

Blackfoot Subbasin Management Plan
Seeking Public Comment
May 4, 2009

Project Overview:

The Blackfoot Watershed has a strong history of locally-led conservation and restoration. Beginning in the mid-1970's, private landowners developed the Blackfoot River Recreation Corridor Agreement and established two Walk-In Hunting areas near the confluence of the Clearwater and Blackfoot Rivers. In that same timeframe, the first conservation easement in Montana was acquired in the Blackfoot Valley. Thanks to the vision of these landowners, an important foundation was established for public and private partners to work together on restoring and protecting habitat, fish and wildlife populations in the Blackfoot River basin.

The Blackfoot Challenge, Trout Unlimited and The Nature Conservancy began the process of developing a subbasin plan for the Blackfoot watershed in fall 2007. The purpose of the sub-basin plan is to create a comprehensive strategy for conserving, restoring and enhancing the natural resources and rural lifestyle of the Blackfoot watershed using a community-based approach to conservation. The process has included coordinating existing plans (i.e. the Basin-Wide Restoration Action Plan for the Blackfoot Watershed, TMDLs, etc.) that have occurred in the watershed to strengthen conservation and restoration partnerships at the landscape scale.

Based on community, agency and partner interest, four technical work groups were formed in early 2008 to address the following conservation targets: native salmonids, herbaceous wetlands, moist site and riparian vegetation, native grassland/sagebrush communities, low elevation ponderosa pine/western larch forest, mid to high elevation coniferous forest, and grizzly bears. An additional target that was identified early on in the planning process includes maintenance of the rural way of life in the Blackfoot watershed. Although a work group did not form to address this target, the Blackfoot Challenge and its partners have been actively trying to define the rural way of life and indicators that might be used to evaluate efforts to preserve what each community in the watershed values about this place. The reader will find this subject referenced throughout the document.

The technical work groups have met regularly over the past year to assess the viability of the natural resources and rural way of life in the Blackfoot watershed, design proactive strategies for abating critical threats to these resources and develop monitoring mechanisms and tools for the future.

We are seeking public comment on the Blackfoot Subbasin Management Plan. This is essentially the heart of the Subbasin Plan. (Note: Tables/Maps are still being developed). The entire plan, which will provide all the supporting documentation for the management plan, will be available on the website for public comment beginning June 19. Please check the website and provide your feedback.

Please provide comments on the Management Plan by Friday, May 25 to ali@blackfootchallenge.org.

On behalf of the partners, thanks for your participation in this project!

BLACKFOOT SUBBASIN MANAGEMENT PLAN

DRAFT

MAY 2009

5.0 Management Plan

The Management Plan is the heart of the Blackfoot Subbasin Plan. It consists of five elements: 1) a vision for the subbasin; 2) conservation objectives; 3) strategic actions; 4) research, monitoring and evaluation; and 5) consistency with the Endangered Species Act and Clean Water Act. The Blackfoot Subbasin Management Plan is a living document that is based on a 10-15 year planning horizon. It reflects our current understanding of conditions in the Blackfoot Subbasin and will be updated through an adaptive management process as our knowledge of ecological processes and socioeconomic conditions in the subbasin grows. It is designed to serve as an iterative, community and science-driven document and we anticipate that additional objectives and strategies will emerge over time.

The Blackfoot Subbasin Management Plan will serve as a guide for partners working to sustain the outstanding ecological, economic and cultural values and resources in the Blackfoot Subbasin. This document was developed collaboratively by the subbasin technical work groups which are comprised of a wide range of stakeholders including private landowners, public agencies, and non-profit organizations. Consensus among this diverse group will promote effective and collaborative implementation of the strategic actions outlined in Section 5.2.

5.1 Subbasin Vision

The vision for the Northwest Power and Conservation Council's Fish and Wildlife Program is a Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife, mitigating across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem and providing the benefits from fish and wildlife valued by the people of the region (NPCC 2008). The vision for the Blackfoot Subbasin is based on this overarching vision for the entire Columbia River Basin. It describes the desired future condition of the subbasin and incorporates the values and priorities of a wide spectrum of stakeholders:

The vision for the Blackfoot Subbasin is for a place characterized by dynamic natural processes that create and sustain diverse and resilient communities of native fish and wildlife and the aquatic and terrestrial habitats on which they depend, thereby assuring substantial ecological, economic and cultural benefits. The efforts to conserve and enhance those natural resources will be implemented through a cooperative partnership between public and private interests that will seek to sustain not only those natural resources, but the rural way of life of the Blackfoot River Valley for present and future generations.

The Blackfoot Subbasin Assessment illustrates, both quantitatively and qualitatively, that ecological conditions in the subbasin are generally very good. On the watershed scale, there are large, intact landscapes comprised of wilderness, natural areas, and other federal or state-owned lands linked to protected and sustainably managed private working lands typically located in the valley bottom. Due to a legacy of conservation and restoration partnerships led by private landowners since the 1970s, residential, resort, and commercial development is limited to certain areas and native biodiversity, from wide-ranging mammals to isolated rare plant populations, is largely intact. These characteristics, coupled with continued strong public-private partnerships, have resulted in identification of the Blackfoot watershed as a high priority site for conservation action by international, national, and local partners. The Blackfoot Subbasin Vision will guide prioritization and implementation of conservation objectives and strategic actions to ensure the continued viability of ecological and human communities in the subbasin.

5.2 Conservation Objectives and Strategic Actions

The core of the Blackfoot Subbasin Management Plan consists of a comprehensive set of conservation objectives¹ and strategic actions. Conservation objectives and strategic actions were developed based on the results of the Blackfoot Subbasin Threat Assessment (Section X). In most cases, the critical subbasin threats stem from incompatible human uses of land, water, or natural resources. The conceptual framework for conservation objectives and strategic actions assumes that abating the critical threats in the subbasin will alleviate current or future stresses, resulting in healthy, viable conservation targets.² Blackfoot Subbasin strategic actions focus on abating or removing one or more sources of stress. However, in many instances, a target has been degraded by historical threats that require some form of active restoration. In these situations, restoration strategies that directly enhance or restore the viability of the target were considered.

Each strategic action is grounded and defined by a conservation objective, which describes an outcome related to threat abatement or enhanced viability. Conservation objectives and strategic actions were developed based on the following criteria: 1) economic, social, and ecological feasibility; 2) existing partnerships or future cooperative opportunities to implement actions; 3) benefits to multiple targets; and 4) the scope of threat abatement. Table 5.1 outlines the relationship between conservation targets, threats, and conservation objectives in the subbasin.

¹ Conservation Objectives are distinct from what BPA refers to as “biological objectives”. Conservation Objectives are general guiding principles that provide a framework for specific and measurable Strategic Actions. Quantitative “biological objectives” for each conservation target are presented in the Subbasin Viability Assessment (Section x.x).

² A detailed discussion of Blackfoot Subbasin conservation targets is provided in Section X. Information on conservation target viability is provided in Section X. Information on stresses and threats is provided in Section X.

Table 5.1. Strategy development reference table.

Threat	Conservation Targets Affected*	Objective Number
Altered Wildlife Use Patterns	moist site and riparian vegetation (H) native grassland/sagebrush communities (L)	1, 4, 6, 10
Channel Alteration	native salmonids (H) moist site and riparian vegetation (M)	2a, 2b, 2c, 6, 10
Climate Change	native salmonids (VH) herbaceous wetlands (H) moist site and riparian vegetation (H) native grassland/sagebrush communities (H) low elevation ponderosa pine/western larch forest (VH) mid to high elevation coniferous forest (H) grizzly bears (H) rural way of life	1, 2a, 2b, 2c, 4, 5, 6, 7, 8, 9a, 9b, 9c, 10
Conversion to Agriculture	herbaceous wetlands (H) moist site and riparian vegetation (M) native grassland/sagebrush communities (H)	1, 4, 5, 6, 10
Drainage or Diversion Systems	native salmonids (H) herbaceous wetlands (M) moist site and riparian vegetation (M)	2a, 2b, 2c, 5, 6, 10
Epidemic Levels of Native Insects and Pathogens	low elevation ponderosa pine/western larch forest (H) mid to high elevation coniferous forest (M)	7, 8, 10
Existing Crop Production	herbaceous wetlands (M)	5, 10
Filling of Wetlands	herbaceous wetlands (M)	1, 5, 10
Human-Caused Mortality	grizzly bears (M)	9a, 9b, 9c, 10
Incompatible Forestry Practices	native salmonids (H) herbaceous wetlands (L) low elevation ponderosa pine/western larch forest (VH) mid to high elevation coniferous forest (M)	2a, 2b, 2c, 5, 7, 8, 10
Incompatible Livestock Practices	native salmonids (H) herbaceous wetlands (M) moist site and riparian vegetation (M) native grassland/sagebrush communities (M) grizzly bears (L)	2a, 2b, 2c, 4, 5, 6, 9a, 9b, 9c, 10
Invasive Alien Species	native salmonids (H) herbaceous wetlands (H) moist site and riparian vegetation (M) native grassland/sagebrush communities (H) low elevation ponderosa pine/western larch forest (H) mid to high elevation coniferous forest (H) grizzly bears (M) rural way of life	2a, 2b, 2c, 3, 4, 5, 6, 7, 8, 9a, 10

Table 5.1 (continued).

Threat	Conservation Targets Affected*	Objective Number
Lack of Fire	moist site and riparian vegetation (H) native grassland/sagebrush communities (H) low elevation ponderosa pine/western larch forest (VH) mid to high elevation coniferous forest (M)	4, 6, 7, 8, 10
Lack of Human Tolerance	grizzly bears (M)	9a, 9b, 9c, 10
Mining	native salmonids (H) grizzly bears (H)	2a, 2b, 2c, 9a, 10
Motorized Vehicle Use	moist site and riparian vegetation (M) native grassland/sagebrush communities (M) low elevation ponderosa pine/western larch forest (M) mid to high elevation coniferous forest (M) grizzly bears (H)	4, 6, 7, 8, 9a, 9b, 10
Non-motorized Recreational Use	native salmonids (H) grizzly bears (M)	2a, 2b, 2c, 9b, 9c, 10
Physical Road Issues	native salmonids (H) low elevation ponderosa pine/western larch forest (H) mid to high elevation coniferous forest (M) grizzly bears (H)	2a, 2b, 2c, 7, 8, 9a, 10
Presence of Bear Attractants	grizzly bears (L)	9a, 9b, 9c, 10
Residential and Resort Development	native salmonids (H) moist site and riparian vegetation (H) native grassland/sagebrush communities (H) low elevation ponderosa pine/western larch forest (VH) mid to high elevation coniferous forest (M) grizzly bears (H) rural way of life (NA)	1, 2a, 2b, 2c, 4, 6, 7, 8, 9a, 10

* Abbreviations in parentheses indicate the threat rank: VH = Very High; H = High; M = Medium; L = Low.

For each conservation objective outlined in the following pages, we list the conservation targets affected and the set of strategic actions that will be deployed to achieve the objective. Strategic actions consist of new actions that will enhance conservation and restoration in the subbasin as well as programs and projects already being implemented by agencies and private organizations. A number of strategies currently implemented by the Blackfoot Challenge, for example, are already addressing some of the key threats identified in the Blackfoot Subbasin Plan. Conservation and restoration partners in the watershed will further develop and implement both the strategies and monitoring measures necessary to abate the threats identified in this plan. It is through coordinated implementation of this set of conservation objectives and strategic actions that the most effective fish, wildlife, and habitat conservation in the Blackfoot Subbasin will be achieved.

Conservation Objective 1 – Maintain the large, intact working landscapes that sustain the natural resources and rural way of life in the Blackfoot watershed through support to local communities, counties, and land conservation partners.

Conservation Targets Affected: All eight conservation targets: native salmonids, herbaceous wetlands, moist site and riparian vegetation, native grassland/sagebrush communities, low elevation ponderosa pine/western larch forest, mid to high elevation coniferous forest, grizzly bears, rural way of life

Strategic Actions:

1. Through the Conservation Strategies Committee (CSC), maintain the Blackfoot Challenge Conservation Resource Database, watershed map and other GIS-based resources to prioritize areas and pool resources for conservation, stewardship, and land-use planning efforts.
 - a. Integrate baseline data, objectives, and strategic actions for vegetation targets and other data associated with the subbasin plan into future conservation and stewardship activities.
 - b. Provide these resources as requested to Missoula, Powell, and Lewis and Clark Counties and local communities and/or host community forums pertaining to land-use planning efforts.
2. Through the CSC and Conservation Easement Work Group, continue coordinating conservation easements to address conservation targets, adaptive management, and coordinate monitoring; utilize the conservation easement brochure as a clearinghouse for information.
3. Continue coordinating with partners working at the regional level on conservation and stewardship projects, i.e., Cooperative Conservation Agreement for the Blackfoot Watershed, Montana Legacy Project, Missoula County Practical Landscape Assessment for Conservation and Enhancement (PLACE) Project, Seeley-Swan-Blackfoot Stewardship Summit, Crown of the Continent, Partners for Conservation, etc.
4. Research and explore innovative conservation tools such as the transfer of development rights and other incentives that reward sustainable residential development, and their compatibility with the communities, practices, and resources in the Blackfoot.
5. Explore/identify the qualities that define the rural way of life for communities across the watershed and their relationship to public-private conservation, restoration, and stewardship practices with associated community-benefit indicators to monitor effectiveness of programs for the long-term.

Conservation Objective 2a – Maintain and/or restore viable populations of bull trout within the three major population groups³ in the Blackfoot Subbasin.⁴

Conservation Objective 2b – Maintain and/or restore viable populations of migratory (fluvial and adfluvial) westslope cutthroat trout within each of the three major population groups⁵ within the Blackfoot Subbasin.

Conservation Objective 2c – Maintain and/or restore viable populations of resident westslope cutthroat trout within each of the three major population groups within the Blackfoot Subbasin.⁶

Conservation Targets Affected: Native salmonids (bull trout; westslope cutthroat trout). These species are widely distributed and represent the broad range of aquatic environments found in the Blackfoot. Conservation and restoration of these target species and their habitats will also provide benefits for other native fishes, aquatic organisms, and riparian plant communities found throughout the subbasin.

Strategic Actions:

1. Continue to restore physical instream habitat suitable to native salmonids.
 - a. Continue to restore instream habitat connectivity by removing barriers (e.g. diversion barriers, culverts, temperature and pollution barriers) except where maintaining barriers is desirable to maintain physical and genetic isolation.

³ The three major bull trout population groups in the Blackfoot Subbasin are 1) Upper Blackfoot Basin upstream of Nevada Creek, 2) Clearwater River Basin, and 3) Lower Blackfoot Basin (outside of the Clearwater) below Nevada Creek.

⁴ The Bull Trout Draft Recovery Plan (USFWS 2002) lists four recovery objectives for the Clark Fork Recovery Unit. The Blackfoot Subbasin Plan is consistent with those objectives which are as follows: (1) maintain current distribution of bull trout and restore distribution in previously occupied areas within the Clark Fork Recovery Unit; (2) maintain stable or increasing trends in abundance of bull trout in each subunit of the Clark Fork Recovery Unit; (3) restore and maintain suitable habitat conditions for all bull trout life history stages and strategies; and (4) conserve genetic diversity and provide opportunity for genetic exchange.

⁵ The three major westslope cutthroat population groups in the Blackfoot Subbasin are 1) Upper Blackfoot Basin upstream of Nevada Creek, 2) Clearwater River Basin, and 3) Lower Blackfoot Basin (outside of the Clearwater) below Nevada Creek.

⁶ Implicit in this objective is to protect and enhance resident, spawning, and rearing habitats for isolated populations of genetically pure westslope cutthroat trout and to protect these populations from genetic introgression by non-native species.

- b. Continue to implement instream restoration projects that restore proper pattern, profile and dimensions to the impacted channel.
 - c. Continue to implement water conservation/instream flow projects, particularly those that retain or enhance perennial flows over the long term or during low flow periods, and conserve cold waters necessary for native salmonids.
 - d. Continue to implement water quality improvement projects, particularly those that reduce both water temperatures, instream sediment levels, and other pollutants that are deemed harmful to native salmonids.
 - e. Continue to protect and restore riparian vegetation.
 - f. Continue to implement grazing and livestock management projects that benefit riparian and instream habitat.
2. Continue work to reduce the threat of non-native fish interactions. Reduce the threat of non-native aquatic species in several ways:
 - a. Promote restoration or maintenance of natural habitat and stream flow conditions that should lead to a competitive advantage for native fish over non-native species.
 - b. Promote and support public policy that favors native species and their habitats.
 - c. Coordinate efforts to identify the distribution of non-native fish, invertebrates, and plants in aquatic habitats and how these species affect native salmonids.
 - d. Monitor the status of new invasive species in the area surrounding the Blackfoot Subbasin and promote the use of the state's response strategy for non-native species.
 - e. Continue to monitor, educate, and devise strategies to prevent the introduction of non-native and/or invasive aquatic species.
 - f. Conduct public education/outreach about non-native species that threaten native fish salmonid populations.
 3. Use existing climate models to assess how changing climate will affect subbasin hydrologic regime.
 - a. Adapt or extend existing climate-hydrology models (e.g. Crozier et al. 2008; Issak et al. In Review) to develop downscale climate change projections to the subbasin level and, if possible, to the three major fish population areas within the Blackfoot Subbasin. Use this information to inform stakeholders of potential changes in hydrology, water availability and water temperature and to guide and prioritize conservation and restoration efforts.
 - b. Exploit any long term data sets that exist in the subbasin to refine and validate the "downsized" climate projections.
 4. Promote the continuation and expansion of long term data sets with a repository accessible to the public and research partners:
 - a. Reestablish and expand significant long term data sets in the Blackfoot Watershed that have been truncated due to lack of agency funding (e.g. stream discharge, water temperature, air temperature, and fisheries population data).
 - b. Continue historic data sets and create new data sets necessary for tracking impacts of climate change in river, tributary, and lake habitats. Support data collection

efforts by public agencies (e.g. MTFWP, USFS, BLM, DEQ, USGS). These long term data sets allow for adaptive management and conservation efforts.

- c. Augment citizen based monitoring with Blackfoot Challenge coordinating consistent data gathering on private lands to complete data sets and improve management.
5. Develop a viability assessment based on the sixth code HUC level. Complete the aquatic species viability assessment (for each bull trout and westslope cutthroat trout population described above) based on a more complete sixth code HUC level data set that includes all public and private organizations and sources above.
 6. Coordinate implementation of native fish objectives/strategic actions with terrestrial species and upland/wetland objectives/strategic actions. Integrity of terrestrial ecosystems influences and constrains aquatic systems. Integrated implementation of the Blackfoot Subbasin Plan will advance management and allow leveraging of limited resources by recognizing and resolving convergent and potentially conflicting objectives.
 - a. Conduct a spatially explicit assessment of terrestrial and aquatic resources and management conditions that will support development of integrated goals, objectives, and opportunities for collaboration in conservation activities and recognition of joint restoration priorities.
 - b. Develop a water budget that acknowledges the interaction between surface water and groundwater. The Blackfoot Subbasin has a unique geology that creates wetland, stream, and lake habitats that are closely linked. In order to manage any of these habitats effectively we need an integrated hydrologic assessment that:
 - i. catalogs existing information on groundwater-surface water interactions
 - ii. supports development of a water budget
 - iii. includes potential change in water volume and temperature predictions based on climate change models

Conservation Objective 3 – Control existing noxious and invasive⁷ plant species abundance and distribution, and prevent establishment of all new noxious and invasive species in the Blackfoot watershed. Emphasis should be placed on protecting the highest quality habitats, which should be identified and prioritized by 2012.⁸

Conservation Targets Affected: herbaceous wetlands, moist site and riparian vegetation, native grassland/sagebrush communities, low elevation ponderosa pine/western larch forest, mid to high elevation coniferous forest

Strategic Actions:

1. Expand current noxious and invasive weed management efforts by coordinating and cooperating with partners on an ecologically and economically sustainable approach to integrated weed management through the Blackfoot Challenge Weed Steering Committee.
 - a. Continue facilitation, organization, and efficiency of landowner-led Cooperative Weed Management Areas.
 - b. Emphasize prevention of new invaders and develop strategies for early detection and eradication.
 - c. Dedicate resources to education, awareness and outreach through one-on-one contact with landowners, resource users, and the general public.
 - d. Coordinate efforts to eradicate, contain, or control noxious weeds with conservation of rare plant species that occur in the watershed by avoiding or minimizing impacts to known rare plant populations (occurrence data are available from the Montana Natural Heritage Program).
 - e. Monitor and evaluate effectiveness of weed program.
 - f. Continue building private and public partnerships for a sustainable approach to integrated weed management
2. Utilize baseline data for vegetation targets associated with the subbasin plan to develop a Blackfoot Watershed Weed Management Plan (Utilize U.S. Forest Service-Region 1 Noxious Weed Risk Assessment (Mantas 2003)) and coordinate with other land management planning efforts).
 - a. Coordinate efforts to work in the highest quality native plant habitats, contain existing invasive species to their present extent, and attempt to restore native communities.
3. Through the Blackfoot Challenge Weed Steering Committee, develop an Invasive Species Strike Team that will be collectively funded and organized. The team will

⁷ May include pasture grasses in some areas, e.g. wetlands, riparian areas, and native grasslands/sagebrush communities.

⁸ The Blackfoot Challenge will be instrumental in accomplishing this objective at the subbasin scale.

provide coordinated integrated weed identification, management and control, and will emphasize long-term biological control. However, the team will initially emphasize the use of all integrated pest management tools (chemical, biological, mechanical, vegetation management, etc.).

- a. Estimate costs of assembling a strike team.
 - b. Determine how to share the costs, e.g. fee per acre that needs treatment, and obtain sources of outside funding to support/subsidize the effort.
 - c. Attempt to engage participation by as many private and public landowners as possible.
4. Address non-native pasture grasses on a site specific basis, where they are invasive and threatening native plant communities.
 5. Incorporate weed management practices in forestry activities, e.g. use of minimal soil disturbing methods and equipment, reseeding with non-invasive and/or native mixes, equipment washing.
 6. Increase emphasis on biological control of weeds by making more bio-control agents available and increasing funding for bio-control development and implementation.
 7. Increase awareness with small acreage landowners about the importance of controlling noxious and invasive species on their property. (See Conservation Objective 10 for more information on how this strategic action will be implemented).
 8. Use the Blackfoot Community Conservation Area and other sites to establish demonstration plots, to practice, explore and transfer invasive species abatement strategies.
 9. Partner with universities and other public-private entities interested in noxious weed research.
 10. Use stewardship outreach with conservation easement holders to practice, explore and export invasive species abatement strategies (e.g. the Centennial Valley and Rocky Mountain Front). For example, incorporate the Blackfoot Challenge weed program into the conservation easements work group to come up with a consistent watershed-wide approach to monitoring and managing invasive plants on lands with conservation easements.

Conservation Objective 4 - Maintain or restore the viability of priority⁹ native grassland and sagebrush communities based on historic conditions across the watershed.

Conservation Targets Affected: native grassland/sagebrush communities

Strategic Actions:

1. Develop a baseline of historic and current vegetation communities.
 - a. Request proposals for baseline development from the U.S. Forest Service-Region 1, Ecosystem Management Research Institute, Ecosystem Research Group, and University of Montana, and others.
 - b. Assemble team of experts to determine best methodology for developing a baseline (e.g. interpretation of historic aerial photographs; analysis stratified by vegetation type, temperature/moisture regimes).
 - c. Determine the acceptable level of departure from historic conditions (see parameters outlined in viability table in Section x.x).
 - d. Conduct field inventory to classify existing and potential vegetation condition and to identify high-quality existing sites.
2. Analyze degree of departure from HRV¹⁰ overlain with a baseline of developed, converted or otherwise altered areas where it is not feasible to restore and/or maintain those plant communities. Include an assessment of the extent of tree encroachment into native grasslands/sagebrush communities due to fire suppression.
3. Develop a priority map for protection of intact areas and restoration of disturbed areas in critical native plant community areas. Coordinate this effort with actions/needs for other Conservation Targets.
4. Determine a native grassland/sagebrush community conservation goal (total area conserved) and timeline for achieving the goal.

⁹ “Priority” sites will be determined based on HRV analysis outlined in strategic actions. Significant information gaps exist for each of the Blackfoot Subbasin vegetation/forest targets, making it difficult to develop quantifiable objectives. Thus, many of the strategic actions in conservation objectives 4-8 are focused on filling these information gaps.

¹⁰ HRV refers to “historic range of variability”, or the range of critical ecological processes and conditions that have characterized particular ecosystems over specified time periods and under varying degrees of human influences. An understanding of HRV allows managers to understand the dynamic nature of ecosystems; the processes that sustain and change ecosystems; the current state of the ecosystem in relationship to the past; and the possible ranges of conditions that are feasible to maintain. HRV is a useful tool for determining a range of desired future conditions and for establishing the limits of acceptable change. Best available science and local management expertise are used to determine HRV. Once the HRV is established for an area, it can be compared to existing vegetative conditions to determine departures from HRV. This information can aid resource managers in planning vegetation treatments.

5. Develop tools for maintaining healthy sites identified in the inventory and planning process, outlined above, and restore¹¹ high priority degraded sites.
 - a. Maintain sites closest to historic condition using fire or other vegetation management tools.
 - b. Develop specific tools for maintaining the Three-tip Sagebrush–Rough Fescue Association.
 - c. Use the Bandy Ranch and Blackfoot Community Conservation Area to test and demonstrate grassland restoration techniques.
6. Encourage sustainable development in priority native plant community areas.
7. Monitor for viability of nested targets (Columbian sharp-tailed grouse; long-billed curlew; Brewer’s sparrow; grasshopper sparrow; bobolink; ungulate winter range; rare plant species). Develop action items if necessary for nested target protection. See Section 3.3 for more information on nested targets.
8. Capitalize on wildland/urban interface funding and the need to restore grasslands and/or sagebrush communities within the forest/grassland-shrubland interface to historic condition.
9. Increase awareness about the important role of fire and other ecological processes in the maintenance of native grassland/sagebrush communities.
10. Coordinate with other land management planning efforts, e.g., the U.S. Forest Service (USFS) National Forest Plans and Bureau of Land Management (BLM), Department of Natural Resource Conservation (DNRC), U.S. Fish and Wildlife Service (USFWS), and Montana Fish, Wildlife and Parks (FWP) planning updates.
11. Incorporate prescribed fire burn plans & incentives for the use of managed fire, as well as grassland/sagebrush protection and restoration, into private, public, and interagency land management plans.
12. Evaluate, monitor, and plan in an iterative way (adaptive management). Through ongoing monitoring and data gathering, refine viability indicator ratings necessary to maintain or restore the viability of priority native grassland and sagebrush communities.

¹¹ The 2008 USFS Restoration Policy (USDA Forest Service 2008) defines *ecological restoration* as the process of assisting the recovery of resilience and adaptive capacity of ecosystems that have been degraded, damaged, or destroyed. Restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to make terrestrial and aquatic ecosystems sustainable, resilient, and healthy under current and future conditions.

Conservation Objective 5 – Maintain or restore the viability of priority herbaceous wetlands based on historic conditions across the watershed.

Conservation Targets Affected: herbaceous wetlands

Strategic Actions:

1. Develop a baseline of historic and current vegetation communities.
 - a. Request proposals for baseline development from the U.S. Forest Service-Region 1, Ecosystem Management Research Institute, Ecosystem Research Group, University of Montana, and others.
 - b. Assemble team of experts to determine best methodology for developing a baseline (e.g. interpretation of historic aerial photographs; analysis stratified by vegetation type, temperature/moisture regimes).
 - c. Determine the acceptable level of departure from historic conditions (see parameters outlined in viability table in Section x.x).
 - d. Conduct field inventory to classify existing and potential vegetation condition and to identify high-quality existing sites.
2. Analyze degree of departure from HRV overlain with a baseline of developed, converted or otherwise altered areas where it is not feasible to restore and/or maintain those plant communities.
3. Develop a priority map for protection of intact areas and restoration of disturbed areas in critical native plant community areas. Coordinate this effort with actions/needs for other Conservation Targets, such as wildlife linkage zones.
4. Determine a wetland community conservation goal (total area conserved) and timeline for achieving the goal.
5. Develop tools for maintaining healthy sites identified in the inventory and planning process, outlined above, and restore high priority degraded sites.
 - a. Address water manipulation and management in wetlands: timing, depth (draining wetlands or using as irrigation water storage devices).
 - b. Work with willing landowners of prioritized wetlands on water management plans.
 - c. Use the Blackfoot Community Conservation Area and other project sites to test and demonstrate restoration techniques.
6. Encourage sustainable development near priority herbaceous wetlands.
7. Monitor for viability of nested targets (common loon; trumpeter swan; red-necked grebe; rare wetland plants; rare amphibians; rare invertebrates). Develop action items if necessary for nested target protection. See Section 3.3 for more information on nested targets.
8. Increase awareness about the important role of fire and other ecological processes in the maintenance of wetland systems.

9. Coordinate with other land management planning efforts, e.g., the USFS National Forest Plans and BLM, DNRC, USFWS, and FWP planning updates.
10. Incorporate incentives for restoration and protection in private, public, and interagency land management plans.
11. Evaluate, monitor, and plan in an iterative way (adaptive management). Through ongoing monitoring and data gathering, refine viability indicator ratings necessary to maintain or restore the viability of priority wetland communities.

Conservation Objective 6 – Maintain or restore the viability of priority moist site and riparian vegetation based on historic conditions across the watershed.

Conservation Targets Affected: moist site and riparian vegetation

Strategic Actions:

1. Develop a baseline of historic and current vegetation communities.
 - a. Request proposals for baseline development from the U.S. Forest Service-Region 1, Ecosystem Management Research Institute, Ecosystem Research Group, University of Montana, and others.
 - b. Assemble team of experts to determine best methodology for developing a baseline (e.g. interpretation of historic aerial photographs; analysis stratified by vegetation type, temperature/moisture regimes).
 - c. Determine the acceptable level of departure from historic conditions (see parameters outlined in viability table in Section x.x).
 - d. Conduct field inventory to classify existing and potential vegetation condition and to identify high-quality existing sites.
2. Analyze degree of departure from HRV overlain with a baseline of developed, converted or otherwise altered areas where it is not feasible to restore and/or maintain those plant communities.
3. Develop a priority map for protection of intact areas and restoration of disturbed areas in critical native plant community areas. Coordinate this effort with actions/needs for other Conservation Targets, such as wildlife linkage zones.
4. Determine a moist site and riparian community conservation goal (total area conserved) and timeline for achieving the goal.
5. Develop tools for maintaining healthy sites identified in the inventory and planning process, outlined above, and restore high priority degraded sites.
 - a. Maintain sites closest to historic condition using fire or other vegetation management tools.
 - b. Use such tools as: NRCS Riparian Forest Buffers¹² and Riparian Proper Functioning Condition¹³

¹² A riparian forest buffer is an area of trees and shrubs located adjacent to streams, lakes, ponds, and wetlands. Riparian forest buffers of sufficient width intercept sediment, nutrients, pesticides, and other materials in surface runoff and reduce nutrients and other pollutants in shallow subsurface water flow. Woody vegetation in buffers provides food and cover for wildlife, helps lower water temperatures by shading waterbody, and slows out-of-bank flood flows. In addition, the vegetation closest to the stream or waterbody provides litter fall and large woody debris important to aquatic organisms. Also, the woody roots increase the resistance of streambanks and shorelines to erosion caused by high water flows or waves (NRCS).

¹³ *Riparian Proper Functioning Condition* (PFC) is a qualitative assessment of riparian conditions. A qualitative assessment is defined as “the process of estimating or judging the value or functional status of ecological processes

- c. Use BBCTU's priority list, the Basin-Wide Restoration Action Plan for the Blackfoot Watershed, and other key plans.
 - d. Use the Blackfoot Community Conservation Area and other project sites to test and demonstrate moist site and riparian community restoration techniques.
6. Encourage sustainable development near priority moist site and riparian vegetation areas.
7. Monitor for viability of nested targets (Williamson's sapsucker; bald eagle; cottonwood forests; aspen groves; riparian shrublands). Develop action items if necessary for nested target protection. See Section 3.3 for more information on nested targets.
8. Increase awareness about the important role of fire and other ecological processes in the maintenance of moist site and riparian systems.
9. Coordinate with other land management planning efforts, e.g., the USFS National Forest Plans and BLM, DNRC, USFWS, and FWP planning updates.
10. Incorporate incentives for restoration and protection in private, public, and interagency land management plans.
11. Evaluate, monitor, and plan in an iterative way (adaptive management). Through ongoing monitoring and data gathering, refine viability indicator ratings necessary to maintain or restore the viability of priority moist site and riparian communities.

(e.g. ecosystem health) in a location during a moment in time" (Pellant et al. 2005). A standard checklist of riparian attributes (amount, function etc.) is assessed by an interdisciplinary team along a selected reach (for lotic assessments) or wetland (for lentic assessments). Although PFC is not a monitoring or inventory tool, it can be used to diagnose function and determine whether additional, quantitative data need to be collected. The assessment results in designating the system as either PFC, Functioning-at-Risk, or Non-Functioning.

Conservation Objective 7 - Maintain or restore the viability of low severity fire regime ponderosa pine and western larch forest communities¹⁴ based on historic stand conditions across the watershed.

Conservation Targets Affected: low elevation ponderosa pine/western larch forest

Strategic Actions:

1. Develop a baseline of historic and current vegetation communities.
 - a. Request proposals for baseline development from the U.S. Forest Service-Region 1, Ecosystem Management Research Institute, Ecosystem Research Group, University of Montana, and others.
 - b. Assemble team of experts to determine best methodology for developing a baseline (e.g. interpretation of historic aerial photographs; analysis stratified by vegetation type, temperature/moisture regimes).
 - c. Include analysis of wildlife linkage areas and forest carnivore (lynx, fisher) needs.
 - d. Determine the acceptable level of departure from historic conditions (see parameters outlined in viability table in Section x.x).
 - e. Conduct field inventory to classify existing and potential vegetation condition, including understory vegetation, and to identify high-quality existing sites.
2. Analyze degree of departure from HRV overlain with a baseline of developed, converted or otherwise altered areas where it is not feasible to restore and/or maintain those plant communities. In HRV analysis, emphasize the low elevation forest types if resources are limited.
3. Develop a priority map for protection of intact areas and restoration of disturbed areas in critical native plant community areas. Coordinate this effort with actions/needs for other Conservation Targets, such as wildlife linkage zones.
4. Determine a low elevation ponderosa pine/western larch forest community conservation goal (total area conserved) and timeline for achieving the goal.
5. Develop tools for maintaining healthy sites identified in the inventory and planning process, outlined above, and restore high priority degraded sites using appropriate vegetation management tools (e.g. fire, mechanical treatments).
 - a. Maintain sites closest to historic condition using fire or other vegetation management tools.
 - b. Seek opportunities to restore forest stands to historic conditions where it overlaps with the needs of public safety within the wildland/urban interface.

¹⁴ This includes mostly low-elevation, dry forest types, but may include more mesic stands, particularly larch-dominated stands in Clearwater drainage.

- c. Use Lubrecht Experimental Forest, the Blackfoot Community Conservation Area, and other project sites to test and demonstrate low elevation forest restoration techniques.
6. Promote forestry practices (e.g. thinning) that enhance resilient and sustainable stand conditions.
 - a. Consider effects of forest roads on hydrology, wildlife security, weed introductions, etc.
 - b. Through the Blackfoot Challenge Forestry Committee, coordinate fuels mitigation work in the Wildland Urban Interface to enhance sustainable stand conditions in conjunction with creating fire safety zones.
7. Maintain the viability of the local wood products industry through increased local production of wood products generated from restoration treatments. For example, support:
 - a. Construction and use of small co-gen plants for local energy production (burning chips, pellets)
 - b. Locally-produced pine/fir furniture
 - c. Small-diameter fir/larch flooring
8. Monitor for viability of nested targets (flamulated owl; great gray owl; Lewis's woodpecker). Develop action items if necessary for nested target protection. See Section 3.3 for more information on nested targets.
9. Increase awareness about the important role of fire and other ecological processes in the maintenance of forest systems.
10. Coordinate with other land management planning efforts, e.g., the USFS National Forest Plans and BLM, DNRC, USFWS, and FWP planning updates.
11. Coordinate with Montana Forest Stewardship Steering Committee, UM Applied Forest Management Program, and others to gain support for projects and funding on private lands.
12. Incorporate prescribed fire burn plans & incentives for the use of managed fire, as well as forest protection and restoration, into private, public, and interagency land management plans.
13. Coordinate with Montana Forest Restoration Committee to gain support for projects and funding on USFS lands.
14. Evaluate, monitor, and plan in an iterative way (adaptive management). Through ongoing monitoring and data gathering, refine viability indicator ratings necessary to maintain or restore the viability of priority low elevation ponderosa pine/western larch forest communities.

Conservation Objective 8 - Maintain or restore the viability of mid to high elevation coniferous forest communities based on historic stand conditions across the watershed.

Conservation Targets Affected: mid to high elevation coniferous forest

Strategic Actions:

1. Develop a baseline of historic and current vegetation communities.
 - a. Request proposals for baseline development from the U.S. Forest Service-Region 1, Ecosystem Management Research Institute, Ecosystem Research Group, University of Montana, and others.
 - b. Assemble team of experts to determine best methodology for developing a baseline (e.g. interpretation of historic aerial photographs; analysis stratified by vegetation type, temperature/moisture regimes).
 - c. Include analysis of wildlife linkage areas and forest carnivore (lynx, fisher) needs.
 - d. Determine the acceptable level of departure from historic conditions (see parameters outlined in viability table in Section x.x).
 - e. Conduct field inventory to classify existing and potential vegetation condition, including understory vegetation, and to identify high-quality existing sites.
2. Analyze degree of departure from HRV overlain with a baseline of developed, converted or otherwise altered areas where it is not feasible to restore and/or maintain those plant communities. In HRV analysis, emphasize the low elevation forest types if resources are limited (see Conservation Objective 7).
3. Develop a priority map for protection of intact areas and restoration of disturbed areas in critical native plant community areas. Coordinate this effort with actions/needs for other Conservation Targets, such as wildlife linkage wildlife linkage zones and critical lynx habitat.
4. Determine a mid to high elevation coniferous forest community conservation goal (total area conserved) and timeline for achieving the goal.
5. Develop tools for maintaining healthy sites identified in the inventory and planning process, as outlined above, and restore high priority degraded sites using appropriate vegetation management tools (e.g. fire, mechanical treatments).
 - a. Maintain sites closest to historic condition using fire or other vegetation management tools.
 - b. Seek opportunities to restore forest stands to historic conditions where it overlaps with the needs of public safety within the wildland/urban interface.
 - c. Use Lubrecht Experimental Forest, Blackfoot Community Conservation Area, and other project sites to test and demonstrate mid- to high elevation forest restoration techniques.
 - d. Support the federal and state agency partners in their whitebark pine restoration efforts.

6. Promote forestry practices that enhance resilient sustainable stand conditions.
 - a. Consider effects of forest roads on hydrology, wildlife security, weed introductions, etc.
 - b. Use the Blackfoot Challenge Forestry Committee to coordinate fuels mitigation work in the Wildland Urban Interface to enhance sustainable stand conditions in conjunction with creating fire safety zones.
7. Maintain the viability of the local wood products industry through increased local production of wood products generated from restoration treatments.
 - a. Pursue construction and use of small co-gen plants for local energy production (burning chips, pellets)
 - b. Locally-produced pine/fir furniture
 - c. Small-diameter fir/larch flooring
8. Monitor for viability of nested targets (forest carnivores; northern goshawk; olive-sided flycatcher; black-backed woodpecker; whitebark pine). Develop action items if necessary for nested target protection. See Section 3.3 for more information on nested targets.
9. Increase awareness about the important role of fire and other ecological processes in the maintenance of forest systems.
10. Coordinate with other land management planning efforts, e.g., the National Forest plan revisions and BLM, DNRC, USFWS, and FWP planning updates.
11. Coordinate with Montana Forest Stewardship Steering Committee, UM Applied Forest Management Program, and others to gain support for projects and funding on private lands.
12. Incorporate prescribed fire burn plans & incentives for the use of managed fire, as well as forest protection and restoration, into private, public, and interagency land management plans.
13. Coordinate with Montana Forest Restoration Committee to gain support for projects and funding on USFS lands.
14. Evaluate, monitor, and plan in an iterative way (adaptive management). Through ongoing monitoring and data gathering, refine viability indicator ratings necessary to maintain or restore the viability of priority mid to high elevation coniferous forest communities.

Conservation Objective 9a – Maintain functional connectivity for grizzlies across biologically suitable habitats in the Blackfoot Subbasin.¹⁵

Conservation Targets Affected: grizzly bears

Strategic Actions:¹⁶

1. Address physical road issues (e.g. migration barriers, mortality) and recreational road use impacts through county planning efforts, private landowner stewardship projects, cooperative demonstration projects like the BCCA, and travel management processes on public lands (NEPA and MEPA).
2. Address wildlife movement across HWY 200 and HWY 83.
 - a. Assist MT Department of Transportation in wildlife mitigation measures, ITEEM, etc.
 - b. Plan for potential road crossing structures and other wildlife mitigation using wildlife movement areas maps developed in January 2009.
3. Reduce presence of attractants. In partnership with FWP, USFWS, and the Blackfoot Challenge’s Wildlife Committee, continue work on “attractant security”, or making artificial food sources (e.g. household garbage, livestock feed, birdfeed) off limits to grizzly bears. Continue the Blackfoot Challenge’s “Neighbor Network” phone tree program and expand the program to Lincoln, Woodworth, and the Avon-Helmville area to address attractants and other sanitation issues.
4. Address impacts of motorized recreational use on grizzly bears through USFS, BLM, and DNRC public planning and public involvement in the NEPA and MEPA processes.¹⁷
5. Address impacts of non-motorized recreation on grizzly bears through education and outreach efforts. Use new knowledge about grizzly bear behavior to help river recreationists, hikers, bikers, fishers, hunters, mushroom pickers, etc. learn how to safely live, recreate, and work in bear country.¹⁸

¹⁵ It should be noted that while certain habitat types are preferred by grizzly bears and are seasonally influenced by food availability, improving habitat level connectivity for grizzly bear in a place like the Blackfoot watershed is largely an endeavor of reducing the risk of mortality in portions of this landscape that support the life history needs of grizzly bears. Large portions of the Blackfoot watershed 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 can impair functional habitat connectivity, largely through human-caused mortality.

¹⁶ The Blackfoot Challenge’s Wildlife Committee has been and will continue to be pivotal implementing these strategic actions designed to improve management of human-wildlife interactions in the Blackfoot Subbasin.

¹⁷ The BCCA Council has developed a motorized recreation use plan that addresses potential impacts to wildlife including grizzly bears.

¹⁸ While non-motorized recreational use conflicts with grizzly bears in the watershed have been relatively few, 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.

6. Address impacts of resource extraction on grizzly bears. The Blackfoot Challenge can serve as a forum for thoughtful dialogue among all invested stakeholders on mine site development and other resource extraction issues.

Conservation Objective 9b – Reduce human-caused grizzly bear mortality in the Blackfoot Subbasin.

Conservation Targets Affected: grizzly bears

Strategic Actions:

1. Maintain and/or establish partnerships between the Blackfoot Challenge’s Wildlife Committee, livestock producers, managers, landowners, USFWS, MFWP, NRCS, DNRC, and others throughout the watershed to improve livestock production practices and reduce the risk of domestic livestock depredation and property damage by grizzlies.
2. Continue to systematically prioritize high risk areas (conflict hotspots) using GIS spatial analysis and expert opinion of FWP to focus conflict abatement in geographically targeted areas in the most cost effective manner possible.
3. Continue to implement proven non-lethal deterrent practices to remove or secure attractants, i.e. electric fencing (calving areas, beehives, as-needed garbage); livestock carcass removal; and sanitation at the household and municipal levels.
4. Continue to work collaboratively with the community on a variety of education/outreach efforts through the Neighbor Network to better understand how to live, work, and recreate safely in grizzly bear country.
5. Reduce direct mortality of grizzly bears.
 - a. Reduce illegal (including poaching) killing of grizzly bears through education and outreach efforts. FWP and USFWS law enforcement are the lead agencies that address malicious or vandal killing.
 - b. Assist FWP and the USFWS as requested to address mistaken ID killing of grizzly bears by black bear hunters.
 - c. Reduce self defense-related mortality of grizzly bears.
 - i. Improve access to hunter-safety education in the Blackfoot
 - ii. Provide workshops to improve hunter knowledge of bear behavior
 - iii. Target season-specific education efforts when poor food years are likely to occur to prevent conflicts due to more widely dispersed grizzly bear foraging activity that results in increased probability of hunter-grizzly encounters.
 - d. Work with MT Department of Transportation (MDT) to reduce direct highway mortality of grizzly bears related to vehicle collisions and highway attractants (e.g. garbage at rest stops, road-killed animals, tractor-trailer cargo spills, and roadside enhanced vegetation such as berries and grass).
 - i. Work with MDT to reduce/mitigate highway attractants.
 - ii. Work with MDT to improve wildlife passage across highways.

- iii. Work with MDT to mitigate the effects of potential highway improvements (e.g. construction of four-lane highways) on wildlife in the Blackfoot Subbasin.
- e. Reduce management action-related mortality of grizzly bears.¹⁹
- f. Reduce research and management (e.g. trapping)-related mortality of grizzly bears (FWP/USFWS are primarily responsible for this).

¹⁹ The efforts of FWP, the USFWS, the WC, landowners, and all partners over the past 6 years have likely helped reduce reported and verified human-grizzly bear conflicts that can lead to “management removals” or grizzly mortality.

Conservation Objective 9c – Improve human acceptance of grizzly bears by building a community-supported conservation and management process that reflects the interests and values of residents and landowners throughout the Blackfoot Subbasin.

Conservation Targets Affected: grizzly bears

Strategic Actions:

1. Continue to maintain regular communication with community members and all stakeholders through inclusive decision making process²⁰ using the Blackfoot Challenge’s Wildlife Committee and associated work groups and forums, i.e. Landowner Advisory Work Group, Sanitation and Waste Management Work Group, Neighbor Network training, and one-on-one visits with landowners.
2. Continue to engage with landowners and ranchers on participatory projects
 - a. Continue to use on-the-ground projects (e.g., electric fencing) as a positive way to improve tolerance for grizzly bears by reducing livestock depredation risk.
 - b. Select specific fencing projects to showcase during field tours to increase awareness of how this technology can deter grizzly bears in a non-lethal manner.
3. Conduct a survey on Blackfoot area rancher tolerance for grizzly bears
 - a. Baseline data was collected in 2003 through a survey. If needed, a follow up survey could document possible changes or improvements in human tolerance for grizzly bears.

²⁰ A major component of WC work with the USFWS, FWP, landowners, and all partners has been to focus on changing specific land use practices and human behaviors that lead to conflicts with bears. We have avoided trying to “change the way people think about bears” in an explicit fashion but have instead focused on trying to “change the way people live, work, and recreate around bears.” We are hopeful that once we as a community can learn to live with bears, then attitudes and or perceptions of bears may improve.

Conservation Objective 10 – Increase public awareness and education about conserving and enhancing the natural resources and rural way of life in the Blackfoot watershed.

Conservation Targets Affected: All eight conservation targets: native salmonids, herbaceous wetlands, moist site and riparian vegetation, native grassland/sagebrush communities, low elevation ponderosa pine/western larch forest, mid to high elevation coniferous forest, grizzly bears, rural way of life

Strategic Actions:

1. Promote opportunities to engage public and private partners in implementation of the subbasin plan and future resource stewardship. Increase public awareness related to:
 - a. The important role of fire and other processes in the maintenance of forest systems and other vegetation communities.
 - b. The importance of controlling non-native and invasive species and each landowner's responsibility in managing noxious weeds on his/her property.
 - c. The top-ranked threats in the Blackfoot Subbasin Plan (climate change; residential and resort development; invasive, alien species; lack of fire; incompatible forestry practices, physical road issues, conversion to agriculture, mining).
2. Promote the Rural Living Institute (RLI) to the all residents of the Blackfoot Watershed. The RLI is a venue for providing information to new and current landowners through the Blackfoot Challenge by providing online informational resources, workshops and courses for aspects related to living in the Blackfoot Watershed and being a good land steward.
3. Through the Blackfoot Challenge Education Committee and its partners, prepare and distribute new and progressive materials and engage partners in learning more about resource stewardship. Examples include video, website, field-based tours, targeted education brochures/magazines (for small acreage landowners, realtors, etc.), community meetings, etc.
4. Promote conservation measures and/or sustainable practices that strengthen rural economic sectors of the Blackfoot..
 - a. Promote energy efficiency particularly in the agricultural irrigation sector and assist landowners in implementing energy conservation projects
 - b. Provide education on practices such as irrigation scheduling or sustainable timber harvesting that can provide economic benefits while conserving natural resources.
 - c. Provide education on links between economic stability and land stewardship.
 - d. Encourage exploration of alternative markets and other opportunities to diversify economic base of rural communities.

5.3 Monitoring, Evaluation, and Research Plan

The purpose of the Blackfoot Subbasin Monitoring and Evaluation Plan is to: (1) provide a framework for measuring conservation target viability over time, (2) ensure that strategic actions are abating the critical threats to conservation targets, and (3) verify that the stresses and threats identified in the Subbasin Assessment are, in fact, the factors that are limiting the viability of each conservation target. Through this process, existing strategies will be modified and new strategies will be developed. The process will also generate a cooperative research agenda to address management uncertainties and fill information gaps related to stated objectives and strategies.

The *Blackfoot River Valley Conservation Area Plan* (TNC and BC 2007) includes a monitoring plan designed to measure conservation target viability over time. The Blackfoot Subbasin Monitoring and Evaluation Plan will be based on this general template, but will incorporate the results of the Blackfoot Subbasin Viability Assessment (Section X.x) that outlines the current and desired viability ratings for a variety of measures for each conservation target. These measures will provide a framework for monitoring and evaluation of progress toward achieving Conservation Objectives in the subbasin.

A Basin-Wide Restoration Action Plan for the Blackfoot Watershed (BC 2005) presents a conceptual plan for restoration effectiveness monitoring in the Blackfoot Watershed which will also be incorporated into the Blackfoot Subbasin Monitoring and Evaluation Plan. The purpose of this Restoration Effectiveness Monitoring Plan is to provide a common reference for restoration planners to determine appropriate monitoring parameters/activities and protocol to utilize on a given restoration project. Specific objectives of this document include:

- Promoting inclusion of appropriate pre and post-restoration monitoring in all stream and riparian area restoration projects within the watershed;
- Establishing monitoring protocol and procedures to be employed for restoration monitoring to ensure consistency in data collection efforts between projects and between various organizations/agencies involved with stream and riparian area restoration; and
- Providing a tool for use in the planning and design phase of restoration projects throughout the watershed.

Attainment of these objectives will not only assist project planners in the design and implementation of appropriate restoration effectiveness monitoring on their projects, but should also result in a greater degree of consistency in the scope of monitoring, and monitoring methodologies employed, both from project to project and through time. This in turn will lead to development of a comprehensive database of restoration-related data and information collected under consistent methods, thus facilitating informational sharing among projects and, potentially, reduced monitoring costs in the long-term.

5.4 Endangered Species Act and Clean Water Act Requirements

For a subbasin plan to be adopted by the NPCC, the plan must conform to existing federal guidelines of the Endangered Species Act (ESA) and Clean Water Act (CWA).

ESA: The relationship of the Blackfoot Subbasin to Endangered Species Act Planning Units and the status of Threatened and Endangered species in the subbasin are discussed in the Subbasin Assessment. Nine of the Blackfoot Subbasin Conservation Objectives directly or indirectly address threatened and endangered species (grizzly bear, Canada lynx, bull trout) in the subbasin. Many of the strategic actions listed under these objectives directly support goals and objectives in relevant ESA recovery plans. Each of the conservation objectives will also support conservation of one or more Montana Species of Concern, which are listed Tables 3.X and 3.X (MNHP 2009b).

CWA: Water quality conditions in the Blackfoot Subbasin are discussed in the Subbasin Assessment. Many of the Blackfoot Subbasin Conservation Objectives incorporate strategic actions that will help to satisfy CWA objectives in the subbasin. The salmonid objectives and many of the vegetation-related objectives, in particular, address the CWA by including strategic actions that address forestry practices, road issues, livestock management, riparian vegetation, channel alteration, drainage systems, and other factors that impact water quality in the subbasin.

Table 5.2 illustrates how the Blackfoot Subbasin Conservation Objectives are reflective of and integrated with recovery goals of ESA recovery plans and where they are supportive of and consistent with the CWA.

Table 5.2. Relationship of Blackfoot Subbasin Conservation Objectives to the ESA and CWA.

Conservation Objective	Addresses ESA	Addresses CWA
Conservation Objective 1 – Maintain the large, intact working landscapes that sustain the natural resources and rural way of life in the Blackfoot watershed through support to local communities, counties, and land conservation partners.	√	√
Conservation Objective 2a – Maintain and/or restore viable populations of bull trout within the three major population groups in the Blackfoot Subbasin.	√	√
Conservation Objective 2b – Maintain and/or restore viable populations of migratory (fluvial and adfluvial) westslope cutthroat trout within each of the three major population groups within the Blackfoot Subbasin.		√
Conservation Objective 2c – Maintain and/or restore viable populations of resident westslope cutthroat trout within each of the three major population groups within the Blackfoot Subbasin.		√

Table 5.2 (continued).

Conservation Objective	Addresses ESA	Addresses CWA
Conservation Objective 3 – Control existing noxious and invasive plant species abundance and distribution, and prevent establishment of all new noxious and invasive species in the Blackfoot watershed. Emphasis should be placed on protecting the highest quality habitats, which should be identified and prioritized by 2012.		√
Conservation Objective 4 – Maintain or restore the viability of priority native grassland and sagebrush communities based on historic conditions across the watershed.		
Conservation Objective 5 - Maintain or restore the viability of priority herbaceous wetlands based on historic conditions across the watershed.		√
Conservation Objective 6 – Maintain or restore the viability of priority moist site and riparian vegetation based on historic conditions across the watershed.	√	√
Conservation Objective 7 – Maintain or restore the viability of low severity fire regime ponderosa pine and western larch forest communities based on historic stand conditions across the watershed.	√	√
Conservation Objective 8 - Maintain or restore the viability of mid to high elevation coniferous forest communities based on historic stand conditions across the watershed.	√	√
Conservation Objective 9a - Maintain functional connectivity for grizzlies across biologically suitable habitats in the Blackfoot Subbasin.	√	
Conservation Objective 9b – Reduce human-caused grizzly bear mortality in the Blackfoot Subbasin.	√	
Conservation Objective 9c –Improve human acceptance of grizzly bears by building a community-supported conservation and management process that reflects the interests and values of residents and landowners throughout the Blackfoot Subbasin.	√	
Conservation Objective 10 – Increase public awareness of the Blackfoot Watershed and the subbasin/conservation planning process, emphasizing the need to conserve the rural life, values, and natural resources of the watershed.	√	√