4.0 Inventory of Existing Programs and Activities

4.1 Background

The Blackfoot Subbasin Inventory summarizes current fish, wildlife, and habitat protection and restoration activities within the subbasin. The Inventory includes a description of 1) protected areas in the subbasin, 2) management plans, including endangered species recovery plans, 3) management and funding programs and 4) on-the-ground restoration and conservation projects that target fish, wildlife and habitat in the subbasin. Following this review of existing protections and current management strategies, we evaluated and identified gaps in conservation and restoration activities in the Blackfoot Subbasin, particularly in relation to the stresses and threats identified in Section 3.4 of the Blackfoot Subbasin Assessment. The results of this gap assessment are outlined in Section 4.4. To complete the Subbasin Inventory, we surveyed a large number of agencies, organizations and individuals involved directly or indirectly in fish and wildlife activities in the subbasin.

In the Blackfoot Subbasin, a history of landowner-led cooperation has resulted in an emphasis on voluntary, incentive-based conservation and restoration in contrast to top-down regulation and enforcement. The lack of courtroom-settled disputes indicates the success of this collaborative approach. In the following pages, we outline the wide variety of programs and tools used by public and private partners in the subbasin to achieve on-the-ground conservation and restoration.

4.2 Current Management Activities

Protection for fish, wildlife and habitat in the Blackfoot Subbasin comes in many forms, including state and federal laws and regulations, federal wilderness designations, wildlife management and conservation areas, natural areas, and various special fisheries or wildlife designations. In the following sections (4.2.1.1 - 4.2.1.3), we provide brief descriptions of major regulations, protected areas and special designations within the Blackfoot Subbasin.

4.2.1 Existing Protection

4.2.1.1 Federal Protection

Federal laws and regulations: Federal laws and regulations that protect westslope cutthroat trout and bull trout habitat in the Blackfoot Subbasin include:

- The Clean Water Act (CWA), including Sections 401 and 404 permits, which regulate discharge or placement of dredged or fill material into waters of the United States.
- The Federal Land Management Protection Act (FLPMA).
- National Forest Management Plans and other internal agency management guidelines and policies.
- The Endangered Species Act (ESA), which compels review of actions that may affect habitat of threatened and endangered species or species proposed for listing.

- The National Environmental Protection Act (NEPA), which compels review of all activities that may affect westslope cutthroat trout and bull trout on federal and tribal lands and may thus modify those activities, when necessary, to minimize adverse effects on these species.

Federal protected areas:

- *Scapegoat and Mission Mountains Wilderness Areas (USFS):* The Scapegoat Wilderness, designated by the U.S. Congress in 1972, encompasses 239,936 acres along the northern edge of the Blackfoot Subbasin and includes within its boundaries the headwaters of Monture Creek, the North Fork of the Blackfoot and the Landers Fork. It is managed by the Rocky Mountain, Lincoln, and Seeley Lake Ranger Districts. A small portion of the Mission Mountains Wilderness Area extends into the western portion of the Blackfoot Subbasin. The Mission Mountains Wilderness was officially classified as Wilderness in 1975. In total, there are 164,413 acres of wilderness in the Blackfoot Subbasin that are managed in accordance with the Wilderness Act of 1964. If passed, the proposed Blackfoot-Clearwater Cooperative Stewardship Project will result in an additional 83,478 acres of wilderness designated in the Blackfoot watershed (71,378 acres as part of the North Fork Blackfoot Monture Creek Addition to the Bob Marshall and Scapegoat Wilderness Areas; 7,599 acres as part of the Grizzly Basin Swan Range Wilderness Addition to the Bob Marshall Wilderness Area; and, 4,501 acres as part of the West Fork Clearwater Wilderness Addition to the Mission Wilderness Area).

- *Waterfowl Productions Areas (USFWS):* Waterfowl Production Areas (WPAs) are purchased and managed by the USFWS. All WPAs are tracts of wetlands and uplands purchased with funds from the sale of Federal Duck Stamps under the Small Wetlands Acquisition Program. Units that contain habitat for waterfowl are purchased from willing sellers when money and acreage are available. Units are sometimes expanded as opportunities arise. The USFWS owns three Waterfowl Production Areas (WPAs) within the Blackfoot Subbasin that are managed as part of the National Wildlife Refuge System. The three properties total 4,452 acres and are locally known as the Blackfoot WPA, the H2-O WPA and the Kleinschmidt Lake WPA.

- *Conservation easements (USFWS)*: The USFWS manages over 43,277 acres of perpetual conservation easements on private lands in Powell and Lewis and Clark Counties.

4.2.1.2 State Protection

State laws and regulations: Montana has several laws and regulations directed toward protection of aquatic habitats that, if properly applied and enforced, reduce threats to native salmonids throughout the state. Before permits allowing activities covered under these regulations are issued, applications are reviewed by MFWP, MDNRC, and MDEQ. Recommendations to limit impacts to westslope cutthroat trout and bull trout and their habitat are mandated through the permitting process.

- The *Montana Natural Streambed and Land Preservation Act* requires private, non-governmental entities to obtain a permit for any activity that physically alters or modifies the bed or banks of a perennially flowing stream.

- The *Montana Stream Protection Act* requires a permit for any project that may affect the natural and existing shape and form of any stream or its banks or tributaries.
- The *Montana Pollutant Discharge Elimination System* requires permits for all discharges to surface water or groundwater, including discharges related to construction, dewatering, suction dredges and placer mining.
- The *Streamside Management Zone Law* permits only selective logging and prohibits clear cutting and heavy equipment operation within 50 feet of any lake, stream or other body of water.

State protected areas:

- *Montana Department of Natural Resources and Conservation lands:* While the MDNRC manages school trust lands in the Blackfoot Subbasin, none of those lands have received designation as "protected," for purposes other than fire protection, under any state program or statute. The total number of MDRNC lands in the subbasin is 73,200 acres and is expected to increase in the future, as part of the Montana Legacy Project (see Section 4.2.1.3).

- *Montana Fish, Wildlife and Parks lands:* MFWP owns and manages 25,000 acres of key wildlife habitat in the Blackfoot Subbasin consisting of four Wildlife Management Areas (WMAs) (the Blackfoot-Clearwater, Ovando Mountain, Aunt Molly, and Nevada Lake) and more than 20 Fishing Access Sites. In addition, MFWP is actively pursuing fee purchase of an additional 24,000-acre parcel in the Clearwater drainage of the Blackfoot which will also be managed as a WMA. The Department currently holds 12 conservation easements in the valley totaling more than 22,000 acres and expects to acquire an additional 26,000 acres of conservation easements within the next two years. MFWP land management, and the conservation easements that it holds, emphasize the maintenance and improvement of wildlife habitat and the provision of public recreational access.

4.2.1.3 Other Special Designations and Projects

The Blackfoot Community Conservation Area (BCCA): In 2003, the Blackfoot Challenge and The Nature Conservancy initiated the Blackfoot Community Project, involving the purchase and re-sale of 89,215 acres of Plum Creek Timber Company (PCTC) lands based on a community-driven disposition plan. The lands encompassed all PCTC lands from the headwaters near Rogers Pass to the Clearwater drainage and are in the process of being resold to both public agencies and private individuals. Approximately 70% of the lands will be transferred into federal or state ownership with the remaining 30% into private ownership. As part of the project, partners established the 41,000-acre Blackfoot Community Conservation Area at the base of Ovando Mountain. The BCCA involves 5,609 acres of community forest ownership and cooperative ecosystem management of surrounding USFS-Lolo National Forest, MFWP, MDNRC, and private lands.

Bull Trout Critical Habitat (USFWS): The final bull trout critical habitat rule was published in the federal register on September 26, 2005. It designated 1,058 stream miles in Montana as critical habitat. Of those miles, approximately 146 miles are in the Blackfoot Subbasin. Included in the designation are the mainstem Blackfoot, Monture Creek, the Clearwater River, Morrell

Creek, Cottonwood Creek, the North Fork of the Blackfoot, and Landers Fork. Also receiving critical habitat designation are Seeley Lake, Placid Lake, Lake Alva, Lake Inez, and Salmon Lake, Rainy Lake, and Clearwater Lake. In 2010, the USFWS proposed a new critical habitat designation that would expand the description of critical habitat within the Blackfoot sub-basin.

Montana Legacy Project: In 2008, The Nature Conservancy and The Trust for Public Land entered into an agreement with Plum Creek Timber Company to purchase 312,500 acres of timberland in western Montana. A total of 71,754 acres in the Clearwater and Potomac valleys of the Blackfoot Subbasin will be purchased and resold to public agencies and/or private buyers. A majority of the lands that are part of this project in the Blackfoot Subbasin are intended to be re-sold to the USFS or MDNRC. For more information, please visit http://www.themontanalegacyproject.org/.

Powell County Agricultural District 3: Powell County development regulations divide the county into five "Agricultural Districts." Each of these districts has minimum lot sizes and allowable uses, creating what is essentially county-wide zoning. Agricultural District 3, which encompasses Powell County in the Blackfoot Subbasin, has minimum lot sizes of 160 acres. This District was established out of concern from the community over the rate at which family farms were being sold and converted to second homes.

4.2.2 Existing Management Plans

This section provides brief descriptions of federal, state, county and other management plans that affect fish and wildlife in the Blackfoot Subbasin.

4.2.2.1 Federal Plans

Bull Trout Draft Recovery Plan (Chapter 3: Clark Fork, which includes the Blackfoot Subbasin) (USFWS 2002): This draft federal recovery plan was required under the Endangered Species Act. It is currently under revision. It includes recovery criteria, recovery tasks, estimated costs, and an implementation schedule. When the final plan is approved, it will become the official guidance document for federal bull trout recovery efforts.

Canada Lynx Conservation Assessment and Strategy, Second Edition (Ruediger et al. 2000): The Lynx Conservation Assessment and Strategy was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States. The USFS, BLM and USFWS initiated the Lynx Conservation Strategy Action Plan in spring of 1998. The conservation measures presented in this document were developed to be used as a tool for conferencing and consultation, as a basis for evaluating the adequacy of current programmatic plans, and for analyzing effects of planned and on-going projects on lynx and lynx habitat.

Canada Lynx Conservation Agreement (USFS and USFWS 2005): This agreement is an interim measure to guide lynx management on federal lands within forests pending the amendment of forest plans to incorporate the provisions of the Lynx Conservation and Assessment Strategy.

Grizzly Bear Recovery Plan (USFWS 1993): This federal recovery plan, required under the Endangered Species Act, includes a description of the current status, habitat requirements and limiting factors, recovery objectives, recovery priorities, recovery criteria, and actions needed.

Habitat Conservation Plans (HCP): Organized under the ESA, HCPs provide a framework for people to complete projects while conserving at-risk species of plants and animals. Congress envisioned Habitat Conservation Plans as integrating development and land-use activities with conservation in a climate of cooperation. The ESA protects endangered and threatened species of wildlife and plants. Without a permit, it is unlawful to "take" (i.e., harm, kill) listed wildlife species. Under the ESA, the USFWS is authorized to issue incidental take permits to landowners who develop HCPs. HCPs provide a framework for creative partnerships with the goal of reducing conflicts between listed species and economic development. Habitat Conservation Plans can help communities plan for economic development while ensuring the future of endangered and threatened species. Through large-scale HCPs, stakeholders chart landscape-level strategies and conserve biological diversity. HCPs for MDNRC lands and Plum Creek Timber lands are described below in Sections 4.2.2.3 and 4.2.2.5.

Hatchery and Genetic Management Plan for the Creston National Fish Hatchery (USFWS 2000): This document describes the hatchery program including: funding, purpose, justification, performance standards and indicators, relationship of hatchery to other program objectives, ecological interactions, facilities water source, broodstock origin and identity, incubation, rearing, and release.

Helena National Forest Plan (Helena National Forest, USFS, updated 2004 to include Amendments 1 through 23): The Forest Plan guides all natural resource management activities and establishes management standards for the Helena National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management. The purpose of the Forest Plan is to provide long-term (10-15 year) direction for managing the Helena National Forest. The plan provides two levels of direction: general forest-wide management direction and specific direction for each management area. Direction is described in terms of management goals, objectives, and forest-wide and Management Area Standards. This update incorporates Amendments 1 through 23. The forest also has a management plan for the Lincoln Scapegoat Wilderness.

The Inland Native Fish Strategy (INFISH): INFISH was adopted by the USFS in 1995, amended National Forest Plans and Regional Guides to include interim direction for riparian management objectives, standards and guidelines, and monitoring in the Columbia River basin. Among other provisions, INFISH requires that 300-foot buffers be maintained along all streams. INFISH standards, which can only be modified following a watershed analysis or site-specific evaluation, are being implemented on USFS lands to minimize or eliminate present or potential destruction of westslope cutthroat trout and bull trout habitat and other aquatic resources. The June 10, 1998 listing of bull trout in the Columbia River basin as a threatened species under the Endangered Species Act (63 FR 31647) has further strengthened protections for focal species habitat.

Lolo National Forest Plan (Lolo National Forest, USFS, 1986): The Forest Plan follows the same format and serves the same purpose as the Helena National Forest Plan described above. It

was also amended by the 1995 INFISH as describe above. The Lolo National Forest also has management plans for the Wilderness areas within its boundaries. The Forest Plan also has management areas that designate areas as proposed Wilderness (MA 12) and roadless areas (MA 11). Proposed Wilderness areas include the Bob Marshall Extension which consists of lands in the headwaters of North Fork Blackfoot, Monture Creek, North Fork Cottonwood, and Morrell Creeks. Designated roadless areas include headwater portions of Monture Creek, Clearwater River, Morrell Creek, North Fork Placid, and Cottonwood Creek. The Lolo National Forest is currently revising its land management plans to reflect new scientific information as well as natural and social changes that have accumulated since the original plan was prepared in the 1980s. For more information, please visit http://www.fs.fed.us/r1/wmpz/.

Montana Bald Eagle Management Plan (USDI 1994): This plan is a revision of the 1986 Montana Bald Eagle Management Plan. It is intended to provide landowners and resource managers with information on the biology of Bald Eagles to facilitate informed decisions about land use and to promote the conservation of the species and its habitat. It includes information on biology and management guidelines.

Northern Rocky Mountain Wolf Recovery Plan (USFWS 1987): The Northern Rocky Mountain Wolf Recovery Plan outlines steps for the recovery of the gray wolf populations in portions of their former range in the Northern Rocky Mountains of the United States. The recovery plan is intended to provide direction and coordination for recovery efforts. State responsibility for many plan items is proposed because the Endangered Species Act of 1973, as amended, provides for State participation and responsibility in endangered species recovery. The plan is a guidance document that presents conservation strategies for the Northern Rocky Mountain wolf.

4.2.2.2 Tribal Plans

While the Confederated Salish and Kootenai Tribes of the Flathead Nation do not have any specific management initiatives in the Blackfoot Subbasin, they do have a strong management interest in the area because it is encompassed within the aboriginal territory of the Tribes and consists largely of lands ceded to the United States government under the provisions of the Hellgate Treaty of 1855. Tribal members of the Kootenai Tribe lived in northwestern Montana. Under the provisions of the Treaty, the Tribes maintained the right to continued use of resources in the area. Today, tribal members continue to utilize those resources for subsistence, cultural, and spiritual needs. As a result, the Confederated Salish and Kootenai Tribes value this area and take an active interest and role in ongoing management activities that affect fish, wildlife, and habitat resources (L. Ducharme, pers. comm.).

4.2.2.3 State Plans

Blackfoot River Recreation Management Plan (MFWP 2009): This plan seeks to guide recreation management now and in the future on the Blackfoot River. The plan identifies the desirable social and resource conditions for different reaches (sections) of the river, management actions that can be implemented on a routine basis to mange recreation on the Blackfoot River, and indicators and standards to guide the implementation of future management actions that can be used to maintain desired conditions or to improve undesirable conditions The plan is based on

the recommendations of the River Recreation Advisory for Tomorrow (RRAFT) Citizen Advisory Committee. For more information, see http://fwp.mt.gov.

Columbian Sharp-tailed Grouse Mitigation Implementation Plan for Western Montana (MFWP 1991): This plan outlines management objectives to accomplish the goal of improving the current status of Columbian Sharp-tailed Grouse in western Montana by protecting existing populations and habitats and by establishing additional populations in areas of suitable habitat.

Deer Population Objectives and Hunting Regulation Strategies (MFWP 1998): This plan outlines objectives and strategies designed to manage for the long-term welfare of Montana's deer resource and provide recreational opportunities that reflect the dynamic nature of deer populations.

Final Bull Trout Restoration Plan (MFWP 2000): In 1993, the Governor of Montana appointed the Bull Trout Restoration Team (MBTRT) to produce a plan that maintains, protects, and increases bull trout populations. The team appointed a scientific group, the Montana Bull Trout Scientific Group (MBTSG), to provide the restoration planning effort with technical expertise. The scientific group wrote 11 basin-specific status reports and three technical, peer-reviewed papers about the role of hatcheries, the suppression of non-native fish species, and land management. A draft restoration plan that defined and identified strategies for ensuring the long-term persistence of bull trout in Montana was released for public comments in September 1998. In June 2000, the final restoration plan was issued (MBTRT 2000). The plan synthesizes the scientific reports and provides recommendations for achieving bull trout restoration in western Montana. It focuses activities on 12 restoration/conservation areas and was designed to complement and be consistent with this recovery plan. The Montana Restoration Plan relies on voluntary actions, promoted by watershed groups, but has no legislative or legal authority beyond existing state law. Implementation of the Montana Restoration Plan has not officially begun; it is expected to mesh with implementation of the USFWS Bull Trout Recovery Plan.

Five-Year Update of the Programmatic Environmental Impact Statement, the Grizzly Bear in Northwestern Montana (MFWP 1993): This document outlines MFWP's goals to manage for a recovered grizzly bear population, to maintain distribution in defined management areas, and to maintain the habitat in a condition suitable to sustain the population at an average density of one grizzly bear per 15-30 square miles outside of Glacier National Park.

Garnet Resource Management Plan (BLM): In 1986, the BLM adopted the Garnet Resource Management Plan for much of its holdings in Montana west of the continental divide, including the Blackfoot Subbasin. The plan sets out the prescription for managing the 145,660 surface acres of public lands and 213,385 sub-surface acres in the Garnet Resource area. The plan prescribes management options for road construction, grazing, logging, mineral leasing, and range improvement, among others. In addition it sets specific limitations for logging in sensitive areas such a riparian zones and key elk habitat.

Grizzly Bear Management Plan for Western Montana (MFWP 2006): This is the Draft Programmatic Environmental Impact Statement 2006-2016 that will guide MFWP's approach to grizzly bear management should the state assume control of grizzly bear management. This

document outlines goals and objectives for a recovered grizzly bear population and envisions effective connections of grizzly bear populations among the Cabinet-Yaak, Northern Continental Divide Ecosystem, Greater Yellowstone Area and Canada. The plan outlines management strategies that include an overall approach to grizzly bear management that allows bears to re-colonize former habitats where it is "biologically suitable and socially acceptable."

Management of Black Bears in Montana (MFWP 1994): This plan defines a statewide management strategy for managing black bear populations and their harvest in Montana.

Management of Mountain Lions in Montana (MFWP 1996): This plan defines a statewide management strategy for mountain lions including objectives for determining carrying capacities for mountain lions and their prey; monitoring populations; regulating harvest; improving public understanding of lion biology, habitat requirements and management and public policies that deal with mountain lion conflicts with people and livestock.

Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (MFWP): This Memorandum of Understanding and Conservation Agreement was developed to expedite implementation of conservation measures for westslope cutthroat trout in Montana as a collaborative and cooperative effort among resource agencies, conservation and industry organizations, resource users, and private land owners. Threats that warrant consideration of westslope cutthroat trout as a Species of Concern by the State of Montana, a Sensitive Species by the USFS, a Species of Special Concern by the BLM, and as Species of Special Management Concern by the USFWS should be significantly reduced or eliminated through implementation of this Agreement.

Montana's Comprehensive Fish and Wildlife Strategy (MFWP 2005): Montana's Comprehensive Fish and Wildlife Strategy describes both the vertebrate species in Montana and their related habitats "in greatest conservation need." It is intended to provide a guide for the expenditure of federal funds under the State Wildlife Grants Program. The Strategy identifies the Blackfoot River as an aquatic conservation focus area in greatest need, and identifies both the bull trout and the westslope cutthroat as aquatic species of greatest conservation need. In addition, it lists riparian and wetland communities and mountain streams as community types of greatest conservation need. Among birds and mammals, it lists Trumpeter Swan, Bald Eagle, Columbian Sharp-tailed Grouse, gray wolf, grizzly bear, and Canada lynx, all species found within the Blackfoot drainage, as among species of greatest conservation need.

An integrated Stream Restoration and Native Fish Conservation Strategy for the Blackfoot River Basin (MFWP, 2005): This strategy outlines a restoration strategy for native salmonids in the Blackfoot sub-basin, identifying key areas within the Blackfoot, fisheries impairments on both the Mainstem and in tributaries, describes a prioritization strategy for restoration, summarizes high, medium, and low priority streams, and describes monitoring protocols. This strategy was updated in 2008 to expand the number of streams and modify the prioritization strategy (Pierce, 2008; Appendix J).

Montana Gray Wolf Conservation and Management Plan (MFWP 2004a): This plan outlines a balanced approach to sustain wolves as a native species in Montana, while balancing their

presence with the costs and impacts on those people most directly affected by the presence of wolves.

Montana State Trust Lands Habitat Conservation Plan (MDNRC and USFWS): Habitat Conservation Plans (HCPs) are complex, long-term management plans authorized under the Endangered Species Act. MDNRC developed a draft HCP under which it intends to conduct forest management activities while conserving habitat for three species, which are currently listed as threatened under the ESA (grizzly bear, Canada lynx, bull trout), and for two species that are not listed (westslope cutthroat trout, Columbia redband trout). MDNRC's HCP outlines the commitments it has made to minimize or mitigate impacts on the HCP species from forest management activities for the next 50 years within the HCP project area. The lands covered by the HCP include approximately 548,500 acres of state trust lands within three DNRC land offices in western Montana – Northwestern, Southwestern, and Central Land Offices.

MDNRC forest management activities that are covered in the HCP and associated permit application include timber harvest, road construction and maintenance, removal and replacement of stream crossing structures and issuance of grazing licenses on state trust lands classified as "forest" lands. The plan would benefit HCP aquatic species by managing for and maintaining suitable stream temperature regimes, instream sedimentation levels, instream habitat complexity, and stream channel stability and channel form and function within the HCP project area as well as improving connectivity among sub-populations of the covered species where appropriate on HCP project area lands.

The benefits of the HCP for grizzly bears include provisions for important seasonal habitat and limitations on activities affecting bears within those habitats. This is primarily accomplished by applying grizzly bear commitments across a greater geographic area within MDNRC's forested trust lands than are applied now, and increasing the level of commitments based on the importance of that habitat for bears (i.e., lands within federally designated recovery zones received the greatest level of commitments), and designing timber sales and applying silvicultural prescriptions to maintain important habitat features, including den sites, avalanche chutes, lush riparian zones, and locations that produce high volumes of forage.

The Canada lynx commitments would support federal lynx conservation efforts by maintaining important habitat elements for lynx and their prey at both the landscape and site specific scale, particularly in key locations for resident populations. This is primarily achieved by maintaining set ratios of suitable lynx habitat in the HCP project area and managing for vegetation structure and habitat elements important for lynx and their prey. Additional information on the HCP is available at: *www.dnrc.mt.gov/HCP*.

Statewide Elk Management Plan (Montana Fish, Wildlife & Parks 2004b): This plan provides guidance to wildlife managers, land managers and other parties responsible for planning and policy decisions that affect wildlife resources and wildlife-related recreation in Montana.

TMDL Plans for the Blackfoot Subbasin (MDEQ): In 1997, the Montana Legislature passed House Bill 546, which strengthened the state's authority to develop Total Maximum Daily Loads (TMDLs) for Montana waters. Under this legislation, MDEQ must identify impaired water

bodies, identify the causes of impairment, and develop corrective actions. MDEQ's goal is to correct all impairments within the next 10 years. Such corrective actions will improve water quality in many streams and should result in enhancement of habitat for focal species. TMDLs are discussed further in Section 3.2.5.2. TMDLs for the Blackfoot Subbasin include:

- *Blackfoot Headwaters Planning Area Water Quality and Habitat Restoration Plan and TMDL for Sediment (MDEQ 2004):* This document identifies causes and sources of sediment and habitat related water quality impairments for eight 303(d)-listed water bodies in the Blackfoot Headwaters Planning Area. Targets for restoring water quality and achieving full beneficial use support in impaired water bodies are established in this document. Strategies for the restoration of water quality and monitoring needs in the Blackfoot Headwaters are also outlined. Available at: http://www.deq.mt.gov/wqinfo/TMDL/finalReports.asp.

- *Water Quality Restoration Plan for Metals in the Blackfoot Headwaters TMDL Planning Area (MDEQ 2003):* This document identifies causes and sources of metals related water quality impairments for six 303(d)-listed water bodies in the Blackfoot Headwaters Planning Area. Targets for restoring water quality and achieving full beneficial use support in impaired water bodies are established in this document. Strategies for the restoration of water quality and monitoring needs in the Blackfoot Headwaters are also outlined. Available at: http://www.deq.mt.gov/wqinfo/TMDL/finalReports.asp.

- *Middle Blackfoot-Nevada Creek Total Maximum Daily Loads and Water Quality Improvement Plan: Sediment, Nutrient, Trace Metal and Temperature TMDLs (MDEQ 2008a):* This document identifies causes and sources of sediment, habitat, nutrient, temperature, and metals related water quality impairments for 37 water bodies on the 303(d) list in the Middle Blackfoot and Nevada Creek Planning Areas. Targets for restoring water quality and achieving full beneficial use support in impaired water bodies are established in this document. Strategies for the restoration of water quality and monitoring needs in these planning areas are also outlined. A draft of this document was released in December 2007 with EPA approval anticipated in 2008. Available at: http://deq.mt.gov/wqinfo/TMDL/tmdlPublicComments.asp#MiddleBlackfootNevada.

- *Lower Blackfoot Total Maximum Daily Loads and Water Quality Improvement Plan: Sediment, Trace Metal and Temperature TMDLs. Public Review Draft (MDEQ 2008b):* Development of TMDLs and water quality restoration plans for 12 streams or stream segments on the 303(d) list in the Lower Blackfoot Planning Area began in 2006. The plan, completed in 2009, is currently under review by EPA.

- *Blackfoot River TMDL Implementation Plan (Bureau of Land Management):* This plan describes BLM's proposed implementation of TMDLs on BLM lands in the Blackfoot Subbasin. It describes proposed management actions on BLM lands to reduce non-point pollution in water bodies on the 303(d) list in the Blackfoot Subbasin.

4.2.2.4 County Plans

Lewis and Clark County: In 2004, Lewis and Clark County adopted a county growth policy to replace the comprehensive plan that it had adopted in 1983. The growth policy is intended to be a long-range, non-regulatory planning document for Lewis and Clark County. The growth policy establishes a broad framework for how to proceed with more detailed shorter-range planning. While the policy is county-wide, it focuses heavily on the Helena Valley and the county east of the Continental Divide, and makes only scant reference to the portion the county in the Blackfoot Subbasin.

Missoula County: In 2002, Missoula County adopted a growth policy that replaced the 1975 Missoula County Comprehensive Plan. It was updated in 2005. The overarching goals are: 1) manage growth in a proactive rather than reactive way, considering both immediate and cumulative impacts; and 2) create a truly healthy community by protecting critical lands and natural resources, such as wildlife habitat, riparian resources, hillsides, air and water quality and open spaces and by enhancing the community's resources in the areas of health and safety, social, educational, recreational, and cultural services, employment, housing and the valued characteristics of communities. The growth policy is not a regulatory document. It provides a framework for articulating goals and policies and establishes the legal and philosophical foundation upon which future plans and regulations will be based. While the growth policy gives guidance for the entire county, regional or issue plans provide specific guidance through land use designations, design and development guidelines, and recommendations for specific action steps. A portion of the Blackfoot Subbasin is covered by the 1989 Seeley Lake Regional Plan. This plan is currently being updated through a community process. The remainder of the Blackfoot Subbasin in Missoula County has recommended land use policies and designations carried forward from the 1975 Plan into the 2002 Regional Land Use Guide.

Powell County: In 1996, Powell County adopted a comprehensive plan and a set of development regulations. The comprehensive plan was transformed into a growth policy in 2004 and then revised in 2006. The growth policy is intended to be a long-range, non-regulatory planning document for Powell County. The growth policy establishes a broad framework for how to proceed with more detailed, shorter-range planning. The original set of development regulations has been amended/revised five times since 1996. They are currently titled "Powell County Zoning & Development Regulations" and dated January 7, 2009. Powell County has had discussions with the Missoula County/Seeley Lake community regarding coordination of planning across county lines.

4.2.2.5 Other Plans

A Basin-Wide Restoration Action Plan for the Blackfoot Watershed (The Blackfoot Challenge in partnership with BBCTU, MFWP, Hydrometrics, Inc., and other partners 2005): The goal of the Restoration Action Plan is to define strategies for prioritization, planning, and implementation of restoration projects for impaired and dewatered streams in the Blackfoot Watershed. This complements and slightly expands the Native Fish Conservation Strategy described in section 4.2.2.3. A description of the plan is provided in Section 2.3.2. To access the complete plan, please visit www.blackfootchallenge.org.

Blackfoot Community Conservation Area-Management Plan for the Core (BCCA Council, 2006): The purpose of this plan is to guide land management decisions on the BCCA core—the 5,609 acres located in the heart of the conservation area (see Section 4.2.1.3). This document defines the community's vision for the property, characterizes the natural and cultural landscape, documents the public involvement process and administration of the property, and establishes management goals, objectives and issues requiring future study to guide conservation, restoration, and stewardship activities.

Blackfoot River Valley Conservation Area Draft Plan (The Nature Conservancy and the Blackfoot Challenge 2007): The purpose of this planning effort was to develop a framework of conservation strategies that can be implemented to conserve, and perhaps even further enhance, the viability of significant ecological and social/economic components of the Blackfoot Subbasin. A description of the plan is provided in Section 2.3.2.

Blackfoot Watershed Cooperative Conservation Agreement (2009): Fifteen public and private partners signed this agreement in 2009. This agreement was established to document the commitment to cooperation between the partners for the enhancement, conservation, and protection of the natural resources and rural way of life in the Blackfoot watershed for present and future generations. The area encompassed by the agreement consists of all lands within the Blackfoot watershed in western Montana. The agreement will help partners to coordinate on issues such as unplanned residential development, noxious weeds, and other issues that transcend county and other jurisdictional boundaries.

Plum Creek Native Fish Habitat Conservation Plan for Montana (Plum Creek Timber Company/USFWS 2000): The Montana Native Fish Habitat Conservation Plan (HCP) was approved in 2000. This 30-year HCP applies to 1.3 million acres of Plum Creek Timber Company land in Montana. Under this plan, habitat for eight species of native trout and salmon are protected in over 1,300 miles of fish-bearing streams on Plum Creek property. The HCP contains 56 conservation commitments covering a wide range of activities including timber harvest, road construction, stream habitat enhancement and livestock grazing.

4.2.3 Management and Funding Programs

This section provides brief descriptions of federal, state, county, and other management programs and funding sources that affect fish, wildlife, and habitat in the Blackfoot Subbasin.

4.2.3.1 Federal Programs

Bonneville Power Administration: The BPA funds watershed protection and restoration projects, reconnection of fish migration routes, eradication of hybridized or non-native fish populations, reduction of sedimentation to protection of spawning areas, reduction of phosphorous, and protection and restoration of wetland and riparian habitat. In the Blackfoot Subbasin, BPA has supported of a number of streamflow restoration projects (see Table 4.1).

Culvert inventory program (USFS): The USFS conducted a culvert inventory program in 2002 and 2003 in order to determine the magnitude of fish passage barriers on USFS road systems. Approximately 80% of the inventoried culverts were at least partial barriers to upstream fish

migration and approximately 20% were considered total barriers. In addition, it was noted that approximately 95% of the culverts constrict the stream channel to some degree and 50% constrict the stream channel by more than 50%, suggesting a high concern of culvert failure during normal bankful flows.

Federal Migratory Bird Hunting and Conservation Stamps: Commonly known as "Duck Stamps," these are pictorial stamps produced by the U.S. Postal Service for the USFWS. They are not valid for postage. Originally created in 1934 as the federal licenses required for hunting migratory waterfowl, today Federal Duck Stamps are a vital tool for wetland conservation. Ninety-eight cents out of every dollar generated by the sales of Federal Duck Stamps goes directly to purchase or lease wetland habitat for protection in the National Wildlife Refuge System.

Land and Water Conservation Fund (LWCF): The LWCF was established by Congress in 1965. A portion of receipts from offshore oil and gas leases are placed into this fund annually for federal, state and local conservation. LWCF is authorized at $900 million annually, a level that has been met only twice during the program's 40-year history. The program is divided into two distinct funding pots: state grants and federal acquisition funds. In FY 2005, the federal acquisition pot received $166 million and the state grants program received $92.5 million for a total of $258.5 million. In FY 2006 the federal pot received $114.5 and the state grants received $30 million. FY 2007 was similar to the year before receiving $113 million for federal acquisition and $30 million for state grants.

The state side of LWCF provides for all 50 states, the District of Columbia, and the territories by a formula based on population and other factors. State grant funds can be used for park development and for acquisition of lands and easements. State park directors solicit communities to apply for projects and distribute funds to those worthy projects based on a scoring process. The federal side provides for national park, forest, and wildlife refuge and Bureau of Land Management area fee and easement acquisitions. Each year, based on project demands from communities as well as input from the federal land management agencies (NPS, USFS, USFWS, BLM), the President makes recommendations to Congress regarding funding for specific LWCF projects. Once in Congress, these projects go through a rigorous Appropriations Committee review process with much input from Members representing project areas. Given the intense competition among projects, funding is generally only provided for those projects with universal support.

Natural Resources Conservation Service (NRCS) in Powell, Missoula, and Lewis and Clark Counties: Federal programs active through NRCS and county conservation districts provide financial incentives, cost sharing, leases and conservation agreements to landowners (especially the farming community) to improve the use of natural resources. Efforts target improvement of irrigation methods, reduction of sediment runoff and sustainable management and/or exclusion of cattle from riparian areas to reduce impacts on water quality. The four key programs that have funded substantial investments in conservation and restoration work in the Blackfoot Subbasin include:

- Environmental Quality Incentives Program (EQIP): This program was reauthorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill) to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers financial and technical help to assist eligible participants install or implement structural and management practices on eligible agricultural land. EQIP applications are ranked and compete for county funding based on a set of local environmental benefits criteria. EQIP offers contracts with a minimum term that ends one year after the implementation of the last scheduled practices and a maximum term of ten years. These contracts provide incentive payments and cost-shares to implement conservation practices. Persons who are engaged in livestock or agricultural production on eligible land may participate in the EQIP program. EQIP activities are carried out according to an environmental quality incentives program plan of operations developed in conjunction with the producer that identifies the appropriate conservation practice or practices to address the resource concerns. The practices are subject to NRCS technical standards adapted for local conditions. Local conservation districts approve plans and determine annual priorities for projects.

  NRCS provided $1.3 million through two rounds of the Cutthroat and Bull Trout EQIP Special Initiative during 2005 and 2006. The projects primarily focused on in-stream channel restoration and, to a lesser degree, off-stream grazing management. The Late Forestry EQIP Special Initiative was implemented in 2007 to address forest health issues by providing cost share dollars for forest thinning on private lands in the Blackfoot Subbasin and beyond. NRCS also provided significant financial assistance (cost-share) to numerous private landowners in the subbasin through county EQIP allocations. Primary categories included weed management, forest thinning, and grazing management.

- *Conservation Innovation Grant (CIG):* In 2005, a two-year Conservation Innovation Grant was granted to the Blackfoot Challenge to leverage NRCS investment in the conservation of the threatened grizzly bear while sustaining agricultural livelihoods. The Challenge used a scientific approach to map, prioritize, and implement conflict abatement projects with EQIP-eligible producers throughout the Blackfoot Subbasin. Following this innovation for wildlife and agriculture, the Challenge received a two-year national Conservation Innovation Grant in 2009 to leverage NRCS investment in fire management and the conservation of forested lands while sustaining economic and rural values. This project used a community-based approach for EQIP delivery of innovative Forest Health Practices in the Blackfoot Subbasin.

- *Grazing Lands Conservation Initiative (GLCI)*: The Powell County Weed District and the Blackfoot Watershed received $122,500 from this fund in 2006 as part of a national effort to enhance 40 million acres, primarily on grazing lands, with technical assistance at a grassroots level using a voluntary approach. The grant provided three years of funding to promote integrated weed management, Weed Management Area enhancement and organizational efforts in Missoula, Powell, and Lewis and Clark Counties, and cost share with landowners for weed control activities.

Other NRCS programs that provide funding opportunities include:

- *The Conservation Reserve Program (CRP)* provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with federal, state, and tribal environmental laws, and encourages environmental enhancement. The program is funded through the Commodity Credit Corporation (CCC). CRP is administered by the Farm Service Agency, with NRCS providing technical land eligibility determinations, Environmental Benefit Index Scoring, and conservation planning. The Conservation Reserve Program reduces soil erosion, protects the nation's ability to produce food and fiber, reduces sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filterstrips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices.

- *The Grassland Reserve Program (GRP)* is a voluntary program that helps landowners protect, restore and enhance grassland, rangeland, pastureland, shrubland and certain other lands on their property. Section 2401 of the Farm Security For the Grassland Reserve and Rural Investment Act of 2002 (Pub. L. 107-171) amended the Food Security Act of 1985 to authorize this program. The Natural Resources Conservation Service, Farm Service Agency and Forest Service are coordinating implementation of GRP. The program prevents conversion of vulnerable grasslands to cropland or other uses and conserves valuable grasslands by helping to maintain viable ranching operations.

- *The Wetlands Reserve Program (WRP)* is a voluntary program that provides technical and financial assistance to eligible landowners to restore, enhance, and protect wetlands. Landowners have the option of enrolling eligible lands through permanent easements, 30-year easements, or restoration, cost-share agreements. The program is offered on a continuous sign-up basis and is available nationwide. Landowners can establish at minimal cost long-term conservation and wildlife habitat enhancement practices. WRP has an acreage enrollment limitation rather than a funding limit. Congress determines how many acres can be enrolled in the program and funding is somewhat flexible.

- *The Wildlife Habitat Incentives Program (WHIP)* is a voluntary program for people who want to develop and improve wildlife habitat primarily on private land. Through WHIP, the NRCS provides both technical assistance and up to 75% cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements between NRCS and the participant generally last from five to 10 years from the date the agreement is signed. WHIP has proven to be a highly effective and widely accepted program across the country. By targeting wildlife habitat projects on all lands and aquatic areas, WHIP provides assistance to conservation-minded landowners who are unable to meet the specific eligibility requirements of other USDA conservation programs. The Farm

Security and Rural Investment Act of 2002 reauthorized WHIP as a voluntary approach to improving wildlife habitat in the United States.

U.S. Fish and Wildlife Service: USFWS management and funding programs applicable to the Blackfoot Subbasin include:

- *Cooperative Conservation Initiative:* This program supports efforts that restore natural resources and establish or expand wildlife habitat.

- *Cooperative Endangered Species Conservation Fund (Section 6):* This program funds a wide array of voluntary conservation projects for candidate, proposed and listed endangered species.

- *Dingell-Johnson Federal Aid in Sport Fish Restoration Act (DJ):* This program supports activities designed to restore, conserve, manage or enhance sport fish populations and the public use benefits from these resources and to support activities that provide boating access to public waters. Projects supported include fish habitat improvement, research on fishery problems, surveys and inventories of fish populations, provision for public use of fishery resource and lake and stream rehabilitation.

- *Fisheries Restoration and Irrigation Mitigation Act (FRIMA):* The program authorized by this act funds voluntary design, construction and installation of fish screens, fish ladders or other fish passage devices associated with water diversions. Projects may also include modifications to water diversion structures that are required for effective functioning of fish passage devices.

- *Fish & Habitat Conservation -Fish Passage:* Project funding is for fish passage restoration by removing or bypassing barriers to fish movement such as dam removal, culvert renovation, designing and installing fish ways, installing fish screens and barrier inventories to identify additional fish passage impediments.

- *Landowner Incentive:* These grants are available for conservation efforts to be carried out on private lands and to provide technical or financial assistance to private landowners for the purpose of benefiting federally listed, proposed or candidate species.

- *North American Wetlands Conservation Act (NAWCA):* NAWCA's Standard Grants Program is a competitive, matching grants program that supports public-private partnerships carrying out projects in Canada, the United States, and Mexico. These projects must involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats. The Standard Grants Program began supporting projects in all three countries in 1990, shortly after the North American Wetlands Conservation Act of 1989 was passed. The USFWS Division of Bird Habitat Conservation is responsible for facilitating and administering the Act's Standard Grants Program. The Blackfoot Watershed has received $2 million in NAWCA funding since 2002 to promote wetland conservation and restoration.

- *Partners for Fish and Wildlife Program:* This program works with private landowners and numerous partners in an effort to restore wetlands, riparian areas, instream habitats, and upland habitats for the benefit Federal Trust Species including threatened and endangered species, migratory birds, and native fish. The USFWS has established several staff positions in western Montana under the Partners for Fish and Wildlife Program, and these new employees have focused on developing funding opportunities and directing USFWS funds toward cooperative habitat restoration, management, and protection of key habitats for the benefit of Federal Trust Species including native salmonids.

- *Pittman-Robertson Wildlife Restoration Act (PR):* The Federal Aid in Wildlife Restoration Act is commonly called the Pittman-Robertson Act. It has been amended several times, and provides federal aid to states for management and restoration of wildlife. Funds from an 11% excise tax on sporting arms and ammunition are appropriated to the Secretary of the Interior and apportioned to states on a formula basis for paying up to 75% of the cost of approved projects. Project activities include acquisition and improvement of wildlife habitat, introduction of wildlife into suitable habitat, research into wildlife problems, surveys and inventories of wildlife problems, acquisition and development of access facilities for public use, and hunter education programs, including construction and operation of public target ranges.

- *Private Stewardship Grants Program:* This program provides grants and other assistance to individuals and groups engaged in private, voluntary conservation efforts that benefit species listed or proposed as endangered or threatened under the ESA. Eligible projects include those by landowners and their partners who need technical and financial assistance to improve habitat or implement other activities on private lands.

- *State Wildlife Grants (SWG)*: The Interior and Related Agencies Appropriations Act, 2002, created the State Wildlife Grants program. As indicated within this legislation, these grants were established, "…for the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished…" Since its creation, the SWG program has received annual Congressional appropriations that are administered by the USFWS. The USFWS apportions these funds, using a legislated formula based on human population and geographic area, to fish and wildlife agencies within the states, territories and the District of Columbia. Each state fish and wildlife agency wishing to participate in the SWG program must develop a Comprehensive Wildlife Conservation Strategy.

U.S. Forest Service: USFS management and funding programs applicable to the Blackfoot Subbasin include:

- *Forest Legacy Program (FLP):* The USFS administers the FLP in cooperation with state partners. Designed to encourage the protection of privately owned forest lands, FLP is an entirely voluntary program. To maximize the public benefits it achieves, the program focuses on the acquisition of partial interests in privately owned forest lands. FLP helps the states develop and carry out their forest conservation plans. It encourages and

supports acquisition of conservation easements without removing the property from private ownership. Most FLP conservation easements restrict development, require sustainable forestry practices and protect other values. Participation in the FLP is limited to private forest landowners. To qualify, landowners are required to prepare a multiple resource management plan as part of the conservation easement acquisition. The federal government may fund up to 75% of project costs, with at least 25% coming from private, state, or local sources. In addition to gains associated with the sale or donation of property rights, many landowners also benefit from reduced taxes associated with limits placed on land use.

- *Section 7, Blackfoot Watershed, Bull Trout Baseline:* As part of the listing requirement of bull trout, all federal land management agencies were required to develop baseline conditions of bull trout habitat for each 6th field HUC within their ownership. This was completed in 2000 and reported to the USFWS in the Section 7, Blackfoot Watershed, Bull Trout Baseline produced by the Lolo National Forest, Helena National Forest and Bureau of Land Management. The end product documented the bull trout and habitat condition for each federally owned 6th field HUC within the Blackfoot Watershed and determined that the overall habitat condition within the Blackfoot Section 7 Watershed is "Functioning at Risk" for bull trout. Since the completion of the plan in 2000, additional information has supplemented the information in this plan. (Note the baseline also applies to the Bureau of Land Management).

- *State and Private Forestry (S&PF) Program:* The S&PF program provides financial and technical forest management assistance and expertise to a diversity of landowners, including small woodlot, tribal, state, and federal, through cost-effective, non-regulatory partnerships. The staffs play a key role, along with others within the USFS and the Department of the Interior, in implementing the National Fire Plan to manage the impacts of wildland fires on communities and the environment.

- *Tri-County Resource Advisory Council:* Projects must be located within one of the three counties covered by the Tri-County RAC (Deer Lodge, Granite or Powell). Funds must be spent on projects that benefit federal land, although projects do not have to be located on federal land. Eligible projects include watershed restoration and maintenance; restoration, maintenance, and improvement of wildlife and fish habitat; or reestablishment of native species.

4.2.3.2 State Programs

Montana Department of Natural Resources and Conservation: MDNRC management and funding programs applicable to the Blackfoot Subbasin include:

- *MDNRC Trust Lands*: MDNRC Trust Lands Division manages activities on state trust lands throughout the Blackfoot Subbasin. Use of state trust lands includes agricultural use, harvest of forest products, mineral activities, and a number of other commercial uses. In addition the Trust Lands Division sponsors a variety of restoration activities ranging from fire and range rehabilitation to fisheries and stream restoration projects, including a number of projects in the Blackfoot (e.g., Blanchard Creek stream restoration project).

MDNRC has also participated in the acquisition of Plum Creek Timber Company property in partnership with the Blackfoot Challenge and others. On Montana State Forests, forestry Best Management Practices (BMPs) are implemented to maintain water quality and reduce sediment input. Audits of forestry practices indicate a high degree of compliance. Grazing BMPs have also been developed and are being implemented on state grazing lands.

- *MDNRC Private Grants:* These funds are for projects relating to water where the quantifiable benefits exceed the costs.

- *MDNRC RDGP:* This program funds projects that reclaim lands damaged by mining. Projects must provide benefits in one or more of the following: reclamation, mitigation, and research related to mining and exploration; identification and repair of hazardous waste sites, or research to assess existing or potential environmental damage.

- *MDNRC RRGL Planning Grant:* These grants fund the conservation, management, development, or protection of renewable resources in Montana. A 50% cash match is required unless the project is sponsored by a non-revenue producing entity.

Montana Department of Environmental Quality 319 Program: This program is for protection, improvement, or planning. Four categories of applications include: 1) Watershed TMDL Planning, 2) Watershed Restoration, 3) Groundwater, and 4) Information/Education.

Montana Fish, Wildlife and Parks (MFWP): MFWP programs focus on monitoring, research, and protection of habitat for threatened and endangered species and other wildlife of special interest to the public. Species of interest in the Blackfoot Subbasin include wolves, white-tailed deer, grizzly bears, elk, native fish (bull trout and westslope cutthroat trout) Bald Eagles, waterfowl and other birds of special interest. Public education is emphasized to avoid human/wildlife conflicts. Many efforts by MFWP to protect and restore native fish also incorporate protection of water quality in streams, rivers, and lakes critical to native fish. Projects involve stream bank restoration, removal of culverts, reduction of sediment runoff, and land acquisition. Mitigation funds are used to recover lost wildlife habitat. The *River Restoration Program*, for example, funds stream corridor improvements, including fencing and bank stabilization. Other MFWP programs include:

- *Access Montana Program:* The goal of Access Montana is to improve hunting access to public lands and resolve public land access conflicts. MFWP works with landowners, hunters, and land management agencies to attempt to resolve public land access conflicts. FWP also works with willing landowners to develop public land access agreements, which may include incentives such as fencing, cattle guards, culverts, gates, signing or maps to identify land ownership boundaries, increased MFWP enforcement, and in some cases, compensation.

- *Future Fisheries Improvement Program:* This program was passed by the 1995 Montana Legislature to restore essential habitats for the growth and propagation of wild fish populations in lakes, rivers, and streams. Funds used to implement the program originate

from the sale of Montana fishing licenses. Nearly a million dollars per year are presently allocated to the program. Program funding may be provided for costs of design, administration, construction, maintenance and monitoring of projects that restore or enhance habitat for wild fishes. Preference is given to projects that restore habitats for native fishes. In addition to restoring habitat, projects must eliminate or significantly reduce the original cause of the habitat degradation.

- *Habitat Montana Program*: The goal of Habitat Montana is to preserve and restore important habitat for fish and wildlife. Under the program, landowners interested in using a conservation easement to protect traditional farm and ranch land and to preserve natural resources such as wildlife habitat, may partner with MFWP. A variety of funding sources enable MFWP to protect seriously threatened habitats and provide recreational opportunities through purchased or donated conservation easements and purchases of land. Annually, about $4 million from several sources goes to fund projects selected by the MFWP Commission from among those recommended by the MFWP staff. In addition to monetary compensation, landowners may: realize tax benefits from a conservation easement; gain help in pursuing habitat-friendly agricultural practices; and ensure the protection of scenic and open spaces.

Montana Natural Heritage Program (MTNHP): MTNHP is Montana's clearinghouse for information on Montana's native species and habitats, emphasizing those of conservation concern. The program collects, validates and distributes this information and assists natural resource managers and others in applying it effectively. Established by the Montana State Legislature in 1983, the program is located in the Montana State Library, where it is part of the Natural Resource Information System.

4.2.3.3 County Programs

Missoula, Powell, and Lewis and Clark County Conservation Districts: County Conservation Districts (located in NRCS field offices) provide handouts to the general public with information and management recommendations for water, riparian and wetlands protection and restoration. All conservation district boards are made up of local landowners who work closely with their respective NRCS field offices to implement conservation programs. Conservation districts also work with NRCS to determine annual priorities (e.g., grazing, forestry, multiple use) for county projects. All three districts conduct weed control programs and administer 310 permits in cooperation with MFWP. The North Powell Conservation District has taken a proactive role by contracting a full-time Land Steward who works closely with private landowners and watershed partners to plan and develop grassroots resource conservation projects aimed at improving water quality and fisheries, grazing resources, forest health, and irrigation use. The North Powell Conservation District has a number of watershed restoration efforts in the Nevada Creek drainage, including stream/riparian restoration, grazing management, forest thinning, and irrigation improvement efforts.

Missoula, Powell, and Lewis and Clark County Extension Offices: Extension offices in each county offer a wide variety of programs and services that support resource management and landowners in the subbasin, including education and assistance for topics such as nutrition, agriculture, livestock and 4-H. Weed Districts run through the Extension Offices assist

in mapping and inventory of weeds, leadership in identifying and controlling noxious weeds, and facilitation of grant programs in Weed Management Areas.

Missoula, Powell, and Lewis and Clark County Planning Offices and Health Departments: The county planning offices and health departments are responsible for applying zoning regulations, conducting growth planning, regulating air quality and providing permits for land subdivision and new septic systems.

Missoula County Open Space Program: Missoula County voters approved a $10 million dollar bond in November 2006 for the purpose of preserving open space in Missoula County, with half allocated to Missoula County and half allocated to the City of Missoula for use in the urban area. The County's Open Lands Citizen Advisory Committee (OLC), in addition to its other responsibilities, reviews and makes recommendations to the Board of County Commissioners (BCC) about projects in its jurisdictional area. The OLC, appointed by the BCC, includes 13 members and 4 alternates from across the County. It bases its recommendations on project evaluation criteria established by BCC resolution. To date, the County portion of the bond money has been used to help purchase seven conservation easements throughout the county, including three in the Blackfoot Subbasin that protect a combined 4,041 acres.

Lewis and Clark County Open Space Program: Lewis and Clark County voters approved a $10 million dollar bond in November 2008 for the purpose of preserving open-space lands in the County, including working lands and land for protecting water and wildlife, by providing funds to acquire conservation easements or other property interests from willing sellers and to pay costs associated with the sale and issuance of bonds, for any one or more of the following reasons: protecting drinking water sources and ground water quality; protecting water quality in and along rivers and streams; conserving working farm, ranch and forest lands; protecting wildlife areas; preserving open lands and natural areas; providing for recreation; and managing growth and development. The County is in the process of developing a proposal process and evaluation criteria for potential projects.

4.2.3.4 Institutions, Non-Profit Organizations, and Private Funding

The Big Blackfoot Chapter of Trout Unlimited (BBCTU): The mission of BBCTU is to restore and protect the coldwater fishery of the Blackfoot Subbasin. It embarked upon this effort in partnership with state, federal and local agencies and private entities and individuals in the late-1980s. Since that time it has been heavily involved in a growing watershed-wide restoration effort that has included a wide variety of stream and riparian restoration projects. It currently employs a full-time restoration biologist to oversee its restoration project work.

The Blackfoot Challenge: The Blackfoot Challenge is a landowner-based group that coordinates management of the Blackfoot River, its tributaries and adjacent lands. The mission of the Blackfoot Challenge is to coordinate efforts that will enhance and conserve the natural resources and rural way of life of the Blackfoot River Valley for present and future generations. The Challenge works with over 500 partners and has secured funding for restoration and conservation projects through cooperative agreements and leveraging of public/private funds. See www.blackfootchallenge.org for a comprehensive list of all partners engaged in conservation and restoration activities and a complete overview of funding partners.

The Clearwater Resources Council (CRC): The mission of the CRC is to initiate and coordinate efforts that will enhance, conserve and protect the natural ecosystems and rural lifestyle of the Clearwater River region for present and future generations. Among its accomplishments, the CRC has conducted a landscape assessment of the Clearwater Valley Planning area (CRC 2008). In addition, it has been key in the development of a Fuel Mitigation Task Force consisting of the CRC, local fire and land management agencies, and the Bitterroot Resource Conservation and Development program. The goal of the Task Force is to provide professional consultation to landowners when they embark on fuel thinning efforts.

Five Valleys Land Trust (FVLT): Five Valleys Land Trust is a community-supported non-profit conservation organization with a mission to "preserve and protect western Montana's natural legacy—our river corridors, wildlife habitat, agricultural lands, and scenic open spaces." FVLT works with landowners and other partners to craft unique, collaborative solutions to conservation challenges and opportunities. FVLT currently holds 19 conservation easements on 11,469 acres throughout the Blackfoot Subbasin and played a key role in the collaborative effort to protect the Blackfoot Clearwater Wildlife Management Area. In the months and years ahead, FVLT will be working with several landowners and with The Nature Conservancy to permanently protect thousands of additional acres in the Blackfoot.

The Montana Land Reliance (MLR): The MLR mission is to "provide permanent protection for private lands that are ecologically significant for agricultural production, fish and wildlife habitat, and scenic open space. MLR's goal is to affirm the positive relationship between well-managed, productive lands and the integrity of wildlife habitat, watersheds, and open space in a way that benefits both the landowner and the community." MLR's goal is to protect 1 million acres of private lands through conservation easements in all of Montana by 2010. To date, MLR has acquired conservation easements on 16,463 acres in the Blackfoot Subbasin.

The Montana Nature Conservancy (TNC): The Montana Nature Conservancy's goal is to protect unique habitat, areas rich in biodiversity, and areas critical for rare, threatened or endangered species. TNC has a number of land holdings in the Blackfoot Subbasin and has been actively engaged in a variety of conservation efforts within the subbasin for many years. The Blackfoot is a key component of its 10 million-acre effort known as the "Crown of the Continent" initiative that spans from the Blackfoot in Montana to the Elk River Valley in southern British Columbia. Most recently TNC's efforts have included both its collaboration with the Blackfoot Challenge and private and public partners on the 89,215-acre Blackfoot Community Project and the designation of the Blackfoot Community Conservation Area (see Section 4.2.1.3). In 2008, The Nature Conservancy and The Trust for Public Land entered into an agreement with Plum Creek Timber Company to purchase 312,500 acres of timberland in western Montana called the Montana Legacy Project. As part of this project, a total of 71,754 acres in the Clearwater and Potomac valleys of the Blackfoot Subbasin will be purchased and resold to public agencies and/or private buyers. A majority of the lands that are part of this project in the Blackfoot Subbasin are intended to be re-sold to the USFS or MDNRC.

Rocky Mountain Elk Foundation (RMEF): RMEF and its partners have contributed more than $4.6 million to protecting the Blackfoot-Clearwater Wildlife Management Area through a

combination of land acquisition and trades. These efforts have resulted in over 5,500 acres that have been protected as elk and mule deer habitat.

Tri-State Water Quality Council: In response to water quality concerns expressed by citizens within the Clark Fork-Pend Oreille watershed, the U.S. Congress added a section to the 1987 Clean Water Act (Section 525), which directed the EPA to conduct a comprehensive water quality study across the three-state watershed (Montana, Idaho, and Washington). That study was completed and a watershed management plan was developed by the study's steering committee (comprised of two EPA regions and the state water quality agencies of the three states). The first priority in the management plan was to create a Tri-State Council to carry out the various action items in the plan. The Council first met in October of 1993. The Tri-State Water Quality Council is a partnership of diverse community interests—including citizens, business, industry, tribes, government, and environmental groups—working together to improve and protect water quality throughout the 26,000 square mile watershed.

Private Foundations and Individuals: Private foundation grants and individual contributions have played a critical role in funding conservation and restoration in the Blackfoot Subbasin. These private sources of funds have provided not only project funding but often the difficult to obtain capacity for partners (e.g., personnel, travel, etc.). This capacity is central to project implementation and securing project funding. These private partners and their funding provide incredible support in terms of leveraging funds, resources, and expertise. In addition, many private landowners have donated conservation easements where the appraised value of the donated private right is used as matching funds to secure public sources of funding for additional conservation outcomes for public benefit.

4.3 Restoration and Conservation Projects

As described below, since 1988 the effort to restore and conserve aquatic resources—particularly native fisheries—has been underway in the Blackfoot sub-basin. Underlying that long term effort has been a long-term data-gathering effort that targets both pre-restoration baseline information, and post-restoration effectiveness monitoring. This data collection effort covers fish population estimates, stream temperatures, stream habitat surveys (e.g. pool width, depth, frequency, large wood, pebble counts, stream discharge, streambank stability, stream degradation, overhead canopy, understory vegetation, Rosgen channel type), whirling disease severity, and westslope cutthroat genetic investigations.(Pierce, 2008). As of the date of this plan, habitat and fisheries inventories have been performed on 182 tributaries and mainstem reaches within the sub-basin (Pierce, 2008). This data is used to help target restoration efforts (Appendix M). In addition, ongoing monitoring is an important tool for measuring the success of the restoration efforts.

4.3.1 BPA-Funded Restoration Projects in the Blackfoot Subbasin

To date, the only BPA funding source in the Blackfoot Subbasin has been the Columbia Basin Water Transaction Program (CBWTP). The CBWTP came into being in 2002 specifically to support innovative voluntary grassroots water transactions to improve tributary flows in the

Columbia Basin. Table 4.1 lists completed BPA-funded CBWTP projects in the Blackfoot Subbasin.

4.3.2 Non-BPA-Funded Restoration Projects in the Blackfoot Subbasin

Table 4.2 lists restoration projects that were supported by a variety of non-BPA funding sources, including private donors, foundations, private landowners, conservation groups, license dollars, D-J funds, Future Fisheries, various NRCS funds and cooperative agreements with other state and federal agencies. The status of projects completed, projects pending and projects planned is constantly changing as pending projects reach completion and new projects are begun. The projects described in this section represent only those that were completed as of December 31, 2008.

4.3.3 Ongoing and Potential Restoration Projects on TMDL Streams

Numerous potential restoration projects have been identified to address TMDLs in the Blackfoot Subbasin. These projects are listed in Table 4.3.

Table 4.1 Completed BPA-Funded CBWTP Projects in the Blackfoot Subbasin.

Project Name	Project Description
1. Poorman Creek Riparian Habitat and Stream Flow Restoration	This project entailed removal of culverts, a grazing management plan and associated riparian restoration, and irrigation improvements to reconnect lower Poorman Creek with the Blackfoot River near Lincoln. The goal of this project is to improve conditions for migration of spawning bull trout and westslope cutthroat trout into Poorman Creek. CBWTP contributed $10,000 to the total project cost of $110,000.
2. North Fork Blackfoot Water Rights Lease (Weavers)	This water conservation project involved an instream flow lease of 18.4 cfs of water from the Weaver Ranch on the North Fork of the Blackfoot, a key bull trout spawning and rearing stream in the Blackfoot Subbasin. This project entailed the change in point of diversion from a ditch in a losing reach of the North Fork to a point of diversion in a gaining reach and conversion from a gravity system to a pump and pipeline, reducing the irrigator's diversion from as much as 20.5 cfs to 2.0 cfs.
3. Rock Creek (Hoxworth) single-season diversion-reduction agreement	This agreement was a single-season agreement by an irrigator on Rock Creek to refrain from diverting water from Rock Creek for one irrigation season, in 2003. CBWTP contributed $2950 to secure the agreement. This agreement was a pre-cursor to a long-term lease of an instream flow water right from the irrigator.
4. Rock Creek (Hoxworth) water conservation project	This project involved a change from a flood irrigation operation to a pump, pipe, and center pivot, leading to an instream water lease of 1.5 cfs in Rock Creek, a tributary to the North Fork of the Blackfoot in order to enhance the migration of westslope cutthroat trout to the upper reaches of Rock Creek. The agreement leases 1.5 cfs for 25 years. This project is part of a much larger habitat restoration project on Rock Creek which entailed channel restoration, riparian habitat restoration, and reconnection of the stream with its floodplain from its headwaters to the mouth. CBWTP contributed $10,000 to the $64,000 cost of this project.
5. Rock Creek/North Fork (Talan, Inc.) single-season diversion reduction agreement	This agreement was a precursor of a long-term agreement (30 years) for a lease of water rights on the North Fork of the Blackfoot. The approval of that long-term agreement is pending before the Montana MDNRC. The long-term agreement is part of efforts to improved streamflows in the North Fork of the Blackfoot. CBWTP contributed $3,500 to securing of this agreement.
6. Murphy Spring Creek single-season, split-season diversion-reduction agreements	These agreements (2004-2007) between three irrigators who divert water from Murphy Spring Creek, a tributary to the North Fork of the Blackfoot for 2.2 cfs minimum flow in the creek, are designed to maintain minimum passages flows and rearing habitat for both westslope and bull trout. These single-season agreements are pending a longer-term lease. Water lease for 2.2 cfs. CBWTP, over the life of these agreements, has contributed $20,240.
7. Wasson Creek (Mannix Brothers Ranch) single-season diversion-reduction agreements	These agreements with the Mannix Brothers Ranch were designed to keep at least 0.5 cfs water flowing in lower Wasson Creek pending a long-term lease, which was completed in 2006. The purpose of these agreements is to keep a minimum flow in the lower two miles of Wasson Creek during the irrigation season to allow the migration a pure-strain population of west slope cutthroat from upper Wasson Creek into a newly restored spring creek into which Wasson Creek flows. CBWTP contributed $15,000 to secure these agreements.
8. Wasson Creek (Mannix Brothers Ranch) long-term lease	See item 7 above. This ten-year lease secures a minimum flow of 0.75 cfs in Wasson Creek. CBWTP contributed $45,000 to the $75,000 price for this lease.

Table 4.2 Completed Restoration Projects in the Blackfoot Subbasin.

Stream Name	Number of Projects	Number of Landowners	Projects [1, 2, 3]
Arrastra Creek	1	2	Fish passage improvements(a)
Ashby Creek	10	2	Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Water Conservation(b;d); Improve wetlands; Improve range/riparian habitat; Upgrade diversion structure; Fish passage improvements(a;b); Prevent fish entrainment (fish screen); Conservation easement
Basin Spring Creek	12	2	Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Water Conservation(d); Improve wetlands; Improve range/riparian habitat; Improve irrigation(b); Remove streamside feedlots; Conservation easement
Bear Creek (RM 12.2)	11	3	Fish passage improvements(a;c); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Water Conservation(b;d); Improve range/riparian habitat; Improve irrigation; Remove streamside feedlots
Beaver Creek	17	2	Fish passage improvements(b;e); Water Conservation(b); Channel restoration; Improve wetlands; Conservation easement
Belmont Creek	3	1	Fish passage improvements(a); Spawning habitat protection; Improve range/riparian habitat
Blackfoot River (Clearwater to mouth)	7	5	Water Conservation(a;b;c); Conservation easement
Blackfoot River (North Fork to Clearwater)	13	11	Improve instream flows; Improve wetlands; Improve range/riparian habitat; Conservation easement
Blackfoot River (Lincoln to North Fork)	50	24	Channel restoration; Riparian vegetation improvements; Water Conservation(a;b); Improve wetlands; Improve range/riparian habitat; Remove streamside feedlots; Prevent fish entrainment; Improve diversion structure(a); Conservation easement
Blanchard Creek	4	1	Fish passage improvements(a;b;d;e); Riparian vegetation improvements; Improve range/riparian habitat; Water Conservation(a;b)
Chamberlain Creek	22	4	Fish passage improvements(a;b;c;d;e); Water Conservation(a;b;c;d); Improve diversion structures(a;b); Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Remove streamside feedlots; Conservation easement
Chamberlain Creek (West Fork)	1	1	Improve range/riparian habitat
Clearwater River	6	2	Water Conservation(a;b;c); Improve range/riparian habitat; Conservation easement
Cottonwood Creek (RM 43)	24	5	Fish passage improvements(a;b;d;e); Water Conservation(a;b;c); Improve irrigation structure(a); Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Remove streamside feedlots; Conservation easement

Table 4.2 (continued).

Stream Name	Number of Projects	Number of Landowners	Projects [1, 2, 3]
Cottonwood Creek (Nevada)	6	1	Fish passage improvements(b;e); Channel restoration; Riparian vegetation improvements; Improve range/riparian habitat; Improve diversion structure(a); Remove streamside feedlots
Dick Creek	34	10	Fish passage improvements(a;b;c;d;e); Water Conservation(b); Improve diversion structure(a;c); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Prevent fish entrainment; Remove streamside feedlots; Conservation easement
Douglas Creek	6	2	Fish passage improvements(d;e); Riparian vegetation improvements; Improve range/riparian habitat; Conservation easement
Dry Creek	4	1	Riparian vegetation improvements; Improve range/riparian habitat; Remove streamside feedlots; Conservation easement
Dunham Creek	11	4	Fish passage improvements(a;b;c); Water Conservation(d); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve range/riparian habitat; Improve diversion structure(a)
Elk Creek	4	1	Channel restoration; Fish habitat improvement; Improve wetlands; Improve range/riparian habitat
East Twin Creek	1	1	Fish passage improvements(a)
Enders Spring Creek	8	2	Fish passage improvements(c;d); Water Conservation(c;d); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve range/riparian habitat;
Gold Creek	2	2	Fish habitat improvement
Grantier Spring Creek	11	1	Fish passage improvements(c); Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat
Hoyt Creek	19	4	Fish passage improvements(a;b;c;d); Water Conservation(b;d); Improve diversion structures(a;b;c); Channel Restoration; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Fish habitat improvement; Conservation easement
Jacobsen Spring Creek	16	2	Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Water Conservation(d); Improve range/riparian habitat; Improve diversion structures(b); Fish passage improvements(a;c;d); Remove streamside feedlots; Conservation easement
Johnson Creek	1	1	Fish passage improvements(a)
Keep Cool Creek	6	1	Riparian vegetation improvements; Improve range/riparian habitat; Improve wetlands; Remove streamside feedlot; Conservation easement
Kleinschmidt Creek	26	6	Fish passage improvements(a;c); Water Conservation(a;d);Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Remove streamside feedlots; Conservation easement

Table 4.2 (continued).

Stream Name	Number of Projects	Number of Landowners	Projects [1, 2, 3]
Lincoln Spring Creek	13	1	Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve range/riparian habitat; Fish passage improvements(a,b,c,d); Water Conservation(b,c,d); Improve diversion structure(a;c).
Lodgepole Creek	1	1	Fish passage improvements(a)
McElwain Creek	2	1	Improve range/riparian habitat; Remove streamside feedlots; Water Conservation(b)
McCabe Creek	15	2	Fish passage improvements(a;b;c;d); Water Conservation(a;b;c;d); Improve diversion structures(a;b;c); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve range/riparian habitat; Prevent fish entrainment; Conservation easement
Monture Creek	27	6	Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Water Conservation(b;c); Improve wetlands; Improve range/riparian habitat; Improve diversion structures(a); Remove streamside feedlots
Moose Creek	2	1	Fish passage improvements(a)
Morrell Creek	10	4	Fish passage improvements(b;c;d); Fish habitat improvement; Water Conservation(a;c); Channel restoration; Fish habitat improvement; Improve diversion structures(a); Prevent fish entrainment
Nevada Creek	20	5	Fish passage improvements(b;e); Channel restoration; Improve diversion structures(a); Conservation easement
Nevada Spring Creek	24	3	Fish passage improvements(a;b;c;d;e); Water Conservation(a;b;d); Improve diversion structures(a;b); Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Remove streamside feedlots; Conservation easement
North Fork Blackfoot River	31	14	Fish passage improvements(b;d); Fish habitat improvement; Water Conservation(a;b;c); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve range/riparian habitat; Improve diversion structures(a); Prevent fish entrainment; Conservation easement
Pearson Creek	20	2	Fish passage improvements(b;c;d;e); Water Conservation(d); Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Improve diversion structure(a); Remove streamside feedlots; Conservation easement
Poorman Creek	11	4	Fish passage improvements(a;b;c;d); Channel restoration; Water Conservation(a;b;c;d); Riparian vegetation improvements; Improve diversion structure(a;); Improve range/riparian habitat

Table 4.2 (continued).

Stream Name	Number of Projects	Number of Landowners	Projects [1, 2, 3]
Rock Creek	50	12	Fish passage improvements(a;b;c;d); Water Conservation(a;b;c;d); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Improve diversion structures(a;b;c); Remove streamside feedlots; Conservation easement
Salmon Creek	21	4	Fish passage improvements(a;b;c;d;e); Water Conservation(b;c;d); Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Improve diversion structures(a;c); Remove streamside feedlots; Conservation easement
Shanely Creek	6	2	Water Conservation(b); Riparian vegetation improvements; Improve range/riparian habitat; Improve diversion structures(a); Fish passage improvements(b); Conservation easement
Spring Creek (North Fork)	8	6	Fish passage improvements(a;b;d;e); Water conservation(a;b); Improve diversion structure(a); Improve wetlands; Prevent fish entrainment; Conservation easement
South Fork Rock Creek	5	1	Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Water conservation(d); Improve range/riparian habitat
Ward Creek	17	8	Improve range/riparian habitat; Remove streamside feedlots; Channel restoration; Riparian vegetation improvements; Improve diversion structures(a); Conservation easement
Warren Creek	39	9	Fish passage improvements(a;b;c;d;e); Water Conservation(d); Spawning habitat protection; Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve wetlands; Improve range/riparian habitat; Improve diversion structures(a;b); Remove streamside feedlots; Conservation easement
Wasson Creek	17	2	Fish passage improvements(b;c;d;e); Water Conservation(a;b;d); Channel restoration; Fish habitat improvement; Riparian vegetation improvements; Improve range/riparian habitat; Improve diversion structures(a); Remove streamside feedlots; Prevent fish entrainment; Conservation easement
West Twin Creek	1	1	Fish passage improvements(a)

Total project streams: 53
Total projects: 676
Total landowners: 193

[1] Fish passage improvement codes:
a = rd crossing upgrade
b = upgrade diversion
c = restoration
d = instream flows
e = fish ladder

[2] Water conservation codes:
a = water lease; conversion; single season agreement
b = conveyance
c = conversion
d = restoration

[3] Improve diversion structure codes:
a = replace headgate
b = remove headgate
c = install headgate

Table 4.3 Potential Restoration Projects on TMDL Streams in the Blackfoot Subbasin.

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
BLACKFOOT HEADWATERS PLANNING AREA						
Blackfoot River from Headwaters to Landers Fork	Mine waste removal from floodplain	From the Anaconda/Beartrap Creeks confluence downstream 1 mile	Reduce metals loading; Improve habitat	Mixed private/public	Scheduled to be completed as part of Mike Horse Mine cleanup	Yes - High
Blackfoot River from Landers Fork to Nevada Ck	None identified at this time				Water quality restoration measures identified in TMDL	Yes – High/Moderate
Arrastra Creek	Culvert Replacement	Approximately 3 miles upstream of confluence with the Blackfoot River	Improve fish passage and flow/sediment conveyance	Public	Completed in 2005	Yes-Moderate
	Bridge installation	Approx 1 mi upstream of above culvert replacement		Private	Preliminary	
Beartrap Creek from Mike Horse Creek to mouth	Mine waste removal from floodplain	Beartrap Creek from Mike Horse Creek to mouth	Reduce metals loading; Improve habitat	Mixed private/public	Scheduled to be completed as part of Mike Horse Mine cleanup	No
Mike Horse Creek	Mine waste removal from floodplain	From Mike Horse Mine to confluence with Beartrap Ck	Reduce metals loading; Improve habitat	Mixed private/public	Private land work completed in 2006/2007. Public land work scheduled to be completed as part of Mike Horse Mine cleanup	No

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
BLACKFOOT HEADWATERS PLANNING AREA (CONT.)						
Poorman Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes-High
Sandbar Creek	None identified at this time				Water quality restoration measures identified in TMDL	No
Willow Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes – High
NEVADA CREEK PLANNING AREA						
Washington Creek (upper)	None identified at this time.				Water quality restoration measures identified in TMDL	Yes – Low
Washington Creek (lower)	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Low
Jefferson Creek (upper)	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Low

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
NEVADA CREEK PLANNING AREA (CONT.)						
Jefferson Creek (lower)	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Low
Gallagher Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Low
Buffalo Gulch	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Low
Braziel Creek	Stream channel reconstruction, grazing management, riparian area protection, irrigation diversion improvement	About ½ mile from mouth	Restore instream and riparian habitat	Private	Scheduled to be completed in 2009/2010	No
Nevada Creek (headwaters to Nevada Lake)	Stream channel reconstruction/stabilization, grazing management, riparian plantings	At confluence with Halfway Ck	Restore instream and riparian habitat. Reduce sediment from bank erosion	Private	Completed in 2007	Yes - Moderate
	Grazing management, irrigation diversion structure	Just upstream of USGS gage station	Sediment reduction, Instream flows	Private	Completed in 2007	Yes - Moderate
Nevada Creek (Nevada Lake to Blackfoot River)	Stream restoration and grazing management	Approx 1 mile downstream of reservoir	Prevent avulsion, reduce sediment from bank erosion, improve riparian area and uplands	Private	Scheduled for implementation in 2009	Yes – Low

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
NEVADA CREEK PLANNING AREA (CONT.)						
Nevada Creek (Nevada Lake to Blackfoot River) (cont)	Streambank stabilization where encroaching on Helmville ditch berm, grazing management	Approx 3 miles downstream of reservoir	Prevent Creek from undercutting berm toe, reduce sediment from bank erosion, improve riparian area and uplands	Private	Scheduled for implementation in 2009	Yes – Low
	Channel restoration, grazing management, riparian area protection, irrigation conveyance improvement	Immediately below reservoir	Demonstration project	Private	Under development	Yes - Low
Nevada Spring Creek	Fencing and off-site water development		Habitat enhancement; Sediment/temperature reduction	Private	Completed in 2006	Yes - Moderate
Black Bear Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Moderate
Murray Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Low
Douglas Creek (upper)	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Moderate
Douglas Creek (lower)	Grazing Management: off-stream water development, fencing	Approx 2 miles upstream of NV Ck	Habitat enhancement; Sediment/temperature nutrient reduction	Private	Completed by landowner 2006	Yes - Moderate
	Irrigation diversion improvement	Downstream end of previous project	Reduce sediment loading; remove fish barrier	Private	Unknown	Yes - Moderate

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
NEVADA CREEK PLANNING AREA (CONT.)						
Cottonwood Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Low
McElwain Creek	Channel maintenance, spring development for livestock	Approx 1 mile above mouth	Mitigate gorging of channel, conserve instream flows	Private	Completed in 2007/2008	Yes - High
MIDDLE BLACKFOOT PLANNING AREA						
Yourname Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Moderate
Frazier Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Low
Wales Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes -Moderate
Ward Creek	Riparian enhancement, grazing management, offsite watering, fencing, revegetation	Approx ¼ mile above Dead Man's Lake	Improve habitat; Sediment/temperature reduction/, increase instream flow	Private	Completed in 2005	Yes - Low
Rock Creek	Riparian revegetation	South Fork Rock Creek, middle and lower reaches	Temperature reduction, bank stability, cover, habitat improvements	Private	Completed in 2008	Yes - High

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
MIDDLE BLACKFOOT PLANNING AREA (CONT.)						
Rock Creek (cont)	Riparian revegetation	Upper reach from Salmon and Dry Creek confluence to State lands	Re-establish riparian willow and shrub communities	Private	Completed in 2008	Yes - High
Kleinschmidt Creek	Channel reconstruction, grazing management, off-site watering, fencing	Above final Highway 200 crossing	Reduce sediment, nutrients and temperature	Private	Completed in 2006	Yes – High
	Grazing management, off-site water development, fencing	Below final Highway 200 crossing	Reduce sediment, nutrients and temperature	Private	Scheduled for completion in 2010	
Warren Creek	Riparian enhancement, grazing management, offsite watering	Above Highway 200	Improve habitat; Sediment/temperature reduction/increase instream flow	Private	Completed in 2005	Yes - High
Monture Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - High
Cottonwood Creek	Culvert replacement		Improve fish passage, improve sediment/flow conveyance	USFS	Completed in 2007	
Blanchard Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - High
Buck Creek	None identified at this time				Water quality restoration measures identified in TMDL	No

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
MIDDLE BLACKFOOT PLANNING AREA (CONT.)						
Deer Creek	None identified at this time				Water quality restoration measures identified in TMDL	No
West Fork Clearwater River	None identified at this time				Water quality restoration measures identified in TMDL	No
Richmond Creek	None identified at this time				Water quality restoration measures identified in TMDL	No
Blackfoot River (Nevada Creek to Monture Creek)	None identified at this time				Water quality restoration measures identified in TMDL	Yes – High/Moderate
Blackfoot River (Monture Creek to Clearwater River)	None identified at this time				Water quality restoration measures identified in TMDL	Yes – Moderate
LOWER BLACKFOOT PLANNING AREA						
Belmont Creek	None identified at this time				Water quality restoration measures identified in TMDL	

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
LOWER BLACKFOOT PLANNING AREA (CONT.)						
Blackfoot River (Clearwater River to Belmont Cr)	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Moderate
Blackfoot River (Belmont Cr to mouth)	Grazing management	Between Roundup Bridge and Elk Creek confluence	Protect stream banks and riparian area	Private	Under development	Yes – Moderate
Camas Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Low
Day Gulch	None identified at this time				Water quality restoration measures identified in TMDL	No
East Fork Ashby Creek	None identified at this time				Water quality restoration measures identified in TMDL	No
Elk Creek (headwaters to Stinkwater Cr)	None identified at this time				Water quality restoration measures identified in TMDL	Yes-High
Elk Creek (Stinkwater Cr to mouth)	Grazing Management, some channel reconstruction/stabilization	Lower 4 to 5 miles	Improve riparian area, protect past stream restoration	Private	Completed in 2008	Yes - High

Table 4.3 (continued).

Listed Water	Project(s)	Location	Objective(s)	Land Ownership	Status	On Fisheries Prioritization List?
LOWER BLACKFOOT PLANNING AREA (CONT.)						
Keno Creek	None identified at this time				Water quality restoration measures identified in TMDL	No
Union Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Moderate
Washoe Creek	None identified at this time				Water quality restoration measures identified in TMDL	Yes - Low
West Fork Ashby Creek	None identified at this time				Water quality restoration measures identified in TMDL	No

4.4 Gap Assessment

As illustrated in the Blackfoot Subbasin Assessment and Inventory, the Blackfoot Subbasin has been and continues to be the focal point of much conservation and restoration work. This has been especially true during the last two decades, when emphasis has been placed on the restoration and protection of native aquatic and terrestrial species. Most of the factors threatening the viability of subbasin conservation targets and associated nested targets (Sections 3.3 and 3.4) have received some level of attention in an effort to abate them, but the extent of actions varies widely. While conservation accomplishments have been significant, the Blackfoot Subbasin threat assessment (Section 3.4) illustrates that much work remains to be done. The purpose of this section is to review the areas of accomplishment for each conservation target, to provide some assessment of the relative success of the ongoing restoration efforts, and to identify the areas of remaining need in terms of resource conservation and restoration in the subbasin.

Native Salmonids: At the inception of the current restoration effort in the late 1980s, various conservation partners made a decision to focus their efforts in the lower subbasin, from the North Fork of the Blackfoot downstream. These early efforts did not focus heavily on the Clearwater drainage. Part of this early emphasis was driven by the fact that fisheries investigations identified critically important bull trout and westslope cutthroat trout habitats within the Monture, North Fork, and nearby drainages. Willingness of many landowners to address fisheries problems in these areas was also an important factor. While native fish habitat continues to improve in the lower Blackfoot subbasin, the focus of native fish restoration work has begun to shift toward the upper subbasin and the Clearwater drainage (Pierce et al. 2008).

Historic mining activity and abandoned mine discharge has resulted in extensive water quality impairment in the subbasin. While there has been a long-term effort to address abandoned mine discharge in the headwaters of the subbasin, that effort is incomplete. To address nonpoint source impairments resulting from roads, unplanned residential and resort development, and incompatible forestry, irrigation, and livestock practices, the entire subbasin has undergone the TMDL designation process and primary pollutants have been identified for each reach of the river. Some of the causes of nonpoint-source pollution, such as nutrient enrichment and thermal and sediment pollution, are being addressed by ongoing habitat restoration projects. Significant nonpoint sources remain unaddressed, however, including those in the upper subbasin in and near the town of Lincoln and in the lower Nevada Creek drainage. Restoration projects are proceeding in both the lower Nevada Creek and upper Blackfoot areas that will improve water quality through partnerships with private landowners, government agencies, and conservation groups.

Access to and from important native fish habitats has been impaired by roads and drainage/diversion systems across the Blackfoot Subbasin. Projects to restore biological connectivity in tributaries and to restore native fish habitat have been completed throughout much of the lower and middle subbasin. There has been an extensive effort throughout the subbasin to remove culverts and other road crossings that have blocked migration into tributaries. A number of irrigation diversions have been modified or retrofitted to allow for fish passage. In a related effort, a substantial number of fish screens have been installed on irrigation diversions in key tributaries throughout much of the subbasin. Despite this work,

there are still a number of tributaries in the lower Nevada Creek drainage which continue to have access and connectivity impairments resulting from road crossings and drainage/diversion systems.

Channel alteration has caused water quality and physical habitat impairments in the subbasin. Restoration of physical habitat throughout much of the subbasin has been completed, especially in the lower and middle subbasin. The restoration efforts have focused on channel reconfiguration and reconnection of channels with their floodplains. Nonetheless, because many of the impairments occur on private land, the pace at which restoration can occur is uneven. This is especially true in parts of the lower Nevada Creek drainage. In the past few years, the pace of restoration here and in the upper subbasin, including the Copper Creek drainage, has increased.

Incompatible forestry practices, drainage and diversion systems, and, most recently, extended drought and climate change have all contributed to an altered hydrologic regime in the subbasin. The long-term restoration effort has been reasonably successful at addressing dewatering on many tributaries though a combination of both habitat and flow restoration strategies. Experience indicates that a coordinated, comprehensive approach that addresses not only physical water diversions but also the restoration of channel and floodplain integrity is the most effective way to address hydrologic alteration. Despite the success with restoration on many streams throughout the subbasin, much remains to be done to restore hydrologic function, especially in the middle Blackfoot and in the Nevada Creek drainage.

The historic introduction of non-native fish species (e.g., rainbow trout, brook trout and brown trout), along with the more recent illegal introduction of unwanted fish such as northern pike and yellow perch, is a high-ranked threat to native salmonids in certain waters of the Blackfoot Subbasin. Tools to eradicate or control some of these fish species are often not feasible. Habitat restoration that reduces water temperature and/or sediment and nutrient loading within moving waters may help control of some species. Public interest in maintaining a sport fishery in the Blackfoot precludes the eradication of recreationally important species, such as brown and rainbow trout.

Whirling disease, caused by the exotic parasite *Myxobolus cerebralis*, has been documented to varying degrees of severity throughout the low elevations the Blackfoot Subbasin. Although there remains a great deal to learn regarding the ecology of the parasite and effects of the disease, it is evident that degraded habitats with elevated levels of fine sediments and warm temperatures and/or nutrient enrichment can contribute to the severity of infection in certain waters. Recent research shows that riparian restoration and habitat enhancement with emphasis on migratory native fish within and upstream of the whirling disease pathogen may buffer fish from the effects of the disease (Pierce et al. 2009).

While the restoration effort has significantly improved conditions required for native fish in the Blackfoot sub-basin, certain conservation strategies have been more productive than others. For example, the installation of 24 fish screens has improved migration corridors while reducing the entrainment of fish into irrigation ditches in five bull trout spawning streams (the North Fork, Dunham, Cottonwood Creek, Morrell and Snowbank Creeks).

These improvements have been most dramatic on the North Fork of the Blackfoot when undertaken in concert with other needed strategies. Following a change in regulation to prevent the harvest of bull trout in 1990, the restoration partners installed fish screens on all five ditches in the North Fork in the mid-1990s. Prior to these actions, populations remained suppressed. After the installations were completed, populations of full trout showed dramatic improvement. See figure 3.20. Conversely, the restoration of riparian vegetation through the management of grazing in sensitive riparian areas continue to be particularly challenging and underscores the need to develop grazing criteria and better monitor streambank conditions and vegetative response particularly in native fish (i.e., bull trout) habitat.

Continuous long-term monitoring is critical to evaluating fisheries to restoration strategies. This monitoring from pre-treatment through post-treatment periods has enabled the restoration partners to identify specific restoration efforts that have not accomplished their intended goals. For example, on Nevada Spring Creek, a restoration effort in 2003 produced initial dramatic drops (in excess of 10 degrees F) in temperature at its mouth. In ensuing years, temperatures began to climb. This prompted a close examination of the restoration which found a partial failure of the work. The problems were corrected and in 2010 temperature data again showed dramatic cooling (FWP unpublished data). The repair of that restoration is now underway. That example nonetheless illustrates the importance of ongoing monitoring efforts and a willingness to apply adaptive management.

Monitoring and project evaluation have allowed MFWP to measure the relative response of salmonids to restoration actions. Overall, the response of wild trout, including native trout, has been positive, across several spawning and rearing tributaries and within the mainstem lower Blackfoot. River (Figures 3.21 and 3.22; Pierce, 2008).

Herbaceous Wetlands/Native Grassland/Sagebrush Communities/ Moist Site and Riparian Vegetation: Conservation and restoration accomplishments pertaining to these vegetation targets include a variety of public and private programs, projects and protections. Land protection has been the primary strategy used to conserve these targets. Numerous conservation easements on private land and fee title acquisition resulting in public land ownership, such as the designation of Waterfowl Production Areas, Wildlife Management Areas and the Blackfoot Community Conservation Area, have resulted in protection of wetlands, riparian areas, grasslands, and other vegetation communities. In 2002, the Blackfoot Challenge initiated a three-phase landscape-level effort to protect, restore, and enhance 37,000 acres of biologically significant wetlands (5,310 acres) and associated uplands (31,690 acres) for migratory birds and other wildlife species by 2015. The Blackfoot Watershed I, Montana Project was completed in 2007, resulting in protection, restoration and enhancement of a total of 16,794 acres (3,027 acres of wetland and 13,767 acres of associated upland). The Blackfoot Watershed II, Montana Project is in process.

Restoration activities implemented by the BBCTU targeted at native salmonids and aquatic habitat have also played a critical role in conservation of moist site and riparian vegetation communities. Revegetation projects in the riparian zone range from the simple cessation or reduction of grazing to replanting of native riparian vegetation associated with grazing

management. These revegetation efforts nearly always include grazing management agreements with the riparian landowners. While there are some notable successes, partners have identified the need to tighten provisions in agreements with private landowners and enhance compliance monitoring.

Cooperative weed management efforts by public and private partners have contributed to healthy grassland/rangeland and riparian areas. Partners in cooperative weed management seek to manage for a diversity of species and to prevent dense monocultures of noxious weeds using a combination of chemical, biological, and cultural controls. In recent years, conservation partners have initiated restoration projects focused on reducing Douglas-fir encroachment into native grassland/sagebrush communities.

Despite these efforts, much work remains to be done to conserve/restore these vegetation types in the subbasin. Significant information gaps exist for each vegetation target, making it difficult to develop quantifiable conservation objectives. To this end, many of the strategic actions outlined for subbasin vegetation targets in the Subbasin Management Plan (Section 5.0) focus on filling these information gaps. To ensure the effectiveness of future conservation and restoration work, baseline information on the historic extent and condition of each vegetation target is needed. This baseline information will be used to analyze the degree of departure from historic conditions in each vegetation type and to prioritize restoration and conservation action. Once sites are identified for conservation and/or restoration, it will be necessary to determine conservation goals and tools and to establish monitoring protocol that will permit adaptive management over time.

Low Elevation Ponderosa Pine/Western Larch Forest/Mid to High Elevation Coniferous Forest: Conservation and restoration accomplishments pertaining to subbasin forest conservation targets also include a variety of public and private programs, projects and protections. Forest protection strategies are diverse, ranging from Wilderness areas, where no forest management occurs, to conservation easements on working forest lands. In 2003, the Blackfoot Challenge and The Nature Conservancy purchased 89,215 acres of land from Plum Creek Timber Company. Known as the Blackfoot Community Project, this transaction protected that land from future inappropriate development. It also led to the establishment of the Blackfoot Community Conservation Area, a cooperatively-managed working forest. These types of conservation accomplishments reflect the important connections between working forests and forest protection in the Blackfoot Subbasin.

Commercial logging has been an economic mainstay in the Blackfoot Valley since 1885. For the first 100 years, the emphasis was on producing logs for the area mills and not necessarily on the environmental consequences of timber stand treatments, logging systems, and forest road construction. As a result, there are countless restoration opportunities on previously harvested lands within the subbasin. Recently, forest restoration, both on USFS land and across ownerships, has been the focus of several collaborative efforts. The Lolo Restoration Committee, a multi-interest advisory group, is working with the USFS on two restoration projects on the Seeley Lake Ranger District. A similar effort is underway on the Lincoln Ranger District. Forest restoration is a major component of recent federal legislation introduced by Montana Senator Jon Tester. The USFS, two state agencies, private

landowners and the Blackfoot Challenge have signed a Memorandum of Understanding for cooperative restoration projects across property lines on the 43,000-acre Blackfoot Community Conservation Area. The unintended negative impacts of historic logging activity will be mitigated in these cooperative efforts.

Climate change, the lack of natural fire on the landscape, and the worst bark beetle infestation on record have combined to present the largest threat to forested land within the subbasin. The current world-wide recession has exacerbated the problem by severely limiting market opportunities for the dead and dying timber. However, land management agencies, lumber mills, and private landowners are again working collaboratively with experienced loggers to help mitigate the potential extreme threat of uncontrolled wildfire to rural communities. Programs are in place to identify major wildfire threats to the individual communities, identify cross- boundary treatment areas and establish local task forces to lead the mitigation effort in each community. Federal funding is being provided through programs such as Jump Start, Western Forestry Initiative and the Redesign Competitive Grant. Many of these programs support ecologically sustainable forest stand treatments on low elevation ponderosa pine stands. The cooperators are also establishing new markets for forest thinning and dead trees that will enable the required treatments to continue on a sustained basis.

Although motorized vehicle use on public lands has been a contentious issue that impacts subbasin forest targets, various interest groups are finding solutions through collaboration versus litigation. For example, the Montana Wilderness Association and local snowmobile clubs agreed on a common set of recommendations for motorized use in the revision to the Lolo National Forest Plan. The progressive user groups realize that continued effective collaboration is the only way to successfully address inappropriate motorized vehicle use on public lands.

Grizzly Bears: A variety of regulatory documents (e.g., USFWS 1993, MFWP 1993, MFWP 2006) guide grizzly bear recovery in the NCDE. Because the major threats to grizzly bears in the Blackfoot Subbasin are related to human-bear conflicts that occur primarily on privately owned and leased lands, however, voluntary actions have been instrumental in abating threats to grizzly bears. In the Blackfoot Subbasin, wildlife managers, the Blackfoot Challenge, landowners and others have worked hard in recent years to mitigate these threats. Hundreds of community members take part in a variety of programs that have reduced grizzly bear-human conflicts by 84% between 2003 and 2008. No grizzly bears have been killed by wildlife management authorities since 2004 and no grizzlies have been trapped/relocated since 2005 for management related purposes in the core project area in the subbasin. This portion of the NCDE is likely serving as important stepping stone habitat facilitating grizzly bear dispersal to the south. Programmatic efforts here are laying the groundwork for population-level connectivity for grizzlies to the Greater Yellowstone Ecosystem and Central Idaho.

The Blackfoot Challenge's Wildlife Committee (WC) has been a leader in the subbasin to help improve management of human-wildlife interactions. The WC has focused on grizzly bear conservation and management since its inception in 2003. The WC has three official work groups: the Landowner Advisory Group, the Neighbor Network Group, and the Waste

Management and Sanitation Work Group. The WC has developed an extensive programmatic effort to reduce human-grizzly bear conflicts and improve grizzly bear conservation and management. Maintaining this official committee of the Blackfoot Challenge is an important mechanism for furthering grizzly bear conservation in the watershed. Future actions will continue to focus on working cooperatively with livestock producers, managers, landowners, agencies, and other partners on a variety of conflict mitigation strategies to reduce grizzly bear mortality in the Blackfoot Subbasin.

A major focus of WC work with the USFWS, MFWP, landowners and all partners has been on changing specific land use practices and human behaviors that lead to conflicts with bears. Rather than trying to change the way people think about bears, the WC has focused on trying to change the way people live, work and recreate around bears. When subbasin residents can learn to live with bears, attitudes and or perceptions of bears may improve. WC coordinator Seth Wilson documented the attitudes of more than 30 ranchers throughout the subbasin in 2003 as a baseline to measure future changes in attitudes.

The efforts of MFWP, USFWS, the WC and all partners over the past six years have focused squarely on "attractant security" or making artificial food sources off limits to grizzly bears. MFWP and the WC's Neighbor Network program play a critical role in helping to make attractants such as household garbage, livestock feed, birdfeed and other artificial food sources secure from grizzly bears. New Neighbor Networks are being developed in Lincoln, Woodworth and in the Avon-Helmville area to address attractants and other sanitation issues. Nearly all high-risk calving areas in the subbasin have electric fences (41,000 feet of fencing have been installed) and, on average, 225 livestock carcasses are removed annually from ranches in the subbasin. All ranches located in core grizzly bear habitat in the subbasin participate in the livestock carcass removal effort. Ninety-five percent of all beehives in the subbasin are protected with electric fences. All road killed deer and livestock composting facilities are protected with electric fences, and plans are underway to protect two of the three transfer stations in the subbasin with electric fences. The Blackfoot Challenge has dozens of trash resistant garbage cans to loan to residents each year. A network of 120 residents monitors both grizzly and wolf activity in the subbasin.

The WC has taken an indirect approach to reduce illegal or poaching related mortality of grizzly bears through widespread education and outreach efforts. These actions may help account for the relatively few, if any instances of malicious killing activity. Over the past six years there have no known instances of malicious killing of grizzly bears in the core project area of the subbasin. MFWP and USFWS law enforcement are the lead agencies that address malicious or vandal killing. If poaching or malicious killing activities increase in the subbasin, the WC could devise an appropriate response for improving the situation. The WC has also played an indirect role in reducing mistaken identity killings of grizzly bears (the killing of grizzly bears by black bear hunters or hunters in general). Typically these types of incidents occur in remote, backcountry settings and managing hunter behavior is a challenging task. If MFWP and the USFWS were interested in working in partnership to address this cause of grizzly bear mortality, the WC could assist with education and outreach efforts.

Since self-defense related mortality is a relatively small proportion of overall annual grizzly bear mortality in the NCDE, this has not been a high priority for the WC. However, early season elk hunters have fairly regular encounters with grizzly bears. In some situations these encounters can be problematic for both hunters and grizzlies. There are a variety of activities that MFWP, USFWS and the WC could collectively work on including improving access to hunter-safety education in the Blackfoot Subbasin, providing workshops to improve hunter knowledge of bear behavior and targeting education efforts during poor food years to prevent conflicts resulting from increased probability of hunter-grizzly encounters.

Improving habitat connectivity for grizzly bears in the Blackfoot Subbasin is largely a function of reducing the lethality of the landscape. Large portions of the Blackfoot Subbasin are currently available or potentially available habitat for grizzlies. However, road densities, road access, and habitat alteration, loss and degradation are important cumulative factors that impair functional habitat connectivity.

To reduce physical road and highway impact mortality to grizzly bears and other wildlife, the WC can assist the Montana Department of Transportation in wildlife mitigation measures as future highway improvements are planned. The WC has begun this process with the ITEEM planning effort for Highway 83 and will assist where needed as the planning process unfolds. Additionally, the WC has assisted recently in the development of a set of wildlife movement areas maps that can help plan for potential crossing structures and other wildlife mitigation should those actions be useful in the future. Additional work can be done to address road densities, access and travel management through the USFS, BLM and DNRC public planning processes and public involvement through the NEPA and MEPA processes. The WC will also continue to work on reducing the presence of bear attractants along roads and in other areas that impede migration and movement.

Motorized vehicle use and impacts to grizzly bears and bear habitat on public lands found in the subbasin are best addressed through public land management agency public involvement processes. The WC could facilitate communication and facilitate discussion among stakeholders should motorized vehicle use become a major factor for grizzly bears. While non-motorized recreational use-conflicts with grizzly bears in the watershed have been relatively few, MFWP and the WC could play a positive role should this become a more pressing issue. Education and outreach efforts and improved knowledge about grizzly bear behavior could help river recreationists, hikers, bikers, fishers, hunters, mushroom pickers and others learn how to safely recreate and work in bear country. This may become a more serious issue in the future as growth, development, and human population pressures increase levels of recreation in grizzly bear habitat.

Unplanned residential and resort development could present significant risk to grizzly bears in the subbasin. However, the Blackfoot Challenge has historically helped to mitigate this threat through a proactive approach to land conservation through its Conservation Strategies Committee and intensive work by partners. Future growth and development are important issues that the Blackfoot Challenge will continue to grapple with in the future.

New mining activity in the subbasin poses a potential threat to grizzly bears. The Blackfoot Challenge can serve as the forum in the watershed to foster civil and productive dialogue about existing or potential resource extraction and impacts to grizzly bears. The Blackfoot Challenge does not advocate a specified position on such issues such as mine site development etc, but can serve as a forum for thoughtful dialogue among all invested stakeholders.

Loss of whitebark pine due to the exotic pathogen white pine blister rust and to climate change jeopardizes an important grizzly bear food source in the Blackfoot Subbasin and throughout the NCDE. There have been significant declines in white bark pine mast throughout portions of the NCDE. No direct action has been taken to mitigate this threat, although grizzly bears may be successfully adapting to these changes in food availability

The Blackfoot Subbasin Gap Assessment illustrates the range of conservation/restoration accomplishments in the subbasin and the scope of work that lies ahead. Private and public partners in the subbasin will continue to address threats to fish, wildlife and habitats through proactive conservation and restoration strategies. New/emerging opportunities include: 1) further development of land planning tools to minimize habitat fragmentation (e.g., county zoning, transferable development rights, and cluster development), 2) human-predator conflict abatement focused on wolves, 3) prevention of new exotic species invasions, 4) expansion of aquatic habitat restoration in the Clearwater and upper portions of the Blackfoot Subbasin, 5) efforts to address climate change and 6) efforts to mitigate the impacts of fire exclusion on subbasin vegetation communities.