Draft Environmental Assessment and Land Protection Plan

Rocky Mountain Front Conservation Area Expansion

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In accordance with the National Environmental Policy Act and U.S. Fish and Wildlife Service policy, an environmental assessment and land protection plan have been prepared to analyze the effects of expanding the Rocky Mountain Front Conservation Area in western Montana.

- The environmental assessment analyzes the environmental effects of expanding the project boundary of the Rocky Mountain Front Conservation Area.
- The Rocky Mountain Front Conservation Area expansion land protection plan describes the priorities for acquiring 125,000 acres in conservation easements within the expanded project boundary.

Both documents, which stand alone, are contained within this volume.

Note: Information contained in the maps within these documents is approximate and does not represent a legal survey. Ownership information may not be complete.

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Abbreviations

BL M	Bureau of Land Management
BMU	bear management units
CA	Conservation Area
CoCE	Crown of the Continent Ecosystem
EA	environmental assessment
FONSI	finding of no significant impact
Front	Rocky Mountain Front
FTE	full-time equivalent
GNLCC	Great Northern Landscape Conservation Cooperative
LCC	landscape conservation cooperative
LPP	land protection plan
LWCF	Land and Water Conservation Fund
MFWP	Montana Department of Fish, Wildlife and Parks
MTNHP	Montana Natural Heritage Program
NCDE	Northern Continental Divide Ecosystem
NEAT	National Ecological Assessment Team
NEPA	National Environmental Protection Act
NHPA	National Environmental Protection Act
NWR	National Wildlife Refuge
PFW	Partners for Fish and Wildlife
Service	U.S. Fish and Wildlife Service
SHC	strategic habitat conservation
SWAP	Small Wetlands Acquisition Program
TNC	The Nature Conservancy
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1 Purpose of and Need for Action

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Upper Teton River watershed in the Rocky Mountain Front Conservation Area.

Among conservation biologists, the Rocky Mountain Front (Front) is ranked in the top one percent of wildlife habitat remaining in the United States (The Nature Conservancy 1999). Virtually every wildlife species found in this area upon the arrival of Lewis and Clark in 1806, with the exception of free ranging bison, remains today in relatively stable or increasing numbers. In addition, it is the only remaining area in the continental United States with a complete, intact assemblage of large mammalian carnivores, including the grizzly bear, gray wolf, wolverine, pine martin, and Canada lynx.

The Front is part of the Crown of the Continent Ecosystem (CoCE), which includes the larger Columbia Basin and Upper Missouri/Yellowstone rivers watersheds (see figure 1). Within the CoCE, an exceptional diversity of wetland types occurs including: major riparian areas (including the Teton River, Sun River, Blackfoot River, and Dearborn River), smaller riparian tributaries, glacial prairie potholes, lakes, bogs, fens, swamps, and boreal peatlands. The lowlands support over 170 different species of wetland plants. Along the elevation gradient, large expanses of fescue grasslands phase into alpine meadows or sagebrush steppe, which then transition into montane forests consisting of white pine, Douglas fir, and ponderosa pine. These transitional zones of valley floors to montane forests are extremely important to fish and wildlife.

The continued presence of this large expanse of intact habitat and historic wildlife corridors would benefit federal trust species such as the grizzly bear, gray wolf, wolverine, and Canada lynx; migratory birds such as harlequin ducks, red-necked grebes, black tern, peregrine falcons, greater sandhill cranes and trumpeter swans; and westslope cutthroat trout. The Front provides excellent habitat for black bear, elk, mule deer, white-tailed deer, moose, mountain lion, bobcat, coyote, wolverine, and a wide variety of small mammals.

PROPOSAL

This proposal involves acquisition of an additional 125,000 acres of conservation easements within an expanded project boundary encompassing approximately 918,000 acres (see appendix A, list of preparers and reviewers). No land will be purchased in fee-title under this project. Depressed agricultural markets continue to stress the financial solvency of many large family ranches in the area, which are being placed onto the real estate market and commanding high recreational prices. Adjacent ranchers simply can not afford to purchase these properties at inflated prices and the land use patterns change accordingly. This is the beginning of the unraveling of the ecosystem, as historic ranch families (and the ranching economy) have been the primary reason the landscape has remained largely intact.

Figure 1. Crown of the Continent ecosystem.

The Front has been a successful model for partnering with and connecting to lands already owned by the State of Montana, The Nature Conservancy, the U.S. Forest Service, the Montana Land Reliance, the Boone and Crockett Club, and the Bureau of Land Management. In addition, local ranchers, business owners and representatives of local governments have formed a landowner advisory council to identify options and strategies for maintaining ranching and rural lifestyles in the area. Conservation easements are a tool that they strongly support as a means of conserving the ranching lifestyle along the Front.

Funding would come primarily from the Land and Water Conservation Fund (LWCF) and potential conservation partners.

PROJECT AREA

The Rocky Mountain Front Conservation Area (CA) was approved as a unit of the National Wildlife Refuge System in 2005 and is a landscape conservation strategy to protect a unique, highly diverse and largely unfragmented ecosystem in north central Montana. The Front encompasses the massive ecotone formed by the intersection of the western edge of the Northern Great Plains and the Rocky Mountains. Mid-grass prairie, foothills prairie, montane forest, and alpine tundra occur in close juxtaposition, resulting in high species and community diversity.

The expansion encompasses a project area totaling approximately 918,000 acres along the eastern edge of the CoCE and is centered 65 miles northwest of Great Falls, Montana. Lying in the shadow of the rugged Continental Divide, Bob Marshall Wilderness Area, and Lewis and Clark National Forest marks its western boundary. The 1.5 million acre Blackfeet Indian Reservation borders the project to the north and the eastern boundary is dictated by the distribution of fescue grasslands and critical riparian areas. The southern boundary falls approximately along the watershed of the South Fork of the Dearborn River. The Service plans to expand the authorized acquisition goal by an additional 125,000 acres, resulting in the approval to acquire conservation easements on up to 295,000 acres of private land within the expanded project boundary (see figure 2).

DECISIONS TO BE MADE

Based on the analysis in this environmental assessment (EA), the Service's director of Region 6, with the concurrence of the director of the U.S. Fish and Wildlife Service, will make three decisions:

- Determine whether the Service should expand the boundary of the Rocky Mountain Front Conservation Area.
- If yes, select an approved, conservation easement boundary that best fulfills the habitat protection purposes.
- If yes, determine whether the selected alternative would have a significant impact on the quality of the human environment.

The National Environmental Policy Act (NEPA) of 1969 requires this decision. If the quality of the human environment would not be significantly affected, a finding of no significant impact (FONSI) will be signed and made available to the public. If the alternative would have a significant impact, completion of an environmental impact statement would be required to address further those impacts.

ISSUES IDENTIFIED AND SELECTED FOR ANALYSIS

An open house public meeting was held in Choteau, Montana on May 17, 2010. Public comments were taken to identify issues to be analyzed for the proposed project. Approximately twenty-nine landowners, citizens, and elected representatives attended the meetings and most expressed positive support for the project. Additionally, sixteen letters providing comments and identifying issues and concerns were also submitted.

In addition, the Service's field staff has contacted local government officials, other public agencies, and conservation groups, which have expressed

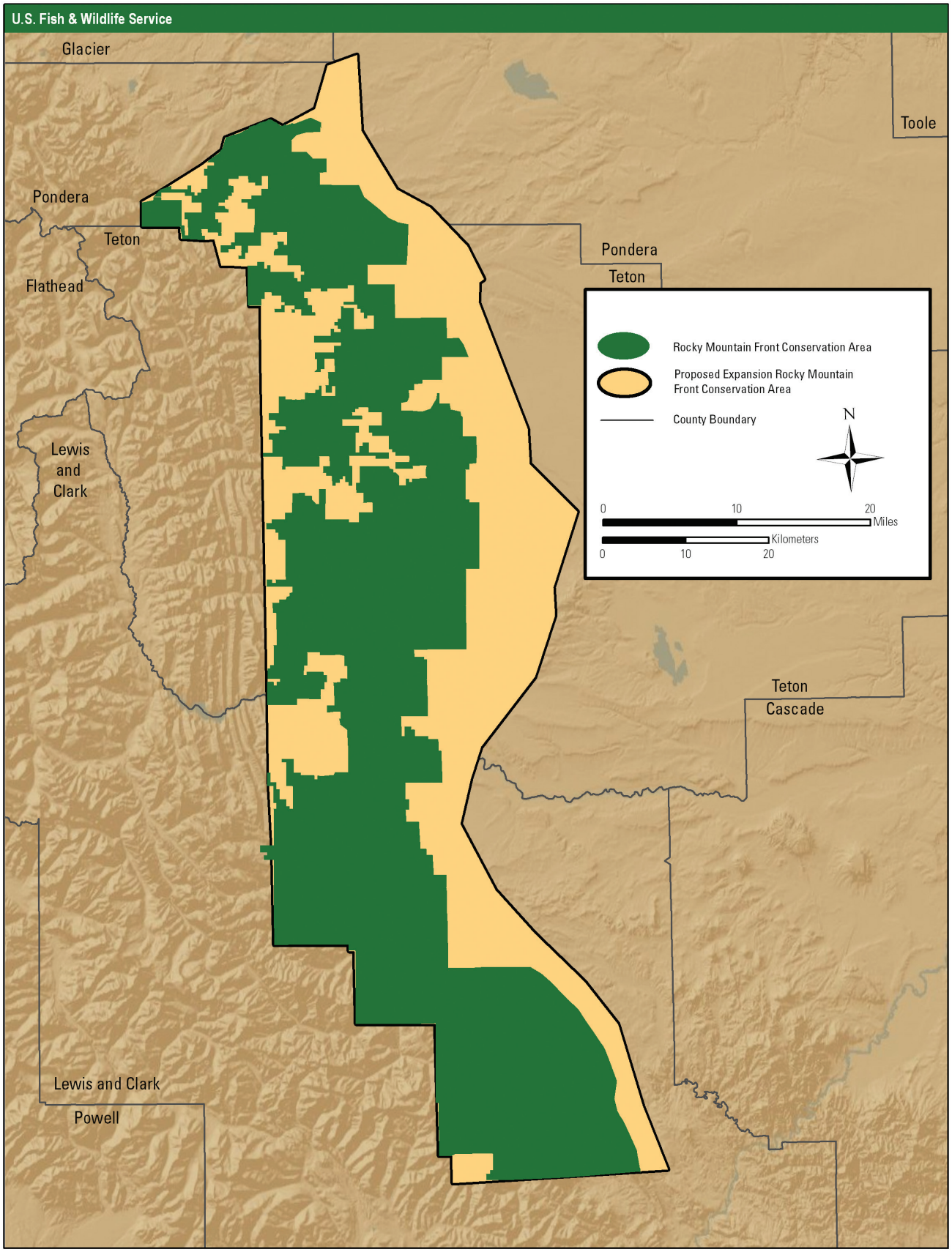


Figure 2. Rocky Mountain Front Conservation Area expansion project area.

an interest in and a desire to provide a sustainable future for the Rocky Mountain Front Conservation Area. Factsheet flyers were distributed at the public meeting and project information was also made available on the refuge and regional planning websites. Following the open house meeting, factsheet and flyers were posted in the Benton Lake National Wildlife Refuge Complex Headquarter's Visitor Center notifying visitors of the proposed project.

Many of the comments received addressed the need for a balance between natural and cultural systems. There are two main categories of commonly expressed issues and concerns.

Biological Issues

- the impacts of habitat fragmentation due to residential development
- the Service's role in management of private land encumbered with a conservation easement
- concerns about habitat fragmentation involve potential impacts on wildlife habitat and water resources.

Wildlife Habitat

Habitat fragmentation is a concern not only in the Rocky Mountain Front, but also in other areas of Montana. Given the current strong market for scenic western properties, especially when cattle prices are low, there is concern that ranches in the Rocky Mountain Front will be vulnerable to sale and subdivision for residential and commercial development. The subdivision process is not difficult. Under Montana law, land may be split into lots of 160 acres or greater without local review or approval. Moreover, with no county zoning in place, small-lot subdivisions are possible.

Housing development, and the associated infrastructure, can disrupt wildlife migration patterns. Nesting raptors and grassland bird species may be especially vulnerable to habitat fragmentation in the Rocky Mountain Front.

Riparian habitat loss due to development is a key concern. Riparian habitat is a key component to grizzly bear movement between the mountains and valley. Livestock grazing and ranching practices tend to be compatible with grizzly bears, which move unimpeded up and down riparian corridors. Riparian areas also provide nest sites for many species of migratory birds that may be negatively impacted by development.

The Service, as well as conservation groups and people in the region, have voiced concern with the fragmentation of habitats in other areas of Montana. In a landscape which is largely intact, habitat fragmentation poses a substantial threat to the continued viability of wildlife populations within the Front, including grizzly bear recovery efforts.

Water Resources

Residential development in the Rocky Mountain Front presents a potentially significant threat to the aquatic ecosystem. Housing developments can bring about sewage-derived nutrient additions to streams and lakes, additional wetland drainage, water diversion and introduction of invasive plant infestations, and nonnative fishes into aquatic ecosystems.

Socioeconomic Issues

- the loss of rural character of the Rocky Mountain Front
- the need to keep private land in private ownership
- the effect of easements on oil and gas exploration
- the impacts of conservation easements on local community centers and their ability to grow
- public access for hunting or other recreational opportunities

Landownership and Land Use

The rural character of the Rocky Mountain Front is likely to undergo substantial change over the next 10 to 20 years.

There is concern that perpetual easements would negatively affect future generations of landowners. A concern is that conservation easements would limit the choices of future landowners, even though they may have paid as much for the land as if it had no restrictions. There are concerns that perpetual easements would lower the resale value of the land.

There is concern that the selection process would favor landowners whose properties are larger in size, over smaller, but biologically valuable properties.

Oil and Gas Exploration and Development

The potential impact of conservation easements to oil and gas development on private lands in the Rocky Mountain Front is a concern.

Wind Energy Development

The potential impact of conservation easements to wind energy development on private lands in the Rocky Mountain Front is a concern.

Public Use

The public's right to use or access lands encumbered with a conservation easement is a concern.

Landowners are concerned they would be forced to allow the public to access their land for hunting, fishing, or other recreational uses.

Issues Not Selected for Detailed Analysis

Historically, there has been concern about the amount of tax generated to the counties when land protection programs take place. Since the proposed project is a conservation easement program, the land enrolled in the program does not change hands and, therefore, the property taxes paid by the landowner to the county are not affected.

Development of rural landscapes often leads to increased demand for services and higher costs to rural counties. There would generally be an offset of any perceived reduction in the tax base since the county would not incur the expense of providing services to rural developments. The use of conservation easements serves an additional function since easements preclude the necessity for county zoning in the project area.

NATIONAL WILDLIFE REFUGE SYSTEM AND AUTHORITIES

The mission of the National Wildlife Refuge System is to preserve a national network of lands and waters for the conservation, management and, where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. The Rocky Mountain Front Conservation Area would continue to be managed as part of the Refuge System in accordance with the National Wildlife Refuge System Administration Act of 1966 and other relevant legislation, executive orders, regulations, policies, and management plans such as:

- Land and Water Conservation Fund Act (1965)
- Migratory Bird Treaty Act (1918)
- Endangered Species Act (1973)
- Bald Eagle Protection Act (1940)
- Migratory non-game Birds of Management Concern in the U.S. (2002)
- U.S. Fish and Wildlife Act (1956)
- North American Waterfowl Management Plan (1994)

RELATED ACTIONS AND ACTIVITIES

The project area lies adjacent to and includes a large complex of federal, state, and private conservation lands that serve as anchors or core areas for numerous trust species. These include the 1.5 million-acre Bob Marshall Wilderness Complex; three state wildlife management areas (Sun River, Ear Mountain, and Blackleaf wildlife management areas totaling 34,000 acres); The Nature Conservancy's (TNC's) Pine Butte Swamp Preserve (13,000 acres); two Bureau of Land Management areas of critical environmental concern (11,500 acres); two Bureau of Reclamation resource management areas (formerly Pishkun and Willow Creek national wildlife refuges totaling 9,000 acres); and the Boone and Crockett Club's Theodore Roosevelt Memorial Ranch (6,055 acres). In addition, nearly 100,000 acres of private land are already protected with perpetual conservation easements held by TNC and the Montana Land Reliance.

The Service has been acquiring conservation easements on properties with significant wetland habitat under the Small Wetlands Acquisition Program (SWAP). To date, over 21,000 acres have been protected with Migratory Bird Conservation Fund monies. LWCF would continue to be used to target acquisition of easements on properties that don't meet the wetland requirements of the SWAP.

HABITAT PROTECTION AND EASEMENT ACQUISITION PROCESS

The economy of the Front is primarily agrarian and cattle ranches dominate the private lands within the project area. Ownerships are relatively large in size (2,000 to 25,000 acre blocks) which helps maintain this intact landscape. The human population is sparse and towns are widely scattered. Landowners along the Front are representative of rural Montana's independent and conservative social fabric. The ranchers' livelihoods depend on natural resources (grass, water, and open space) and, while generally resistant to regulation, the ranchers have a deep-rooted feeling for the land. Unlike many other areas in the country, the key to protecting the Front lies primarily in sustaining the current pattern of ranching and low-density use, not in large-scale restoration.

Other significant public lands within the project area include 113,000 acres of state (school trust) lands that are managed to generate revenues for public schools in Montana.

On approval of a project boundary, habitat protection would occur through the purchase of conservation easements. It is the long-established policy of the Service to acquire minimum interest in land from willing sellers to achieve habitat acquisition goals.

The acquisition authority for the proposed project is the Fish and Wildlife Act of 1956 (16 U.S.C. 742 a-742j). The federal monies used to acquire conservation easements from the Land and Water Conservation Fund are derived primarily from oil and gas leases on the outer continental shelf, motorboat fuel tax revenues, and sale of surplus federal property. There could be additional funds to acquire lands, waters, or interest therein for fish and wildlife conservation purposes through

congressional appropriations, the Migratory Bird Conservation Fund, the North American Waterfowl Conservation Act funds, and donations from non profit organizations.

The basic considerations in acquiring an easement interest in private land are the biological significance of the area, existing and anticipated threats to wildlife resources, and landowner interest in the program. The purchase of conservation easements would occur with willing sellers only and be subject to available funding.

2 Alternatives, Including the Proposed Action

Kathleen Burchett/USFWS

Ear Mountain in the Rocky Mountain Front.

This chapter describes the two alternatives identified for this project:

- alternative A, the no-action alternative
- alternative B, the proposed action, giving the Service the authority to expand the boundary of the Rocky Mountain Front Conservation Area.

The alternatives consider the effects of a conservation program within the boundaries identified for this project area in this EA.

ALTERNATIVE A (NO ACTION)

The Service started a conservation easement program in the Rocky Mountain Front in 2005. The program authorized the Service to purchase easements from willing sellers on up to 170,000 acres of private land in Lewis and Clark, Teton, and Pondera counties.

To date the Service has acquired easements on nearly 28,000 acres within the current project boundary using LWCF funding. The Service would continue to secure conservation easements on the remaining 142,000 acres of the acquisition goal. When the 170,000 easement-acre goal is reached, no new easements would be acquired with LWCF money.

Habitat enhancement or restoration projects on private lands such as water developments, grazing systems, and grassland management could continue through cooperative efforts with private landowners. Private efforts by land trusts would continue to secure conservation easements.

ALTERNATIVE B (PROPOSED ACTION)

This proposal involves acquisition of an additional 125,000 acres of conservation easements within an expanded project boundary encompassing approximately 918,000 acres. No land will be purchased in fee-title under this project.

The Service would seek to purchase conservation easements from willing sellers on privately-owned mountain foothills, wetlands, stream courses, and native grasslands. Conservation easement contracts would specify perpetual protection of habitat for trust species and restrict development.

Prioritization of areas considered for conservation easements within the project areas will be based on the biological needs of the wildlife species of concern (migratory birds, and threatened and endangered species), the threat of development, connectivity with other protected lands, and the quality of habitat types (including riparian areas, wetlands, and native grasslands) for trust species. The land protection plan (LPP) within this volume describes these priorities in detail.

The easement program would rely on voluntary participation from landowners. Grazing would not be restricted on the land included in the easement contract.

Subdividing and development for residential, commercial, or industrial purposes would not be permitted on properties under a conservation easement. Alteration of the natural topography, conversion of native grassland to cropland, drainage of wetlands, and establishment of game farms would also be prohibited.

Conservation easement lands would remain in private ownership; property tax and land management, including invasive weed control, would remain the responsibility of the landowner. The Service would seek to provide participating landowners with additional assistance with invasive plant control. Control of public access to the land would remain under the control of the landowner.

The project area would be managed by the Benton Lake National Wildlife Refuge (NWR) Complex staff headquartered in Great Falls, Montana. The Benton Lake NWR Complex staff would be responsible for monitoring and administration of all easements on private land. Monitoring would consist of periodically reviewing land status in meetings with landowners or land managers to ensure that the stipulations of the conservation easement are being met. Photo documentation and a baseline inventory study would be used at the time the easements are established to document baseline conditions.

ALTERNATIVES CONSIDERED BUT NOT STUDIED

There was no further analysis for the following two alternatives.

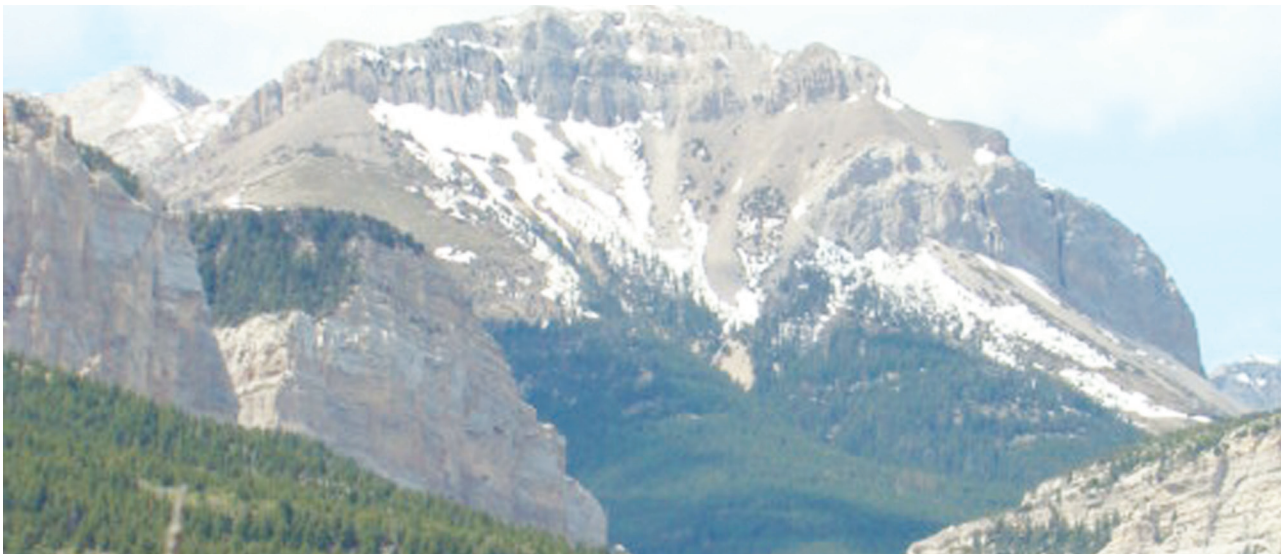
Voluntary Landowner Zoning

Landowners would voluntarily petition the county commissioners to create a zoning district to direct the types of development that can occur within an area. This is 'citizen-initiated' zoning. For example, landowners would petition the county government to zone an area as agricultural, precluding certain types of non agricultural development such as residential subdivision. 'Citizen initiatives' are rarely used and this alternative was not studied further.

County Zoning

In a traditional approach used by counties and municipalities, the local government would use zoning as a means of designating what type of development could occur in an area. Most counties in Montana prefer not to use this method and the alternative was not studied further. Comments received from county commissioners to date have expressed support instead for conservation easements (alternative B) as a means of maintaining rural area values, and potentially reducing the need for future zoning. In addition, zoning would be subject to frequent changes, and would not ensure the long-term prevention of residential or commercial development in the conservation areas.

3 Affected Environment



USFWS

Ear Mountain in Blackleaf Wildlife Management Area.

This chapter describes the biological, cultural, and socioeconomic resources most likely affected by establishing the project areas identified in the Rocky Mountain Front Conservation Area.

BIOLOGICAL ENVIRONMENT

The biological environment studied included climate, geological resources, habitat, and wildlife.

Climate

The climate is generally cool and dry, but there is considerable variability corresponding to the east–west elevational gradient that greatly influences vegetation and habitat. The weather station at the Gibson Reservoir near the western boundary has above freezing average maximum temperatures all year, with the coldest minimum temperatures in January (12.4°F). July and August are the warmest months with an average high around 77°F and a low near 45°F. The Augusta climatic station at the eastern boundary of the Front has similar above freezing winter average maximums, but is colder at night with January average minimums of 10°F. Average summer temperatures are also warmer in Augusta with July and August maximums slightly over 80°F and minimums around 47°F.

Gibson Dam receives almost 18 inches of precipitation annually; May and June are the wettest months with about 3 inches per month; all of the winter months receive less than 1" of precipitation per month.

Augusta has a similar pattern with relatively wet springs and dry winters although the total precipitation annually averages only about 14 inches. This precipitation gradient (along with soils) is key in structuring vegetation communities across the Front (Kudray and Cooper 2006).

Geological Resources

The Front lies at the eastern edge of the Rocky Mountains where tectonic plates collided and pushed large slabs of rock upward in a fold-and-thrust belt. The highest elevation landforms are located in the most western section of the Front and are mapped as Paleozoic Era sedimentary rock composed of sandstone, shale, and limestone (including dolomite). The Kootenai Formation from the Mesozoic Era is found adjacent at lower elevations and is also sedimentary rock but composed of conglomerate, sandstone, shale and mudstone. The Colorado Shale Formation of shale and siltstone is typically found at the next lowest topographic position. At lower elevations, alluvial deposits are common with layers of gravel, sand and silt. There are also significant low elevation glacial deposits from the Pleistocene Age that have variable, mostly coarse textures. The Two Medicine Formation from the Cretaceous Era

is one of the most common lower elevation types and is sedimentary with clay, limestone, and sandstone. There is also a prominent area of Cretaceous volcanic rock in the far southern part of the Front (Kudray and Cooper 2006).

Habitat

An ecotone formed by the meeting of two major ecoregions along a mountains-plains gradient, the Front hosts a rich mixture of glaciated wetlands ("prairie potholes"), riparian corridors, mixed grass prairie, and coniferous forests. Alpine meadows lie on the shoulders of the high peaks along the western edge of the Front. Montane forests consisting of limber pine, Douglas fir, and ponderosa pine transition eastward into aspen parklands and a large expanse of fescue grasslands. The Front's varied topography and soils give rise to a diverse array of plant communities, including some of considerable scientific importance. The Montana Natural Heritage Program has rated the Rocky Mountain Front as highly significant for biodiversity with 114 species or communities of special concern found here.

The landscape is extremely variable and extends from higher elevation barren rock or forested stands of Douglas-fir or aspen, to mid-elevation limber pine woodlands down to a complex mosaic of mixed-grass prairie with agricultural grain and hay fields at lower elevations and in floodplains.

Numerous hydrological features bisect the project area. The Dearborn, Sun, and Teton Rivers form major riparian corridors running from the mountains eastward into the prairies. Numerous other tributaries provide a diversity of riparian and wetland plant communities. Over 700 species of vascular plants occur within the project boundary, representing roughly one-third of all the plant species found in Montana, demonstrating the significant biological diversity (MTNHP 1997). Approximately 30% of the 700 plus species of plants found here are associated exclusively with wetland or riparian habitats, including some of the largest remaining fens in the Pacific Northwest. The project area contains the largest intact expanse of fescue grasslands left in the Northern Great Plains (Lesica 1994).

Higher elevations also include fescue grasslands and a large acreage recovering from a wildfire that is now a mix of mostly Douglas-fir regeneration, among burned tree trunks over relatively lush fescue grasslands. The fescue is often mixed with shrubs; creeping juniper and kinnikinnick occur on somewhat drier sites, while shrubby cinquefoil is common in more mesic areas (habitat with a moderate or well-balanced supply of moisture). Shrubby cinquefoil is particularly common in the northern extreme of the Front, but also follows the greater eastward expansion of the fescue-type habitat in the southern end, where it is more closely associated with stream terraces. The aspen stands are typically small clonal (genetically identical) patches in landforms that receive some additional moisture or have a more mesic aspect. Limber pine stands are generally in decline, primarily from white pine blister rust disease. Dead and dying trees are typical; some former stands can only be recognized by the dead tree trunks.

The riparian corridors associated with the larger drainage system are especially diverse and rich in habitat value. Natural vegetation communities generally correspond to the height of the floodplain above the water table, although successional influences also affect the distribution of shrubby and forested types—early shrub establishment can give way to later forested stands on suitable sites.

The shrub communities also respond to a moisture gradient; willows and red-osier dogwood dominate the wetter sites while chokecherry, Saskatoon serviceberry, and Woods' rose occur on drier sites, sometimes with an aspen overstory. Wet meadows dominate riparian areas where water tables are high and there is not sufficient water movement to oxygenate the soil enough for shrubs and trees. Flood-irrigated hay meadows are also common where the floodplain is wider and soils are suitable.

The fescue grasslands at higher elevation (and correspondingly greater precipitation) transition at lower elevations to grasslands dominated by various grass species in response to soil and topography. Western wheatgrass is the dominant species in swales (lower elevation land that remain moist) with heavier soils and often moisture run-in. Needle and thread is the most common species on sandier soils, which tend to occur somewhat higher in the local landscape. Bluebunch is associated with steeper slopes; mixtures of any or all these grasses can occur with the variable conditions found in this diverse landscape. Blue grama can become very common with sustained heavy grazing. The absence of sagebrush is notable and currently unexplained.

A variety of wetland types occurs throughout the upland matrix in pothole depressions, larger shallow basins, or swales with impeded drainage. There is considerable diversity; some basins dry to bare soil after seasonal flooding while others will have a variety of wetland types in a zoned pattern dependent on seasonal water table depths and salt concentrations. Most of these areas are dominated by graminoids (grasses), but shrubby cinquefoil is common in swales. Willows may be found, but are much more common in riparian wetlands.

Agricultural fields are most common in the central part of the study area. In addition to flood-irrigated hay fields, there are some central pivot-irrigated hay fields and dryland small grain production. Barley and wheat are the typical dryland crops but some fields have been planted to a variety of introduced species

and are used for grazing land or hay production. Although a somewhat uncommon practice, fields have also been planted back to cultivars (presumed) of native species (mostly western wheatgrass) and can be identified by their unusual degree of uniformity, lack of forb (herbaceous flowering plant) diversity and telltale furrowing.

Wildlife

About 240 species of birds or approximately 65% of all birds found in Montana are known to inhabit this area. At least 134 species of birds are known to breed, an additional 54 species are suspected of breeding within the project area, and some 108 species of neotropical migrants have been observed (see appendix B).

Mammals

Lying adjacent to Bob Marshall Wilderness Area, the diverse habitats of the Front play a critical role in sustaining the Northern Continental Divide's free-ranging wildlife populations. It is the last remaining area in the continental United States with an intact assemblage of large mammalian carnivores, and it is the only place in the world where grizzly bears still roam from the mountains onto the prairies as they did nearly 200 years ago. An estimated 100–150 bears frequent the project area, which is included in much of the recovery plan for the Northern Continental Divide grizzly bear population. Gray wolves continue to migrate back into the area from the Canadian Rockies and several packs have established home ranges in Bob Marshall Wilderness Area. The Front supports one of the largest populations of wolverine and lynx in the lower forty-eight states and it once supported a large concentration of swift fox which were nearly extirpated from the state. Swift fox are now being reintroduced just north of the project area through a partnership between Defenders of Wildlife and the Blackfeet Indian Nation and are expected to eventually move back into the project area.

Protecting these private lands from habitat fragmentation is a critical step that will ultimately assist in the recovery of the Northern Continental Divide Ecosystem grizzly bear population (Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator, University of Montana, Missoula, MT; personal interview in person, 11 June 2008). In addition protecting these lands may help prevent the need for listing of several species the Service has been petitioned to list such as the trumpeter swan, wolverine, and westslope cutthroat trout.

Grizzly
©Cindie Brunner

The windswept plains along the mountains provide critical winter range for all large ungulates found within the eastern Bob Marshall Wilderness Complex. Thousands of elk and mule deer winter primarily on state wildlife management areas along the Front. Shiras moose, a subspecies found in the central Rocky Mountains, occasionally frequent the project area and white-tailed deer are found throughout the riparian corridors. The grasslands along the eastern portion of the project boundary sustain small populations of pronghorn antelope. Mountainous terrain along the western edge of the project area supports the largest populations of Rocky Mountain bighorn sheep and mountain goats in the continental United States (USFWS 1987).

Amphibians and Reptiles

A number of amphibians occur along the Front including three species of frogs (boreal chorus, northern leopard, and Columbia spotted), two species of toads (plains spadefoot and western), and two species of salamanders (tiger and long-toes). The common garter snake, plains garter snake, terrestrial garter snake, western rattlesnake, greater short-horned lizard, and painted turtle are reptiles known to occur along the Front (Maxwell et al. 2003).

Fish

Several streams and rivers along the Front support pure strains of westslope cutthroat trout, and are considered to be highly significant for the east slope population. The Sun River was historically a stronghold for fluvial Arctic grayling which were eliminated from the system as a result of habitat degradation. In the spring of 1999, grayling were reintroduced above Gibson Dam into the upper Sun River tributaries. A rare hybrid of the northern redbelly dace also occurs within the project area (see appendix C, list of endangered and threatened species).

Migratory and Other Birds

Lying at the western end of the Prairie Pothole Region, the Front provides habitat for a significant diversity of wetland dependent species. Some seventeen species of waterfowl breed within the project area, including the harlequin duck, which is found in several mountain streams. Three nesting pairs of rare trumpeter swans have been documented

in the Bean Lake-Nylan Reservoir Complex, one of the few breeding occurrences outside of the Centennial Valley in southwest Montana. Hundreds of thousands of snow geese migrate along the Front, including 40,000 Wrangle Island snow geese, representing 50% of the entire known population. Peak flights of waterfowl along the Front during spring and fall migration often exceed several million birds. Six species of grebes are known to nest including the red-necked grebe, a species in serious decline in many other areas. Eleven different species of shorebirds breed in the wetlands and adjacent grasslands scattered throughout the area. The westernmost breeding occurrence of inland piping plovers occurs at Alkali Lake near the northeast boundary of the project area. Several thousand sandhill cranes from the Rocky Mountain population use the river corridors during their spring and fall migration, and a portion of the cranes breed in these areas as well.

Cliff and riparian areas provide the two most important habitats for nesting raptors within the project area. At least twenty-one species of raptors breed along the Front, including nine species of owls. One of the Nation's densest populations of golden eagles and prairie falcons reside in the rock escarpments along the western edge of the project area. The Front hosts relatively robust populations of bald eagles, peregrine falcons, ferruginous hawks, and goshawks.

The project area includes one of the largest remaining expanses of native prairie left in the Northern Great Plains. This "sea of grass" provides essential habitat for numerous grassland birds, many of which are experiencing significant population declines. These include chestnut-collared longspurs, Le Conte's sparrows, bobolinks, Sprague's pipit, burrowing owls, marbled godwits, long-billed curlews, and lark buntings.

Mike Parker/USFWS

Long-billed curlew.

CULTURAL RESOURCES

The Service has a trust responsibility to American Indian tribes that includes protection of the tribal sovereignty and preservation of tribal culture and other trust resources.

Currently, the Service does not propose any project, activity, or program that would result in changes in the character of, or adversely affect, any historical cultural resource or archaeological site. When such undertakings are considered, the Service takes all necessary steps to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The Service pursues compliance with Section 110 of the NHPA to survey, inventory, and evaluate cultural resources.

SOCIOECONOMIC ENVIRONMENT

The project area includes portions of three counties—Lewis and Clark, Pondera, and Teton. Four communities are within the project area, all located along the east boundary on Highway 89/287. The largest community is Choteau with a population of 1,781. Augusta has 284 people, and Dupuyer and Bynum both have less than 200 people (U.S. Census Bureau 2000).

Most of the rural population is involved in ranching and livestock production. Hunting of a wide variety of game species occurs on private lands, with elk hunting bringing the most people to the Front.

A seasonal influx of tourists are attracted to the Front for opportunities to bird watch, mountain-bike, horseback ride, backpack, camp, canoe, fish and view archeological and paleontological resources. Choteau and Augusta are "gateway" communities for recreational activities on the Lewis and Clark National Forest, Bob Marshall and Scapegoat Wildernesses, and Glacier National Park.

Agricultural Resources

The economy of the Rocky Mountain Front is primarily agrarian. Large cattle ranches dominate the private lands within the project area. The population is sparse and towns are small and widely-scattered.

Landownership

The economy of the Front is primarily agrarian and cattle ranches dominate the private lands within the project area. Ownerships are relatively large in size (2,000 to 25,000 acre blocks) which helps maintain this intact landscape. The human population is sparse and towns are widely scattered. Towns tend to be service centers for the agricultural economy, but also support tourism and recreation.

Other significant public lands within the project area include 113,000 acres of state (school trust) lands that are managed to generate revenues for public schools in Montana (see figure 3).

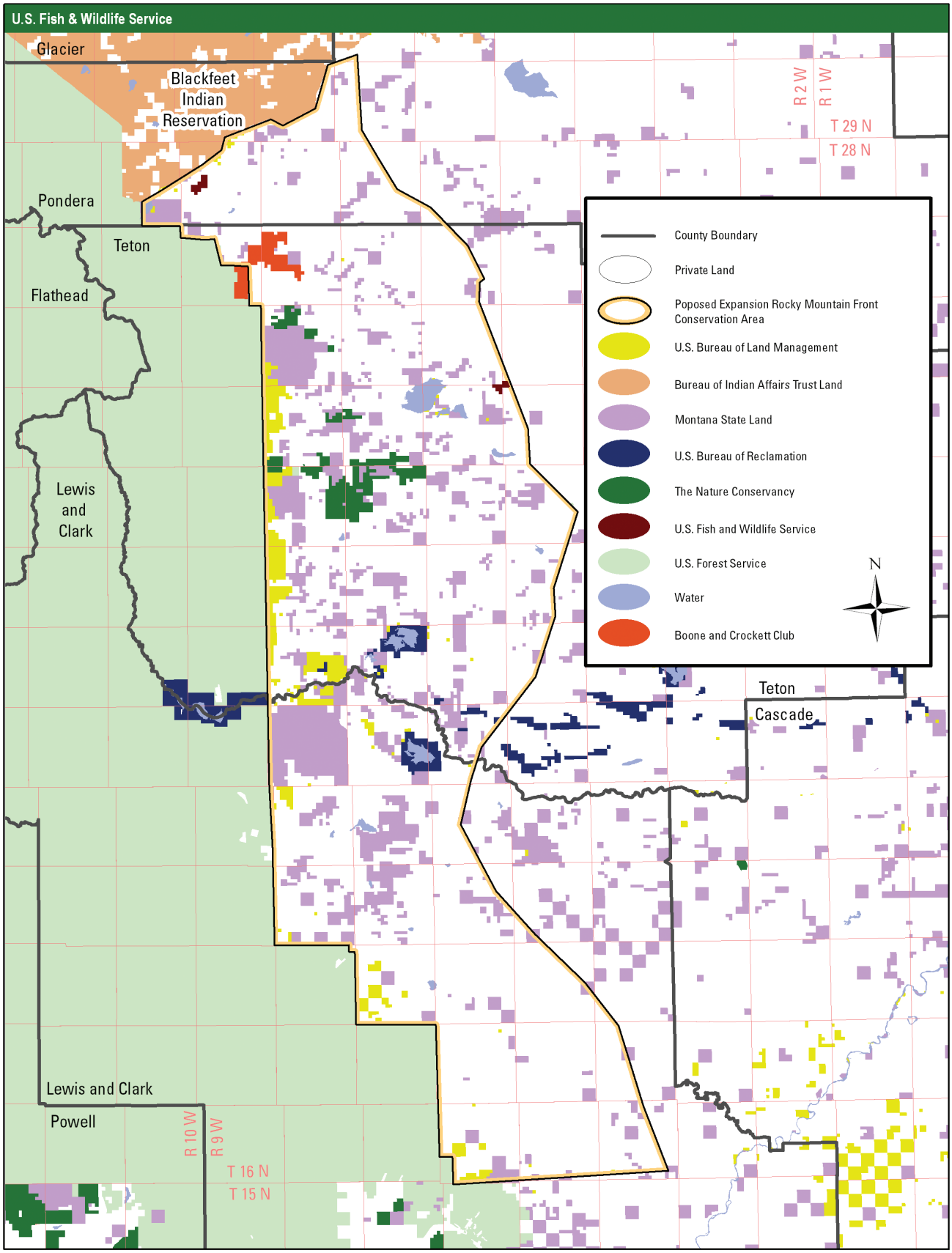


Figure 3. Landownership in the Rocky Mountain Front Conservation Area expansion project area.

Property Tax

Currently, landowners pay property taxes on their private lands to the counties. The Rocky Mountain Front Conservation Area is an existing conservation easement program; the land does not change hands and, therefore, the property taxes paid by the landowner to the county are not affected. No changes to the tax base are anticipated.

Public Use and Wildlife dependent Recreational Activities

Hunting and fishing are very popular throughout the project area. Hunting for a variety of wildlife includes waterfowl, upland game birds, pronghorn, elk, moose, deer, black bear, bighorn sheep, mountain lion, and furbearers. Private landowners often give permission for hunting and fishing on their land.

4 Environmental Consequences

© Michael Madel

A grizzly bear roams a streamside in the Rocky Mountain Front.

This chapter assesses the environmental impacts expected to occur from the implementation of alternatives A or B, as described in chapter 2. Environmental impacts are analyzed by issues for each alternative and appear in the same order as discussed in chapter 2.

EFFECTS ON THE BIOLOGICAL ENVIRONMENT

This section describes the estimated effects on climate change, wildlife habitat, and water resources of carrying out alternatives A and B.

Climate Change

Climate change is the pre-eminent issue for conservation in future decades. Current trends in climate change are expected to affect high mountain ecotypes and lower elevation, snow-melt dependent watersheds, such as those found in the Front more acutely than some other landscape ecotypes.

Predictions regarding the specific effects of climate change in the Front are in the early stages. Empirical data indicates that during the 20th century, the region has grown warmer, and in some areas drier, especially east of the Continental Divide on the Rocky Mountain Front. Annual average temperature has increased 1–3 degrees over most of the region. This seemingly modest increase masks much larger shifts in minimum winter temperatures (10°F) and shifts in maximum summer temperatures (7°F). In the 2007 Introduction to the Summary for Policy Makers Synthesis Report, the Intergovernmental Panel on Climate Change described that average air temperatures may raise by up to 6°C by the end of this century according to regionally downscaled models from the Pacific Northwest (USFWS 2009).

Changes in temperature and precipitation are expected to decrease snow pack and will affect stream flow and water quality throughout the Front. Warmer temperatures will result in more winter precipitation falling as rain rather than snow throughout much of the region particularly in mid-elevation basins where average winter temperatures are near freezing. This will result in

- Less winter snow accumulation;
- Higher winter streamflows;
- Earlier spring snowmelt;
- Earlier peak spring streamflow and lower summer streamflows in rivers that depend on snowmelt (USFWS 2009b).

As glaciers and alpine snow fields melt and winters warm in Montana, specialized habitat for fish and wildlife species is expected to diminish. Snow conditions that facilitate hunting success for forest carnivores, such as Canada lynx, are now changing due to winter warming (Stenseth 2004). High elevation forest plants such as whitebark pine, (an

important food source for grizzly bears) and other birds and mammals throughout the Crown of the Continent and Greater Yellowstone ecosystems (Kendall and Arno 1989) will also be negatively impacted by winter warming. Whitebark pine is susceptible to increased mortality as the incidence of drought, high elevation wildfire, and mountain pine beetle attacks, all associated with a warming climate increase (Hanna et al. 2009).

This warming may also have impacts on grizzly bears. Important food resources are expected to decline as warming causes an increase in whitebark pine blister rust, reducing the availability of the pine to bears. This may result in shifts in foraging elevations and a potential increase in grizzly bear conflict with humans and livestock.

According to Service Grizzly Bear Recovery Coordinator, Chris Servheen (University of Montana, Missoula, MT; personal interview in person, 11 June 2008), it is highly likely that grizzly bear delayed fall den entry dates and earlier spring-emergence dates will begin occurring on the Front as they have in the Greater Yellowstone area; a change which is related to climate change. This will also potentially increase their likelihood of human-caused mortality from increased encounters (Endangered Species Coalition 2009).

As late summer flows are affected by global warming, fewer rivers will be able to supply ample cold water required by some species. Some species distributions are expected to be interrupted by the heightened ambient air temperatures (Endangered Species Coalition 2009).

The impacts of climate change will extend beyond the boundaries of any single refuge or easement program and will require large-scale, landscape level solutions that extend throughout the CoCE. A goal of the proposed project area expansion is to build resilience in ecological systems and communities, so that, even as climate conditions change, the Front will continue to support its full range of native biodiversity and ecological processes. Building resilience includes maintaining intact, interconnected landscapes, and restoring fragmented or degraded habitats.

Adaptation, Mitigation, and Engagement

The Service strategic response to climate change involves three core strategies: adaptation, mitigation, and engagement (USFWS 2009). Through adaptation, the impacts of climate change on wildlife can be reduced by conserving habitats expected to be resilient.

Increased landscape connectivity is one of the most effective methods to help wildlife adapt to climate change. Large landscapes, especially those within mountains, and the ability to move between them, provide the best chances for plant and animal species, as well as ecosystems and ecological processes, to survive changing conditions. The ability to migrate to higher latitudes, higher elevations, or cooler exposures can make possible the successful adaptation of plants and animals. The Yellowstone to Yukon Ecosystem, which encompasses the Crown of the Continent Ecosystem, is the most intact mountain ecosystem remaining on Earth and is one of the world's few remaining areas with the geographic variety and biological diversity to accommodate the wide-scale adaptive responses that might allow whole populations of animals and plants to survive (Yellowstone to Yukon Conservative Initiative 2009).

One of the results of changing climates is the alteration of the habitats upon which wildlife depend. Wildlife will have to adapt to changes in habitat to survive. Protecting and linking contiguous blocks of unfragmented habitat will facilitate movement of wildlife responding to climate change.

Carbon sequestration forms one of the key elements of mitigation. The Rocky Mountain Front conservation easement program will protect large forested areas from subdivision. Forests are critically important in the efforts to remove CO2 from the atmosphere and mitigate climate change. The CO2 from the atmosphere is absorbed by trees through photosynthesis and stored as carbon in the tree trunk, branches, foliage, and roots, with oxygen as a byproduct. The organic matter in forest soils, such as the humus produced by the decomposition of dead plant material, also acts to store carbon.

Engagement involves cooperation, communication, and partnerships to address the conservation challenges presented by climate change (USFWS 2009). The proposed project is located in an area that is designated as a high priority for conservation and linkage protection by many of our partners including Montana Fish, Wildlife and Parks; The National Fish and Wildlife Foundation; The Nature Conservancy; and The Conservation Fund; and American Wildlands. Many of these organizations are involved in trans-boundary conservation, protecting and connecting habitat in the United States and Canada. Strong partnerships have already been developed to meet the challenges of climate change and wildlife resources.

Given the level of public and private partnerships focused on land protection within the Rocky Mountain Front, this landscape is arguably one of the most promising large-scale opportunities remaining in North America for species resiliency and adaptation in the face of climate change.

Wildlife Habitat

The effects on wildlife habitat for alternatives A and B are described on the following page.

Alternative A

Although efforts by the Service's Partners for Fish and Wildlife (PFW) program and partners would continue to enhance habitat on some private lands, degradation of resources on many unprotected lands would continue. These potential impacts could result in the further decline of migratory birds, resident wildlife, and listed species.

Many acres of land would likely be developed for recreational home sites or isolated commercial uses, as economic forces change in the future. In recent years, subdivision and the demand for recreational property have been spilling over from western Montana, posing the greatest single threat to the Rocky Mountain Front. Lands adjacent to natural areas are choice home sites and are targeted for residential development. In particular, burgeoning subdivisions occur at the mouths of the Dearborn, Sun, and Teton River canyons and land prices have increased dramatically. Long-time family ranches are beginning to be sold and are commanding very high prices as recreational properties.

No action would result in the loss of opportunity to protect historically important upland and wetland habitats. Without the protection of private land with conservation easements, the future of wildlife habitat in the project area would be uncertain.

Habitat fragmentation is one the greatest impacts caused by rural subdivision and residential development. The Front has more than 700,000 privately owned acres, with the majority remaining in large ranch ownership. However, under state law, the subdivision process is not difficult—land may be split into lots of 160 acres or greater without local review or approval. Moreover, with no county zoning in place, small lot subdivisions are possible.

Private land subdivision results in smaller ownerships. Subsequent effects, including those listed below, would likely impact wildlife:

- fragmentation
- invasive plant infestations
- increased fencing, roads, and vehicle traffic
- loss of habitat and travel corridors for wildlife

In addition, these effects would bring increased human presence in the form of snowmobiles, predator-prey shifts, and sources of disturbance that can disrupt wildlife movement patterns and render habitat unusable.

Loss of habitat and travel corridors for wolverine, Canada lynx, grizzly bear, gray wolf, and other species would likely have a negative impact on these species' populations along the Front. Research has shown that grizzly bears move between private lands along the Front, Glacier National Park, and the Lewis and Clark National Forest, all of which are part of the Northern Continental Divide Ecosystem (USFWS 1987). These key geographic and biological linkages can be lost and wildlife populations isolated once an area is fragmented by subdivisions or other development.

Increased human settlement can also result in increased human–wildlife conflicts, as well as impacting actions to control important natural ecological events such as fire and seasonal floods.

Conversion of native prairie to cropland, especially within the eastern portion of the Front, has an effect on bird populations. In the fescue prairie region of Alberta, Canada, total passerine populations and diversity have decreased significantly as native rangeland has been converted to cereal grain production (Owens and Myers 1972). Overall, grassland bird populations are decreasing faster and over a larger area than any other avian species group, including Neotropical migrants (Knopf 1996).

Alternative B

Expanding the Rocky Mountain Front Conservation Area would provide for an increase in conservation protection on up to 125,000 acres of important habitat on private land. This program would help maintain the uniqueness of the Rocky Mountain Front and complement conservation efforts of the Montana Department of Fish, Wildlife and Parks (MFWP), TNC, Boone and Crockett Club, Montana Land Reliance, and other federal and state agencies.

The fact that the Front remains biologically and ecologically intact is a tribute to the area's ranchers and residents, who have long recognized what this unique and important landscape represents for ranching and wildlife. The project aims to ensure habitat for wildlife remains intact in perpetuity and, by doing so, strengthens the ranching heritage of the Rocky Mountain Front.

Conservation easements along the Rocky Mountain Front would help alleviate habitat fragmentation issues. Key biological linkages would facilitate wildlife movement and provide for wildlife habitat requirements. The potential for human-wildlife conflicts would be greatly reduced.

Compatible agricultural practices such as livestock grazing or haying would continue, while sodbusting (breaking of native rangeland) would be prohibited. Easements would maximize the connectivity with other protected grasslands and decrease the negative impacts of habitat fragmentation on grassland birds (Owens and Myers 1972).

Water Resources

The effects of alternatives A and B on water resources are described on the following page.

Alternative A

The prospect of residential development along the Front represents a potentially significant threat to the aquatic habitat. Sewage-derived nutrient additions to streams and lakes could have detrimental effects on the aquatic ecology (Wernick et al. 1998).

Housing developments can also result in additional wetland drainage, water diversion, and introduction of invasive species. Development could also change drainage patterns or rate of surface runoff, increasing soil erosion and non-point source pollution.

As demand for potable water increases for new subdivisions, water rights could be questioned and challenged to a greater extent in the future. Groundwater aquifers would receive more demand, resulting in potential degradation to the hydrology of some wetland areas.

Conversion of grasslands to cropland has been documented to increase sedimentation and pesticide runoff into wetlands. Tillage increases the sediment load into wetlands when compared to grasslands (Gleason and Euliss 1998, Kantrud et al. 1989), primarily due to wind erosion (NRCS 1992).

Alternative B

Water resources on 125,000 acres would be protected from increased non-point source pollution from residential subdivision, commercial development, and draining of wetlands, all of which are prohibited under the proposed easement program.

Compatible agricultural practices such as livestock grazing or haying would continue, while sodbusting would be prohibited. The landowner would continue to own and control water rights.

EFFECTS ON THE SOCIOECONOMIC ENVIRONMENT

This section describes the estimated effects of alternatives A and B on land ownership, land use, oil and gas exploration and development, wind energy development, public use, and economic impacts.

Landownership and Land Use

The effects on land ownership and use are described below.

Alternative A

The resources studied by the Service for conservation easements along the Rocky Mountain Front would remain in private ownership with no restrictions. Ranching opportunities could be reduced when landowners begin to split tracts into smaller lots.

Landowners that subdivide could increase their revenue by developing recreational home sites. With subdivision, tracts could potentially increase in value if there is a desire to cluster housing or to keep open space for future housing developments.

The community would lose open space and the aesthetics of the Front would diminish significantly. Subdivision and development would reduce hunting and wildlife observation opportunities and diminish revenue associated with these activities to local communities.

Alternative B

The expanded easement program would enhance the protection of trust resources through conservation of wildlife habitat and protection of land from surface disturbance or development.

The proposed action would affect location and distribution, but not rate or density, of human population growth. Ongoing, traditional agricultural uses such as livestock grazing would allow compatible ranching to continue. This alternative would maintain open space on a large landscape scale, thereby preserving the rural lifestyle of the area.

Preventing subdivision and development could decrease future tax revenues in a defined market area. However, open space could actually provide a net savings to local governments when compared to the revenues generated and costs of services associated with residential development (Haggerty, 1996).

Positive effects may occur from increased public wildlife viewing, fishing, and hunting opportunities. Open space also may enhance property values on adjoining lands as people begin to seek out undeveloped lands in the future.

The purchase of an easement would not result in a transfer of land title and, therefore, the property taxes paid by the landowner to the county are not affected. No changes to the tax base are anticipated. The land remains under private ownership.

The easement program would have no effect on tribal jurisdiction or tribal rights because it is outside of reservation land .

Value of Intact Ecosystems

Humans influence every ecosystem on earth, leading to impairment of natural ecosystem structure and function (MEA 2005). Converting native land to row-crop agriculture, suppressing fire, diverting water flow, increasing nutrient and toxic pollution, altering global precipitation patterns and gas concentration,

and homogenizing and lowering global biodiversity are a few of the ways humans have altered ecosystems. North American forests, savannas, and grasslands have experienced substantial losses, whereas woody savanna, shrubland, and desert areas have expanded because of desertification and woody expansion into grasslands (Wali et al. 2002), inevitably leading to changes in ecosystem function (Dodds et al. 2008).

The Montana Natural Heritage Program has rated the Front as one of the most significant natural landscapes in the state, a tribute to its intact ecological systems, expansive wetlands, and diverse native fauna and flora, including a concentration of rare species.

Alternative A

Under the no action alternative, the threat of habitat fragmentation will continue unabated. Landowners may continue to face economic pressures to subdivide their ranches. Tree encroachment and urban fragmentation will compress the project area, leaving fewer larger parcels of intact habitat.

Alternative B

Conserving native land cover is an important component of maintaining ecosystem structure and function. Under the proposed action, native forest habitats would remain intact, continuing to provide ecosystem goods and services to landowners and local communities. Ecosystem services include: soil erosion control, water supply, biodiversity, and carbon sequestration. Forested ecoregions (eastern temperate, western mountain, and west coast marine) have less than 5% of native area remaining. The proposed action would help protect valuable ecosystem services (see figure 4). Furthermore, it would prevent the prohibitively high cost of restoration.

Oil and Gas Exploration and Development—Alternative A

Oil and gas development would continue to occur on private lands along the project area. Stipulations to protect the surface estate would be governed by existing state regulations.

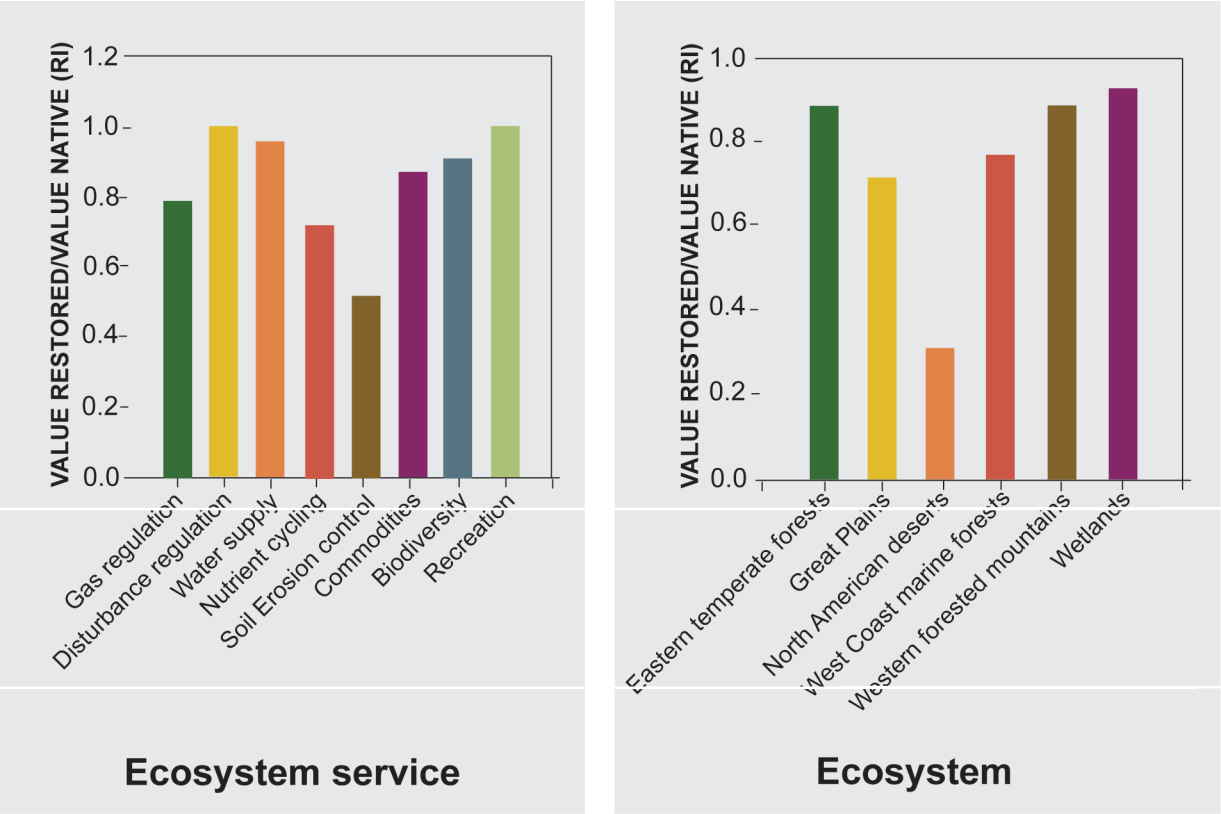


Figure 4. Relative native and restored benefits of ecosystem goods and services. The relative value, RI, is determined as the ratio of estimated benefits derived from native and restored acreages per year.

(Source: Dodds et al. 2008)

Oil and Gas Exploration and Development—Alternative B

The proposed easement program would not preclude oil and gas exploration or development on private land. Typically, conservation easements do not affect subsurface estates (oil and gas deposits) because the Service only acquires rights associated with surface ownership. In many places where the subsurface estate has been severed from surface ownership, including those in the Rocky Mountain Front, the landowner does not own the subsurface rights; this means that the easement that the Service acquires from the landowner is junior to the subsurface rights.

In instances where a landowner owns both the surface and the subsurface estate, the Service would treat oil and gas development as a permitted use and provide for such development in the easement document. Easements would contain reasonable surface stipulations for such actions as revegetation of disturbed areas, access, and site reclamation.

Easements would not be acquired on federal lands where the Bureau of Land Management (BLM) administers the oil and gas leasing program. The BLM program is concentrated on public lands, whereas the Service's conservation easements are concentrated on private lands.

Wind Energy Development—Alternative A

The new interest in wind development has heightened the very real threat of accelerated fragmentation along the Front. Under the no action alternative wind speculators would be unencumbered to move across the landscape tying up large tracts of lands through wind leases for future wind farm development projects. In addition to the negative impacts of fragmentation due to the development of roads, turbine pads, collection lines, and transmission lines, the project area would be susceptible to increased exposure of noxious weed infestations.

Wind Energy Development—Alternative B

Conservation easements purchased from willing sellers on private land would not allow for the development of commercial wind resources on those lands. The easement program would enhance the protection of an intact ecosystem through conservation of wildlife habitat and protection from surface disturbance or development of wind energy infrastructure while providing some financial compensation to landowners through the sale of the easements.

The proposed action would affect only lands on which the Service has acquired a conservation easement. Location and distribution, and sales by willing sellers of wind energy development on adjacent lands without Service conservation easements would not be restricted by the Service. Ongoing, traditional agricultural uses such as livestock grazing would allow compatible ranching to continue. This alternative would maintain open space on a large landscape scale, thereby preserving the rural lifestyle of the area.

Public Use—Alternative A

Landowners would continue to manage public use.

Public Use—Alternative B

Conservation easements purchased on private tracts would not change the landowner's right to manage public access to their property.

Under the expanded easement program private landowners would continue to retain full control over their property rights, including allowing or restricting hunting and fishing on their lands. This is different from the MFWP's block management program, where participating landowners are paid to provide hunter access to their private lands.

Economic Impacts—Alternative A

Under alternative A, the no-action alternative, economic impacts will remain at current levels.

There are currently 4.3 full-time equivalent (FTE) employees at the Rocky Mountain Front CA whose total wages amounted to $151,875, or an average of approximately $35,000 per employee. Assuming employees spend 79 percent of their earnings locally, the existing annual economic impacts related to the employment at Rocky Mountain Front CA is $119,981.

According to Service staff, operating expenditures are $3,076 annually. When combined with employment related economic impacts, the annual baseline economic activity associated with the existing Rocky Mountain Front CA is $123,057.

Economic Impacts—Alternative B

Under alternative B, increases in employment, annual operating expenditures, and easement purchases would contribute to the economic activity that the Benton Lake National Wildlife Refuge Complex generates in the study area. The socioeconomic impact of visitor expenditure is not included in this analysis, as historical public visitor data at conservation areas is not available and visitor increases due to public awareness of conservation activities is difficult to quantify.

According to Service staff, new employment associated with Rocky Mountain Front CA alternative B will increase by 1.67 FTEs to a total

of 6 FTEs. New employee salaries total $91,518, or an average of $54,911 per new employee. Assuming employees spend 79 percent of their earnings locally, the direct socioeconomic impacts of increased employment at Rocky Mountain Front CA is $72,299 annually.

Alternative B would add approximately $29,365 in operating expenditures associated with landowner management, employee training, and travel expenses. These funds are spent on local goods and services and therefore directly impact the economy in the study area.

The direct economic impacts of easement acquisitions are more difficult to attribute to the study area as it is less obvious where landowners may spend this income. In the Rocky Mountain Front CA, easements are worth an estimated $48,875,000. Table 1, presents a summary of annual operating costs and salaries associated with alternative B.

Table 1. Summary of annual operating costs and salaries associated with alternative B.

	Current Impacts	*Alternative B Impacts*
Salaries	$119,981	$192,280
Operations	$ 3,076	$ 32,441
Total Impacts	$123,057	$224,721
Increase above baseline	$101,664	

As shown above, the total direct economic impacts related to the Rocky Mountain Front CA under management alternative B are estimated at $224,721, an increase of $101,664 above baseline impacts.

UNAVOIDABLE ADVERSE IMPACTS

Any adverse effects that may be unavoidable while carrying out alternatives A and B are described on the following page.

ALTERNATIVE A

The adverse impacts of degradation and habitat fragmentation would be expected to be more widespread and prevalent in the project area.

ALTERNATIVE B

No direct or indirect unavoidable adverse impacts to the environment would result from the selection of alternative B. The expanded easement program would not result in unavoidable adverse impacts on the physical or biological environment. The expansion of the conservation area boundary would not, by itself, affect any aspect of land ownership or values.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Any commitments of resources that may be irreversible or irretrievable as a result of carrying out alternatives A and B are described below.

ALTERNATIVE A

There would be no additional commitment of resources by the Service if no action is taken.

ALTERNATIVE B

There would not be any irreversible or irretrievable commitments of resources associated with expanding the conservation easement program, as lands will only be acquired as funding is available. Once easements are acquired, irreversible and irretrievable commitments of funds to protect these lands (such as expenditure for fuel and staff for monitoring) would exist.

SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY

This section describes the short-term effects versus long-term production from the expected actions in alternatives A and B.

ALTERNATIVE A

Ranches may be sold to developers for short-term gains, which would have a negative impact on the long-term biological productivity of the area.

Over the long-term, the costs to counties to sustain development in rural areas could be significant (see the Landownership and Land Use section on page 18).

Wind energy and oil and gas development would provide short-term income gains, but would have a long-term adverse impact on the ecosystem of the Front from subsequent effects of habitat fragmentation.

ALTERNATIVE B

The proposed conservation easement program would maintain the long term biological productivity of the grassland, riparian, forest and tundra ecosystems, including increased protection of endangered and threatened species and maintenance of biological diversity by preserving a large intact functioning system.

The nation would gain the protection of species for future generations of Americans. The public would

gain long term opportunities for wildlife-dependent recreational activities from the continued presence of wildlife in the Front.

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McCown's longspur.

CUMULATIVE IMPACTS

This section describes the cumulative impacts that may result from the combination of expected actions in alternatives A or B, together with other biological and socioeconomic conditions, events, and developments.

Alternative A

Current Service program work such as Partners for Fish and Wildlife would continue along the Rocky Mountain Front. The Service would continue to work cooperatively with landowners to voluntarily improve habitat on private land.

Alternative B

The proposed easement program would have long term positive impacts on wildlife habitat and result in the long term conservation of migratory birds, threatened and endangered species, native plants, and the overall biological diversity of the Rocky Mountain Front.

Within the CoCE, areas that were not suitable for homesteading and settlement were designated as federal lands. Settlers selected the milder and fertile valleys. These areas are currently under the greatest developmental pressure. Because of these threats and pressures, the Service has defined three project areas within the CoCE to concentrate strategic acquisition to (1) maintain biological diversity related to wildlife values, (2) link together existing protected areas, (3) preserve existing wildlife corridors, and (4) protect the large, intact, functioning ecosystem, while maintaining the rural character and agricultural lifestyle of western Montana.

Funding would come primarily from the Land and Water Conservation Fund and potential conservation partners. Table 2 shows the proposed acquisition acreage, type of acquisition tool, focal species, and key partners for each of the three project areas; Blackfoot Valley, Rocky Mountain Front, and Swan Valley.

Table 2. Summary of the project proposal for the Crown of the Continent ecosystem.

Project Area	*Proposed Project Area*	*Potential New Acreage*	*Type of Acquisition Tool*	*Focal Species*	*Key Partners*
Blackfoot Valley Wildlife Management Area Expansion	Expand existing area from 165,000 acres to 824,024 acres	80,000 acres	Conservation easement	Grizzly bear, Canada lynx, bull trout, westslope cutthroat trout, migratory birds	Private landowners, The Blackfoot Challenge, The Nature Conservancy, Trout Unlimited
Rocky Mountain Front Conservation Area Expansion	Expand existing area from 527,000 acres to 918,000 acres	125,000 acres	Conservation easement	Grizzly bear, migratory birds, long-billed curlew, Sprague's pipit, McCown's longspur	Private landowners, The Nature Conservancy, The Conservation Fund, Richard King Mellon Foundation
Swan Valley Conservation Area	New proposed area of 187,400 acres	11,000 acres	Conservation easement and limited fee-title (less than 1,000 acres)	Grizzly bear, Canada lynx, bull trout, migratory birds: Lewis' woodpecker, black tern, trumpeter swan, olive-sided flycatcher	Private landowners, The Nature Conservancy, Trust for Public Lands, Swan Valley Ecosystem Center, Plum Creek Timber Company, Vital Ground, Trout Unlimited, Northwest Connections

5 Coordination and Environmental Review

USFWS

Rocky Mountain Front Advisory Council.

The Service coordinated within the agency, as well as with other federal agencies and local agencies, while developing this EA. Coordination effort for contaminants and hazardous materials is described below.

The Service conducted this environmental analysis under the authority of the National Environmental Policy Act. The resulting document will be distributed to the project mailing list, and copies can be requested.

The analysis and documentation was prepared by a combination of field and regional Service staff, along with partners (see appendix A).

AGENCY COORDINATION

The Service has discussed the proposal to expand the Rocky Mountain Front project area with landowners; conservation organizations; other federal agencies; tribal, state, and county governments; and other interested groups and individuals.

The Service held an open house public meeting to provide information and discuss the proposal with landowners and other interested citizens. Information on the Rocky Mountain Front project area has been made available to county commissioners in each of the three counties included in the project area.

At the federal level, the Service staff has briefed Senators Baucus and Tester, as well as the congressional delegation, and coordinated with representatives from other federal agencies such as the Bureau of Land Management and the U.S. Forest Service. At the state level, Governor Schweitzer's staff, along with the Montana Fish, Wildlife and Parks, was briefed on the project. In addition, the Service provided information to the Blackfeet Tribe on this project.

Non-governmental conservation groups are key to the success of the proposed project. Service staff has coordinated with partner organizations such as The Nature Conservancy, The Montana Land Reliance, and the Rocky Mountain Front Land Owner Advisory Council.

CONTAMINANTS AND HAZARDOUS MATERIALS

Fieldwork for the pre acquisition contaminant surveys would be conducted, on a tract-by-tract basis, prior to the purchase of any land interest. Any suspected problems or contaminants requiring additional surveys would be referred to a contaminants specialist located in the Service's ecological services office in Helena, Montana.

NATIONAL ENVIRONMENTAL POLICY ACT

As a federal agency, the Service must comply with provisions of NEPA. An Environmental Assessment is required under NEPA to evaluate reasonable alternatives that will meet stated objectives, and to assess the possible impacts to the human environment. The EA serves as the basis for determining whether implementation of the proposed action would constitute a major federal action significantly affecting the quality of the human environment.

The analysis for, and development of this EA, facilitated the involvement of government agencies and the public in the decision making process.

LANDSCAPE CONSERVATION COOPERATIVES

The Service will use Landscape Conservation Cooperatives (LCCs) as a means to reach across broad landscapes, involve many partners, and function at a scale necessary to address wildlife adaptation in response to climate change.

The Rocky Mountain Front Conservation Area lies within the U.S. Fish and Wildlife Service's Great Northern Landscape Conservation Cooperative (GNLCC) (figure 5). GNLCC includes the mountain and transitional habitats in regions of Wyoming, Montana, Idaho, and the upper Green River basin in southern Wyoming and small parts of Colorado and Utah, and portions of the Interior Columbia Plateau reaching into Oregon and Washington westward to the Cascade Mountains. The GNLCC also includes the international landscapes of the interior British Columbia and Alberta, Canada, and covers the entirety of the northern Rocky Mountains and mid-continent lowlands of the interior northwest.

The GNLCC has identified priority species including: bull trout, grizzly bear, Lewis' woodpecker, trumpeter swan, cutthroat trout, Arctic grayling, wolverine, willow flycatcher, sage grouse, burrowing owl, and Columbia spotted frog.

The GNLCC works with a variety of science partners including many of which are also supporters of the proposed easement program. The protection of the Front, through a conservation easement program and fee-title acquisition, will significantly contribute to the conservation of GNLCC priority habitats and the federal trust species identified above.

As the GNLCC continues to develop, an overarching priority will be to serve as a convening body to bring together partners to address existing and future issues related to climate change and landscape scale conservation. The Service will work with existing partnerships within the Front to further refine priorities and leverage resources for acquisition.

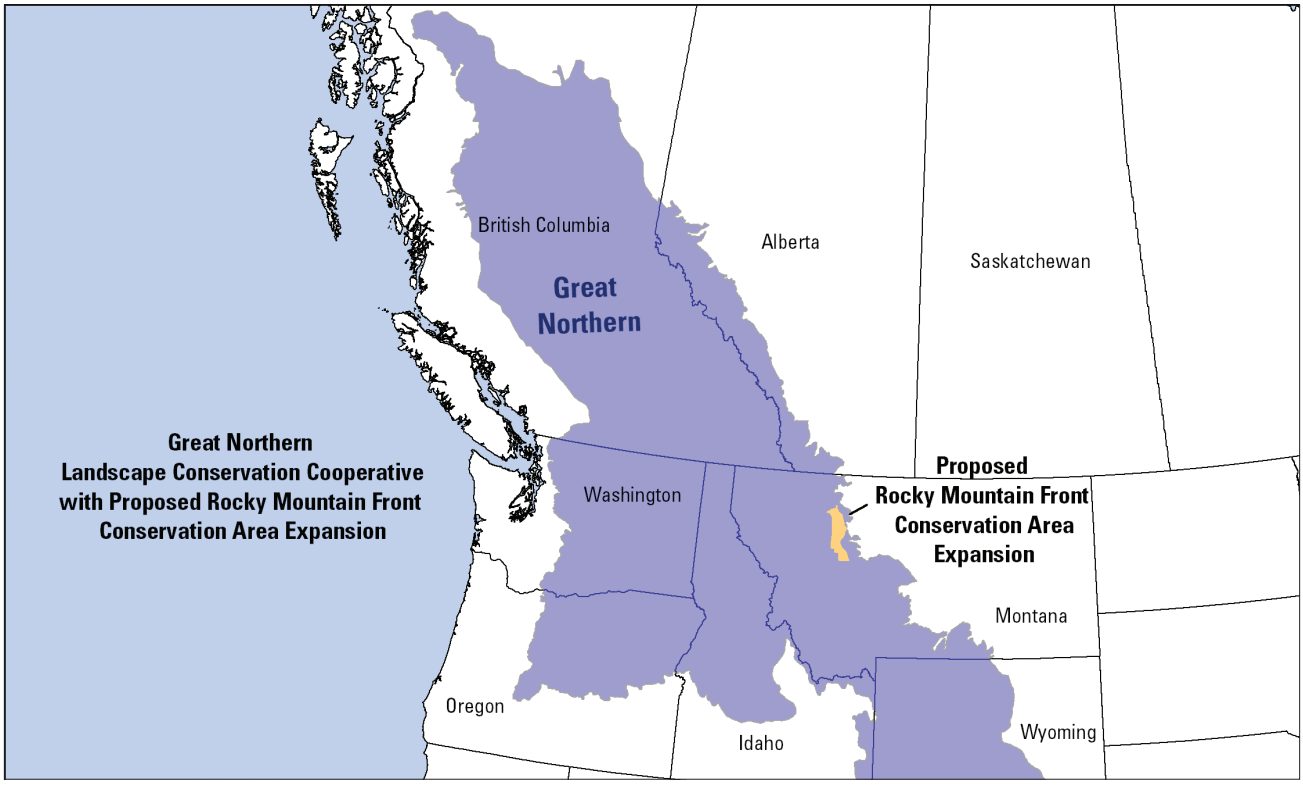


Figure 5. Great Northern Landscape Conservation Cooperative with Rocky Mountain Front Conservation Area expansion.

DISTRIBUTION AND AVAILABILITY

Copies of the EA were sent to federal and state legislative delegations, agencies, landowners, private groups, and other interested individuals.

Additional copies of the document are available from the following offices and websites.

U.S. Fish and Wildlife Service
Benton Lake National Wildlife Refuge Complex
922 Bootlegger Trail
Great Falls, MT 59404-6133
406/727 7400

and

U.S. Fish and Wildlife Service
Division of Refuge Planning
P.O. Box 25486 DFC
Denver, CO 80225
303/236 4378

6 Draft Land Protection Plan

The land protection plan (LPP) provides a general description of the operations and management of the expanded Rocky Mountain Front Conservation Area, as outlined in alternative B, the proposed alternative, of the Rocky Mountain Front CA expansion environmental assessment. The U.S. Fish and Wildlife Service developed this LPP during the planning process to provide local landowners, governmental agencies, and the interested public with a general understanding of the anticipated management approaches for the proposed easement program. The purpose of the LPP is to present a broad overview of the Service's proposed management approach to wildlife and associated habitats, public uses, interagency coordination, public outreach and other operational needs.

PROJECT DESCRIPTION

The Rocky Mountain Front Conservation Area was approved as a unit of the National Wildlife Refuge System in 2005 and is a landscape conservation strategy to protect a unique, highly diverse and largely unfragmented ecosystem in north central Montana. The Front encompasses the massive ecotone formed by the intersection of the western edge of the Northern Great Plains and the Rocky Mountains. Mid-grass prairie, foothills prairie, montane forest, and alpine tundra occur in close juxtaposition, resulting in high species and community diversity.

The expansion encompasses a project area totaling approximately 918,000 acres along the eastern edge of the Crown of the Continent ecosystem and is centered 65 miles northwest of Great Falls, Montana. Lying in the shadow of the rugged Continental Divide, Bob Marshall Wilderness Area and Lewis and Clark National Forest marks its western boundary. The 1.5 million-acre Blackfeet Indian Reservation borders the project to the north and the eastern boundary is dictated by the distribution of fescue grasslands and critical riparian areas. The southern boundary falls approximately along the watershed of the south fork of the Dearborn River. The Service plans to expand the authorized acquisition goal by an additional 125,000 acres, resulting in the approval to acquire conservation easements on up to 295,000 acres of private land within the expanded project boundary.

STRATEGIC HABITAT CONSERVATION

Strategic Habitat Conservation (SHC) is a means of applying adaptive management across large landscapes. SHC involves an ongoing cycle of biological planning, conservation design, conservation delivery, outcome-based monitoring, and assumption-based research. SHC uses science to focus conservation in the right places (USFWS 2008).

In 2004, the Service Partners for Fish and Wildlife program led a statewide, strategic habitat conservation planning effort for focusing work in Montana. The state was divided into three broad geographic regions based on similar habitat types. Within each region, priority federal trust species and 'guilds' were identified. The Montana Habitat and Population Evaluation Team (HAPET) office then assisted with gathering and creating spatially-explicit models and data sets for priority trust resources. In addition, the scientific-based planning efforts of partner agencies and conservation organizations were incorporated. These include the Strategic Habitat Conservation Report prepared by the National Ecological Assessment Team (NEAT); Upper Missouri/Yellowstone/Upper Columbia River Ecosystem Team Focus Area Plan; the Montana Partners Program 1999 Focus Area Plan; Montana's Comprehensive Fish and Wildlife Conservation Strategy Plan; and The Nature Conservancy of Montana's Statewide Conservation Plan. Seven stakeholder meetings were held to gather input from other partners to identify focus areas and develop and appropriate conservation strategy. The 2007 Montana Step-down Strategic Plan identified geographic focus areas, habitat accomplishment targets, and benefit to federal trust species. The comprehensive process ultimately produced ten conservation focus areas for Montana, including the Rocky Mountain Front Conservation Area.

The preparation of this project area land protection plan addresses the four key elements of SHC: planning, design, delivery, and monitoring and research (see figure 6).

Biological Planning

Among conservation biologists, the Front is ranked in the top 1 percent of wildlife habitat remaining in the United States (The Nature Conservancy 1999).

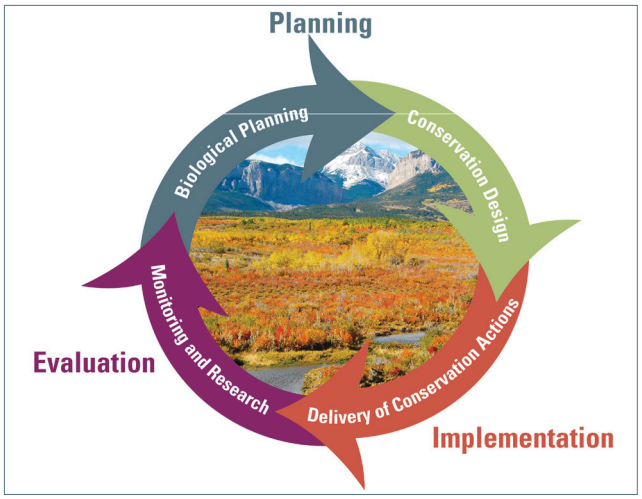


Figure 6. The elements of strategic habitat conservation.

Virtually every wildlife species found in this area upon the arrival of Lewis and Clark in 1806, with the exception of free ranging bison, remains today in relatively stable or increasing numbers. In addition, it is the only remaining area in the continental United States with a complete, intact assemblage of large mammalian carnivores, including the grizzly bear, gray wolf, wolverine, pine martin, and Canada lynx.

Three federally listed mammals would benefit from the proposed habitat protection. A stable population of grizzly bears occurs throughout the area. Gray wolves have migrated back into the Front from the Canadian Rockies and several packs have established home ranges west of the project boundary in Bob Marshall Wilderness. The Front also supports one of the largest populations of Canada lynx in the lower 48 states.

Riparian areas, wetland and large expanses of native prairie provide important habitats for migratory birds. There are approximately 240 species of birds that use the Front including species of concern such as the harlequin duck, trumpeter swan, ferruginous hawks, peregrine falcons, chestnut-collared longspurs, Sprague's pipits and long-billed curlews.

Focal Species

In order to strategically conserve habitat along the Front, the Service chose the grizzly bear as a key focal species. Focusing on grizzly bears is likely to capture the habitat needs of several of the other key trust species. The Service is currently studying how waterfowl use wetland and upland habitat along the Front, and when that study is complete it will be added to the grizzly bear information to update the conservation strategy.

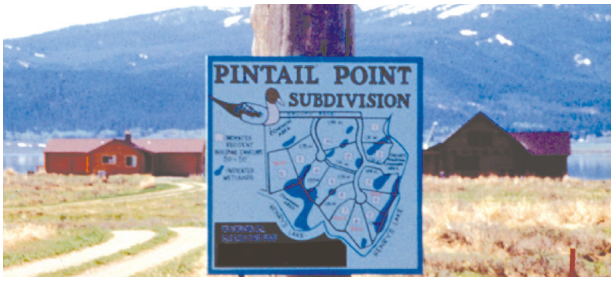
Population Objectives for Grizzly Bear

The Rocky Mountain Front CA is part of the Northern Continental Divide Ecosystem recovery zone. The Grizzly Bear Recovery Plan (USFWS 1993) specifies multiple thresholds that must be maintained before the grizzly bear population in the NCDE can be considered recovered. For the NCDE, ten females with cubs inside Glacier National Park and twelve females with cubs outside GNP over a running 6-year average both inside the recovery zone and within a 10 mile area immediately surrounding the recovery zone, excluding Canada; Twenty-one of twenty-three bear management units (BMUs) occupied by females with young form a running 6-year sum of verified sightings and evidence, with no two adjacent BMUs unoccupied; and known human-caused mortality not to exceed 4 percent of the population estimate based on the most recent 3-year sum of females with cubs.

Limiting Factors

Increasing urbanization causing increased fragmentation of habitat from housing developments and associated road development is a major threat to the Rocky Mountain Front and the entire CoCE. For wide-ranging species, such as grizzly bears, unplanned development leads to loss of habitat connectivity within the project area and, on a larger scale, between the CoCE and other historic or potential ranges.

Riparian zones, for example, provide excellent habitat and cover for bears moving throughout the watersheds, but they are also among the most desired locations for building sites (Lolo National Forest 2003). An increase in development also leads to more frequent conflicts between bears and people due in large part to the increased presence of bear attractants. Human garbage, dog food, and bird seed can condition and habituate bears leading to more interactions and conflicts with people. These factors can lead to human-caused grizzly bear mortality, which in turn results in a decrease in grizzly bear reproduction and loss of population and genetic



USFWS

Subdivision development impacts habitat connectivity.

viability. More than 17% of the NCDE is private land and as estimated 71% of bear-human conflicts and bear deaths occur on these private lands (Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator, University of Montana, Missoula, MT; personal interview in person, 11 June 2008). Minimizing attractants on private lands and limiting subdivision are keys to reducing this threat to grizzly bears.

Key Habitats for Protection

In order to identify which habitats along the Front are highest priority for grizzly bears, the Service used a model developed specifically for the eastern side of the NCDE recovery zone by a multi-agency working group. The NCDE model uses logistic regression in calculating seasonal resource selections functions for grizzly bear habitat (Mace et al. 1999). The model considers several characteristics of habitat, disturbance/human activity and telemetry locations of grizzly bears.

Conservation Design

The design stage of the SHC process involves assessment of the current state of the system, formulation of habitat objectives, and determination of priority areas.

Current State of the System

In recent years, the mortality threshold for grizzly bear recovery in the NCDE has been exceeded, but the significance of these numbers cannot be evaluated until there is accurate information on population size. Through the use of genetic analysis on collected hair samples, researchers were able to determine that an estimated 765 grizzly bears make their home in the Northern Continental Divide. Of those 765, researchers estimate 470 bears are females. Female bears were also found throughout the entire study area, indicating a good reproductive potential for the species. Analysis of hair samples has allowed researchers to determine the genetic health of the grizzly bear population. Although overall genetic variation indicates a healthy population, it is only one piece of the puzzle that managers need for the recovery of grizzlies in the NCDE to be successful (Kendall et al 2009).

Formulation of Habitat Objectives

Currently, there are approximately 600,000 acres of unencumbered private land in the proposed Rocky Mountain Front CA. With the current levels of development and fragmentation along the Front, grizzly bear populations appear stable; however, the pressure of human-cause mortality on grizzly bears is higher than acceptable for recovery across the NCDE. How much more fragmentation or development could occur without affecting population stability or significantly effect grizzly bear mortality is unknown. Given that conserving all of the remaining private land with easements to prevent additional development is not a reasonable or desired goal, especially around the existing population centers of Augusta, Choteau, Dupuyer, and Bynum, the Service has set a goal to protect 295,000 acres of existing private lands. Long-term monitoring of grizzly bears will be conducted and the goal of 295,000 acres will be periodically re-evaluated.

Buffer areas will be maintained around communities to provide rural communities the ability to meet their community development goals and objectives.

Priority Areas

The Service is proposing to expand the Rocky Mountain Front CA by purchasing conservation easements to reduce future impacts of development and habitat fragmentation. Typically, the Service will purchase an easement for the entire ownership of a landowner, therefore the priorities for the Rocky Mountain Front CA Land Protection Plan are based on the best available data on existing private ownerships.

The Service and its partners recognize that there is tremendous opportunity to expand existing blocks of conservation lands within the project area. This includes state or federal fee-title ownership and private lands already under conservation easement. This also includes conservation-oriented, nongovernmental organization ownership such as The Nature Conservancy, and the Boone and Crockett Club.

The project area has been split into three priority zones (figure 7) for acquiring conservation easements using the following criteria:

- biological significance to grizzly bears (as umbrella species for other species)
- connectivity to other protected lands

Priority 1 includes areas within the project with the highest quality grizzly bear habitat and the greatest opportunity for connectivity. The eastern boundary was based generally on the eastern edge of the NCDE grizzly model. Key anchors, which can be expanded upon to increase connectivity, are the state wildlife management areas, TNC lands, Lewis and Clark National Forest, Boone and Crockett lands, and private lands with existing conservation easements.

Priority 2 includes other important grizzly bear habitat and some opportunities for connectivity. It also includes areas where other funding sources are available to purchase conservation easements.

Priority 3 includes the remaining areas within the project area. This zone is part of the Front ecoregion, and contains large continuous blocks of native prairie. Priority 3 also includes the opportunity to protect

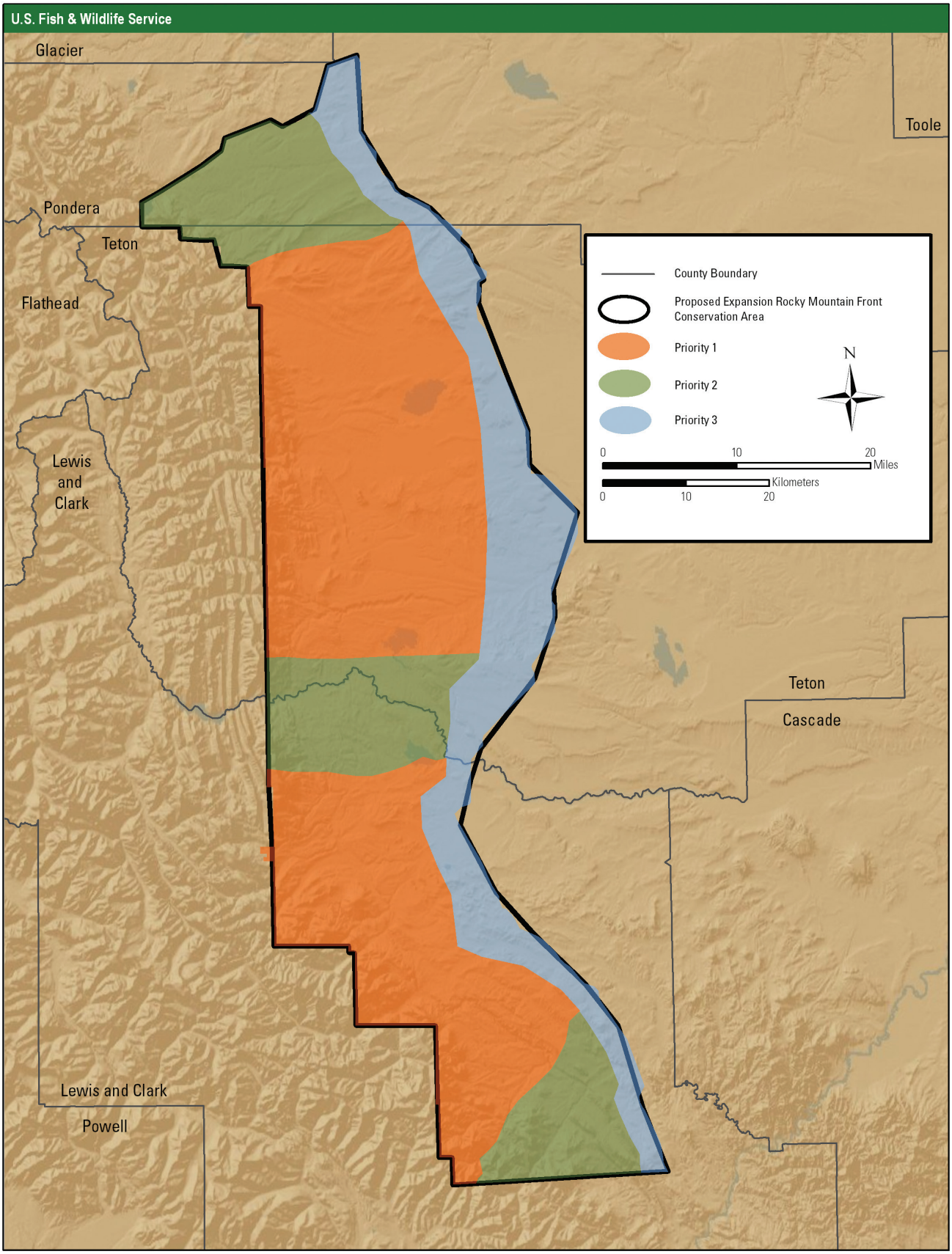


Figure 7. Rocky Mountain Front Conservation Area expansion priorities.

important riparian corridors for grizzlies across the entire project area.

These priority areas will be regularly reevaluated and may change as data on the habitat needs and limiting factors for focal species in the Rocky Mountain Front CA become available. The Monitoring and Research section that follows provides further details on this feedback loop.

Conservation Delivery

On approval of a project expansion, habitat protection would occur through the purchase of conservation easements. It is the long-established policy of the Service to acquire minimum interest in land from willing sellers to achieve habitat acquisition goals.

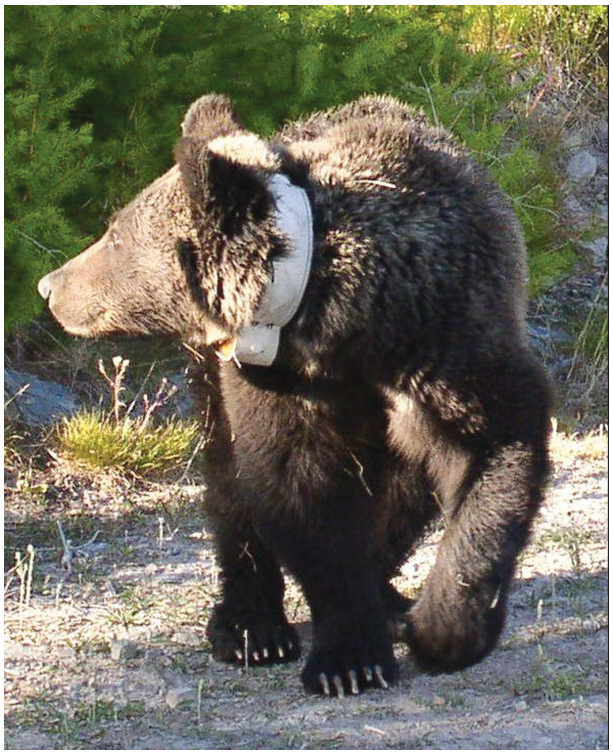
The acquisition authority for the proposed action is the Fish and Wildlife Act of 1956 (16 U.S.C. 742 a-742j). The federal money used to acquire conservation easements from the Land and Water Conservation Fund are derived primarily from oil and gas leases on the outer continental shelf, motorboat fuel tax revenues, and sale of surplus federal property. There could be additional funds to acquire lands, waters, or interest therein for fish and wildlife conservation purposes through congressional appropriations, the Migratory Bird Conservation Fund, the North American Waterfowl Conservation Act funds, and donations from non profit organizations.

The basic considerations in acquiring an easement interest in private land are the biological significance of the area, existing and anticipated threats to wildlife resources, and landowner interest in the program and size of the parcel. The purchase of conservation easements would occur with willing sellers only and be subject to available funding.

Monitoring and Research

As the Rocky Mountain Front Conservation Area project develops and conservation easements are purchased, grizzly bears will continued to be monitored. The U.S. Fish and Wildlife Service, Montana Fish, Wildlife and Parks and U.S. Geological Survey (USGS) all have active grizzly bear monitoring and research projects. MFWP, in particular, is focused on developing a science-based population monitoring program that provides the information necessary to successfully manage bears in western Montana (Dood et al. 2006). Specifically, MFWP will monitor a representative sample of twenty-five or more adult females in the NCDE to establish population trends, MFWP will use verified sightings to document changes in bear distribution and linkage areas used, especially by female bears. MFWP will monitor mortality including timing and causes and gather survivorship data in cooperation with other agencies. In addition, results from the 2004 USGS NCDE Grizzly Bear DNA project will assist MFWP with bear population size estimation, distribution, and population trends (USGS 2004).

Grizzly bears and bull trout have been identified as a focal species for the Great Northern Landscape Conservation Cooperative. The GNLCC was established, in part, to foster cooperation between agencies and support monitoring and research where there are common interests. Continual evaluation of grizzly bear population trends and habitat use will be used to evaluate and refine conservation efforts on the ground within the GNLCC.



© MFWP

Collared grizzly bear movement data is used to assess populations.

COORDINATION

The proposed expansion of the Rocky Mountain Front Conservation Area has been discussed with landowners, conservation organizations, government officials, and other interested groups and individuals. The proposal and associated EA address the protection of native habitats, primarily through acquisition of conservation easements by the Service under the direction of the National Wildlife Refuge System.

An open house public meeting was held in Choteau, Montana on May 17, 2010. Public comments were taken to identify issues to be analyzed for the proposed project.

Approximately twenty-nine landowners, citizens, and elected representatives attended and most expressed positive support for the project.

In addition, the Service's field staff has contacted local government officials, other public agencies, sportsman and woman groups, and conservation groups, all of which have expressed an interest in and a desire to protect the Front from the pressures brought about by rural subdivision.

SOCIAL AND CULTURAL CONSIDERATIONS

The economy of the Front is primarily agrarian and cattle ranches dominate the private lands within the project area. Ownerships are relatively large in size (2,000 to 25,000 acre blocks) which helps maintain this intact landscape.

The human population is sparse and towns are widely scattered. Private lands are used for hunting, with elk-hunting season bringing the most people to the Front. A seasonal influx of tourists is attracted to the Front for opportunities to bird watch, mountain-bike, horseback ride, backpack, camp, canoe, fish, and view archeological and paleontological resources.

Choteau and Augusta are 'gateway' communities for recreational activities on the Lewis and Clark National Forest, Bob Marshall and Scapegoat wildernesses, and Glacier National Park.

Historically, residents and county governments have been concerned about the amount of taxes paid to the counties when land protection programs such as this occur. Because this project is a conservation easement program, the land enrolled does not change hands and taxes paid to the counties by the landowner are not affected.

Over the short-term, money paid by the Service for a conservation easement becomes another source of income for the landowner, with a portion of those dollars likely to be spent locally in the region. In addition, development of rural landscapes often leads to increased demand for services and higher costs to rural counties. These costs likely would not be incurred if the rural landscape were to remain intact.

In addition, the use of conservation easements precludes the necessity for county zoning within the program area. Proximity of protected lands also tends to enhance the property value of adjoining lands.

The ranchers' livelihood depends on natural resources (grass, water, and open space). The key to protecting the Front lies primarily in sustaining the current pattern of ranching and low-density use. The easement program is not expected to cause any significant changes to the socioeconomic climate along the Front, but rather, would help sustain the current condition.

Appendix A

List of Preparers and Reviewers

Author's Name	*Position*	*Work Unit*
Kathleen Burchett	Project leader	USFWS, Benton Lake National Wildlife Refuge, Great Falls, MT
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Randy Gazda	Wildlife biologist	USFWS, Partners for Fish and Wildlife, Great Falls, MT
Toni Griffin	Planning team leader	USFWS, Region 6, Division of Refuge Planning, Lakewood, CO
Jim Lange	Wetland district manager	USFWS, Benton Lake National Wildlife Refuge, Great Falls, MT
Gary Sullivan	Realty supervisor	USFWS, Montana Acquisition Office, Great Falls, MT

Reviewer's Name	*Position*	*Work Unit*
Laurel Bowen	Writer-editor	TBC Solutions, Clinton, TN
David Lucas	Chief of planning	USFWS, Region 6, Division of Refuge Planning, Lakewood, CO

Appendix B

List of Plants and Animals

PLANTS

SCIENTIFIC NAME	COMMON NAME
Populous tremuloides	Aspen
Pseudotsuga menziesii	Douglas-fir
Festuca idahoensis	Idaho fescue
Pinus flexilis	Limber pine
Pinus ponderosa	Ponderosa pine

FISH

SCIENTIFIC NAME	COMMON NAME
Thymallus arcticus	Arctic grayling
Phoxinus eos	Northern redbelly dace
Oncorhynchus clarki lewisi	Westslope cutthroat trout

AMPHIBIANS AND REPTILES

SCIENTIFIC NAME	COMMON NAME
Pseudacris maculata	Boreal chorus frog
Rana luteiventris	Columbia spotted frog
Thamnophis sirtalis	Common garter snake
Phrynosoma hernandesi	Greater short-horned lizard
Ambystoma macrodactlyum	Long-toed salamander
Rana pipiens	Northern leopard frog
Chrysemys picta	Painted turtle
Thamnophis radix	Plains garter snake
Spea bombifrons	Plains spadefoot
Thamnophis elegans	Terrestrial garter snake
Ambystoma tigrinum	Tiger salamander
Crotalus viridus	Western rattlesnake
Bufo boreas	Western toad

MAMMALS

SCIENTIFIC NAME	COMMON NAME
Taxidea taxus	Badger
Castor canadensis	Beaver
Ovis canadensis	Bighorn sheep

SCIENTIFIC NAME	COMMON NAME
Bison bison	Bison
Lynx canadensis	Canada lynx
Cervus elaphus	Elk
Canis lupus	Gray wolf
Ursus arctos horribilis	Grizzly bear
Spermophilus elegans	Ground squirrel
Onychomys spp., *Peromyscus* spp., *Reithrodontomys* spp.	Mice
Mustela vison	Mink
Alces alces	Moose
Felis concolor	Mountain lion
Odocoileus hemionus	Mule deer
Ondatra zibethicus	Muskrat
Antilocapra americana	Pronghorn
Lutra canadensis	River otter
Sorex spp.	Shrews
Vulpes velox	Swift fox
Microtus spp.	Voles
Odocoileus virginianus	White-tailed deer
Gulo gulo	Wolverine

BIRDS

SCIENTIFIC NAME	COMMON NAME
Falco peregrinus	American peregrine falcon
Ammodramus bairdii	Baird's sparrow
Haliaeetus leucocephalus	Bald eagle
Chlidonias niger	Black tern
Dolichonyx oryzivorus	Bobolink
Athene cunicularia	Burrowing owl
Calcarius ornatus	Chestnut-collared longspur
Buteo regalis	Ferruginous hawk
Aquila chrysaetos	Golden eagle
Histrionicus histrionicus	Harlequin duck
Calamospiza melanocorys	Lark bunting
Ammodramus leconteii	Le Conte's sparrow
Melanerpes lewis	Lewis' woodpecker
Numenius americanus	Long-billed curlew
Limosa fedoa	Marbled godwit
Circus cyaneus	Northern harrier
Charadrius melodus	Piping plover
Podiceps grisegena	Red-necked grebe
Buteo jamaicensis	Red-tailed hawk
Grus canadensis	Sandhill crane

SCIENTIFIC NAME	COMMON NAME
Asio flammeus	Short-eared owl
Chen caerulescens	Snow goose
Anthus spragueii	Sprague's pipit
Buteo swainsoni	Swainson's hawk
Cygnus buccinator	Trumpeter swan

Appendix C

List of Endangered and Threatened Species

MAMMALS

SCIENTIFIC NAME	COMMON NAME
Lynx canadensis (T)	Canada lynx
Canis lupus (E)	Gray wolf
Urus acrctos horribilis (T)	Grizzly bear

BIRDS

SCIENTIFIC NAME	COMMON NAME
Haliaeetus leucocephalus (T)	Bald eagle
Charadrius melodus (T)	Piping plover

(E) Endangered—listed in the Federal Register as being in danger of extinction
(T) Threatened—listed in the Federal Register as likely to become endangered within the foreseeable futur

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