and mollusk species includes 55 species consisting of 13 mammals, 13 birds, 25 fishes, 2 reptiles, and 2 amphibians. Tier 2 contains 104 species, including 23 mammals, 48 birds, 2 fishes, 14 reptiles, 8 amphibians, and 9 mollusks. Tier 2 also contains all 76 non-mollusk invertebrate species, including 1 arachnid; 2 beetles; 6 bumble bees; 27 butterflies, skippers, and moths; 3 caddisflies; 16 damselflies and dragonflies; 15 mayflies, 1 mydas fly; and 4 stoneflies. Of the 76 Plants of Greatest Conservation Need, 43 are Tier 1, and 74 are Tier 2 (CPW 2015).

Habitats in western Colorado consist of large expanses of sagebrush and juniper shrublands, grasslands and prairies, forests and woodlands, and some alpine habitats (CNHP n.d.). Of Colorado's 159 State-listed and other SGCN vertebrate animal and mollusk species, those that are known to occur or may occur within the 21 focal counties include 3 amphibians, 14 birds, 10 mammals, 4 reptiles, 20 fishes, and 1 mollusk. State-listed and other SGCN that could occur in the focal counties, along with their statuses, are listed below in table 3-5. Fishes and mollusks are not included in table 3-5 because the proposed action is not likely to affect these species.

Table 3-5. State-Listed Species in the Focal Counties

Common Name	Scientific Name	Status
Amphibians		
Boreal toad	<i>Bufo boreas</i>	State Endangered
Northern leopard frog	<i>Rana pipiens</i>	State Special Concern
Wood frog	<i>Rana sylvatica</i>	State Special Concern
Birds		
American peregrine falcon	<i>Falco peregrinus anatum</i>	State Special Concern
Bald eagle	<i>Haliaeetus leucocephalus</i>	State Special Concern
Burrowing owl	<i>Athene cunicularia</i>	State Threatened
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	State Special Concern
Ferruginous hawk	<i>Buteo regalis</i>	State Special Concern
Greater sage-grouse	<i>Centrocercus urophasianus</i>	State Special Concern
Greater sandhill crane	<i>Grus canadensis tabida</i>	State Special Concern
Gunnison sage-grouse	<i>Centrocercus minimus</i>	Federally Threatened, State Special Concern
Least tern	<i>Sterna antillarum</i>	State Endangered
Long-billed curlew	<i>Numenius americanus</i>	State Special Concern

Common Name	Scientific Name	Status
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Federally Threatened, State Threatened
Mountain plover	<i>Charadrius montanus</i>	State Special Concern
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Federally Endangered, State Endangered
Western yellow-billed cuckoo	<i>Coccyzus americanus</i>	State Special Concern, Federally Threatened
Mammals		
Black-footed ferret	<i>Mustela nigripes</i>	Federally Endangered, State Endangered
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	State Special Concern
Kit fox	<i>Vulpes macrotis</i>	State Endangered
Lynx	<i>Lynx canadensis</i>	Federally Threatened, State Endangered
Northern pocket gopher	<i>Thomomys talpoides macrotis</i>	State Special Concern
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Federally Threatened, State Threatened
River otter	<i>Lontra canadensis</i>	State Threatened
Swift fox	<i>Vulpes velox</i>	State Special Concern
Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	State Special Concern
Wolverine	<i>Gulo gulo</i>	State Endangered
Reptiles		
Triploid checkered whiptail	<i>Cnemidophorus neotesselatus</i>	State Special Concern
Midget faded rattlesnake	<i>Crotalus viridis concolor</i>	State Special Concern
Longnose leopard lizard	<i>Gambelia wislizenii</i>	State Special Concern
Common garter snake	<i>Thamnophis sirtalis</i>	State Special Concern

Source: CPW 2015

3.3 OTHER WILDLIFE SPECIES

Wolves are apex predators, meaning that they occupy the top trophic level in food webs. The introduction or reintroduction of wolves into ecosystems can affect other wildlife species and various aspects of the natural environment. This section focuses on prey species most likely to be affected by gray wolves that would be reintroduced—either directly, through predation, or indirectly through behavioral changes.

3.3.1 Elk and Deer

Elk, mule deer, and white-tailed deer are the most critical prey species for wolves in the northern Rocky Mountains (Smith et al. 2004). At Yellowstone National Park in Wyoming and in portions of Montana and Idaho, NPS (2022b) reports that elk comprise up to 90 percent of the diet of wolves during winter months. Elk and deer are abundant in Colorado. Based on the most recent population estimates (2021), Colorado's statewide elk population was 308,901 (CPW 2021a) and the statewide deer population was 416,426 (CPW 2021b). Mule deer populations in portions of western Colorado have been in decline since the 1970s as a result of loss and alteration of habitat and migration routes, competition from elk, disease, predation, and hunting pressure (Bergman et al.

2015; CPW 2020b). Among prey species preferred by wolves, elk and deer are also the species with the highest densities in Colorado (Colorado Wolf Management Working Group 2004).

Elk and deer travel in herds and use a variety of habitats throughout the state. The density of these species in a given location changes seasonally based on environmental conditions and food availability (Singleton 1995, as cited in Ditmer et al. 2022). Snow cover is a driver of seasonal elk and deer movement in Colorado because they seek out areas with less snow cover that provide better access to vegetation (Paquet et al. 1996, as cited in Ditmer et al. 2022). Modeling has shown that the density of elk and mule deer is highest in the Western Slope region of Colorado, north of Interstate 70 during summer and winter. This contributes to the high suitability of northwestern Colorado for wolf reintroduction (Ditmer et al. 2022).

3.3.2 Other Ungulates

Wolves also prey upon a variety of other ungulates, such as pronghorn and wild sheep (*Ovis* spp.), and even large animals such as bison (*Bison bison*), moose, and wild horses. Bison are an important source of prey for wolves in the northern Rocky Mountains despite being more difficult to kill than other prey (Smith et al. 2000, MacNulty et al. 2014). However, introduced bison in Colorado are in contained areas and are currently managed in the state as livestock, rather than wildlife. No immediate plans are in place to reintroduce free-roaming bison in Colorado. Bison are not expected to be a prey source for gray wolves in Colorado; therefore, impacts on bison are not discussed in detail in this EIS.

Wolf predation on pronghorn at Yellowstone National Park has been closely documented for decades, but overall predation rates have been low (Barnowe-Meyer et al. 2009). The range of pronghorn in Colorado is more expansive in the Eastern Plains region; however, pronghorn also occur in limited portions of the Western Slope including northwestern Colorado (CBI 2011b). Although their population has been steadily increasing in recent decades, pronghorn are considerably less abundant in Colorado than elk and deer with an estimated statewide population of 78,182 in 2021 (CPW 2021d).

Wolves are known to prey on moose, particularly calves, in areas where their ranges overlap (McLaren and Peterson 1994; Messier 1994; Jost et al. 2005). In some areas, such as boreal and taiga forests or in closed systems like Michigan's Isle Royale National Park, moose are primary prey for wolves (Seip 1992; Messier 1994; Jost et al. 2005). In other areas, such as Yellowstone National Park, moose are secondary prey for wolves (Smith et al. 2003; Metz et al. 2012). Moose were rarely observed in Colorado until the late 1970s when CPW transplanted moose from Utah and Wyoming to the North Park region near Walden. Moose are less abundant than most other prey species in Colorado. Colorado's statewide moose population was estimated at 3,505 in 2021, and CPW manages them as a game species (CPW 2021e). Moose distribution in Colorado is concentrated in the northern portion of the Front Range and along the Western Slope, including northwestern Colorado (CBI 2011c).

Wolves also prey opportunistically on wild sheep including Rocky Mountain bighorn sheep. Two subspecies of bighorn sheep are native to Colorado, both of which were nearly extirpated from the state as a result of hunting, loss of habitat, and disease. Rocky Mountain bighorn sheep had supplemental introductions into central Colorado in the 1950s. They are now abundant in the state, with an estimated population of 7,000 animals. They spend summer in high-elevation (>8,000 feet) mountains and move to lower elevations in winter to forage and escape heavy snow. Desert bighorn sheep live in the canyon country of western Colorado, and the most recent population estimate is approximately 550 individuals (CPW 2020c). Wolves have not been reported as a meaningful source of mortality in bighorn sheep populations (Sawyer and Lindzey 2002). This is likely because bighorn sheep are highly effective at avoiding predation using a variety of behavioral strategies (Wishart 2000, as cited in Sawyer and Lindzey 2002). Bighorn sheep also inhabit rugged alpine terrain, making hunting difficult for wolves.

Mountain goats, a non-native species, were introduced to Colorado from Montana between the 1940s and 1970s as a game animal; in 2020, the population was estimated to number 1,600 individuals (CPW 2020d). Mountain goats live at high elevations year-round, although some migrate to lower elevations in winter where there is more shelter from heavy snow. Wolves in Colorado likely have limited encounters with mountain goats in these high-elevation habitats.

In parts of Europe and Asia, wolves have been reported to prey on wild horses (Van Duyne et al. 2009; Dorj and Namkhair 2013; López-Bao et al. 2013). However, wolves tend to target wild horses when prey resources (e.g., smaller ungulates) are depleted (Van Duyne et al. 2009), which is not the case in Colorado.

3.4 TRIBAL CULTURAL RESOURCES

Various Native American groups have occupied western Colorado for at least the last 12,000 years. Historical records indicate that the Ute were the primary occupants of Colorado west of the Continental Divide, but several other Tribes also lived in the area; table 1 in Appendix E provides a list of the Tribes associated with the various regions of Colorado. A detailed history of occupation also is provided in Appendix E. The affected environment for Tribal cultural resources focuses on archaeological and historical sites and natural resources of importance to the Tribes located in the focal counties for analysis (figure 2-1) that could be impacted by a regulatory framework, as well as Tribal treaty rights pertaining to hunting and for reservations. Government-to-government consultation with interested Tribes is ongoing, and additional information may be added to this section in the final EIS, if appropriate, as consultation proceeds.

3.4.1 Archaeological and Historical Sites

As shown in Appendix E, a review of the Colorado Office of Archaeological and Historic Preservation (OAHP) Compass database identified 2,106 archaeological and historical sites associated with known Native American Tribes within the focal counties. Of these, 952 are eligible for the National Register of Historic Places. These sites preserve important elements of Native American history and culture and/or have the potential to yield more information about their history through further research.

Appendix E includes a summary of the types of sites (e.g., prehistoric or historic and habitation, architectural, rock art) by county. In addition, table 2 in Appendix E identifies the approximate number of sites associated with known Colorado Tribes by county. The review of the OAHP database reflects the information available at the time of the review and accounts for the best available data for archaeological and historical sites information. However, the review may not be complete due to the limitations of the OAHP database, such as a delay in entries and/or updates causing some information to be outdated. As noted in Appendix E, the OAHP database is sometimes up to five or more years outdated but represents the best available data at this time.

3.4.2 Natural Resources of Cultural Importance

Natural resources of cultural importance include wildlife within the state of Colorado. For example, the Ute Mountain Ute, Southern Ute, and Ute Indian Tribe of the Uintah and Ouray Reservation honor the bear in the bear dance (Southern Ute Tribe 2022; Steward 1932; see Appendix E). The bear dance was derived from a story in which two men witnessed a bear dancing while they were hunting. The story noted that the bear taught the men to dance, along with a corresponding song. The bear also instructed the men to teach the dance and song to their people. The bear is believed to be one of the wisest animals and one that has magical powers. The Southern Ute, for instance, believe that bears understand the relationship with the Ute and that the dance solidifies this relationship (Anaya 2010).

Other animals of importance, such as to the Pawnee, include buffalo, bear, beavers, wolves, birds of prey, and deer. The buffalo was important for its use for food and clothing (Grinnell 1893). The Pawnee believed that while the buffalo was hunted, its consent was needed (White 1982). It was among the most respected animals of the Pawnee. The bear and beaver were regarded for wisdom and power, while wolves were noted for their craft, and birds of prey were noted for their courage and fierceness. Deer stood for their fleetness (Grinnell 1893).

3.4.3 Tribal Treaty Rights and Reservations

“Treaty-protected rights to [the] use of and access to natural and cultural resources are an intrinsic part of Tribal life and are of deep cultural, economic, and subsistence importance to tribes” (DOI 2021). The purpose of some treaties with Tribes are to protect not only the right to access natural resources, but also the resources themselves (DOI 2021).

“Under the U.S. Constitution, treaties are part of the supreme law of the land, with the same legal force and effect as federal statutes. Pursuant to this principle, and its trust relationship with federally recognized Tribes, the United States has an obligation to honor the rights reserved through treaties, including rights to both on and, where applicable, off-reservation resources, and to ensure that its actions are consistent with those rights and their attendant protections” (DOI 2021). While the signing of treaties generally ended in 1871, federal treaties with Tribes ratified by Congress remain in effect as law (ACHP 2018).

Hunting and gathering have long been important to Tribes with ancestral ties in Colorado (Denison 2019; Givón 2011; Simmons 2000; Janetski 1992; Jones 1955, as cited in Appendix E). The Ute, Shoshone, Comanche, Arapaho, Cheyenne, and Pawnee are distinguished in part from the neighboring Pueblo groups by their focus on hunting and animals over farming and plants in several aspects of life, including social organization, ceremonies, subsistence strategies, and resource procurement and production. The Utes, for instance, also were among the first indigenous groups in North America to acquire and master the horse. The horse allowed the Utes to travel farther distances for their subsistence than was previously possible. They expanded the seasonal circuits within their traditional territory, venturing as far east as the panhandles of Texas and Oklahoma (which expanded their Aboriginal or ancestral lands to include areas outside traditional band territories) (see Appendix E, and figure 1 in Appendix E).

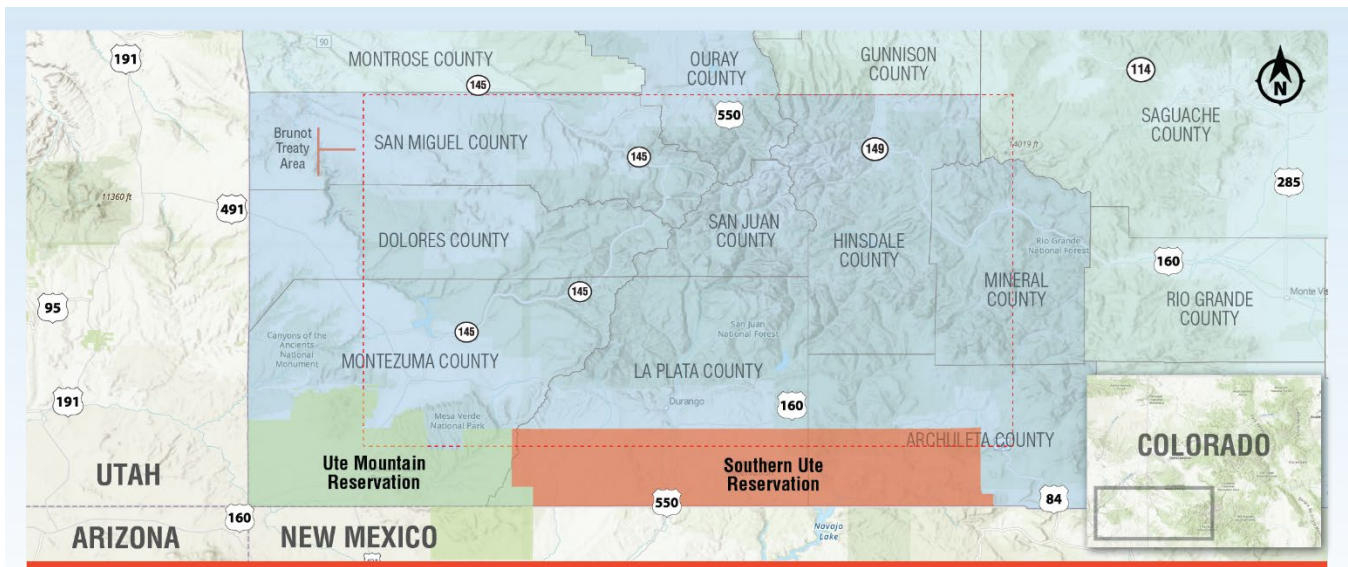
However, over time, the Ute territory, along with the territories of other Tribes, was greatly reduced by actions of the U.S. government, growing trade requirements, and American settlement, particularly following the transfer of Alta, California, after the Mexican-American War (1846–1848). Following these events, for instance, numerous treaties and agreements between the Ute and the U.S. government were established. Among these are the Calhoun Treaty, signed in 1849; the Hunt Treaty of 1868, also known as the Treaty with the Ute, 1868; and the Brunot Agreement, initiated in 1874. These treaties and agreements resulted in land cessions and constraints on the traditional practices of the Ute, as well as establishing reservations (figure 3-2).

In Colorado, the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe each have a reservation. Reservations refer to “land reserved for a tribe (or multiple Tribes) under treaty, statute, or other agreement with the United States that establishes permanent Tribal homelands” (Fitzpatrick 2021). The Ute Mountain Ute also manage tribally owned lands near Gunnison, Colorado. Appendix E provides a discussion of these and other treaties and agreements between the Ute and U.S. government.

The treaties and agreements between Tribal and federal governments reduced the land holdings, but provided provisions for hunting and gathering, including on what is today federal lands (USFWS 2022e; NPS 2016; Nie 2008, see Appendix E). When maintaining traditional cultural practices, hunting and gathering is allowed on certain lands, on which these activities may be prohibited uses for non-Tribal members.

One of these areas is the “Brunot Area.” The Brunot Area consists of approximately 3.7 million acres within the San Juan Mountain region within the state of Colorado (Southern Ute Indian Tribe 2021). As cited in the U.S. Forest Service’s *San Juan National Forest Land and Resource Management Plan*, “Article II of the Bruno Agreement specified that ‘the United States shall permit the Ute Indians to hunt upon said lands so long as the game lasts and the Indians are at peace with the white people’” (U.S. Forest Service 2021). The Southern Ute Indian Tribe has an agreement with the State of Colorado to exercise hunting and fishing rights in this location; the Southern Ute Indian Tribe entered into this agreement with the State in 2008 (Southern Ute Indian Tribe 2021). The Ute Mountain Ute Tribe’s hunting rights were acknowledged in 1978 as part of a consent decree that gave enrolled members of the Ute Mountain Ute Tribe the right to hunt deer and elk in the Brunot Area for subsistence, religious, or ceremonial purposes (U.S. Forest Service 2021).

In Colorado, wildlife conservation is subject to the jurisdiction of the Southern Ute Indian Tribe on their reservation. Wildlife on the reservation is considered property of the Tribe, unless privately owned (Ayala 2010). “Southern Ute Tribal members may hunt any type of wildlife not limited by regulation, i.e., big game, at any time without a license or permit” (Ayala 2010). The Ute Mount Ute operate a wildlife management program and provide for protection and utilization of hunting rights, including those as part of the Brunot Agreement (Ute Mountain Ute Tribe 2020).



ANCESTRAL RIGHTS

The Southern Ute Tribe was granted hunting rights in a larger part of the state under the Brunot Treaty of 1874.

Figure 3-2. Boundaries of Ute Mountain Ute and Southern Ute Reservations

3.4.4 Government-to-Government Consultation

To date, the Southern Ute Indian Tribe and Pawnee Nation have requested government-to-government consultation with the Service. Consultation has been offered to the Ute Mountain Ute Tribe. CPW has been engaged in ongoing Tribal consultations with the Southern Ute Indian Tribe and Ute Mountain Ute Tribe, the two Tribes with sovereign lands within Colorado’s borders (Keystone Policy Center 2022).

The Southern Ute Indian Tribe has expressed concern for the release of gray wolves in southern Colorado, particularly within the Brunot Area (Boyd n.d.; Schaaf 2022). These concerns are related to potential impacts associated with ranching and hunting traditions (Boyd n.d.).

A similar sentiment was expressed for the recovery of wolves in the State of Utah and made to the Utah Division of Wildlife Resources by the Uintah and Ouray Tribal Business Committee under authority of the Constitution and By-Laws of the Ute Indian Tribe in 2003. The Tribe “encourage[d] the United States Fish & Wildlife Service to reject any request to establish additional wolf recovery areas within the State of Utah, particularly areas encompassed by the Uintah and Ouray Reservation” (Utah Division of Wildlife Resources 2018). The Tribe noted the potential for impacts to the Tribe’s wildlife management efforts, wildlife populations on their reservation, subsistence hunting, and the livestock and ranching industry (Utah Division of Wildlife Resources 2018).

3.5 SOCIOECONOMIC RESOURCES

NEPA requires an analysis of impacts on the human environment, which includes economic, social, and demographic elements in the affected area. The region of influence for this socioeconomic analysis is the state of Colorado because the proposed 10(j) rule would apply to the entire state. While the introduction of wolves to Colorado could have socioeconomic impacts throughout the entire state, the 21 focal counties are likely to experience the greatest economic and social impacts. The following sections describe the current human environment, which includes the economic, social, and demographic elements in Colorado and the focal counties. Due to the possibility of social and economic impacts from wolf reintroduction, an evaluation of human activities in the 21-county focus area and the state of Colorado is necessary to determine primary economic drivers in the region and how the different management options analyzed in this document related to the wolf reintroduction could result in socioeconomic impacts.

3.5.1 Human Activity in Colorado

Ditmer et al. (2022) identified potential factors for predicting socio-ecological suitability of habitats for wolf introduction, including land ownership (private versus public), livestock-dense areas, and the social tolerance of wolves. Ditmer et al. identified that wolf-human conflicts are most associated with human-dominated landscapes (with greater roads/traffic densities) and human activities such as tourism, outdoor recreation, and agriculture.

Population

Table 3-6 provides the population counts for the state of Colorado and for the 21 focal counties. Between 2010 and 2020, the population of the 21 counties grew by 10.96 percent from 822,554 to 912,734 people, making up 15.8 percent of the state’s total population in 2020 (U.S. Census Bureau 2020). By comparison, the population of Colorado grew by 14.8 percent from 5,029,196 to 5,773,714 people in that same period. The 21 counties are more sparsely populated than the state as a whole, as shown in table 3-6. Most of the population in these 21 counties lives in communities centered around ski and mountain resorts or towns along major highways such as Interstate 70. Table 3-7 shows population density.

Table 3-6. Population Summary

Geographic Area	2010	2020	% Change 2010–2020	Most Populous City/Town (2020 Population)
Colorado	5,029,196	5,773,714	14.80%	Denver (715,522)
21 Focal Counties	822,584	912,734	10.96%	Fort Collins (169,810)
Archuleta County	12,084	13,359	10.55%	Pagosa Springs (1,571)
Custer County	4,255	4,704	10.55%	Silver Cliff (609)
Delta County	30,952	31,196	0.79%	Delta City (9,035)
Dolores County	2,064	2,326	12.69%	Dove Creek (635)

Geographic Area	2010	2020	% Change 2010–2020	Most Populous City/Town (2020 Population)
Eagle County	52,197	55,731	6.77%	Gypsum (8,040)
Garfield County	56,389	61,685	9.39%	Rifle (10,437)
Grand County	14,843	15,717	5.89%	Granby (2,079)
Gunnison County	15,324	16,918	10.40%	Gunnison (6,560)
Huerfano County	6,711	6,820	1.62%	Walsenburg (3,049)
Jackson County	1,394	1,379	-1.08%	Walden (606)
La Plata County	51,334	55,638	8.38%	Durango (19,071)
Larimer County	299,630	359,066	19.84%	Fort Collins (169,810)
Mesa County	146,723	155,703	6.12%	Grand Junction (65,560)
Moffat County	13,795	13,292	-3.65%	Craig (9,060)
Montezuma County	25,535	25,849	1.23%	Cortez (8,766)
Montrose County	41,276	42,679	3.40%	Montrose (20,291)
Ouray County	4,436	4,874	9.87%	Ridgway (1,183)
Rio Blanco County	6,666	6,529	-2.06%	Meeker (2,374)
Routt County	23,509	24,829	5.61%	Steamboat Springs (13,224)
Saguache County	6,108	6,368	4.26%	Saguache (539)
San Miguel County	7,359	8,072	9.69%	Telluride (2,607)

Source: U.S. Census 2010, 2020, 2020e

Table 3-7. Land Use Summary

Geographic Area	Land Area (mi ²)	2020 Population Density (pop/mi ²)
Colorado	104,177	55.42
21 Focal Counties	44,474	20.52
Archuleta County	1,350	9.90
Custer County	739	6.37
Delta County	1,142	27.32
Dolores County	1,067	2.18
Eagle County	1,692	32.94
Garfield County	2,956	20.87
Grand County	1,870	8.40
Gunnison County	3,239	5.22
Huerfano County	1,591	4.29
Jackson County	1,614	0.85
La Plata County	1,690	32.92
Larimer County	2,596	138.32
Mesa County	3,329	46.77

Geographic Area	Land Area (mi ²)	2020 Population Density (pop/mi ²)
Moffat County	4,743	2.80
Montezuma County	2,029	12.74
Montrose County	2,241	19.04
Ouray County	541	9.01
Rio Blanco County	3,221	2.03
Routt County	2,368	10.49
Saguache County	3,169	2.01
San Miguel County	1,287	6.27

Source: U.S. Census 2020, Colorado State Land Board n.d., U.S. Forest Service 2010

Employment

Saguache County has the highest unemployment rate of the 21 focal counties at 9.80 percent, while Dolores County has the lowest unemployment rate. Saguache, Rio Blanco, and Grand Counties all have unemployment rates higher than the state as a whole. Huerfano County has the highest poverty rate of the focal counties, at 19.90 percent; Saguache County has the second highest poverty rate. Twelve focal counties have poverty rates above Colorado's poverty rate of 9.8 percent. On average, the poverty rate across the 21 focal counties is 11.04 percent, higher than the state's poverty rate (U.S. Census Bureau 2022).

Table 3-8 shows employment and income characteristics for the 21 counties—all of which have an unemployment rate lower than the overall Colorado unemployment rate of 4.6 percent, except for Grand, Rio Blanco, Routt, and Saguache Counties. Eagle County has the highest median household income which is \$85,877 while Huerfano County has the lowest median household income, which is \$40,255.

Table 3-8. Employment Summary

Geographic Area	Unemployment Rate	Poverty Rate	Median Household Income	Percent Employed in Tourism and Recreation-Related Sectors
Colorado	4.60%	9.80%	\$75,231	10.40%
Archuleta County	4.30%	9.40%	\$55,658	22.50%
Custer County	4.10%	12.20%	\$60,361	12.10%
Delta County	3.30%	12.10%	\$47,968	17.6%
Dolores County	2.00%	12.50%	\$56,786	26.40%
Eagle County	3.90%	9.20%	\$85,877	26.60%
Garfield County	4.00%	7.60%	\$75,435	12.50%
Grand County	5.00%	9.10%	\$71,769	22.00%
Gunnison County	2.20%	9.60%	\$60,557	26.40%
Huerfano County	2.30%	19.90%	\$40,255	19.10%
Jackson County	3.60%	11.60%	\$46,157	23.90%
La Plata County	2.50%	10%	\$69,291	17.50%
Larimer County	3.40%	9.90%	\$76,366	16.80%

Geographic Area	Unemployment Rate	Poverty Rate	Median Household Income	Percent Employed in Tourism and Recreation-Related Sectors
Mesa County	4.30%	11.10%	\$57,157	19.20%
Moffat County	3.20%	9.90%	\$54,583	19.80%
Montezuma County	2.50%	12.90%	\$50,717	22.40%
Montrose County	3%	10.40%	\$54,611	17.40%
Ouray County	2.40%	6.70%	\$68,893	14.80%
Rio Blanco County	5.80%	9.80%	\$54,247	20.20%
Routt County	3.90%	9.50%	\$76,198	18.70%
Saguache County	9.80%	18.60%	\$45,231	15.80%
San Miguel County	3.00%	8.90%	\$64,478	21.50%

Source: American Community Survey 2016-2020

According to U.S. Census Bureau data, the primary industries in the 21 focal counties are in the tourism and recreation-related sector of Arts, Entertainment, Recreation, Accommodation, and Food Services; and Educational Services, Health Care, and Social Assistance (U.S. Census Bureau 2022).

3.5.2 Industry Sectors in Colorado

Tourism

Tourism is an essential component of Colorado’s economy and of the economy in the 21 focal counties. On average, travelers spent \$19.0 billion in the state of Colorado each year from 2011 to 2020, generating \$2.37 billion annually in tax revenue (Dean Runyan Associates 2021). As of April 2022, tourism-related sectors employed over 339,000 people in Colorado, or 11.0 percent of the 2.85 million workers in the state. Leisure and Hospitality employment experienced a 22.3 percent 10-year increase from April 2012 to April 2022, compared to a 24.0 percent 10-year increase across all sectors (BLS 2022). In 2020, activities directly tied to tourism and travel generated \$866.3 million in local tax revenue from travel and tourism across all counties in Colorado (Dean Runyan Associates 2022). Tourism in the focal counties is largely tied to outdoor recreation, which is discussed in section 3.7, Recreation.

A group including seven to eight wolves currently resides in Jackson County, one of the focal counties. Because the wolves were found in Jackson County relatively recently, no data are available on the economic impacts of these wolves on tourism or other sectors of the county’s economy. Jackson County describes itself as “the Moose Viewing Capital of Colorado,” and tourism associated with wildlife viewing in the Arapaho National Wildlife Refuge and the North Park Basin contributes to the local economy (Jackson County n.d.).

Outdoor Recreation

According to data from the Bureau of Economic Analysis, outdoor recreation contributed \$12.2 billion and 149,000 jobs to Colorado in 2019, and \$9.6 billion and 120,000 jobs in 2020. For comparison, the economic output of outdoor recreation activities nationwide was \$834 billion in 2019 and \$689 billion in 2020, with 5.2 million jobs in 2019 and 4.3 million jobs in 2020 (Office of Economic Development and International Trade 2021). CPW estimated the economic contributions of activities associated with outdoor recreation to be significantly greater, representing \$62.5 billion and 511,059 jobs across the entire state in 2017—\$14.9 billion and 133,658 of these jobs were in the northwest region of the state, which includes multiple focal counties (CPW 2018).

Skiing and snowboarding make up a significant portion of Colorado’s tourism and outdoor recreation sectors, generating more than \$4.8 billion annually. Ski-related activities bring more than 7 million tourists to the state annually; these tourists support the local economies of mountain communities, including the western portion of the potential release area (Colorado Ski Country USA 2015). Much of this ski tourism is concentrated in the Vail Valley of Eagle County, which includes the resort communities of Vail and Beaver Creek. These areas draw hundreds of thousands of skiers in the winter and substantial summer crowds, although the nature of tourism is quite seasonal (Vail Valley Economic Development n.d.).

Hunting contributed \$843 million (related to trip and equipment expenditures) and 7,937 jobs to the state in 2017, of which \$136 million and 1,488 jobs were in the northwest region, while wildlife watching contributed \$2.44 billion and 13,243 jobs to the state, of which \$161 million and 1,283 jobs were in the northwest region. Big game hunting is particularly important to the northwest region of the state; of the 1,608,611 hunter-days in the state in 2017, 760,237 were in the northwest region (CPW 2018).

Agriculture and Livestock Grazing

The numbers of farms and farm workers in each of the focal counties, as well as in the entire state of Colorado, are provided in table 3-9. The proportion of people who work on farms in the 21 focal counties is roughly twice that of the state of Colorado, with particularly high proportions of farm workers in Dolores, Jackson, Custer, and Huerfano Counties. Table 3-10 provides an economic summary of agricultural production in each of the 21 focal counties and the state of Colorado, including total agricultural sales and the average per farm net income. Saguache County has the highest average per farm net income followed by Jackson County, both of which are greater than the state. Huerfano, La Plata, Routt, and Archuleta Counties have negative average farm incomes.

Table 3-9. Agricultural Summary

Geographic Area	Number of Farms	Number of Farm Workers	Farm Workers (% of Population)	Average Farm Area (Acres)
Colorado	38,893	69,032	1.20%	818
21 Focal Counties	14,798	26,467	2.82%	510
Archuleta County	399	727	5.44%	527
Custer County	315	553	11.76%	512
Delta County	1615	2898	9.29%	147
Dolores County	313	549	23.60%	504
Eagle County	257	431	0.77%	604
Garfield County	661	1,217	1.97%	719
Grand County	290	541	3.44%	831
Gunnison County	309	572	3.38%	864
Huerfano County	437	773	11.33%	1331
Jackson County	131	258	18.71%	2301
La Plata County	1093	1981	3.56%	503
Larimer County	2043	3699	1.03%	236
Mesa County	2465	4378	2.81%	139
Moffat County	462	797	6.00%	2063
Montezuma County	1123	1991	7.70%	615
Montrose County	1135	1917	4.49%	291

Geographic Area	Number of Farms	Number of Farm Workers	Farm Workers (% of Population)	Average Farm Area (Acres)
Ouray County	122	184	3.78%	698
Rio Blanco County	320	591	9.05%	1284
Routt County	887	1,629	6.56%	524
Saguache County	288	538	8.45%	1090
San Miguel County	133	243	3.01%	1023

Source: USDA 2019

Table 3-10. Agricultural Economic Summary

Geographic Area	Average Annual Agricultural Sales (\$1,000)	Average Annual Sales per Farm (\$1,000)	Average Farm Income (\$)
Colorado	7,491,702	192.6	29,669
Archuleta County	11,157	27,963	-5,291
Custer County	9,680	30,731	6,537
Delta County	67,117	41,558	9,054
Dolores County	8,516	27,208	8,207
Eagle County	8,243	32,074	223
Garfield County	35,863	54,255	7,104
Grand County	14,440	49,792	5,707
Gunnison County	24,117	78,047	11,341
Huerfano County	13,186	30,174	-1,300
Jackson County	24,487	186,923	71,134
La Plata County	24,352	22,280	-2,541
Larimer County	150,717	73,772	5,555
Mesa County	94,186	38,209	5,634
Moffat County	33,138	71,728	19,950
Montezuma County	46,424	41,340	7,541
Montrose County	81,226	71,565	8,817
Ouray County	4,204	34,463	2,242
Rio Blanco County	52,047	62,034	6,417
Routt County	31,647	35,679	-2,694
Saguache County	105,403	365,983	113,532
San Miguel County	6,374	47,923	6,309

Source: USDA 2019

3.6 ENVIRONMENTAL JUSTICE

The U.S. Environmental Protection Agency (USEPA) defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (USEPA 2022).

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, issued in 1994 by President Clinton, directs federal agencies to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, or activities on minority or low-income populations.

3.6.1 Methodology

The Service assessed the potential for the proposed action and alternatives to result in disproportionately high and adverse effects on minority or low-income populations following recommendations made in the 2016 report, *Promising Practices for EJ Methodologies in NEPA Reviews* (Federal Interagency Working Group on Environmental Justice & NEPA Committee 2016). In addition to these environmental justice communities, the analysis considers the potential for disproportionately high and adverse effects on two populations of concern, low-income and minority livestock producers and outfitters. Existing conditions and potential effects on American Indian Tribes are discussed in sections 3.4 and 4.6, respectively.

The Service assessed potential environmental justice effects within the statewide study area as well as the 21 focal counties. Data for minority and low-income populations and populations of concern were collected at the county level, taking into consideration the programmatic nature of the proposed action, which could result in effects across the entire state of Colorado. These data were compared to data for the reference geography, the state, to determine which minority or low-income communities may have environmental justice concerns. The reference community is a larger geographic unit or population that is used as a point of comparison to identify minority or low-income communities in the geographic unit of analysis. When addressing the issue of environmental justice, low-income and minority populations that meet certain thresholds relative to the reference community are considered environmental justice communities that may be disproportionately affected by the proposed action and alternatives.

Data from the U.S. Census Bureau were used to define minority and low-income populations. Minority populations were defined based on 2020 decennial census data. For the purposes of this analysis, minorities are defined as individuals who identify themselves as one or more of the following races or ethnicities: Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian, or Hispanic or Latino.

Minority environmental justice communities were identified using both the 50 percent and “meaningfully greater” analyses. If the aggregate minority population (including all minority and Hispanic or Latino individuals) in a county exceeded 50 percent of the total population, an environmental justice community was identified in that county. When the majority of the population in a given geographic area identifies as a race other than white or as Hispanic or Latino, that population is classified as a “majority-minority” population. Separately, the “meaningfully greater” analysis requires use of a reasonable, subjective threshold (e.g., 5 percent or 10 percent greater than the reference community). What constitutes “meaningfully greater” varies by agency (Federal Interagency Working Group on Environmental Justice & NEPA Committee 2016). For this analysis, the Service has defined “meaningfully greater” as a minority population that exceeds the minority population in the reference community (i.e., the state of Colorado) by more than 5 percent. This threshold is large enough to take into account natural variations in demographic populations within a community.

Data from the U.S. Census Bureau’s (2020) American Community Survey five-year estimates were used to identify low-income populations. Low-income populations are defined using the percent of all individuals for whom poverty status has been determined, as defined by the U.S. Census Bureau, for each specific geographic area. Poverty status is a measure of an individual or household’s financial ability to meet basic living needs. Poverty status is calculated by the U.S. Census Bureau and varies based on the number of individuals in a household. In 2020, the poverty line ranged from \$13,171 for a single individual to \$50,035 for a family of nine or more (U.S. Census Bureau 2020). Low-income environmental justice communities were identified by

comparing the percentage of individuals with incomes below the poverty level in each county to the percentage of individuals with incomes below the poverty level at the state level. If the percentage in the county is greater than the percentage in the reference community, a low-income environmental justice community was identified.

3.6.2 Existing Conditions

The population of Colorado is predominately white, with people who identify as minority races or as Hispanic or Latino making up approximately 35 percent of the state’s population. People who identify as Hispanic or Latino make up the largest minority population across the state and in most of the focal counties. Statewide, 20 of Colorado’s 64 counties are home to Hispanic/Latino populations that are meaningfully greater than (i.e., over 5 percent greater than) the percentage of Hispanic/Latino individuals at the state level. In two of these counties, Conejos and Costilla on Colorado’s southern border with New Mexico, Hispanic/Latino individuals make up over 50 percent of the county’s population. These two counties are considered to have majority-minority Hispanic/Latino communities. Of the 21 focal counties, four counties—Eagle, Garfield, Huerfano, and Saguache—have Hispanic/Latino populations that are meaningfully greater than the percentage of Hispanic/Latino individuals at the state level. Based on these data, the Hispanic/Latino populations in 20 counties in the statewide study area were identified as environmental justice communities.

In addition, in Arapahoe County in the north-central part of Colorado, 10.4 percent of the county’s population identified as Black or African American in the 2020 decennial census. This percentage is over 5 percent greater than the number of people identifying as Black or African American at the state level (3.8 percent). While Arapahoe County is not a focal county, this population was identified as an environmental justice population.

One focal county, Montezuma County, has a greater percentage of American Indian individuals than any other minority group. The Ute Mountain Ute Tribe’s reservation, including the reservation headquarters of Towaoc, is partially within Montezuma County. Existing conditions specific to this Tribe and other American Indian Tribes in the study area are discussed in section 3.4. For the purposes of the environmental justice analysis, the American Indian population in Montezuma County is considered an environmental justice community.

The total percentage of minorities in 15 counties, including one focal county, Saguache County, is meaningfully greater than the total percentage of minorities at the state level. All of these counties contain environmental justice communities that have been identified above, including Hispanic/Latino and African American communities.

In 2020, 9.8 percent of individuals in Colorado had incomes below the poverty line. Of the 64 counties in the state, 41 (or approximately two-thirds) had percentages of individuals living below the poverty line that were greater than the percentage at the state level, including 12 of the focal counties. Low-income environmental justice communities have been identified in these counties. These counties are located across the state in both urban and rural areas. In most, but not all cases, counties with meaningfully greater minority populations also had higher percentages of low-income individuals than the state.

Environmental justice communities identified in the statewide study area and focal counties are listed in table 3-11 and shown in figures 3-3 and 3-4. Minority and low-income populations meeting the criteria for environmental justice communities as discussed above are bolded in table 3-11. Highlighted rows represent focal counties, and bold text indicates an environmental justice community.

Table 3-11. Environmental Justice Communities in Colorado and the Focal Counties

Geographic Area	Percent of Individuals Identifying as Minority or Hispanic/Latino							Total Percent Minority	Percent Of Individuals Below Poverty Level
	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Hispanic/Latino		
Colorado	3.8	0.6	3.4	0.2	0.5	4.5	21.9	34.9	9.8
Adams County	3.1	0.6	4.3	0.1	0.5	3.7	41.7	53.9	9.9
Alamosa County	1.3	1.3	0.9	0.1	0.6	3.0	47.0	54.3	18.5
Arapahoe County	10.4	0.4	6.4	0.2	0.5	5.1	20.7	43.8	7.8
Archuleta County	0.3	1.3	0.8	< 0.1	0.6	4.7	16.2	23.8	8.3
Baca County	0.5	1.1	0.2	0	1.1	4.1	9.9	16.8	18.1
Bent County	4.5	1.6	0.7	0	0.1	3.2	31.2	41.3	21.3
Boulder County	1.0	0.3	4.9	< 0.1	0.6	4.5	14.6	25.9	11.2
Broomfield County	1.3	0.3	6.9	0.1	0.5	4.9	13.4	27.3	5.0
Chaffee County	1.5	0.7	0.7	< 0.1	0.5	3.9	9.5	16.8	11.6
Cheyenne County	< 0.1	0.3	0.2	0	0.2	3.4	11.8	15.9	13.1
Clear Creek County	0.5	0.4	0.9	< 0.1	0.4	4.1	6.9	13.3	6.2
Conejos County	0.2	0.6	0.3	< 0.1	0.3	1.5	50.7	53.6	20.8
Costilla County	0.9	1.0	1.6	0	0.4	4.1	56.8	64.7	26.6
Crowley County	8.6	2.5	1.2	< 0.1	< 0.1	2.3	27.2	41.9	26.8
Custer County	0.2	0.9	0.5	0	1.0	4.1	3.8	10.5	7.6
Delta County	0.4	0.4	0.8	< 0.1	0.6	4.1	13.9	20.2	18.1
Denver County	8.5	0.5	3.8	0.2	0.5	4.2	27.9	45.7	11.9
Dolores County	0.8	1.5	0.3	0.2	0.2	5.6	7.6	16.2	6.9
Douglas County	1.3	0.3	5.5	< 0.1	0.4	4.9	9.5	22.1	3.2
Eagle County	0.5	0.2	1.3	< 0.1	0.3	2.4	30.2	35.0	9.2
Elbert County	0.5	0.4	0.7	< 0.1	0.5	4.8	7.9	14.9	4.8
El Paso County	5.6	0.5	3.0	0.4	0.6	6.3	17.8	34.2	9.8

Geographic Area	Percent of Individuals Identifying as Minority or Hispanic/Latino							Total Percent Minority	Percent Of Individuals Below Poverty Level
	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Hispanic/ Latino		
Fremont County	3.7	1.4	0.7	< 0.1	0.5	4.3	12.4	22.9	13.2
Garfield County	0.4	0.5	0.6	< 0.1	0.5	3.5	31.7	37.4	7.6
Gilpin County	0.6	0.6	1.5	< 0.1	0.6	4.9	6.5	14.7	5.5
Grand County	0.4	0.4	0.5	0.1	0.5	2.9	9.8	14.5	9.1
Gunnison County	0.5	0.4	0.7	< 0.1	0.7	4.0	9.5	15.7	12.4
Hinsdale County	1.0	0.8	0.3	0.1	0.8	5.3	3.8	12.1	10.2
Huerfano County	0.8	1.1	0.4	0	0.7	3.8	31.2	38.0	16.2
Jackson County	0	0.9	0.1	0.1	0.4	4.3	10.0	15.8	9.1
Jefferson County	1.1	0.5	3.0	< 0.1	0.5	4.4	15.7	25.3	6.7
Kiowa County	0.2	0	0.6	< 0.1	< 0.1	5.6	7.2	13.8	13.6
Kit Carson County	0.3	0.3	0.4	< 0.1	0.5	3.7	19.9	25.1	7.4
Lake County	0.4	0.6	0.8	0.1	0.6	3.9	35.8	42.3	13.5
La Plata County	0.3	5.0	0.7	< 0.1	0.7	4.4	12.6	23.8	10.3
Larimer County	1.0	0.4	2.3	< 0.1	0.5	4.6	12.4	21.3	11.1
Las Animas County	1.3	1.0	0.7	< 0.1	0.6	2.9	38.7	45.3	18.2
Lincoln County	4.8	1.1	0.7	0.4	0.4	3.4	14.3	25.1	13.6
Logan County	3.5	0.7	0.6	< 0.1	0.2	2.7	16.3	24.1	10.8
Mesa County	0.7	0.6	1.0	0.1	0.6	4.5	15.0	22.4	13.0
Mineral County	0	0.5	0.3	0	0	4.2	5.4	10.4	14.9
Moffat County	0.6	0.7	0.4	< 0.1	0.5	4.3	16.0	22.4	17.8
Montezuma County	0.3	12.2	0.5	< 0.1	0.4	4.7	12.0	30.2	12.4
Montrose County	0.4	0.6	0.8	< 0.1	0.4	3.7	21.2	27.1	12.3
Morgan County	3.2	0.4	0.5	< 0.1	0.3	2.4	36.3	43.2	10.8
Otero County	0.7	0.6	0.5	0.1	0.6	2.7	41.2	46.4	22.2
Ouray County	0.3	0.3	0.6	< 0.1	0.5	3.9	6.0	11.6	6.7

Geographic Area	Percent of Individuals Identifying as Minority or Hispanic/Latino							Total Percent Minority	Percent Of Individuals Below Poverty Level
	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Hispanic/ Latino		
Park County	0.5	0.7	0.6	< 0.1	0.5	4.9	7.1	14.3	7.0
Phillips County	0.2	0.3	0.5	< 0.1	0.1	1.7	25.5	28.3	8.0
Pitkin County	0.5	0.2	1.6	< 0.1	0.5	3.1	10.9	16.9	5.7
Prowers County	0.7	1.0	0.3	< 0.1	0.4	2.9	39.0	44.3	16.1
Pueblo County	1.8	0.7	0.9	< 0.1	0.6	3.5	41.6	49.1	17.6
Rio Blanco County	0.4	0.8	0.3	< 0.1	0.4	4.1	9.5	15.6	10.7
Rio Grande County	0.4	1.2	0.3	< 0.1	0.5	3.3	39.9	45.7	15.5
Routt County	0.6	0.3	0.7	0.1	0.4	3.5	8.9	14.4	9.5
Saguache County	0.3	1.3	1.0	< 0.1	0.7	3.0	37.6	43.8	16.2
San Juan County	0.1	0.9	0.3	0	0.1	4.3	12.8	18.4	16.3
San Miguel County	0.2	0.6	0.7	0	0.5	3.3	10.9	16.3	10.4
Sedgwick County	0.1	0.4	0.5	0	0.3	3.1	15.1	19.6	20.0
Summit County	0.7	0.2	1.3	< 0.1	0.5	3.4	17.2	23.4	7.5
Teller County	0.5	0.5	0.8	< 0.1	0.6	5.5	6.9	14.9	9.2
Washington County	0.5	0.2	0.3	0.2	0.4	3.5	10.7	15.8	12.3
Weld County	1.3	0.4	1.7	< 0.1	0.4	3.6	29.9	37.4	10.3
Yuma County	0.2	0.2	0.3	< 0.1	0.3	1.8	27.7	30.4	11.4

Source: U.S. Census Bureau 2020a–d

Figure 3-3. Minority Environmental Justice Communities in the Statewide Study Area and Focal Counties

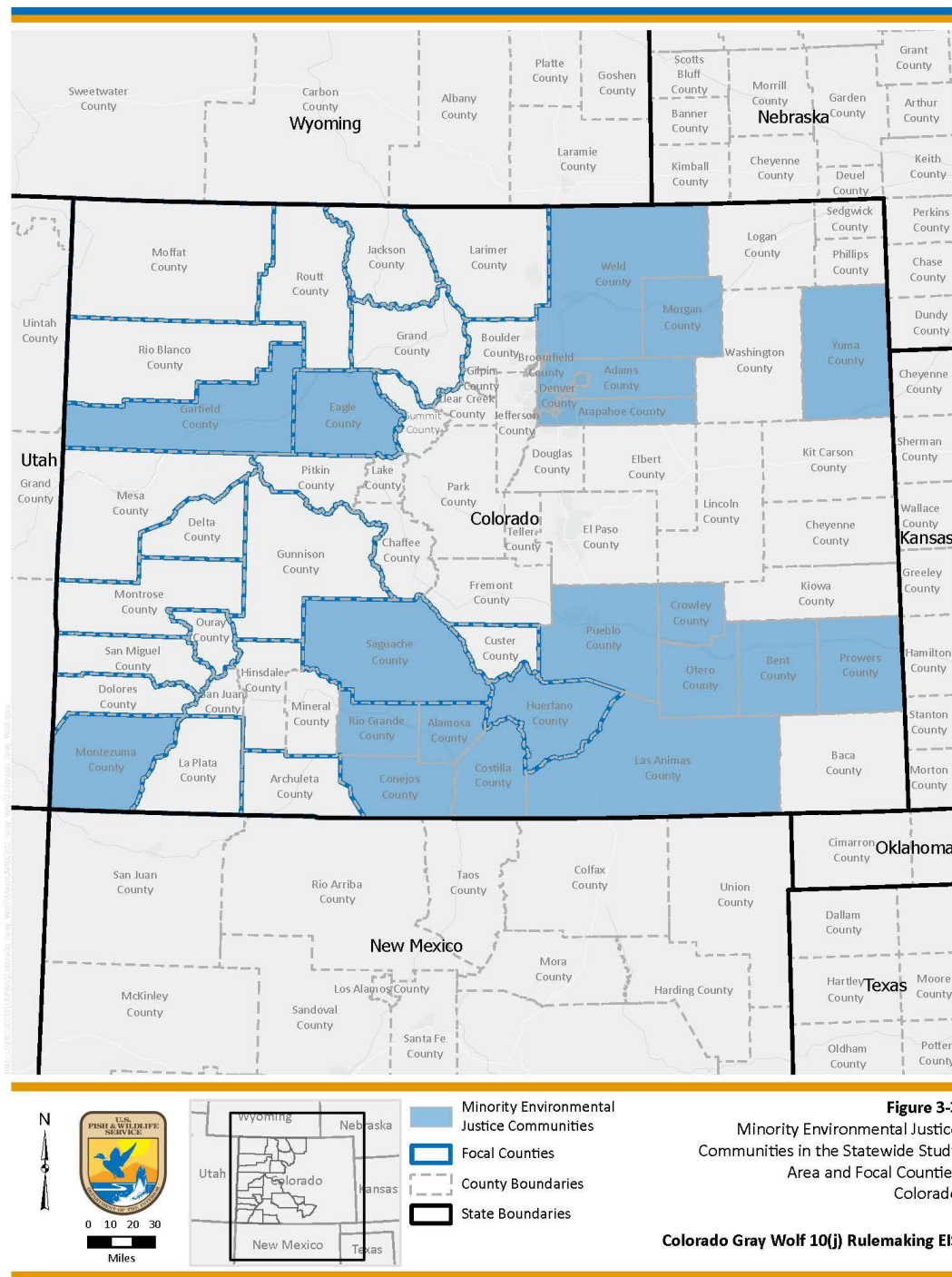
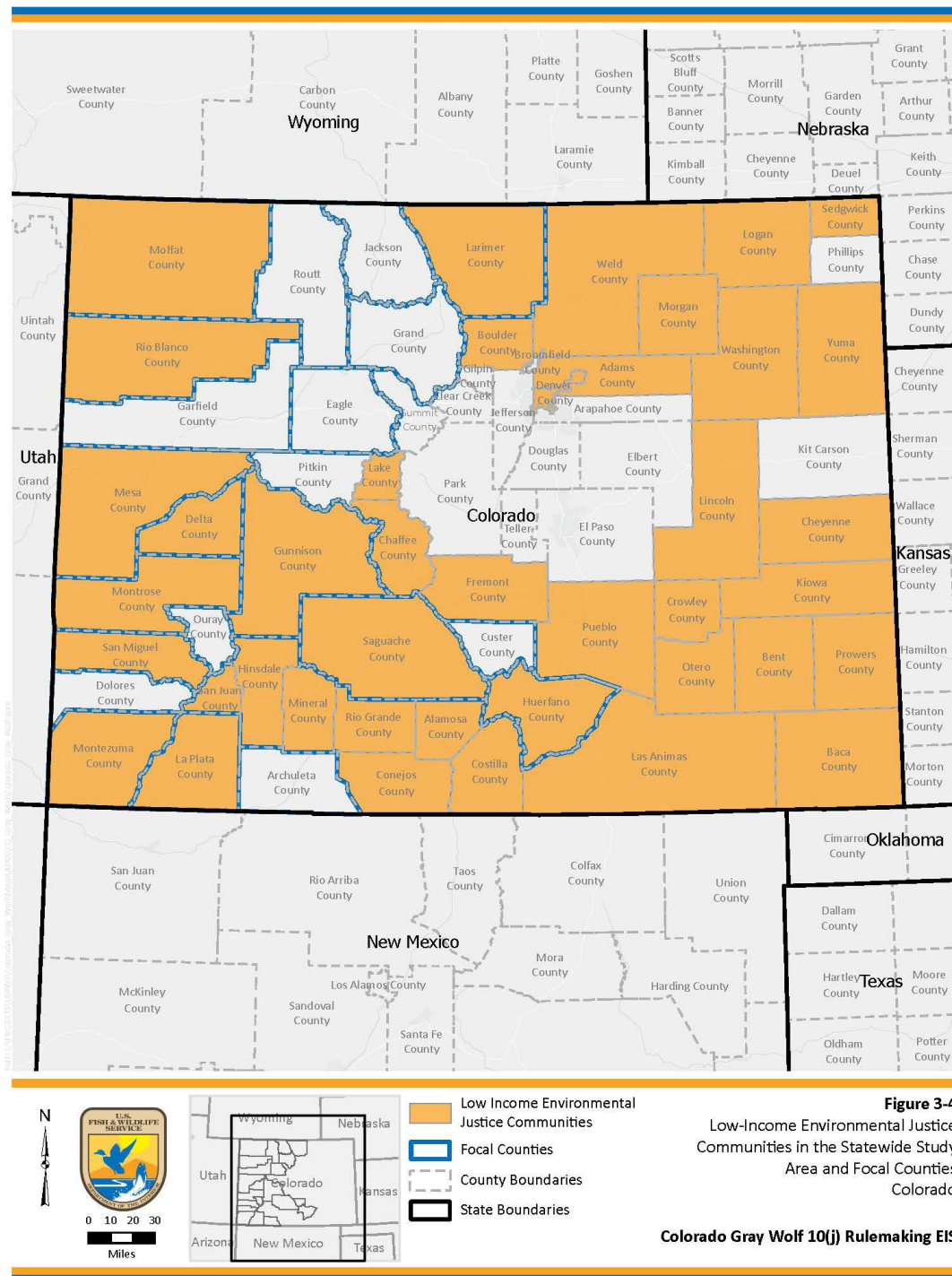


Figure 3-4. Low-Income Environmental Justice Communities in the Statewide Study Area and Focal Counties



Low-income and minority individuals employed in livestock production or as outfitters or guides are addressed in this environmental justice analysis as specific population groups of concern. Demographic and income data for livestock producers in Colorado were obtained from the 2017 United States Department of Agriculture’s (USDA) Census of Agriculture (see table 3-12). The Census of Agriculture collects data on all agricultural producers in the state, including producers of row crops, field crops, and livestock. Table 3-12 includes data on all agricultural producers in the study area and is used as a conservative proxy for data on livestock producers. Demographic and income data specific to livestock producers were not publicly available as of February 2023. Highlighted rows represent focal counties and bold text indicates an environmental justice community.

Minority environmental justice communities within the agricultural population group of concern were identified using the “meaningfully greater” analysis. If the percentage of minority producers or producers of Hispanic, Latino, or Spanish origin exceeds the percentage at the state level by more than 5 percent, these communities are considered environmental justice communities. Six counties in the state, including two focal counties, are home to producers of Hispanic, Latino, or Spanish origin that meet the threshold for environmental justice communities. Two counties in the study area, Denver and Kiowa Counties, neither of which are focal counties, have populations of minority producers that meet the threshold for environmental justice communities.

The 2017 Census of Agriculture does not provide poverty data for agricultural producers. Low-income environmental justice communities within this population group of concern were identified by comparing average farm-related income and the percent change in farm-related income over the five-year period between 2012 and 2017 to data at the state level. Low-income environmental justice communities were identified if a county’s agricultural producers had average farm-related incomes below the average income at the state level or if there was a decrease in farm-related income of over 5 percent between 2012 and 2017. Under these criteria, 41 counties were identified as low-income environmental justice communities. Of those counties, 12 are focal counties: Archuleta, Delta, Dolores, Gunnison, Huerfano, La Plata, Larimer, Mesa, Moffat, Montezuma, Montrose, and Saguache.

Table 3-12. Agricultural Producer Environmental Justice Population Group of Concern

Geographic Area	Total Producers	Total Minority Producers	% Minority Producers	Producers of Hispanic, Latino, Spanish Origin	% Producers of Hispanic, Latino, Spanish Origin	Farm-Related Income (Per Farm Average)	% Change In Income Since 2012 (Per Farm Average)
Colorado	69,032	1,601	2%	3,765	5%	23,036	+1
Adams County	1,568	55	4%	133	8%	33,960	-18
Alamosa County	507	16	3%	60	12%	25,993	-22
Arapahoe County	1,516	79	5%	91	6%	13,677	-14
Archuleta County	727	43	6%	93	13%	13,113	+50
Baca County	1,092	18	2%	22	2%	43,014	+15
Bent County	473	17	4%	24	5%	23,149	-60
Boulder County	1,788	43	2%	70	4%	34,915	+156
Broomfield County	60	0	0%	0	0%	no data ¹	no data ¹
Chaffee County	506	15	3%	17	3%	65,300	+312
Cheyenne County	633	1	0%	7	1%	24,234	-47

Geographic Area	Total Producers	Total Minority Producers	% Minority Producers	Producers of Hispanic, Latino, Spanish Origin	% Producers of Hispanic, Latino, Spanish Origin	Farm-Related Income (Per Farm Average)	% Change In Income Since 2012 (Per Farm Average)
Clear Creek County	54	0	0%	0	0%	1,599	-83
Conejos County	879	33	4%	328	37%	27,630	+117
Costilla County	372	12	3%	268	72%	56,414	+91
Crowley County	456	15	3%	42	9%	10,804	-14
Custer County	553	9	2%	6	1%	25,305	+97
Delta County	2,898	65	2%	123	4%	15,862	+106
Denver County	20	3	15%	0	0%	no data ¹	no data ¹
Dolores County	549	5	1%	7	1%	7,388	+30
Douglas County	2,174	73	3%	76	3%	24,322	+50
Eagle County	431	1	0%	24	6%	35,377	+303
Elbert County	2,963	113	4%	113	4%	14,279	-8
El Paso County	2,421	93	4%	89	4%	18,556	+73
Fremont County	1,805	29	2%	119	7%	7,305	+70
Garfield County	1,217	24	2%	28	2%	36,317	+228
Gilpin County	64	2	3%	0	0%	63,124	+521
Grand County	541	5	1%	6	1%	36,853	-2
Gunnison County	572	6	1%	21	4%	14,567	+76
Hinsdale County	68	0	0%	0	0%	12,625	+36
Huerfano County	773	28	4%	180	23%	6,729	-32
Jackson County	258	5	2%	9	3%	55,191	+146
Jefferson County	1,121	21	2%	19	2%	52,808	+116
Kiowa County	645	5	83%	10	2%	30,602	-58
Kit Carson County	1,044	5	0%	15	1%	29,748	-50
Lake County	68	0	0%	4	6%	10,290	no data ¹
La Plata County	1,981	50	3%	163	8%	8,133	+11
Larimer County	3,699	104	3%	130	4%	17,689	+16
Las Animas County	957	44	5%	189	20%	21,600	+54
Lincoln County	903	7	1%	7	1%	18,840	-47
Logan County	1,524	7	0%	38	2%	20,131	-23
Mesa County	4,378	83	2%	215	5%	7,456	+44
Mineral County	32	0	0%	0	0%	17,194	-75
Moffat County	797	8	1%	11	1%	18,053	-15
Montezuma County	1,991	69	3%	126	6%	9,758	+27
Montrose County	1,917	13	1%	72	4%	6,366	-1

Geographic Area	Total Producers	Total Minority Producers	% Minority Producers	Producers of Hispanic, Latino, Spanish Origin	% Producers of Hispanic, Latino, Spanish Origin	Farm-Related Income (Per Farm Average)	% Change In Income Since 2012 (Per Farm Average)
Morgan County	1,302	29	2%	65	5%	24,526	+14
Otero County	772	40	5%	64	8%	15,199	-35
Ouray County	184	5	3%	10	5%	40,130	+164
Park County	496	25	5%	22	4%	16,004	+66
Phillips County	609	0	0%	2	0%	34,160	-45
Pitkin County	201	0	0%	2	1%	8,483	-33
Prowers County	785	12	2%	12	2%	20,444	-48
Pueblo County	1,469	17	1%	116	8%	11,277	-3
Rio Blanco County	591	12	2%	8	1%	24,494	+16
Rio Grande County	585	9	2%	33	6%	33,490	+30
Routt County	1,629	23	1%	68	4%	30,665	+78
Saguache County	538	19	4%	52	10%	32,894	-28
San Juan County	no data ¹	no data ¹	no data ¹	no data ¹	no data ¹	no data ¹	no data ¹
San Miguel County	243	0	0%	1	0%	27,701	+103
Sedgwick County	378	8	2%	5	1%	28,434	-20
Summit County	119	4	3%	2	2%	10,809	+59
Teller County	284	8	3%	7	2%	9,851	+294
Washington County	1,279	13	1%	27	2%	23,277	-22
Weld County	7,232	135	2%	285	4%	32,065	+57
Yuma County	1,341	14	1%	29	2%	32,257	-30

Source: USDA 2019

¹ "No data" indicates that data is not available or was not disclosed by the USDA to avoid disclosing data for individual operations.

Demographic and income data for outfitters and guides were not publicly available or through the state of Colorado or other cooperating agencies as of February 2023. Therefore, the impacts analysis for this population group of concern in Chapter 4 is qualitative, based on the lack of available information.

All American Indian Tribes are also considered population groups of concern for environmental justice. One county with an American Indian environmental justice community, Montezuma County, has been identified based on the data shown in table 3-11. Section 3.4 identifies American Indian Tribes with Tribal trust land within the study area and Tribes that have asked to be consulted during the NEPA process, including the Ute Mountain Ute, Southern Ute, and Pawnee Nation. These Tribes or their members are engaged in livestock production and hunting and could potentially be affected by the proposed action and alternatives, including the no-action alternative. Section 3.4 provides additional discussion of consultation with these American Indian Tribes and identified concerns.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This “Environmental Consequences” chapter analyzes the beneficial and adverse impacts that would result from implementation of any of the alternatives considered in this EIS. The resource topics presented in this chapter correspond to the descriptions of existing conditions in Chapter 3. In compliance with NEPA (40 CFR 1502.16) and as required by CEQ regulations implementing NEPA, this chapter compares the environmental consequences for each alternative.

4.2 GENERAL METHODOLOGY FOR ASSESSING IMPACTS

The following analysis evaluates direct, indirect, and cumulative impacts to the human environment (i.e., physical, natural, cultural, and socioeconomic resources) from the proposed implementation of a regulatory framework, requested by the State of Colorado for its gray wolf reintroduction efforts. The approach includes the following elements:

- Focusing the analysis to the greatest extent possible on the implementation of a regulatory framework and associated issues that could have meaningful impacts on the resources or values being evaluated.
- Using general analysis methods and assumptions that follow CEQ and U.S. Department of the Interior regulations and guidance.

The potential for significant impacts from the implementation of a regulatory framework is assessed and described in each resource topic as applicable.

4.3 GENERAL ANALYSIS METHODOLOGY AND ASSUMPTIONS

The interdisciplinary planning team reviewed a substantial body of scientific literature and studies applicable to the state of Colorado and associated resources. This information augmented observations and documentation gathered by the cooperating agencies for this effort. When available, the methodology notes other resource-specific data, observations, or studies for each impact topic. The analysis focuses on expected environmental impacts related to the implementation of a regulatory framework to accompany Colorado’s gray wolf reintroduction efforts. As such, the analysis focuses on the impacts of providing, or not providing, regulatory flexibility for the State’s reintroduction efforts. The environmental baseline for analysis of impacts assumes that the State of Colorado has reintroduced gray wolves in accordance with Colorado Revised Statute 33-2-105.8. Issues related to the reintroduction process, including should reintroduction occur, where it should occur, how many wolves would be reintroduced, and how a compensation program run by the State would function are part of the State planning effort and outside the scope of the analysis for this EIS.

4.3.1 Assessing Impacts Using Council on Environmental Quality Criteria

According to the CEQ NEPA regulations (40 CFR 1500–1508), effects or impacts mean changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and include the following:

- (1) Direct effects, which are caused by the action and occur at the same time and place.
- (2) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced

changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

(3) Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

(4) Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effects would be beneficial.

4.3.2 Assumptions

The following guiding assumptions were used to provide context for this analysis.

Analysis Period. This EIS establishes what management tools would be available under a regulatory framework to address Colorado’s plan to reintroduce the gray wolf. For all action alternatives, it is assumed that the need for regulatory flexibility would be less in the initial reintroduction phases and increase as populations become established. Short- and long-term impacts are defined under each resource area, but in general, short-term impacts are expected in the first three to five years of reintroduction activities and long-term impacts would be five years and beyond. Management under the federal regulatory framework may continue while the species is federally listed without additional NEPA analysis as long as there no “substantial changes in the proposed action that are relevant to environmental concerns; or ... significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts” (40 CFR 1502.9(c)). If the species is federally delisted, the State would manage gray wolves in Colorado.

Analysis Area. The area of analysis generally focuses on the state of Colorado. For the action alternatives (alternatives 1 and 2) focal counties are identified that are assumed to have suitable habitat for potential release locations or locations wolves may migrate to after release based on the 2022 study by Ditmer et al. These focal counties are identified in Chapter 2, figures 2-1 and 2-2.

Duration and Type of Impacts. Duration describes the length of time over which an effect may occur. For example, impacts could occur over minutes, days, months, or years. The analysis includes a description of the timeframe over which impacts are expected to occur. Type describes the classification of the impact as beneficial or adverse:

- **Beneficial.** A change in the condition or appearance of the resource that moves the resource toward a desired condition.
- **Adverse.** A change in the condition or appearance of the resource that moves the resource away from a desired condition or detracts from its appearance or condition.

4.3.3 Jurisdiction and Compliance

The Service is the lead agency for this planning process, whereas NPS, the Bureau of Land Management, the U.S. Forest Service, USDA-Animal and Plant Health Inspection Service’s Wildlife Services, CPW, State of Colorado Department of Agriculture, State of Utah, State of Arizona, State of New Mexico, State of Wyoming, Moffat County, Garfield County, Delta County, Mesa County, Jackson County, Montrose County, Delores County, Grand County, Rio Blanco County, and the White River and Douglas Creek Conservation Districts are

participating as cooperating agencies. The Service has jurisdiction over the implementation of the ESA, including the conservation of listed species such as the gray wolf.

4.4 SPECIES OF SPECIAL CONCERN

4.4.1 Gray Wolf

The following analysis considers the environmental consequences of the management options being considered under section 10 of the ESA for the wolf population following the reintroduction of wolves in Colorado. The environmental consequences were evaluated by assuming each alternative would be implemented starting in 2023, when wolves are reintroduced by the State (as per commitments in Colorado Revised Statute 33-2-105.8). In all alternatives, it is anticipated that wolves would be reintroduced in a phased approach over several years (TWG 2022b); as such, wolf numbers and distribution are expected to increase over time.

Adverse impacts are those considered to negatively affect wolf populations, while beneficial impacts are those that would positively affect the population compared to existing conditions in the state (i.e., prior to reintroduction by CPW). Some environmental consequences would develop rapidly following wolf reintroduction and be short term, while others may not emerge for several years and would be long term. Long-term impacts account for the biological life span of wolves and the impacts that develop while the wolf population stabilizes. In all alternatives, wolf distribution would initially likely be determined by prey abundance and distribution (O'Neil et al. 2020). Future population growth would be influenced by and fluctuate because of social conflicts with humans, changes in prey density and distribution, and inter- and intraspecific competition.

In all alternatives assessed in this EIS, the reintroduction of wolves in Colorado and subsequent ability for the wolf population to grow in numbers and distribution would be highly affected by their interactions with humans. Social tolerance is fundamental for any predator reintroduction, and the relationships between predators and land users is complex (Dickman 2010; Murray et al. 2010; Mech 2017; Pooley et al. 2017; Morehouse et al. 2018). Indeed, Congress made the section 10(j) amendment to the ESA in 1982 because prior to that, efforts to reintroduce endangered species were often met with public resistance. The region of Colorado where wolves may be naturally reestablishing, and the proposed reintroduction areas, are working landscapes, meaning agricultural and ranching operations are an integral part of the landscape. An analysis by Ditmer et al. (2022) demonstrated that although the northern Western Slope of the state contains high ecological suitable habitat for wolves, the area has low socio-ecological suitability because of high risk of human conflict. There is high potential for controversy surrounding wolf conservation and management in Colorado if human interests and needs are not being addressed. Illegal take, which is likely to occur under all alternatives, would affect the wolf population in both the short and long term. An analysis of the social implications of each alternative, including a discussion of the impacts regarding management flexibility, or lack thereof, following livestock depredations, is included in section 4.7. The following analysis is focused only on the biological aspects of wolf population and distribution under each alternative.

No-Action Alternative

Under the no-action alternative, wolves in the state of Colorado would remain listed as endangered under the ESA. Any take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of wolves without a permit or authorization is prohibited. See section 2.4.2 for details on the type and nature of interactions associated with this alternative.

Wolf Numbers and Distribution

Under the no-action alternative, wolf numbers and distribution would increase in the short term as wolves are reintroduced to the state. The state and federal governments would have no authority for lethal control, except in

cases of human safety. At a local level, ungulates could decline in the short term in response to increased predation rates, which could limit wolf population growth if there was insufficient prey. In the long term, it is likely the ungulate populations would stabilize (due to natural fluctuations; Smith et al. 2003) and be able to support a self-sustaining population of wolves indefinitely. Adult wolf survival rates are expected to be similar to pre-harvest years in Minnesota (0.79; Barber-Meyer et al. 2021) and in the Yellowstone area (0.7 to 0.8; Cubaynes et al. 2014; Smith et al. 2020); although year-to-year variation is expected based on research following other reintroduced and naturally recolonizing populations elsewhere in the United States (Smith et al. 2020; Barber-Meyer et al. 2021).

Illegal killing is expected to be higher under the no-action alternative than under the action alternatives based on studies completed elsewhere, particularly in the short term after wolves are reintroduced when there is uncertainty about the potential adverse impacts on local land users. Olson et al. (2015) demonstrated that illegal killing of radio-collared wolves in Wisconsin increased in years when wolves were listed as endangered compared to years when they could be managed by the state. Federal managers in the northern Rocky Mountains estimated that around 10 percent of the known wolf population was illegally killed annually during wolf recovery, second only to lethal control to resolve wolf conflicts with livestock. Studies estimated that illegal take accounted for 24 percent of all mortalities in the northern Rocky Mountains (annually removing approximately 6 percent of the known population); however, 12 percent of all documented mortalities were attributed to unknown causes, so it is highly plausible that the number of wolves illegally taken may have been higher (Smith et al. 2010; Treves et al. 2017b). Although some researchers have documented that rates of illegal take are grossly underestimated because a high proportion of this type of mortality is undocumented (Liberg et al. 2012; Treves et al. 2017a,b), multiple other studies have supported the estimate that between 5 and 12 percent of wolves may be illegally killed annually in different areas of the conterminous United States (Murray et al. 2010; Smith et al. 2010; O'Neil 2017; Ausband et al. 2017; Stenglein et al. 2018; Barber-Meyer et al. 2021). If illegal take is high, the impact on the size and distribution of wolves in Colorado would be detrimental in the short and long term (Liberg et al. 2012). If illegal take is low, it is expected that in the long term, the wolf population would increase at rates similar to other established populations (i.e., 20 percent per year; Fuller et al. 2003), but may vary due to the population limiting factors discussed in section 3.2.1.

Wolf Habitat and Connectivity

In the long term, it is likely that individual wolves from other populations would continue to disperse into Colorado and may naturally establish packs with the reintroduced wolves and other dispersers. Any wolves that enter Colorado would be protected as an endangered species under the no-action alternative, regardless of their designation in the jurisdiction from which they originated. This would increase the population of wolves in Colorado and contribute to the long-term conservation and recovery of the gray wolf in the western United States.

This alternative is expected to be the most beneficial for wolves from a purely biological standpoint because it would limit any take on wolves that are reintroduced or that disperse naturally into the state. However, illegal human-caused mortality may be highest under this alternative (Olson et al. 2015). Flexibility by state and federal governments to respond to conflicts would be constrained because every wolf would be considered endangered. The population of wolves is expected to increase in growth and distribution in those areas where habitat suitability is high (i.e., where there is sufficient wild prey and limited contact with humans).

Alternative 1

Under alternative 1, gray wolves would be designated across the entire state of Colorado as an experimental population under section 10(j) of the ESA. The management approach aims to achieve wolf reintroduction goals while resolving conflicts when and where they occur. If the population is designated as nonessential, take prohibitions and consultation requirements under the ESA would be relaxed, such that allowable take would

include non-injurious, nonlethal conflict minimization practices, potentially injurious hazing techniques, translocation, and lethal take. See section 2.4.3 for details on the type and nature of interactions associated with this alternative.

Wolf Numbers and Distribution

Under alternative 1, wolf numbers and distribution could be impeded in the short term during the initial reintroduction effort when fewer wolves are on the landscape, and the potential loss (under allowable take provisions) of a small number of individuals would have a bigger impact on the total population. Any lethal take of wolves following initial reintroduction could impede (or at a minimum, delay) the ability to establish a self-sustaining population of wolves (TWG 2021) because not all wolves would survive to reproduce and increase the population. Wolf numbers in Colorado during the first five years are likely to be similar to reported wolf numbers in Oregon (average of 37 wolves in 2009–2013) and Washington (average of 27 wolves in 2008–2012) (Oregon DFW 2022; Washington DFW et al. 2022). Lethal control actions in Colorado are likewise anticipated to be similar to Oregon and Washington, during their respective initial monitoring years, where 3 percent and 2 percent, respectively, of the known wolf numbers were lethally controlled. In the long term, the allowable take provisions under alternative 1 would be unlikely to reduce the number of wolves in Colorado because wolf populations are able to sustain relatively high rates of human-caused mortality (see section 3.2.1 for discussion on mortality).

Nonlethal take actions allowed under alternative 1, including harassment/deterrence actions and capture and relocation, could be implemented as an alternative to lethal take in circumstances where individual wolves are in conflict with livestock production on private and public land (i.e., chronic depredations). Nonlethal take could potentially affect wolves' ability to reproduce and increase the population if wolves are unable to establish territories or find mates because they are harassed/deterred away from areas with suitable habitat and prey. However, it is unlikely that a reintroduced wolf that is disturbed via nonlethal take (e.g., deterrents, capture and translocation) would have reduced survival or inability to breed because wolves are highly adaptable and resilient (Ginsberg and Macdonald 1990), and the management flexibility to implement nonlethal actions may improve wolf survival overall under this alternative (McManus et al. 2015; Bruns et al. 2020). However, if wolves are deterred or relocated to an area in Colorado where the risk of mortality is higher (because they come into conflict with other established wolf packs), or if they disperse outside the state of Colorado, then there would be negative implications to the establishment of a population in the state (TWG 2022b). If adopted, the optional provision to allow nonlethal and lethal take of wolves to reduce impacts to ungulate populations could have adverse impacts on individual wolves as a result of lethal control or relocation. If the optional provision is adopted, the requirements noted in table 2-2 would need to be met before take would be authorized. Take of wolves under these circumstances is expected to occur rarely and would not have population-level effects on the species in Colorado.

In the long term, it is not expected that allowable take under alternative 1 would have a measurable impact on the population. Over time, the wolf population in Colorado is expected to settle at a density that is naturally regulated locally by wild ungulate prey availability and distribution (Mech and Barber-Meyer 2015) and territoriality (Cariappa et al. 2011), and regulated extrinsically by social carrying capacity statewide (2022a). Nonlethal take (harassment) would become integrated into livestock husbandry best management practices. Ongoing management actions (lethal and nonlethal) would occur under alternative 1, but they are not expected to have population-level impacts statewide. Given the amount of ecologically suitable habitat and prey availability in Colorado (Carroll et al. 2006; Ditmer et al. 2022), the wolf population is expected to increase at rates similar to other established populations in the long term (i.e., 20 percent per year; Fuller et al. 2003).

Wolf Habitat and Connectivity

Similar to the no-action alternative, the actions in alternative 1 would not affect wolf habitat and connectivity because there would continue to be natural emigration and immigration from packs in the northern Rockies. It is likely that individual wolves from adjacent populations would continue to disperse into Colorado, where they would be managed under the regulations of section 10(j).

Alternative 1 could result in adverse impacts to individual wolves through regulated take and could delay recovery in the short term, but is not expected to hinder recovery or have adverse population-level effects in the long term. Alternative 1 promotes an adaptive management approach for wildlife managers to support both wolf conservation goals and ungulate populations, and to implement deterrent tools (lethal and nonlethal take) that reduce the potential for livestock depredation.

Alternative 2

Under alternative 2, regulations and wolf management approaches would be implemented in two different ways. In most of Colorado, reintroduced wolves would potentially be managed as an experimental population under a section 10(j) rule. Should an existing population of wolves be determined to exist in a specific area of the state before the proposed rule is finalized, those wolves would be managed as an endangered species under a section 10(a)(1)(A) permit, and the population of reintroduced wolves would be managed within an experimental population boundary that is wholly separate geographically from the 10(a)(1)(A) permit area (see section 2.4.3). Resolution of conflicts would depend on where the wolves are located in the state. See section 2.4.5 for details on the type and nature of interactions associated with this alternative.

Wolf Numbers and Distribution

In the part of the state where the section 10(j) rule is approved, short- and long-term impacts would be the same as described for alternative 1. In the 10(a)(1)(A) permit area, wolf density may be higher in the short term because only nonlethal take would be permitted on both private and public land. The 10(a)(1)(A) permit area may act as a source habitat where the wolf population growth rate and density increases, compared to the rest of the state where risk of human-caused mortality is higher (O'Neil et al. 2020). This may ultimately lead more quickly to a statewide population as defined by the Service (at least two breeding pairs of wild wolves successfully raising at least two young each year for two consecutive years), which could result in a change the wolf protections in the entire state. However, there is uncertainty in quantifying rates of population growth in the 10(a)(1)(A) permit area and in the experimental population boundary because it is currently not known how many wolves would be reintroduced in the state, how much legal take would occur in the experimental population boundary, and how much illegal take would occur in the 10(a)(1)(A) permit area.

The more rapid population growth that is initially expected with the added protection in the 10(a)(1)(A) permit area would cease as wolves approach the ecological carrying capacity of the 10(a)(1)(A) permit area (Smith et al. 2003). In the long term, wolves would naturally disperse from the 10(a)(1)(A) permit area and colonize suitable habitat in the experimental population boundary with sufficient prey and minimal social conflicts with humans and other wolves. Prey densities are considered high enough in Colorado to support wolves (Ditmer et al. 2022). It is expected that in the long term, the wolf population would increase at rates similar to the management approach of alternative 1. In addition, control measures are expected to be similar to alternative 1 in the experimental population boundary. As noted above, lethal control would not be authorized in the 10(a)(1)(A) permit area.

Wolf Habitat and Connectivity

Similar to alternative 1, wolf habitat and connectivity would not be affected because there would continue to be natural emigration and immigration from neighboring packs in the northern Rockies under alternative 2.

This alternative is expected to benefit wolves in the short term and have the same effects as alternative 1 in the long term. Under this alternative, wolves that establish a population naturally in the 10(a)(1)(A) permit area would be granted more protection than wolves that are reintroduced to the rest of the state. The wolf population may increase more rapidly in the state as a whole because of the protection granted in one small area, which would support wolf conservation and recovery objectives. However, wildlife do not respect invisible boundaries of administrative zones, and wolves that occur naturally in the 10(a)(1)(A) permit area would eventually disperse into the experimental population boundary based on biological needs and their social environment and be subject to the same human-caused mortality risks as those reintroduced wolves.

4.4.2 Other Species of Special Concern

The following analysis considers the environmental consequences of the management options under consideration for the reintroduction of wolves in Colorado on species of special concern, including other federally listed species, Colorado State-listed species, and other SGCN. Environmental consequences were evaluated at the statewide population level for State-listed species and other SGCN and at the nationwide population level for federally listed species. Adverse impacts are considered to be those that would negatively affect species populations, or in the case of federally listed species with approved recovery plans, substantially delay or prevent species recovery criteria from being met. Beneficial impacts are those that would positively affect species populations compared to existing conditions, or in the case of federally listed species with approved recovery plans, enhance recovery. Short-term effects are those that would occur within the first few years of wolf reintroduction, while long-term effects are those that would take longer to develop as wolf populations increase and as their range expands throughout the state.

The reintroduction of wolves in Colorado could affect species of special concern. As top predators, gray wolves could compete with other listed predators, such as Canada lynx, or prey on listed ground-nesting birds, such as Gunnison sage-grouse. However, the TWG concluded in its final recommendations to CPW that, “The presence of wolves will not have an impact on populations of threatened and endangered species in Colorado, specifically lynx and Gunnison sage grouse” (TWG 2022c). Neither of these are primary prey species for wolves. Moreover, predation and competition with wolves (where their ranges overlap) have not been documented as driving factors for population decline, nor are they considered barriers to recovery success for either of these species (Braun 1998; Murphy et al. 2006; USFWS 2017a).

Cooperating agencies in the development of this EIS expressed concern that gray wolves could breed with Mexican wolves, a subspecies that has been reintroduced in New Mexico and Arizona, potentially resulting in interspecies competition or genetic swamping, if the ranges of both species expand and eventually overlap (Odell et al. 2018). As of October 2022, CPW has not finalized its gray wolf reintroduction strategy; therefore, it is difficult to determine the timing and extent of future dispersal contact that may occur between gray wolves and Mexican wolves or the potential genetic effect of this contact on Mexican wolves. However, the Service will work with states to minimize impacts to Mexican wolf recovery, including using other federal permitting mechanisms or other tools. Although reintroduced wolves could affect species of special concern through various direct and indirect interactions, these potential consequences are related to the State of Colorado’s action and are therefore addressed in the cumulative effects analysis.

No-Action Alternative

Under the no-action alternative, the Service and its designated agents would not have the flexibility to manage reintroduced wolves for the purposes of protecting or managing species of special concern, including other federally or State-listed species. If populations of species of special concern decline as a result of predation or other pressures associated with the presence of wolves, the Service and its designated agents would not have the flexibility to manage wolves using nonlethal or lethal methods to promote conservation or recovery of protected

species because reintroduced wolves in Colorado would not be designated as an experimental population under ESA section 10(j) and would be protected as a federally endangered species throughout the state. The lack of flexibility for the management of wolves could result in short- or long-term, adverse effects on prey species if their populations decline as a result of wolf reintroduction. The no-action alternative could also have long-term, adverse effects on the Mexican wolf if the ranges of both species expand and interbreeding or competition occurs. As noted above, it is difficult to determine the timing, extent, and effects of potential future contact between gray wolves and Mexican wolves. However, the Service has committed to working with states and the Mexican Wolf Recovery Program to mitigate potential future impacts to Mexican wolf recovery. Overall, the no-action alternative is not likely to adversely affect species of special concern because substantial population declines or jeopardy of the continued existence of species of special concern have not been documented as a result of previous wolf reintroductions elsewhere in North America and are not anticipated to result from the reintroduction of wolves in Colorado (TWG 2022c).

Alternatives 1 and 2

The environmental consequences of the alternatives 1 and 2 on species of special concern would be the same as under the no-action alternative because management flexibility for wolves that would be reintroduced to Colorado under alternatives 1 and 2 would not include provisions for the take of wolves for the purposes of protecting or managing species of special concern.

4.5 OTHER WILDLIFE SPECIES

Environmental consequences on other wildlife species were evaluated at the statewide population level. Adverse impacts are considered to be those that would negatively affect species' populations, while beneficial impacts are those that would positively affect these populations compared to existing conditions and relative to established State or Tribal management objectives where applicable. Short-term effects are those that would occur within the first few years of wolf reintroduction, while long-term effects are those that would take longer to develop as wolf populations increase and as their range expands throughout the state. Although some species, primarily prey species, could experience local population-level effects shortly after wolf reintroduction, most environmental consequences would take years to develop before they could affect wildlife populations on a statewide scale. Therefore, the following analysis focuses mostly on the potential long-term environmental consequences of the alternatives.

The reintroduction of wolves in Colorado could affect other wildlife species through predation and competition. Wolves can influence other wildlife populations either directly (e.g., predation) or indirectly (e.g., behavioral modification of prey species and mesocarnivores [predators that occupy mid-levels of food webs] Estes et al. 2011; Ripple and Beschta 2012; Ripple et al. 2014). The reintroduction of wolves could cause prey species to change their feeding habits by avoiding areas where they could readily be ambushed or change their movement patterns and habitat preferences (Smith et al. 2003; Fortin et al. 2005; Creel et al. 2011), as was observed in elk after the reintroduction of gray wolves in Yellowstone National Park. Similarly, in some areas where wolves have been restored, competing carnivores have changed their predation habits or habitat selection to avoid competition with wolves (Smith et al. 2003; Bartnick et al. 2013). These potential consequences are related to the State of Colorado's action and would not be affected by any alternative selected by the Service for flexibility (or lack thereof) in the management of wolves in Colorado with regard to take as defined under the ESA. Therefore, they are beyond the scope of this EIS and are not included in the following analysis.

The following analysis is limited to potential environmental consequences of the alternatives on Colorado's ungulate populations. Alternatives 1 and 2 include an optional provision for the take of wolves in limited circumstances, including in the event that wolf predation is having an unacceptable impact on wild ungulate

populations. However, the alternatives do not provide management flexibility for wolves for the purposes of protecting or managing other wildlife populations. Therefore, potential impacts of wolf reintroduction on non-ungulate populations would occur independently of the proposed action and would not be affected by the alternative selected. As a result, only impacts related to the optional take provision for management of wolves to address impacts to ungulates are discussed below.

4.5.1 No-Action Alternative

Under the no-action alternative, wolf reintroduction without the management flexibility that would be provided to the Service and its designated agents under ESA section 10(j) could affect wildlife species, especially wolf prey species. The Service and its designated agents would not have the ability under this alternative to manage wolves for the purposes of managing other wildlife populations for conservation.

Elk and Deer

Under the no-action alternative, Colorado's statewide elk and deer populations could decline in response to unmanaged predation and other pressures as a result of wolf reintroduction. However, wolf presence may or may not directly influence changes in ungulate population dynamics. Prey populations naturally vary through time in response to environmental factors (e.g., severe winters, natural mortality), predation pressure, hunter harvest pressure, and habitat conditions (Smith et al. 2003). If elk and deer populations declined below State or Tribal management objectives, the Service and its designated agents would not have the flexibility to manage wolves to meet elk and deer management goals, even if wolves were a major driver of population decline, because reintroduced wolves in Colorado would not be designated as an experimental population under ESA section 10(j) and would be protected as a federally endangered species throughout the state. The no-action alternative could adversely affect elk and deer over the long term because the Service and its designated agents would not have the flexibility to manage wolves to limit elk and deer population decline or facilitate recovery. However, it is possible that no adverse effects would occur because although elk and deer populations may decline in the short term at the local level in response to wolf predation, it is likely they would stabilize over the long term (due to natural fluctuations in their populations), as was observed at Yellowstone National Park in the years following gray wolf reintroduction (Smith et al. 2003).

Other Ungulates

In the absence of management flexibility for reintroduced wolves in Colorado, pronghorn, wild sheep, and moose populations could decline. Like with elk and deer, if populations of these species decline below State or Tribal management objectives in response to wolf reintroduction, the Service and its designated agents would not have the flexibility to manage wolves to promote species conservation or recovery. Therefore, the no-action alternative could adversely affect other ungulate species over the long term. As is the case with elk and deer, if the populations of other ungulate species do not decline below State or Tribal management objectives in response to wolves, these adverse effects would not occur.

4.5.2 Alternative 1

Under alternative 1, gray wolves that would be reintroduced to Colorado would be managed as an experimental population under the section 10(j) rule. Currently, the draft section 10(j) rule does not allow for take of wolves to mitigate potential impacts to ungulate populations. However, alternative 1 includes an option to allow take of wolves to reduce impacts on wild ungulates. If this optional element is incorporated, the Service and its designated agents would have the flexibility to manage reintroduced wolves using nonlethal and/or lethal methods for the purposes of managing other wildlife species (e.g., elk, deer, pronghorn, moose, wild sheep, and mountain goats) consistent with established State management goals, in accordance with section 10(j) of the ESA. Take of wolves would be permitted only if the State has determined that wolf interactions are a major driver of population

declines in other wildlife species and are preventing species populations from meeting established State or Tribal management objectives.

Elk and Deer

Elk and deer are likely to be the primary prey for wolves in Colorado based on their population densities in the statewide study area and documented prey selection by wolves elsewhere in the northern Rocky Mountains. Although elk and deer have the highest population densities in Colorado compared to other wolf prey species, their populations could decline over time as a result of predation, behavioral changes, or changes in habitat use in response to wolf reintroduction (Smith et al. 2003; Estes et al. 2011; Ripple and Beschta 2012). Under the draft rule as written, potential impacts to prey populations under alternative 1 would be similar to those described under the no-action alternative because the Service and its designated agents would not be allowed take wolves to reduce impacts on wild ungulates.

If wild ungulate population levels decline below established State or Tribal management objectives as a result of wolf reintroduction, management flexibility, including nonlethal and/or lethal take, could be provided under the alternative 1 optional element that would allow the Service and its designated agents to take wolves as a means to achieve established goals for the statewide management of elk and deer populations, if the Service determines that wolf predation is having an unacceptable impact on wild ungulate populations. Compared to the no-action alternative, under which the State would reintroduce gray wolves without the management flexibility that would be provided by the section 10(j) rule, alternative 1 could have a beneficial impact on elk and deer over the long term should this optional element be incorporated because their populations would continue to be managed in accordance with established State or Tribal management objectives, despite additional pressures on their populations that would result from the reintroduction of wolves.

Other Ungulates

Other ungulates such as pronghorn, wild sheep, and moose could also be selected prey species for wolves in the focal counties or elsewhere in the state. Under the draft rule as written, potential impacts to other ungulates under alternative 1 would be similar to those described under the no-action alternative because the Service and its designated agents would not be allowed take wolves to reduce impacts on wild ungulates. Like with elk and deer, alternative 1 could allow the Service and its designated agents the flexibility to manage wolves through regulated take if wolves cause the populations of other ungulates to decline below established State or Tribal management objectives, potentially resulting in a long-term, beneficial impact on these species if the optional element is exercised.

4.5.3 Alternative 2

Under alternative 2, gray wolves that would be reintroduced to Colorado would be managed as an experimental population under the section 10(j) rule but in an area smaller than the area described for alternative 1. Under the draft rule as written, potential impacts to prey populations under alternative 2 would be similar to those described under the no-action alternative because the Service and its designated agents would not be allowed to take wolves to reduce impacts on wild ungulates.

Like alternative 1, alternative 2 includes an option to allow take of wolves to reduce impacts on wild ungulates. Should this optional element be incorporated, if an existing population of gray wolves is discovered in Colorado, the Service and its designated agents would have the flexibility to manage the existing population under a section 10(a)(1)(A) permit. The provisions of the permit would be the same as those described for the section 10(j) rule under alternative 1, except that only nonlethal take would be permitted. Wolves introduced outside the range of the existing gray wolf population would be managed in accordance with section 10(j), like under alternative 1.

If the optional alternative element to allow take of wolves to reduce impacts on wild ungulates is incorporated, the level of flexibility that the Service and its designated agents would have for the management of reintroduced wolves, including the use of nonlethal and/or lethal take, would be the same as under alternative 1. Management of an existing wolf population under a section 10(a)(1)(A) permit would not affect the options available to the Service and its designated agents for the management of the experimental population of reintroduced wolves. Any impacts on other wildlife populations that could result from predation or competition with existing wolves would occur independently of the management of reintroduced wolves. Therefore, the environmental consequences of alternative 2 on other wildlife species would be the same as described under alternative 1. Alternative 2 could have long-term, beneficial impacts on elk and deer, other ungulates, and other wildlife species because the Service and its designated agents would have the flexibility to manage reintroduced wolves for the purposes of managing other wildlife populations to achieve established State or Tribal management objectives if the optional element is exercised.

4.6 TRIBAL CULTURAL RESOURCES

The following section discusses the potential impacts to Tribal cultural resources, which for the purposes of this evaluation, include archaeological and historical sites and natural resources of importance to Tribes, as well as Tribal treaty rights and reservations. Government-to-government consultation with interested Tribes is ongoing, and additional information regarding this consultation will be added to the final EIS as it is available.

4.6.1 No-Action Alternative

Archaeological and Historical Resources

Under the no-action alternative, the Service and its designated agents would have limited management options available to control the presence of wolves (i.e., reintroduced gray wolves, pre-existing wolf populations, and those naturally dispersing to Colorado) that may cause damage to archaeological and historical resources or inhibit Tribal access to these resources.

Wolf activities could damage Tribal archaeological and historical resources located within the focal counties, as well as those outside these counties. For example, archaeological or historical resources that may be affected in Colorado include rock shelters (labeled in the OAHP database as Sheltered Lithic, Sheltered Camp, and Sheltered Architectural), because wolves could use the locations in which these sites are present as dens, thus affecting the ability of cultural practitioners to visit and tend to these sites. Wolves may excavate soil to create a new den or expand an existing one used by other mammals (Wisconsin DNR 2016). “Den openings generally are 36 to 63 cm in diameter (14-25 inches) and are oval in shape.... Depth into the dens range from 1.5-5.5 m (5-18 ft)” (Wisconsin DNR 2016). The development of a den by a wolf may cause ground disturbance that could impact a surface or subsurface resource, if present in the same location in which the den is being created or used.

Within Colorado, for example, resources associated with the traditional hunting grounds of the Ute are not quantified as formal site types within the OAHP database but are sometimes marked by Cambium Trees, which are recorded in the database. As labeled in the OAHP database, rock shelters (Sheltered Lithic, Sheltered Camp, and Sheltered Architectural sites) and Cambium Tree (Cambium Tree and Carving Rock or Wood Cambium Tree sites) locations were previously recorded in the focal counties. Due to the large geographic expanse of the area considered, the likelihood of a wolf creating a den in one of the locations of a rock shelter or causing physical damage to one of the Cambium Tree sites is anticipated to be low.

Natural Resources of Cultural Importance

The Service and its designated agents would have limited management flexibility under the no-action alternative to affect how wolves would interact with other natural resources of cultural importance to Tribes. This alternative would not allow for lethal or nonlethal take.

Reintroduced wolves as well as those already living in or naturally dispersing into Colorado could impact natural resources, including other wildlife of importance to Tribes, in part due to competition resulting in changes to predation habits or habitat selection. For example, as noted in section 3.4, the bear is honored by the Ute Mountain Ute, Southern Ute, and Ute Indian Tribe of the Uintah and Ouray Reservation in the bear dance (Southern Ute Indian Tribe 2022; Steward 1932). As discussed in section 3.2.1, *Gray Wolf*, wolves may directly compete with other predators for prey or habitat, including the black bear. Bears may kill or be killed by wolves. In some areas where wolves have been restored, competitors have changed their predation habits or habitat selection to avoid competition with wolves. Section 3.2.1, *Gray Wolf*, indicates that black bears occur throughout most of the western two-thirds of Colorado, and wolves have been documented to kill black bears on occasion. In the majority of these cases, wolves have outnumbered black bears, giving them a competitive advantage in interspecies conflicts.

Tribal Treaty Rights and Reservations

The introduction of wolves, along with those already living in and naturally dispersing into Colorado, may affect Tribal treaty rights, including those within the Brunot Area lands, for off-reservation hunting. The introduction of wolves may impact the population of elk, deer, other ungulates, and moose due to their presence within locations used for hunting (see also section 4.5, *Other Wildlife Species*, and section 4.7, *Socioeconomic Resources*).

Both the Ute Mountain Ute and the Southern Ute have Tribal treaty rights for hunting in the Brunot Area and agreements with the State of Colorado. Tribal rights are also maintained in the San Juan National Forest. As noted in the *San Juan National Forest and Resource Management Plan* (U.S. Forest Service 2021), “[in] exercising their Brunot hunting rights, the Ute Mountain Ute and Southern Ute Tribal members are required to adhere to federal policy and regulations designed to protect natural and cultural resources.”

Through predation and competition, the reintroduction of wolves could affect wildlife species that are hunted or used by the Tribes, such as elk, deer, and other ungulates. As discussed in section 4.5, wolves can influence other wildlife populations either directly (e.g., predation) or indirectly (e.g., behavioral modification of prey species and mesocarnivores). The reintroduction of wolves could cause prey species to change their feeding habits by avoiding areas where they could readily be ambushed or change their movement patterns and habitat preferences.

As a result, under the no-action alternative, elk and deer populations could decline in response to predation and other pressures as a result of wolf reintroduction. Section 4.5 indicates that the use of the no-action alternative could affect elk and deer over the long term because the Service and its designated agents would not have the flexibility to manage wolves to limit elk and deer population decline or facilitate recovery. In addition, the same could occur for pronghorn, wild sheep, and moose.

As discussed in section 4.7, hunting-related benefits are not anticipated to decline across the state; however, impacts may be experienced at a local level, where wolves may contribute to declines in big game herds.

Potential impacts associated with wolf depredation on domestic livestock are also discussed in section 4.7. Estimates show that roughly an average of 83 cattle and 31 sheep would be lost per year across the state. These numbers account for the entire state, rather than an individual location, such as one of the reservations.

Under this alternative, take would be allowed only as self-defense. Therefore, the Service or its designated agents would not have the ability to take wolves that depredate livestock. Consultation with the Service also would be required under section 7 of the ESA.

4.6.2 Alternative 1

Archaeological and Historical Resources

Impacts to archaeological and historical resources under alternative 1 are anticipated to be similar to those described for the no-action alternative. However, impacts to these resources, such as damage from dens and inhibiting access to sites, may be reduced indirectly through the management flexibility offered by the section 10(j) rule, which the Service and its designated agents may use to protect other resources, such as livestock, and to protect human safety. As noted above for the no-action alternative, the likelihood for conflict with wolves would be anticipated to be low due to the numbers of recorded sites present and probability that wolves may use these sites.

Natural Resources of Cultural Importance

Impacts to natural resources of cultural importance are anticipated to be similar to those described for the no-action alternative (e.g., competition between species resulting in changes to predation habits or habitat selection), although additional management options for the reintroduction of gray wolves would be available to the Service and its designated agents under alternative 1. An additional discussion of impacts on wildlife species is included in sections 4.4 and 4.5.

The Service further recognizes that “many Indians use federally protected birds, bird feathers and remains, and other animal and plant material for their Tribal cultural and religious expression. [The Service] will work in collaboration with Tribal governments to protect traditional, customary, ceremonial, medicinal, spiritual, and religious uses of plants and animals for Tribal members where it is not contrary to [the Service’s] legal mandates and conservation goals” (USFWS 2016).

Tribal Treaty Rights and Reservations

The Service outlines some of the methods for collaborative management of threatened and endangered species with Tribes in its Native American Policy, Part 510: Working with Native American Tribes. According to this policy, “There is a broad range of collaborative management opportunities available to the Service and Tribes. These opportunities include holding informative discussions to seek Tribal input, entering into formal agreements with Tribes, cooperatively setting harvest quantities, and sharing conservation management of resources” (USFWS 2016).

Under alternative 1, the draft rule as written would not allow the Service or its designated agents management flexibility to take wolves to reduce impacts from depredation on wild ungulate populations. Therefore, potential impacts to elk and deer would be similar to those described under the no-action alternative.

If population levels of elk and deer decline below established State and/or Tribal management goals as a result of wolf reintroduction, management flexibility, including nonlethal and/or lethal take, could be afforded to the Service and its designated agents under the alternative 1 optional provision. This provision would allow these entities to take wolves as a means to achieve established goals for the management of wild ungulate populations, if the Service determines that wolf predation is having an unacceptable impact on wild ungulate populations. As described in section 4.5, alternative 1 could have a beneficial impact on elk, deer, and other wild ungulates over the long term should this optional element be incorporated in the final rule because their populations would continue to be managed in accordance with established State or Tribal management objectives, despite additional pressures on their populations that would result from the reintroduction of wolves.

Tribes would be able to conduct wolf management to address depredation of livestock as designated agents of the Service within the experimental population boundary on reservation lands or on those lands under the Tribe’s jurisdiction. Tribes would be required to obtain prior approval from the Service before implementing certain management actions as outlined in Chapter 2. If a Tribe completes a management plan for gray wolves, and the

Service approves that plan, the Tribe would not be required to seek prior approval for activities implemented in accordance with the section 10(j) rule. These management actions could reduce potential impacts if wolves were allowed to occupy reservation lands and areas used to exercise Tribal treaty rights, such as hunting.

A similar approach was used under the final 10(j) rule for the experimental population of gray wolves in the northern Rocky Mountains region, where the Service's final 10(j) rule provided for recognition of the unique relationship between federal and Tribal governments. In this manner, the rule provided Tribes with the same opportunities on reservation lands that the Service offered to states for their land under their management authority. As a result, Tribes with Service-approved wolf management plans could assume the lead for management of wolves under the final 10(j) rule on their reservation lands (DOI 2005). "This rule also treats Tribal members' lands on reservations as private property within the borders of States with approved wolf plans, increasing wolf management flexibility to protect the private property of Tribal members. In addition, Tribal members who are legally grazing their livestock on public lands may protect them from wolf attack" (DOI 2005).

Due to the potential use of lethal and nonlethal take to address wolves that depredate livestock, the impacts associated with wolf reintroduction to livestock production by Tribes may be lower under alternative 1 when compared to the no-action alternative (see section 4.7 for additional information). This alternative provides more flexibility in managing the wolf reintroduction compared to the no-action alternative.

4.6.3 Alternative 2

Under alternative 2, the Service has allowed for the potential for an existing population of gray wolves to be present in Colorado. For analysis purposes, the Service is assuming the section 10(a)(1)(A) permit boundary would be located in the northern portion of the state within Jackson and Larimer Counties.

Potential impacts to Tribal cultural resources under alternative 2 would be similar to those described for the no-action alternative and alternative 1; however, the geographic location in which impacts may occur may vary due to the smaller boundaries of the experimental population area (i.e., excluding the section 10(a)(1)(A) permit area) compared to the entire state noted for alternative 1. Likewise, the requirements for lethal and nonlethal take would vary depending on the location of the wolves, i.e., within the permit boundary or in the experimental population boundary.

Archaeological and Historical Resources

Impacts to archaeological and historical resources under alternative 2 are anticipated to be similar to those described for alternative 1.

Natural Resources of Cultural Importance

Impacts to natural resources of cultural importance are anticipated to be similar to those described for the alternative 1.

Tribal Treaty Rights and Reservations

Under alternative 2, impacts to Tribal treaty rights and in the experimental population boundary would be similar to those as presented for alternative 1. However, alternative 2 would allow for lethal and/or nonlethal take to address livestock depredation and, if the optional element is adopted, to address potential impacts to wild ungulate populations, in most areas of the state except in areas where an existing population is identified, where section 10(a)(1)(A) would apply and only nonlethal take would be authorized.

4.7 SOCIOECONOMIC RESOURCES

4.7.1 Methodology

The purpose of this analysis is to examine the socioeconomic impacts of the Service implementing a regulatory framework to provide management flexibility for the State of Colorado's reintroduction of the gray wolf. The socioeconomic implications for outdoor recreation, agriculture, and livestock production are presented in a contextual analysis. Additionally, this analysis attempted to review qualitative sources to identify costs associated with lethal and nonlethal take, though literature on this topic is limited. Impacts to tourism were considered; however, the implementation of a regulatory framework under the ESA to manage wolves that would be reintroduced to Colorado under the State Plan is not expected to change tourism, either in a beneficial or adverse manner. Therefore, tourism was excluded from detailed analysis.

4.7.2 No-Action Alternative

Impact on Outdoor Recreation

Outdoor recreation contributes over \$800 million and 7,937 jobs to the Colorado economy (see Chapter 3). The no-action alternative could affect outdoor recreation, particularly hunting outfitters, and guides. Under the no-action alternative, there would be no take provisions, lethal or nonlethal, to address wolves if they reduce the population of big game ungulates below State or Tribal management objectives.

Hunting

Elk populations and hunter harvest have not fallen in Montana, Idaho, and Wyoming, where wolves were reintroduced in the mid-1990s. However, wolves' impact on large game varies locally. In the Greater Yellowstone ecosystem, where wolves and elk interact, elk numbers are steady or increasing in some areas but declining in others. When combined with other factors that limit prey populations such as harsh weather, other predators, and human hunters, predation by wolves is more likely to affect big game populations (Mech 2012). The presence of wolves can make big game warier, move more, and use habitat differently by seeking more cover, making hunting more difficult.

A decrease in elk populations could impact hunting by reducing the number of licenses issued and discouraging hunters in general (Miller 1982). A 2012 economic analysis developed a way to measure wolf impacts on elk harvest and used that as a proxy to access the impacts wolves have on the hunting industry (Hazen 2012). The study determined that wolves did not have a major impact on elk harvest in Montana statewide; however, wolves shifted the demand for big game hunting to other parts of the state where wolves were not introduced.

If ungulate herds fell below State or Tribal population goals or the presence of wolves altered the movement patterns of big game species and/or shifted demand for hunting to different parts of the state, then outfitters and guides could experience long-term localized consequences from the lack of flexibility for take presented in the no-action alternative. Additionally, a shift in hunting demand could decrease hunting revenues in localized areas. The same 2012 study found that the number of hunting applications decreased in parts of the state where wolves were present. In southwest Montana, the presence of wolves decreased hunter applications by almost 20 percent of the standard deviation (i.e., the background amount of variation in application numbers across the state). This decrease comprised 286 fewer applications. In the west-central part of the state, applications decreased by nearly 3 percent of the standard deviation (six fewer applications) (Hazen 2012). CPW uses hunting license fees to help fund agency operations. A decline in hunting applications could lead to decreased wildlife revenue for CPW, which may result in a decrease in funds available for wolf or other management operations. The State Plan released by CPW on December 9, 2022, discusses the need for funding to manage gray wolves; however, the plan does not identify funding sources (CPW 2022a).

Under the no-action alternative, the Service and its designated agents would not be allowed to take wolves through lethal or injurious take if wolf predation or activities impact the abundance or distribution of ungulates such that State or Tribal management objectives are not being met. The change in the abundance of big game could limit the ability of outfitters and guides to have access to ungulates and result in a loss of business, resulting in long-term, localized, adverse impacts to these businesses.

Impact on Agriculture and Livestock Production

Reintroduction of wolves by the State of Colorado would result in direct and indirect costs to livestock producers as a result of increased predation of livestock. Under the no-action alternative, only non-injurious opportunistic harassment could be permitted under section 10(a)(1)(A) of the ESA to address instances of livestock depredation. Livestock producers would have the fewest take options to manage wolf predation on their livestock and may incur the highest commercial costs due to depredation. Because the State would manage the reintroduction of gray wolves in phases, wolf depredation on domestic livestock statewide is anticipated to be minimal in the short term due to the initial low numbers and distribution of wolves. However, localized depredation may result in more substantial economic impacts to individual producers in the short term. As wolf recovery levels are approached and the number and distribution of wolves increase, losses due to livestock depredation are anticipated to increase. The direct cost livestock producers can anticipate due to wolf depredation is the fair market value of any livestock killed by wolves. Indirect costs that livestock producers may face could include: (1) livestock injuries, (2) lower birth weights of livestock, (3) smaller weight at sale, especially for calves and lambs, (4) property repairs to fences and buildings, (5) loss of silage and grains, (6) costs to implement nonlethal wolf-livestock conflict avoidance and reduction methods, and (7) time of landowners (Harris 2020). The State Plan includes a compensation program that could help offset some of the economic loss livestock producers would incur from wolf depredation of their livestock. However, compensation programs are not guaranteed to cover the total direct or indirect costs associated with a producer's losses.

Through a review of literature, Harris (2020) concluded that indirect economic losses often exceed the cost of replacing an animal killed by a wolf. On ranches where wolf-cattle depredation was proven, there was a negative and statistically significant effect of about 22 pounds on the average calf weight across the herd, presumably due to ineffective foraging behavior or stress on mother cows. (Ramler et al. 2014). According to two studies (Sommers et al. 2010; Steele et al. 2013), unconfirmed and indirect losses could be up to six times more than verified losses. However, other researchers concluded that these figures were exaggerated (Hebblewhite 2011).

Wolves can excessively kill smaller livestock such as calves, yearlings, sheep, and goats (surplus killing) because they are more defenseless, and they can stress animals, causing weight loss, sickness, and a decline in pregnancy rates of livestock, thereby decreasing the value of the livestock (Center for Human-Carnivore Coexistence 2020a). There are not many studies that estimate the indirect impacts that wolves have on calf weight. However, one study found a statistically significant effect on cattle calf weights on ranches with confirmed wolf predation. Furthermore, calves pastured on a ranch with confirmed depredation were 3.5 percent lighter than those without depredation. The resulting weight loss equaled an average of \$6,679 loss in revenue for the ranchers in the study's sample population.² When extrapolated to western Montana, the study found that weight loss of cattle due to wolf depredation would result in a loss of \$247,130 (Ramler et al. 2014). Another study analyzed how wolves affect ranch profitability using a 400-head cow-calf ranch in Wyoming and found that short-run financial impacts of indirect effects are potentially as large or even more prominent than those of direct wolf predation. Decreased conception rates and a decline in weaning weights had a negative effect on the year-to-year profitability of the

² Based on a sample of 18 ranchers in western Montana.

ranch, reducing the short-run profitability by \$10,250 to \$12,855, which was comparable to or larger than the direct average predation loss of \$10,778 (Steele et al. 2013).

The direct economic impact from livestock depredation on ranchers is calculated by multiplying the estimated number of lost animals per year by the market value. However, calculating direct economic losses is made challenging by the lack of availability of accurate depredation data. For example, in 2014, the National Agricultural Statistics Service (NASS) reported that wolves in Montana, Idaho, and Wyoming killed 2,835 cattle and 453 sheep. In contrast, the Service reported that wolves killed 114 cattle and 136 sheep (USFWS et al. 2016). Data from the Service likely underestimate losses due to the omission of undiscovered or unreported predation. The NASS numbers are likely inflated because livestock farmers self-report their data (Hoag et al. 2022). Available depredation data suggest that livestock being killed by wolves is a small economic cost to the livestock industry. Literature often uses the example that direct losses from wolf depredation on cattle and sheep accounted for less than 1 percent of the gross income from livestock operations in the northern Rocky Mountains between 1987 and 2003³ (Muhly and Musiani, 2009), drawing the conclusion that wolf depredation's impact on the livestock industry is minimal. However, those costs are not evenly distributed, and this example understates the high costs that individual producers incur (Hoag et al. 2022). Both direct and indirect losses could substantially affect the livelihood of individual ranchers operating on thin profit margins in volatile markets. Though not widely researched some livestock producers are more vulnerable to wolf predation than others. Factors that potentially determine which producers are more likely to experience wolf predation on their livestock include where livestock are grazed, livestock type, the type of operation (i.e., range versus pasture operations), and how much the livestock are protected (Center for Human-Carnivore Coexistence 2020a).

Economic Loss

The following equation was taken from the *Final EIS for the Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho* to estimate the annual depredation in Colorado and the 21 focal counties (USFWS 1994). Estimating depredation rates should be done with caution, as mentioned in the Yellowstone National Park EIS, because the terrain, vegetation, weather, farm size, husbandry practices, and prey populations vary between places. However, to assess the possible impacts of the wolf population on livestock, the following equation was constructed to standardize depredation rates from a reference area outside Colorado (Wyoming) in relation to total livestock in the wolf range and wolf populations. Table 4-1 provides livestock totals for Colorado, the 21 focal counties, and Wyoming.

$$\frac{\text{No of livestock in Analysis Area}}{\text{No. of livestock in Other Area}} \times \frac{\text{No. wolves in Analysis Area}}{\text{No. wolves in Other Area}} \times \text{Mean annual depredations (other study area)} \\ = \text{Estimated annual depredations in Analysis Area}$$

Table 4-1. Livestock Totals in Colorado, 21-Focal Counties, and Wyoming

Livestock	Colorado (Statewide Study Area)	21 Focal Counties	Wyoming
Cattle ^a	1,498,000	467,400	1,241,000
Hogs	737,663	5,546	89,780
Sheep	414,672	172,331	367,702
Goats	48,869	18,370	14,191
Other	6,612,712	463,875	108,667
Total Livestock	9,311,916.00	1,127,522	1,821,340

³ During this period, gray wolves were managed as federally listed endangered species in the region.

Source: 2017 USDA-NASS

^a Excludes dairy cows and cattle on feedlots.

According to the Wyoming Gray Wolf Monitoring and Management 2021 Annual Report, the WTGMA had 161 wolves in 2021. Wolves killed or injured 109 livestock statewide (50 cattle, 53 sheep, 5 livestock guarding dogs, and 1 horse), killed 39 livestock in the WTGMA, and 37 livestock in the seasonal WTGMA. Conflicts between wolves and livestock in the WTGMA were the lowest since 2010, whereas conflicts in the seasonal WTGMA and year-round predatory animal area increased. Table 4-2 provides data on confirmed wolf-livestock conflicts (injuries and kills).

Table 4-2. Confirmed Wolf-Livestock Conflicts and in the Wyoming WTGMA and Seasonal WTGMA by Calendar Year and Mean Annual Depredations

	Cattle	Sheep	Dogs	Other
2021	38	32	5	1
2020	51	12	1	10
2019	48	0	0	2
2018	55	7	0	2
2017	87	22	1	0
2016	141	47	0	0
2015	81	36	0	1
2014	60	3	0	0
2013	44	19	1	2
2012	46	69	4	0
2011	41	0	0	0
2010	26	1	0	1
2009	15	40	0	1
2008	38	16	0	0
Mean Annual Depredation	55	22	1	1

Source: Wyoming Game and Fish Department et al. 2022

When this equation was applied to conditions in the Colorado statewide study area and the 21 focal counties using the long-term planning estimate of 200 wolves and Wyoming data for comparison, an estimated 83 cattle and 31 sheep could be killed or injured by 200 wolves⁴ statewide annually, while 26 cattle and 13 sheep could be killed or injured in the 21 focal counties annually. Ranchers in Colorado would pay direct and indirect costs as a result of wolf predation on their livestock. The direct expenses incurred by livestock producers would be the total value loss of their livestock, or, in this case, the total value loss of cows and sheep. There would be an estimated loss of \$192,377.91 in the statewide study area and \$61,357.92 in the 21 focal counties annually. As previously

⁴ A population of 200 wolves is a planning estimate and the high-end threshold at which the State anticipates delisting the gray wolf at the state level and managing the species as a delisted, nongame species (see section 2.4). The planning estimate of 200 wolves was used for both the statewide study area and the 21 focal counties. However, it is likely the number of wolves occurring in the 21 focal counties would be less than the number of wolves across the state.

mentioned, livestock producers also would incur indirect costs as a result of wolf predation on their livestock, including costs associated with nonlethal injuries to livestock, decreased conception rates, decreased livestock weight (especially of calves and lambs), and costs associated with repairing fences and buildings, as well as silages and grain losses (Harris 2020).

A survey of Arizona cattle ranchers gathered information on the costs associated with nonlethal wolf-livestock conflict avoidance and reduction methods. On average, ranchers spent between \$5,700 and \$6,000 per year on range riders, \$1,000 to \$15,000 per year on changing pasture rotation or transporting cattle to another location, \$300 to \$700 per each removal of livestock carcasses, and between \$20,000 and \$30,000 per year on purchasing cattle feed for cattle moved off their range. The total annual cost incurred by these ranches ranged from \$500 to \$52,000, with an average of \$19,407. In addition, these ranchers reported expenditures connected with implementing preventive measures. The annual investment ranged from 17 to 1,555 hours, or around 30 hours each week (Bickel et al. 2020). This analysis uses data from Bickel et al. 2020 to estimate indirect costs for Colorado livestock producers. However, these indirect costs are not all-inclusive of the indirect costs livestock producers face and likely understate total indirect costs. Using this data, Colorado livestock producers would incur an estimated \$37,042.00 in indirect costs annually (see table 4-3).

Table 4-3. Estimated Annual Economic Costs Associated with Livestock Depredation in Statewide Study Area and the 21-County Study Area

	Colorado	21 Focal Counties
Cattle Loss	83	26
Sheep Loss	31	13
<i>Direct Costs</i>		
Total Market Value Lost (Cattle)	\$182,058.01	\$57,030.22
Total Market Value Lost (Sheep)	\$10,319.90	\$4,327.70
Total Direct Costs	\$192,377.91	\$61,357.92
<i>Indirect Costs</i>		
Preventive Management Practices	\$19,507.00	\$19,507.00
Cost of Implementing Preventive Management Practices	\$17,535.00	\$17,535.00
Total Indirect Costs	\$37,042.00	\$37,042.00
Total Costs	\$229,419.91	\$98,399.92

Under the no-action alternative, the gray wolf would be managed in Colorado as a federally listed endangered species, and lethal and injurious take of wolves to reduce repeated livestock depredation would be prohibited. As a result, ranchers would experience the greatest economic loss under the no-action alternative. Without the management flexibility to take wolves, wolf depredation may cost livestock producers in the statewide study area and 21 focal counties \$229,419.91 and \$98,399.92, respectively, including direct and indirect costs on an annual basis. The estimated percent of livestock depredation would be 0.0067 percent of the total value of cow and sheep sales in the statewide study area and 0.0029 percent of the total value of cow and sheep sales in the 21 focal counties. However, these numbers underestimate the economic burden that livestock depredation could have on individual livestock producers. The factors that determine why certain producers are more susceptible to wolf predation than others have not been widely studied. However, the degree to which producers are vulnerable to wolf predation is likely contingent on where livestock are grazed (some regions have more wolf activity than

others), the type of livestock (sheep are more vulnerable than cattle), the type of operation (e.g., cow/calf versus stocker⁵), range versus pasture operations, and the level of livestock protection (Center for Human-Carnivore Coexistence 2020b).

Table 4-4. Estimated Annual Economic Costs Associated with Livestock Depredation in Statewide Study Area and the 21-County Study Area

	Colorado	21-Focal Counties
Total Market Value of Cattle in Colorado	\$3,285,821,000	
Cattle Inventory in Colorado (Excludes Dairy Cows)	1,498,000	
Total Market Value of Sheep in Colorado	\$138,044,000	
Sheep Inventory in Colorado	414,672	
Total Market Value of Cattle and Sheep in Colorado	\$3,423,865,000	
Cattle Lost	83	26
Average Market Value Per Cow ^a	\$2,193.47	\$2,193.47
Total Market Value of Lost Cows ^b	\$182,058.01	\$57,030.22
Sheep Lost	31	13
Average Market Value Per Sheep ^c	\$332.90	\$332.90
Total Market Value of Lost Sheep ^d	\$10,319.90	\$4,327.70
Total Market Value of Cattle and Sheep Loss (Direct Costs) ^e	\$192,377.91	\$61,357.92
Total Market Value of Cattle and Sheep Loss (Indirect Costs)	\$37,042.00	\$37,042.00
Total Costs	\$229,419.91	\$98,399.92
Percent Of Value Loss ^{f, g}	0.0067%	0.0029%

Source: 2017 USDA-NASS Census

- ^a Average market value per cow value = Total market value of cattle in Colorado divided by Cattle inventory in Colorado (\$3,285,821,000 ÷ 1,498,000 = \$2,193.47)
- ^b Total market value of lost cows = Cattle lost multiplied by Average market value per cow (83 x \$2,193.47 = \$182,058.01) and (26 x \$2,193.47 = \$57,030.22)
- ^c Average market value per sheep = Sheep Sales divided by Inventory (\$138,044,000 ÷ 414,672 = \$332.90)
- ^d Total market value of lost sheep = Sheep lost multiplied by Average market value per sheep (31 x \$332.90 = \$10,319.90) and (13 x \$332.90 = \$4,327.70)
- ^e Total market value of cattle and sheep loss (direct cost) = Total market value of lost cows + Total market value of lost sheep \$182,058.01 + \$10,319.90 = \$192,377.91) and (\$57,030.22 + \$4,327.70 = \$61,357.92)
- ^f Percent of value loss = Total Costs divided by Total market value of cattle and sheep in Colorado \$229,419.91 ÷ \$3,285,821,000 = 0.0067%) and \$98,399.92 ÷ \$3,285,821,000 = 0.0029%)
- ^g The percent of value loss in the statewide study area and 21 focal counties is calculated against the total market value of cattle and sheep statewide.

According to the Colorado Department of Agriculture, agriculture contributes \$47 billion to the state's economy and employs more than 195,000 people. Furthermore, the cattle business generates more than \$4 billion in annual sales. Therefore, predator-caused livestock loss impacts business profitability, the business's contribution to the local economy, and community economics. According to the USDA Economic Research Service, the agriculture multiplier is around 2.6, which means that every dollar in agricultural profit invested in the economy is reinvested

⁵ Refers to weaned calves grazing pasture to enhance growth prior to finishing and slaughter; they are usually younger, weigh less, and are of lower condition (finish) than "feeders."

2.6 times back into that economy. Therefore, the economic loss that ranchers face due to livestock depredation by wolves would indirectly impact the local economies within the statewide study area and the 21 focal counties. For the 21 focal counties collectively, one cow contributes \$1,652.64 to the 21 focal counties' economies (see table 4-5). Therefore, the loss of 26 cows in the 21 focal counties due to depredation would result in \$42,968.64⁶ that would not be reinvested back into the 21 focal counties.

Table 4-5. Economic Contribution of Livestock in the 21 Focal Counties Respective to their Local Economies

Counties	Market Value of Cattle Sold	Inventory of Cattle and Calves	Market Value Of Cattle/Calves (Per Animal)	Per Animal Contribution to Local Economy
Archuleta	\$9,342,000.00	8,487	\$1,100.74	\$2,861.93
Custer	\$4,865,000.00	8,387	\$580.06	\$1,508.17
Delta	\$21,272,000.00	40,550	\$524.59	\$1,363.93
Dolores	\$2,413,000.00	5,052	\$477.63	\$1,241.84
Eagle	\$4,812,000.00	9,513	\$505.83	\$1,315.17
Garfield	\$21,057,000.00	34,267	\$614.50	\$1,597.69
Grand	\$9,533,000.00	17,031	\$559.74	\$1,455.33
Gunnison	\$15,821,000.00	23,819	\$664.22	\$1,726.97
Huerfano	(D) ^a	17,144	N/A	N/A
Jackson	\$19,735,000.00	22,758	\$867.17	\$2,254.64
La Plata	\$11,340,000.00	21,301	\$532.37	\$1,384.16
Larimer	\$31,604,000.00	57,507	\$549.57	\$1,428.88
Mesa	\$27,989,000.00	46,952	\$596.12	\$1,549.91
Moffat	\$20,106,000.00	34,663	\$580.04	\$1,508.11
Montezuma	\$15,337,000.00	26,889	\$570.38	\$1,482.99
Montrose	\$33,962,000.00	53,051	\$640.18	\$1,664.46
Ouray	\$3,362,000.00	4,395	\$764.96	\$1,988.90
Rio Blanco	\$14,436,000.00	25,253	\$571.65	\$1,486.30
Routt	\$23,648,000.00	24,882	\$950.41	\$2,471.06
Saguache	\$13,873,000.00	21,264	\$652.42	\$1,696.28
San Miguel	\$5,313,000.00	1,399	\$3,797.71	\$9,874.05
Total (21 Focal Counties)^b	\$309,820,000.00	487,420	\$635.63	\$1,652.64

Source: 2017 USDA-NASS Census

^a If publishing a particular data item would identify an operation (for example, if there is only one producer of a particular commodity in a county), NASS does not publish the information. In such cases, the data are suppressed and shown as "(D)," meaning "withheld to avoid disclosing data for individual operations." A dash represents zero, no data for that particular data item. Source: <https://www.nass.usda.gov/AgCensus/FAQ/2022/index.php>

^b Totals omit data for Huerfano County.

⁶ (\$1,652.64 x 26 = \$42,968.64)

4.7.3 Alternative 1

Under alternative 1, gray wolves reintroduced in Colorado would be managed as an experimental population under section 10(j) of the ESA. The section 10(j) rule would specify the allowable take of gray wolves and would include lethal and nonlethal take provisions.

Impact on Outdoor Recreation

Currently, the draft section 10(j) rule does not allow for take of wolves to mitigate potential impacts to ungulate populations. Therefore, impacts to outdoor recreation outfitters and businesses in Colorado under alternative 1 would be similar to the impacts described under the no-action alternative. As noted under the no-action alternative, hunting permit applications may decrease in areas where wolves are present under alternative 1. In addition, the presence of wolves could cause big game herds to move to locations inaccessible to outfitters and guides. This could cause short-term, adverse impacts to guides and outfitters who may need to adjust operations and leases for elk hunting.

If the optional provision allowing take to mitigate impacts to ungulate populations is adopted, alternative 1 would have long-term, beneficial impacts on outdoor recreation outfitters and businesses in Colorado compared to the no-action alternative. The Service and its designated agents could use nonlethal and/or lethal management actions that would result in take to mitigate the risk of ungulate populations decreasing below State or Tribal population goals. The implementation of a section 10(j) rule with the optional provision would not address the movement of ungulate herds, only a reduction in population numbers. As a result, there would be long-term benefits from the ability to address a reduction in ungulate populations, but adverse impacts on these businesses may still occur from the potential movement of ungulate populations. Adverse impacts could also result in a decrease in demand for permits in areas of the state where wolves are present, similar to what was measured in the 2012 study.

If the optional provision is adopted, take may be authorized to mitigate impacts to ungulate populations under the conditions outlined in table 2-2 but would not be authorized in response to business needs.

Impact on Agriculture and Livestock Production

Under alternative 1, the Service and its designated agents would have the greatest management flexibility in managing wolves that would be reintroduced to mitigate impacts from depredation of livestock. The proposed section 10(j) regulation under alternative 1 would include the entire state of Colorado and authorize lethal and nonlethal take to mitigate wolf-livestock conflicts and manage wolves that recurrently predate livestock. Alternative 1 would reduce long-term costs associated with depredation for livestock producers compared to the no-action alternative, but it may not eliminate indirect economic losses (e.g., loss of revenue from livestock injuries, lower weights at birth and during sale property repairs, time).

Lethal wildlife removal measures are frequently viewed as more efficient and cost-effective than nonlethal wildlife conflict mitigation tools for minimizing cattle predation. Limited studies specific to gray wolves or comparable species are available that assess the cost effectiveness of lethal versus nonlethal conflict mitigation tools (McManus et al. 2015). One nonlethal method of managing wolves that prey on livestock is wolf translocation. Compared to lethal removal, the translocation of wolves away from conflict sites showed advantages and disadvantages. In the earliest periods of wolf recovery, when promoting the formation of new packs was a high priority, soft releasing and translocating family units may be beneficial ways to reduce homing behavior, although initially more expensive. Such activities may prove useful for reducing conflicts and laying the groundwork for long-term coexistence promotion within communities (Bradley et al. 2005). Livestock protection dogs or guarding dogs are another nonlethal method used to reduce predation on ranches. There is a lack of quantitative data on the exact effectiveness of guarding dogs primarily because research on their effectiveness in deterring predators from killing livestock has primarily relied on testimonial evidence and producer-based

reporting (Davidson and Gehring 2010). Studies show effectiveness from 11 percent to 93 percent reduction in livestock depredation from the use of guard dogs (Coppinger et al. 1998). However, the majority of this research focuses on coyote predation on sheep. One consideration for guarding dogs is that, in most cases, the government does not provide financial support for utilizing them. The livestock producer must incur all financial expenditures connected with using guarding dogs (Davidson and Gehring 2010).

There are some examples of costs associated with lethal versus nonlethal removal measures. In 2014 the Washington Department of Fish and Wildlife spent \$53,221 to manage the Huckleberry Wolf Pack depredation of sheep in Stevens County, Washington, using nonlethal and lethal take strategies (Landers 2014). The costs to mitigate the pack's attack on sheep was split almost evenly between nonlethal and lethal actions. However, nonlethal methods were slightly less costly than lethal take methods. The cost of lethal removal of wolves in states such as Idaho and Washington ranged from approximately \$3,000.00 to \$26,700.00 per wolf. In 2021, the Idaho Department of Fish and Game reportedly killed 22 wolves, incurring costs of a little over \$3,000 per wolf (Western Watersheds Project 2021). In the state of Washington, in 2012, Washington Department of Fish and Wildlife spent \$376,000 on wolf management, of which \$76,500 was for lethally removing six wolves (\$12,750 per wolf) from the Wedge Pack in Colville National Forest of continual predation on Diamond M Ranch livestock (Stevens County Cattleman's Association 2012). In 2014, Washington Department of Fish and Wildlife paid \$26,671.00 to remove one wolf lethally, and in 2016, it spent \$135,000 to kill seven gray wolves (\$19,285.61 per wolf) from the Profanity Peak Pack for attacking 15 cattle, which was the most expensive lethal removal since the state adopted its wolf recovery plan.

Livestock producers may need to employ several nonlethal and lethal methods to mitigate wolf predation on their livestock. Since alternative 1 would authorize both lethal and nonlethal take, livestock producers would need to weigh the expenses of deploying various take tactics against the economic loss caused by livestock predation. The no-action alternative would prevent livestock producers from the take of wolves that repeatedly prey on their livestock, potentially becoming more costly to livestock producers than in alternative 1 if producers could employ lethal and nonlethal strategies.

4.7.4 Alternative 2

Under alternative 2, if there is an existing population of gray wolves in Colorado, the Service would issue a permit under section 10(a)(1)(A) of the ESA for the management of the population outside the section 10(j) experimental population boundary. A section 10(a)(1)(A) permit, like a section 10(j) rule, offers some management flexibility for populations. Within the 10(a)(1)(A) area, wolves would be listed as endangered, and certain nonlethal take would be allowed. However, no lethal take would be allowed in this boundary. The Service would establish the 10(j) experimental population boundary in those areas of the state not encompassed by the section 10(a)(1)(A) permit.

Impact on Outdoor Recreation

Under alternative 2, socioeconomic impacts in the experimental population boundary under the section 10(j) rule would be the same as those described for alternative 1. Inside the 10(a)(1)(A) permit area, outfitters and guides would experience outcomes similar to those described under the no-action alternative. Take of wolves to mitigate potential impacts to wild ungulate populations would not be allowed under the section 10(a)(1)(A) permit unless the optional provision is adopted, and lethal take would not be allowed in the 10(a)(1)(A) permit area regardless of whether the optional provision is adopted. Outfitters and guides in areas where wolves are present may be economically affected by a shift in demand for big game hunting to areas without wolves.

Impact on Agriculture and Livestock Production

Under alternative 2, livestock operators within the limited territory of section 10(a)(1)(A) permit would experience impacts similar to those described under the no-action alternative. Ranchers would incur higher direct and indirect costs because they would have fewer take options to manage wolf predation on their livestock. Ranchers outside the 10(a)(1)(A) permit area would have more flexibility in managing conflicts with wolves and impacts in that area would be the same as those described under alternative 1. Like alternative 1, alternative 2 would allow for lethal and/or nonlethal take in most areas of the state except in parts of Jackson County and western Larimer County, where section 10(a)(1)(A) would apply. The 10(a)(1)(A) permit could apply to other areas of the state if the existing population of wolves is found to occupy other areas.

Livestock producers in the section 10(a)(1)(A) permit area would only be allowed to use nonlethal forms of take to manage wolf depredation. As a result, these producers may disproportionately incur more direct and indirect costs from wolf depredation than those within the experimental population boundary.

4.8 ENVIRONMENTAL JUSTICE

Sections 4.5, 4.6, and 4.7 assess the potential impacts of the alternatives to big game species, Tribal cultural resources, and socioeconomic resources. The analysis in this section addresses whether the identified potential adverse impacts to these resource areas would be disproportionately borne by the low-income, minority, and Tribal environmental justice communities identified in section 3.6.

4.8.1 Methodology

Executive Order 12898 charges each federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States” (59 FR 7629 §1-101). A proposed action may result in adverse impacts to the entire population; however, factors that specifically affect minority, low-income, and other populations groups of concern (i.e., environmental justice communities) can result in these adverse impacts being disproportionately high and adverse for environmental justice communities. These factors could include limited access to financial resources, language or cultural barriers, increased exposure to the adverse effects of an action, or lack of inclusion in the planning process.

Environmental justice communities in the statewide study area are identified in section 3.6. Disproportionately high and adverse impacts to these communities are assessed based on the community’s potential exposure to the effects of an alternative. In this case, exposure is determined based on the potential for conflict with wolves that would require management through take under the section 10(j) rule. Potential exposure is likely to be highest in the 21 focal counties that contain suitable ecological conditions to support gray wolves (see section 3.1 for additional discussion of the factors used to determine the focal counties). Focal counties with identified minority environmental justice communities include Eagle, Garfield, Huerfano, Saguache, and Montezuma. Focal counties with low-income environmental justice communities include Delta, Gunnison, Huerfano, La Plata, Larimer, Mesa, Moffat, Montezuma, Montrose, Rio Blanco, Saguache, and San Miguel. Within these counties and the other focal counties, other population groups of concern, including low-income and minority livestock producers and outfitters and guides, as well as members of American Indian Tribes, have a greater risk of experiencing potentially high and adverse impacts. Therefore, the effects analysis focuses primarily on the potential for disproportionately high and adverse impacts to these population groups of concern. While the focal counties are considered locations where conflicts are most likely to occur, the environmental justice analysis considers the entire statewide study area.

A disproportionately high and adverse impact is identified if an environmental justice community is exposed to potentially adverse effects of an alternative, and these impacts would be greater in severity for the environmental justice community compared to the general population in the reference community (i.e., the state of Colorado). For example, economic losses resulting from an alternative may result in the loss of a greater percentage of a low-income livestock producer's total farm-related income, compared to the percentage of total farm-related income lost for a producer with average or higher than average income. A disproportionately high and adverse impact is declared when the differences in severity are substantial enough to merit agency action such as mitigation. An impact may be considered disproportionately high and adverse without being considered a "significant" impact under NEPA. Based on current NEPA guidance, economic or social impacts of a proposed action are not considered significant unless they are interrelated with impacts to the natural or physical environment (Federal Interagency Working Group on Environmental Justice & NEPA Committee 2016).

The analysis of environmental justice impacts considers potential long-term impacts and assumes that wolves could occur in any county throughout the state but are most likely to occur in the focal counties. This EIS uses a population of 200 wolves as a planning estimate, which is the high-end threshold at which the State would delist the gray wolf and manage the species as a delisted, nongame species (see section 2.4). While environmental justice impacts may occur only as isolated incidents (e.g., one-time predation of livestock), the potential for impacts would occur over the long term; therefore, the impacts discussed in this section are considered to be long-term impacts.

4.8.2 No-Action Alternative

As noted in section 4.3, populations of elk, deer, and other big game ungulate species could decline below State or Tribal management objectives as a result of the State's reintroduction of wolves. Under the no-action alternative, gray wolves would be managed as an endangered species in Colorado, and the Service and its designated agents would not have the ability to take wolves to promote conservation of big game ungulate species (see section 2.4.2, table 2-1). Impacts to big game ungulate species could be long term and adverse at the local level. However, as noted in section 4.3, elk and deer populations may stabilize over the long term due to natural population fluctuation.

Changes in populations of ungulate species, as well as depredation of livestock, under the no-action alternative could affect Tribal cultural resources. Potential impacts to Tribal cultural resources are discussed in section 4.6 and could include economic costs as a result of livestock depredation and changes in ungulate herd movements or demand for hunting permits; effects to subsistence hunters; and effects to archaeological and historical resources or natural resources of cultural importance. Management of reintroduced wolves under the no-action alternative would not affect osprey, which are protected by the Southern Ute Tribe or have population-level effects on the black bear, which is honored by the Ute Mountain Ute and Southern Ute Tribes. This alternative may affect archaeological or historical sites and the ability of Ute cultural practitioners to use these sites. Socioeconomic impacts to Tribes under this alternative would be similar to the impacts discussed below and in section 4.7. If wolves are present within the Brunot Area lands or on Tribal reservations, localized impacts could be disproportionately high and adverse for Tribal members, particularly those who rely economically on livestock production or hunting and those who rely on subsistence hunting.

The no-action alternative could also result in socioeconomic impacts to outfitters and guides who make their living through wildlife hunting because demand for hunting may shift to areas of the state where wolves are not present. An economic analysis of wolves in Montana concluded that, "overall, wolves have not had a significant economic effect on elk harvest in the state. Rather, demand for hunting shifted from the southwest region near Yellowstone [National Park] to areas farther away from where wolves were first introduced" (Center for Human-Carnivore Coexistence 2020b; Hazen 2012). The lack of regulatory flexibility for take under this alternative could

result in greater long-term, localized impacts to outfitters and guides as a result of the potential for big game ungulate herds to be reduced below State or Tribal population goals, changes in the use of habitat by and movements of big game species, and redistribution of hunting demand to other areas of the state. These localized impacts could be disproportionately high and adverse for low-income and minority individuals and businesses that rely on hunting.

The impacts analysis for socioeconomic resources in section 3.5 notes that of the three alternatives, the no-action alternative would result in the highest commercial costs for ranchers because wolves would be managed as a federally listed endangered species, and take of wolves to mitigate repeated depredation of livestock, with the exception of non-injurious, opportunistic harassment that could be authorized under section 10(a)(1)(A) of the ESA, would be prohibited. Studies have found that livestock mortality caused by wolves is a small economic cost to the livestock production industry as a whole (Center for Human-Carnivore Coexistence 2020a; Muhly and Musiani 2009). In the northern Rocky Mountain region (Idaho, Montana, and Wyoming) between 1987 and 2003, the economic costs of livestock mortality caused by wolves accounted for less than 1 percent of annual gross income from livestock operations in the region. During this period gray wolves were managed as federally listed endangered species in the region (Muhly and Musiani 2009).

While wolf depredation in circumstances when take is prohibited results in a relatively small economic cost to the livestock industry, these costs are unevenly distributed and localized in places where wolves establish territories, and costs to individual producers as a result of depredation may be substantial (Center for Human-Carnivore Coexistence 2020a; Muhly and Musiani 2009). Potential direct and indirect costs to livestock producers that may result from depredation are discussed in section 4.7.2. Individual producers may experience economic costs greater than the average for the industry across Colorado as a result of wolf depredation of livestock and costs associated with implementing nonlethal, non-injurious take strategies. For low-income and minority livestock producers, these costs, as well as indirect economic costs such as those caused by decreased market weights and reduced rate of conception in livestock, could be substantial under the no-action alternative. Therefore, this alternative could result in disproportionately high and adverse impacts to low-income and minority livestock producers, particularly in the focal counties due to the presence of suitable ecological conditions for gray wolves. Under this alternative, these impacts would not be mitigated because reintroduced gray wolves would be managed as an endangered species under the ESA.

4.8.3 Alternative 1

Under the statewide section 10(j) rule, gray wolves that would be reintroduced to Colorado would be managed as an experimental population under the section 10(j) rule. Currently, the draft section 10(j) rule does not allow for take of wolves to mitigate potential impacts to ungulate populations. Impacts to population groups of concern, including Tribes, subsistence hunters, and low-income and minority outfitters and guides, under alternative 1 would be similar to those described under the no-action alternative. However, if the optional provision allowing take of wolves to mitigate potential impacts to ungulate populations is adopted, the Service and its designated agents would be able to manage reintroduced wolves using nonlethal and/or lethal take for the purposes of managing big game species and other wildlife consistent with established State or Tribal management objectives, if the State or respective Tribe has determined that wolf interactions are a major driver of population declines. Therefore, alternative 1 with the optional provision could have a long-term, beneficial impact on big game and other wildlife species. Implementation of the section 10(j) rule with the optional provision would mitigate the potential for big game species to decline below State or Tribal management objectives as a result of predation by gray wolves by allowing the State or Tribes to continue to manage big game species in accordance with established management goals.

Under alternative 1, Tribes would be able to conduct wolf management as designated agents of the Service within the experimental population boundary on reservation lands or on those lands under the Tribe's jurisdiction. Tribes would be required to obtain prior approval from the Service before implementing certain management actions as outlined in Chapter 2. If a Tribe completes a management plan for gray wolves, and the Service approves that plan, the Tribe would not be required to seek prior approval for activities implemented in accordance with the section 10(j) rule. Implementation of the section 10(j) rule on reservation lands or lands under a Tribe's jurisdiction would reduce potential impacts if wolves depredate livestock on these lands. While socioeconomic effects on livestock producers still could occur under this alternative, these effects would be mitigated by involving affected Tribes in processes to manage reintroduced wolves in accordance with the section 10(j) rule. Disproportionately high and adverse effects on Tribes could still occur under alternative 1 as a result of potential effects on subsistence hunters and Tribal outfitters and guides; however, implementation of the section 10(j) rule would mitigate potential effects on Tribal livestock producers. With implementation of the optional provision, disproportionately high and adverse effects on Tribes are not expected under alternative 1.

Disproportionately high and adverse effects could occur for low-income outfitters and guides in local areas, including Tribal members who use the Brunot Area for hunting, based on the factors discussed under the no-action alternative. Under alternative 1, these effects would be similar to the effects described for the no-action alternative. However, with implementation of the optional provision, the potential for disproportionately high and adverse impacts would be reduced under alternative 1 compared to the no-action alternative because the optional provision would provide the flexibility to manage reintroduced wolves using lethal and nonlethal take to prevent significant declines in populations of big game species.

Under alternative 1, the proposed section 10(j) rule would cover the entire state of Colorado and allow non-injurious, injurious, and lethal take under the conditions specified in table 2-2 to reduce conflicts and manage wolves that repeatedly depredate livestock. Direct costs to livestock producers over the long term resulting from depredation would be lower under this alternative, compared to the no-action alternative; however, implementation of alternative 1 may not fully mitigate against indirect economic losses caused by stresses to livestock (i.e., lower market weights and reduced rate of conception). Livestock producers also would incur costs i.e., money, time, and labor) for implementing nonlethal take strategies, and these costs may be more substantial for low-income and minority livestock producers. Overall, implementation of alternative 1 would result in a long-term, beneficial impact to low-income and minority livestock producers compared to the no-action alternative. The potential for disproportionately high and adverse impacts to low-income or minority livestock producers would be reduced under this alternative compared to the no-action alternative because livestock producers would be able to implement a range of nonlethal and lethal take strategies to mitigate livestock depredation.

4.8.4 Alternative 2

Under alternative 2, potential effects to population groups of concern, including Tribal members, subsistence hunters, and low-income and minority outfitters and guides from the potential effects of wolves on ungulate populations would be the same as those described under alternative 1 within the proposed experimental population boundary, which would cover most of the state. These effects could be disproportionately high and adverse under alternative 2 but could be mitigated if the optional provision is adopted.

A portion of the state, potentially including most of Jackson County and the western part of Larimer County (areas within Colorado big game management units 161, 6, 7, 16, 17, and 171) would be covered under a section 10(a)(1)(A) permit that the Service would issue to the State of Colorado under alternative 2. It is important to note that an existing population of gray wolves may be identified in areas of the state outside this potential section 10(a)(1)(A) permit boundary. Therefore, the impacts discussed below for alternative 2 may occur in other areas of the state. The section 10(a)(1)(A) permit, like the draft rule, would not allow take of wolves to reduce impacts to

wild ungulates, and effects to population groups of concern in the 10(a)(1)(A) permit area would be similar to those described under the no-action alternative and could be disproportionately high and adverse.

If the optional provision is adopted in the draft rule, a similar provision in the section 10(a)(1)(A) permit would allow nonlethal take of wolves to reduce impacts to wild ungulates. Within the area covered under the section 10(a)(1)(A) permit, only nonlethal take to reduce impacts to wild ungulates would be allowed. While lethal take of gray wolves would be prohibited within the section 10(a)(1)(A) permit boundary, alternative 2 with the optional provision would still provide the Service and its designated agents flexibility to manage reintroduced gray wolves and an existing population of gray wolves to meet State or Tribal population goals for big game ungulate species.

Impacts to people who rely on hunting for subsistence, Native American Tribes, and outfitters and guides would be similar to the impacts described under alternative 1 and could be disproportionately high and adverse. With adoption of the optional provision, disproportionately high and adverse impacts to Tribes are not expected because Tribes could implement the section 10(j) rule including the optional provision as designated agents of the Service as discussed under alternative 1, which would mitigate potential effects. Disproportionately high and adverse impacts to low-income and minority population groups of concern could occur in local areas even with adoption of the optional provision, but the potential for these impacts would be reduced compared to the no-action alternative and similar compared to alternative 1.

Under alternative 2, impacts to low-income and minority livestock producers in areas within the section 10(j) experimental population boundary would be the same as those described for alternative 1. In areas covered under the section 10(a)(1)(A) permit, only nonlethal take measures, including injurious take and translocation, would be allowed to address depredation on livestock. Several incidents of the existing group of gray wolves in northern Colorado depredating livestock have been documented in Jackson County (Blumhardt 2022). Proactive, nonlethal strategies can reduce the potential for livestock depredation. However, some tactics, such as fladry (i.e., a nonlethal tool designed to protect livestock from predation by creating a visual barrier to wolves) or other physical or psychological barriers, may only be effective temporarily, and there are costs to planning and implementing these strategies. Low-income and minority livestock producers may have fewer financial resources available to implement nonlethal take strategies or may be less likely to use government programs to manage depredation risks. Within the section 10(a)(1)(A) permit boundary, impacts to low-income and minority livestock producers would be slightly reduced compared to the no-action alternative; however, these impacts may still be disproportionately high and adverse due to the cost of implementing nonlethal take measures.

4.9 CUMULATIVE IMPACTS AND OTHER CONSIDERATIONS

4.9.1 Cumulative Impacts

CEQ regulations stipulate that the cumulative effects analysis within an EIS should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions” (40 CFR 1508.7). CEQ interprets this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ 2005).

Cumulative impacts were determined by combining the impacts of each alternative with the impacts of other past, present, and reasonably foreseeable future actions. In other words, the proposed action by itself may not result in significant impacts. The cumulative impacts analysis asks the question, when the impacts of the proposed action are considered with the impacts of other actions in the area (the cumulative impact scenario), would there be significant impacts? Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future

projects and plans within the area of analysis, and if applicable, the surrounding region. Past actions are those that have occurred or have been occurring related to the gray wolf, and reasonably foreseeable future projects are those that are likely to occur within the life of the plan. Following CEQ guidance, past actions were included, “to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for the actions and its alternatives may have a continuing, additive, and significant relationship to those effects” (CEQ 2005).

Relevant past, present, and reasonably foreseeable future actions that in combination with the proposed action have the potential for cumulative impacts are regulatory actions and reintroduction efforts related to wolf species in Colorado and the surrounding region. Actions, and a description of those actions, that have been included in the cumulative impacts analysis are described in the following section. Other types of actions, including construction, transportation, energy and mineral extraction, and other development projects, have not been included in the analysis. The proposed action, as a regulatory action, would not have the potential to cause adverse cumulative impacts to the resources analyzed in this EIS with these types of actions. For instance, the State Plan to reintroduce and manage gray wolves in Colorado might result in cumulative effects to an elk population in combination with a proposed development project because of the added pressures on that population from increased predation and loss of habitat. However, take of individual wolves to mitigate predation impacts to elk populations would not contribute to adverse cumulative effects on that population.

The cumulative impact analysis used the following four steps:

- Step 1 — Identify Resources Affected

Fully identify resources affected by any of the alternatives. These include the resources addressed as impact topics in Chapters 3 and 4 (this chapter) of this document.

- Step 2 — Set Boundaries

Identify an appropriate spatial and temporal boundary for each resource. The temporal boundaries generally extend from when wolves were extirpated in Colorado through the life of the proposed action (limited to those future actions where impacts could be reasonably predicted). The spatial boundary may vary depending on the resource analyzed and the area affected by other past, present, and reasonably foreseeable actions. The spatial and temporal boundaries for each resource area are defined below.

- Step 3 — Identify Cumulative Action Scenario

Determine which past, present, and reasonably foreseeable future actions to include for each resource. Reasonably foreseeable future actions include those federal and non-federal activities not yet undertaken, but sufficiently likely to occur, that a reasonable official would take such activities into account in reaching a decision. These activities include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite (43 CFR 46.30).

- Step 4 — Cumulative Impact Analysis

Assess impacts of these other actions plus impacts of each alternative, to arrive at the total cumulative impact of each alternative and each alternatives contribution. This analysis is included below. For this specific effort, the analysis below focuses on the Preferred Alternative, alternative 1. Generally, the differences in impacts between the two action alternatives evaluated in this EIS are not to an extent that the overall cumulative impact conclusions would be different. Conditions under the no-action alternative are equivalent to the State of Colorado’s wolf reintroduction effort, which is incorporated in the

cumulative impacts analysis as a separate action. Regardless of the alternative chosen, taking, or not taking a regulatory action would constitute a small part of the overall cumulative impact.

The analysis of cumulative impacts focuses on the resource areas of biological resources (gray wolf, species of special concern, and other species), ecosystem dynamics, Tribal cultural resources, socioeconomics, and environmental justice. The analysis of cumulative impacts is descriptive rather than technical or analytical; this scale and scope is appropriate based on the proposed action being a relatively narrow in scope for which no significant adverse impacts are identified in any resource area.

The discussion of cumulative impacts in the sections below follows a different organization than that of the direct and indirect impact analyses earlier in this chapter. The following section first identifies the other past, present, and reasonably foreseeable future actions included in the cumulative impact analysis and briefly describes the actions on which the cumulative impact analysis is based. Following this description of the past, present, and reasonably foreseeable future actions, the cumulative impacts analysis in section 4.9.2 for each resource is presented. Under each of the resources analyzed, the spatial and temporal boundaries for the analysis are defined. Following this definition, the impact of each past, present and reasonably foreseeable future action is described. Once these individual actions are described, the impact of all of these actions is considered with the impact of the proposed action to describe the overall cumulative impact. This analysis is presented in the following subsections:

- *Spatial and Temporal Boundaries* identifies the boundaries for assessing cumulative impacts to that resource.
- *Impacts from the State Plan* defines the impacts to a resource that are expected to result from the State's reintroduction of gray wolves. These impacts are identified separately to assist decisionmakers in understanding this action's contribution to cumulative impacts on a resource.
- *Impacts from Mexican Wolf Reintroduction* defines the impacts to a resource that are expected to result from reintroduction of Mexican wolves in New Mexico and Arizona to illustrate this action's contribution to cumulative impacts.
- *Impacts from the Proposed Action* are summarized for the same reason, to illustrate the proposed action's contribution to cumulative impacts under the action alternatives.
- The *Cumulative Impact* subsection for each resource area analyzes the cumulative impacts to a resource expected to result from implementation of the proposed action (either of the action alternatives) in combination with the other past, present, and reasonably foreseeable actions identified below. The cumulative impact analysis considers the effects of each action and interactions between all of these actions.

Past, Present, and Reasonably Foreseeable Future Actions

The State of Colorado Gray Wolf Reintroduction

Proposition 114, now Colorado Revised Statute 33-2-105.8, which directs the CPW Commission to take the steps necessary to begin reintroductions of gray wolves to a portion of the species' historical range in Colorado by December 31, 2023, passed on November 3, 2020. The draft State Plan, released on December 9, 2022, details draft plans for the State's reintroduction effort, which CPW would undertake in cooperation with federal agencies; potentially affected Tribes; and the states of Idaho, Montana and/or Wyoming where wild wolves would be transferred via agreement. The plan states that wolf reintroduction efforts would require the transfer of about 30 to 50 wolves over a 3- to 5-year period from the northern Rocky Mountain states, with assistance from other state wildlife management agencies. Based on the Technical Working Group recommendations, CPW would aim to capture 10 to 15 wild wolves annually from several different packs over the course of 3 to 5 years by trapping, darting, or net gunning in the fall and winter. These captures may be done by agency staff, contractors, or private

trappers. The total number of wolves relocated in any year and in total would depend on capture success, continued participation by the cooperating states, and the degree to which relocated animals remain in Colorado and survive. Post-release monitoring would occur and use GPS collars to inform managers on survival and dispersal, as well as inform future release protocols.

After the release of 30 to 50 animals over the 3-to 5-year timeframe, active reintroduction would stop, and post-release monitoring would inform managers if the effort to establish a self-sustaining wolf population in Colorado has been successful. The following established set of benchmarks would be used to evaluate the short-term success of wolf reintroduction efforts:

- Reintroduced wolves demonstrate a high rate of survival in the first six months after release;
- Released wolves demonstrate low mortality rates over the initial two to three years post-release;
- Wolves remain in Colorado;
- Reintroduced wolves successfully form pairs and reproduce, establishing packs; and
- Wolves born in Colorado survive and also successfully reproduce.

If parameters are measured that indicate a growing population that no longer needs supplemental active reintroductions and the wolf population demonstrates a positive growth rate from natural reproduction, the wolf population would be managed to grow naturally toward recovery levels as stated in Chapter 4 of the draft State Plan. If the population demonstrates an unacceptable flat or negative growth rate, or a high rate of mortality is found, active augmentation would be reinitiated (after evaluating what led to the initial unsuccessful result).

The State Plan proposes management of wolves based on a phased approach, based on the number of animals present in the state. There would be four phases of management with wolves listed as State endangered in phase 1, State threatened in phase 2, State delisted in phase 3, and classified as a game species under phase 4 (noted as an “optional” phase in the plan). Throughout these phases the State would focus on using “impact-based” management within an adaptive management framework that would allow the State the maximum flexibility to manage wolves while learning how they affect Colorado’s ecosystems. Table 3 in the draft State Plan details a range of management tools that could be used in impact-based management, including detailing proposed compensation for livestock producers that experience wolf depredation of livestock.

Mexican Wolf Reintroduction

The Mexican wolf, a subspecies of gray wolf, is listed as an endangered species protected by the ESA. In the United States, the Service is the federal agency responsible for the recovery of the Mexican wolf. A central focus of recovery efforts for the Mexican wolf has been the reintroduction of the Mexican wolf to the wild from captivity due to the extirpation of the Mexican wolf in the wild prior to ESA protection. The Service is conducting the reintroduction of the Mexican wolf under section 10(j) of the ESA and regulations at 50 CFR 10.17.81. The Service began reintroducing captive-bred Mexican wolves into the Mexican Wolf Experimental Population Area (MWEPA) in Arizona and New Mexico in 1998 pursuant to its January 12, 1998, rule (63 FR 1752). See figure 4-1. In 2017, the Service finalized the *Mexican Wolf Recovery Plan, Second Revision* (revised recovery plan; USFWS 2022f) in coordination with federal agencies in Mexico and state, federal, and Tribal agencies in the United States. The revised recovery plan specifies that the recovery goal for the species is “to conserve and protect the Mexican wolf and its habitat so that its long-term survival is secured, populations are capable of enduring threats, and it can be removed from the list of threatened and endangered species” (USFWS 2022f). Recovery objectives for the Mexican wolf as identified in the plan are as follows:

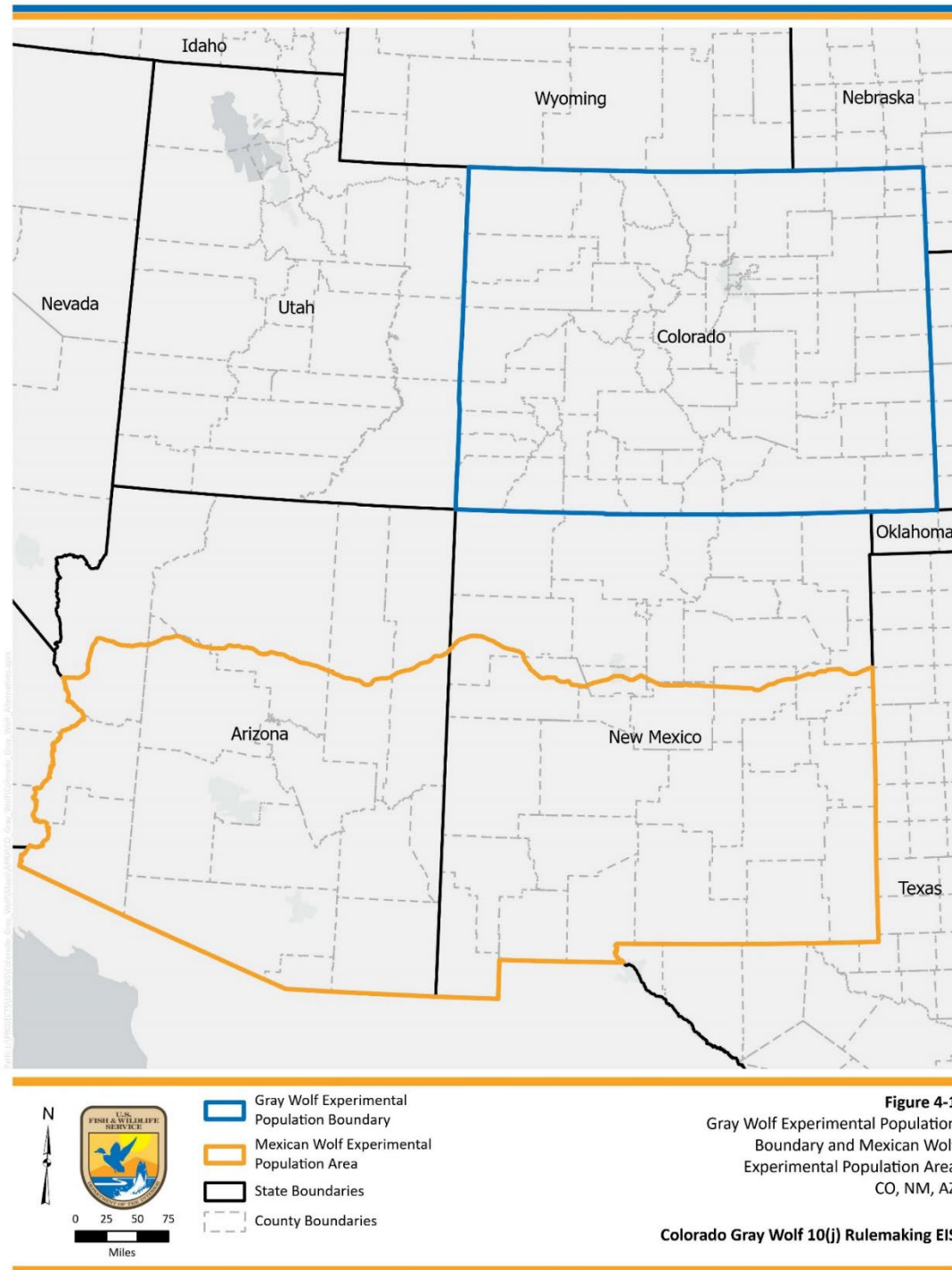
1. Increase the size of two Mexican wolf populations;
2. Improve gene diversity and maintain the health of Mexican wolves;

3. Ensure adequate habitat availability to support viable Mexican wolf populations;
4. Maintain the Mexican Wolf Species Survival Plan captive breeding program to improve the status of wild populations;
5. Promote Mexican wolf conservation through education and outreach programs; and
6. Ensure recovery success.

The revised recovery plan provides a strategy, criteria, and actions to recover the Mexican wolf and solidifies the significant role of the MWEPA in the recovery of the Mexican wolf. The revised recovery plan clarifies the specific contribution needed from the MWEPA for the rangewide recovery of the Mexican wolf by establishing demographic, genetic, and regulatory recovery criteria for a population of Mexican wolves in the United States. The revised recovery plan also calls for a second population of Mexican wolves in Mexico and provides criteria for that population (USFWS 2022f).

The status of the Mexican wolf population in the MWEPA has improved under the 2015 10(j) rule. The end of year census for 2021 generated a minimum abundance of 196 Mexican wolves in the wild (112 in New Mexico and 84 in Arizona). This was a 5 percent increase in the population from the 2020 end of year census (USFWS 2022g). Mexican wolves have expanded their range under the 2015 10(j) rule, from 7,255 square miles (18,790 square kilometers) in 2014 to 19,495 square miles (50,492 square kilometers) in 2020. Based on this numeric and geographic expansion, the Service considers the MWEPA population to be stable and growing steadily, which is consistent with the ongoing demographic recovery needs of the Mexican wolf. Illegal killing of Mexican wolves continues to occur in the MWEPA, but population growth has been robust in recent years despite these losses. The Service continues to investigate illegal killings, increase the presence of law enforcement, and conduct community outreach and education to address this problem (USFWS 2022h).

Figure 4-1. Gray Wolf Experimental Population Boundary and Mexican Wolf Experimental Population Area (CO, NM, and AZ)



4.9.2 Cumulative Impacts Analysis

Biological Resources (Gray Wolves, Special Status Species and Other Wildlife)

Spatial and Temporal Boundaries

The spatial boundary for cumulative impacts to biological resources (including gray wolves, special status species, and other wildlife) includes Colorado and neighboring states, specifically Arizona and New Mexico, which encompass the MWEPA. The temporal boundary extends from the beginning of the Service's Mexican wolf reintroduction effort in 1998 through the life of the proposed action.

Impacts from the State Plan

The State of Colorado's reintroduction of the gray wolf would benefit the species, which was extirpated from Colorado by the mid-1940s by government-sponsored predator control programs (Ditmer et al. 2022). Reintroducing the gray wolf, a federally endangered species in 44 states, into its native historic range would promote recovery resulting in long-term, beneficial impacts to the species. Reintroducing gray wolves in Colorado could also affect other wildlife, including other federally listed species, state-listed species, and other SGCN. Wolves are apex predators, meaning that they occupy the top trophic level in food webs. The reintroduction of wolves could affect other species in the state directly, through predation and competition, or indirectly through behavioral changes. Effects could be both adverse and beneficial.

The preferred donor population for the proposed reintroduction of gray wolves to Colorado is the delisted northern Rocky Mountains population, found in Idaho, Montana, eastern Oregon, eastern Washington, and Wyoming. Gray wolves in these states are managed by State fish and wildlife agencies and Tribes. These wolves are an appropriate source for the Colorado reintroduction because of similarities in habitat and preferred prey; at least one member of the current pack in Colorado dispersed from the northern Rocky Mountains population; and the northern Rocky Mountains population reached numerical, spatial, and temporal recovery goals by the end of 2002 (USFWS 2020d). The northern Rocky Mountains wolf population continues to demonstrate stable to slightly increasing demographic trends with an estimated 1,543 wolves in Idaho as of August 2021 and slightly more than 1,850 wolves in California, Montana, Oregon, Washington, and Wyoming at the end of 2021 (California DFW 2021; Oregon DFW 2022; Parks et al. 2022; Washington DFW et al. 2022; Wyoming GFD et al. 2022). Further, the northern Rocky Mountains population is part of a larger metapopulation of wolves that encompasses all of western Canada (USFWS 2020d). Given the demonstrated resilience and recovery trajectory of the northern Rocky Mountains population and limited number of animals that would be collected, negligible negative impacts on the donor population are expected.

If donor wolves from the western United States are not available, another possible source of gray wolves for the Colorado reintroduction may be the wolf population in the western Great Lake states of Michigan, Minnesota, or Wisconsin. Wolves in Minnesota are currently listed as threatened under the ESA, while wolves in Michigan and Wisconsin are listed as endangered. The western Great Lakes region has nearly 4,400 wolves (Erb and Humpal 2021; Michigan DNR 2022; Wisconsin DNR 2022) and are part of a larger metapopulation of wolves that extends into central and eastern Canada. As a result, the capture, transport, and reintroduction to Colorado of approximately 30 to 45 gray wolves over a 2- to 3-year period would have little to no effect on the wolf population in Michigan, Minnesota, or Wisconsin.

Wolves are native to Colorado and their reintroduction could benefit some species, such as small mammals and birds, by indirectly reducing predation pressure through competition or interactions with other predators, such as coyotes (Smith et al. 2003; Ripple and Beschta 2012). Wolves may compete with other predators for food resources, hunting territory or home range, or other limiting resources. In the presence of wolves, other predators may change their behaviors (e.g., prey selection and hunting ranges) to avoid areas where wolves are present, as

was observed in mountain lions following the reintroduction of wolves at Yellowstone National Park (Bartnick et al. 2013). However, because wolves are also predators, their reintroduction could place additional predation pressure on some species, especially ungulates such as elk, deer, and moose. Wolf presence may or may not influence changes in ungulate population dynamics. Prey populations naturally vary through time in response to environmental factors (e.g., severe winters, natural mortality), predation pressure by carnivores (in Colorado, wolves would compete primarily with black bears and mountain lions), hunter harvest pressure, and habitat conditions. Ungulate populations could experience localized population declines in the short term due to increased predation pressure from wolves. However, it is likely that populations would stabilize over the long term, as was observed at Yellowstone National Park in the years following gray wolf reintroduction (Smith et al. 2003), so long-term, adverse effects are not anticipated. In parts of Europe and Asia, wolves have been reported to prey on wild horses (Van Duyne et al. 2009; Dorj and Namkhair 2013; López-Bao et al. 2013). However, wolves tend to target wild horses when prey resources (e.g., smaller ungulates) are depleted (Van Duyne et al. 2009). Because elk and deer, the preferred prey species for gray wolves in the northern Rocky Mountains, are abundant in Colorado, impacts on wild horses are not expected.

Reintroducing gray wolves in Colorado could place additional pressure on some federally listed species, including Gunnison sage-grouse and Canada lynx, through predation and competition. However, the TWG concluded in its final recommendations to CPW that, “The presence of wolves will not have an impact on populations of threatened and endangered species in Colorado, specifically lynx and Gunnison sage grouse” (TWG 2022c). Cooperating agencies in the development of this EIS expressed concern that gray wolves reintroduced to Colorado under the State Plan could adversely affect Mexican wolf populations in neighboring Arizona and New Mexico if gray wolves disperse outside Colorado. Potential effects of the State Plan on these species are described below.

Reintroducing gray wolves in Colorado could place additional predation pressure on ground-nesting birds including the federally threatened Gunnison sage-grouse. Gunnison sage-grouse populations in Colorado have declined sharply since 1980 in the absence of wolves. The main drivers of population decline are believed to be habitat loss, fragmentation, and degradation (Braun 1998; USFWS 2019). As noted in the Service’s 2019 Species Status Assessment Report for Gunnison Sage-grouse (USFWS 2019), predation is a cause of mortality of young age classes and adults on leks, on nests, and during winter. Common predators include raptors, ravens, foxes, coyotes, ground squirrels, weasels, and other birds and small mammals (Young et al. 2015a; USFWS 2019). However, Gunnison sage-grouse have co-evolved with a variety of predators, and their cryptic plumage and behavioral adaptations have allowed them to persist despite this mortality factor (Schroeder et al. 1999; USFWS 2019). Although predation could have localized impacts, it has not been documented as a primary driver of Gunnison sage-grouse population decline and is not considered to be a barrier to recovery success (Gunnison Sage-grouse Rangewide Steering Committee 2005; USFWS 2020c). Gray wolves are not known to target Gunnison sage-grouse as prey.

Gray wolves may compete with Canada lynx, which is also a native predator in Colorado, for prey and hunting territory and are also considered to be potential predators of lynx (USFWS 2017b). Although empirical data are lacking and would be difficult to acquire, the lynx’s physical adaptations are thought to provide a seasonal advantage over potential terrestrial competitors and predators that generally have higher foot-loading, causing them to sink into the snow more than lynx (Buskirk et al. 2000; USFWS 2017b). The ranges of wolves and lynx overlap considerably worldwide; however, interactions between the two species have rarely been documented, making it difficult to predict the effects of wolf reintroduction (Ballard et al. 2003). Reintroduction of wolves has not resulted in the disappearance of lynx elsewhere, including at Yellowstone National Park (Murphy et al. 2006). Canada lynx population and distribution are strongly linked with abundance of prey species, such as snowshoe hare (Hodges et al. 2009). The Service listed the Canada Lynx Contiguous U.S. Distinct Population Segment,

which includes Colorado, as threatened in 2000 because of the potential for impacts to lynx habitat conditions and the availability of snowshoe hare and other prey populations (USFWS 2017a). The extent to which predation and competition may influence lynx populations in the Distinct Population Segment remains uncertain (USFWS 2017b). However, predation and competition have not been documented as driving factors for lynx population decline and are not considered barriers to recovery success (USFWS 2017a).

Gray wolves reintroduced to Colorado under the State Plan could disperse outside Colorado, potentially resulting in adverse impacts to endangered Mexican wolves from competition or interbreeding (hybridization) if the ranges of both species expand and eventually overlap (Odell et al. 2018). Mexican wolves have been reintroduced to Arizona and New Mexico. If the ranges of the species overlap, gray wolves would likely dominate Mexican wolves, which are physically smaller, and gray wolves (and their hybrid offspring) would occupy breeding positions, particularly in areas where elk is the primary prey (MacNulty et al. 2009; Odell et al. 2018). Interbreeding between gray wolves and Mexican wolves could result in genetic swamping of the Mexican wolf population, as has occurred with other species, most notably the eastern red wolf (*Canis rufus*; Kelly et al. 1999), potentially threatening the genetic integrity of the Mexican wolf population (Odell et al. 2018).

To date, at least two gray wolves have dispersed into northern Arizona and New Mexico from more northerly breeding populations. Mexican wolves have dispersed into these areas as well (approximately one documented per year). If gray wolf reintroduction efforts in Colorado are successful, higher numbers of breeding pairs in Colorado would increase the potential for dispersal outside the state. If gray wolves from Colorado dispersed southward into New Mexico and Arizona, the degree and pace of genetic introgression would depend on the size of the Mexican wolf population. The larger the size of the Mexican wolf population and the more area that breeding populations of Mexican wolves occupy south I-40, the less likely that minimal dispersal (less than one migrant per generation) from gray wolves would greatly affect the genetics of core Mexican wolf population in the short term. Over the next several years Mexican wolves are expected to grow approximately 10% per year, which would indicate a population of approximately 260 by the time (2.5 years) the risk of dispersal from gray wolves could occur from reintroductions in Colorado. At higher populations of Mexican wolves (more than 320), fewer genetic impacts are expected from gray wolves that may disperse from Colorado at minimal dispersal levels (less than one migrant per generation; Carroll et al. 2014). However, this would require limited increases in fitness for gray wolves or potential hybrid offspring, an assumption that may not be true. Increases in genetic diversity of the Mexican wolf could occur because of limited, well-timed dispersal of gray wolves.

Potential impacts of the State Plan on Mexican wolves depend on assumptions of dispersal of gray and Mexican wolves, gray wolf reintroduction success and method in Colorado, the ability to track wolves in both populations, growth rates of both populations, and management strategies that are implemented to keep gray and Mexican wolf populations separate. As of the end of November 2022, CPW had not finalized its gray wolf reintroduction strategy; therefore, it is difficult to determine with any degree of certainty the timing and extent of future dispersal contact that may occur between gray wolves and Mexican wolves or the potential genetic effect of this contact on Mexican wolves. The Service will work with states to minimize impacts to Mexican wolf recovery, including through federal permitting mechanisms or other tools.

Impacts from Mexican Wolf Reintroduction

The reintroduction of the Mexican wolf would result in direct beneficial impacts to the Mexican wolf population, consistent with the species recovery goal of the revised recovery plan (USFWS 2022f). As described above, if the ranges of gray wolves and Mexican wolves expanded and eventually overlapped, the Mexican wolf population could be adversely affected by interspecific competition and hybridization (Odell et al. 2018). Mexican wolf reintroduction has been limited to the species' historic range, which includes portions of Arizona and New Mexico. Colorado is outside this historic range. If Mexican wolves disperse northward of their historic range, or if gray wolves disperse southward, competition or interbreeding could occur. However, the Service will work with

states to minimize impacts to Mexican wolf recovery, including federal permitting mechanisms or other tools. Therefore, adverse impacts to the Mexican wolf population are not expected.

The 2022 *Final Supplemental EIS for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf* reports that increased predation pressure from Mexican wolves could adversely affect ungulate populations but finds that these impacts would be less than significant. The 2022 EIS reports at the time of publication that there were no data suggesting that Mexican wolves were currently having a significant or observable negative impact on prey populations (USFWS 2022h); therefore, it is expected that such impacts may occur at larger Mexican wolf population sizes and higher wolf densities than the current situation. The 2022 EIS did not evaluate effects to other wildlife including other federally or state-listed species.

Impacts from the Proposed Action

Currently, the draft 10(j) rule does not provide for management actions in relation to impacts to ungulate populations. The lack of flexibility for the management of reintroduced wolves could result in short- or long-term, adverse impacts to prey populations because the Service and its designated agents would not have the ability to manage wolves for the purposes of managing other wildlife populations for conservation. However, it is possible that no adverse effects would occur because although elk and deer populations may decline in the short term at the local level in response to wolf predation, it is likely these populations would stabilize over the long term (due to natural fluctuations), as was observed at Yellowstone National Park in the years following gray wolf reintroduction (Smith et al. 2003).

If the optional element to allow take of wolves to reduce impacts on wild ungulates is incorporated into the final 10(j) rule, the proposed action could have long-term, direct and indirect, beneficial effects on wild ungulates because management flexibility afforded to the Service and its designated agents would allow them to take a limited number of wolves using nonlethal and/or lethal methods as a means to achieve its established goals for the statewide management of ungulate populations if the reintroduction of wolves resulted in an unacceptable impact to their populations. The proposed action is not likely to adversely affect species of special concern because substantial population declines of species of special concern have not been documented as a result of previous wolf reintroductions elsewhere in North America. The Service will work with states to minimize impacts to Mexican wolf recovery, including federal permitting mechanisms or other tools

Cumulative Impact

When the impacts of the proposed action are combined with the impacts of other past, present, and reasonably foreseeable future actions, direct and indirect impacts on biological resources would be mostly beneficial. Wolves may reduce predation pressure on some prey species by causing other predators to change their hunting behaviors. Wolves would predate wild ungulate species and could cause their populations to decline in local areas. The proposed action would not contribute to adverse cumulative effects on ungulate species. If the optional provision is adopted, the Service and its designated agents would have the flexibility to manage wolves using nonlethal and/or lethal take for the conservation of wild ungulates, if ungulate populations decline below established management goals. Therefore, the proposed action could mitigate the potential adverse effects of the State Plan, and adverse cumulative effects to species of special concern are not anticipated.

Ecosystem Dynamics

Spatial and Temporal Boundaries

The spatial boundary for cumulative impacts to ecosystem dynamics (including gray wolves, special status species, and other wildlife) includes Colorado and neighboring states, specifically Arizona and New Mexico, which encompass the MWEPA. The temporal boundary extends from the beginning of the Service's Mexican wolf reintroduction effort in 1998 through the life of the proposed action.

Impacts from the State Plan

Reintroduction of the gray wolf in Colorado could affect community structure and ecosystem dynamics in the state. As an apex predator, wolves can have a strong top-down effect on the trophic structure of ecosystems by regulating other wildlife populations through predation and behavioral responses, potentially resulting in trophic cascades (Estes et al. 2011; Ripple and Beschta 2012; Ripple et al. 2014). This process is described in greater detail in section 3.2.1. Beneficial changes in ecosystem structure and dynamics following reintroduction or natural recolonization of wolves have been observed in other ecosystems in the United States and Canada (McLaren and Peterson 1994; Hebblewhite et al. 2005; Callan et al. 2013). However, the role of wolves in these observed changes is a matter of debate. Reintroducing wolves to Colorado could directly and indirectly benefit ecosystem dynamics over the long term, as has been observed in other ecosystems where wolves have been reintroduced or naturally recolonized. However, because ecosystems in which wolf reintroduction has previously occurred differ greatly, and because there is no precedent for reintroduction of wolves on a statewide scale, there is a great deal of uncertainty surrounding the potential effects of the State Plan on ecosystem dynamics throughout Colorado.

Impacts from Mexican Wolf Reintroduction

The 2022 *Final Supplemental EIS for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf* does not evaluate impacts on ecosystem dynamics as a stand-alone resource topic. However, the supplemental EIS does state that Mexican wolves may have competitive interactions with other predators and mesopredators that compete with the Mexican wolf for food such as mountain lions, bears, coyotes, bobcats, and foxes. It also notes that scavenger species such as ravens, eagles, coyotes, and bears may be indirectly affected by Mexican wolves through wolf-killed carcasses resulting from predation.

Impacts from the Proposed Action

Flexibility for the management of reintroduced gray wolves as an experimental population would not affect ecosystem dynamics because potential effects on ecosystem dynamics would occur as a result of the State action, regardless of the management option selected.

Cumulative Impact

When the impacts of the proposed action are combined with the impacts of other past, present, and reasonably foreseeable future actions, direct and indirect impacts on ecosystem dynamics may be beneficial. The presence of wolves in Colorado could restore a more natural ecosystem structure by controlling prey populations, regulating predation by coyotes and other mesopredators, and influencing vegetation community structure and succession. However, because there is no precedent for reintroduction of wolves on a statewide scale, there is a great deal of uncertainty surrounding the potential effects of wolf reintroduction on ecosystem dynamics throughout Colorado.

Tribal Cultural Resources

Spatial and Temporal Boundaries

The spatial boundary for cumulative impacts to Tribal cultural resources includes the state of Colorado. The temporal boundary extends from when wolves were extirpated in Colorado through the life of the proposed action.

Impacts from the State Plan

Colorado Revised Statute 33-2-105.8 directs the CPW Commission to develop a plan to introduce gray wolves in Colorado, during which CPW would continue to work with Tribes in the development of the plan. Section 3.4.4, discusses the Tribes' concerns regarding the State's reintroduction efforts. The impacts associated with the State Plan are similar to those noted in section 4.6.1 for the no-action alternative. As shown in this section, impacts could occur to natural resources of cultural importance to Tribes. Due to the limited management options, specific

management goals would need to be addressed for these resources in the final plan to reduce potential impacts. In addition, impacts are anticipated on hunting resources and livestock. As shown in section 4.6.1 and in the discussion of biological resources, hunting-related benefits are not anticipated to decline across the state, although impacts may be experienced at a local level, where wolves may contribute to declines in big game herds. No take provisions would be included, lethal or nonlethal, in the initial phases of reintroduction to address wolves if they reduce the population of big game ungulates below State or Tribal management objectives with implementation of the State Plan. The State may authorize take of wolves under phase 3 of the State Plan, under which the State would manage gray wolves as a nongame species to mitigate impacts to populations of big game ungulates (CPW 2022a). This assumes that the species would be federally delisted.

As noted in section 4.7.1, in the short term, wolf depredation on domestic livestock would likely be minimal, but after wolf recovery levels are approached, depredation losses are anticipated to increase. As part of its Gray Wolf Management Plan, CPW outlined that compensation would be addressed for potential impacts associated with wolf depredation.

Impacts from Mexican Wolf

The effects of the reintroduction of the Mexican wolf on Tribal cultural resources are evaluated as part of the environmental justice discussion in the 2022 *Final Supplemental EIS for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf* (USFWS 2022h). This evaluation considers the potential impacts to the White Mountain Apache Tribe, San Carlos Apache Tribe, the Navajo Nation (including Ramah Navajo and the Alamo Band), Mescalero Apache Tribe, Pueblo of Zuni, Pueblo of Acoma, Pueblo of Isleta, and the Pueblo of Laguna. It largely focuses on areas within Arizona and New Mexico. The EIS considers ranching/livestock production and big game hunting. The analysis accounts for a source-pathway-resources-acceptance approach, in which wolf behavior (depredation, predation, and nuisance behavior) and loss of access to resources was considered (USFWS 2022h).

As noted in the EIS for the Mexican wolf, Tribal governments would have the option to enter into management agreements with the Service to manage Mexican wolves on their Tribal trust lands. The EIS indicates that impacts would occur and could be disproportionate to the Tribes, but with the potential for management agreements to be established, these impacts would be reduced. The EIS cites the White Mountain Apache Tribe as a Tribe that experienced low costs from depredation and insignificant impacts to big game populations due to the presence of wolves on the Fort Apache Indian Reservation (USFWS 2022h).

Impacts from the Proposed Action

Under the proposed action, which includes the use of a section 10(j) rule, the reintroduction of wolves could affect natural resources of importance to Tribes in part due to competition resulting in changes to predation habits or habitat selection. The reintroduction of wolves could affect wildlife species that are hunted or used by the Tribes, such as elk, deer, and other ungulates. As shown in the discussion of biological resources, elk and deer populations could decline in response to unmanaged predation and other pressures as a result of wolf reintroduction. If the optional provision to allow take of wolves to address potential impacts to ungulates is adopted, the proposed action would provide the Service and its designated agents flexibility in managing wolves to limit elk and deer population decline or to facilitate recovery; the same could occur for pronghorn, wild sheep, and moose.

Potential impacts associated with wolf depredation on domestic livestock also could occur under the proposed action. However, the Service and its designated agents would have management options to address or assist in the reduction of these impacts.

Cumulative Impact

When the impacts of the proposed action are combined with the impacts of other past, present, and reasonably foreseeable future actions, impacts on Tribal cultural resources as they relate to hunting and to livestock are anticipated. Cumulative impacts would generally be associated with the placement of wolves within the landscape, as well as for those already living in and naturally dispersing to Colorado, and their potential interactions with animals hunted by Tribal members and livestock. The proposed action would make up a small portion of the impact because it would provide benefits that would address adverse cumulative impacts to livestock and may provide benefits that address adverse impacts to ungulate populations, if the optional provision is adopted.

With implementation of the proposed action, reintroduced wolves would be managed to reduce adverse effects to livestock as described in sections 4.5, 4.7, and 4.8 of this EIS. As noted in the discussion of biological resources, above, wolves could cause wildlife ungulates to decline. The draft rule as written would not allow take of wolves to address potential impacts to ungulate populations. However, with implementation of the optional provision, if their populations declined below established management goals, the Service and its designated agents would have the flexibility to manage wolves using nonlethal and/or lethal take for the conservation of wild ungulates. Similar management options are available for the Mexican wolf through the implementation of the state management plans, some of which address migrating wolves and relocation. In this manner, cumulative impacts to hunting resources (e.g., ungulates) are anticipated to be minimal, and the management actions associated with the proposed action would reduce cumulative impacts.

As shown below for socioeconomics and environmental justice, the long-term, beneficial impacts from increased management flexibility under the proposed action and compensation programs implemented as part of the State Plan would reduce the potential for substantial economic costs to livestock producers, which would include Tribal members. Implementation of the management tools available under the proposed action (e.g., lethal or nonlethal take) would reduce the potential for cumulative impacts to occur to livestock producers.

Socioeconomics

Spatial and Temporal Boundaries

The spatial boundary for cumulative impacts to socioeconomic resources includes the state of Colorado. The temporal boundary extends from when wolves were extirpated in Colorado through the life of the proposed action.

Impacts from the State Plan

Impacts from the State Plan would result from the reintroduction of wolves and the implementation and management of the reintroduction. Impacts from the State Plan were considered without the 10(j) rule in place and are discussed in this EIS under the no-action alternative, including limited management flexibility that would result in long-term, adverse impacts to outfitters and livestock producers.

Impacts from Mexican Wolf Reintroduction

The reintroduction of the Mexican wolf is expected to have direct effects on socioeconomics from cattle depredations in addition to the indirect effects to reduce the likelihood of depredations. The 2022 *Final Supplemental EIS for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf* found that the overall loss of livestock attributable to wolf depredations is estimated to have been over \$3.6 million (\$2020) between 1998 and 2019. While the overall market impact of wolf depredations is minimal compared to the total annual value of Arizona and New Mexico cattle operations, the impacts felt by ranches that incur actual depredations on their herds can be more substantial. The EIS also found that while there

could be impacts to ungulates and big game hunting, these impacts would be mitigated through the removal of wolves causing unacceptable impacts, resulting in less than significant adverse impacts (USFWS 2022h).

Impacts from the Proposed Action

The proposed action would have long-term, beneficial impacts on livestock producers because the allowable lethal and nonlethal take would provide management flexibility and help mitigate economic losses to this group. Livestock producers would be able to address chronic depredation through lethal and nonlethal measures to reduce the financial impact. Although the 10(j) rule would mitigate impacts, livestock producers may still experience some adverse impacts related to depredation of livestock.

Under alternative 1, the draft rule as written would not allow take of wolves to address potential impacts to ungulate populations. However, with implementation of the optional provision, the Service and its designated agents could use lethal and/or nonlethal take to mitigate the risk that ungulate populations decrease below State and Tribal population goals, subject to the requirements outlined in Chapter 2.

Cumulative Impact

When the impacts of the proposed action are combined with the impacts of other past, present, and reasonably foreseeable future actions, direct and indirect effects on socioeconomics could result in long-term, adverse impacts to outfitters and livestock producers as a result of the effects that reintroduction of wolves could have on big game ungulate species and depredation of domestic livestock. The Service and its designated agents would be able to use nonlethal and/or lethal take to address depredation of livestock. The long-term, beneficial impacts from increased management flexibility under the proposed action and compensation programs implemented as part of the State Plan would reduce the potential for substantial economic costs to livestock producers. However, some financial losses would likely still occur because compensation programs may only partially cover the direct and indirect financial loss suffered by livestock producers from wolf depredation of their livestock.

The draft rule as written would not allow take of wolves to address potential impacts on ungulate populations; therefore, the proposed action would not mitigate potential adverse effects to outfitters and guides.

Implementation of the optional provision would allow take of wolves if wolves are determined to be a primary cause of ungulate populations falling below established State or Tribal population goals, which could mitigate potential adverse effects. Based on the above, the proposed action would partially mitigate potential adverse effects from implementation of the State Plan and would not contribute to adverse cumulative effects.

Reintroduced Mexican wolves are unlikely to become established in Colorado; therefore, Mexican wolves are unlikely to have cumulative impacts on hunters, guides, outfitters, and livestock producers in Colorado.

According to the Service, any Mexican wolves that disperse outside the MWEPA in New Mexico and Arizona would be removed or relocated back within the boundary (USFWS 2022h).

Environmental Justice

Spatial and Temporal Boundaries

The spatial boundary for cumulative impacts to environmental justice communities includes the state of Colorado. The temporal boundary extends from when wolves were extirpated in Colorado through the life of the proposed action.

Impacts from the State Plan

Impacts from the State Plan would result from the reintroduction of wolves and implementation and management of the reintroduction. Impacts from the State Plan were considered without the section 10(j) rule in place, and are discussed in this EIS under the no-action alternative. As discussed in section 4.8.2, under the no-action alternative, predation on elk and other big game ungulate species could reduce herds below State or Tribal

population goals, change the use of habitat by and movements of big game species, and redistribute hunting demand to other areas of the state. While impacts statewide are not likely to result in substantial economic effects, localized impacts could be disproportionately high and adverse for members of Native American Tribes and low-income and minority individuals and businesses that rely on hunting.

Similarly, impacts to livestock producers, including Tribal producers, from wolf depredation of livestock would be unevenly distributed and localized. Individual producers may experience economic costs greater than the average for the industry across Colorado. For low-income and minority livestock producers these costs, as well as indirect economic costs, could be substantial under the no-action alternative. Therefore, implementation of the State Plan could result in disproportionately high and adverse impacts to low-income and minority livestock producers, particularly in the focal counties.

As part of the State Plan, Colorado is considering policies to compensate livestock producers whose livestock have been depredated by reintroduced gray wolves. Compensation by the State would mitigate potential economic effects to minority or low-income livestock producers. Depending on the level of compensation provided by the State, these economic effects may not be fully mitigated.

Impacts from Mexican Wolf

The 2022 *Final Supplemental EIS for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf* considers the impacts to environmental justice populations in Arizona and New Mexico and found that small ranch operations that are marginally most at risk from economic losses and that have a high percentage of focus minority groups identified as principal operators could suffer high and disproportionate adverse impacts from implementation of the proposed action and alternatives. The final EIS further notes that disproportionate and adverse impacts could occur because some Tribal members subsist on big game. Populations with smaller land bases and lower big game densities could be further impacted. This effort would have minimal adverse effects on Tribes because Tribal governments could request wolf removal at any time. However, Tribes as population groups of concern are marginally more at risk from economic losses that may affect their primary source of income. Furthermore, for some Tribes and Tribal members, livestock are used for subsistence. For these reasons, Tribal population groups of concern could experience high and disproportionate adverse impacts from implementation of the proposed action and alternatives.

Impacts from the Proposed Action

The draft rule as written would not allow take of wolves to mitigate potential impacts to ungulate populations; therefore, the proposed action would not mitigate the potential adverse impacts of wolf reintroduction on ungulates or result in beneficial impacts. With implementation of the optional provision, the proposed action could have a long-term, beneficial impact on big game species because the Service and its designated agents would be able to manage reintroduced wolves using nonlethal and/or lethal take to mitigate population declines below State or Tribal management objectives. The proposed action could result in disproportionately high and adverse impacts to people who rely on hunting for subsistence, including members of Native American Tribes. However, with implementation of the optional provision, disproportionately high and adverse impacts are not anticipated.

Disproportionately high and adverse impacts could occur for low-income outfitters and guides in local areas due to the potential for a shift in demand for hunting permits away from areas where wolves are present and changes in the use of habitat by or movements of big game species (see section 4.8.2).

The proposed section 10(j) rule would allow non-injurious, injurious, and lethal take under the conditions specified in table 2-2 to reduce conflicts and manage wolves that repeatedly depredate livestock. Implementation of alternative 1 may not fully mitigate against indirect economic losses caused by stresses to livestock (i.e., lower

market weights and reduced rate of conception). Livestock producers also would incur costs (i.e., money, time, and labor) for implementing nonlethal take strategies, and these costs may be more substantial for low-income and minority livestock producers. Overall, implementation of the proposed action would result in a long-term, beneficial impact to low-income and minority livestock producers.

Cumulative Impact

The proposed action would partially mitigate the adverse effects of implementation of the State Plan on low-income and minority environmental justice population groups of concern. The draft rule as written would not mitigate the potential adverse effects of wolf reintroduction on ungulate populations. However, if the optional provision is adopted, reintroduced wolves would be managed to reduce adverse effects to big game ungulate species. Reintroduced wolves would be managed to reduce adverse effects on livestock as described in section 4.8 of this EIS. The proposed action would not result in cumulatively greater adverse effects to minority or low-income population groups of concern in combination with the State Plan.

Additionally, as part of the State Plan, Colorado is considering policies for compensation to livestock producers whose livestock have been depredated by reintroduced gray wolves. Along with the management flexibility that would be provided under the section 10(j) rule, compensation would mitigate potential economic effects to minority or low-income livestock producers. Depending on the level of compensation provided by the State, these economic effects may not be fully mitigated.

The study area for reintroduction of a nonessential experimental population of the Mexican wolf includes the states of New Mexico and Arizona. The experimental population boundary for reintroduced Mexican wolves (the MWEPA) is bounded on the north by Interstate 40, on the east by the eastern state line of New Mexico, on the west by the western state line of Arizona, and on the south by the international border with New Mexico. The Service is proposing to remove or relocate back into the MWEPA any wolves that disperse outside this boundary (USFWS 2022h). Therefore, it is unlikely that reintroduced Mexican wolves would become established in Colorado, and cumulative effects to minority or low-income population groups of concern in Colorado are not anticipated.

Wolves that disperse outside Colorado would be managed under the federal or state regulations that apply in the area where they are found (for example, wolves would be managed as endangered in most of Utah and as a federally delisted species in Wyoming). Reintroduction of gray wolves by the State of Colorado could impact minority and low-income population groups of concern in neighboring states, and these impacts could be similar to the impacts described in section 4.8 of this EIS. However, the proposed action would not contribute cumulatively to these impacts because the proposed action would not be implemented or have effects outside Colorado.

When the impacts of the proposed action are combined with the impacts of other past, present, and reasonably foreseeable future actions, direct and indirect impacts on minority and low-income population groups of concern in Colorado could be disproportionately high and adverse but would partially be mitigated. Increased management flexibility under the proposed action and compensation programs implemented as part of the State Plan would reduce the potential for substantial economic costs to low-income and minority population groups of concern in Colorado, including livestock producers. Adoption of the optional provision could reduce the potential for substantial economic costs to low-income and minority outfitters and guides and those who rely on subsistence hunting.

4.9.3 Regulatory Compliance and Consistency with Approved State or Local Plans or Laws

This EIS was prepared in compliance with the federal acts and executive orders as described in Appendix B as well as the: Administrative Procedures Act of 1946; ESA of 1973; Federal Land Policy and Management Act of

1976; Fish and Wildlife Coordination Act; NEPA of 1969; National Forest Management Act of 1976; National Historic Preservation Act of 1966; Regulatory Flexibility Act of 1980; Unfunded Mandates Reform Act of 1995; Wilderness Act of 1964; Executive Order 12372, *Intergovernmental Review of Federal Programs*; Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*; Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety*; and Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*.

These included plans or laws such as state statutes and regulations related to the release or management of predators, Natural Resource Conservation District long-range plans, and Soil and Water Conservation District resolutions related to the reintroduction of endangered predators. NEPA's intent and governing regulations direct federal agencies to "cooperate, consult and coordinate" with the county or conservation district in the development of plans, decisions, activities or actions which may affect the county, the district or its residents, especially related to early and ongoing planning, coordination, and consultation with state and local governments and stakeholders (40 CFR 1501.8, 1501.9). During the development of this EIS, the Service worked with cooperating agencies to determine whether additional local plans or laws should be considered based on the scope of our proposed action and alternatives.

Additional relevant local plans or laws include:

- State of Colorado. Colorado Code § 33-2-105.5 (2021)
- State of Colorado. Colorado Code § 33-6-203 (2021)
- State of Colorado. Colorado Code § 33-6-207 (2021)
- State of Colorado. Colorado Wildlife Commission Regulation 2 CCR 406-17-XII-17122 (2020)

To the extent that any of these plans or laws establish a local (state or county) process to request management action by the Service or a designated agency to address wolf-human conflicts and that this process is consistent with, or not in conflict with (e.g., placing restrictions on or asserting local government authority over federal law) our proposed action, we do not find any inconsistency between the plans or laws and our actions taken in accordance with the ESA and state or local actions. Similarly, to the extent that any of these plans or laws request action from the State of Colorado or Colorado Congressional delegation that is not in conflict with our proposed action, we do not find any inconsistency. To the extent that any of the documents above establish or include reference to policies or ordinances prohibiting the import or release of certain wildlife, specifically gray wolves, the provisions of the section 10(j) rule would provide management flexibility for designated agents to address conflicts between gray wolves and existing land uses and economic activities. The Service recognizes that options to reduce or resolve conflict in specific instances may be available to the Service and the State of Colorado by working with local governments to address safety concerns, select release sites, and provide information to local communities. The Service also recognizes the interest held by local governments and communities, including livestock permittees and private landowners, in the management of gray wolves in Colorado west of the Continental Divide. To that end, collaboration with local entities as well as communication with local communities would be incorporated in the development of this 10(j) rule.

The proposed federal regulatory frameworks under alternatives 1 and 2 may allow activities that are inconsistent with local plans or laws. These activities could include discharge of firearms outside allowed hunting activities and operation of noise-emitting equipment during hazing (non-injurious, nonlethal take) of wolves, which could occur at night. These activities may be inconsistent with local noise regulations. Regardless of the alternative selected, the proposed action would be consistent with local public safety regulations. Take of wolves to protect human life and safety would be permitted under all alternatives, as noted in table 2-4.

Through the public scoping process, other state and local entities noted the presence of plans, including the State of Utah, the State of New Mexico, the State of Arizona, Garfield County, and Moffatt County, and requested that the Service consider conflicts with these plans. These entities are cooperating agencies in the EIS process, and consistency with these planning documents will be considered throughout the planning process.

4.9.4 Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term uses of the human environment and the effects that this use may have on the maintenance and enhancement of long-term productivity (40 CFR 1502.6).

No-Action Alternative

Under the no-action alternative, no short- or long-term commitment of human resources would occur because no regulatory framework would be put in place, and no resources would be needed to implement and manage that framework. The introduction of the gray wolf to Colorado could result in protection of the long-term productivity of the overall ecosystem and the sustainable use of resources, which is not a direct impact of the regulatory framework, but is discussed in further detail under section 4.9.1, *Cumulative Impacts*.

Alternatives 1 and 2

Under the action alternatives, a short- and long-term commitment of human resources and short-term impacts from time and resources require to implement a regulatory framework under the section 10(j) rule to a whole or a portion of the state of Colorado would occur. The introduction of the gray wolf to Colorado could result in protection of the long-term productivity of the overall ecosystem and the sustainable use of resources, which is not a direct impact of the regulatory framework, but is discussed in further detail under section 4.9.1, *Cumulative Impacts*.

The presence of gray wolves on federal lands would conform with federal agency land use and resource management plans. On non-federal land, gray wolf presence would be managed through the allowable management actions under the 10(j) rule, or in the case of alternative 2, the 10(a)(1)(A) permit in a smaller portion of the state. With this action, the Service is not proposing to designate critical habitat, and it is not expected that implementation of the action alternatives would change the character of the federal and non-federal land use within the study area, its long-term productivity, or its availability for other beneficial uses.

The proposed action would provide a regulatory framework for the State-led reintroduction of the gray wolf to provide management flexibility and provide for conservation of the species. The EIS analyzes the impacts of the proposed take provisions. Although these alternatives may lead to different impacts across resource areas, the relationship between short-term uses and long-term productivity would not be appreciably different from one alternative to another. The potential for take provisions under either alternative would not alter the characteristic uses of the land or resources in the project area. Short-term economic impacts may be sustained by individual ranchers/livestock producers, but with the mitigations offered by the proposed regulatory framework, long-term effects on overall livestock production in the study area are not expected. There could be localized, short-term impacts to ungulates or the related economy of big game hunting from the action alternatives. Should they be adopted, provisions that allow for the management of wolves in relation to the depletion of ungulate populations would not alter this biological resource or economic sector over the long term. In conclusion, implementation of the action alternatives is not expected to permanently narrow the range of beneficial uses of the human environment or adversely affect the long-term productivity of the project area.

4.9.5 Irreversible and Irretrievable Commitment of Resources

An irreversible and irretrievable commitment of resources refers to the use of those resources that would be involved in the proposal should it be implemented (40 CFR 1502.16). Irreversible impacts are those that cause, through direct or indirect effects, use or consumption of resources in such a way that they cannot be restored or returned to their original condition despite mitigation. An irretrievable impact or commitment of resources occurs when a resource is removed or consumed. The commitment of resources refers primarily to the use of nonrenewable or depletable resources such as fossil fuels, water, labor, and electricity. Costs borne by the Service associated with the proposed section 10(j) rule would include limited costs related to administrative oversight related to permit issuance and/or annual review of memorandum of agreement if those tools are used. Under all alternatives, the provision of a regulatory framework to provide management flexibility to the Service and its designated agents would not affect climate change.

No-Action Alternative

Under the no-action alternative, the absence of a regulatory framework to provide management flexibility for the State of Colorado's gray wolf reintroduction efforts would not require the Service to put forth resources, and from that standpoint, would not have an irreversible and irretrievable commitment of resources. However, under all alternatives, there could be impacts to ungulates and livestock from the reintroduction of wolves. Without a regulatory framework to provide mitigation for these losses in the form of management measures to deter wolves from depredation, these losses are expected to be greater under the no-action alternative. While there would be a loss of ungulates and livestock, loss of either is not an irreversible or irretrievable commitment of resources because both are abundant, renewable resources.

Alternatives 1 and 2

The Service expects an incremental increase in costs over time from implementation of either action alternative as the number and geographic distribution of gray wolves in the Colorado increases. Alternatives 1 and 2 provide for a regulatory framework to address losses to livestock and impacts to ungulate populations related to the gray wolf reintroduction. It is assumed that as wolf populations increase, the need to implement regulatory flexibility would also increase. Over time, this would result in additional consumption of labor and nonrenewable use of equipment, materials, supplies, and fuel.

Based on the above assessment of impacts to biological resources, Tribal cultural resources, socioeconomics, and environmental justice, the Service does not expect that implementation of either action alternative would result in a significant irreversible or irretrievable commitment of resources. Some degree of adverse impact to wild prey (primarily ungulates) and livestock due to the introduction of wolves is expected, but the action alternatives would mitigate these impacts. While there would be a loss of ungulates and livestock, loss of either is not an irreversible or irretrievable commitment of resources because both are abundant, renewable resources. Labor associated with the implementation of proactive management to decrease the likelihood of livestock depredations may occur, or to address the consequences of depredation (such as building additional fencing, or paperwork associated with depredation claims); however, these impacts and commitments can be restored or returned to their prior condition with mitigation such as successful implementation of proactive measures or receipt of depredation compensation.

CHAPTER 5 CONSULTATION AND COORDINATION

5.1 INTRODUCTION

NEPA requires federal agencies to make diligent efforts to involve other agencies and the public whenever possible (40 CFR 1506.6). This chapter provides a summary of the opportunities that have been made for public involvement, including government and non-government agencies or organizations in the development of this EIS.

5.2 PUBLIC INVOLVEMENT STRATEGY

The public involvement strategy for this EIS incorporated the following elements:

- **Public scoping.** The Service conducted a 30-day public scoping period through the publication of a notice of intent to prepare an EIS statement in the *Federal Register* on July 21, 2022 (87 FR 43489). Issues raised during public scoping are summarized in section 2.3 and Appendix C of this EIS.
- **Coordination and consultation.** The Service engaged with multiple federal and state agencies, Tribal governments, and local governments through the establishment of cooperating agency status, ongoing partner collaboration, and participation in Tribal working groups and Tribal coordination meetings.
 - Twenty-three entities were invited to serve as cooperating agencies, of which 20 confirmed participation via signature of a Memorandum of Understanding to participate in the development of an EIS. Cooperating agency meetings were held via virtual meetings on August 18, 23, and 31, 2022, September 28, 2022, October 5, 2022, October 26, 2022, December 16, 2022, and January 12, 2023.
 - Tribal governments were invited to request government-to-government consultation on the proposed rule and EIS with the Service via letters sent in July 2022 and followed up with phone and email communications. The Service met with the Ute Mountain Ute via teleconference on January 24, 2023, for an initial conversation regarding the consultation process. On January 13, 2023, via telephone, the Pawnee Nation representative noted that they would like to be kept informed of the process but did not require a meeting at this time.
 - The Service presented at the Native American Fish and Wildlife Society Southwest Chapter Annual meeting in August 2022 and hosted a virtual informal meeting with Tribes from Arizona, Colorado, Oklahoma, New Mexico, and Utah on October 11, 2022.
 - The Service is in regular communication with federal agencies, and several are formal cooperating agencies including NPS, the Bureau of Land Management, U.S. Forest Service, and the USDA-Animal and Plant Health Inspection Service Wildlife Services. The Service was an active participant in the State of Colorado's process to develop a state management plan including formal representation on the TWG and regular participation in the SAG throughout 2022.
- **Multi-media communication.** Communication with the stakeholders, cooperating agencies, Tribes, organizations, academics, and the general public was conducted in multiple formats, including email, Microsoft Teams video or Zoom web meetings, teleconferences, newspaper notices/advertisements, *Federal Register* notices, news releases, and websites. A website was developed for the public with information about the process and times, locations, and registration links for in-person and virtual public meetings.

- **Public meetings and information sessions.** In-person public information sessions and meetings were held during the 30-day public comment period on the notice of intent for the proposed 10(j) rule on August 2, 2022, August 3, 2022, and August 4, 2022; a virtual public information session and meeting was held on August 10, 2022.

5.3 LIST OF RECIPIENTS OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Upon publication of the notice of availability of the draft EIS in the *Federal Register*, a news release will be provided to the media outlets who received the news release announcing the Notice of Intent in July of 2022. Notice will be provided to media, interested individuals, and organizations via the Service's standard mailing/distribution lists, as well as the following:

- The Service will use the lists generated from the public scoping.
- The Service will use its news distribution service (Meltwater) to share the news release with instructions on accessing the draft plan/EIS with local (Colorado), regional and national media.
- The Service will contact state and federal agency partners, Tribes, county commissioners, Congressional members' offices, state legislators, local non-governmental organizations, and other potential stakeholders electronically with the news release, along with instructions on accessing the draft EIS.
- The news release will be posted on the Service and CPW websites with links and information on accessing the draft EIS.

CHAPTER 6 SUMMARY OF IMPACTS

Table 6-1 compares the potential environmental impacts of the alternatives. For a more detailed analysis of the environmental impacts of each alternative, see Chapter 4 of the EIS.

Based on consideration of the purpose and need for the proposed action and the potential environmental impacts of the alternatives, the Service has selected alternative 1, Apply Section 10(j) Rule to the Gray Wolf in Colorado, as its Preferred Alternative.

Table 6-1. Comparison of the Potential Environmental Impacts of the Alternatives

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Biological Resources – Species of Special Concern – Wolves	Under the no-action alternative, wolves would remain listed as endangered, and regulated take would be limited to instances where wolves pose a threat to human life or safety. The wolf population is expected to increase in size and distribution in areas where habitat suitability is high (i.e., sufficient wild prey and limited contact with humans).	Alternative 1 could have adverse environmental impacts to individual wolves through regulated take but is not expected to hinder recovery or have population-level effects in the long term. Alternative 1 would provide management flexibility, which would contribute in the long term to achieving statewide management objectives for wolves.	Alternative 2 would provide added protection for wolves in the 10(a)(1)(A) permit area, which may lead to an increase in growth and distribution of the reintroduced wolf population in the short term. In the long term, the potential environmental impacts would be the same as under alternative 1 because of natural dispersal outside the 10(a)(1)(A) permit area.
Biological Resources – Other Species of Special Concern (Including Other Federally Listed and State-listed Species)	The lack of flexibility for the management of reintroduced wolves could result in short- or long-term, adverse effects on prey species. However, adverse impacts to species of special concern are not likely because substantial population declines of species of special concern have not been documented as a result of previous wolf reintroductions elsewhere in North America.	Potential environmental impacts would be the same as those described under the no-action alternative because management flexibility for reintroduced wolves under alternative 1 would not include provisions for the take of wolves for the purposes of protecting or managing species of special concern. Therefore, alternative 1 is not likely to result in adverse effects on species of special concern.	Potential environmental impacts would be the same as under alternative 1.
Biological Resources – Other Wildlife (Elk, Deer, and Other Ungulates)	The lack of flexibility for the management of reintroduced wolves could result in short- or long-term, adverse impacts to prey populations because the Service and its designated agents would not have the ability to manage wolves for the purposes of managing other wildlife populations for conservation.	Under the draft rule as written, potential impacts to prey populations would be similar to those described under the no-action alternative. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, alternative 1 could have long-term, beneficial impacts on prey populations. If wild ungulate population levels decline below established State or Tribal management objectives as a result of wolf reintroduction, management flexibility, including nonlethal and/or lethal take, afforded to the Service and its designated agents under the optional provision would allow them to take wolves as a means to achieve established goals	Under the draft rule as written, potential impacts to prey populations would be similar to those described under the no-action alternative. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, potential environmental impacts under alternative 2 would be similar to those under alternative 1 with the optional provision, except that lethal take would not be permitted in the 10(a)(1)(A) permit area. The Service and its designated agents would otherwise have a similar amount of flexibility in management of reintroduced wolves to achieve management goals for wild ungulate populations.

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
		for the statewide management of wild ungulate populations, if the Service determines that wolf predation is having an unacceptable impact on wild ungulate populations.	
Cultural Resources – Tribal Cultural Resources	<p>Under this alternative, damage to archaeological and historical resources may occur in locations where the presence of wolves coincides with that of these resources. For instance, denning activities may damage surface or subsurface resources if these locations are used by wolves, and the presence of wolves may inhibit the potential for Tribal access to these resources.</p> <p>The reintroduction of wolves could also affect natural resources (e.g., wildlife) of importance to Tribes in part due to competition resulting in changes to predation habits or habitat selection.</p> <p>The reintroduction of wolves could affect wildlife species that are hunted or used by the Tribes, such as elk, deer, and other ungulates. Elk and deer populations could decline in response to unmanaged predation and other pressures as a result of wolf reintroduction. These animals would be impacted over the long term because the Service and its designated agents would not have the flexibility to manage wolves to limit elk and deer population decline or facilitate recovery; the same could occur for pronghorn, wild sheep, and moose.</p>	<p>Potential impacts to Tribal cultural resources would be similar to those described for the no-action alternative, although for some resources, including livestock, potential impacts could be reduced due to the management flexibility available under the 10(j) rule. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, management flexibility to address decreases in ungulate populations below established State or Tribal goals could reduce impacts to wildlife species that are hunted by the Tribes.</p>	<p>Potential impacts to Tribal cultural resources would be similar to those described for alternative 1 due to the management flexibility that would be provided by the section 10(j) rule. If an existing population were identified within a reservation, lethal take of wolves would be prohibited within the section 10(a)(1)(A) permit boundary. Alternative 2 would still provide the designated agents, including Tribes, flexibility to manage an existing population of gray wolves to mitigate impacts to livestock. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, management flexibility to address decreases in ungulate populations below State or Tribal goals could reduce impacts to wildlife species that are hunted by the Tribes.</p>

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Socioeconomic Resources	<p>Due to the lack of management options under the no-action alternative, outdoor recreation, agriculture, and livestock producers would experience the most socioeconomic impacts. Lethal or nonlethal methods to address wolves if they reduce the population of ungulates below State or Tribal management objectives would not be available as a management tool. Outfitters and guides could experience long-term localized consequences from the lack of flexibility for take. A decline in hunting applications could lead to decreased wildlife revenue for CPW.</p> <p>An estimated 83 cattle and 31 sheep statewide and 26 cattle and 13 sheep in the 21 focal counties would be killed or injured assuming a population of 200 wolves. This would result in estimated loss of \$229,419.91 in the statewide study area and \$98,399.92 in the 21 focal counties annually under the no-action alternative, which represents 0.0067 percent (Colorado) and 0.0029 percent (21 focal counties) of the total market value of cattle and sheep in Colorado. Annual livestock predation would result in \$42,968.64 in forgone economic contributions to the local economies in the 21 focal counties.</p>	<p>Under alternative 1, the Service and its designated agents would manage the reintroduction of wolves with the greatest degree of flexibility. Alternative 1 would result in fewer direct long-term costs to livestock producers. Implementation of alternative 1 may not fully offset indirect economic losses caused by livestock stress from wolf predation. Additionally, livestock producers could incur costs for implementing nonlethal take strategies. Impacts to outdoor recreation outfitters and businesses would be similar to those under the no-action alternative under the draft rule as written. Should the optional provision to allow take of wolves to address impacts to ungulates be adopted, alternative 1 could result in long-term benefits for Colorado outdoor recreation outfitters and businesses compared to the no-action alternative.</p>	<p>The socioeconomic impacts under alternative 2 within the experimental population boundary would be the same as those described for alternative 1. The impacts for outfitters and guides would be similar to those described in the no-action alternative within the 10(a)(1)(A) permit area. Due to the limited options for implementing management, big game hunting demand may shift to areas without gray wolves. Alternative 2 would allow for lethal and/or nonlethal take under the provisions of the section 10(j) rule in most areas of the state, except for Jackson County and western Larimer County, which would be subject to a section 10(a)(1)(A) permit (see table ES-1). Under alternative 2, livestock producers within the section 10(a)(1)(A) permit boundary may face disproportionately higher direct and indirect costs from wolf depredation.</p>

Environmental Resource	Alternatives		
	No-Action Alternative	Alternative 1 (Preferred Alternative)	Alternative 2
Environmental Justice	<p>Under the no-action alternative, if wolves are present within the Brunot Area lands or on Tribal reservations, localized impacts could be disproportionately high and adverse for Tribal members, particularly those who rely economically on livestock production or hunting and those who rely on subsistence hunting. This alternative could result in localized disproportionately high and adverse impacts to low-income and minority livestock producers and outfitters and guides, particularly in the focal counties due to the presence of suitable ecological conditions for gray wolves. Under this alternative, these impacts would not be mitigated because reintroduced gray wolves would be managed as an endangered species under the ESA.</p>	<p>Disproportionately high and adverse impacts could occur on low-income outfitters and guides, subsistence hunters, and Tribes in local areas based on the factors discussed under the no-action alternative. These impacts may be reduced if the optional provision to allow take of wolves to address impacts to ungulates is adopted. Direct costs to livestock producers over the long term resulting from depredation would be lower under this alternative, compared to the no-action alternative.</p> <p>Implementation of alternative 1 may not fully mitigate against indirect economic losses or incurred costs to implement nonlethal take strategies. However, the potential for disproportionately high and adverse impacts would be reduced under alternative 1 compared to the no-action alternative.</p>	<p>Under alternative 2, potential impacts to population groups of concern would be the same as described under alternative 1 for areas within the proposed experimental population boundary, which would cover most of the state.</p> <p>While lethal take of wolves would be prohibited within the section 10(a)(1)(A) permit boundary, alternative 2 would still provide the Service and its designated agents flexibility to manage an existing population of gray wolves to address livestock depredation. Within the section 10(a)(1)(A) permit boundary, impacts to low-income and minority livestock producers would be slightly reduced compared to the no-action alternative; however, these impacts may still be disproportionately high and adverse due to the cost of implementing nonlethal take measures. Impacts to outfitters and guides and subsistence hunters would be similar to impacts described under alternative 1. These impacts may be reduced if the optional provision to allow take of wolves to address impacts to ungulates is adopted.</p>

CHAPTER 7 LIST OF PREPARERS AND REFERENCES

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APPENDIX A: GLOSSARY

GLOSSARY

Term	Definition
Active den site	A den or a specific aboveground site that is being used on a daily basis by wolves to raise newborn pups during the period April 1 to June 30.
Breeding pair	An adult male and an adult female wolf that, during the previous breeding season, produced at least two pups that survived until December 31 of the year of their birth.
Compensatory mortality	The principle of compensatory mortality indicates that wolves that are not killed by anthropogenic causes (e.g., legal harvest, illegal take, accidents) are at risk of dying from natural causes (e.g., intraspecific strife, disease, starvation), but they cannot be killed by both, and survival may improve for the remaining wolves due to increased food availability, reduced conflicts, and higher litter sizes (Mech 2001, Fuller 2003).
Designated agent	An employee of a Federal, State, or Tribal agency that is authorized or directed by the Service to conduct gray wolf management. A prospective designated agent submits a letter to the Service requesting designated agent status. The letter includes a proposal for the work to be completed and resume of qualifications for the work they wish to perform. The Service will then respond to the requester with a letter authorizing them to complete the work.
Disperse/dispersal	Natural movement of an individual wolf from its birthplace to the place it reproduces.
Dogs	Includes working dogs and companion animals.
Domestic animals	Animals that have been selectively bred over many generations to enhance specific traits for their use by humans, including use as pets. This includes livestock and dogs, as defined in this glossary.
Experimental population	Under section 10(j) the Service may designate a population of a species listed under the Endangered Species Act (ESA) as experimental if it will be released into suitable natural habitat outside the species' current range. An experimental population is a special designation for a group of plants or animals that will be reintroduced in an area that is geographically isolated from other populations of the species. A population designated as experimental is treated as threatened under the ESA, regardless of the species' designation elsewhere in its range. An experimental population may be considered essential or nonessential.
Experimental population boundary	The area covered by the section 10(j) designation. Under alternative 1, this would be the entire state of Colorado. Under alternative 2, this would be the entire state of Colorado, except for the portion of the state with an existing population before a section 10(j) rule is finalized, which would be managed under a section 10(a)1(A) permit.
Gray wolf	<i>Canis lupus</i> is a large canine native to Eurasia and North America. Gray wolf does not refer to the Mexican gray wolf (<i>Canis lupus baileyi</i>) subspecies, which is listed separately under the ESA as an endangered subspecies.
In the act of attacking	The actual biting, wounding, grasping, or killing of livestock or dogs, or chasing, molesting, or harassing by wolves that would indicate to a reasonable person that such biting, wounding, grasping, or killing of livestock or dogs is likely to occur at any moment.

Term	Definition
Incidental take	Take of a gray wolf that is accidental and incidental to an otherwise lawful activity if reasonable due care was practiced to avoid such take.
Injurious, nonlethal take	Harassment that may cause either temporary or permanent injury.
Intentional harassment	The deliberate harassment of wolves, including by less-than-lethal munitions (such as 12-gauge shotgun rubber pellets and bean-bag shells) that are designed to cause physical discomfort and temporary physical injury but not death. The wolf may have been tracked, waited for, chased, or searched out and then harassed.
Landowner	An owner or lessee of private land, or their immediate family members, or the owner's employees, contractors, or volunteers who are currently employed to actively work on that private land. In addition, the owner(s) (or their employees or contractors) of livestock that are currently and legally grazed on that private land and other lease-holders on that private land (such as outfitters or guides who lease hunting rights from private landowners) are considered landowners on that private land for the purposes of this regulation. Private land, under this regulation, also includes all non-federal land and land within Tribal reservations. Individuals legally using Tribal lands in the State of Colorado with wolf management plans are considered landowners for the purposes of this rule. "Landowner" in this regulation includes legal grazing permittees or their current employees on State, county, city public, or Tribal grazing lands.
Livestock	Cattle, sheep, pigs, horses, mules, goats, domestic bison, and herding and guarding animals (alpacas, llamas, donkeys, and certain breeds of dogs commonly used for herding or guarding livestock). Livestock excludes dogs that are not being used for livestock guarding or herding.
Mexican gray wolf	<i>Canis lupus baileyi</i> is a subspecies of the gray wolf (<i>Canis lupus</i>) and is listed separately under the ESA as an endangered subspecies.
Multiplier effect	A measure of the aggregate effect that a change in economic activity has on the economy.
Non-injurious	Does not cause either temporary or permanent physical damage or death.
Opportunistic harassment	Harassment without the conduct of prior purposeful actions to attract, track, wait for, or search out the wolf.
Private land	All land other than that under federal government ownership and administration and including Tribal reservations.
Problem wolves	Wolves that the Service or the Service's designated agents confirm to have attacked any other domestic animals twice within a calendar year are considered problem wolves for purposes of agency wolf control actions.
Public land	Federal land such as that administered by the National Park Service, Service, Bureau of Land Management, U.S. Forest Service, Bureau of Reclamation, Department of Defense, or other agencies with the federal government.
Public land permittee	A person or that person's employee who has an active, valid federal land-use permit to use specific federal lands to graze livestock or operate an outfitter or guiding business that uses livestock. This definition does not include private individuals or organizations who have federal permits for other activities on public land such as collecting firewood, mushrooms, antlers, Christmas trees, or logging, mining, oil or gas development, or other uses that do not require livestock. In recognition of the special and unique authorities of Tribes and

Term	Definition
	their relationship with the U.S. Government, for the purposes of this rule, the definition includes Tribal members who legally graze their livestock on ceded public lands under recognized Tribal treaty rights.
Reasonable due care	The care that an ordinarily reasonable and prudent person would use under the same or similar circumstances.
Remove	Place in captivity, relocate to another location, or kill.
Research	Scientific studies resulting in data that will lend to enhancement of the survival of the gray wolf.
State land	Lands owned, managed, and leased by the State of Colorado for the purpose of generating revenue for the support of Colorado public schools.
Take	To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect species listed under the ESA, or to attempt to engage in such conduct.
Unacceptable impact	Impact to ungulate population or herd where a State or Tribe has determined through scientific investigations that wolves are one of the major causes of the population or herd not meeting established State or Tribal management goals.
Ungulate population or herd	An assemblage of wild ungulates living in a given area.
Wounded	Exhibiting scraped or torn hide or flesh, bleeding, or other evidence of physical damage caused by a wolf bite.
Wolf population	At least two breeding pairs of wild wolves successfully raising at least two young each year (until December 31 of the year of their birth), for two consecutive years.

APPENDIX B: RELATED LAWS AND POLICIES

RELATED LAWS AND POLICIES

The following sections describes the federal, state, and international laws, policies, and treaties that are relevant to the proposed action.

Endangered Species Act

The Endangered Species Act (ESA), signed into law in 1973, recognizes the aesthetic, ecological, educational, historical, recreational, and scientific value of the nation's wildlife and plant species. The purpose of the ESA is to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide a program for the conservation of such species. The act directs the U.S. Fish and Wildlife Service (Service) and all federal agencies to participate in conserving threatened and endangered species.

Section 7(a)(2) of the ESA requires federal agencies to ensure their activities are not likely to jeopardize the continued existence of federally listed species or destroy or adversely modify designated critical habitat. Federal agencies, including the Service, must complete consultation under section 7 when any project or action they authorize, fund, or carry out may affect a listed species or designated critical habitat.

Section 10(j) of the ESA states that the Secretary of the Interior may designate a population of a listed species as experimental. An experimental population is a special designation for a group of plants or animals that will be reintroduced in an area that is geographically isolated from other populations of the species. With the experimental population designation, the specified population is treated as a threatened or candidate species under the ESA, regardless of the species' designation elsewhere in its range. This designation allows the Service the discretion to devise management programs and special regulations for an experimental population to ease the regulatory burden on landowners and managers associated with endangered species (USFWS 2018).

Animal Damage Control Act of 1931

The Animal Damage Control Act of 1931 states, in part, "the Secretary...is authorized to conduct such investigations, experiments, and tests as he may deem necessary...on public domain, State,...and privately owned lands of...animals injurious to agriculture,...forestry,...wild game animals,...and for the protection of stock...and to conduct...control...of such animals...and may cooperate with States, individual and public and private agencies, organizations and institutions" (USFWS 1994). The act provides broad authority for investigation and control of injurious, or harmful, species of wildlife. Public Law 99-19, approved in 1985, transferred administration of the act from the Secretary of the Interior to the Secretary of Agriculture (USFWS n.d.). The U.S. Department of Agriculture's Animal and Plant Health Inspection Service Wildlife Services "[provides] Federal leadership and expertise [in resolving] wildlife conflicts to allow people and wildlife to coexist" (USDA-APHIS n.d.).

Wilderness Act of 1964

The Wilderness Act of 1964 establishes the National Wilderness Preservation System and directs federal land management agencies to manage these wilderness areas to preserve wilderness character. Wilderness areas are managed by the Service, National Park Service, Bureau of Land Management, and U.S. Forest Service (NPS n.d.). The Wilderness Act defines wilderness as "an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed...to preserve its natural conditions and which:

1. Generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable,
2. Has outstanding opportunities for solitude or a primitive and unconfined type of recreation,
3. Has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition, and
4. May also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.”

National Environmental Policy Act of 1969

The National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321–4347) requires federal agencies to undertake an assessment of environmental effects of any proposed action prior to making a final decision and implementing it. NEPA requirements apply to any federal project, decision, or action that may have a significant impact on the quality of the human environment. NEPA also established the Council on Environmental Quality (CEQ), which issued regulations implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508). The Service has regulatory authority under the ESA to manage the conservation and recovery of listed species, including creating rules and regulations and permitting legitimate activities that would otherwise be prohibited by federal law. Promulgating a 10(j) rule for designation of an experimental population of a species is considered a major Federal action requiring review under NEPA.

National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.) and its implementing regulations under 36 CFR Part 800 require all federal agencies to consider effects of federal actions on historic properties, including historic structures, districts, cultural landscapes, and archaeological sites eligible for or listed in the National Register of Historic Places.

Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by President Clinton in 1994. This executive order requires each federal agency to make environmental justice part of its mission. Agencies are required to identify and address disproportionately high adverse human health or environmental effects of their activities on minority populations and low-income populations. Minority populations are defined as individuals who are members of the following population groups: American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Black, or African American, two or more races, or Hispanic. Low-income is defined as a median household income at or below the Department of Health and Human Services' poverty guidelines.

Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, was issued by President Clinton in 2000. The executive order recognizes Tribal rights of self-government and sovereignty and requires federal government agencies to work with Native American governments on a government-to-government basis. Federal agencies are required to consult with Tribal officials before promulgating a proposed rule that (1) has Tribal implications, or (2) would impose substantial direct

compliance costs on Tribal governments and is not required by statute. If a rule would impose substantial direct compliance costs on a Tribal government and is not required by statute, the agency must provide funds to pay the direct compliance costs of the Tribal government (USEPA 2021).

Brunot Agreement of 1873

The Brunot Agreement of 1873, signed by Chief Ouray and Commissioner Felix Brunot, created the current boundaries of the Southern Ute Reservation and relinquished a large portion of the previous 1868 Southern Ute Reservation, consisting of 5,780 square miles in the western part of Colorado, to the United States. As part of this treaty, Tribal members were given full hunting rights within the relinquished lands, which include the right to fish and hunt waterfowl. In 2008, the Southern Ute Indian Tribe entered a Memorandum of Understanding with the State of Colorado addressing the Tribe's hunting and fishing rights in the Brunot Area and establishing a cooperative approach to hunting, fishing, and wildlife law enforcement.

Colorado State Law

The Colorado Nongame, Endangered, or Threatened Species Conservation Act (Colorado Revised Statutes Annotated §33-2-101–108) states that species and subspecies of wildlife that are indigenous, or native, to Colorado and found to be endangered or threatened in the State “should be accorded protection in order to maintain and enhance their numbers to the extent possible.” The act directs the Colorado Parks and Wildlife (CPW) Commission to establish a list of threatened and endangered species in the state and review this list at least once every five years to determine if a change in the status of any listed species is needed. The gray wolf is listed as an endangered species by the state. Under the act, it is illegal for any person to take, possess, transport, export, process, sell or offer for sale, or ship any species determined by the state to be endangered. The act authorizes CPW to carry out management programs for threatened and endangered and nongame wildlife species, including acquisition of land or aquatic habitat, establishing agreements with federal or state agencies or private individuals, and management of wildlife to alleviate damage to property or protect human health.

State statute 33-2-105.8 requires the CPW Commission to develop a plan to restore and manage gray wolves in Colorado, using the best scientific data available, and begin reintroductions of gray wolves by December 31, 2023, only on designated lands. According to the statute, the state's plan to restore and manage gray wolves must include:

- The selection of donor populations of gray wolves;
- The places, manner, and scheduling of reintroductions of gray wolves by CPW, with reintroductions restricted to designated lands;
- Details for the reintroduction and management of gray wolves, including actions necessary or beneficial for establishing and maintaining a self-sustaining population; and
- Methodologies for determining when the gray wolf population is sustaining itself successfully and when to remove the gray wolf from the list of endangered or threatened species.

State statute 35-40-101 articulates that it is the duty of the Commissioner of Agriculture to control depredating animals within the state of Colorado to reduce economic losses to agricultural products or resources. The Commissioner has exclusive jurisdiction over the control of depredating animals through rule making done in consultation with the CPW Commission with the exception of controlling state-threatened or endangered depredating animals. The CPW Commission must approve any rules concerning

the taking of state-threatened or endangered depredating animals prior to the adoption of such rules by the Commissioner of Agriculture.

International Treaties

Several international treaties affect how the federal government manages federal land and wildlife (including federally listed threatened and endangered species) under federal authorities, including the Convention of Nature Protection and Wildlife Preservation in the Western Hemisphere and Convention on International Trade in Endangered Species of Wild Fauna and Flora. These treaties differ in emphasis and species of primary concern but collectively provide clear mandates for identifying and protecting important habitats and ecosystems and protecting and managing individual species.

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APPENDIX C: FINAL PUBLIC SCOPING COMMENT ANALYSIS REPORT



Colorado Gray Wolf 10(j) Rulemaking Environmental Impact Statement

Final Public Scoping Comment Analysis Report

September 2022

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INTRODUCTION

Public scoping is the process by which the U.S. Fish and Wildlife Service (the Service) solicits public input on the scope of issues and alternatives to be addressed in a National Environmental Policy Act (NEPA) document, such as an environmental impact statement (EIS). It is a process open to the public that is conducted early in the NEPA planning process. Public scoping can include meetings and notifications to inform the public on the project and on the planning process guiding the preparation of an EIS. This process also instructs members of the public on how to provide comments on the project. After the public scoping period ends, public comments are analyzed and summarized. The summary—in addition to other relevant law, policy, planning documents, and scientific literature—is used to identify key issues, develop alternatives, and further help define potential environmental impacts.

The Service held a public scoping period for the Colorado Gray Wolf 10(j) Rulemaking EIS from July 21, 2022, to August 22, 2022. During the public scoping period, three in-person open house meetings were held in Gunnison, Silverthorne, and Craig, Colorado, on August 2, August 3, and August 4, 2022, respectively. A virtual public meeting was held on August 10, 2022. Members of the public were encouraged to submit comments online through <https://www.regulations.gov> (following instructions to submit comments to Docket No. FWS-R6-ES-2022-0100). Written comments were also accepted at the meetings and by mail. Approximately 900 pieces of correspondence were received during the public scoping period for this EIS. Additional detail is provided in this report. This report describes the public scoping process for this EIS and presents the analysis and summary of public comments received.

PUBLIC SCOPING FOR THE COLORADO GRAY WOLF 10(j) RULEMAKING

The public scoping period was open for approximately five weeks between July 21, 2022, and August 22, 2022. The Service issued a press release to media outlets and published the press release on the Colorado Ecological Services Field Office website on July 19, 2022, announcing the dates, times, and places of the public scoping meetings. The Service opened the public comment period for initial scoping on July 21, 2022. On that date, letters were sent to Tribes and other stakeholders notifying them of the public scoping meetings and offering to brief them on the process, and the webpage for Docket No. FWS-R6-ES-2022-0100 on <https://www.regulations.gov> was activated for the public to submit comments. The Notice of Intent was published in the *Federal Register* on July 21, 2022. Three in-person public scoping meetings were held during the comment period at the following locations:

- August 2, 2022: Gunnison County Fairgrounds, Gunnison, Colorado
- August 3, 2022: Silverthorne Pavilion, Silverthorne, Colorado
- August 4, 2022: Moffat County High School, Craig, Colorado

Additionally, the Service held a virtual public scoping meeting on August 10, 2022.

Approximately 100 people attended the three in-person meetings and virtual meeting (approximately 25 people attended the meeting in Gunnison, approximately 11 people attended the meeting in Silverthorne, approximately 67 people attended the meeting in Craig, and approximately 50 people attended the virtual meeting).

At each meeting, handouts of the public scoping newsletter were available that included information about the background of the project, the proposed purpose and need, preliminary draft alternative concepts, potential issue topics, a description of the NEPA process, and information on how to submit

comments online or via mail. This information was also displayed on banners at each in-person meeting venue and presented in a PowerPoint presentation during the virtual meeting. Service personnel, as well as staff from Colorado Parks and Wildlife (at the in-person meetings only), were available to answer questions and provide additional information to meeting attendees.

Writing stations available at each in-person public meeting provided areas where attendees could sit, write comments, and submit a comment form into a box. Attendees who prepared written comments before the meeting could submit those comments to the comment box provided. Attendees had the option to take comment forms and mail them later. During the scoping period, approximately 900 pieces of correspondence were received.

Interested parties were encouraged to enter their comments directly on <https://www.regulations.gov/>. Hard copy correspondence received at the public meetings or by mail was also collected for analysis. All correspondence was entered into a web-based system, DiscoverText, for coding and analysis. DiscoverText is a text analytics software system that supports sorting and analysis of written comments.

DEFINITION OF TERMS

Primary terms used in the document are defined below.

Correspondence: A correspondence is the entire document received from a commenter. This includes letters; written comment forms; comments submitted directly on <https://www.regulations.gov/>; and any other written comments provided either at the public scoping meetings or by mail.

Comment: A comment is a portion of the text within a correspondence that addresses a single subject. It could include such information as an expression of support or opposition for an alternative, additional data regarding existing conditions, or suggestions for resource topics, alternatives, or alternative elements to be considered.

Code: A code is a grouping centered on a common subject. The codes were developed during the scoping process and are used to track major subjects.

Concern: Concerns are statements that summarize the issues identified under each code. Each code was further characterized by concern statements to provide a better focus on the content of comments. Some codes required multiple concern statements, while others did not. In cases where no comments were received on an issue, the code was not identified or discussed in this report.

Quotes: Representative quotes have been taken directly from the text of the comments received from the public and further clarify the concern statements. Quotes have not been edited for grammar.

COMMENT ANALYSIS METHODOLOGY

Correspondence was received by hard-copy letter via mail, on comment sheets submitted at the public meetings, or correspondence entered directly into <https://www.regulations.gov/>. Letters received by email or through the U.S. mail, as well as the comments received from the public meetings, are included in the analysis.

Once all the correspondence was entered into DiscoverText, each was read, and specific comments within each unique correspondence were identified. Over 900 comments were derived from the correspondence

received. When identifying comments, every attempt was made to capture the full breadth of comments submitted.

To categorize comments, each comment was assigned one or multiple codes to identify the general content of a comment and to group similar comments. Thirteen codes were used to categorize the public scoping comments received. Examples of codes developed for this project are *Alternatives*, *Support or Oppose*, and *Special Status Species*. In some cases, the same comment may be categorized under more than one code, reflecting the fact that the comment may address more than one issue or idea. It should be noted that the impact topics brought up in the public scoping comments are unlikely to be the only topics considered in the EIS. Impact topics to be considered in the EIS will be informed by a number of other factors in addition to public comments.

GUIDE TO THE CONCERN REPORT

The *Concern Report* is provided in the following section of this document. This report summarizes the comments received during the public scoping process. In the report, comments are organized by codes and further organized into concern statements. Representative quotes are provided for each concern statement. A list of concern statements, in table format, is provided at the beginning of the *Concern Report* section for quick reference (refer to table 1).

HOW WILL MY COMMENT BE USED?

As described above, all comments are categorized into concern statements, such as “Commenters requested that the Bureau of Land Management and U.S. Forest Service be cooperating agencies for the DEIS” and “Commenters requested that the DEIS look at impacts and interactions with the Mexican gray wolf.” These concerns are listed in table 1 in the *Concern Report* section of this document. These concerns will guide the alternatives, issues, impact topics, and references to be considered during drafting of the EIS.

This report is a summary of public comments received during the public scoping period for the EIS. This report, including the comments in this report, has not been screened for consistency with federal law and policy, or for whether a particular comment is within the scope of the EIS.

CONCERN REPORT

As described above, this report summarizes the comments received during the public scoping period for the 10(j) Rulemaking EIS in support of the State of Colorado's reintroduction of the gray wolf. Table 1 provides a concise list of concern statements by code for quick reference. It is followed by the full concern report, which includes representative quotes.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

AL100 - Preliminary Alternatives:	
Concern 1	Some commenters were in favor of incorporating trapping into an alternative as a management tool for gray wolves. One commenter noted that Colorado's Amendment 14 that banned the use of leghold traps does not apply to federal agencies and suggested that leghold traps be used in gray wolf management. Some commenters posited that traps could enable use of radio collars to monitor wolves and could be a valuable tool in nonlethal management.
Concern 2	Commenters expressed approval for an alternative with maximum management flexibility. Many commenters approved of management flexibility to reduce conflicts between wolves and livestock and domestic animals. Some commenters noted that changes in habitat, rising human populations, and development have changed the Colorado landscape and require the Service to have the ability to adjust its management approach after introduction depending on outcomes. One commenter was strongly in favor of management flexibility, as long as a wolf hunting season would not be implemented. Other commenters were strongly in favor of management flexibility because it could allow for hunting if the wolf population were to become overly abundant or if the gray wolf were to be delisted. One commenter said that management flexibility afforded by the 10(j) could help reduce the potential economic impacts of wolves. Case-by-case management was favored by several commenters, who are worried about unforeseen regulatory needs following reintroduction. Many commenters were in favor of the flexibility to control wolves lethally and nonlethally depending on their impacts. Others asked the Service to be consistent with the management of the Northern Rocky Mountain population.
Concern 3	Management of Mexican wolves and other gray wolf subspecies was a subject of concern for commenters. Some commenters asked for the 10(j) rule to apply to all gray wolf subspecies, including the Mexican gray wolf. Commenters argued that including all subspecies under the 10(j) rule would enhance connectivity among populations. Several commenters requested that a subpopulation of Mexican wolves be introduced in southwestern Colorado, arguing that introducing the subspecies would improve genetic diversity and connectivity. Conversely, one commenter worried about preserving the genetic integrity of Mexican wolves.
Concern 4	Some commenters asked that the chosen alternative designate gray wolves as non-essential. Commenters pointed out delisted wolf populations in other states as justification for a non-essential designation, since the experimental population would not be vital to the survival of the gray wolf species. A few commenters also asked that the Service designate Mexican wolves as non-essential.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Concern 5	Several commenters requested that the Service integrate existing planning efforts and reports (e.g., Colorado Parks & Wildlife [CPW] Report, Colorado Wolf Report, WildEarth Guardians Proposal and Wolf Restoration Plan, the Stakeholder Advisory Group recommendations, CPW resources on other species, and CPW big game management plans) into the selected alternative. Some commenters specified that the CPW plan should only be integrated into the Service's rule to the extent that it furthers gray wolf recovery and aligns with the best available science. Other commenters asked for the Service to assess the long- and short-term costs associated with the various plans and identify who would bear those costs. Commenters also asked that the Service incorporate best available science and peer-reviewed research into the plan. Others suggested considering the wolf restoration experiences of other states in determining the best alternative.
Concern 6	Commenters asked for allowances in the management plan for accidental or incidental lethal take of wolves. Commenters requested no punitive action against people who kill a wolf they have mistaken for a coyote. Commenters also requested protection from punitive action if working dogs or burros injure or kill a wolf. One commenter asked the Service to allow aggressive hazing of wolves to protect humans and livestock and asked that resulting accidental killings of wolves not be punished.
Concern 7	Some commenters requested that the Service designate the experimental population as essential in the rule.
Concern 8	Commenters requested that the management plan include education for ranchers and livestock operators to reduce conflicts with wolves. Topics for education included adjusting calving timing and location, increasing human watch over livestock, using guardian dogs, removing or destroying livestock carcasses, installing predator-resistant fencing, removing sick animals, using lights, and other nonlethal hazing techniques. Many commenters theorized teaching livestock operators about nonlethal techniques to avoid wolf predation would reduce conflicts with livestock.
Concern 9	Commenters requested that the Service include public education in its management plan. Some comments concerned teaching the public about the ecological importance of wolves to discourage lethal take. Other comments focused on educating citizens on wolf management, co-existence with wolves, and how to avoid wolf conflicts.
Concern 10	Commenters had a few creative recommendations for the Service to implement in its preferred alternative. One commenter suggested translocating or removing wolves that are proven to be responsible for a marked decline in ungulate populations. Another commenter recommended that the Service create a limit on the number of wolf fatalities allowed in Colorado and to stop reintroductions of wolves if the threshold is met to preserve the species. A commenter suggested spaying and neutering the reintroduced wolves, arguing that the Service should prevent wolf reproduction because the population would be experimental. Another commenter asked the Service to consider removing livestock from public lands to reduce conflicts with wolves.
Concern 11	Some commenters asked the Service to implement ecosystem recovery goals in the preferred alternative. A commenter suggested the Service use full recovery of riparian zones as an indicator of reaching the preferred population of wolves in the state. Another commenter requested that recovery goals and delisting be determined by the amount of suitable habitat the wolves occupy in the state, rather than a wolf population target. The commenter noted that having a hard population recovery goal would increase hostility toward wolves when the goal is reached and argued that management should be based on ecological carrying capacity instead.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Concern 12	Several comments were related to the boundaries of the Service's action. Some commenters expressed concern about applying different rules to the same species in the state based on whether they were introduced or had migrated into the state. Several commenters requested that wolves be managed under the same rules within the experimental population boundary as outside the boundary, while others asked that the rule cover the entire state to reduce confusion. One commenter asked that wolves found in other states beyond the 10(j) boundary, including Utah and Arizona, be relocated back to Colorado. A commenter also asked that wolves be released a minimum of 150 kilometers inside the 10(j) boundary. Another commenter suggested that the Service extend the 10(j) boundary to include a buffer zone around Colorado's state borders to protect the population from unregulated take where wolves lack Endangered Species Act (ESA) protection. Several commenters requested that the Service limit where wolves could be reintroduced with suggestions including west of the Continental Divide or north of US Highway 50. Many commenters opposed boundaries in general and asked that wolves be permitted to roam freely inside and outside Colorado without lethal take or translocation.
Concern 13	Several commenters specifically requested that the 10(j) rule apply to both introduced and migratory wolves.
Concern 14	Commenters expressed support for alternative 1. Commenters were in favor of the regulatory flexibility afforded by the alternative and were also supportive of designating reintroduced wolves as an "experimental population."
Concern 15	Commenters expressed opposition to any lethal take of wolves. Some commenters cited ethical reasons for opposing lethal management; others noted ecological impacts of lethal control, particularly in riparian zones. Several commenters cited studies that show that lethal control is less effective than proactive nonlethal management in minimizing conflicts with livestock. Commenters argued that wolves can regulate their own population based on food and habitat availability. Many commenters qualified their statements opposing lethal control in the case of immediate defense of life.
Concern 16	Commenters were opposed to elements of alternative 2, including the Safe Harbor Rule, and suggested that the alternative could restrict the management tools needed to control livestock predation.
Concern 17	Commenters were against the no-action alternative, noting that the alternative would limit CPW's ability to regulate livestock predation and could have economic effects on livestock operators.
Concern 18	Commenters were concerned about having federal entities control the management of wolves and asked the Service to cede management to the state. Other commenters were concerned about giving too much control to the state. Commenters suggested that the 10(j) rule have simple criteria for management changes to allow for a seamless transition between state-managed species and federally managed species.
Concern 19	Commenters expressed concern about translocating wolves. Some commenters requested that the 10(j) rule provide options for relocating wolves that impact human safety, wildlife populations, or livestock. Other commenters argued that wolves should be allowed to roam freely without fear of translocation to reestablish habitat connectivity from the northern Rockies to the Southwest. One comment requested that translocations only occur with the consent of local governments and Tribes.
Concern 20	Commenters expressed support for allowing lethal take of wolves. Commenters were in favor of lethal take to protect livestock, pets, property, and working dogs. Some commenters noted the cost-effectiveness of lethal take and suggested that non-lethal methods would be more expensive to agencies and individuals. Other commenters were in favor of having a hunting season for wolves. One commenter noted that other predators, like black bears and cougars, are partially managed through hunting and that wolves should be similarly managed to avoid favoritism among species. One comment suggested that the Service implement an "escape clause" to lethally take all wolves in the experimental population if the non-essential status is at risk.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Concern 21	Commenters suggested that lethal and/or nonlethal take be forbidden on public lands. Commenters argued that banning take on public lands would help restore ecosystems while allowing livestock operators to protect their property.
Concern 22	Commenters asked the Service to define specific recovery criteria in the plan. They asked for set population targets, timelines, and goals for down-listing and delisting the species. Commenters also requested that the Service define how the experimental population would contribute to wolf conservation and recovery.
Concern 23	Commenters asked that the Service specifically protect access to recreation, including motorized recreation, in the 10(j) area.
Concern 24	Commenters requested that reintroduced wolves be managed under the ESA as endangered or threatened. Commenters were in favor of managing all wolves in Colorado under the ESA to avoid subjecting wolves to human-defined boundaries where they might be safe in one area and subject to lethal take in another. Commenters argued that maintaining ESA protection would help prevent poaching and could help wolf subspecies thrive. One commenter suggested designating the reintroduced wolves as endangered and specifically releasing them in national parks. Commenters were concerned about lack of habitat protection under a 10(j) rule and favored reintroducing the species as endangered to allow for designation of critical habitat under the ESA.
Concern 25	Commenters suggested collaring all released wolves, or just one wolf per pack, to track their location and avoid livestock conflicts. A commenter also proposed implementing a reporting system for individuals who encounter wolves.
Concern 26	Commenters asked the Service to include provisions for lethal take under specific conditions. Several commenters asked that lethal take be permitted if the wolf was actively attacking livestock, pets, or working dogs. Other commenters suggested allowing lethal take only on private property. One commenter suggested requiring anyone shooting a wolf to have a camera installed on their gun to prove the wolf was in the act of killing livestock. Other commenters asked that lethal control be allowed if a wolf had shown a pattern of attacking livestock and had not responded to nonlethal deterrence strategies. One commenter asked that individuals not be penalized for shooting a wolf they had mistaken for a coyote. One commenter asked that wolf population control through lethal management be done with in consultation with biologists and an understanding of pack structure. Other suggestions included allowing lethal take up to a defined number of wolves or allowing hunting of wolves when they meet the 2, 2, 2 rule.
Concern 27	Commenters were in favor of the Service issuing a section 10(a)(1)(A). Some commenters requested that the entire state be managed under section 10(a)(1)(A) rather than a 10(j). Commenters noted that the existing wolves in Colorado mean that the introduced wolves would not be an experiment and a 10(j) would not be appropriate. One commenter suggested reintroducing wolves under a 10(a)(1)(A) permit throughout the state, keeping the wolves listed as endangered, and using Incidental Take Permits and Safe Harbor Agreements to provide regulatory flexibility. One commenter requested that the 10(a)(1)(A) permit not be used to justify removing or translocating wolves that roam outside the 10(j) area. Some commenters requested that the Service consider using section 10(a)(1)(B) to allow for maximum flexibility in management.
Ecosystem Dynamics	
Concern 28	Commenters requested that the EIS consider the interaction between resources, noting that these interactions are complex. Commenters provided specific examples, including upsetting predatory/prey relationships to the extent that soils, water, and vegetation are negatively impacted. Some commenters requested consideration of the ecological benefits from having wolves on the landscape. One commenter noted that the loss of sheep from wolf depredation could affect the ecosystem.
Concern 29	Commenters suggested that the 10(j) rule include a prohibition on lethal control to the extent that these action would inhibit trophic cascades.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Environmental Justice	
Concern 30	Commenters noted that the EIS should assess the role of gray wolves in mitigating climate change and the potential effects of climate change on gray wolves and other affected resources.
NEPA	
Concern 31	Commenters requested that the Bureau of Land Management (BLM) and Forest Service be cooperating agencies for the EIS. They noted that these agencies should consider amending their Resource Management Plans (RMPs) and Forest Plan with regard to grazing-related decisions, specifically asking for vacant or marginal grazing allotments to be made available and for the removal of seasonal restrictions when game species are most prevalent.
Concern 32	Commenters noted that since wolves do not stay in one place, that the analysis consider reintroduced wolves and those that have migrated in from other areas. Similarly, they requested that because wolves will migrate to adjacent states, the impact to these states should be considered.
Concern 33	Commenters requested that the EIS evaluate indirect impacts of the potential decline in elk and deer herds from wolf reintroduction.
Concern 34	Commenters requested the purpose and need statement be focused on having reintroduction as the dominant priority and focus on the legislative mandate to reintroduce wolves.
Concern 35	Commenters requested that the National Environmental Policy Act (NEPA) analysis use peer-reviewed science to the greatest extent possible. Commenters also noted that the Service should evaluate potential impacts on other resources as well as impacts on weather, human uses such as recreation, domestic livestock grazing, and recreation (including hunting). Some commenters requested that the beneficial impact of wolves be addressed, including contributing to enhancing biodiversity; improving ecosystem processes and function, mitigating climate warming and enhancing resilience to climate warming; improving ungulate population health by selectively removing old and diseased individuals (including individuals infected with chronic wasting disease with research indicating that wolf predation may suppress disease emergence or limit prevalence); and infusing local tourism economies.
Concern 36	Commenters noted other related planning processes that should be included in the Service's planning process such as the State of Colorado's wolf management planning, the wolf reintroduction plan developed by a non-profit group, and past wolf managing efforts in other Western states. Specific resources from these agencies were suggested such as the CPW Species Activity Mapping and CPW estimates of the costs related to the reintroduction and management of wolves.
Concern 37	Commenters stated that this planning process cannot be rushed, with some expressing concern about the accelerated effort.
Concern 38	Commenters stated that the decision of the State of Colorado to reintroduce wolves, or not, is a major federal action requiring NEPA analysis.
Concern 39	Commenters requested that the NEPA analysis include a population viability analysis, stating that unless the population is a certain size, the reintroduction will not be successful. They further requested the NEPA analysis address the 3 R's - resiliency, redundancy, and representation, to determine when the gray wolf is ready for delisting.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Concern 40	Commenters requested that the NEPA process consider the full range of alternatives such as lethal take, the geographic boundaries, and compensation programs. One specific alternative suggested was to evaluate two scenarios: (1) federal management of the gray wolf in Colorado as a fully protected endangered species, without an ESA 10(j) designation; and (2) cooperative, intergovernmental management of the gray wolf in Colorado as a designated non-essential experimental population under an ESA 10(j) designation.
Concern 41	Commenters requested that the EIS thoroughly document all costs to agencies and individuals of using non-lethal deterrents vs. lethal take. They expressed concern that non-lethal deterrents cost more and are not as effective. Others noted that the costs of reintroduction are relevant to the 10(j) process and should be discussed.
Concern 42	Commenters stated that this process should not move forward until the gray wolf is delisted in the State of Utah.
Concern 43	Commenters stated that the Service has a legal obligation to consult with appropriate state fish and wildlife agencies, local government entities, affected federal agencies, and affected private landowners during the development and implementation of experimental population rules. They noted that the plans developed by the Service need to be consistent with state and local plans. The State of Utah noted that it has a state Resource Management Plan (SRMP) and that all 29 counties in the state have adopted County Resource Management Plans (CRMPs) that should be considered in the planning process. Garfield County also requested consistency with its land use planning efforts. Cooperating agencies further requested the ability to coordinate during the development of the 10(j) rule.
Concern 44	One commenter requested that the EIS process be put on hold until there is a decision on the petition to delist the gray wolf.
Concern 45	Commenters asked that the EIS take a hard look at lethal control and its impacts and efficacy. They cited studies stating that livestock depredation may actually increase after lethal control. They also requested the EIS look at the role wolves play in livestock deaths, stating that they are not a large factor in mortality.
Other	
Concern 46	Commenters stated that the 10(j) rule should reflect a public desire for stricter protections and low support for recreational hunting.
Concern 47	Commenters stated that the 10(j) rule should include a subpopulation of Mexican gray wolves in southern Colorado to connect the existing population to a subpopulation and increase genetic diversity.
Concern 48	Commenters noted the regulatory responsibility of the Service in addressing translocated wolves. These included addressing how any translocated wolves would affect wolves already in Colorado and how they would affect the Mexican gray wolf.
Concern 49	Commenters suggested studies that could be considered in the EIS process include those related to wolf densities and other reintroduction efforts such as Isle Royale National Park and the Northern Rockies.
Concern 50	Commenters were concerned for human health and safety due to the presence of wolves on the landscape.
Concern 51	Commenters requested the EIS discuss the impacts to recreation from wolf reintroduction, stating that past reintroduction efforts have not found negative impacts to recreation. Other commenters requested the Service state how impacts to recreation would be avoided.
Concern 52	Commenters questioned if the reintroduced population would be "wholly separate" from existing populations and questioned if the Service has appropriate legal authority under section 10(j) for this effort.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Other Wildlife	
Concern 53	Commenters raised concerns that the presence of wolves on the landscape would impact other species, mainly prey species such as elk, deer, and moose. They noted that CPW has restored these populations and were concerned this progress would be impacted by wolf reintroduction. Some commenters noted that the large ungulate populations in Colorado would provide adequate prey species for wolves. Commenters asked that stress levels in ungulates also be considered, in addition to direct mortality.
Socioeconomic Resources	
Concern 54	Commenters noted that management measures should be designed to avoid or mitigate impacts to recreation that could cause economic losses.
Concern 55	Commenters noted the potential economic benefits or adverse impacts of the State's plan to reintroduce gray wolves.
Concern 56	Commenters noted the EIS should consider potential socioeconomic impacts, including impacts to small businesses, including livestock producers, hunting-related businesses, and rural communities with and without implementation of a section 10(j) rule. They noted that these producers already see impacts from other wildlife.
Concern 57	Commenters noted the EIS should consider potential costs for reintroduction and management of gray wolves.
Concern 58	Commenters noted the Service should involve local counties in analyzing socioeconomic impacts to rural communities and livestock producers.
Concern 59	Commenters noted that allowing flexible management options under the section 10(j) rule is needed to mitigate socioeconomic impacts.
Concern 60	Commenters requested that the Service complete an economic study related to the State's planned reintroduction of gray wolves.
Concern 61	Commenters requested that the Service consider the potential effects of the State's plan to reintroduce gray wolves on tourism, hunting, and fishing revenues.
Concern 62	Commenters requested that the Service consider potential socioeconomic impacts on a local, rather than statewide, basis.
Concern 63	Commenters requested that the Service consider implementing a section 10(a)(1)(A) permit to allow the state to manage wolves that depredate livestock and working dogs.
Concern 64	Commenters noted that the section 10(j) rule should allow flexibility to address direct and indirect socioeconomic impacts of reintroduced gray wolves.
Concern 65	Commenters noted the EIS should document the costs of implementing non-lethal and lethal take strategies.
Special Status Species	
Concern 66	Commenters stated that they do not believe the gray wolf should be an endangered species. Some suggested that since there are already wolves in Colorado, a threatened designation would be a more appropriate.
Concern 67	Commenters requested that the EIS look at impacts and interactions with the Mexican gray wolf. Commenters also expressed concern that the release of the gray wolf would jeopardize the recovery of the Mexican wolf, with a risk of genetic swamping of the Mexican wolf.

Table 1. Code, Corresponding Concern ID, and Corresponding Concern Statement

Concern 68	Commenters expressed concern about the impact of lethal removal on the gray wolf, noting that studies show when lethal removal is allowed, poaching increases. Commenters noted that lethal management of wolves in Wyoming has had negative impacts by severing population connectivity and inhibiting gene flow.
Concern 69	Commenters expressed concern that a 10(j) rule would preclude the designation of critical habitat for the enhancement of recovery efforts. Specific concerns included potential future habitat modifications like the addition or closure of roads, or opening up areas to motorized use.
Support or Oppose	
Concern 70	Commenters stated support for the presence of wolves in Colorado and the 10(j) process, with most stating that increased management flexibility is needed to address potential impacts from the reintroduction.
Concern 71	Commenters stated opposition to the 10(j) process, stating that it lowers protection for wolves; reclassifying them as "non-essential" and "experimental" allows them to be killed.
Tribal Resources	
Concern 72	Commenters stated that the Service should consult with Tribal representatives and draw on and use traditional ecological knowledge in the development of the 10(j) rule. Commenters specifically noted the Service should consult with the Global Indigenous Council in this process. Commenters were concerned with potential impacts to Tribal cultural values.
Concern 73	Commenters stated that the Service should develop a management agreement with Tribes and indicated that the Service should consult with the Southern Ute, Ute Mountain Ute, Arapaho, Cheyenne, Kiowa, Comanche, Apache, Navajo and Shoshone Tribes.
Concern 74	Tribal representatives from the Southern Ute stated concern that wolf reintroduction would lead to conflicts with livestock and wildlife/hunting-related interests, both of which are an important and integral part of the Tribe's social, economic, and cultural fabric. They also expressed concern for wolf dispersal to Tribal trust lands of their reservation, as well as Brunot Area lands where the Tribe retains off-reservation hunting rights for its members. The Tribe noted that prior to wolf releases, it expects to develop a wolf management plan in consultation with appropriate agencies to minimize wolf-related impacts to the Tribe and its members.
Concern 75	The Southern Ute Tribe affirmed its intention to engage in government-to-government consultation.
Concern 76	Commenters suggested that no agreement between the Service and the Tribe is necessary to capture and remove wolves from Tribal trust lands.

PUBLIC SCOPING COMMENT SUMMARY

The following report is organized by codes and then concern statements. Representative quotes are provided for each concern statement.

Representative quotes are presented exactly as they were submitted by the commenters. Grammar and spelling have not been changed. These representative quotes are not the only comments received under a particular concern statement; rather, these quotes have been chosen to represent those comments categorized under each concern statement.

AL100 - PRELIMINARY ALTERNATIVES:

CONCERN STATEMENT: Some commenters were in favor of incorporating trapping into an alternative as a management tool for gray wolves. One commenter noted that Colorado's Amendment 14 that banned the use of leghold traps does not apply to federal agencies and suggested that leghold traps be used in gray wolf management. Some commenters posited that traps could enable use of radio collars to monitor wolves and could be a valuable tool in nonlethal management.

Representative Quote: The 10J designation needs to include trapping as a management option for wolves. Colorado's Amendment 14 that banned the use of leghold traps does not apply to federal agencies in Colorado.

Representative Quote: All other states except California use trapping as a management tool. Without this effective management tool, Colorado's wolf population will reach a point of excessive growth with unmitigated impacts to livestock, big game, and other wildlife species. Look no further than the Bureau of Land Management's failure to control the feral horse population for the unintended consequences of unchecked growth of a high impact species.

Representative Quote: It has been proven that trapping is a great management tool. I would ask that the 10J designation includes trapping as a management option for wolves. Colorado's Amendment 14 banned the usage of leg holds traps does not apply to federal agencies in Colorado. The Colorado wolf management plan and the future state delisting of wolves are both predicated on population numbers. Trapping will enable to radio collars to be utilized to monitor each pack and their numbers and movements. This tool will aid in non-lethal deterrent usage. I feel it is imperative to know where each pack is, how many there are in the pack to mitigate conflict as well as identify depredating wolves for lethal removal. All other states with the exception of California use trapping as a management tool. Without this effective management tool, Colorado's wolf population will reach a point of excessive growth with detrimental impacts to livestock, big game, other wildlife species and our human and pet Colorado outdoor experience.

CONCERN STATEMENT: Commenters expressed approval for an alternative with maximum management flexibility. Many commenters approved of management flexibility to reduce conflicts between wolves and livestock and domestic animals. Some commenters noted that changes in habitat, rising human populations, and development have changed the Colorado landscape and require the Service to have the ability to adjust its management approach after introduction depending on outcomes. One commenter was strongly in favor of management flexibility, as long as a wolf hunting season would not be implemented. Other commenters were strongly in favor of management flexibility because it could allow for hunting if the wolf population were to become overly abundant or if the gray wolf were to be delisted. One commenter said that management flexibility afforded by the 10(j) could help reduce the potential economic impacts of wolves. Case-by-case management was favored by several commenters, who are worried about unforeseen regulatory needs following reintroduction. Many commenters were in favor of

the flexibility to control wolves lethally and nonlethally depending on their impacts. Others asked the Service to be consistent with the management of the Northern Rocky Mountain population.

Representative Quote: We support the flexible approach being proposed for Colorado. It is important not to handcuff our Colorado Parks and Wildlife so they can use the expertise of their wildlife biologists and range managers to manage the balance of wildlife given the imprint that man puts on nature with population growth, traffic and the need to grow food.

Representative Quote: I support the management flexibility provided with the 10(j) rule for Colorado. To achieve the best management outcome possible, wolves under the 10(j) rule should be classified as non-essential, experimental population.

Representative Quote: Considering wolves are naturally migrating from Wyoming, a state where wolves are delisted and allows unpermitted "takes", Colorado's management of gray wolves under Section 10(j) should be consistent with the management of the Northern Rocky Mountain population. This would include using the Section 10(j) management and flexibility to allow for regulated hunting of gray wolves as populations grow and the wolves become delisted. Further, there should be minimal complexity involved in the triggers for management of gray wolves, and State and private reporting. The private landowners should not bear the cost of managing the gray wolf reintroduction in Colorado.

CONCERN STATEMENT: Management of Mexican wolves and other gray wolf subspecies was a subject of concern for commenters. Some commenters asked for the 10(j) rule to apply to all gray wolf subspecies, including the Mexican gray wolf. Commenters argued that including all subspecies under the 10(j) rule would enhance connectivity among populations. Several commenters requested that a subpopulation of Mexican wolves be introduced in southwestern Colorado, arguing that introducing the subspecies would improve genetic diversity and connectivity. Conversely, one commenter worried about preserving the genetic integrity of Mexican wolves.

Representative Quote: The FWS rule for managing wolves in Colorado should be inclusive of all gray wolf subspecies. Gray wolf recovery should include full connectivity of the species from the northern Rockies population to the Mexican gray wolf population to the south. The rule should allow for the presence of any gray wolves that may one day migrate into the state from neighboring populations to allow for future connectivity of these populations. Gray wolf subspecies which find themselves in Colorado should be allowed to live where they find suitable habitat and native prey.

Representative Quote: As recommended by wolf biologists who advise Mexican wolf recovery, the Colorado management rule should include the introduction of a subpopulation of Mexican gray wolves in the southern region of Colorado. Such a subpopulation would be able to successfully connect to the existing population within the Mexican gray wolf experimental population area and would provide this critically endangered subspecies with much-needed genetic diversity and resiliency.

Representative Quote: Additionally, the Commission believes the establishment of a statewide Nonessential Experimental Population should be performed with two important safeguards: 1) Preservation of the genetic integrity of Mexican wolf is considered; and 2) Impacts to recovery of Mexican wolves are considered.

CONCERN STATEMENT: Some commenters asked that the chosen alternative designate gray wolves as non-essential. Commenters pointed out delisted wolf populations in other states as justification for a non-essential designation, since the experimental population would not be vital to the survival of the gray wolf species. A few commenters also asked that the Service designate Mexican wolves as non-essential.

Representative Quote: My family ranching operation supports a 10J NONESSENTIAL experimental population designation for gray wolves in Colorado that have either migrated into the state or are released by CPW; and for any Mexican wolves that may migrate into the state.

Representative Quote: It is imperative that the 10(j) rule classify the wolf population in Colorado as non-essential and experimental. In 1994, the United States Fish and Wildlife Service in cooperation with the University of Wyoming Fish and Wildlife Cooperative Research Unit released a Biological Feasibility Study which deemed 4 of the 7 potential wolf recovery areas (PWRAs) has having potential conflict due either to human or livestock population. Because the proposed introduction area falls within these PWRAs, it is incredibly important that the wolf population, whether migrating or introduced, be classified as non-essential and experimental opening the door for more effective management techniques, such as lethal force, should certain wolf-human or wolf-livestock situations occur.

Representative Quote: Before the FWS designates an experimental population of gray wolf in Colorado, it must determine whether the population is essential or nonessential to the continued existence of the endangered gray wolf. 16 U.S.C. Â§ 1539(j)(2)(B); 50 C.F.R. Â§ 17.81(c)(2). An essential experimental population means an experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild. 50 C.F.R. 17.80(b). The introduction of an experimental population of gray wolves in Colorado may help with the conservation of the species (16 U.S.C. Â§ 1539(j)(2)(A); 50 C.F.R. Â§ 17.81(b)), but it is not essential to the continued existence of gray wolves. There are a number of gray wolves located in other states, with some of the populations no longer listed under the Endangered Species Act (ESA). The gray wolf population in the Great Lakes area total more than 4,200 wolves. 85 Fed. Reg. 69778, 69788 (Nov. 30, 2020). The gray wolves in the Northern Rocky Mountain area (Idaho, Montana, Wyoming, and portions of Oregon, Washington and Utah) total about 2,386 wolves and growing. Id. The Northern Rocky Mountain gray wolf population has been delisted. See id. at 69780. The wolves from this distinct population segment have also made it into northwest Colorado, Oregon, and California. Id. at 69784, 69788-69789, 69792. While the larger grey wolf populations are located outside of Colorado, the FWS has recognized that these growing populations warranted delisting the gray wolf across the United States. See 85 Fed. Reg. 69778. A federal court vacated the FWS decision to delist the gray wolf because the FWS failed to adequately consider threats to gray wolves outside of the core population areas and the potential loss of the historical range. *Defenders of Wildlife v. U.S. Fish & Wildlife*, 2022 WL 499838, at *7-11 (N.D. Cal. Feb. 10, 2022). However, the continued growth of the gray wolf populations in the Great Lakes and Northern Rocky Mountain areas show that an experimental population in Colorado is not essential to the survival of the gray wolf species.

CONCERN STATEMENT: Several commenters requested that the Service integrate existing planning efforts and reports (e.g., Colorado Parks & Wildlife [CPW] Report, Colorado Wolf Report, WildEarth Guardians Proposal and Wolf Restoration Plan, the Stakeholder Advisory Group recommendations, CPW resources on other species, and CPW big game management plans) into the selected alternative. Some commenters specified that the CPW plan should only be integrated into the Service's rule to the extent that it furthers gray wolf recovery and aligns with the best available science. Other commenters asked for the Service to assess the long- and short-term costs associated with the various plans and identify who would bear those costs. Commenters also asked that the Service incorporate best available science and peer-reviewed research into the plan. Others suggested considering the wolf restoration experiences of other states in determining the best alternative.

Representative Quote: United States Fish and Wildlife Service (USFWS) should integrate the CPW developed plan into the proposed 10(j) management rule framework only to the extent that such plan complies with the best available science.

Representative Quote: The USFWS should evaluate both the Colorado wolf management plan and CPW's existing plans for big game management.

Representative Quote: I urge FWS to adhere to the proposal outlined by WildEarth Guardians, (501-c3) which is science-based and has the well being of wildlife and the environment as its main concern.

Representative Quote: The potential costs to comply with the actions under consideration, including those that would be borne by the Federal Government and private sectors. USFWS should consider the initial estimates of costs related to reintroduction and longer-term management of wolves developed by CPW.

CONCERN STATEMENT: Commenters asked for allowances in the management plan for accidental or incidental lethal take of wolves. Commenters requested no punitive action against people who kill a wolf they have mistaken for a coyote. Commenters also requested protection from punitive action if working dogs or burros injure or kill a wolf. One commenter asked the Service to allow aggressive hazing of wolves to protect humans and livestock and asked that resulting accidental killings of wolves not be punished.

Representative Quote: A 10J designation needs to have a comprehensive and flexible incidental take section. Our livestock guardian dogs are effective deterrents for coyote, bear and lion attacks but are typically no match for wolves. In the unlikely event that a guardian dog, burro, etc. does injure or kill a wolf, there should be no punitive action taken against the owner/agent. I feel there should be no punitive action taken if an owner of livestock or dog needs to harass which could result in injury/death of the wolf to stop an attack or encounter. Punitive action should also not be levied against a person who inadvertently mistakes a wolf with a coyote or a wolf hybrid.

Representative Quote: A law allowing very aggressive hazing of gray wolves so they will fear humans and leave cattle alone is necessary. Thankfully the Colorado Parks and Wildlife Commission gave ranchers permission to haze wolves last month, however, we think a law exempting ranchers from accidentally injuring or killing a wolf would be appropriate, as ranchers did not ask for this added responsibility. If wildlife managers are truly concerned that ranchers will injure or kill too many wolves then, they should be out on this land managing the packs themselves. Ranchers should be given a tax credit to reimburse them for 100% of the cost of hazing tools. Colorado law also should be amended so that a rancher who has documented repeated loss of livestock or working animals can apply for a permit to kill an aggressive wolf on his or her property and give the carcass to Parks and Wildlife.

CONCERN STATEMENT: Some commenters requested that the Service designate the experimental population as essential in the rule.

Representative Quote: Properly designate the experimental population as "essential."

CONCERN STATEMENT: Commenters requested that the management plan include education for ranchers and livestock operators to reduce conflicts with wolves. Topics for education included adjusting calving timing and location, increasing human watch over livestock, using guardian dogs, removing or destroying livestock carcasses, installing predator-resistant fencing, removing sick animals, using lights, and other nonlethal hazing techniques. Many commenters theorized teaching livestock operators about nonlethal techniques to avoid wolf predation would reduce conflicts with livestock.

Representative Quote: Specifically, animal husbandry practices such as adjusting calving timing and location, increased human supervision by range riding over large grazing areas, and livestock guardian dogs have been proven effective at minimizing livestock losses (Bruns et al., 2020, Moreira-Arce et al. 2017).

Representative Quote: I support the reintroduction of the Gray Wolf in Colorado without boundaries and they should be permitted to live where they find suitable habitat. To mitigate conflict with humans such as preying on livestock by Grey Wolves, human ranchers and farmers should be properly educated about protecting cattle.

Representative Quote: Conversely, research directs that lethal management of wolves does not build tolerance for wolves. Researchers found that granting management flexibility (killing) for endangered species to address illegal behavior (poaching) may instead promote such behavior. Chapron and Treves (2016) show that allowing wolf (*Canis lupus*) culling was substantially more likely to increase poaching than reduce it: when the government kills a protected species, the perceived value of each individual of that species may decline and may instead promote such illegal behavior. Thus, on public land, livestock producers should be required to implement conflict avoidance and coexistence strategies. Livestock should be guarded, especially during calving and lambing; and livestock carcasses that die of unrelated matters should be removed to prevent wolves from being attracted and scavenging.

CONCERN STATEMENT: Commenters requested that the Service include public education in its management plan. Some comments concerned teaching the public about the ecological importance of wolves to discourage lethal take. Other comments focused on educating citizens on wolf management, coexistence with wolves, and how to avoid wolf conflicts.

Representative Quote: 7. There is a huge need for educational materials for all types of public activities that might come into contact with wolves in Colorado. This must be a strong component of any designation made under ESA requirements.

Representative Quote: Additionally, any rule that FWS promulgates should be adaptable, flexible, and responsive to the situation on the ground. This should also be paired with a public education campaign to explain how important wolves are to the Rocky Mountains, and why wolves are not the enemy of humans. Much of the discussion in Colorado has focused on why wolves will be a problem, and not on the positive impact wolves have on their ecosystems. These attitudes still prevail today, particularly among those who slaughter animals for a living, and among those in industries who were a large reason why gray wolves were eliminated from Colorado in the first place. If we continue the same attitude and low valuation of a wolf's life, then this reintroduction plan will not succeed, and the will of Colorado voters will not be met.

Representative Quote: USFWS must meet their responsibility to educate the public, ranchers, about non-lethal methods in caring for, management of wolves, conflicts, to help the wolves survive.

CONCERN STATEMENT: Commenters had a few creative recommendations for the Service to implement in its preferred alternative. One commenter suggested translocating or removing wolves that are proven to be responsible for a marked decline in ungulate populations. Another commenter recommended that the Service create a limit on the number of wolf fatalities allowed in Colorado and to stop reintroductions of wolves if the threshold is met to preserve the species. A commenter suggested spaying and neutering the reintroduced wolves, arguing that the Service should prevent wolf reproduction because the population would be experimental. Another commenter asked the Service to consider removing livestock from public lands to reduce conflicts with wolves.

Representative Quote: Grey wolves prey on the elk, deer and other ungulates, so big game populations within experimental population's boundaries will be impacted by the reintroduction of gray wolves. This can be particularly concerning if the non-essential experimental population boundary overlaps with winter habitat, migration corridors, or trophy hunting management units. Other Section 10(j) designations for gray wolves have allowed for the removal or translocation of wolves after it was documented that they were the primary cause for an ungulate population decline. The Districts respectfully request a similar wolf damage management strategy for this Section 10(j) designation.

Representative Quote: To prevent wolves from being removed from safe habitats in other places, then released only to be killed in Colorado, I urge the setting of a federal limit on wolf fatalities in Colorado. If that threshold is exceeded, then Colorado should be required to cease its reintroduction effort for the preservation of the species.

Representative Quote: Removal of invasive species (livestock) should be considered before using tax payer funds to kill wolves on public land in extreme cases where non-lethal management fails.

Representative Quote: All one has to do is look to WY, ID, and MO. I applaud this thoughtful and measured action and hope that if and wolves are introduced that thought be given to spaying and neutering them. If this is indeed an "experimental release", then why not prevent procreation until the experiment is complete and the data is in?

CONCERN STATEMENT: Some commenters asked the Service to implement ecosystem recovery goals in the preferred alternative. A commenter suggested the Service use full recovery of riparian zones as an indicator of reaching the preferred population of wolves in the state. Another commenter requested that recovery goals and delisting be determined by the amount of suitable habitat the wolves occupy in the state, rather than a wolf population target. The commenter noted that having a hard population recovery goal would increase hostility toward wolves when the goal is reached and argued that management should be based on ecological carrying capacity instead.

Representative Quote: Rather than setting a population cap at which wolves are no longer protected by the endangered species act, recovery goals should be determined by the following: geographic distribution, meaning wolves are allowed to populate any habitat in the state that they deem fit to inhabit and a "limit" is set when wolves have populated all geographically sustainable areas in the state; populations have reached a density that can withstand the common losses wolves face, such as pack to pack fights/disease/starvation/poaching; and allowing wolves to not only permanently inhabit areas in Colorado but move freely through the state to re-connect wolves from the North to the South.

Representative Quote: I am writing to you in support of reintroducing wolves in Colorado under the 10j ruling. I ask that no specific subspecies of gray wolf is defined for the reintroduction in order to allow any wolf subspecies (*Occidentalis* or *baileyi*) to live and roam wherever they find suitable habitat in Colorado. This will help ensure long term survival of species and increase genetic diversity. There should be no hard recovery population goal, as having a hard number has shown to increase hostility towards wolves once that number is reached. Instead, wolf management should be adaptive and based off of ecological carrying capacity.

Representative Quote: The population of wolves should be large enough and sufficiently well-distributed throughout western Colorado so as to influence the behavior and/or distribution of elk sufficient to restore or nearly restore (with an explanation as to why wolves cannot fully restore) the natural riparian and hydrological functioning of significant stretches (that the Service should identify in the final 10(j) rule after taking public comment on the draft EIS) of the state's rivers, streams and other wetland habitats.

CONCERN STATEMENT: Several comments were related to the boundaries of the Service's action. Some commenters expressed concern about applying different rules to the same species in the state based on whether they were introduced or had migrated into the state. Several commenters requested that wolves be managed under the same rules within the experimental population boundary as outside the boundary, while others asked that the rule cover the entire state to reduce confusion. One commenter asked that wolves found in other states beyond the 10(j) boundary, including Utah and Arizona, be relocated back to Colorado. A commenter also asked that wolves be released a minimum of 150 kilometers inside the 10(j) boundary. Another commenter suggested that the Service extend the 10(j) boundary to include a buffer zone around Colorado's state borders to protect the population from unregulated take where wolves lack Endangered Species Act (ESA) protection. Several commenters requested that the Service limit where wolves could be reintroduced with suggestions including west of the Continental Divide or north of US Highway 50. Many commenters opposed boundaries in general and asked that wolves be permitted to roam freely inside and outside Colorado without lethal take or translocation.

Representative Quote: Furthermore, the Commission believes that the establishment of this statewide Nonessential Experimental Population is contingent upon two critical components: 1) No initial releases or translocations south of U.S. Highway 50. 2) Any wolf that moves south or west of the Colorado statewide 10(j) area, regardless of origin, must be returned to the 10(j) area north of U.S. Highway 50 as soon as practicable and before it becomes established.

Representative Quote: Given the aforementioned concerns, the State recommend Colorado's state line form the boundary of the 10(j). Like other 10(j) populations, including Mexican wolves, red wolves, black-footed ferrets, whooping cranes, California condors, Aplomado falcons, and wood bison, wolves that leave the boundary should be trapped and returned to Colorado, another western 10(j) population or the Northern Rocky Mountain (NRM) delisted area. Any wolf found in listed areas of Utah would be presumed to originate from the experimental population and be relocated. To mitigate the likelihood of wolves dispersing beyond the boundaries of the 10(j), releases should only be authorized greater than 150 km, the median dispersal distance of NRM wolves, from the 10(j) boundary.

Representative Quote: - If wolves are restored as an experimental population under section 10(j) of the Endangered Species Act, consider extending the boundary of the potential 10(j) experimental population area beyond Colorado's state borders to create a buffer zone protecting the experimental population from unregulated take in areas where wolves currently lack ESA protections. In particular, consider aligning the 10(j) boundary with Colorado's state borders except that it should also include the northwest portion of Utah that falls within the Northern Rocky Mountains Distinct Population Segment, as well as extend past the northern border of Colorado into Wyoming up to Interstate 80 (I-80). Extending the 10(j) boundary into Wyoming will help create a buffer zone where wolves cannot be killed to protect members of the experimental population who cross Colorado's invisible state line. Currently wolves in southern Wyoming are considered "predators" and can be killed year-round by any legal means. W.S. 1977 section 11-6-302. Creating a buffer zone not only protects wolves and promotes wolf recovery and conservation, but also protects the Service's and Colorado's investment in wolf restoration. Without a buffer zone, even wolves living inside national parks have been decimated just outside those protective boundaries, a 20-year National Park Service study concluded

Representative Quote: AZSFWC asserts that the following criteria should be incorporated into the draft rule: 1. The southern boundary of the 10(j) area should be located well north of the Arizona state line. US Highway 50 appears to represent a suitable line of demarcation. 2. There will be no releases or translocations of wolves outside the 10(j) area. 3. Wolves that disperse outside the 10(j) area will be captured and returned to the 10(j) area. 4. The cost of any such captures that occur outside the state of Colorado will be borne by the Service and not the responsibility of wildlife managers in neighboring states. 5. All recovery efforts in Colorado will be closely coordinated with state wildlife agencies in the neighboring states.

CONCERN STATEMENT: Several commenters specifically requested that the 10(j) rule apply to both introduced and migratory wolves.

Representative Quote: I think the 10 (j) rule should be implemented and it should apply to all migrating and introduced wolves in Colorado. Economic impact of wolves is significant in rural sectors of Colorado and we need the flexibility afforded by the 10 (j) rule.

Representative Quote: As a fourth generation cattle rancher in Colorado I would like to see the 10j rule implemented in Colorado and the wolves be classified as nonessential experimental populations. I also believe the 10j rule should be applied to all of Colorado to include migrating and introduced wolves.

CONCERN STATEMENT: Commenters expressed support for alternative 1. Commenters were in favor of the regulatory flexibility afforded by the alternative and were also supportive of designating reintroduced wolves as an "experimental population."

Representative Quote: All of the non lethal controls are not effective in the case of wolves that have habitually kill and maim livestock. Therefore, we are urging you to choose Alternative number 1 in your report, so that CPW and local ranchers are allowed flexibility in controlling lethally all wolves across the state that become habitual predators of livestock.

Representative Quote: Please apply the Section 10(j) Rule as described in your "Alternative Concept #1" to ALL wolves in Colorado and allow CPW the proper tools to manage wolves, along with all other Big Game effectively for ALL Coloradans!

Representative Quote: I support the EIS for wolves in Colorado to focus on the impacts of a statewide 10(j) status for the species. Alternative Concept 1 would provide this flexibility and allow for the best chance of success for the species and those communities and individuals who will inevitably experience negative impacts from the introduction. Only through impact-based management will Colorado be able to successfully balance the needs of wolves, prey species, and social/cultural/economic impacts. To allow for true impact-based management, wolves must be recognized as a non-essential, experimental population across the entire state.

CONCERN STATEMENT: Commenters expressed opposition to any lethal take of wolves. Some commenters cited ethical reasons for opposing lethal management; others noted ecological impacts of lethal control, particularly in riparian zones. Several commenters cited studies that show that lethal control is less effective than proactive nonlethal management in minimizing conflicts with livestock. Commenters argued that wolves can regulate their own population based on food and habitat availability. Many commenters qualified their statements opposing lethal control in the case of immediate defense of life.

Representative Quote: The DEIS should also analyze the many feasible non-lethal and conflict avoidance measures that can be used to greatly minimize the risk for wolf predation on livestock.

Representative Quote: Please ensure that the focus of your future plans is on the welfare of the wolves, along with using non-lethal measures that promote coexistence between humans, domestic animals and wolves.

Representative Quote: The 10(j) management rule should strictly curtail any lethal management or recreational hunting of wolves. Lethal management often fails to provide a long-term solution to wolf-livestock conflict and has the highest variability of success when compared to non-lethal practices. In addition, there is significant evidence showing that lethal management of wolves may be less functionally effective at mitigating subsequent livestock losses than non-lethal deterrents. Lethal management of wolves should not be permitted except in extremely rare circumstances of immediate defense of life.

Representative Quote: The 10(j) management rule should reflect broad public values that support stricter protections for wolves and reflect very low support for recreational hunting.

Representative Quote: The 10(j) management rule should strictly curtail any lethal management or recreational hunting of wolves. Lethal management often fails to provide a long-term solution to wolf-livestock conflict and has the highest variability of success when compared to non-lethal practices. In addition, there is significant evidence showing that lethal management of wolves may be less functionally effective at mitigating subsequent livestock losses than non-lethal deterrents. A substantial body of research documenting human-caused mortality in North American wolves has found that policies that allow for the liberalized killing of wolves result in a direct increase in the hazard and incidence of illegal killings (Louchouart et al. 2021, Santiago-Ávila et al. 2022, Santiago-Ávila et al. 2020, Treves et al. 2021). Lethal management of wolves should not be permitted except in extremely rare circumstances of immediate defense of life. As recommended by wolf biologists who advise Mexican

wolf recovery, the Colorado 10(j) management rule should include the introduction of a subpopulation of Mexican gray wolves in the southern region of Colorado.

CONCERN STATEMENT: Commenters were opposed to elements of alternative 2, including the Safe Harbor Rule, and suggested that the alternative could restrict the management tools needed to control livestock predation.

Representative Quote: Alternative 2 will apply the 10(j) rule to the Gray wolf in the reintroduced areas and establish a Safe Harbor rule for the Gray Wolf population where they have migrated in and already exist. This in my opinion becomes problematic as not all management tools needed would be available for the wolves that have already migrated here from surrounding states (mainly documented from Wyoming). Therefore, a safe harbor rule doesn't allow lethal control of wolves that habitually attack livestock, working dogs and pets.

Representative Quote: Alternative 2 and its Safe Harbor provision is not a viable option as it does not provide all the management tools needed to manage wolves who have migrated to Jackson County naturally. As stated above, Jackson County is already dealing with livestock predation from an existing wolf pack.

CONCERN STATEMENT: Commenters were against the no-action alternative, noting that the alternative would limit CPW's ability to regulate livestock predation and could have economic effects on livestock operators.

Representative Quote: 3. Alternative 3 is also not a viable option as there would be no regulatory response when issues like livestock predation occur. The livelihood of our ranching community is crucial to our community and Jackson County at large.

Representative Quote: Alternative 3 no-action, a bad decision in my opinion, as there would be no regulatory response for the CPW when issues like livestock predation occur. It is kind of like "Who Cares".

CONCERN STATEMENT: Commenters were concerned about having federal entities control the management of wolves and asked the Service to cede management to the state. Other commenters were concerned about giving too much control to the state. Commenters suggested that the 10(j) rule have simple criteria for management changes to allow for a seamless transition between state-managed species and federally managed species.

Representative Quote: Rule 10(j) should be imposed to designate the introduction as non essential. Our state wildlife agencies and its stakeholders should have the most management powers and not simply hand it over to federal entities.

Representative Quote: Considering wolves are naturally migrating from Wyoming, a state where wolves are delisted and allows unpermitted takes, Colorado's management of gray wolves under Section 10(j) should be consistent with the management of the Northern Rocky Mountain population. This would include using the Section 10(j) management and flexibility to allow for regulated hunting of gray wolves as populations grow and the wolves become delisted. Further, there should be minimal complexity involved in the triggers for management of gray wolves, and State and private reporting.

Representative Quote: I believe if this reintroduction must occur, you should be able to control the population on a state level without the USFWS getting involved. No one will be more responsible with job than the people that live and work in the state of Colorado. Washington, DC has no business controlling those populations.

Representative Quote: This experiment should be kept to just that, an experiment. The CPW should have the control over management of the wolves in this state (the ones already here and the newly proposed)

Representative Quote: As wolf status protections can change with court orders and political administrations, and we request the USFWS provide the adaptive criteria to allow for seamless transition between State managed species and federally managed species, especially regarding population control as population objectives are met.

CONCERN STATEMENT: Commenters expressed concern about translocating wolves. Some commenters requested that the 10(j) rule provide options for relocating wolves that impact human safety, wildlife populations, or livestock. Other commenters argued that wolves should be allowed to roam freely without fear of translocation to reestablish habitat connectivity from the northern Rockies to the Southwest. One comment requested that translocations only occur with the consent of local governments and Tribes.

Representative Quote: Additionally, the 10J should provide options for relocating/removal of wolf packs negatively impacting livestock production, depressing wildlife populations, or creating human safety concerns.

Representative Quote: Wolves should be permitted to live with no boundaries where they find habitat as was decided in Colorado's 2004 wolf management plan. Allow wolves to utilize habitat across Colorado's Rocky Mountains which will help re-establish connectivity from the northern Rockies to the Southwest, which is vital to the long-term success of the species. Moreover, gray wolves should be permitted to roam beyond the borders of CO without persecution or threat of being captured and returned.

Representative Quote: Finally, translocation should not occur without the consent of affected local governments and tribes.

CONCERN STATEMENT: Commenters expressed support for allowing lethal take of wolves. Commenters were in favor of lethal take to protect livestock, pets, property, and working dogs. Some commenters noted the cost-effectiveness of lethal take and suggested that non-lethal methods would be more expensive to agencies and individuals. Other commenters were in favor of having a hunting season for wolves. One commenter noted that other predators, like black bears and cougars, are partially managed through hunting and that wolves should be similarly managed to avoid favoritism among species. One comment suggested that the Service implement an "escape clause" to lethally take all wolves in the experimental population if the non-essential status is at risk.

Representative Quote: I feel that any producers or business owners that rely on any working animals like horses to run a business to make a living should be entitled in the 10(j) rule to take lethal action when a wolf is caught in the act of chasing, biting or killing (attacking) livestock/business working animal independently of the CPW. CPW would be notified of the situation so an investigation could happen after the fact. To have our hands tied and watch a wolf " attack" our horses, guard dogs and cattle etc. while waiting on the CPW to show up and investigate is very unrealistic. There is not a human on the planet that would just be able to stand their and watch an animal that they treasure be destroyed. This is my recommendation on the verbiage needed on the 10(j) rule so that we can feel that wolves are not being placed on a pedestal above all other animal life.

Representative Quote: Lethal control by the landowner/livestock grower for any Grey Wolf caught in the act of livestock deprivation, including pets and working dogs.

Representative Quote: Finally, while still early in the process, the Service should evaluate and then include an escape clause that authorizes the State to lethally remove all members of the experimental

population if its nonessential status is at risk. The Service included such escape clauses in numerous other experimental population rules. This provision is very appropriate here, given that the Service has recognized gray wolves across the lower 48 U.S. States as no longer endangered or threatened under the ESA. 85 Fed. Reg. 69778 (Nov. 3, 2020).

Representative Quote: I would hope that the 10j rule be used and the wolves be classified as non-essential experimental populations across the entire state. Without the opportunity to use lethal control the impact on livestock and wildlife will be enormous.

Representative Quote: The EIS needs to very thoroughly document the costs to agencies and individuals of using non-lethal deterrents vs. lethal take. Non-lethal deterrents are typically only effective for a short time and very expensive. The cost-effectiveness of lethal take needs to factor heavily into the management equation

CONCERN STATEMENT: Commenters suggested that lethal and/or nonlethal take be forbidden on public lands. Commenters argued that banning take on public lands would help restore ecosystems while allowing livestock operators to protect their property.

Representative Quote: If they come in contact with cattle they should not be killed either cattle do not belong on our public lands it is for our wildlife not domestic animals.

Representative Quote: Lethal take of Colorado's future wolf population should never be allowed on public land under any circumstance. That land belongs to everyone, not just the producers that lease it and negatively impact the health of those public lands. The residents of Colorado that voted to restore the wolves did so with the intent that wolves would be allowed the chance to thrive and remain protected on our public lands - their native lands. Lethal take should never be allowed on private land unless the landowner can show proof that a variety of nonlethal deterrents were attempted and all realistic steps to coexist were taken.

Representative Quote: There are different ways in which the 10(j) rule could be written to constrain and limit the killing of wolves sufficient to ensure a growing population of at least 750 wolves with immigration of wolves from north and south, and their reproduction in Colorado, at least once in two years; and many ways in which the rule could ensure that wolves change the behaviors of elk sufficient to conserve riparian areas and that wolves change the behaviors of coyotes sufficient to conserve pronghorn, swift fox, black-footed ferret, and Canada lynx. The most straight-forward and equitable way to achieve these goals (that we argue above stem logically from statute and regulation) would be for the 10(j) rule to not allow the killing of wolves if the reason for such contemplated wolf-killing was in response to wolves killing livestock on public lands.

CONCERN STATEMENT: Commenters asked the Service to define specific recovery criteria in the plan. They asked for set population targets, timelines, and goals for down-listing and delisting the species. Commenters also requested that the Service define how the experimental population would contribute to wolf conservation and recovery.

Representative Quote: Additionally, each alternative should commit to locations and timeframes for releases to ensure progress towards recovery. And while the Service should work with CPW towards recovery, it cannot and should not rely on the state to meet recovery benchmarks.

Representative Quote: In order to effectively conserve the future experimental population of wolves in Colorado, the 10(j) rule should define conservation goals, including the number of wolves inhabiting Colorado, and other aspirational conditions, that would represent a population no longer in danger of extirpation. The environmental impact statement should explain the basis for these conservation goals.

Representative Quote: SCI recommends that the Service evaluate and then adopt specific and measurable delisting criteria for the introduced wolf population. The Service must ensure it has provided metrics that will motivate the State and reduce the risk that delisting which recognizes the success of the introduction conservation program will be hijacked by litigation. Of course, these criteria should align with State goals where possible.

CONCERN STATEMENT: Commenters asked that the Service specifically protect access to recreation, including motorized recreation, in the 10(j) area.

Representative Quote: The Organizations are seeking the broadest and encompassing protections for all recreational access in the 10j designations that is stated in clear and unequivocal language, as after participating in ESA efforts for decades there is always an assertion that motorized recreation is negatively impacting the species. This continues despite numerous species specific studies being developed and the decline of some species occurring even before motorized recreation was a concept and often impacts to activities like ours are summed up as unintended impacts of the listing. The Organizations submit a wide ranging protection for recreation would be a significant step towards avoiding unintended consequences of the protection and reintroduction and reflect a decision that is highly solidified in best available science, mainly that recreational access and wolves are basically unrelated.

Representative Quote: too often managers are still being told that multiple use recreation is unmanaged or is negatively impacting wildlife populations. Again the 50 years of management of our sport and interests provides a highly credible basis for the protections for recreation in the 10j Rule, as there is an entirely separate process from the ESA listing mandated on public lands to address recreational access. A broadly crafted 10j Rule would streamline the relationship between these efforts and allow recreation to thrive and resources to be protected.

CONCERN STATEMENT: Commenters requested that reintroduced wolves be managed under the ESA as endangered or threatened. Commenters were in favor of managing all wolves in Colorado under the ESA to avoid subjecting wolves to human-defined boundaries where they might be safe in one area and subject to lethal take in another. Commenters argued that maintaining ESA protection would help prevent poaching and could help wolf subspecies thrive. One commenter suggested designating the reintroduced wolves as endangered and specifically releasing them in national parks. Commenters were concerned about lack of habitat protection under a 10(j) rule and favored reintroducing the species as endangered to allow for designation of critical habitat under the ESA.

Representative Quote: If wolves are to be reintroduced in Colorado, as a majority of voters like myself voted to do, they need all the protections that endangered species, which they are, need and deserve. No full protection, no reintroduction! Respect and implement the will of the people expressed by passing the initiative in the first place.

Representative Quote: Section 10 designations often preclude the designation of Critical Habitat for the enhancement of recovery efforts. The designation of Critical Habitat entails the prevention of adverse modification of such habitats, conferring numerous conservation benefits (Congressional Research Service 2021: 23) unavailable to experimental, nonessential populations. Should the gray wolf in Colorado be reintroduced under an experimental, nonessential 10(j) rule, they would be deprived of such habitat protections, to the detriment of species recovery. This deprivation is particularly detrimental to the extent that new roads were to be constructed, or existing closed and gated roads were to be opened to motorized transit, offering opportunities for poachers to access heretofore secure habitats used during denning and at other sensitive times of year. By contrast endangered status (and the requisite designation of Critical Habitat) would present a legal bar to such adverse modification of wolf habitats.

Representative Quote: As a 7th generation Coloradan - the language of Proposition 114 did not contemplate an "experimental population", and the people of Colorado did not vote in favor of establishing an "experimental population". Colorado is unique in this process when compared to the northern Rockies Gray Wolf restoration and/or the USFWS efforts to restore the Mexican Wolf in the southwest. Everywhere else in the lower 48 where USFWS reintroduced wolves it was against the will of the people of those states, hence the need for the creation of the 10j rule. The 10j rule was created in an effort to appease the residents of the states where USFWS government over-reach potentially negatively affected the citizens of those states. That is NOT the case in Colorado. The people of Colorado have spoken and elections have consequences. The wolves reintroduced into Colorado by 12/2023 should fully protected with the full authority, weight, and protections afforded them under the ESA. They should NOT be "experimental". They are NOT "experimental". USFWS should NOT utilized the same failed methods implemented in restoring the Gray/Mexican Wolf populations and should instead look to Colorado as an opportunity to press forward utilizing a different strategy because here in Colorado the people created and successfully passed a citizen's initiative taking control of what we want our landscape to look like moving forward.

CONCERN STATEMENT: Commenters suggested collaring all released wolves, or just one wolf per pack, to track their location and avoid livestock conflicts. A commenter also proposed implementing a reporting system for individuals who encounter wolves.

Representative Quote: I would suggest collaring each released wolf, as they do with the bighorn sheep, moose, deer and elk, to know their whereabouts and if they are in the area of a livestock owner's livestock.

Representative Quote: a tremendous amount of pressure is being placed on using non-lethal deterrents. None of these things are effective if you don't know where the wolves are, and how many wolves there are on the landscape. An individual wolf from each pack must be radio-collared in order to monitor the pack, and trapping is a tool needed to radio-collar wolves. It is also an important management tool needed to relocate wolves to avoid or mitigate conflict, and to target depredating wolves for lethal removal.

Representative Quote: I hope this program provides ample communication options for those who encounter the wolves. It would be important for violent people to know how to report an issue before resorting to killing the wolves. In fact, it should be a federal crime to kill these wolves without first reporting their presence to the program. Those caught poaching wolves should face severe punishment and financial penalties.

CONCERN STATEMENT: Commenters asked the Service to include provisions for lethal take under specific conditions. Several commenters asked that lethal take be permitted if the wolf was actively attacking livestock, pets, or working dogs. Other commenters suggested allowing lethal take only on private property. One commenter suggested requiring anyone shooting a wolf to have a camera installed on their gun to prove the wolf was in the act of killing livestock. Other commenters asked that lethal control be allowed if a wolf had shown a pattern of attacking livestock and had not responded to nonlethal deterrence strategies. One commenter asked that individuals not be penalized for shooting a wolf they had mistaken for a coyote. One commenter asked that wolf population control through lethal management be done with in consultation with biologists and an understanding of pack structure. Other suggestions included allowing lethal take up to a defined number of wolves or allowing hunting of wolves when they meet the 2, 2 rule.

Representative Quote: I urge you to assure that the 10(j) permit specify protections for wolves and flexibility in managing conflicts. This would be in line with Colorado's state-level impact-based management approach, which outlines a live-and-let-live approach and includes management of conflicts on a case-by-case basis. The essence is to manage conflicts, rather than manage wolf

populations at some predetermined level. As outlined in Colorado's draft impact-based management framework, wildlife managers should prioritize non-lethal methods over lethal. Lethal control is only appropriate when managers have earnestly tried non-lethal methods without success, and conflict has reached a chronic level.

Representative Quote: Lethal methods must only be employed if a problem wolf/pack continues to prey on such livestock and such kills must be proven.

Representative Quote: Coloradans want low emphasis placed on recreational hunting, a high emphasis placed on protections, and advocacy for non-lethal management! It is CPW's responsibility to assist in non-lethal management techniques to promote coexistence, prevent livestock conflicts, and resolve issues nonlethally.

Representative Quote: Due to the importance of human tolerance in the success of wolf populations, we request that the 10(j) permit specify protections for wolves and provide flexibility in managing conflicts. Colorado's state-level planning effort is premised on an impact-based management approach, which outlines a live-and-let-live process and includes management, which results in the addressing of conflicts on a case-by-case basis, rather than managing wolf populations at some predetermined level. Non-lethal methods of conflict management should be prioritized over lethal approaches, which are only appropriate when managers have sincerely implemented non-lethal methods without success. Lethal control should always be the last resort.

CONCERN STATEMENT: Commenters were in favor of the Service issuing a section 10(a)(1)(A). Some commenters requested that the entire state be managed under section 10(a)(1)(A) rather than a 10(j). Commenters noted that the existing wolves in Colorado mean that the introduced wolves would not be an experiment and a 10(j) would not be appropriate. One commenter suggested reintroducing wolves under a 10(a)(1)(A) permit throughout the state, keeping the wolves listed as endangered, and using Incidental Take Permits and Safe Harbor Agreements to provide regulatory flexibility. One commenter requested that the 10(a)(1)(A) permit not be used to justify removing or translocating wolves that roam outside the 10(j) area. Some commenters requested that the Service consider using section 10(a)(1)(B) to allow for maximum flexibility in management.

Representative Quote: USFWS should not reintroduce wolves in Colorado pursuant to a 10(j) experimental population designation but rather a general 10(a)(1)(A) permit and allow reintroduced wolves to keep their protected status.

Representative Quote: Moffat County is one of the western slope counties that will be impacted by the reintroduction of gray wolves in Colorado and thus strongly supports the FWS designating this gray wolf population as a nonessential experimental population to provide the State with more flexibility in management. Moffat County also supports the FWS establishment of an assurance agreement and permit under Section 10(a)(1)(A) of the Endangered Species Act (ESA) for the existing population of gray wolves in northwestern Colorado, as well as other opportunities to manage wolves using Section 10(a)(1)(B) to allow for maximum flexibility in management.

Representative Quote: FWS should evaluate the potential impact of management in neighboring states on the establishment of wolves in Colorado. Any wolves found in neighboring states where ESA protections are in place including wolves that have dispersed from Colorado should be managed under ESA protection, not removed or returned to Colorado. As mentioned above, 10(a)(1)(A) is intended to promote recovery and is not intended to remove wolves from areas where they would otherwise be protected under the ESA.

Representative Quote: The Service should develop and fully analyze an alternative whereby it authorizes reintroductions using 10(a)(1)(A) recovery permits rather than a 10(j) rule. Such an alternative is reasonable and feasible: both the Service and the National Marine Fisheries Service have

authorized reintroductions using only 10(a)(1)(A) recovery permits species include the California condor, Bay checkerspot butterfly, and Snake River sockeye salmon. Indeed, anything that can be permitted by the experimental population approach could be permitted under a 10(a)(1)(A) permit. But fully analyzing reintroductions using 10(a)(1)(A) will be important for considering what a decision should look like, whether using recovery permits or a 10(j) rule. Because Coloradans voted to reintroduce gray wolves into the state, the Service should not assume reluctance to accept reintroductions, the usual basis for using 10(j). A 10(a)(1)(A) alternative will allow the Service to evaluate a bottom-up approach of authorizing only the take necessary to introduce wolves into the state while otherwise maintaining existing federal protections. Such an alternative will ensure the Service does not consider 10(j)'s automatic rollbacks of ESA protections as a given. A 10(a)(1)(A) alternative may also help the Service craft better-tailored reintroduction rules. For example, 10(a)(1)(A) reintroductions may be feasible in areas with less potential for wolf-human conflicts, whereas 10(j) rules may be more appropriate for reintroductions occurring near reluctant landowners. Such tailoring could allow for the reintroduction of fully protected wolves and designation of experimental population areas, potentially accelerating wolf recovery

ECOSYSTEM DYNAMICS

CONCERN STATEMENT: Commenters requested that the EIS consider the interaction between resources, noting that these interactions are complex. Commenters provided specific examples, including upsetting predatory/prey relationships to the extent that soils, water, and vegetation are negatively impacted. Some commenters requested consideration of the ecological benefits from having wolves on the landscape. One commenter noted that the loss of sheep from wolf depredation could affect the ecosystem.

Representative Quote: Considerations for evaluating the interactions between affected natural resources. Ecological interactions are complex and any evaluation must include all potential sources of impact, and not evaluate the potential impact of wolves in a vacuum without considering those other sources

Representative Quote: The wanton killing of such large numbers of apex predators has undoubtedly skewed the validity and overall health of related biological ecosystems. This has resulted in upsetting predator/prey relationships to the point where soils, water, native vegetation (e.g. riparian, open range and associated grasslands and shrubs, etc). are been negatively impacted!

Representative Quote: Considerations for evaluating the significance of impacts on gray wolves and other affected resources, such as other listed or sensitive wildlife and plant species, cultural resources, and socioeconomic resources or activities. USFWS should evaluate potential impacts on other resources but also other impacts such as weather, human uses such as recreation, domestic livestock grazing, and recreation (including hunting) on any specific resource.

Representative Quote: Wetland trees and shrubs, willows, cottonwoods, nesting songbirds and beavers that rely on trees wither under the intense browsing of sedentary elk. When the last wolf was slaughtered by wildlife services in Colorado an ecological disaster ensued. We are experiencing the effects of climate crisis in Colorado. Wolves are necessary to help repair our troubled ecosystem. The statute clearly states, "Once restored to Colorado gray wolves will help restore a critical balance in nature." In Doug Smith's words- "The return of wolves to ecosystems where they had been previously extirpated triggers cascading ecological shifts toward increased bird and mammal richness and diversity. Dr Francisco J. Santiago Avilla, questions modern Wildlife Service's model that, benefits humans-dismissing the needs and benefits of wild carnivores. This is causing ecological harm to our land and to human health, with increasing pollution of our water, soil, and air. Dr Avilla says his peer reviewed science research seems to be dismissed from wildlife commissions. Erik Molvar, Wolf Biologist, states that we must care about our public lands for our future. The USFWS commercial use of

public lands is threatening our endangered species and livestock grazing is the biggest threat. We can do this by retiring all livestock grazing allotments and restoring our wolf and beaver populations.

Representative Quote: The loss of the Colorado sheep industry due to wolf predation, due to the inability to remove them when they become a problem is real. The sheep industry provides a very important environmental service in forest fire mitigation by grazing public and private lands. Without sheep and cattle grazing forest fires will continue to increase in occurrence and scale.

Representative Quote: Not only must the upcoming 10(j) rule ensure the conservation of wolves in Colorado; it also must advance ecosystem conservation in Colorado. Accordingly, the upcoming DEIS must consider the scientific findings on wolves' positive effects on their ecosystems elsewhere, in particular wolves' influences on other species of animals and plants through trophic cascades, and incorporate into the 10(j) rule measures that would ensure similar benefits to ecosystems in Colorado. The DEIS should analyze how wolves' roles in ecosystems would be affected by different alternatives in the upcoming rule. As part of that analysis, the Service must address how the authorized killing of wolves under different circumstances would affect their ecosystems.

CONCERN STATEMENT: Commenters suggested that the 10(j) rule include a prohibition on lethal control to the extent that these action would inhibit trophic cascades.

Representative Quote: a proscription on killing wolves to the extent that such killings would inhibit trophic cascades and specifically conservation of riparian habitats, pronghorn, swift fox, black-footed ferret, and Canada lynx;

ENVIRONMENTAL JUSTICE

CONCERN STATEMENT: Commenters noted that the EIS should assess the role of gray wolves in mitigating climate change and the potential effects of climate change on gray wolves and other affected resources.

Representative Quote: Considerations for evaluating climate change effects to gray wolves and other affected resources. Note all species challenges due to climate change and habitat loss. Mitigate as necessary

Representative Quote:

Scientific research makes it increasingly clear that natural biodiversity is integral to the life support systems upon which we depend. Predators not only mitigate the cause of climate change (excess atmospheric carbon) but also influence "directly and indirectly" climate impacts on their prey and on entire ecological communities (Wilmers et al. 2013). Further, healthy, intact food webs make ecosystems more resilient to environmental changes (Wilmers and Getz 2005). Thus, repatriating predators to their historic ranges has enormous potential not only to provide well-known ecological services, but also to improve ecosystem resilience to climate change and drive down atmospheric carbon levels (Wilmers et al. 2013). By moderating deer and moose populations, wolves have created massive carbon sinks that help trap CO2 emissions thereby combatting climate change. Wilmers and Schmitz (2016) estimated an increase in CO2 storage between 46 million and 99 million metric tons that is attributed to the work of wolves in our forests - equivalent to a year of tailpipe emissions from between 33 and 71 million cars.

Representative Quote: Research is showing that predators like wolves improve ecosystem resilience to climate change (Wilmers et al. 2013)

NEPA

CONCERN STATEMENT: Commenters requested that the Bureau of Land Management (BLM) and Forest Service be cooperating agencies for the EIS. They noted that these agencies should consider amending their Resource Management Plans (RMPs) and Forest Plan with regard to grazing-related decisions, specifically asking for vacant or marginal grazing allotments to be made available and for the removal of seasonal restrictions when game species are most prevalent.

Representative Quote: BLM and the Forest Service should consider being cooperative agencies on this DEIS. Where wolf and livestock conflicts may pose the highest risks, these federal land management agencies should consider amending RMP and Forest Plan grazing related decisions to reduce these risks. Vacant or marginal grazing allotments in these areas should be made unavailable for future grazing. In other allotments, seasonal restrictions should remove livestock during those times when game species are most prevalent. There are feasible solutions if people are sufficiently motivated to implement them.

CONCERN STATEMENT: Commenters noted that since wolves do not stay in one place, that the analysis consider reintroduced wolves and those that have migrated in from other areas. Similarly, they requested that because wolves will migrate to adjacent states, the impact to these states should be considered.

Representative Quote: While Proposition 114 mandates reintroductions west of the Continental Divide in Colorado, wolves are going to travel massive distances and any experimental designations and planning requirements should protect activities in all areas regardless of if the wolf was reintroduced or has naturally arrived in the area from other locations.

Representative Quote: AZSFWC focuses primarily on issues within our state; however, this particular action by the Service has enormous implications for the neighboring states of Arizona, New Mexico, and Utah. It is essential that state wildlife agencies and stakeholders across this area are fully involved in the process and their voices are heard.

Representative Quote: “de-facto” establishment of Gray wolves in Arizona in a manner that totally circumvents the public process and appropriate analysis by state and federal wildlife managers. These issues must be thoroughly analyzed in the forthcoming EIS

CONCERN STATEMENT: Commenters requested that the EIS evaluate indirect impacts of the potential decline in elk and deer herds from wolf reintroduction.

Representative Quote: The recreational community is very concerned about possible declines in elk and deer herds from the wolf reintroduction driving management decisions and restricting recreation access now and into the future. These types of indirect impacts from the reintroduction must be protected against in the planning process.

CONCERN STATEMENT: Commenters requested the purpose and need statement be focused on having reintroduction as the dominant priority and focus on the legislative mandate to reintroduce wolves.

Representative Quote: On scoping, the DEIS on the proposed rule should have a strong agency purpose and need statement to ensure that effective wolf reintroduction is the dominant priority.

Representative Quote: Key to the forthcoming EIS will be its purpose and need statement, which shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action. 40 C.F.R.1502.13. Though brief, the statement will drive the formulation and comparison of alternatives and their impacts. See id.1502.14. The purpose and need statement in the forthcoming EIS should reflect that the Service is not merely

responding to a state request for a 10(j) rule, but to a legislative mandate to reintroduce and maintain a self-sustaining population of wolves. Moreover, the purpose and need statement should also reflect the Service's independent obligation under the ESA to recover gray wolves.

CONCERN STATEMENT: Commenters requested that the National Environmental Policy Act (NEPA) analysis use peer-reviewed science to the greatest extent possible. Commenters also noted that the Service should evaluate potential impacts on other resources as well as impacts on weather, human uses such as recreation, domestic livestock grazing, and recreation (including hunting). Some commenters requested that the beneficial impact of wolves be addressed, including contributing to enhancing biodiversity; improving ecosystem processes and function, mitigating climate warming and enhancing resilience to climate warming; improving ungulate population health by selectively removing old and diseased individuals (including individuals infected with chronic wasting disease with research indicating that wolf predation may suppress disease emergence or limit prevalence); and infusing local tourism economies.

Representative Quote: In NEPA analyses, use peer reviewed scientific information to the greatest possible extent in the rule's development.

Representative Quote: Considerations for evaluating the significance of impacts on gray wolves and other affected resources, such as other listed or sensitive wildlife and plant species, cultural resources, and socioeconomic resources or activities. USFWS should evaluate potential impacts on other resources but also other impacts such as weather, human uses such as recreation, domestic livestock grazing, and recreation (including hunting) on any specific resource.

Representative Quote: Wolves should be classified as a non-essential, experimental population. It is crucial that the NEPA process not be accelerated in any way, and the impact of the alternative management concepts should be thoroughly studied, so that the correct concept is chosen. This will not only benefit the livestock industry, but the wolves as well. The decision needs to be backed by scientific data that has already been developed by other states. It would be a real missed opportunity to ignore the knowledge and experience that has been hard won by other states. Ecological systems are complicated and introducing an apex predator into that system can cause irreparable damage.

Representative Quote: Contemporary, peer-reviewed scientific data should provide the primary information used for the NEPA analysis for the proposed action. These data should include information on ecosystem process and function, biological diversity, ungulate and carnivore population health and landscape resilience to climate warming.

Representative Quote: Positive impacts of wolves, include their contribution to enhancing biodiversity (Smith et al. 2020); improving ecosystem processes and function (Berger et al. 2008), mitigation of climate warming and enhancing resilience to climate warming (Wilmers and Getz 2005, Wilmers et al., 2013); improving ungulate population health by selectively removing old and diseased individuals (Smith et al. 2020), including individuals infected with Chronic Wasting Disease with research indicating that wolf predation may suppress disease emergence or limit prevalence (Wild et al. 2011); and infusing local tourism economies with tens of millions of dollars (Duffield et al. 2006, Ripple et al., 2014).

CONCERN STATEMENT: Commenters noted other related planning processes that should be included in the Service's planning process such as the State of Colorado's wolf management planning, the wolf reintroduction plan developed by a non-profit group, and past wolf managing efforts in other Western states. Specific resources from these agencies were suggested such as the CPW Species Activity Mapping and CPW estimates of the costs related to the reintroduction and management of wolves.

Representative Quote: Also, the USFWS should consider the wolf restoration experience of other western states. All sources of impact should be considered in a holistic approach.

Representative Quote: Colorado has multiple sources of information on other resources, including wildlife species managed by CPW. CPW's Species Activity Mapping and management plans for big game

species provide detailed information on those species; possible impact to big game populations has been one of the major areas of concern expressed by the public. Information from other states that have been managing big game and wolves, including Idaho, Montana, and Wyoming should also be considered as a basis for understanding the potential impacts in Colorado.

Representative Quote: CPW has developed initial estimates of the costs related to reintroduction and longer-term management of wolves that should be considered by USFWS.

CONCERN STATEMENT: Commenters stated that this planning process cannot be rushed, with some expressing concern about the accelerated effort.

Representative Quote: The USFWS and the State of Colorado cannot rush NEPA review and the introduction of gray wolves to the detriment of rural Colorado, the species itself, and other listed species. On March 10, 2020, Governor Polis and Colorado Attorney General Phil Weiser vehemently objected to NEPA streamlining in a nine-page letter to the Council on Environmental Quality. They admonished that tight time frames and page limits were harmful and unrealistic.³ The Governor and Attorney General should take similar positions on this complex issue and support a thoughtful EIS no matter how long it takes, prior to translocation.

Representative Quote: A lot of time and energy has been spent by the technical group and the stakeholders group appointed by the CWP and stakeholders in research and making comments, in order, come up with a management plan. Please take that into consideration as you determine the 10 (j) designation and management plan.

CONCERN STATEMENT: Commenters stated that the decision of the State of Colorado to reintroduce wolves, or not, is a major federal action requiring NEPA analysis.

Representative Quote: Permission to translocate wolves (no matter the form) is a discretionary federal agency action subject to NEPA compliance. NEPA requires that federal agencies prepare an EIS on "proposals for major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(c); see also 40 C.F.R. § 1502.4; *WildEarth Guardians v. U.S. Fish & Wildlife Serv.*, 784 F.3d 677, 690 (10th Cir. 2015) (citing 42 U.S.C. § 4332(C)). In short, whatever action Colorado seeks to take to introduce wolves must be subject to both NEPA and an EIS.

CONCERN STATEMENT: Commenters requested that the NEPA analysis include a population viability analysis, stating that unless the population is a certain size, the reintroduction will not be successful. They further requested the NEPA analysis address the 3 R's - resiliency, redundancy, and representation, to determine when the gray wolf is ready for delisting.

Representative Quote: NEPA analysis should include Population Viability Analysis. Proposition 114 calls for a "self-sustaining population of gray wolves. Traill et al. (2007) standardized estimates of minimum viable population (MVP) size for 212 species, including the gray wolf, and documented a median MVP of 4,169 individuals with a 95 percent confidence interval of 2,261 to 5,095. Reed et al. (2003) used population viability analysis to estimate MVPs for 102 species, including the gray wolf, and estimates a minimum viable adult population size (MVPA) of 1,403 wolves and a minimum viable adult population size corrected to 40 generations worth of data (MVPC) of 6,322 wolves. No region of the U.S. has wolf populations of that size. Thus, wolves remain at risk of extinction until existing populations are connected through dispersal across the Rocky Mountain cordillera.

Representative Quote: The NEPA process should include the 3 Rs to guide implementation of the ESA. Representation- wolves need genetic diversity, abundant population, Ensuring habitat quantity, and connectivity. Resiliency- Wolves need an increase habitat quality- and wolves cannot be considered recovered without ecologically effective populations. Redundancy- Wolves need a wide distribution

across CO to withstand catastrophic events which requires establishing multiple populations in each setting to increase species viability.

CONCERN STATEMENT: Commenters requested that the NEPA process consider the full range of alternatives such as lethal take, the geographic boundaries, and compensation programs. One specific alternative suggested was to evaluate two scenarios: (1) federal management of the gray wolf in Colorado as a fully protected endangered species, without an ESA 10(j) designation; and (2) cooperative, intergovernmental management of the gray wolf in Colorado as a designated non-essential experimental population under an ESA 10(j) designation.

Representative Quote: Finally, NMDA requests that USFWS consider the full suite of options for managing the experimental population when developing the EIS alternatives, including lethal take, geographic boundaries, and depredation compensation programs. The National Environmental Policy Act (NEPA) requires federal agencies to consider a reasonable range of alternatives in an EIS. Ultimately, a durable reintroduction and successful recovery of the species would depend on finding the right blend of tools for managing conflict and mitigating the economic hardships to impacted communities. To meet the purpose of the proposed action and to satisfy a reasonable range of alternatives under NEPA, all options for managing the wolf-livestock conflict must be evaluated.

Representative Quote: In developing an EIS for the proposed action, the Tribe believes that the Service should thoroughly analyze and compare the anticipated impacts of the reintroduced gray wolf under two general management approaches. These approaches are: (1) federal management of the gray wolf in Colorado as a fully protected endangered species, without an ESA 10(j) designation; and (2) cooperative, intergovernmental management of the gray wolf in Colorado as a designated nonessential experimental population under ESA 10(j).

CONCERN STATEMENT: Commenters requested that the EIS thoroughly document all costs to agencies and individuals of using non-lethal deterrents vs. lethal take. They expressed concern that non-lethal deterrents cost more and are not as effective. Others noted that the costs of reintroduction are relevant to the 10(j) process and should be discussed.

Representative Quote: The EIS needs to very thoroughly document all costs to both agencies as well as individuals of using non-lethal deterrents vs. lethal take. It is proven that non-lethal deterrents are typically only effective for a short time and very expensive to implement and maintain. Cost-effectiveness of lethal take needs to factor heavily into wolf management equation. Wolf numbers prove they are thriving across the West. I feel this relisting is political, romantic and emotional and has nothing to do with the actual recovery. Wolves in Colorado has usurped scientific, biological input with urban voting populations that will not be affected. This has created a great conflict in our state rural vs urban.. and as such, every management tool needs to be made available to utilize.

Representative Quote: While we are aware that costs are most directly an issue for CPW and the State of Colorado, the Organizations are concerned that the experiences with costs of the reintroduction are highly relevant to the 10(j) designation and process.

CONCERN STATEMENT: Commenters stated that this process should not move forward until the gray wolf is delisted in the State of Utah.

Representative Quote: The State does not ordinarily comment on state-specific measures, such as Colorado's plan to reintroduce gray wolves. However, the proposed reintroduction is very near Utah's border and carries tremendous potential consequences for the State. Moreover, the proposed rule at issue here is a major federal action designed to facilitate Colorado's reintroduction. The State therefore has a significant interest in the proposed rule and adamantly opposes these reintroduction efforts unless and until wolves are delisted throughout Utah.

Representative Quote: A more reasonable approach would be to delist the wolves entirely and allow for Utah's Wolf Management Plan² to take effect (sometimes referred to herein as the Plan). Pursuant to the Plan and in accordance with state law (Utah Code Ann. 23-14-1(2) and 23-14-3(2)), DWR will manage naturally established wolf populations on a sustainable basis post delisting. Specifically, wolves will be managed under the same management policies as the black bear and cougar " species DWR has successfully managed on a sustainable basis for decades. The explicit goal of the Plan is "to manage, study, and conserve wolves moving into Utah while avoiding conflicts with the wildlife management objectives of the Ute Indian Tribe; preventing livestock depredation; and protecting the investment made in wildlife in Utah. The Plan is intended to be an interim plan, covering that time between statewide delisting and the development of two naturally occurring wolf packs in Utah. Nevertheless, it provides the State with a series of management objectives and strategies to manage wolves effectively and it was written to be adaptive in nature, so that, as conditions change, the Plan may adapt to those changes. Moreover, the two-pack establishment metric is not a population cap, but rather a trigger to plan for the next phase in wolf management. The Plan is therefore designed to ensure the conservation of naturally establishing wolves, while ensuring the protection of other interests throughout the State. However, Utah cannot manage in accordance with the Plan unless and until wolves are delisted throughout the Utah.

CONCERN STATEMENT: Commenters stated that the Service has a legal obligation to consult with appropriate state fish and wildlife agencies, local government entities, affected federal agencies, and affected private landowners during the development and implementation of experimental population rules. They noted that the plans developed by the Service need to be consistent with state and local plans. The State of Utah noted that it has a state Resource Management Plan (SRMP) and that all 29 counties in the state have adopted County Resource Management Plans (CRMPs) that should be considered in the planning process. Garfield County also requested consistency with its land use planning efforts. Cooperating agencies further requested the ability to coordinate during the development of the 10(j) rule.

Representative Quote: The ESA expressly carves out a role for states to assist in its implementation stating, specifically, that the Service "shall cooperate to the maximum extent practicable with the States.³ Moreover, the Service's interagency policy begins by recognizing that States possess broad trustee and police powers over fish, wildlife and plants and their habitats within their borders [and u]nless preempted by Federal authority, States possess primary authority and responsibility for protection and management of fish, wildlife and plants and their habitats.⁴ Thus, the ESA and the Service encourage cooperation to effectuate the purposes of the ESA. In the event wolves are reintroduced in Colorado, it is imperative that the Service work with the state of Utah to ensure such cooperation in the management of wolves. This is also consistent with the Federal Land Policy and Management Act (FLPMA) and the National Forest Management Act (NFMA). When developing or creating Resource Management Plans, federal agencies, such as the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS), are required to coordinate their plans with state and local government plans.⁵ This coordination process is a separate process from cooperation and must occur regardless of whether state or local governments were designated as Cooperating Agencies.⁶ Thus, even if the State is not a Cooperating Agency in any given planning process (which it often is), the relevant federal agency would still be required to make efforts in drafting land use plans that are consistent with state and local plans.

Representative Quote: In the past, there were no state or local plans with which to ensure consistency. However, as of 2018, the State of Utah has adopted a State Resource Management Plan (SRMP)¹⁰ and all twenty-nine (29) counties in the State have adopted County Resource Management Plans (CRMP).¹¹ The effort to adopt the SRMP and CRMPs was a first-of-its-kind effort not only in Utah, but nationwide. The state and the counties frequently use their plans to coordinate management actions with the Bureau of Land Management and U.S. Forest Service. ¹² All these plans include locally adopted objectives and policies for many aspects of not only public land management, but also include findings, provisions and policy relating to wildlife and critical habitat specifically. For example, the Utah SRMP has adopted the

policy that the designation of endangered species or critical habitat must be proven through sound scientific evidence. This research should be done in collaboration and partnership with the state of Utah. 13 While it may be an indirect response to the proposed rule, the State now specifically requests, pursuant to the Coordination and Consistency principles discussed above, that any and all further land use actions taken by the USFWS that occur as a result of this proposed rule, be consistent with the Utah SRMP, the Utah CRMPs, and overall be done in collaboration and partnership with the State of Utah.

Representative Quote: The FWS has entered into a memorandum of agreement with Moffat County and has already initiated the consultation efforts with the County. Moffat County appreciates the FWS efforts to ensure the County and the State have the opportunity to meaningfully participate in the development of the draft EIS. Moffat County further requests the FWS to coordinate and consult with the County in developing the proposed experimental population rules for this group of gray wolves.

CONCERN STATEMENT: One commenter requested that the EIS process be put on hold until there is a decision to the petition to delist the gray wolf.

Representative Quote: RMEF maintains that the USFWS 2021 rule was correct that gray wolves in the lower 48 states are recovered and should be removed from the Endangered Species List. As such, we contend the state is the appropriate entity to manage the species. The 2022 court ruling re-listed wolves outside of the Northern Rocky Mountains and usurped state management. However, a USFWS decision (12 month finding) on a citizen's petition to relist the Northern Rocky Mountains population is pending. RMEF requests that the EIS be put on hold until such decision is made in order to properly analyze the effects of the proposed experimental population (and relevant permits).

CONCERN STATEMENT: Commenters asked that the EIS take a hard look at lethal control and its impacts and efficacy. They cited studies stating that livestock depredation may actually increase after lethal control. They also requested the EIS look at the role wolves play in livestock deaths, stating that they are not a large factor in mortality.

Representative Quote: The Service must also take a hard look at the efficacy of any proposal that provides for the killing of wolves as part of any scheme of wolf management. While depredation incidents involving wolves and livestock such as cattle and sheep does occur, science shows that lethal predator control may not be the most effective form of predator damage control. Livestock depredation by wolves (as well as coyotes) may actually increase following lethal control. For example, Wielgus and Peebles (2014) concluded that killing wolves actually increases cattle depredation, finding that increased carnivore mortality is associated with compensatory increased breeding pairs, compensatory number of carnivores, and increased depredations. Multiple studies by Treves call into question the efficacy of lethal control and highlight several additional studies showing depredations are often isolated incidents without repeat, even without lethal control.

Representative Quote: Knowing the vast majority of livestock death is due to starvation, dehydration, poisonous plants, birthing difficulties, choke, weather, theft, infectious diseases including CWD, which wolves help control in deer and elk populations because they seek weakened and ill prey, it is incumbent upon the service to educate the public that wolves are not the threat to livestock as they are so often wrongly accused.

OTHER

CONCERN STATEMENT: Commenters stated that the 10(j) rule should reflect a public desire for stricter protections and low support for recreational hunting.

Representative Quote: The 10(j) management rule should reflect broad public values that support stricter protections for wolves and reflect low support for recreational hunting.

CONCERN STATEMENT: Commenters stated that the 10(j) rule should include a subpopulation of Mexican gray wolves in southern Colorado to connect the existing population to a subpopulation and increase genetic diversity.

Representative Quote: 10(j) management rule should include the introduction of a sub-population of Mexican gray wolves in the southern region of Colorado. Such a sub-population would be able to connect to the existing population within the Mexican gray wolf experimental population area and would provide this critically endangered subspecies with much-needed genetic diversity and resilience.

Representative Quote: As the climate warms, it is natural for wolves to migrate from New Mexico to Colorado. The proposed rule regarding an experimental population of grey wolves (*Canis lupus*) in Colorado should take into account the experimental population of Mexican grey wolves (*Canis lupus baileyi*) in New Mexico. Rather than attempt to duplicate the ranges of historically separate subspecies, the introduction program should allow for intermixing of wild populations of the same species. The current inbred population of Mexican grey wolves is having difficulty surviving in New Mexico and Arizona. Allowing this population to migrate north and interbreed with wolves in Colorado will help save the grey wolf species as a whole.

CONCERN STATEMENT: Commenters noted the regulatory responsibility of the Service in addressing translocated wolves. These included addressing how any translocated wolves would affect wolves already in Colorado and how they would affect the Mexican gray wolf.

Representative Quote: The wolves currently inhabiting Colorado are protected under the ESA and no translocation may occur without compliance with the ESA, including but not limited to Section 7 consultation and Section 9 take, as well as National Environmental Policy Act (NEPA) compliance. Bringing gray wolves to Colorado could adversely impact not only the (federally-listed) wolves that have already migrated here, but recovery efforts for listed Mexican gray wolves and other listed species. The USFWS must ensure all listed species and their habitats are protected from such discretionary actions.

Representative Quote: Because bringing gray wolves to Colorado could adversely impact not only the wolves that have already migrated here, but recovery efforts for federally-listed Mexican gray wolves and other listed species, recovery plans for these listed species should be updated prior to translocation into Colorado.⁴ These actions also require NEPA compliance. Consultation under Section 7 of the ESA should also occur for translocation that could adversely affect listed species such as the Mexican gray wolf, the Gunnison sage grouse and Utes Ladies Tresses, among others.

CONCERN STATEMENT: Commenters suggested studies that could be considered in the EIS process include those related to wolf densities and other reintroduction efforts such as Isle Royale National Park and the Northern Rockies.

Representative Quote: The NEPA and EIS process regarding introduction of wolves to Colorado should consider available science. I've prepared reports that provide background information and analyses that can help predict the numbers of wolves that might populate Colorado, and the numbers of prey animals they will kill. These reports are attached. Please consider these reports as part of my comments

Representative Quote: Sixty-four years of scientific, peer-reviewed scientific data from Isle Royale's wolf-moose studies (Vucetich 2021) and twenty-seven years of scientific, peer-reviewed data from the Northern Rockies (Smith et al. 2020) are available to predict the effect of wolf restoration on Colorado's game and domestic animals. These long-term studies from Isle Royale and Yellowstone, and hundreds of

wolf-related scientific publications, document an overall positive effect of wolf restoration on ecosystem processes, function and resilience.

CONCERN STATEMENT: Commenters were concerned for human health and safety due to the presence of wolves on the landscape.

Representative Quote: They will start moving in on house hold pets. Sheep, horses, goats, and yes your little lap dog. There is videos that show the damage they can and will do. I would hope the Colorado wildlife department would understand that people want to be able to go to the mountains and be able to fish, hunt, camp and still be able to take family and pets without looking over their shoulders.

CONCERN STATEMENT: Commenters requested the EIS discuss the impacts to recreation from wolf reintroduction, stating that past reintroduction efforts have not found negative impacts to recreation. Other commenters requested the Service state how impacts to recreation would be avoided.

Representative Quote: The USFWS and adjacent State Wolf management efforts have already identified that social impacts from the wolf reintroduction remain a major challenge in species management despite the fact that these two issues are entirely unrelated. The lack of relationship between the wolf and recreation could not be more perfectly exemplified by the fact that every state level wolf management plan recognizes the challenge of managing recreational users on best practices in wolf habitat and none even mention possible negative impacts to wolf habitat or populations from recreation. Recognition of the lack of relationship between recreation and wolves is badly needed to avoid closures of existing recreational opportunities in areas where there may be wolves and in mitigating the challenges clearly identified by the USFWS.

Representative Quote: Exceptionally clear statements from USFWS must be made to avoid any impacts to recreational usages of roads and trails from the wolf reintroduction.

Representative Quote: The Organizations would note there is a significant difference between a wolf being impacted on a high-speed arterial road and the risk of a wolf being impacted on a low-speed dirt road or trail. If there was any concern on the latter impacting habitat quality or wolf populations it is of such little concern it is not discussed. The Organizations are aware that highways may be looked at for management but we would be opposed to any restriction of existing recreational opportunities for dispersed or lower speed recreational opportunities. Rather this type of recreation commonly is drawn into management inadvertently and this should be avoided.

CONCERN STATEMENT: Commenters questioned if the reintroduced population would be "wholly separate" from existing populations and questioned if the Service has appropriate legal authority under section 10(j) for this effort.

Representative Quote: SCI encourages the Service to ensure that it has appropriate legal authority under ESA Section 10(j) to support the State of Colorado's wolf introduction under Proposition 114. Section 10(j) of the ESA defines an experimental population as a population authorized by the Secretary for release under paragraph (2), but only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species. 16 U.S.C. 1539(j)(1). Section 10(j) authorizes the Service to release a listed species "outside the current range of such species if the release will further the conservation of such species. Id. 10(j)(2)(A). SCI further encourages the Service to consider whether a population of wolves in Colorado is wholly separate geographically from nonexperimental populations and whether any release is outside the current gray wolf range. Of course, the Service is aware of healthy wolf populations in Wyoming, Idaho, and the other Northern Rocky Mountains (NRM) states. In Colorado, "there are known wolves already in the state. 1. These wolves have dispersed from the NRM. For example, in 2019, a radio-collared wolf from Idaho was found in Jackson County, Colorado. In 2020, CPW visually confirmed the presence of a pack of six wolves in Moffat County, along the border with Wyoming and Utah. Since that time, CPW has

received additional sighting reports and photos of wolves in this area. 2. Most notably, in June 2021, CPW observed wolf pups from the pairing of the 2019 Idaho wolf and another disperser, and even fitted one of these pups with a GPS collar. Altogether, CPW typically field[s] around 100 sightings each year. While CPW staff are not able to confirm all these sightings, the many reported sightings suggest the possibility of more wolves than simply this one pack. Given the dispersion of wolves from the NRM and the existence of wolves already in the State, it may not be possible to fulfill the Section 10(j) definitions and criteria.

OTHER WILDLIFE

CONCERN STATEMENT: Commenters raised concerns that the presence of wolves on the landscape would impact other species, mainly prey species such as elk, deer, and moose. They noted that CPW has restored these populations and were concerned this progress would be impacted by wolf reintroduction. Some commenters noted that the large ungulate populations in Colorado would provide adequate prey species for wolves. Commenters asked that stress levels in ungulates also be considered, in addition to direct mortality.

Representative Quote: The CPW has spent how many years working hard to restore the moose and mule deer population. Bringing the wolves in will set the progress they have made back

Representative Quote: The primary effects the USFWS should evaluate are those related to prey populations, particularly big game, and the resulting impacts on wolf populations.

Representative Quote: The recreational community is very concerned about possible declines in elk and deer herds from the wolf reintroduction driving management decisions and restricting recreation access now and into the future. These types of indirect impacts from the reintroduction must be protected against in the planning process.

Representative Quote: Ungulates- We have the biggest elk herd in the world in Colorado. Perfect habitat for wolves. Wolves need elk, and elk depend on wolves. The pressure of predation, elk are kept healthy, and the healthiest and strongest pass on their genes. By keeping elk populations in check, wolves promote ecosystems. For elk, this ensures that they remain genetically robust and less susceptible to diseases like Chronic Wasting Disease.

Representative Quote: I also ask that you closely study the impacts of elevated stress levels in ungulate species, particularly cow elk, especially due to the wolves well-known habits of chasing, killing, and harassing most other animal species for their own fun and enjoyment.

SOCIOECONOMIC RESOURCES

CONCERN STATEMENT: Commenters noted that management measures should be designed to avoid or mitigate impacts to recreation that could cause economic losses.

Representative Quote: Recreational activity is a huge economic driver for the western slope areas of Colorado and Colorado more generally. These economic contributions must be protected from direct loss or indirect impacts from poorly tailored or overly restrictive management efforts.

CONCERN STATEMENT: Commenters noted the potential economic benefits or adverse impacts of the State's plan to reintroduce gray wolves.

Representative Quote: With the introduction of wolves, the possibility of severe impacts on the economy must be considered. Livestock operations, hunting and outfitting, and recreation will be severely impacted. These industries drive the economy of, not only our county, but our state. In North Park, the wolves that have migrated from Wyoming are already killing livestock. They have quickly adapted to fladgery, wild burros, range

riders and several other hazing techniques. They are teaching their young to kill cattle as well. Wolves that habitually kill cattle would have already been eliminated in other states, to make room for wolves that hunt wild game instead. Other western states have felt these impacts and have learned that they need a lethal management option. The agriculture industry should not be forced to bear the brunt of an apex predator in the absence of effective management. This management plan needs to be right the first time, because delaying the ability to control wolves threatens the viability of ranches to stay in business.

Representative Quote: Has anyone really looked at the financial impact the wolves in Yellowstone have brought to the state in the means of tourism. Of course this economic benefit would be for a wider spectrum of society instead of a select few wealthy landowners etc. so maybe that's Colorado's problem.

Representative Quote: It is important to consider the benefits that wolves bring to ecosystems and communities. Their contribution to healthier ungulate herds by removing diseased (CWD, parasites, arthritic, etc) and older animals is well documented as well as their indirect impact to healthier vegetation by how they influence ungulate behavior. They bring economic benefit to communities through their ecological services as well as through ecotourism, mitigation of climate change and reduction of motor vehicular accidents (with ungulates as seen in the study in Wisconsin).

Representative Quote: Agriculture in Colorado is a 4 billion dollar industry, and the losses we livestock producers are going to incur will bankrupt us. Family farms will disappear, multi-generational ranches will be sold; decades of work in herd management and genetic improvements in livestock production will be lost.

Representative Quote: According to data from Colorado State University (CSU) Extension, every cow in Mesa County directly contributes \$600-\$800 to our economy on an annual basis. It is imperative that our local caretakers of the cattle have all the tools and flexibility needed to protect their livestock from the wolves that are migrating and being introduced in our area. Again, using CSU data, there are over 46,000 cattle in Mesa County. That is a direct impact of over \$32 million to Mesa County every year. This is in addition to the improved habitat for wildlife, large landscapes, and other contributions of the landowners. As the threat and impacts of wolves on these landscapes are felt, there will be fewer and fewer livestock on the land. If the impact of the wolves causes more producers to go out of business, then Mesa County continues to lose a very steady contributor to our economy. Our family ranch, alone, contributes nearly a half million dollars on an annual basis to the business community.

CONCERN STATEMENT: Commenters noted the EIS should consider potential socioeconomic impacts, including impacts to small businesses, including livestock producers and hunting-related businesses, and rural communities with and without implementation of a section 10(j) rule. They noted these producers already see impacts from other wildlife.

Representative Quote: The Fish and Wildlife Service to Evaluate: The impacts to small businesses (livestock and wildlife related) with and without the ability to manage through the 10(j) rule which includes lethal control of problem wolves.

Representative Quote: In addition, the USFWS needs to evaluate all impacts to rural communities that will be the most impacted by this reintroduction. Wildlife and livestock related interests need to be carefully considered when making this designation. Small businesses, ranching families and outfitting businesses will all be negatively impacted by wolves. Having both lethal and non-lethal methods of control for the wolves is paramount.

Representative Quote: As USFWS considers alternatives to proposed approaches for wolf reintroduction, we sincerely hope that consideration extends to reasonable approaches for livestock producers. Undoubtedly, wolf-livestock conflict encompasses more than confirmed mortalities and direct loss. Indirect losses including, but not limited to, declining body condition score, conception rates, weaning weights, and other production metrics will certainly be affected by additional predator introduction. These economic losses are not insignificant, and as such, should be addressed in a comprehensive manner for the EIS. The very fabric of our rural communities is dependent upon a strong management plan, with definitive compensation processes and multipliers shored up

by appropriate and accessible funding. Materials for mitigation, such as fladry, other domestic livestock, flares, etc. should come from state supported funds, and the onus of providing those deterrents should not fall to the producer.

Representative Quote: Section 10(j) Designations Socio Economic Impact Moffat County requests significant efforts be placed on an adequate social economic assessment comparing alternatives, and specifically identifying multiplier effects of various levels of management or non-management of problem wolves. The reintroduction of gray wolves into northwestern Colorado will impact local economies and small businesses located within the established boundaries of the non-essential experimental population. If part of the boundary includes federal land in Moffat County, then it will have an impact on the County's tourism and recreation industry, specifically as it relates to hunting, and also impact the County's agricultural industry. A reduction in big game population from wolf predation will impact Moffat County's world-renowned elk hunting, especially if the habitat overlaps with specific big game management units. The loss of livestock and additional costs for mitigating against gray wolf predation will also negatively impact the ranchers and agriculture industry in northwestern Colorado. Agriculture and livestock production impacts that are both direct and indirect must be quantified and evaluated for both primary and secondary impacted businesses in the socio economic evaluation.

Representative Quote: Lastly, we would like to ask the Fish and Wildlife Service to evaluate the impacts to rural communities, the ranching (livestock) industry, the guide and outfitter industry (hunting), as well as the small businesses in the communities that these industries reside in, with and without the ability to manage wolves under the 10(j) rule including lethal control. I am certain the conclusion will be that without the 10(j) rule, the economic impacts to these industries and businesses will be significant.

Representative Quote: *USFWS should evaluate potential impacts on other resources but also other impacts such as weather, human uses such as recreation, domestic livestock grazing, and recreation (including hunting) on any specific resource.

Representative Quote: Many in our area already suffer loss of livestock to bears and mountain lions, not to mention calf loss to coyotes, so we are already pressured to continue to produce a safe, nutritious food source for Coloradans at a reasonable price .

CONCERN STATEMENT: Commenters noted the EIS should consider potential costs for reintroduction and management of gray wolves.

Representative Quote: The potential costs to comply with the actions under consideration, including those that would be borne by the Federal Government and private sectors. USFWS should consider the initial estimates of costs related to reintroduction and longer-term management of wolves developed by CPW.

Representative Quote: The potential costs to comply with the actions under consideration, including those that would be borne by the Federal Government and private sectors. a. Economic evaluations reveal that the economic benefits, which should include ecosystem benefits, of wolf reintroduction far outweigh the economic cost. In the Yellowstone area, wolf recovery has yielded economic benefits that far outweigh the costs. The annual impact of wolf restoration was estimated in 2005 to be \$35.5 million (Duffield et al. 2006). b. Funding: Although the wildlife portion of Colorado Parks and Wildlife revenue is primarily (68%) from hunting and fishing licenses, several other funds provide support for non-game wildlife: Great Outdoors Colorado lottery funds provided 7% (\$16 million) of CPW's budget in 2018; Federal State Wildlife Grants provided 0.5 % (1.1 million) of CPW's budget in 2018 for earmarked for species that are not hunted or fished; Income tax checkoff donation to the Non-game and Endangered Wildlife Fund provided about \$200,000.000 to CPW's budget in 2018; Pittman-Robertson excise tax provides funds in other states to monitor and manage wolf populations and could be used in Colorado; CPW's recently passed legislation authorizing the Keep Colorado Wild license plate fee guarantees \$10 million dollars per year to Colorado SWAP species of which gray wolves are one.

CONCERN STATEMENT: Commenters noted the Service should involve local counties in analyzing socioeconomic impacts to rural *communities and livestock producers*.

Representative Quote: There are bound to be some unintended consequences when you make your decision and besides the producer who is chosen by the wolves to host them, it will be at the county level that the impact will be felt the most. Please use them as a resource to help you determine the social-economic impacts of wolves on the landscape.

Representative Quote: Utilize counties to analyze the full breadth of impact on rural communities and livestock operations. All sectors and businesses in rural Colorado will be impacted (livestock operation, hunting and outfitting, recreation, etc).

CONCERN STATEMENT: Commenters noted that allowing flexible management options under the section 10(j) rule is needed to mitigate socioeconomic impacts.

Representative Quote: Lethal management under the 10(j) rule and giving Colorado Parks and Wildlife (cpw) flexible management options is paramount to the survival of cattle operations such as ours.

Representative Quote: Economic impacts of wolves is significant in all sectors of rural CO and we need the flexibility afforded by the 10(j) rule.

CONCERN STATEMENT: Commenters requested that the Service complete an economic study related to the State's planned reintroduction of gray wolves.

Representative Quote: With hundreds of businesses statewide, and the actual viability of those. We request that a full economic study is undertaken and any negative effects are mitigated.

Representative Quote: 1) The EIS should include a complete and thorough investigation into the economic impacts associated with this reintroduction process. More specifically I would call attention to impacts as they relate to Landowners, Livestock owners, Outfitters, Sportsman and Sportswomen, Municipalities and County Governments. I would add that other state agencies (CDOT, State Landboard, State Dept. of AG) and others will likely see impacts to their operations and possible costs associated with wolf movements/migrations and occupation of lands that they control. This overall look at economics as it relates to the reintroduction of wolves should include possible mitigations to include but not be limited to monetary reimbursement to those impacted. Sources of funding should be explored that are outside the current budgets of state agencies, the USFWS and others. It is my believe that wolves moving into or being moved into the state will impact businesses and individuals that have been and are operating without another predatory species to compete with.

CONCERN STATEMENT: Commenters requested that the Service consider the potential effects of the State's plan to reintroduce gray wolves on tourism, hunting, and fishing revenues.

Representative Quote: The consideration of other wildlife populations that will be effected by the wolf introduction and how this will be managed to continue to have healthy wildlife populations within our State. As well as the tourism and hunting and fishing revenue that this gives to the state for our Parks and wildlife.

CONCERN STATEMENT: Commenters requested that the Service consider potential socioeconomic impacts on a local, rather than statewide, basis.

Representative Quote: It is imperative that the EIS accurately address the impacts of wolf depredation on livestock and our hunting industry. The losses cannot be given on a statewide basis. this is a skewed statistic. Losses need to be compiled on a localized basis comparing the number of wolves to the n umber of livestock or herds of big game in the conflict area instead of a statewide basis. It should also consider the economic impacts

to western slope rural business owners, outfitters, hunters and Colorado Parks and Wildlife if wolf numbers are unchecked.

Representative Quote: When evaluating the significance of impacts to socioeconomic resources, USFWS should analyze the comprehensive effects to livestock producers for each alternative. Livestock impacts go beyond confirmed mortalities; operations would also face significant economic hardship from herd stress and sickness, reduced weight gain, lower pregnancy rates, increased labor/management costs, and other indirect effects. While the impacts may seem minor, industry or nationwide, these economic losses must be considered on the localized scale of the rural community and the individual ranchers impacted. USFWS should draw upon data from previous reintroductions, including the Mexican gray wolf experimental population in New Mexico, to inform this analysis and ensure all livestock producer impacts are considered.

CONCERN STATEMENT: Commenters requested that the Service consider implementing a section 10(a)(1)(A) permit to allow the state to manage wolves that depredate livestock and working dogs.

Representative Quote: SCI's concerns for wildlife also extend to livestock. Colorado's current wolf population has already depredated livestock and dogs.⁶ An introduced population will only have a greater impact. Therefore, the Service should consider and implement a Section 10(a)(1) permit to provide the state with necessary authority to address these detrimental impacts.

CONCERN STATEMENT: Commenters noted that the section 10(j) rule should allow flexibility to address direct and indirect socioeconomic impacts of reintroduced gray wolves.

Representative Quote: With the reintroduction of gray wolves, ranchers will be subject to direct losses of livestock due to predation, decreased production, and will also have additional costs associated with trying to mitigate the predation. A Section 10(j) designation must account for this impact and allow the FWS and the state the management flexibility to address the damage caused by wolves.

CONCERN STATEMENT: Commenters noted the EIS should document the costs of implementing non-lethal and lethal take strategies.

Representative Quote: The EIS needs to very thoroughly document all costs to both agencies as well as individuals of using non-lethal deterrents vs. lethal take. It is proven that non-lethal deterrents are typically only effective for a short time and very expensive to implement and maintain. Cost-effectiveness of lethal take needs to factor heavily into wolf management equation. Wolf numbers prove they are thriving across the West. I feel this relisting is political, romantic and emotional and has nothing to do with the actual recovery. Wolves in Colorado has usurped scientific, biological input with urban voting populations that will not be affected. This has created a great conflict in our state's rural vs urban. and as such, every management tool needs to be made available to utilize.

Representative Quote: Reaction time from the Game service is slow, (can be non-responsive because of the miles needed to travel to alleviate the situation) and the practice of paying these agricultural providers is small, and is put upon THEM to prove the wolf has killed their livestock (by delivering the dead animal to the government, removing them from their actual work, expenses for travel, heart ache and being frequently not acknowledged even after such efforts are taken). These individuals do not have the money behind them that the government and the environmental groups have to support their on-going economic challenges which they incur INDIVIDUALLY.

SPECIAL STATUS SPECIES

CONCERN STATEMENT: Commenters stated that they do not believe the gray wolf should be an endangered species. Some suggested that since there are already wolves in Colorado, a threatened designation would be a more appropriate.

Representative Quote: Given that gray wolves have been confirmed by Colorado Parks and Wildlife to be present in Colorado in 2022 (Colorado Sun 2022), albeit at numbers below that which is sufficient to recover the species in Colorado, the more legally appropriate designation for gray wolves reintroduced to Colorado, according to the Endangered Species Act, is Threatened (CRS 2021). As defined by the Endangered Species Act (ESA), a Threatened Species is any species that is likely to become an endangered species within the foreseeable future (CRS 2021).

CONCERN STATEMENT: Commenters requested that the EIS look at impacts and interactions with the Mexican gray wolf. Commenters also expressed concern that the release of the gray wolf would jeopardize the recovery of the Mexican wolf, with a risk of genetic swamping of the Mexican wolf.

Representative Quote: *The Department recognizes that the establishment of the Nonessential Experimental Population with a 10(j) designation is the most appropriate avenue for the management of wolves in Colorado. However, releasing northern wolves closer to the existing nonessential experimental population of Mexican wolves (Canis lupus baileyi) jeopardizes the recovery of the latter. The Mexican wolf is a separately listed entity under the Act and the Department has a legal and ethical obligation to recover Mexican wolves, not simply fill vacant wolf habitat with any wolves.*

Representative Quote: Risk of Genetically Swamping the Recovering Mexican Wolf Population Wolves are noted for long-range movements and genetic interchange among distant populations, even as far as 678 miles (Wabakken et al. 2007), which is the approximate distance from Denver, Colorado to the wild Mexican wolf population in Chihuahua, Mexico. The wild U.S. population sits about halfway between these two points. Dispersing wolves from the Northern Rockies have already appeared in northern Arizona and New Mexico. In October 2014, a 2-year old female wolf collared near Cody, Wyoming was documented on the Kaibab Plateau in northern Arizona. The wolf was repeatedly sighted in that area for more than two months and returned northward after finding no resident wolves. In July 2008, a wolf with black pelage was documented near the Vermejo Park Ranch in northern New Mexico. No Mexican wolves have ever been documented with black pelage so this was most likely a wolf from the Northern Rocky Mountains (Odell et al. 2018). Genetic swamping has been a critical challenge for other endangered canids, notably the Eastern red wolf (*C. rufus*, Kelly et al. 1999). Genetic swamping of Mexican wolves by northern wolves is more than a theoretical possibility it presents a very real threat to recovery of the Mexican wolf as a separately listed endangered subspecies. All available information suggests releasing larger northern wolves closer to central Arizona and New Mexico will result in hybridization with Mexican wolves. The risk of genetic swamping is particularly high during early phases of Mexican wolf recovery, when the number of wolves on the ground in recovery areas is relatively small. The Mexican wolf as a subspecies evolved its uniqueness in the high-elevation mountains of Mexico, and mostly separated from the other wolf subspecies to the north by fragmented habitat and discontinuous prey distribution (Heffelfinger et al. 2017a,b). The unique physical and genetic differences of Mexican wolves could not have developed, and maintained itself, if they had shared an extensive zone of genetic exchange with larger northern wolves. Generally, dispersing wolves are adopted into packs (Boyd et al. 1995) and can assume vacant breeding positions (Fritts and Mech 1981, Stahler et al. 2002, vonHoldt et al. 2008, Sparkman et al. 2012), usurp an existing breeder (Messier 1985, vonHoldt et al. 2008), or bide their time to ascend to breeding positions (vonHoldt et al. 2008). Body size is an important determinant of individual fitness and a driving evolutionary force (Baker et al. 2015). Stahler et al. (2013) demonstrated that body mass of breeders was the main determinant of litter size and survival of the litter. Hunting success is also tied directly to larger body size, which has obvious fitness advantages (MacNulty et al. 2009). This physical superiority offers a decisive advantage for northern wolves obtaining and defending breeding positions in the small Mexican wolf population. In addition to a body size differential, several characteristics of the current wild Mexican wolf populations make them

vulnerable to genetic swamping by northern wolves: 1) social disruption from human-caused mortality, 2) small pack size, and 3) elevated levels of inbreeding. When wolf populations have high rates of mortality, the social turmoil results in a higher rate of acceptance of wolves dispersing from other packs (Ballard et al. 1987, Mech and Boitani 2003:16). Ballard et al. (1987) noted that 21% of dispersing wolves were accepted into other packs. Immigrating wolves are also more readily adopted by smaller packs where additional individuals, especially males, increase hunting efficiency and survival of existing pack members (Fritts and Mech 1981, Ballard et al. 1987, Cassidy et al. 2015). The wild U.S. population of Mexican wolves has consistently maintained a relatively small pack size (mean = 4.1, 1998-2016, USFWS 2017), which means they would more readily accept immigrating wolves from the north. Inbreeding avoidance in wolves has been well-documented, where wolves more readily mate with unrelated wolves (vonHoldt et al. 2008, Geffen et al. 2011, Sparkman et al. 2012). The current wild populations of Mexican wolves have inbreeding levels higher than most wolf populations (USFWS 2017), which means a new wolf immigrant, unrelated to all Mexican wolves, would have a disproportionately high probability of attaining a breeding position (vonHoldt et al. 2008, Geffen et al. 2011, Å...kesson et al. 2016).

CONCERN STATEMENT: Commenters expressed concern about the impact of lethal removal on the gray wolf, noting that studies show when lethal removal is allowed, poaching increases. Commenters noted that lethal management of wolves in Wyoming has had negative impacts by severing population connectivity and inhibiting gene flow.

Representative Quote: Lethal management of wolves in Wyoming has negatively impacted wolf population survivability across the west by severing population connectivity thereby inhibiting gene flow and diminishing long-term wolf survivability potential across the Rocky Mountain Cordillera. Current lethal management of wolves in Wyoming and of Mexican gray wolves in Arizona and New Mexico will reduce the long-term survivability potential of gray wolves in Colorado by reducing or eliminating population connectivity thereby inhibiting gene flow.

CONCERN STATEMENT: Commenters expressed concern that a 10(j) rule would preclude the designation of critical habitat for the enhancement of recovery efforts. Specific concerns included potential future habitat modifications like the addition or closure of roads, or opening up areas to motorized use.

Representative Quote: Section 10 designations often preclude the designation of Critical Habitat for the enhancement of recovery efforts. The designation of Critical Habitat entails the prevention of adverse modifications of such habitats, conferring numerous conservation benefits (Congressional Research Service 2021: 23) unavailable to experimental, nonessential populations. Should the gray wolf in Colorado be reintroduced under an experimental, nonessential 10(j) rule, they would be deprived of such habitat protections, to the detriment of species recovery. This deprivation is particularly detrimental to the extent that new roads were to be constructed, or existing closed and gated roads were to be opened to motorized transit, offering opportunities for poachers to access heretofore secure habitats used during denning and at other sensitive times of year. By contrast endangered status (and the requisite designation of Critical Habitat) would present a legal bar to such adverse modification of wolf habitats. Section 10 designations often allow for reintroduced species that breach designated boundaries to be either relocated back to the boundary area or be put in a captive breeding program. Wolves are listed as a threatened species in all states bounding Colorado except Wyoming and parts of Utah. The recovery of wolves nationwide is frustrated by these efforts to prevent natural dispersal beyond these boundaries, which typically are established based on political jurisdictions rather than suitable habitats. Wolves that emigrate from Colorado should be allowed to proceed unmolested in the interest of establishing viable populations in neighboring states.

SUPPORT OR OPPOSE

CONCERN STATEMENT: Commenters stated support for the presence of wolves in Colorado and the 10(j) process, with most stating that increased management flexibility is needed to address potential impacts from the reintroduction.

Representative Quote: I am writing in support of the development of a Section 10(j) rule for wolves in Colorado. This designation will protect wolves while ensuring that red tape does not delay the reintroduction mandated by Colorado voters. I support the issuance of a Section 10(j) permit as it will allow some management flexibility to restore wolves to Colorado. I also support other approaches, or combinations of approaches including potential management actions in adjoining states. and evaluation of the potential impact of management in other states, especially Wyoming, on the establishment of wolves in Colorado.

Representative Quote: The 10(j) status will allow for the greatest range of management tools for Colorado Parks and Wildlife to ensure a healthy introduction of a species that has been absent from the range in Colorado for more than 75 years. This will help protect other sensitive species of interest to FWS that will bear the brunt of depredation from introduced wolves, including moose. And it will allow for close management of a species that will significantly impact individuals, businesses, and the communities that benefit from those businesses.

CONCERN STATEMENT: Commenters stated opposition to the 10(j) process, stating that it lowers protection for wolves; reclassifying them as "non-essential" and "experimental" allows them to be killed.

Representative Quote: I don't support Colorado designating their wolf population as an experimental, non essential wolf population under 10j. I believe 10j doesn't allow wolves to fully recover in Colorado which Colorado Parks and Wildlife needs to put first. In Montana my state has failed to do with the wolf population here and I want to see more state wildlife agencies putting recovering wolves first which 10j is a hurdle into making that goal happen, therefore the U.S. Fish and Wildlife should not support the decision of qualifying Colorados wolf population under 10j.

Representative Quote: This seems pretty clearly to be an excuse to temper with the law in bad faith. The goal of reclassifying wolves as "experimental" is to allow for ranchers and their ilk to kill them. This has nothing to do with the preservation status of the wolves as a population in Colorado. The reintroduction of wolves into Colorado is not "experimental," as Colorado is the natural habitat of the species, which existed here before that state was formed. I think this is a grotesque of the endangered species list's explicit purpose and of American conservationism. I know that ranchers suffer minimally by wolf predation as a matter of fact, and that the state compensates them generously for any losses.

Representative Quote: My family farms and ranches in Colorado and Wyoming and with great respect, my family and I strongly oppose Colorado Parks and Wildlife request for the 10(j) rule under the ESA as it erodes wolf protection and is NOT science-based. It is a loophole that enables ranchers, farmers, and BIG oil and gas corporations more leeway to legally use lethal means instead of non-lethal means of control.

Representative Quote: At this stage, FWS is determining whether to promulgate a 10(j) rule for the wolf population to be reintroduced in Colorado. Friends of Animals believes that this does not represent the best option to create a self-sustaining population of wolves in Colorado. As has been clear in the two working groups assembled by CPW, the attitude surrounding wolves is dominated by how to kill wolves, where to kill wolves, and how much money will be paid to the meat industry for livestock compensation. There is a reason why animals are delineated as endangered or threatened at the Federal level. The Endangered Species Act was meant to "halt and reverse the trend toward species extinction "whatever the cost." This means that the species themselves should have priority, not special interests within a given state. By preventing a state from crafting its own rules, and giving handouts to influential industries within that state, FWS can ensure that this reintroduction of an endangered species succeeds.

TRIBAL RESOURCES

CONCERN STATEMENT: Commenters stated that the Service should consult with Tribal representatives and draw on and use traditional ecological knowledge in the development of the 10(j) rule. Commenters specifically noted the Service should consult with the Global Indigenous Council in this process. Commenters were concerned with potential impacts to Tribal cultural values.

Representative Quote: USFWS should consult with tribal representatives and indigenous voices from Colorado and draw on and use traditional ecological knowledge to effectively guide the development of the 10(j) management rule and other wolf policies.

Representative Quote: Use information from peer-reviewed research and by consulting with indigenous people like the Global Indigenous Council for their guidance.

Representative Quote: Considerations for evaluating the significance of impacts on species, locations, or other resources of religious or cultural significance for Tribes and impacts to cultural values from the actions being considered

Representative Quote: The Global Indigenous Council must have a seat at the table during this process. Their use of Traditional Ecological Knowledge. The Global Indigenous Council continues to be on the forefront of Defending the Sacred with the Wolf Treaty, support for preserving the Endangered Species Act (ESA), and introducing a Native American Endangered Species Act (NA-ESA). The latest Tribal Nations to support the Wolf Treaty and its principles are the Karuk and Yurok Tribes, the two largest Tribal Nations in California. The Wolf Treaty was present at the Bioneers Conference in San Rafael, California, in October 2019. Ponca Nation Councilwoman and internationally respected elder, Casey Camp-Horinek, and GIC Executive Director, Bear Stands Last, introduced the treaty at the event. Tom Goldtooth, Executive Director of the Indigenous Environmental Network, was among the leaders to sign the treaty at Bioneers. Tom and Casey were instrumental in ensuring indigenous communities had a voice and presence at the recent UN Climate Change Conference COP 25 in Madrid. Both were on the frontlines of the protest held by indigenous leaders and delegates on December 11.

CONCERN STATEMENT: Commenters stated that the Service should develop a management agreement with Tribes and indicated that the Service should consult with the Southern Ute, Ute Mountain Ute, Arapaho, Cheyenne, Kiowa, Comanche, Apache, Navajo and Shoshone Tribes.

Representative Quote: Receive definitive management agreement with neighboring states and Tribal representation

Representative Quote: USFWS should consult with the Southern Ute and Ute Mountain Ute tribes at a minimum and consider consultation with other tribes with historical connections to Colorado, including but not limited to the Arapaho, Cheyenne, Kiowa, Comanche, Apache, Navajo and Shoshone tribes. USFWS should consult with the Global Indigenous Council for their guidance on which tribes should be contacted.

CONCERN STATEMENT: Tribal representatives from the Southern Ute stated concern that wolf reintroduction would lead to conflicts with livestock and wildlife/hunting-related interests, both of which are an important and integral part of the Tribe's social, economic, and cultural fabric. They also expressed concern for wolf dispersal to Tribal trust lands of their reservation, as well as Brunot Area lands where the Tribe retains off-reservation hunting rights for its members. The Tribe noted that prior to wolf releases, it expects to develop a wolf management plan in consultation with appropriate agencies to minimize wolf-related impacts to the Tribe and its members.

Representative Quote: *The Tribe has closely followed the plan of the State of Colorado to reintroduce the gray wolf within the State beginning in 2023. The Tribe believes that the return of this apex predator throughout the southern Rocky Mountain landscape will lead to significant conflict with both livestock and wildlife/hunting related interests, both of which are a very important and integral part of the Tribe's social, economic, and cultural fabric. The Tribe further believes it is highly likely that, within a relatively short timeframe following the State's release of animals, wolves will disperse to locations of primary concern to the Tribe, including tribal trust lands of our reservation, as well as Brunot Area lands where the Tribe retains off-reservation hunting rights for our members. The big game located on these lands have historically been and continue to be an essential component to our Tribe's survival and way of life that must be preserved for our future generations. However, prior to wolf releases, the Tribe expects to develop a wolf management plan, in consultation with appropriate agencies, in order to minimize wolf related impacts to the Tribe and its members.*

CONCERN STATEMENT: The Southern Ute Tribe affirmed its intention to engage in government-to-government consultation.

Representative Quote: First, the Tribe wishes to affirm its desire to engage in government-to government consultation with the U.S. Fish & Wildlife Service (Service). The Tribe believes this consultation is vital to the protection of our sovereign rights and interests and is in keeping with Secretarial Order 3206 which compels the Service to harmonize its tribal trust responsibility with its species conservation efforts under the federal Endangered Species Act of 1973, 16 U.S.C. 1531, as amended (ESA).

CONCERN STATEMENT: Commenters suggested that no agreement between the Service and the Tribe is necessary to capture and remove wolves from Tribal trust lands.

Representative Quote: The Service or a designated agency may develop and implement management actions in cooperation with willing tribal governments. No agreement between the Service and a Tribe should be necessary for the capture and removal of wolves from tribal trust lands if requested by the tribal government.

APPENDIX D: MAPS OF SOCIAL-ECOLOGICAL SUITABILITY AND CONFLICT HOT SPOTS

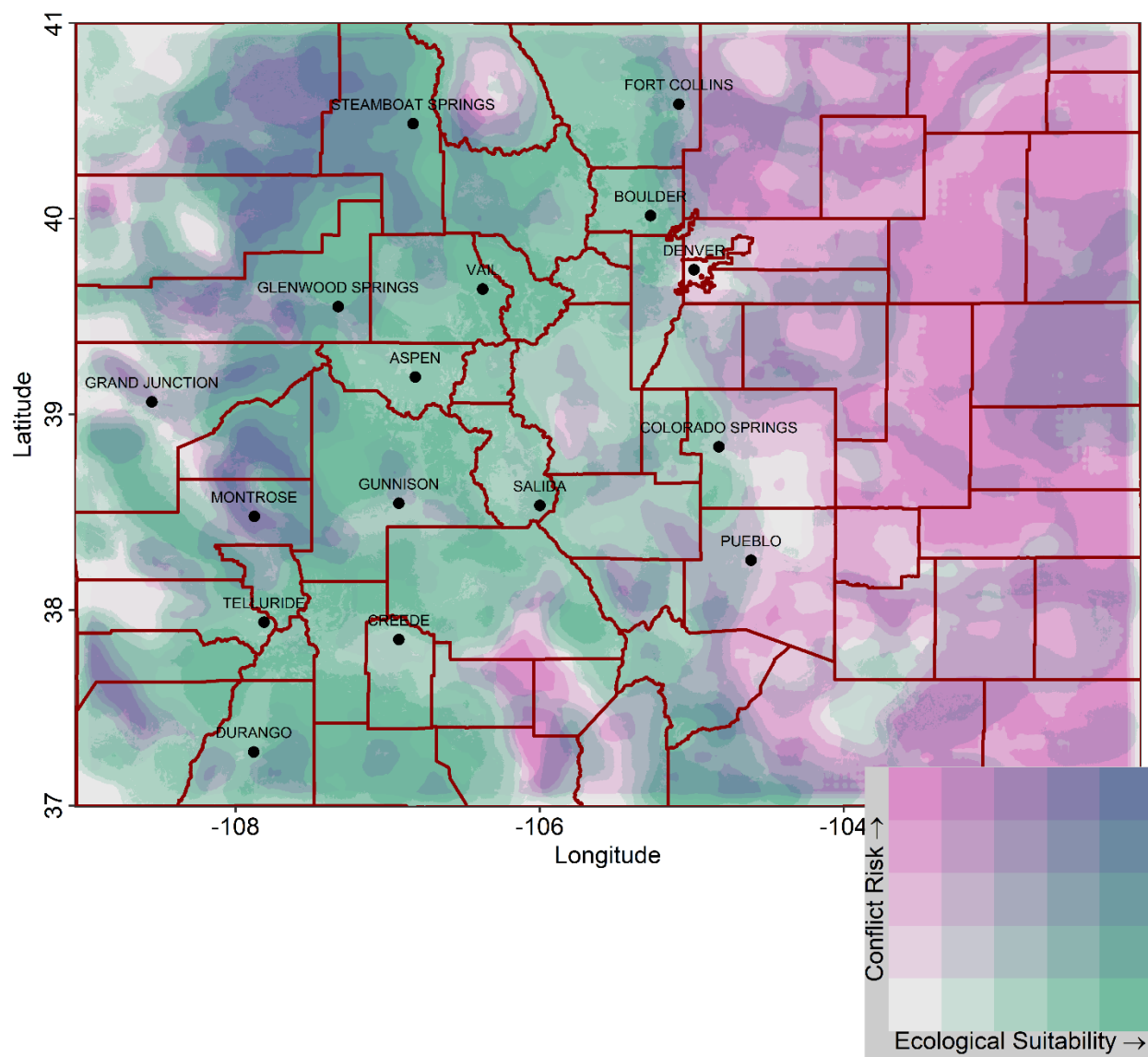


Figure 1. Ecological Suitability and Conflict Risk for Gray Wolves in Colorado (Summer)

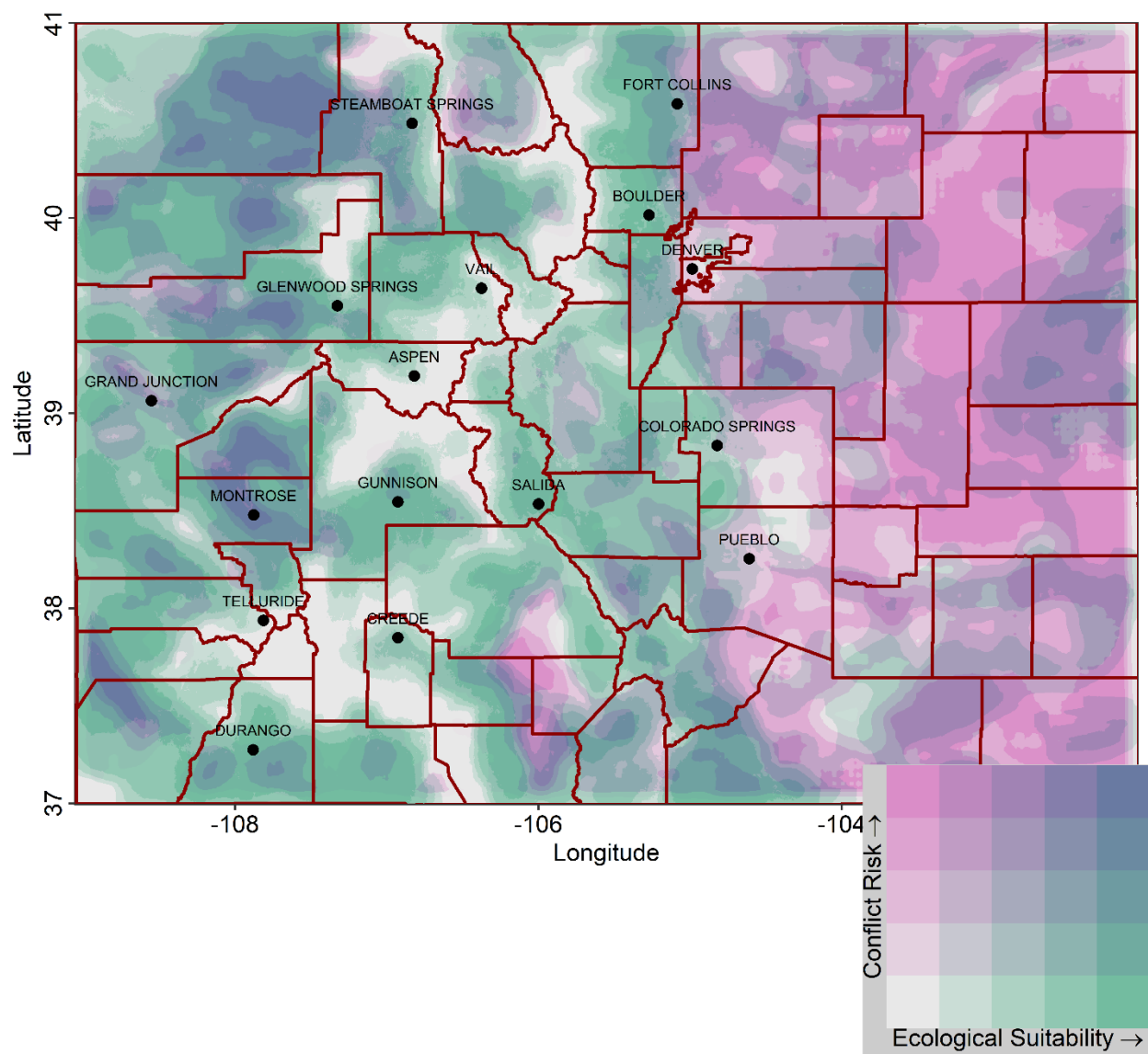


Figure 2. Ecological Suitability and Conflict Risk for Gray Wolves in Colorado (Winter)

APPENDIX E: TRIBAL HISTORY AND DETAILED SITES

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1 TRIBAL RESOURCES

1.1 CULTURE HISTORY

Various Native American groups have occupied western Colorado for at least the last 12,000 years. The era before the arrival of Euro-Americans in this area is referred to as the prehistoric period, and it has been subdivided into the Paleoindian (11,500–6400 B.C.), Archaic (at least 6500–400 B.C.), Formative (400 B.C.–A.D. 1300), Late Prehistoric (A.D. 1300–1650), and Protohistoric (A.D. 1650–1881) periods (Conner et al. 2015).

The Late Prehistoric and Protohistoric periods (A.D. 1300–1881) represent the time between the disappearance of Formative-era peoples, which coincides with the end of a regional drought and possibly with the influx of Numic-speaking people from the western and central Great Basin, and the relegation of tribal people to reservations (Conner et al. 2015). The Protohistoric period was also culturally dynamic, judging from archaeological, ethnohistoric, and linguistic data. Some researchers (e.g., Aikens and Witherspoon 1986) have suggested that Numic speakers coexisted with non-Numic foragers and horticulturalists throughout the Formative period.

Generally considered to be the ancestors of the Ute, these Numic-speaking peoples were highly mobile hunter-gatherers who moved in seasonal rounds, built temporary wooden structures ("wickiups") for shelter, and ephemeral brush structures for game drives (Bailey 2005). They made small brown ware vessels and hunted with bows and arrows tipped with bi- and tri-notched projectile points, including Desert Side-notched and Cottonwood Triangular forms. They appear to have focused on gathering berries, pinyon nuts, and small seeds and hunting game, such as deer (*Odocoileus* sp.), elk (*Cervus canadensis*), mountain sheep (*Ovis canadensis*), bison (*Bos bison*), and rodents within relatively small catchment areas, although those lifeways changed to some extent when Late Prehistoric people adopted a nomadic horse culture.

Before contact with Europeans, the Ute people inhabited a vast expanse of land, including portions of present-day Utah, Colorado, and northern New Mexico. They are generally believed to have first appeared as a distinct people in A.D. 1000-1200 in the southern part of the Great Basin, an area roughly located in eastern California and southern Nevada (Simmons 2000:14). The Ute people migrated to Colorado by 1300, from where they continued to disperse across Colorado's Rocky Mountains over the next two centuries (Simmons 2000:14).

As they expanded across the Great Basin, the Utes were connected by the Southern Numic language, a division of the Uto-Aztecan language family. The Numic branch spread with the dispersal of the Utes from the southern Great Basin, with three linguistic divisions eventually emerging west of the Rockies: Western Numic, which includes Monos, Northern Paiutes, Snakes, and Bannocks; Central Numic, spoken by Comanches, Gosiutes, and Shoshones; and Southern Numic, which includes the Southern Paiutes, Kawaiisus, Chemehuevis, and Utes (Callaway et al. 1986:336; Simmons 2000:14-15). While there were regional differences in Ute speech, all dialects were mutually intelligible (Callaway et al. 1986:336). This mutual

intelligibility implies a single speech community and many overlapping social networks, despite the considerable expanse the Ute inhabited.

Although there is disagreement regarding the earliest prehistory of Numic speakers, it is generally agreed that by A.D. 1100, they expanded from the southwest Great Basin into Utah and Western Colorado (Madsen and Rhode 1994). Brown ware ceramics and increasing numbers of Desert Side-notched and Cottonwood triangular projectile points appeared in these areas at about A.D. 1100 (Reed 1994:196), and these may indicate the earliest markers of Numic-speaking people in western Colorado. Over the next 500 years, Utes continued to expand their territory, and by the early 17th century, they occupied portions of the Great Basin, the Colorado Plateau, and the Central and Southern Rockies. This extensive area was inhabited by a population estimated at upwards of 5,000-10,000 (Baker 1988:179; Simmons 2000:16), although lower population levels may be more likely given that they formed a single speech community.

Based on archaeological evidence, researchers have proposed three phases for the Numic occupation in Western Colorado, which encompass both the Late Prehistoric and Protohistoric periods: Canella phase (A.D. 1300–1650), Antero phase (A.D. 1650–1881), and Refugee Ute (A.D. 1881–1920s) (Reed and Metcalf 1999; Martin et al. 2006).

The Canella phase (A.D. 1300–1650) represents early Numic occupation of the region, which is characterized by frequent but relatively small-scale mobility and the use of Uncompahgre Brown Ware ceramics. Toward the end of the phase, Numic peoples began to incorporate small amounts of European trade goods into their material assemblages.

The Antero Phase (A.D. 1650–1881) represents Numic people's adoption of a fully equestrian lifestyle. After contact with colonizing Spaniards and the acquisition of horses in the early 1600s, the Ute expanded their territories and came into regular contact with other cultural groups, including native Puebloans to the south. With contact came regular trade and increasing use of Euro-American glass and metal items. Metal projectile points and firearms increasingly replaced Desert Side-notched and Cottonwood Triangular projectile points and probably subsumed them by 1840. The end of this period is defined by the year (1881), when the federal government formally forced the Ute onto reservations.

The informally defined Refugee Ute period (A.D. 1881–1920s) encompasses the time when many Ute individuals and families continued to live off-reservation, still using wickiups, in western Colorado and eastern Utah. During this same period, many Utes, who lived within reservations, also traveled off-reservation (Martin et al. 2006). Ute sites in western Colorado during the Refugee Ute period consist primarily of open lithic scatters with temporally diagnostic artifacts, although rockshelters and wooden and brush structures are also known. Many wickiups have been recorded in the region.

While a definitive listing of Ute bands is made difficult by their fluid membership and high mobility, a loose confederation of 13 bands was in place by the 17th century that included seven eastern bands, composing the Eastern Ute, with ranges primarily in present-day Colorado (Yampa, Parianuche, Sabuagan, Tabeguache, Weenuche [Weeminuche]¹, Capote,

¹ The band eventually composing the Ute Mountain Ute people are referred to in historic texts as both the Weeminuche and Weenuche. The preferred name is Weenuche, but Weeminuche is used here when citing historic texts that use that term.

and Muache), and six western bands of present-day Utah (Uintah, Timpanogots, Pahvant, Sanpits, Seuvarits, and Moanunts) (Callaway et al. 1986:338- 340; Jorgensen 1965; Simmons 2000:17-22) (Figure 1). By the 1860s, these bands were described in terms of three amalgamated groups, the "Uncompahgre," White River," and "Weenuche" bands. By the 1890s, these amalgamated bands resided on three distinct reservations in eastern Utah and southwestern Colorado. The Ute Mountain Ute reservation comprised the Weenuche band who were assigned to an unallotted western portion of the Consolidated (Southern) Ute Reservation (Burns 2004).

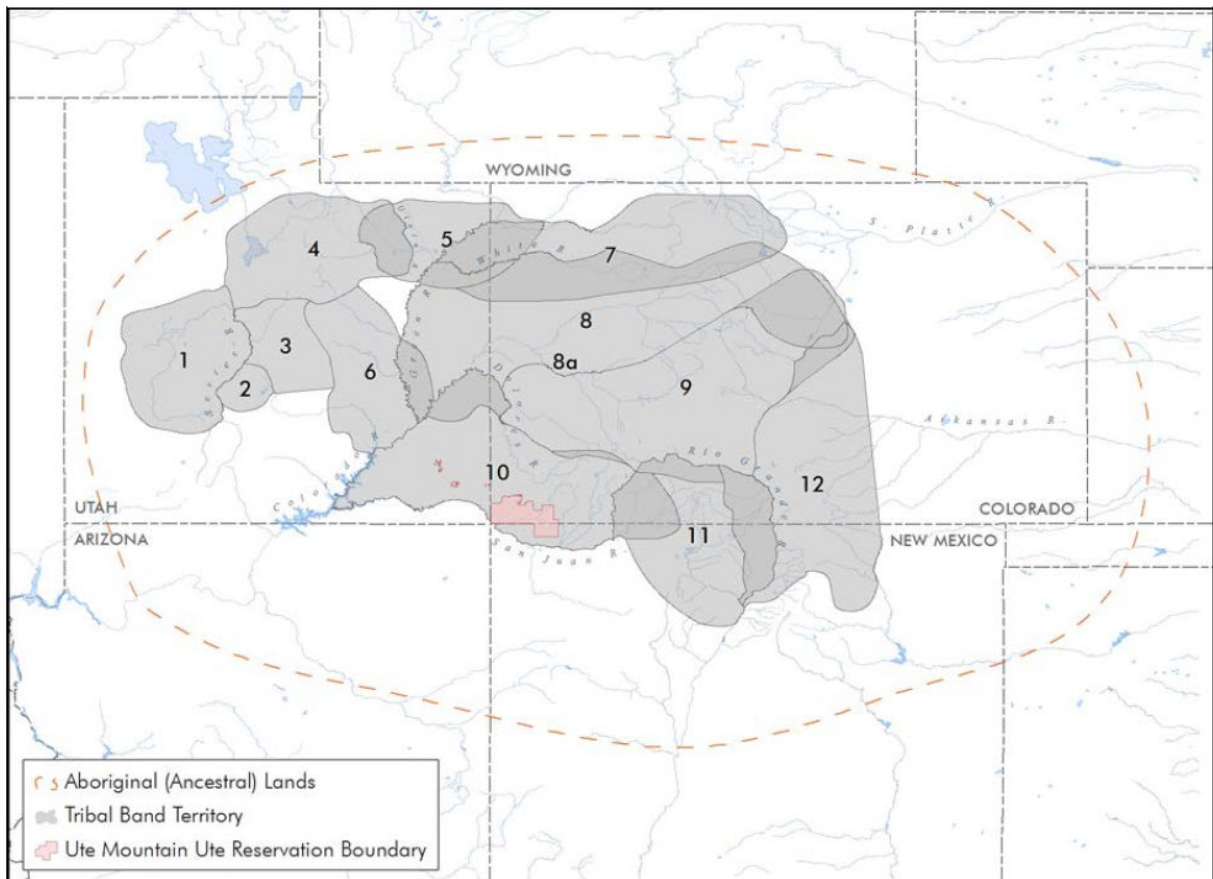


Figure 1. Extent of Ute aboriginal (ancestral) lands and distribution of Ute Bands by early 17th century. 1. Pahvant, 2. Moununt, 3. Sanpits, 4. Timpanogots, 5. Uintah, 6. Seuvarits, 7. Yampa, 8. Parianuche, 8a. Sabuagan, 9. Tabegauche, 10. Weenuche, 11. Capote, 12. Muache. Adapted from Simmons (2000).

Given that the Utes and their ancestors had no written records, prehistoric evidence of Numic and Ute occupation of western Colorado relies entirely on the archaeological record. However, when Europeans arrived and began interacting with the Utes, we begin to see historical documentation of these interactions. The earliest known records of European contact with indigenous inhabitants in western Colorado are from Juan Maria de Rivera, who explored the region during two expeditions in 1765 (Sanchez 1997). Rivera recorded a group he called the Sabaugans, which Baker et al. (2007) suggest were the same group that later came to be called the Uncompahgre. A decade later, Fray Francisco Antanasio Dominguez and his partner Escalante traveled farther north, reaching White River in 1776, then west as

far as Utah. The Dominguez-Escalante journal mentions various encounters with "Sabuagana Yutas" in areas around the Colorado River near Grand Mesa and the Roan Plateau (Ott 2009:52).

The Utes were among the first indigenous groups in North America to acquire and master the horse, which contributed to their remarkable success in the 17th and early 18th centuries. In the decades following the Dominguez-Escalante expedition (1765), until the 1820s, Euro-Americans had few incursions into west-central Colorado. However, the early contact lifeways of the Eastern Utes, particularly the Weenuche, were increasingly transformed during this time by the acquisition of horses and trade items introduced by the Spanish (Baker et al. 2007; Lewis 1994). Simmons (2000:29) writes that the Utes first acquired the horse in 1640 when captive Utes escaping from the Spanish in Santa Fe stole horses. Silbernagel (2011:51) suggests that the Utes may have acquired their first horses before 1600. Regardless, "by the 1820s the Eastern Utes were widely enjoying an equestrian lifeway" (Ott 2009:53). Jorgensen (1972) describes them in the 1800s as fine horsemen with vast herds of horses living seasonally, through parts of the spring and summer, in large encampments of 200 or more lodges.

The horse allowed the Utes to travel farther distances for their subsistence than was previously possible. They expanded the seasonal circuits within their traditional territory, venturing as far east as the panhandles of Texas and Oklahoma (which expanded their aboriginal or ancestral lands to include areas outside traditional band territories (Figure 1). Because travel times decreased, they were able to stay together for longer periods of time throughout the year. The size and importance of winter encampments also grew as Utes were able to pack additional food and supplies capable of sustaining larger numbers of people.

As the Ute bands became adept and skilled riders, the horse became an integral part of their culture. Horses were one of their most prized possessions and were a principal symbol of wealth and pride (Simmons 2000: 30). Through both trade and theft, the Utes amassed large herds, which thrived on the native grasses of the mountain valleys and plains, multiplying quickly without selective breeding. They often rode bareback or used leather pads with short stirrups (Simmons 2000:30). These special stirrups hung from the horse's mane and allowed the rider to drop to one side and shoot under the horse during battle. They also developed their own saddles, sometimes using animal horns to make the pommel in the front of the saddle and the cantle in the back (Silbernagel 2011:52). In his description of changes in Ute society sparked by the appearance of the horses, Lewis (1994:30) notes their accumulation of more material goods and elaboration of Ute material culture, adoption of Plains cultural traits, expansion of their territory as noted horse raiders, and their role as important middlemen on the intertribal horse trade.

With their newfound mobility and mastery of the horse, the Utes were among the most feared and powerful tribes in the Four Corners by the early 18th century. They raided in northern New Mexico throughout the 17th and 18th centuries, stealing horses and goods from the Spaniards, Pueblo peoples, the Jicarilla Apaches to the east, and the Navajos to the southwest.

They raided the unmounted Western Shoshone and Southern Paiutes to steal women and children, which they sold to the Spanish in New Mexico for use as domestics and shepherds (Callaway et al. 1956:354; see also Cameron 2011). While the Utes entered into a treaty with the Spanish in 1670, they sided with the Pueblo people during the 1680 Pueblo Revolt, and subsequently used the opportunity to raid the pueblos, including the Hopi (Callaway et al. 1986:354; Simmons 2000:30). By 1700, the Utes were aligned with the Comanche, who first acquired horses via the Utes in the late 17th century, and they carried out extensive raids together against their surrounding neighbors intermittently for the next fifty years.

Other outside forces that began to affect the Utes were the trappers and traders that began arriving in increasing numbers in the early 19th century (Husband 1984:IV-12). Since their arrival, the Spanish had been largely successful in limiting the Utes' trade with outside peoples (Simmons 2000:47). But as trade restrictions were relaxed in 1810, the Utes were gradually able to interact with more outsiders. With Mexico's independence in 1821, the doors were opened even wider to foreign traders and trappers. French Canadians and Americans soon arrived, seeking beaver, otter, and other furs, which all but ended the isolation of the Utes (Simmons 2000: 48). Adding to this was the additional traffic brought on by the Old Spanish Trail, a trade route between Santa Fe and California that by the late 1820s was being used extensively by pack trains (Simmons 2000:48-49). While it provided the Utes new opportunities for trading and looting, the trail also opened their traditional territory to a flood of newcomers seeking land and resources. Trading posts and Euro-American trade goods became a part of the "Ute landscape" during this period (Ott 2009:57).

Throughout the early part of the Antero phase (A.D. 1650–1881), the eastern and southern bands of the Ute were able to maintain their traditional lands and were minimally affected by white expansion. The geographic location of the three bands of Southern Utes changed little from the arrival of the Spanish through the 1840s. However, with the end of the Mexican-American War in 1848 and the subsequent transfer of Alta, California to the United States, drastic encroachments on the Utes' territory would soon ensue. The American victory in the Mexican-American War (1846-1848) marked "the beginning of the end for Ute sovereignty in the region" (Husband 1984; Ott 2009: 57).

In 1849, 28 principal and subordinate Ute chiefs signed the "Treaty with the Utah," also known as the Calhoun Treaty (Kappler 1904b:585). Generally considered the first treaty with the Utes, it submitted the tribe to the jurisdiction of the United States and agreed to peace with United States citizens and their allies (Simmons 2000:86). The Calhoun Treaty resulted in the seven Ute bands agreeing to recognize American sovereignty, in exchange for continued use by the Ute of their customary lands. The treaty also provided the people of the United States with free passage through Ute territory and allowed for the establishment of military and trading posts. In exchange for these concessions, the Utes were promised protections against depredations by American citizens, as well as providing donations, presents, and farming implements (Simmons 2000:87). Additionally, the United States government hoped that by persuading Native Americans to live a settled, agricultural existence, they might be able to curb the raids that had sustained the tribes in the preceding years. However, this policy did not address the fact that the Utes had led a migratory existence for centuries, and as settlement was forced upon them, they became increasingly hostile toward the Americans (Clemmer and Stewart 1986:525; Simmons 2000:87).

Gold was discovered in Colorado in 1859, and thousands of people consequently rushed to the area. Although not all stayed, those who did began to farm and encroach on the land that the Utes had used for hundreds of years. Even more significant was Congress's authorization and establishment of the Territory of Colorado in 1860 and its organization the following year. The creation of the Colorado Territory and its western boundary indiscriminately placed many of the Utes into separate jurisdictions, ignoring extended kinships and friendships (Simmons 2000:111). With reduced trade relations and diminished access to game, the Utes became increasingly dependent on the United States government. In response, the government established agencies at Abiquiu, Tierra Amarilla, and Cimarron to provide food and supplies before each winter and spring.

The Colorado gold rush increased Anglo settlers in the area, and in 1861 the Colorado Territory was established. The Hunt Treaty of 1868 established a single reservation for seven Ute bands, reducing their lands to roughly one-third of the Colorado Territory. The Hunt Treaty confined Utes to a reservation west of the Continental Divide (Simmons 2000:89). Also known as the "Treaty with the Ute, 1868" (Kappler 1904:990), it was signed by most of the Colorado Ute bands in 1868, reducing their lands from approximately 56 million acres to about 18 million acres² (Callaway et al. 1986:355). This treaty established the first Ute reservation in Colorado and promised the Utes that non-Native Americans could not pass through, settle on, or reside in the reservation.

A series of subsequent treaties and land cessions would constrain the Utes into ever smaller territories. Ute reservation boundaries were repeatedly reduced as increasing numbers of Americans flooded into Colorado. Two agencies were developed on the reservation as part of the 1868 treaty, the Los Piños and White River Agencies. Originally the Conejos Agency, in 1869 the Los Piños agency moved to a site on the Ute Reservation, near the current town of Saguache (Simmons 2000:89).

Soon after the 1868 Hunt Treaty, large mineral deposits were discovered in the San Juan Mountains, and under pressure from mining interests, the United States government negotiated the Brunot Agreement in 1874 (Kappler 1904a:151). Under what was to be the last request the government would ever make of the Utes, the government appropriated an additional 3.45 million acres from the Colorado Utes (Callaway et al. 1986:355) (Figure 1). As a result of this agreement, only a narrow strip of land along the western boundary of Colorado connected the northern portion of Ute reservation with the south. The southern portion, still home to the three southern bands, was a section of land approximately 110 miles long running east from the Utah boundary along the New Mexico Colorado border, and 15 miles wide, beginning with the New Mexico boundary and running due north.

The second half of the 1870s was characterized by anger, frustration, and tragedy as the various Ute bands adjusted to their difficult and unfamiliar living conditions. Reluctant to take up permanent residences, the Muache and Capote were beginning to yield to life on a reservation and moved north out of northern New Mexico. The Weenuche maintained a degree of independence, sustaining themselves in the Four Corners region (Simmons 2000:169). However, situations were in constant flux, as evidenced by the passage of two

² Ute bands who signed the treaty include the Tabeguache, Uintah, Sabuagan, Yampa, Muache, Capote, and Weenuche.

bills by Congress in 1878 that forcibly removed the Southern Ute and Tabeguache Bands to the White River portion of the reservation (Figure 2). After several attempts to move the three southern Ute Bands failed, Congress finally instructed the executive branch of the government to negotiate again with the Utes for their removal.

In 1881, 665 Utes from the White River Agency were forcibly relocated to the Uintah Reservation, where they found 800 Utes from various bands. A total of 361 Uncompahgre Utes were also forced to sell their lands and move under armed guard to Ouray, a new reservation that was established by executive order in 1882 (Figure 2) (Callaway et al. 1986:355; Kappler 1904a:834; Southern Ute Indian Tribe 2022). This new reservation was located adjacent to the south of the Uintah reservation.

As conditions continued to deteriorate through the 1880s and 1890s, the federal government passed the Dawes Act. Also known as the General Allotment Act of 1887 (Indian Land Tenure Foundation 2022), it divided the nation's Native American lands into allotments that belonged to individual tribal members. Family heads were to receive 160 acres and single individuals 60 acres, although the allotments were more haphazard in reality (Callaway et al. 1986:355; Simmons 2000:207). The thought was that Native American individuals could enter into conventional American life with land of their own. While a portion of the land after the allotment process was to be left to the tribe, it eventually became public domain after ensuing acts (Desert Land Acts of 1877 and 1891, and the Timber and Stone Act of 1878) gave it to homesteading white settlers at minimal prices (Callaway et al. 1986:356).

The Weenuche resisted the Dawes Act, while the Muache and Capote bands decided to accept the allotment. The Weenuche band, under Chief Ignacio's leadership, found the allotment idea so alien to their tradition that they moved to the western portion of the Southern Ute Indian Reservation, which later became the Ute Mountain Ute Reservation. They refused to accept allotments. Lands not allotted, or about 85 percent of the reservation, were declared "excess" by the federal government in 1895 and thrown open to white settlers.

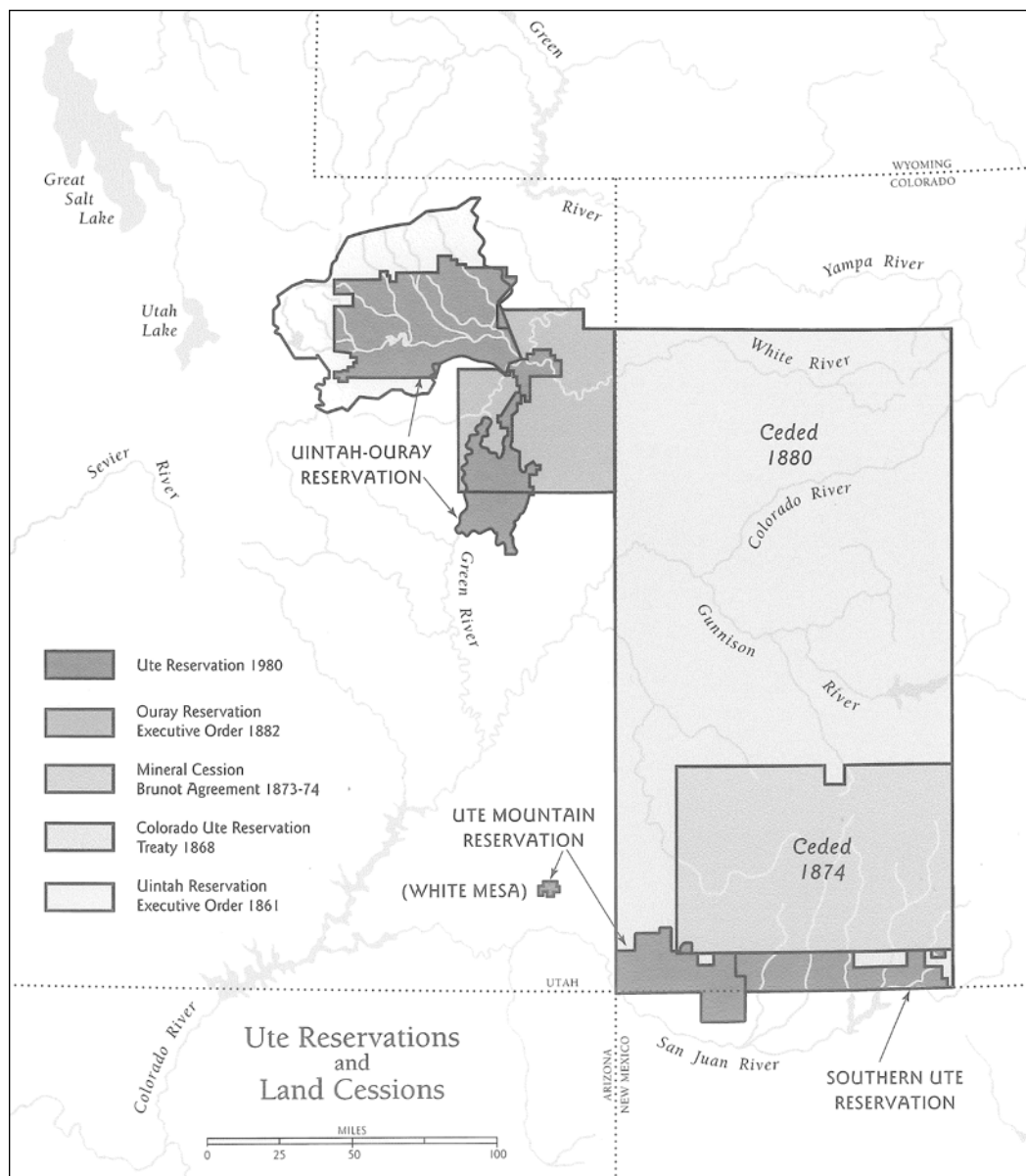


Figure 2. Ute reservations and land cessions, 1861 to present. Adapted from Callaway et al. 1986:355

By 1896, 371 Muache and Capote adults and minors had received allotments of land totaling approximately 73,000 acres, with the much larger portion of the eastern segment of the Consolidated Ute Reservation (523,079 acres) becoming public domain and subsequently opened to homesteaders (Simmons 2000:218). The Weenuche, having refused to agree to the allotment, maintained a portion of the southwestern corner of Colorado. This approximately 15 x 50-mile tract of land (plus nearly six adjacent townships in New Mexico) eventually became the Ute Mountain Ute reservation by the early 1900s.

In 1911, one of the last pieces of land taken from the Ute people was the area that now makes up Mesa Verde National Park. The federal government acquired more than 52,000

acres of land in 1911 for the park in exchange for some irregularly shaped acreage on the northern boundary of the Ute Mountain Ute Reservation.

By the 1930s, government policies began shifting from the internal colonialism of the 1800s and early 1900s. In 1934, the Wheeler-Howard Act (Indian Land Tenure Foundation 2022), also known as the Indian Reorganization Act, or the Indian New Deal, provided for self-government by Indian tribes through tribal councils composed of elected members and a chairman. The Wheeler-Howard Act began the trend toward Indian self-governance. Up until 1970, tribal constitutions and by-laws required the approval of the Bureau of Indian Affairs (BIA), moneys provided to tribes by the federal government were managed by the BIA, and tribal budgets were subject to approval by the Secretary of the Interior. It was President Richard M. Nixon who in 1970 publicly proclaimed a new era in Indian affairs—that of true Indian self-determination.

We must assure the Indian that he can assume control of his life without being separated involuntarily from the tribal group. And we must make it clear that Indians can become independent of federal control without being cut off from federal concern and federal support. (Richard M. Nixon, July 8, 1970, Special Message to the Congress on Indian Affairs)

The Ute people did not hesitate to establish themselves as self-governing sovereign nations. Indeed, well before Nixon's proclamation of Indian self-determination, the Southern Ute Tribe adopted a constitution and established a tribal council in 1936. The Ute Mountain Ute followed suit in 1940. As a result of these newly formed and recognized governments petitioning Washington, in 1937, the Restoration Act returned 222,000 acres to the Southern Utes, and in 1938, 30,000 acres were returned to the Ute Mountain Ute Tribe.

1.2 INVENTORY OF CULTURAL RESOURCES WITHIN THE APE, BY COUNTY

A review of the Colorado Office of Archaeological and Historic Preservation (OAHP) Compass database showed that almost 2,000 Ute archaeological and historical sites are within the area of potential effect (APE). **Table 1** quantifies these sites by county within the APE. Of these 1,677 cultural sites within the APE, 780 are eligible for the National Register of Historic Places. These 780 sites preserve important elements of Ute history and culture and/or have the potential to yield more information about Ute history through further research.

The remainder of this section summarizes the types of sites by county, roughly from north to south within the APE, highlighting particularly significant sites for the Ute. Some sites have multiple cultural components or time periods and thus are listed in multiple categories. For **Table 1**, however, each site is listed only once for an accurate total count. The following section of this chapter discusses which of these site types are most likely to be impacted by wolf reintroduction.

Table 1. Total Ute Archaeological Sites by County in APE.

County	Total Quantity	Quantity Eligible
Archuleta	117	44
Custer	2	2
Delta	21	9
Dolores	50	15
Eagle	41	7
Garfield	121	41
Grand	26	10
Gunnison	48	18
Huerfano	4	0
Jackson	17	7
La Plata	145	73
Larimer	16	8
Mesa	256	133
Moffat	42	20
Montezuma	147	79
Montrose	155	49
Ouray	24	8
Rio Blanco	272	143
Routt	12	6
Saguache	91	73
San Miguel	70	35
Total in APE	1677	780

1.2.1 Moffat County

Table 2. Ute Archaeological Sites in Moffat County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	1	0
Open Camp	Prehistoric	18	10
Sheltered Camp	Prehistoric	2	1
Open Architectural	Prehistoric	6	5

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Sheltered Architectural	Prehistoric	1	1
Rock Art	Prehistoric	10	6
Burial	Prehistoric	2	2
Quarry	Prehistoric	1	1
Isolated Find	Prehistoric	7	1
Camp	Historic	5	3
Carving-Rock or Wood	Historic	1	1
Farming/Ranching	Historic	1	1
Habitation	Historic	2	1
Rock Art	Historic	1	1

Prehistoric Search

5MF2969 – Mitten Park Fault Shelter

Site Type: Sheltered Camp, Rock Art

Location: Steamboat Rock along Green River

Description: The site is a small rockshelter with low-density lithic habitation material, ceramics, bedrock grinding features, petroglyphs, and a panel of pictographs with five anthropomorphs, eight zoomorphs, and 12 unidentifiable figures. The site embodies characteristics of Fremont and Ute cultures through the rock art represented in the shelter.

5MF663 – Cave 5 Dog Flats Panels

Site Type: Sheltered Architectural, Rock Art

Location: Along Yampa River northwest of Castle Park

Description: The site is a rockshelter with low-density lithic debitage, fire-affected rock, and rock art (petroglyphs and pictographs) of 10 anthropomorphs and nine zoomorphs. The rock art is characteristic of Fremont and Numic cultures.

5MF354 – Nativity Petroglyph

Site Type: Rock Art

Location: In Irish Canyon south of Irish Lakes

Description: The site is three rock art (petroglyphs) panels on an open rock with no other associated artifacts or features. The rock art depicts conception and birthing iconography.

5MF948

Site Type: Rock Art

Location: In tributary canyon near Mine Spring close to Hamilton Colorado

Description: The site is a rock shelter with eight panels of rock art (pictographs and petroglyphs), burnt bone, two charcoal fragments, and a pecking-rubbing stone. The rock art depicts grooves, anthropomorphs on horseback, anthropomorphs with recurved bows, and shield figures which are commonly associated with Fremont, Ute, Shoshone, and Plains cultures.

Historic Search

5MF289

Site Type: Rock Art

Location: Along Williams Fork River

Description: The site is a panel of rock art (pictographs and petroglyphs) depicting riders with shields, headdresses, bows/arrows, and animals of deer, buffalo, and mountain sheep. The cultural affiliation for these motifs is historic Ute.

1.2.2 Routt County

Table 3. Ute Archaeological Sites in Routt County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	1	0
Open Camp	Prehistoric	2	1
Sheltered Camp	Prehistoric	2	2
Open Architectural	Prehistoric	2	1
Rock Art	Prehistoric	5	5
Quarry	Prehistoric	1	0
Isolated Find	Prehistoric	3	0
Farming/Ranching	Historic	1	1
Habitation	Historic	1	1

Prehistoric Search

5RT90 – Wolf Creek Pictograph Site

Site Type: Sheltered Camp, Rock Art

Location: Along Yampa River

Description: The site is a rockshelter with five panels of rock art (pictographs) and hearth features, lithic debitage, ground stone, bone fragments, and ceramics. The rock art depicts riders on horseback, shield-figures, anthropomorphs with headdresses, curvilinear, and geometric designs which are associated with early historic Ute culture.

5RT345 – Red Army Rockshelter

Site Type: Sheltered Camp, Rock Art

Location: Sandstone outcrop overlooking Foidel Creek, south of Steamboat Springs

Description: The site is a rockshelter and sandstone cliff with eight rock art panels (pictographs and petroglyphs), hearth features, projectile points, lithic debitage, ground stone, ceramics, and modified bone. The rock art depicts 63 shield-bearing anthropomorphs (19 with associated weapons), three shield figures, 12 additional anthropomorphs with added attributes, and seven zoomorphs. These rock art motifs are representative of Ute culture.

Historic Search

None

1.2.3 Jackson County

Table 4. Ute Archaeological Sites in Jackson County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	3	1
Open Camp	Prehistoric	1	0
Open Architectural	Prehistoric	6	3
Sheltered Architectural	Prehistoric	1	1
Burial	Prehistoric	1	0
Isolated Find	Prehistoric	2	0
Defense	Historic	1	1
Road/Trail	Historic	1	0
Trash Dump	Historic	1	1

Prehistoric Search

None

Historic Search

None

1.2.4 Larimer County

Table 5. Ute Archaeological Sites in Larimer County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Architectural	Prehistoric	4	1
Cambium Tree	Prehistoric	2	2
Isolated Find	Prehistoric	1	0
Isolated Feature	Prehistoric	5	2
Camp	Historic	1	1
Road/Trail	Historic	3	2

Prehistoric Search

None

Historic Search

None

1.2.5 Rio Blanco County

Table 6. Ute Archaeological Sites in Rio Blanco County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	9	2
Open Camp	Prehistoric	56	18
Sheltered Camp	Prehistoric	7	4
Open Architectural	Prehistoric	79	49
Sheltered Architectural	Prehistoric	7	5
Rock Art	Prehistoric	26	19
Isolated Find	Prehistoric	23	2
Isolated Feature	Prehistoric	2	1
Animal Capture/Remains	Historic	3	1
Burial	Historic	1	0
Camp	Historic	11	5
Defense	Historic	2	1
Farming/Ranching	Historic	9	4
Habitation	Historic	6	4
Road/Trail	Historic	18	18
Rock Art	Historic	14	12
Trash Dump	Historic	3	2

Prehistoric Search

5RB53 – Duck Creek Wickiup Village

Site Type: Open Architectural

Location: Duck Creek and Yellow Creek confluence 36 miles southwest of Meeker

Description: This site is listed on the National Register of Historic Places and is the largest reported Ute Wickiup village site with remaining structures in Colorado. The site has hearth features and 11 well-preserved Wickiup and pole structures associated with Ute cultural history. Additional sites with Wickiup structures are found within the vicinity of the Duck Creek area.

5RB155 – Trail Canyon Petroglyphs

Site Type: Rock Art, Sheltered Architectural

Location: Sandstone cliff on north side of Trail Canyon Road, 50 miles north of Loma

Description: The site is a shallow rockshelter with six rock art panels, three features of modern hearth characteristics, and a sandstone masonry structure. All panels are historic/modern except panel 4, which depicts four anthropomorphs on horseback and two zoomorphic elk (all petroglyphs), which are iconographic motifs associated with Fremont and Ute culture history.

5RB915

Site Type: Rock Art

Location: A sandstone cliff face north of Baxter Pass near (east of) Evacuation Creek

Description: The site is a panel of petroglyphs from the Early Historic Ute Period depicting a bison surrounded by five anthropomorphs on horseback, an in-flight spear or linear scratches, and two additional zoomorphs.

5RB2497

Site Type: Rock Art, Open Camp, Historic Camp

Location: Sandstone cliff face 6 miles southeast of Dragon, Utah into Colorado BLM area

Descriptions: The site is a large sandstone cliff face with 32 panels across 200+ meters of historic and prehistoric rock art (petroglyphs) and surrounding remains of prehistoric and historic camp remains. The Ute related iconography depicts several anthropomorphic figures (some bearing shields, atlatls, and bows) and several zoomorphic figures (sheep, deer, horses, and bovine).

5RB4146 – Colorow Caves

Site Type: Rock Art, Sheltered Architectural

Location: Caves within rock outcrops, 12 miles northwest of Rio Blanco Lake

Description: The site includes five panels of rock art (pictographs and petroglyphs) in and among Bee Cave and Owl Cave, three pole leaner and Wickiup features, eight projectile points, and a lithic debitage assemblage. The rock art is Barrier Canyon Style (with later Ute adaptations) and Fremont style depicting anthropomorphs of various sizes, zoomorphs mostly of quadrupeds, unidentified figures, and several grooves.

Historic Search

5RB982 – Battle of Milk River Site – Thornburgh Battle

Site Type: Defense

Location: Milk Creek Valley

Description: Agent Nathan Meeker requested Major T. T. Thornburgh to lead an expedition to the White River Agency, where Thornburgh advanced troops onto the Ute reservation that was barred after the Milk Creek crossing by Utes. The Battle of Milk River led to the Meeker Massacre the same day, which these events marked the apex of the Ute War 1879-1881 and led to removing Utes from western Colorado.

5RB2664 – Meeker Massacre Site

Site Type: Defense

Location: West of Meeker 4.5 miles

Description: The Meeker incident was a revolt against Indian Agent Nathan Meeker, and tensions built from Utes being forced to change their traditions. In response to the Battle of Milk River, Utes killed Meeker, ten other people, and captured the Meeker family. This event escalated fears and led to forcing the removal of White River and Tabeguache Utes to a reservation in Utah.

1.2.6 Garfield County

Table 7. Ute Archaeological Sites in Garfield County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	22	5
Open Camp	Prehistoric	34	10
Sheltered Camp	Prehistoric	3	1
Open Architectural	Prehistoric	28	17
Sheltered Architectural	Prehistoric	2	1
Rock Art	Prehistoric	7	5
Isolated Find	Prehistoric	16	2
Camp	Historic	3	3
Habitation	Historic	1	0
Recreation	Historic	1	0
Road/Trail	Historic	3	0
Rock Art	Historic	3	2
Trash Dump	Historic	3	0

Prehistoric Search

5GF126 – Kewclaw Site

Site Type: Open Architectural

Location: One mile east of Grand Valley

Description: The site is a long-term occupation area consisting of a basin-shaped pithouse floor with a central post-hole and hearth, two loci of lithic debitage, groundstone artifacts, burnt bone, Olivella and bone beads, and pigment lumps. The site is associated with cultures from the late archaic, Fremont, and Proto-historic Ute and Shoshoni.

5GF2 – Sweetwater Cave – Gauss Site

Site Type: Rock Art

Location: West one mile of Sweetwater Resort Campground

Description: The site is a cave with several pictographs depicting anthropomorphs on horseback (approximately 15), shield figures, buffalo, deer, and sheep. The site is heavily vandalized by graffiti.

5GF305 – Mamm Creek Petroglyphs

Site Type: Rock Art, Sheltered Architectural, Historic Rock Art

Location: Six miles southwest of Silt, Colorado

Description: The site is a series of petroglyphs across five panels on exposed boulders and an overhang shelter with associated projectile points and lithic debitage. The petroglyphs depict anthropomorphic figures associated with ten or more zoomorphs and the overhang has a Historic Ute panel with a horse, anthropomorph on horseback, and abstract figures.

5GF931

Site Type: Rock Art

Location: Northern extent of Prairie Canyon

Description: The site is a panel of red pictographs in a small, shallow rockshelter with associated bone fragments and charcoal. The panel depicts six anthropomorphs on horseback, one lone horse, and a ladder motif.

Historic Search

None

1.2.7 Eagle County

Table 8. Ute Archaeological Sites in Eagle County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	10	0
Open Camp	Prehistoric	14	3
Open Architectural	Prehistoric	10	5
Sheltered Architectural	Prehistoric	1	1
Kill Site	Prehistoric	1	0
Rock Art	Prehistoric	1	1
Isolated Find	Prehistoric	5	0
Isolated Feature	Prehistoric	1	0
Camp	Historic	1	0
Road/Trail	Historic	1	0

Prehistoric Search

5EA317 – Shield Cave

Site Type: Sheltered Architectural, Rock Art

Location: On southern bluff above Colorado River in Cottonwood Pass quadrangle

Description: The site is a cave with ten panels of red and black pictographs depicting anthropomorphs, anthropomorphs on horseback, shields, serpentine figures, and a scene with a zoomorph (in yellow) and an anthropomorph with a blue shield and an arrow impalement. The pictographs are associated with protohistoric Ute cultural histories.

Historic Search

None

1.2.8 Delta County

Table 9. Ute Archaeological Sites in Delta County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	2	1

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Camp	Prehistoric	5	2
Sheltered Camp	Prehistoric	1	1
Sheltered Camp	Prehistoric	1	1
Open Architectural	Prehistoric	2	2
Rock Art	Prehistoric	2	2
Isolated Find	Prehistoric	7	0
Rock Art	Historic	2	2
Historic Habitation	Historic	1	1
Isolated Find	Historic	1	1

Prehistoric Search

5DT4 – Escalante Bridge Rock Art Site

Site Type: Open Lithic, Rock Art

Location: Located on the Dominguez Rim on the north bank of the Gunnison River near the Escalante Bridge.

Description: The site is a complex series of ten pictographic rock art panels within a surficial scatter of prehistoric lithic artifacts, including debitage, cores, scrapers, and hammerstones. Most of the petroglyphs are pecked with prehistoric motifs, although incised and painted historic pictographs are also present. Motifs observed include anthropomorphs, zoomorphs (including antlered quadrupeds, avians, and horses), geometric shapes, shields, and "bear paws." Historic graffiti is also present. The rock art panels are largely exposed to the elements and have deteriorated due to erosion and spalling, as well as by modern recreation, but the site overall is in fair condition.

Historic Search

None

1.2.9 Grand County

Table 10. Ute Archaeological Sites in Grand County.

Site Type	Site Time Period	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	7	1
Open Camp	Prehistoric	3	1
Open Architectural	Prehistoric	9	5
Cambium Tree	Prehistoric	1	0
Isolated Find	Prehistoric	2	1
Open Architectural	Historic	2	1
Trash Dump	Historic	1	1
Isolated Find	Historic	1	0
Road/Trail	Multicomponent	1	1

Burial	Unknown	1	0
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Prehistoric Search

5GA3824 – Ute Trail (2 Segments)

Site Type: Prehistoric and Historic Trail

Location: Primarily on the east side of Rocky Mountain National Park, beginning in Upper Beaver Meadows and ending at Poudre Lakes

Description: The site consists of a continuous 15-mile trail established by indigenous tribes for crossing the Continental Divide along the Trail Ridge. Prehistoric cairns are located above the timberline, and historic cairns were constructed by 19th-century settlers and, eventually, by the National Park Service. Numerous prehistoric sites are located nearby along the length of the trail. The trail has been impacted by historic and modern recreational use, as well as the development of the Trail Ridge Road.

Historic Search

5GA49 – Granby Ute Fort

Site Type: Open Camp, Historic Trash Dump

Location: 2 miles southeast of Granby, CO on the south side of a promontory formed by a hogback of Dakota Sandstone

Description: The site consists of stone wall remnants of the historic Granby Ute Fort, enclosing an area of approximately 600 square meters. The fort's south wall is formed by a 10-meter high cliff, while the remaining walls are alignments of unshaped native stone, with some evidence that logs were incorporated into the construction. A quarry area was documented within the walls, where numerous rocks were removed for use in the fort's construction. Small concentrations of debitage were also observed near the fort. A 1945 edition of Colorado Magazine relates an alleged oral history of the fort's construction and use in battle (Rupp 1996). The Ute constructed the Granby Ute Fort in the 19th century as a defensive structure against a raid by the Arapaho and Cheyenne. The fort allowed a small band of Utes to hold off the raid until reinforcements arrived from the west. The Utes won this battle, giving them control of Western Colorado. The site has been significantly impacted by looting and other human recreation.

1.2.10 Gunnison County

Table 11. Ute Archaeological Sites in Gunnison County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	13	3
Open Camp	Prehistoric	11	8
Sheltered Camp	Prehistoric	1	1
Open Architectural	Prehistoric	3	3
Rock Art	Prehistoric	1	1
Quarry	Prehistoric	3	1
Cambium Tree	Prehistoric	4	1

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Isolated Find	Prehistoric	10	0
Camp	Historic	2	1
Historic Habitation	Historic	3	3
Rock Art	Historic	1	1
Rock Art	Historic	1	1
Historic Cambium Tree	Historic	1	1
Trash Dump	Historic	2	1
Isolated Find	Unknown	2	0

Prehistoric Search

5GN1275 – Sheep Spring Petroglyph Site

Site Type: Open Camp, Rock Art, Quarry, Historic Habitation

Location: Approximately 135 miles north of Gunnison on a western trending slope of Sheep's Gulch

Description: This is a multicomponent site with a significant rock art panel, which is rare in Gunnison Basin. The panel is situated within an extensive open campsite comprised of a substantial lithic scatter, including an Archaic projectile point, groundstone, and three thermal features. The Uncompahgre Plateau or Ute-style rock art is solid-pecked and incised on the face of a boulder comprised of Dakota Sandstone. Motifs include elk, deer, mountain sheep, ungulate hoof prints, possible paw and hand prints, and geometric designs. Some of these motifs have been obscured by erosion and lichen growth. A historic habitation, including a collapsed shack, coal pile, and abandoned 1930s Ford automobile, is also present within the site boundary.

Historic Search

5GN3568 – Two Shields Site

Site Type: Rock Art

Location: Approximately 3.4 miles north of Almont on the low slopes of a high ridge, east of the East River

Description: The site consists of an intact protohistoric or historic rock art panel, which is rare in Gunnison County. The rock art is drawn in charcoal on a natural sandstone concavity in the cliff face and depicts two anthropomorphic figures holding round shields and possible staffs. The rock art has been impacted by erosion and spalling.

1.2.11 Mesa County

Table 12. Ute Archaeological Sites in Mesa County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	22	5

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Sheltered Lithic	Prehistoric	2	2
Open Camp	Prehistoric	74	39
Sheltered Camp	Prehistoric	13	8
Open Architectural	Prehistoric	47	35
Sheltered Architectural	Prehistoric	3	3
Rock Art	Prehistoric	21	19
Burial	Prehistoric	1	1
Quarry	Prehistoric	2	1
Cambium Tree	Prehistoric	32	23
Isolated Find	Prehistoric	26	0
Isolated Feature	Prehistoric	1	0
Camp	Historic	16	8
Farming/Ranching	Historic	3	1
Habitation	Historic	2	1
Open Architectural, Historic Structure/Foundation/Alignment	Historic	5	4
Rock Art	Historic	8	6
Railroad	Historic	1	1
Trail/Road	Historic	3	0
Trash Dump	Historic	7	3
Isolated Find	Historic	7	4
Isolated Feature, Cambium Tree	Historic	11	4
Water Control	Historic	1	0
Road/Trail	Multicomponent	2	1
Open Camp	Unknown	1	0
Burial	Unknown	1	1
Isolated Find	Unknown	1	0
Isolated Feature, Rock Art	Unknown	1	1
Open Architectural	Unknown	4	0

Prehistoric Search

5ME10

Site Type: Sheltered Camp, Rock Art

Location: 2.1 miles southeast of the intersection of State Highway 340 and the West Entrance Road to Colorado National Monument

Description: The site consists of two sheltered camps with associated rock art panels. The sheltered camps also include thermal features, middens, lithic scatters with formal tools, and groundstone. The rock art is solid- and stipple-pecked and includes geometric symbols and anthropomorphic and zoomorphic motifs. One of the figures is horse-like with what appears to be a rider. The style of the rock art has been compared to the San Rafael Fremont and

Uncompahgre Complex. Historic and modern graffiti are also present but have not directly impacted the petroglyphs, although the panels have been impacted by general erosion and spalling.

5ME241

Site Type: Open Lithic, Sheltered Camp, Rock Art

Location: 2.0 miles south of the Cactus Park turnoff of State Highway 141, approximately 150 m west of the highway in Unaweep Canyon

Description: The site consists of two sheltered camps with multiple associated rock art panels and a large open artifact scatter. The first rockshelter is associated with three petroglyph panels indicative of Fremont and Ute occupations and introduces the possibility that the site could be classified as a traditional cultural property. The second rockshelter has extensive soil deposition with artifacts and features supporting short-term or long-term, intermittent occupations. The site's assemblage indicates it had a variety of uses, including ceremonial, lithic reduction, plant processing, and food preparation. Site 5ME241, especially the second rockshelter, has been impacted by looting in addition to general recreation, vehicle traffic, and natural erosion and spalling.

5ME4947

Site Type: Open Camp, Rock Art

Location: Site is located on the Palisade Rims hiking trail on a slope south of two distinctive rock outcroppings

Description: The site is an open camp with six associated rock art panels. The rock art is solid-pecked and contains elements from Late Archaic, Formative, and Ute styles. Motifs consist primarily of zoomorphic figures resembling deer, elk, and bighorn sheep. Quadruped motifs are superimposed on some of the panels, and at least one horse and rider figure was observed. Two features were observed in addition to the rock art: a buried thermal feature exposed by a badger burrow and a concentration of tested river cobbles.

5ME15828 – Kannah Creek Petroglyphs

Site Type: Open Architectural, Rock Art

Location: Within the Grand Mesa, Uncompahgre, and Gunnison Forest in Township 12S, Range 97W, Section 35

Description: The site consists of a petroglyph panel consistent with Archaic styles, lithic scatter, ashy soil concentrations with depth potential, and remains of a probable wickiup. The site is in fair condition but is being impacted by natural erosion, spalling, wind, and modern recreation.

Historic Search

5ME469 – Decker Big Tank Wickiup Villages

Site Type: Open Architectural

Location: On the Spring Basin terrace on the north rim of Branch Creek, a tributary of the North Fork of Escalante Creek

Description: The site is a large, open village of 16 wooden features, including leaner and freestanding wickiups and a brush enclosure, circular rock alignments, and associated lithic and metal artifacts. Artifacts included debitage, bone fragments, bullets and shell casings, and miscellaneous metal objects. The presence of trade items and the condition of the wooden

structures indicates a protohistoric or early historic site affiliated with the Ute, or possibly Shoshone, culture.

5ME817 – Dominguez-Escalante Trail (4 Segments)

Site Type: Historic Trail

Location: Enters Mesa County from the southeast at Buzzard Creek, travels west along Plateau Creek, continues northwest between Horse Mountain and North Mamm Peak, and descends to the Colorado River along Wallace Creek

Description: The site is a portion of the 1776 Dominguez-Escalante Expedition trail. This expedition was the first exploration of Western Colorado, and is likely to have followed trails used by local indigenous groups. The Dominguez-Escalante route was an attempt to reach northern California from New Mexico, passing through northern Ute territory to avoid deserts and more hostile indigenous groups in Arizona. The trail has been reported to be within the project boundary, but the precise route could not be located in the last revisit in 2008.

5ME909 – Meeker Tree/Surrender Tree

Site Type: Open Lithic, Historic Trash Dump

Location: On private property near Mesa Creek in Mesa County, CO

Description: A digital site form for 5ME909 is not currently available. According to a post by the Mesa County Libraries website, the Meeker Tree or Surrender Tree refers to a campsite occupied by a party led by Ute Chief Douglas at the time of the Meeker Massacre of 1879. The site's name refers to a specific juniper tree at the Mesa Creek campsite where the party tied N.C. Meeker's wife, daughter, and three other hostages after the uprising (Michele 2019). The Colorado Online Cultural Resource Database reports two features, the juniper tree and a pile of stones, as well as artifacts including numerous projectile points, shotgun shells and cartridges, and two ceramic pipe fragments.

1.2.12 San Miguel County

Table 13. Ute Archaeological Sites in San Miguel County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	13	2
Open Camp	Prehistoric	13	6
Sheltered Camp	Prehistoric	2	1
Open Architectural	Prehistoric	14	12
Sheltered Architectural	Prehistoric	3	2
Rock Art	Prehistoric	1	1
Quarry	Prehistoric	2	1
Cambium Tree	Prehistoric	12	9
Isolated Find	Prehistoric	10	0

Camp	Historic	1	1
Carving-Rock or Wood Cambium Tree	Historic	1	1
Logging	Historic	1	1
Mining	Historic	1	1
Road/Trail	Historic	1	1
Structure/Foundation/Alignment- Unspecified	Historic	2	1
Trash Dump	Historic	2	2
Isolated Find	Historic	1	0

Prehistoric Search:

None

Historic Search:

5SM3178.1. Ute Trail Segment 1

Site Type: Prehistoric and Historic Trail

Location: San Miguel County

Description: The site consists of a continuous trail established by indigenous tribes for crossing the Continental Divide along the Trail Ridge. Prehistoric cairns are located above the timberline, and historic cairns were constructed by 19th-century settlers and, eventually, by the National Park Service. Numerous prehistoric sites are located nearby along the length of the trail. The trail has been impacted by historic and modern recreational use and the development of the Trail Ridge Road.

1.2.13 Montrose County

Table 14. Ute Archaeological Sites in Montrose County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	28	2
Open Camp	Prehistoric	55	23
Sheltered Camp	Prehistoric	2	0
Open Architectural	Prehistoric	22	12
Sheltered Architectural	Prehistoric	3	3
Rock Art	Prehistoric	4	3
Cambium Tree	Prehistoric	17	9
Isolated Find	Prehistoric	19	1
Isolated Feature	Prehistoric	3	1
Burial	Historic	1	0

Camp	Historic	12	4
Farming/Ranching	Historic	1	1
Habitation	Historic	1	1
Road/Trail	Historic	1	0
Rock Art	Historic	3	2
Structure/Foundation/Alignment-Unspecified (Government Building)	Historic	1	1
Trash Dump	Historic	4	0
Isolated Find	Historic	4	0
Open Architectural	Historic	3	1
Open Camp	Unknown	1	0
Burial	Unknown	1	0
Corral	Unknown	1	0
Cambium Tree	Unknown	1	0

Prehistoric Search

5MN5 – Shavano Valley Rock Art Site; Three Bears Rock Art Site

Site Type: Sheltered Camp, Rock Art, Historic Rock Art

Location: Base of a cliff and talus slopes above Shavano Valley in Township 48N, Range 10W, Section 4

Description:

The site is multicomponent and includes 38 panels of petroglyphs and a sheltered camp. It is listed on the National Register of Historic Places as well as the State Register of Historic Properties. The rockshelter includes a midden, possible thermal feature, potential remnants of rock walls, and sparse artifact scatters. Artifact scatters within the site are sparse but represent a variety of activities and include debitage, cores, groundstone, and formal tools. The rock art is solid-pecked, stipple-pecked, scratched and incised with numerous instances of superimposition. Several are against patinated backgrounds. A wide variety of motifs are present, including anthropomorphic and zoomorphic figures, geometric and abstract linear elements, animal tracks, trees and other plant elements, and handprints. One of the earliest recorded panels included motifs of three bears climbing trees, proposed as possibly representing the Late Historic Ute Bear Dance. Some of the panels include horse-and-rider figures consistent with the Uncompahgre complex, indicating their affiliation with protohistoric and early historic Ute, while others are consistent with older styles.

In addition to prehistoric and historic indigenous components, modern and historic Euroamerican art and graffiti are also present. These carvings are primarily incised or scratched, and most are inscriptions of the names and dates of visitors. These dates range from the late 19th century to modern times. Instances of historic incised art and symbols include a depiction of an indigenous man smoking a pipe, a tree, and crosses. Historically, the site was widely used as a picnic area, and low prehistoric artifact density is likely a result of surface collecting and looting.

5MN890 – Tabeguache Cave II

Site Type: Sheltered Architectural

Location: 100 m north of a bend in Tabeguache Creek, between Shavano and Campbell Creeks
Description: The site consists of a large (35 m by 23.5 m) rockshelter utilized over an expansive time frame beginning as early as the Paleoindian period and is associated with the Tabeguache, Basketmaker, and Ute cultures. It is located in the West Central Colorado Study Region and listed in the State Register of Historic Properties. The site was excavated by archaeologist C.T. Hurst of Western State College between 1942-1944. Numerous thermal features and middens were recorded as well as abundant artifacts, including organic materials. Artifacts reported included: pinon nuts, squash seed and rind, corn cobs, a cache of feathers, a large cache of yucca fiber, basket fragments, hide pouches, a primitive sandal fragment, bone and wood tools, unfired and fired pottery sherds, dart shafts, chipped stone tools and groundstone, faunal bone, and an infant skull fragment. Since the excavation, the site has been heavily looted and vandalized.

5MN2629

Site Type: Sheltered Architectural, Cambium Tree

Location: Uncompahgre National Forest in Montrose County, CO

Description: A digital site form for 5MN2629 is not currently available. The Colorado Online Cultural Resource Database reports the site as consisting of two rock shelters, one wooden structure, and two culturally modified trees. The database also reports the recording of one ceramic sherd associated with Numic cultures and the presence of fire-altered rock. The site was last revisited in 2005 and was reported as being in fair condition with moderate disturbance.

Historic Search

5MN847– Chief Ouray Home

Site Type: Historic Habitation

Location: Chipeta Road, Montrose, CO

Description: A digital site form for 5MN847 is not currently available, but the name of the site indicates that it refers to the Montrose home of Ute Chief Ouray, a significant figure in maintaining a peaceful relationship between the United States government and the Colorado Ute. A photograph of "Chief Ouray's house in Montrose" available in the Denver Public Library's digital collections describes the home as a stuccoed adobe brick house with a shingled gable roof, wooden gables, and chimney (Denver Public Library 2003). The Colorado Online Cultural Resource Database reports that the site was excavated in 1989, but in ruins at the latest revisit in 2005. Ruins of two main buildings and two outbuildings were recorded along with a variety of historic artifacts, including glass, ceramics, and metal objects including nails, railroad spikes, and shotgun shells.

5MN1841 –Chief Ouray State Historical Monument

Site Type: Historic Park, Burial

Location: 2.0 miles south of Montrose city limits on U.S. Highway 550

Description: Site 5MN1841 is a small state museum located on approximately 13 acres of Ute Chief Ouray's original ranch lands, granted to the United States government in 1873. It is listed on the National Register of Historic Places. Chief Ouray was a significant figure in maintaining a peaceful relationship between the United States government and the Colorado Ute, having arranged for the return of captives taken during the Meeker Massacre of 1879 and negotiated

with the government when the Utes were removed from their territories in southwest Colorado. The museum contains exhibits and artifacts pertaining to the Ute and Chief Ouray. Chief Ouray's second wife, Chipeta, and her brother are buried at the site.

5MN9110; 5OR139 – Second Los Pinós Indian Agency; Uncompahgre Agency

Site Type: Historic Government Building

Location: Either side of Highway 550 south of Montrose to county line for Ouray/Montrose Counties, immediately north of Colona

Description: For management purposes, this site has been broken into four portions. The site is the 2nd Los Pinós Indian Agency (or Uncompahgre Agency) between 1875 and 1881, one of the first U.S. government outposts on the western slope and the location from which the Uncompahgre Utes were administered and moved from Colorado. Consequentially, it is a focal point in the history of political relations between the Ute and the United States government. The site also has surviving attributes of adobe construction in Colorado during the protohistoric period.

The north portion of the site (5MN9110) includes remnants of two buildings from this primary occupation, including a log barn for the Uncompahgre Agency and a barn for the Sanderson and Barlow Stage Line. The agency barn was used by the Ute Commission investigating the Meeker Massacre of 1879. The remainder of the site (5OR139) is located in Ouray County and includes remnants of at least nine buildings, including one of adobe construction, and numerous plazas. The agency was abandoned in 1881 after the Ute were formally removed to reservations, the site was used as agricultural lands and is associated with local homesteads.

1.2.14 Ouray County

Table 15. Ute Archaeological Sites in Ouray County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	6	0
Open Lithic, Cambium Tree	Prehistoric	1	0
Open Camp	Prehistoric	1	0
Open Camp	Prehistoric	1	1
Open Architectural	Prehistoric	2	0
Cambium Tree	Prehistoric	3	2
Isolated Find	Prehistoric	1	1
Historic Animal Capture/Remains	Historic	1	1
Historic Camp	Historic	1	0
Historic Recreation	Historic	1	0
Historic Habitation	Historic	3	3
Historic Camp	Historic	1	0
Historic Burial (Cemetery)	Historic	1	1
Burial	Historic	3	0
Structure/Foundation/Alignment-Unspecified	Historic	1	1

Prehistoric Search

None.

Historic Search

5OR965 – The Chief Ouray Mountain House

Site Type: Historic Habitation

Location: 625 5th Avenue, Ouray, CO 81427

Description: The site is the remnants of a historic adobe house constructed in the mid-to-late 19th century and attributed to Chief Ouray, a significant figure in maintaining a peaceful relationship between the United States government and the Colorado Ute. The house was constructed with poured or puddled adobe, a characteristic architectural style of the protohistoric Native Americans in western Colorado, set on a foundation of rectangular metamorphic stones. The "Hill Cottage" has been constructed above it, and excavations in 2003 revealed surviving adobe architectural elements of the southeast corner of the original structure and associated, intact occupation surface.

5OR1066 – Second Los Pinós Indian Agency Cemetery; Colona Community Cemetery

Site Type: Historic Burial

Location: 0.7 miles northwest of Colona, CO

Description: A digital site form for 5OR1066 is not currently available. The site is a cemetery located near Colona, CO and less than 0.25 miles west of the Second Los Pinós Indian Agency (5MN9110, 5OR139). The Colorado Online Cultural Resource Database reports that the site was in excellent condition as of its most recent revisit in 2002. Also known as the Uncompahgre Agency, the Second Los Pinós Indian Agency operated between 1875 and 1881 and is the location from which the Uncompahgre Utes were administered and moved from Colorado by the U.S. government. Little information on this cemetery is available, but the title suggests that it may have been used by the government outpost. At least three recorded burials (5OR1429, 5OR1430, and 5OR1432) are associated with the cemetery, although few details are available in the database. Burial 5OR1429 and 5OR1430 are reported simply as historic burials with a Ute cultural affiliation. Burial 5OR1432 was also reported as a historic Ute burial but included an unspecified chalcedony projectile point.

1.2.15 Saguache County

Table 16. Ute Archaeological Sites in Saguache County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	12	6
Open Camp	Prehistoric	11	8
Sheltered Camp	Prehistoric	5	5
Open Architectural	Prehistoric	9	9
Sheltered Architectural	Prehistoric	2	2
Rock Art	Prehistoric	6	6

Burial	Prehistoric	1	1
Cambium Tree	Prehistoric	38	35
Isolated Find	Prehistoric	3	0
Burial	Historic	1	0
Cairn	Historic	1	1
Camp	Historic	2	2
Defense	Historic	1	0
Rock Art	Historic	1	1
Structure/Foundation/Alignment-Unspecified	Historic	14	12
Trash Dump	Historic	2	2

Prehistoric Search

5SH48 – Carnero Creek Pictographs

Site Type: Rock Art, Open Camp, Sheltered Camp, Historic

Location: 15 miles north from Del Norte, Colorado

Description: The site is a rockshelter with two pictograph rock art panels and a few projectile points. The rock art depicts anthropomorphic figures that are dancing (red pigment) and possibly kokopelli figures painted in grey. The red figures were recognized as possibly Ute by an Ute elder.

5SH51 – La Garita Creek Rock Art – Espinosa Ranch Rock Art

Site Type: Sheltered Camp, Rock Art, Burial

Location: 10 miles northeast of Nel Norte

Description: No site record available. Listed features include 14 rock art elements, a fire altered concentration, a burial, and at least one rockshelter. The artifacts found at the site include lithic material of projectile points, flakes, groundstone, and fire affected rock. The cultural affiliation with the site is archaic, Pueblo I/II/III, and Ute.

5SH1035 – Indian Grove

Site Type: Historic, Cambium Tree

Location: Great Sand Dunes National Monument, half a mile south of Medano Pass Road crossing of Medano Creek.

Description: The site is a grove of 72 ponderosa pine trees with bark removal scars from procurement of food, medicine, and materials. The grove is listed on the National Register of Historic Places under criterion D as the second largest concentration of peeled trees, pertaining to Ute social history.

5SH1492 – North Shaw Springs Rock Art

Site Type: Open Architectural, Sheltered Camp, Rock Art

Location: Half a mile north of Shaw Springs

Description: The site is a series of smaller rock shelters with rock art panels (total of 6 panels) and associated artifacts of projectile points, a lithic knife, and groundstone. The rock art depicts zoomorphs (deer, bighorn sheep, and antelope), circles, abstract wavy lines, and a tree like

symbol; the rock art has been interpreted as having a cultural affiliation with late prehistoric Woodland-Ute.

Historic Search

None

1.2.16 Custer County

Table 17. Ute Archaeological Sites in Custer County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Cambium Tree	Prehistoric	2	2

Prehistoric Search

None

Historic Search

None

1.2.17 Huerfano County

Table 18. Ute Archaeological Sites in Huerfano County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	3	0
Sheltered Architectural	Prehistoric	1	0

Prehistoric Search

None

Historic Search

None

1.2.18 Dolores County

Table 19. Ute Archaeological Sites in Dolores County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	6	4
Sheltered Lithic	Prehistoric	1	1

Open Camp	Prehistoric	10	4
Open Architectural	Prehistoric	2	2
Quarry	Prehistoric	1	1
Cambium Tree	Prehistoric	11	1
Isolated Find	Prehistoric	5	0
Isolated Feature	Prehistoric	11	0
Defense	Historic	1	1
Structure/Foundation/Alignment-Unspecified	Historic	5	3
Water Control	Historic	1	1

Prehistoric Search

5DL1216 – Beaver Creek Massacre Site

Site Type: Open Lithic, Defense

Location: Northwest of Dolores, Colorado 16.5 miles

Description: No site record available. The site is multicomponent and the significant contribution likely is historic. The only artifacts listed is "debitage" with "?" for a count value. The site is listed on the National Register of Historic Places. On June 19, 1885, white cattlemen killed six Utes at a hunting camp, six years after the Ute uprising against Nathan Meeker whom tried to forcibly change Ute cultural traditions.

Historic Search

None

1.2.19 Montezuma County

Table 20. Ute Archaeological Sites in Montezuma County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	6	3
Open Camp	Prehistoric	25	19
Sheltered Camp	Prehistoric	1	1
Open Architectural	Prehistoric	14	9
Sheltered Architectural	Prehistoric	2	2
Rock Art	Prehistoric	13	7
Burial	Prehistoric	1	1
Cambium Tree	Prehistoric	5	3
Isolated Find	Prehistoric	7	0
Isolated Feature	Prehistoric	1	0
Burial	Historic	1	1
Camp	Historic	20	7
Farming/Ranching	Historic	4	3

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Habitation	Historic	9	5
Rock Art	Historic	21	16
Trash Dump	Historic	3	1
Water Control	Historic	1	1

Prehistoric Search

5MT5 – Yellow Jacket Site, Yellow Jacket Pueblo, Surouaro

Site Type: Open Architectural, Rock Art, Sheltered Architectural, Burial

Location: Two miles southeast of Yellow Jacket, Colorado

Description: This is a domestic and ceremonial site with 20-30 villages, 30 kivas, a great kiva, pithouses from Pueblo I and II, a possible basketmaker village subsurface, and Pueblo II and III villages to the north. A nearby cave with petroglyphs was occupied during Pueblo II and III and later by Ute and Navajo during the historic period. This site is listed on the National Register of Historic Places.

5MT12297 – Four Women and a Horse

Site Type: Rock Art, Historic

Location: South 20 miles of Cortez, Colorado near Hwy 204

Description: The site is a series of four panels of rock art (pictographs and petroglyphs) associated with culture histories of the Weeminuche Band of Ute Indians. The rock art depicts two women, the head and shoulders of another woman, head of a horse with reins, two additional anthropomorphs, and identifiable attributes of earrings and a squash blossom necklace. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12303 – Chief Jack House's Hogan

Site Type: Rock Art, Historic

Location: South 20 miles of Cortez, Colorado near Hwy 204

Description: The site is five panels of rock art (pictographs and petroglyphs) associated with Ute cultural history, historic period Euro-American art, white negative handprints associated with Anasazi cultural history, and graffiti. The rock art depicts warrior figures, female anthropomorphs (some with braids), zoomorphs of bucking broncos and horses in different application techniques, Native American figures interpreted as Sundancers, and several initials with dates. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12598 – Mitchell Springs

Site Type: Open Architectural, Historic, Trash Dump

Location: North rim of McElmo Creek canyon where Mitchell Springs flows from base of canyon wall.

Description: The site includes components from Anasazi culture history (Pueblo III habitation ruins and associated artifacts), a Historic Ute component of a single metal arrowhead, and a historic Euro-American component of trash midden material along a wagon road.

5MT12683 – Hand in the Sun

Site Type: Rock Art

Location: In Navajo Canyon, one mile up canyon from the confluence with Mancos Canyon

Description: The site is a rockshelter with a panel of rock art (pictographs and petroglyphs) depicting an abraded sun with rays, a radiating circle with an anthropomorph at the center, additional spoke like imagery, and graffiti. The rock art is associated with Weeminuche Band of Utes cultural history.

5MT17725

Site Type: Rock Art

Location: North of Cajon Lake 9 miles

Description: The site is a panel of rock art petroglyphs on a cliff face with 18 anthropomorphs and zoomorphs associated with Anasazi and Ute cultural histories.

5MT17726

Site Type: Rock Art

Location: On north side of Cross Canyon, east 0.5 miles of the Utah border

Description: The site is a panel of rock art petroglyphs on a low rim face with a linear figure, a horned mountain sheep, and two grooves that are associated with Anasazi and Ute cultural histories. A large pueblo with several units is 150 meters south of the site.

Historic Search

5MT12296 – Two Women

Site Type: Rock Art, Historic

Location: Southeast of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is a rock art panel (pictographs) on a cliff face depicting two women painted in red, yellow, and brown. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12298 – The Warriors

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is a rock art panel (pictographs) on a cliff face depicting horse heads and warrior figures with headdresses. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12299 – The Red Filly

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is three panels of rock art (pictographs and petroglyphs) on a cliff face depicting an anthropomorph, handprint, front facing horse, and horses in profile. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12300 – Woman in Mourning

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is one panel of rock art (pictographs and petroglyphs) on a cliff face depicting a woman, handprints, sunburst with face, other anthropomorphs, and a blanket type figure. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12301 – Many Images

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is two panels of rock art (pictographs and petroglyphs) on a cliff face depicting an Indian warrior with an incised and painted breastplate, other anthropomorphs, moose or deer zoomorph, horses with and without riders (one with Spanish saddle), and modern names. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12302 – Leopard Man

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is three panels of rock art (pictographs and petroglyphs) found in the same location as the preceding rock art sites part of Mancos Canyon. The site record is not available but is listed as part of the Mancos Canyon rock art sites in other site records. The iconography and painting techniques for these sites are associated with the Weeminuche Band of Ute Indians culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12678 – Train Site

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is six panels of rock art (primarily petroglyphs but also pictographs) on a cliff face depicting heavily stratified iconography of over 100 elements including human figures, buildings, horses, a large mule or cow face, and initials. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12679 – Ignacio Site

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is two panels of rock art (petroglyphs) on a cliff face depicting over 20 elements of human figures (3 main human figures), brands, horses, an owl, names, and the words "Ignacio and Towaoc" and "Henry." The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12680 – Tommy's Ruin

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is one panel of rock art (petroglyphs and pictographs) on a cliff face depicting a human with a chest plate and feathers, a horse, an unidentified figure, and Anasazi petroglyphs that sometimes share a stratigraphic relationship with the Ute iconography. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12681 – Many Cliffs

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is sixteen panels of rock art (petroglyphs and pictographs) on two cliff face levels. The upper level includes seven panels of ancient pueblo petroglyphs and 12 petroglyph elements of horses, bovines, human figures and faces (one with a headdress), and over 20 letters and numbers. The lower level includes nine panels of over 25 petroglyphs and pictographs depicting horses, human heads, teepees, and unidentifiable elements. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12682 – Ace of Heart

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is one panel of rock art (petroglyphs) on a large boulder depicting a horse and over 10 brands superimposed over and among the horse. The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

5MT12684 – Atlatl Point

Site Type: Rock Art, Historic

Location: South of Cortez, Colorado 20 miles and along Hwy 204

Description: The site is one panel of rock art (pictographs) on a cliff face depicting two horses, one saddle, and two sets of ears (likely horse ears). The iconography and painting techniques are associated with the Weeminuche Band of Ute Indians' culture history. This rock art style is unique to Mancos Canyon and is associated with a series of nearby rock art sites.

1.2.20 Archuleta County

Table 21. Ute Archaeological Sites in Archuleta County.

Site Type	Site Time PD	Total Quantity	Total Eligible
Open Lithic	Prehistoric	4	1

Open Camp	Prehistoric	11	7
Open Architectural	Prehistoric	4	4
Cambium Tree	Prehistoric	32	28
Isolated Find	Prehistoric	4	0
Isolated Feature	Prehistoric	52	0
Camp	Historic	3	1
Farming/Ranching	Historic	2	0
Habitation	Historic	3	3
Logging	Historic	1	0
Trash Dump	Historic	4	3

Prehistoric Search

5AA.494

Open Architectural

East side of Piedra River Valley

Originally established as a prehistoric Pueblo site, 5AA.494 was later inhabited by the Ute and is considered a traditional cultural property for the Pueblo and Ute for its affiliation with protohistoric indigenous people in Colorado. The site represents a large habitation with a large pit structure depression, possibly a ceremonial structure, and a large and diverse artifact assemblage dating to the late Pueblo I to early Pueblo II periods.

5AA.952

Open Architectural

Benches above Freeman Creek

This site maintained almost continuous indigenous occupation from the Archaic to the prehistoric Pueblo to the protohistoric Ute periods. The site contains a pit structure, several cambium trees, and diagnostic artifacts.

5AA.1154

Open Architectural

Confluence of First Fork and Piedra River

5AA.1154 is a Ute camp containing dozens of cambium trees, attesting to the importance of the campsite and length of use.

Historic Search

5AA.1005

Cambium Trees

Durango Area

5AA.1005 is a Ute camp containing 17 cambium trees, attesting to the importance of the campsite and length of use.

1.2.21 La Plata County

Table 22. Ute Archaeological Sites in La Plata County.

Site Type	Site Time Pd	Total Quantity	Quantity Eligible
Open Lithic	Prehistoric	4	1
Open Camp	Prehistoric	48	32
Sheltered Camp	Prehistoric	2	1
Open Architectural	Prehistoric	19	15
Rock Art	Prehistoric	1	1
Quarry	Prehistoric	1	1
Cambium Tree	Prehistoric	13	2
Isolated Find	Prehistoric	9	1
Isolated Feature	Prehistoric	7	0
Camp	Historic	21	11
Farming/Ranching	Historic	3	0
Habitation	Historic	11	5
Mining	Historic	1	0
Trash Dump	Historic	3	2
Water Control	Historic	2	1

Prehistoric Search

5LP.4334

Open Architectural, Rock Art

Pueblo I and III and Ute site consisting of three rock shelters with Pueblo artifacts and charcoal-based Ute and Navajo pictographs.

Historic Search

None

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