

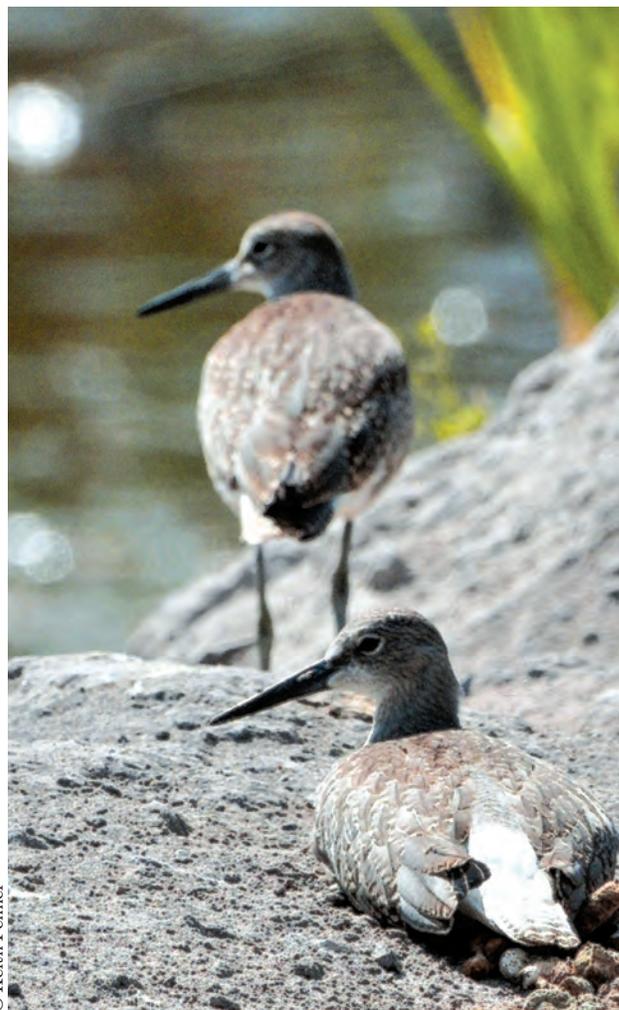
Chapter 3—Threats to and Status of Resources

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



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Two willets keep a watchful eye over a nearby wetland.

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 conservation area will 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 will not allow changes to or alterations in points of diversion, timing, or place of use for any water rights. Historical water use will be maintained in accordance with current practices.

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

processes. By limiting development on some prime agricultural and wildlife habitat areas, communities will be ensuring future ground-water supplies and reducing the need to develop more water resources to meet growing demand (Toth 2010). This protection will improve water resources throughout the Bear River watershed as well as for the three refuges. There may also be negative effects on 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 Bear River Watershed Conservation Area will help maintain the ability of native species and ecosystems to adapt to a changing climate. Climate change mitigation efforts will be positively affected because carbon sequestration now provided by native vegetation will 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.



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 conservation area will have long-term beneficial effects on fish and wildlife populations.

Riverine Areas, Riparian Areas, and Wetlands

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 their breeding, migration, and nutritional needs. The



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A white-faced ibis foraging in a shallow wetland.

conservation area will protect privately owned wetlands, irrigated meadows, and fields that now provide important wildlife habitat. This will 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 will 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 conservation area will conserve large patches of sagebrush that occur on the easements that are targeted for acquisition. Keeping and restoring existing large patches of sagebrush will create a mosaic of sagebrush habitats that will 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 through the conservation area, 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. There will 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 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 will 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.

Effects on the Socioeconomic Environment

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

Landownership and Land Use

The conservation area will 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 will not be affected. Traditional agricultural uses such as ranching, grazing, and haying will be allowed to continue on easement lands.

Because the conservation easement program will keep open space on a large scale, it will preserve a rural lifestyle and associated tourism and economic activities. The purchase of an easement will not result in a transfer of land title, so private landowners will 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 will 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 will 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 will not change the landowners' rights to manage public use and access to property. Under the easement program, landowners will keep full control over private property rights, including hunting and fishing on their lands. Wildlife-dependent recreational opportunities such as hunting, fishing, and wildlife observation will 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

There will be up to 920,000 acres of protected 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 easement program will 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 will 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 will 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 will 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 will also provide financial compensation to landowners through the sale of easements, offsetting potential revenue loss from the sale of development rights or leases. The project will affect only lands on which the Service has acquired a conservation easement. Development on adjacent lands that do not have Service conservation easements will 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 will still be available.

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 will 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—will 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

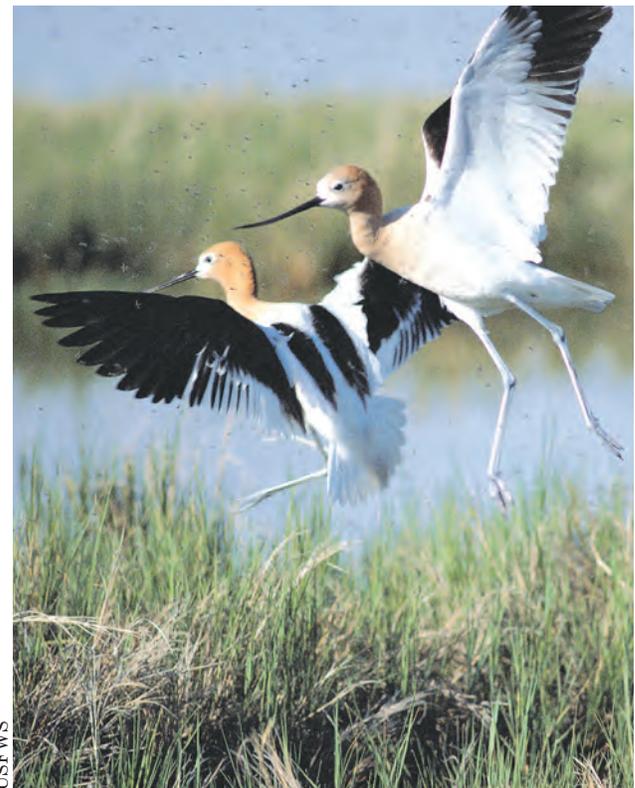
and where median incomes are higher (Netusil et al. 2000, Vrooman 1978, Phillips 2000, Crompton 2001, Thorsnes 2002). Private lands protected by conservation easements benefit residents through increased biodiversity, recreational quality, and hunting opportunities on adjacent publicly accessible wildlife refuges and on some private lands (Rissman et al. 2007).

Other Conservation Impacts

Wetland, riparian, grassland, and shrubland habitats will remain intact. Because there will be intact wildlife habitat on working lands through conservation easements, ecosystem services will be available for local residents (Millennium Ecosystem Service Assessment 2005).

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 will not be provided in areas that have undergone residential or commercial development.

The conservation area will help protect valuable ecosystem services as shown in figure 7. Furthermore, it will prevent the prohibitively high cost of future habitat restoration.



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American avocets are common throughout the watershed.

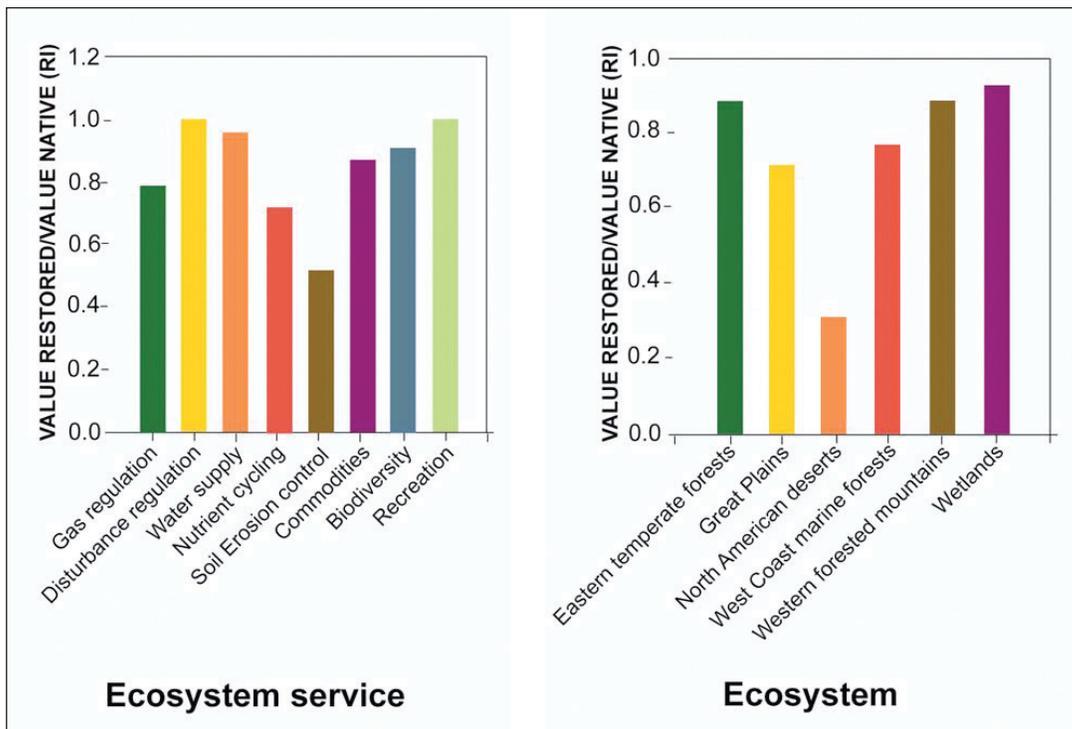


Figure 7. Chart of the relative native and restored benefits of ecosystem goods and services.

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.

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 will strengthen habitat resiliency and provide opportu-

ities 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).

