

Draft LPP Chapter 3—Threats to and Status of Resources

Threats to the Resources

The diverse habitats in the Bear River watershed support a variety of fish, mammal, reptile, and amphibian species as well as a large number of resident and migratory bird species. The Bear Lake (with Oxford Slough Waterfowl Production Area), Bear River, and Cokeville Refuges provide habitat for waterfowl, wading birds, shorebirds, and landbirds that migrate through these refuges on their way to and from Canada and Alaska. More than 270 different wildlife species have been identified using the habitats associated with the three refuges. The Bear River watershed provides linkages and migration corridors for seasonal movements of wildlife between various habitats within the watershed as well as between other protected lands and ecosystems in the region.

Historically, the abundant wildlife, availability of water, diverse vegetation, productive soil, and favorable topography found in riparian areas attracted both Native Americans and early Euro-American settlers to these areas. As a result, a high percentage of riparian habitat is privately owned today. Most communities in the Bear River watershed are located near riparian zones, which are used for agriculture, recreation, travel, water development, and housing (Wyoming Game and Fish Department 2010). These types of development are expected to continue to occur in riparian corridors and valleys within the watershed. An increase in development along riparian areas will likely remove areas of connectivity between wetland and upland habitat types. Stream quality could become degraded from continued development, adversely affecting Bonneville cutthroat trout, leatherside chub, and many other native fish species. With increasing development, more barriers to fish passage are likely to be constructed.

Cache County is one of the fastest growing counties in Utah, with a 64 percent population increase since 2000. With nearly 83,000 residents, Bannock County has the largest population of the Idaho counties in the watershed and has grown by 10 percent since 2000. Lincoln County, home to the Cokeville Meadows National Wildlife Refuge, has grown by 24 percent since 2000. Just to the north of Cokeville are the Star Valley and the Teton Valley, which



Two willets keep a watchful eye over a nearby wetland.

© Keith Penner

span the Idaho–Wyoming border into Teton County, Idaho, and Teton County, Wyoming. The populations in Teton County, Idaho, and Teton County, Wyoming, have increased by 70 percent and 17 percent, respectively, since 2000.

With projected development patterns (Utah State University 2010), ground-water aquifers will receive more demand, resulting in potential degradation to the hydrology of some wetland areas and affecting the three refuges in the Bear River watershed.

By planning for future expected development and other changes in land use, we can maintain the quality and quantity of habitat that more than 270 wildlife species depend on.

Effects on the Physical Environment

The physical environment comprises the water and soil resources and climate of the Bear River watershed. In addition, climate change is discussed. Anticipated effects on these features are described.

Water and Soil Resources

Conservation easements under the proposed conservation area would hold the historical water rights on the easement property and not allow any water rights to be sold or otherwise separated from the property. The easements would not allow changes to or alterations in points of diversion, timing, or place of use for any water rights. Historical water use would be maintained in accordance with current practices.

Water resources on up to 920,000 acres of conservation easements would be protected from increased nonpoint source pollution from residential subdivisions, commercial development, and draining of wetlands, all of which are prohibited under the proposed easement program. A long-term commitment to keeping vegetative cover with minimal soil disturbance would help conserve local microclimate patterns and soil processes. By limiting development on some prime agricultural and wildlife habitat areas,

communities would be ensuring future ground-water supplies and reducing the need to develop more water resources to meet growing demand (Toth 2010). This protection would improve water resources throughout the Bear River watershed as well as for the three refuges. This alternative may also negatively affect local mitigation efforts by reducing ways to conserve and store carbon through land protection and habitat restoration.

Climate

By protecting habitat, reducing fragmentation, and keeping connectivity, the proposed action would help maintain the ability of native species and ecosystems to adapt to a changing climate. Climate change mitigation efforts would be positively affected by this alternative because carbon sequestration now provided by native vegetation would be conserved.

While exact temperature and precipitation changes and habitat and wildlife response to those changes are unknown, it is clear that changes are coming to the Bear River basin. Keeping adequate densities of wetlands, robust riparian corridors, and open spaces will become increasingly important to allow fish and wildlife to adapt to a changing environment.



USFWS

Bear River South of Woodruff Narrows, Wyoming

Historically, the destruction of wetlands through changes in land use has had the largest effects on the carbon fluxes and consequent radiative forcing (the measure of the amount that the Earth's energy budget is out of balance) of North American wetlands. The primary effects have been a reduction in their ability to sequester carbon (a small to moderate increase in radiative forcing), oxidation of their soil carbon reserves upon drainage (a small increase in radiative forcing), and reduction in methane emissions (a small to large decrease in radiative forcing).

Effects on the Biological Environment

This section describes the anticipated effects on habitat and wildlife. The Bear River watershed's habitat ranges from river and the adjacent riparian areas to wetland, grassland, and shrubland. This section also describes effects on the wildlife and species of concern that use these habitats.

Habitat and Wildlife

The availability of large, intact areas of diverse habitat types is essential for various wildlife species. Habitat connectivity provides a migration corridor between winter and summer ranges for mule deer, pronghorn, and elk; between breeding, nesting, and brood-rearing areas for birds including neotropical migrants; and between spawning and rearing habitat for native fish. Connectivity between different habitat types increases wildlife population resiliency by facilitating movement to new areas during environmental challenges such as drought or flooding as well as by allowing an exchange of individuals and genes from different subpopulations. Privately owned lands next to the Bear Lake, Bear River, and Cokeville Meadow Refuges provide connectivity between the refuges and other Federal lands, thus creating a larger block of permanently protected wildlife habitat. Through protection of important migration corridors and habitats, the proposed action would have long-term beneficial effects on fish and wildlife populations.

Riverine Areas, Riparian Areas, and Wetland

The Bear River is the lifeblood of the three refuges located along its course. Large populations of waterfowl, shorebirds, and native fishes depend on the refuges and adjacent habitat areas to meet



A white-faced ibis foraging in a shallow wetland.

their breeding, migration, and nutritional needs. The proposed action would protect privately owned wetlands, irrigated meadows, and fields that now provide important wildlife habitat. This would help maintain healthy riparian areas that recharge aquifers, reduce soil erosion, filter chemical wastes, moderate stream temperatures, and buffer water loss from upland drainages.

Protecting essential travel corridors for wildlife by maintaining riparian areas will become an increasingly important part of effective mitigation plans for human development as well as climate change (“Wyoming State Wildlife Action Plan” 2010). Additionally, connectivity among different riverine habitat types is important for allowing fish access to suitable spawning and rearing grounds while providing adequate main stem habitat for adult growth and survival.

Conservation of riparian areas would benefit a variety of species of special conservation concern that depend on riparian habitat, such as Lewis's woodpecker and many neotropical migratory birds.

Upland, Grassland, and Shrubland

The proposed action would conserve large patches of sagebrush that occur on the easements that are targeted for acquisition. Keeping and restoring existing large patches of sagebrush would create a mosaic of sagebrush habitats that would be an important step toward reversing the population declines of sage-grouse and other sagebrush-dependent species, such as sage sparrow, sage thrasher, and Brewer's sparrow (Hanser and Knick 2011).

Species of Special Concern

With the additional habitat protection measures in the watershed under the proposed action, there is a

greater likelihood that common species can be kept common. There are relatively few species with Federal status in the Bear River watershed. Under the proposed action, there would be a reduced probability of more species needing to be added to the State lists of conservation concern or to be federally listed as threatened or endangered.

The effects of the proposed easement program on endangered, threatened, and candidate species vary by the specific area under consideration because of differences in species' ranges, their habitat affinities and restrictions, and elevations.

Effects on Cultural Resources

As a Federal agency, the Service is required to comply with numerous laws pertaining to cultural resources including the National Historic Preservation Act (16 U.S.C. 470 et seq., Public Law 89-665); the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm, Public Law 96-95), as amended; and the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., Public Law 101-601). Although conservation easements would preclude or limit most forms of surface disturbance, these requirements may not apply to or be fully effective in protecting cultural resources on private lands with easements. The proposed action provides more protection to cultural resources than does the no-action alternative.

Effects on the Socioeconomic Environment

This section describes the anticipated effects on landownership, land use, public use, and development.

Landownership and Land Use

The proposed action would affect only lands where the Service has acquired a conservation easement. The location, distribution, and sale of development rights by landowners on adjacent lands without Service easements would not be affected. Traditional agricultural uses such as ranching, grazing, and haying would be allowed to continue on easement lands.

Because this alternative would keep open space on a large scale, it would preserve a rural lifestyle and associated tourism and economic activities. The purchase of an easement would not result in a transfer

of land title, so private landowners would continue to pay property taxes.

Because the sale of conservation easements provides landowners with more revenue, easement purchases may inject new money into local economies. Landowners may spend some percentage of this money on such items as purchasing new real estate, consumer goods, or local services. This spending activity would directly affect local industries such as construction and various service sectors.

Conservation easements may help keep regional character by protecting working landscapes and a traditional agricultural way of life. Land with historical commercial uses such as ranching, forestry, and farming is often compatible with or beneficial to wildlife refuge objectives (Jordan et al. 2007, Rissman et al. 2007). Conservation easements provide financial benefits for landowners that enable them to preserve the natural and historic value of their farm, ranch, and open space lands and to pass this legacy on to their children and grandchildren.

The easement program would have no effect on tribal jurisdiction or tribal rights, because it is outside of reservation lands and deals only with willing private sellers.

Public Use

Conservation easements bought on private tracts would not change the landowners' rights to manage public use and access to property. Under the proposed easement program, landowners would keep full control over private property rights, including hunting and fishing on their lands. Under the proposed action, wildlife-dependent recreational opportunities such as hunting, fishing, and wildlife observation would not be diminished because of declining wildlife populations. According to the "2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation," approximately 2.9 million residents took part in wildlife-associated recreation activities in Idaho, Utah, and Wyoming in 2006. It was estimated that residents and visitors spent \$3.3 billion on wildlife-associated recreation activities in the three States combined (USFWS 2008a).

Development

The proposed action would protect up to 920,000 acres of wetland, riparian, grassland, and shrubland habitat from more fragmentation and loss by precluding surface occupancy and infrastructure development.

Subsurface Development

Conservation easements typically do not affect subsurface estates (mineral, oil, and gas deposits) because the Service only acquires rights associated with surface ownership. The proposed easement program would preclude mining or oil and gas exploration or development requiring surface occupancy on easement land only when the landowner owns the subsurface rights. In many places, including in the Bear River watershed, the subsurface estate has been severed from surface ownership, and the landowner does not own the subsurface rights. In these cases, the easement that the Service acquires from the landowner is junior to the subsurface rights.

For easements that have been put in place on land where the owner has not sold or leased the mineral or subsurface estates (mineral, oil, and gas deposits), the Service easement would be senior to any subsurface interests later acquired by a developer. Because development of the mineral estate could significantly affect the resources that the Service is attempting to protect, the Service would require that a potential developer access minerals from off site as a term of the easement.

Commercial and Residential Development

The Service's easement program would enhance the protection of wildlife species dependent on unfragmented upland habitat through protection from surface disturbance or development of commercial or residential infrastructure. This program would also provide financial compensation to landowners through the sale of easements, offsetting potential revenue loss from the sale of development rights or leases. The proposed project would affect only lands on which the Service has acquired a conservation easement. Development on adjacent lands that do not have Service conservation easements would not be limited.

Land acreage with potential for wind energy development is relatively low in Idaho (1.67 percent) and Utah (1.19 percent), while Wyoming has a higher development potential at 43.58 percent (National Renewable Energy Laboratory 2011). Most land with potential for wind energy development in each State would still be available under the proposed action.

Designated open space and protected natural areas can increase surrounding property values (see McConnell and Walls 2005 for a comprehensive review). The value of open space for nearby property values would vary, depending on landscape characteristics and proximity to the conserved area (Kroger 2008). Permanence of the open space also influences property values. Typically, open space that

is permanently protected—such as refuge lands and lands protected with perpetual conservation easements—would generate a higher enhancement value to local properties than land that has the potential for future development (Geoghegan et al. 2003). Location and demographic factors in the region can also influence the relative level of property enhancement value. For instance, open space may generate larger amenity premiums for property in more urbanized areas and where median incomes are higher (Netusil et al. 2000, Vrooman 1978, Phillips 2000, Crompton 2001, Thorsnes 2002). Private lands protected by conservation easements benefit residents through increased biodiversity, recreational quality, and hunting opportunities on adjacent publicly accessible wildlife refuges and on some private lands (Rissman et al. 2007).

Other Conservation Impacts

Under the proposed action, wetland, riparian, grassland, and shrubland habitats would remain intact. Because this alternative keeps intact wildlife habitat on working lands through conservation easements, ecosystem services would be available for local residents (Millennium Ecosystem Service Assessment 2005).



American avocets are common throughout the watershed.

Ecosystem services such as pollination, water purification, nutrient cycling, carbon sequestration, soil conservation, and control of pest insect populations by birds are often unrecognized, or are considered “free.” These services would not be provided in areas that have undergone residential or commercial development.

The proposed action would help protect valuable ecosystem services as shown in figure LPP-7. Furthermore, it would prevent the prohibitively high cost of future habitat restoration.

Wetlands in both native and restored habitat had the greatest value for each of the ecosystem services examined. The most valuable ecosystem services that wetlands provided were disturbance regulation and nutrient cycling. The greater value per area of wetlands did not translate to an equally large disparity

in total value because the total area of wetlands is substantially less than that of terrestrial ecoregions within the United States (Dodds et al. 2008).

Conservation easements on private lands would strengthen habitat resiliency and provide opportunities for wildlife movement and adaptation for years to come.

Potential benefits to public safety are another benefit of conservation easements that limit development in wetlands and riparian areas. Some areas within the Bear River watershed have a high to moderate likelihood of a natural disaster that could cause harm to both the residents and structures in these areas. The major hazards that are located within the watershed include flooding, landslides, earthquakes, and soils that are susceptible to liquefaction (Toth 2010).

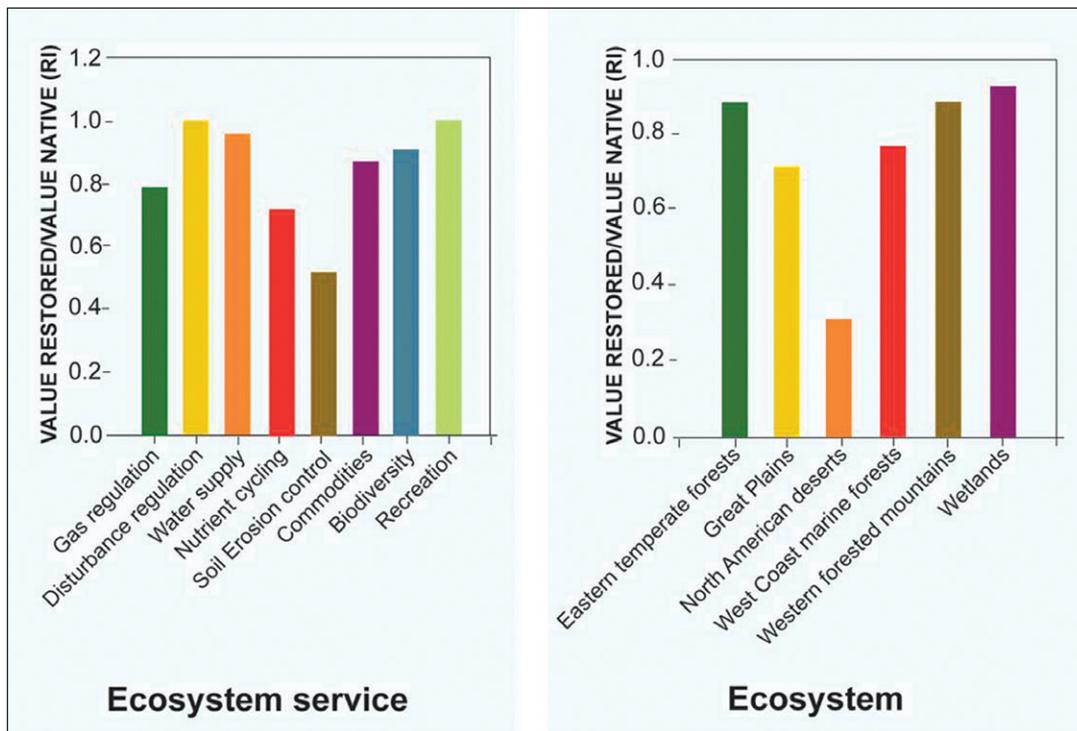


Figure LPP-7. Chart of the relative native and restored benefits of ecosystem goods and services. Source: Dodds et al. 2008.

Note: The relative value is determined as the ratio of estimated benefits derived from native and restored acreages per year.

Unavoidable Adverse Impacts

No direct or indirect, unavoidable, adverse impacts to the environment would result from the selection of the proposed action. The easement program would not result in unavoidable adverse impacts on the physical or biological environment. The selection of an approved boundary would not, by itself,

affect any aspect of landownership or values. Management of lands to protect wildlife habitat would benefit ranching operations, but would limit future development options for landowners.

Additional conservation easements acquired by the Service could have unavoidable minimal to moderate adverse effects on the local economy by precluding new mining oil, gas, wind, and residential development on easement lands. However, these

impacts would be offset in part by protecting these areas from adverse impacts to watersheds, which are important to aquifer recharge and water quality, from further degradation or loss of native ecosystems, and from conversion of prime agricultural lands.

Irreversible and Irrecoverable Commitments of Resources

There would not be any irreversible or irretrievable commitments of resources associated with establishing the conservation easement program; however, any easements that are acquired with Land and Water Conservation Funds would require an irretrievable and irreversible commitment of resources (such as expenditures for fuel and staff for monitoring) for the long-term administration of the easement provisions.

The introduction of new residential and commercial infrastructure to the Bear River watershed would be greatly restricted on conservation easement lands, so this alternative would reduce the likelihood of an irretrievable loss of habitat associated with development. The irretrievable loss of habitat caused by the development of new residential and commercial infrastructure in the Bear River watershed that would eventually lead to an irreversible loss of both species and habitat could be minimized under the proposed action.

With the protection measures provided by the wetland conservation easements, some of the current water uses and applications could be retained and irreversible impacts to wetlands and riparian ecosystems related to water loss could be reduced or avoided.

Short-Term Use versus Long-Term Productivity

This section describes the short-term effects versus long-term productivity from the proposed action.

The increased ability to acquire perpetual conservation easements would conserve important wetland and upland areas and reduce long-term loss and fragmentation of important habitats. These habitats are important for a variety of wildlife species, including threatened and endangered species.

The proposed conservation easement program would help maintain the Bear River watershed's long-term biological productivity, biological diversity, linkages, and migration corridors to other ecosystems and adjacent large blocks of protected land.

The ability to sell conservation easements would provide an immediate economic benefit to participating landowners while keeping the long-term agricultural heritage and productivity of the area.

These habitat types would be preserved not only for the species that now depend on them, but also so that future generations of Americans may enjoy and benefit from them. The public would retain long-term opportunities for wildlife-dependent recreational activities.

Cumulative Impacts

Cumulative impacts are defined by the National Environmental Policy Act as the impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR § 1508.7).

This section describes the cumulative impacts on the environment that may result from the combination of reasonably foreseeable actions with other biological and socioeconomic conditions, events, and developments.

Past Actions

Previous land protection efforts within the Bear River watershed have included the establishment of three national wildlife refuges—Bear Lake National Wildlife Refuge (18,089 acres), Bear River Migratory Bird Refuge (74,421 acres), and Cokeville Meadows National Wildlife Refuge (9,259 acres)—and the Thomas Fork Unit of Bear Lake National Wildlife Refuge (1,015 acres), and the Oxford Slough Waterfowl Production Area (1,878 acres). The Sagebrush Steppe Regional Land Trust, Wyoming Land Trust, and Wyoming Stock Growers Agricultural Land Trust have worked with a variety of partners to acquire conservation easements in the watershed.

Present Actions

The Service's proposed Bear River Watershed Conservation Area easement program, which would establish up to 920,000 acres of conservation easements in the Bear River watershed, is the only known present action of similar scope and scale for land protection in the region. Once approved, it would take several years for the program to begin to have a noticeable effect. Acquisition of easements would depend on available funding and willing sellers.



© Brian Ferguson

White-faced Ibis at Sunset

Reasonably Foreseeable Future Actions

Reasonably foreseeable actions are actions and activities that are independent of the proposed action but could result in cumulative or additive effects when combined with the proposed action. They are anticipated to occur regardless of which alternative is selected. Commercial (oil and gas, mining, and wind) and residential development, increased water demands, and future conservation efforts by a variety of organizations are the primary reasonably foreseeable actions occurring in the Bear River watershed.

Development

Overall, mining represents a relatively small percentage of total employment for many of the counties in the region, but it has increased slightly since 1998 (U.S. Census Bureau 2011, Headwaters Economics 2011). In particular, nonmetallic mineral mining increased by 124 percent, oil and gas extraction decreased by 64 percent, and metal ore mining

decreased to zero jobs by 2009 (U.S. Census Bureau 2011, Headwaters Economics 2011). One of the most economically significant nonmetallic mining activities during the past 50 years has been phosphate extraction, with roughly 40 percent of the U.S. reserves located in southeastern Idaho (Van Every 2004).

The acreage with potential for wind energy development is relatively low in Idaho and Utah, with 1.67 percent and 1.19 percent of the States available for such development, respectively. Wyoming has a higher available potential for wind energy development at 43.58 percent (National Renewable Energy Laboratory 2011). Most of the land with potential for wind energy development would still be available under the proposed action.

Population growth is expected throughout much of the region, with most of the growth centered on the Cache Valley. Located in the western part of the Bear River watershed in Utah, the Cache Valley is the most populated area in the watershed. It has experienced a population increase of 64 percent since 2000, and its population is estimated to double by 2050 (Utah Division of Water Resources 2004).

Lincoln County, home to the Cokeville Meadows National Wildlife Refuge, has grown by 24 percent

since 2000, giving it the fastest growing population among the Wyoming counties in the proposed conservation area.

Bannock County has the largest population of the Idaho counties in the watershed and has grown by 10 percent since 2000. Two other Idaho counties, Caribou County and Bear Lake County, have decreased in population by 5 percent and 7 percent, respectively.

The proposed action would protect up to 920,000 acres of wildlife habitat from the combined effects of various future development activities by precluding development and the resultant increase in infrastructure and fragmentation of habitat.

Other Conservation Efforts

The USDA's Conservation, Grassland, and Wetland Reserve Programs provide ongoing programs in the watershed. Additionally, many nongovernmental organizations are active in the area including Bridgerland Audubon, The Nature Conservancy, Ducks Unlimited, Trout Unlimited, and Wyoming Stock Growers Agricultural Land Trust. These organizations are expected to continue to offer multiple programs to landowners. The proposed action would augment these current conservation efforts by collaborating with landowners to protect wildlife, fisheries,

and working agricultural lands. The Service would continue to work with other agencies, organizations, and individuals to ensure conservation of migratory birds, threatened and endangered species, and other species of special concern.

The Service's Partners for Fish and Wildlife program would likely continue to help landowners in the watershed under either alternative. With the proposed action, Partners for Fish and Wildlife efforts in the watershed may increase because of more Service interaction with local landowners and the added benefit of habitat restoration and enhancement on lands protected by perpetual conservation easements.

Landscape-Scale Conservation

Through the proposed easement program, up to 920,000 acres of privately owned wetland, riparian, grassland, and shrubland habitats could be added to the 2.53 million acres within the proposed project area that already have some level of protection. This would have long-term positive impacts on wildlife habitat and result in the long-term conservation of migratory birds, threatened and endangered species, resident wildlife species, native plants, and the overall biological diversity of the proposed Bear River Watershed Conservation Area.

