

Appendix B

East Pioneer Watershed Monitoring Plan

Monitoring Plan for East Pioneer Watershed

Introduction

The purpose of this resource monitoring plan is to measure the effectiveness of management changes, structural projects and vegetative treatments in meeting the goals and objectives developed for the East Pioneer Watershed (EPW). This plan has been designed to measure progress towards site specific objectives developed by an ID team where resource concerns were identified during the East Pioneer Watershed Assessment process.

This plan will identify when, where and how studies will be conducted, as well as the types of data that will be collected, how the data will be evaluated, and who will participate in the process. All monitoring methodologies are approved BLM monitoring methodologies and are described in various BLM or Interagency Handbooks. The aforementioned information, including technical references, BLM policy and procedure handbooks, and monitoring guidelines and methodology descriptions are available for review at the Dillon Field Office. Technical references and BLM procedural handbooks providing a description of BLM monitoring methodologies are also available on the BLM library website; <http://www.blm.gov/nstc/library/library.html>.

All existing monitoring studies that are needed to measure progress towards objectives or Standards will continue to be read on the same time schedule as new studies.

Site Specific Objectives

There were two primary land health issues and four additional resource concerns identified during the East Pioneer Watershed Assessment and through public scoping. Site specific objectives have been developed for each issue and resource concern. The amount of change desired for each of the objectives will be determined once additional baseline data is gathered during the 2009 or 2010 field season. The goal is to make measurable (significant) progress towards site specific objectives and Proper Functioning Condition by 2018.

Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species

Objectives:

- Increase cover and frequency of native perennial cool-season herbaceous species where concerns were documented.
- Prevent spread of noxious and invasive species into and within the watershed and reduce, contain or eradicate existing infestations.
- Maintain residual herbaceous cover for ground nesting birds, specifically sage grouse.
- Manage sagebrush habitats so that 70% or more of potential big sagebrush communities provide the vegetative composition and structure to sustain sage grouse populations and other sagebrush obligate species such as pronghorn antelope and pygmy rabbits.
- Maintain 15-25% sagebrush canopy cover and herbaceous cover conducive to nesting and brood-rearing success surrounding leks, as applicable within site potential.
- Restore or maintain grassland and shrubland habitat types affected by conifer expansion.

Monitoring Activities to measure progress towards meeting Upland Health, Sagebrush Steppe Habitat and Associated Species objectives:

- Continue early detection, monitoring, and evaluation of noxious weeds treatments in cooperation Beaverhead County and other partners.
- Continue existing upland trend studies (Daubenmires) within the EPW and add new upland trend studies as shown below.
- Maintain winter use big game utilization studies to continue monitoring the habitat quality and determine if management of these areas is providing the seasonal habitat requirements of existing populations (or population objectives) of big game.

Table 1. Site Specific Upland Objectives

Allotment Name	Objective	Monitoring Methodologies
Cherry Creek Childs Individual SGC Smith Individual SGC Willow Creek Individual Seven Springs	1. Increase frequency and cover of cool season perennial bunchgrasses to protect soil, allow for more efficient precipitation infiltration, prevent noxious weed invasion, provide cover and forage for wildlife species, and forage for authorized livestock.	1. Daubenmire, Quadrat (nested) Frequency, and/or photo points

Table 2. Site Specific Objectives for Sagebrush Habitat

Allotment Name	Objective	Monitoring Methodologies
Birch Creek Burk SGC Cherry Creek Lost-Willow Peck SGC Seven Springs Sisterson Skeeters Skeeters Meadows South Seven Springs Twin Adams Vipond-Glendale	1. Locate sage grouse leks. 2. Delineate seasonal habitats of sage grouse. 3. Maintain nesting canopy cover of 15–25% sagebrush on the majority of the area within two miles of leks. 4. Maintain adequate herbaceous understory on the majority of the area within two miles of leks during nesting /early brood rearing (typically April through mid-June). The herbaceous understory objective is an average of 6 to 7 inches within site potential. 5. Maintain brood rearing canopy cover of 15–25% sagebrush near riparian areas or wet meadows while maintaining available forbs in the wet meadows. 6. Maintain or increase composition of highly nutritious forbs (ie composites and legumes) in nesting/early brood rearing habitat. 7. Inventory for pygmy rabbit presence in suitable habitat.	1. Aerial and ground inventory in coordination with MT FWP. 2-6. Habitat Characterization Monitoring; This methodology may combine telemetry study* (radio collar and tracking of hens to identify nesting and brood-rearing habitats) with Line Intercept and Daubenmire plots to measure canopy cover of sagebrush and herbaceous understory and composition of forbs. 4 & 6. Forage utilization and herbaceous understory cover will be measured annually on a prioritized basis. 7. Ocular survey (grid) for pygmy rabbit presence.

Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species

Objectives:

- Maintain or improve conditions in riparian/wetland habitats that are in PFC.
- Restore deciduous woody habitat types (aspen, willow) in riparian areas that have been invaded by coniferous trees (e.g., Brownes Creek).
- Maintain/enhance existing aspen stands and promote successful regeneration of aspen where concerns were documented (e.g., Seven Springs).
- Increase deep-rooted riparian vegetation (e.g., sedges, willows) where decreased composition was documented.
- Restore stream dimension, pattern, and profile to the natural range of variation where concerns were documented.
- Restore, maintain or enhance native vegetation and hydrology to springs, seeps and wet meadows where concerns were documented.
- Reduce sediment loads where uses on public lands are causing increased sediment (e.g., cattle loitering, road maintenance).
- Maintain or enhance habitat for cold water fisheries in occupied streams within the watershed.
- Prevent spread of noxious and invasive species into and within the watershed and reduce, contain, or eradicate existing infestations.

Monitoring Activities to measure progress towards meeting Riparian, Wetland and Aquatic Habitat and Associated Species objectives:

- Continue monitoring westslope cutthroat trout population and distribution in coordination with Montana Fish, Wildlife and Parks (MFWP).
- Continue monitoring existing riparian studies to measure progress towards site specific objectives and PFC.
- Springs that are developed/redeveloped will be photographed before and after development and inspected and photographed periodically after development (every 2-3 years), including prior to the next scheduled assessment.

Table 3. Site specific Riparian and Wetland Habitat and Associated Species Monitoring Objectives

Allotment Name	Stream and Reach Number	Objective	Monitoring Methodology
Seven Springs	Seven Springs (506)	1. Increase aspen regeneration in the 57 acre spring province 2. Increase composition of sedge, reduce soil compaction and improve channel morphology at the five spring sources.	1. Belt transect and /or photo points. 2. Greenline transect and/or photo points at each spring source.
South Seven Springs	Big Hole River trib (519) Big Hole River trib (535)	1. Improve streambank stability and channel morphology by reducing trailing impacts. 2. Increase cover/composition of willows.	1. Cumulative width/depth ratio transects. 2. Cover Boards and/or photo points (both reaches).

Allotment Name	Stream and Reach Number	Objective	Monitoring Methodology
South Seven Springs (cont.)	Brownes Creek (500) Brownes Creek (502) Brownes Creek (540)	1. Improve streambank stability and channel morphology by reducing trailing impacts. 2. Increase cover/ composition of aspen along reaches 540 and 502, and narrowleaf cottonwood along reach 500.	1. Cumulative width/ depth ratio transect and/or photo points (all 3 reaches). 2. Cover Board Plots
Twin Adams	Lost Creek (505)	1. Improve streambank stability and channel morphology. 2. Reduce excess sediment input from the road.	1. Cumulative width/depth ratio 2. Greenline transect, and/or photo points
Vipond-Glendale	Trapper Creek trib (517) Trapper Creek trib (525)	1. Increase deep rooted riparian vegetation. 2. Decrease bare ground. 3. Increase deciduous woody riparian vegetation. 4. Improve streambank stability and channel morphology.	1 & 2. Greenline transect and/or Photo points 3. Cover Board Plots 4. Cumulative width/depth ratio transect

Resource Concern #1: Special Status Species

Objectives:

- Maintain or enhance habitat for sensitive plant species while providing ample opportunity for reproduction and seedling establishment.
- Maintain or enhance habitat for sensitive wildlife species while providing ample opportunity for reproduction and recruitment.
- Maintain or enhance habitat for WCT on Cherry Creek, and other suitable habitat within the watershed.
- Protect the population of WCT in Cherry Creek from hybridization and competition from non native salmonids.
- Cooperate with stakeholders to enhance native fluvial arctic grayling habitat on the Big Hole River.

Monitoring activities to measure progress towards the Special Status Species objective are included under Issue #2 Riparian, Wetland, and Aquatic Habitat and Associated Species and Issue #1 Sagebrush Steppe Habitat and Associated Species.

Additional monitoring activities to measure progress towards the Special Status Species objective are:

- Coordinating with MTFWP to locate an active sage grouse lek in the EPW.
- Monitor for the presence of pygmy rabbits in the EPW.
- Inventory and monitor ferruginous hawk, golden eagle, and bald eagle nests in the EPW.

Resource Concern #2: Socioeconomics

Objective:

- Continue to contribute to the local economy by providing an opportunity for sustainable uses on public land.

Trends in socioeconomics will not be monitored by the local BLM office.

Resource Concern #3: Abandoned Mine Lands (AML)

Objectives

- Continue to inventory and assess abandoned mines on BLM lands.
- Conduct the appropriate closures, reclamation, or mitigation at each site as funding and staffing allow.
- Areas to review and address if necessary include, but are not limited to:
 - The Maiden Rock District, located within the Vipond District – work is underway in this area, the first inventory will be conducted in 2009 and any closures should be completed by 2013.
 - Vipond / Quartz Hill Mining District, located on the northern end of the Pioneer Mountains
 - Lost Creek Mining District, located on the east slope of the northern Pioneer range.

Monitoring will consist of:

- Keeping a photo log of sites before reclamation and after work is conducted, and subsequently from each site inspection.
- Inspecting sites on a 1 to 5 year basis as needed to ensure disturbed areas are well revegetated, there are no weeds on the site, that additional subsidence or vandalism has not occurred, and that there are no issues, such as erosion, with any impoundments containing mine wastes.

Types of Data Collected

The established permanent vegetative and physical trend transects in the East Pioneers Watershed were read and data was updated during 2008. However, in order to adequately measure progress towards site specific objectives and PFC, additional studies will be established in key areas during 2009 or 2010 and baseline data will be gathered on the newly established studies. This baseline data will be considered the starting point from which to measure progress towards meeting objectives or effectiveness of management changes implemented beginning in 2009. Data from existing studies will be compared and evaluated from the time they were established and data was initially collected.

Key areas are defined as relatively small areas that reflect or have the capability to reflect the effectiveness of management of the resources of a larger area. Depending on management objectives, a key area may be a representative sample of a large stratum, pasture, allotment, or a particular management area. Key areas or monitoring sites should represent the high variability

of riparian and upland habitat types, patterns of use, and conditions of rangeland or riparian health. Over the next several years the following data will be collected (See Table 4):

- Actual livestock and wildlife use. Actual use is the grazing use made on an area by all classes of forage consumers. This information is necessary to provide a correlation between utilization and trend data. Considered alone, actual use data are essentially meaningless. However, when considered in conjunction with climate and utilization data, this data is necessary to interpret trend data accurately.
- Annual compliance, including utilization of upland forage, browse levels on willows and aspen, measurement of sedge stubble heights and/or measurement of stream bank alteration. This monitoring will occur primarily at established key areas, but may occur in other areas as well. Annual compliance monitoring will be done on a prioritized basis with I category allotments being the highest priority, followed by M, and then C category allotments. In areas where competition for resources may occur between livestock and big game, pre-livestock data may also be collected. This annual data will be used to help determine pasture moves and accurately interpret trend data.
- Local precipitation and temperature. This data is necessary to interpret trend data accurately.
- Long term trend. Trend data will be used to measure progress towards meeting objectives as described above.

Trend refers to the direction of change and indicates whether the rangeland or riparian area or other resource is being maintained or is moving toward or away from the desired plant community or other specific management objectives. Trend studies are important in the long term for determining the effectiveness of management actions in meeting or moving towards management objectives.

Trend data will be collected again in 2018. If annual monitoring raises concerns about management changes, trend studies may be read sooner. The East Pioneer Watershed will be re-assessed or evaluated during 2018. In this process, all monitoring data will be summarized, analyzed, interpreted, and evaluated to measure progress toward meeting objectives. Trend data gathered in 2018 will be compared to baseline data (gathered in 2009) and existing trend data. The measured change in the data will be used to measure progress toward meeting objectives, thereby evaluating management and making informed decisions regarding subsequent management (continuation or change). This is called adaptive management. For example, if monitoring data shows that progress is being made toward established objectives, current management will be continued or modified as warranted or allowed according to the data. However, if data shows a downward trend (change away from objectives) or does not show any progress toward meeting objectives by 2018, and it is determined that current livestock management is a significant factor in precluding progress toward meeting objectives, then management will be adjusted by implementing an alternate system, changing the season of use and/or reducing authorized AUMs. The level of adjustment will be determined by the degree of divergence from the objectives.

Monitoring methodology descriptions are available for review at the Dillon Field Office. Technical references and BLM procedural handbooks are also available on the BLM library website; <http://www.blm.gov/nstc/library/library.html>.

Table 4. Planned Resource Monitoring Activities

Type	Method	Responsibility	Frequency
Actual Use	Actual Use Reports submitted by permittees; Wildlife observations. Wildlife population monitoring in cooperation with the MFWP. Recreation user days	Range, Wildlife and Recreation Staff	Annually
Compliance/ Utilization	Utilization – Key Forage Plant Method, Grazed/Ungrazed Method, or Height/weight method.	Range, Wildlife or Fisheries Biologists, Hydrologist	Annually, on a prioritized basis.
	Stubble height – Stubble Height Method		
	Bank alteration – Stream bank Alteration Methodology as defined by Idaho State Office BLM, 2000		
	Browse use – Extensive Browse Method		
Climate	Precipitation data available from National Oceanic and Atmospheric Administration and other sources	Available from external sources	Annually
Habitat Characterization	Inventory for leks and seasonal habitats. Sagebrush canopy and herbaceous understory measurements along established transects in sage grouse, elk calving and mule deer winter habitats.	Wildlife Staff, MFWP, NWF.	Annually, on a prioritized basis.
Trend (also see Table 3)	Biotic Quadrat Frequency Daubenmire Line Intercept Cover Board Woody Species Regeneration Greenline Macroplots/Belt Transects Photopoints Fire Regime Condition Class (FRCC) Satellite Imagery (as applicable)	Range, Wildlife or Fisheries Biologists, Hydrologists, Foresters, Fuels Specialists	By 2010 where additional studies are needed. Trend data (new and existing studies) will be gathered again in 2018.
	Physical Cross section Rosgens Cumulative width/depth ratio		
Watershed Evaluation	Analysis, Interpretation, Evaluation and Recommendations	ID team	FY2018

Budget Requirements

This monitoring plan was prepared with the assumption that funding will remain at or near existing levels for the foreseeable future. In this light, it is anticipated that the bulk of the

monitoring load will be borne by the existing range, wildlife, fisheries, forestry, fuels, hydrology, recreation, wilderness and cultural resource specialists along with a minimum of six seasonal employees each field season for the duration of this plan.