

**U.S. Department of the Interior  
Bureau of Land Management**

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**Nez Perce Gulch Stream Crossing and Aspen Restoration**

*Location: T. 1 S., R. 10 W., Section 9  
Applicant/Address: BLM*

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# CHAPTER 1

## **Introduction and Need for the Proposed Action**

The Bureau of Land Management (BLM) proposes to construct a stream crossing over Nez Perce Gulch and up to ½ mile of permanent road to reroute access around a private land in-holding. The stream crossing would be a culvert that is at least 24” in diameter. Additionally, the BLM proposes to replace an undersized 16” culvert with a 24” culvert, deploy MCH pheromone in the Nez Perce drainage, and remove conifers from aspen and willow clumps along 1 mile of Nez Perce Gulch (approximately 20 acres) (Figure 1).

## **Purpose and Need for the Proposed Action**

The proposed stream crossing and aspen restoration project is located within the planning boundary of the Wise River Forest Health and Habitat Restoration Project (Figure 2) (USDI 2009).

This Wise River Forest Health and Habitat Restoration Project (USDI 2009) encompasses roughly 6,000 acres of BLM land in the Big Hole Watershed and will thin or burn up to 1,400 acres of dry Douglas-fir habitat as well as remove invading conifers on an additional 800 acres of grassland and sagebrush habitats (Figure 2). In addition, the project will remove invading conifers from over 30 aspen stands.

The original Wise River Forest Health and Habitat Restoration Project Environmental Assessment (EA) (2009) discussed thinning 200 acres of dense, insect damaged Douglas-fir stands in the Nez Perce drainage but did not address a permanent road crossing over Nez Perce Gulch to access these units. When the EA was signed, it was assumed that several forest thinning units in the Nez Perce Gulch area would be accessed through private land. The BLM did obtain a road use agreement with the private land owners to use the existing stream crossing over Nez Perce Gulch located on private land. During project lay-out, however, it was determined that upgrading the road through private land to access BLM units would be much more extensive than originally thought and determined to not be feasible. At this time, the BLM found a new location on Nez Perce Gulch for a stream crossing and new road that would go around private land and access the thinning units.

To avoid having the public drive through private land to access BLM and Forest Service managed lands, the route around private land would remain in place permanently. The stream crossing and road would allow log trucks to access the thinning units and after project implementation, the crossing and route would be converted to an ATV trail and seasonally restricted (closed December 2 – June 15).

The BLM also identified a mapping error in the Upper Big Hole Travel Plan (USDI 2009a) that resulted in several short road segments missing travel designations in the Nez Perce Gulch vicinity. The proposed project would clarify and map the missing designations in the Upper Big Hole Travel Plan.

The original Wise River Forest Health and Habitat Restoration EA did not address the effects of restoring aspen stands and riparian vegetation specifically along the Nez Perce drainage. Although the effects of removing conifer colonization in other drainages where aspen occur throughout the 6,000 acre planning area were addressed, Nez Perce Gulch was overlooked. The EA did state that Nez Perce Gulch rated as Functioning at Risk during a 1994 survey due to aspen and willows being overtopped by conifers. Conifers are now reaching the size and population where they are beginning to crowd out aspen and willow along Nez Perce Gulch. Cutting conifers would open up these areas for younger aspen and willow shoots.

In addition, conifers are reaching the size where they are beginning to transpire a lot of water out of the watershed. Cutting down the conifers could increase the volume of water in the springs found in Nez Perce Gulch.

The original Wise River Forest Health and Habitat Restoration EA also did not mention the application of chemicals to reduce Douglas–fir beetle attacks on trees in susceptible stands. Current beetle-caused mortality is significant in the Nez Perce area; several of the largest Douglas-fir were attacked and killed in 2008 by beetles. Specialists from the Butte Field Office met with entomologists from the USDA Forest Service Research Station to get recommendations on treatment options specifically for this project (USDA 2009). As a result, the proposed action includes the application of anti-aggregant pheromone, methylcyclohexanone (MCH).

Figure 1. Location of Proposed Nez Perce Stream Crossing, Road/Trail, Culvert Upgrade, Aspen/Willow Restoration and MCH.

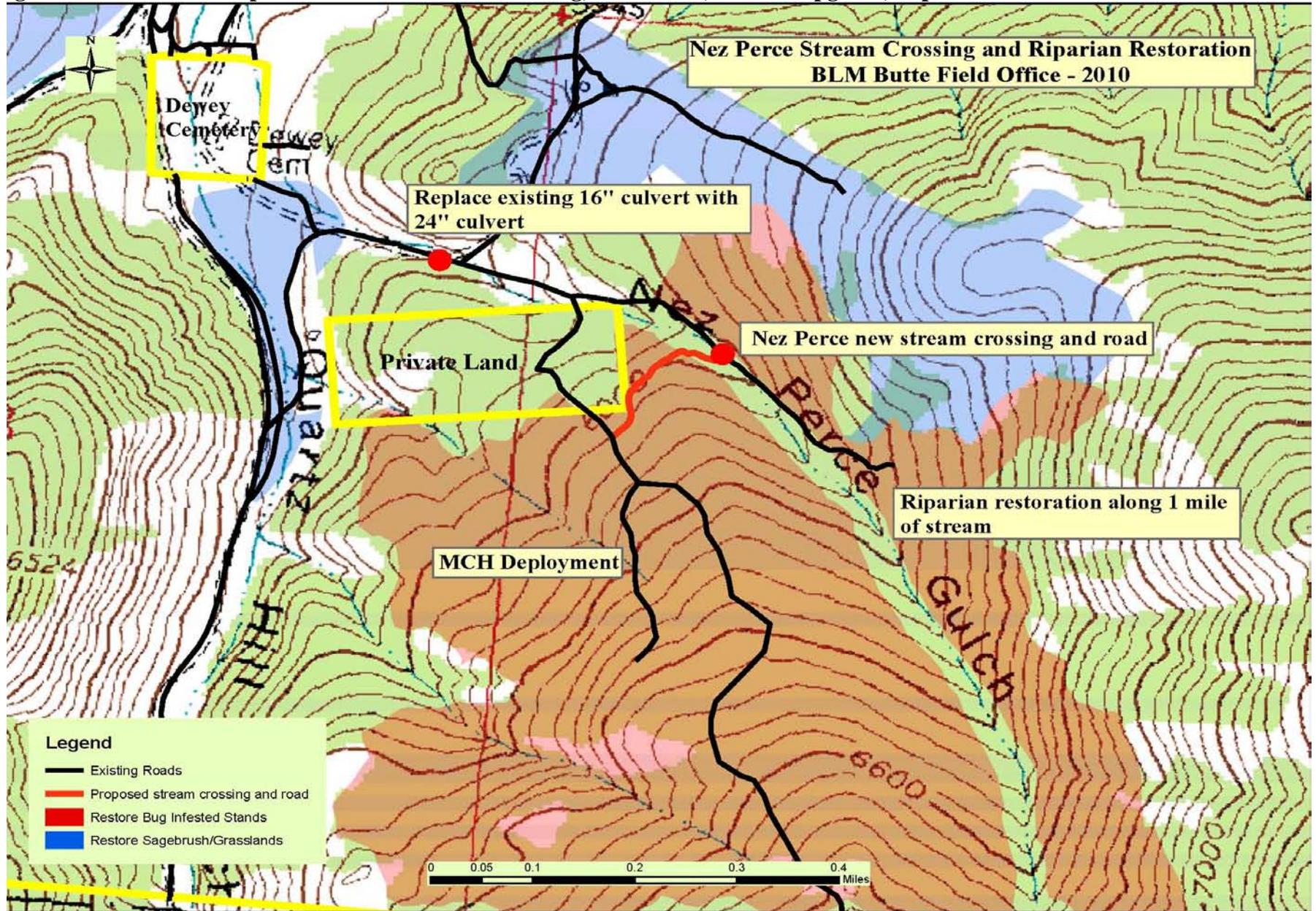
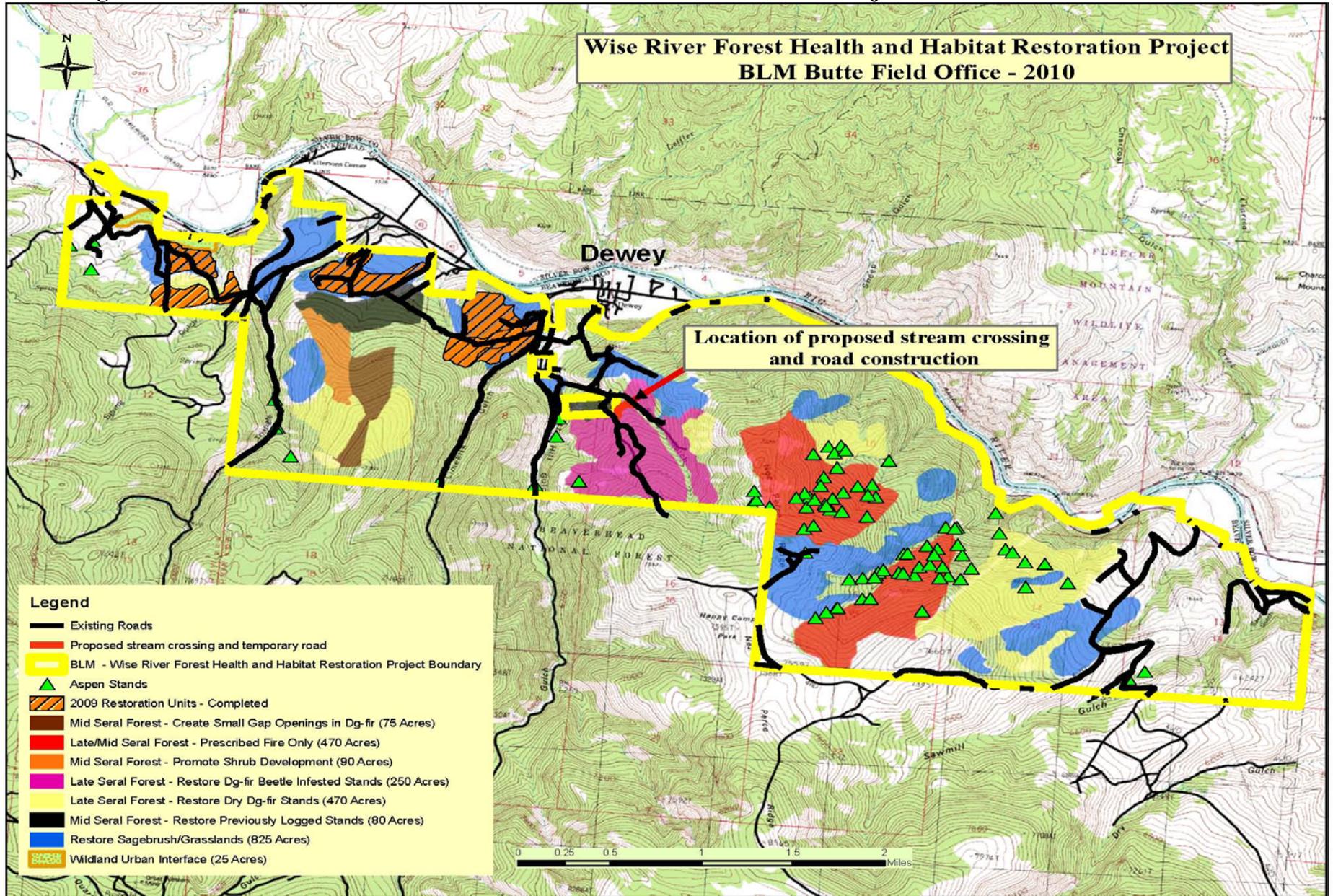


Figure 2. Location of The Wise River Forest Health and Habitat Restoration Project.



## Conformance with BLM Land Use Plans

This document is tiered to the Butte Resource Management Plan (RMP) approved in 2009 (USDI 2009a). The management alternatives considered are in conformance with the RMP, and applicable guidance is in the Record of Decision (ROD) and Approved Butte RMP.

Specific Goals, Objectives and Actions identified in the Butte RMP that are relevant to this proposed project include:

- Manage riparian and wetland communities to move toward or remain in proper functioning condition (appropriate vegetative species composition, density, and age structure for their specific area). Manage these communities to be sustainable and provide physical stability and adequate habitat for a wide range of aquatic and riparian dependent species.
- Restorative treatments in riparian areas will focus on re-establishing willows, aspen, and cottonwood stands as well as other riparian vegetation, and to move towards pre-fire suppression stem densities in conifer stands.
- Commercial timber harvest will be allowed in Riparian Management Zones to meet riparian restoration or maintenance objectives and only if adequate woody material remains in the riparian area to meet site-specific (project level) riparian objectives.
- Manage and promote old forest structure and conditions with active treatments and restoration activities.
- Road designs will include at a minimum:
  - Minimizing road and landing locations in Riparian Management Zones;
  - Minimizing sediment delivery to streams from road surfaces;
  - Outsloping roadway surfaces where possible, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe;
  - Routing road drainage away from potentially unstable stream channels, fills and hill slopes and;
  - Minimizing disruption of natural hydrologic flow paths.
- New permanent and temporary road construction will be kept to a minimum.
- Short site-specific sections of road/trail realignment or reconstruction will continue to be implemented, as needed, to minimize resource damage and/or provide minor reroutes around private property.

## **Relationships to Statutes, Regulations and Other Related Plans**

The proposed action is in conformance with the Federal Land Policy and Management Act, the National Historic Preservation Act, the Endangered Species Act, the Migratory Bird Treaty Act, the Clean Water Act and Montana Streamside Management (SMZ) law and rules.

This environmental assessment is tiered to:

- The Record of Decision and Approved Butte Resource Management Plan (USDI 2009a).
- The Wise River Forest Health and Habitat Restoration Project (USDI 2009)

Analysis contained in these documents is herein incorporated by reference and is not readdressed in this EA.

## **Identification of Issues**

Issues identified during internal scoping of the Wise River Forest Health and Habitat Restoration Project EA (USDI 2009) included;

- Vegetation. Including the effects to native vegetation from noxious weed infestations and restoration activities (or lack of restoration).
- Fish and Wildlife - Including the effects to special status wildlife species, species of concern, priority species, important wildlife habitats and big game security and hiding cover from project implementation.

Internal scoping of issues on January 11, 2010 of the Nez Perce Stream Crossing and Aspen Restoration Project identified modifications/clarifications to the Upper Big Hole Travel Plan (USDI 2009a) as an additional issue.

No additional issues were identified as a result of posting the proposal on BLM's NEPA website in December 2009.

The agency considers input from persons or groups regardless of age, race, income status, or other social and economic characteristics.

## CHAPTER 2

### **Description of Alternatives**

#### **Introduction**

This EA focuses on the No Action and Proposed Action Alternatives. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts from the proposed action.

#### **No Action Alternative**

Under the No Action Alternative, there would be no permanent road crossing over Nez Perce Gulch, no additional permanent road construction in the Nez Perce Gulch watershed and no restoration of aspen or willow along the drainage.

An existing poorly functioning 16" culvert would remain intact and run-off from snowmelt and storm events would continue to flow down the roadbed causing soil erosion and rutting of the road surface.

No temporary fencing would be used to promote aspen and willow recovery.

Under this alternative, no changes would occur to the decisions made in the Upper Big Hole Travel Plan. Motorized vehicle use would continue to occur on designated routes in the area, including Route BH250, which passes directly through private land. However, the private landowner could choose to limit or deny access to members of the public at any time.

Under the No Action Alternative, no chemicals would be applied to control Douglas-fir beetle activity in affected stands.

#### **Proposed Action**

#### **Nez Perce Gulch Stream Crossing, Road Construction, Culvert Replacement and Travel Plan Amendment**

Effects of thinning Douglas-fir in the Nez Perce area were covered under the Wise River Forest Health and Habitat Restoration Project EA (USDI 2009). This proposed action would focus on the access to those thinning units as well as restoration of aspen and willow along Nez Perce Gulch. The proposed action would also include modification and clarification of the Upper Big Hole Travel Plan (USDI 2009a).

The proposed action is to construct a permanent road crossing over Nez Perce Gulch approximately ½ mile upstream of the Dewey Cemetery (Figure 1), to improve about ½ mile of existing road which lies within the streamside management zone, and to construct up to ½ mile of new road. The road crossing would connect the existing road with the newly constructed road.

The road crossing would be approximately 10' long, 3' high and 27' wide with a 24" diameter culvert installed across the width, on slope with the stream (about 3 percent gradient). Less than ½ mile of associated permanent road would also be constructed around private land to allow access to thinning units in the Nez Perce area as well as provide permanent access to BLM and Forest lands in the area (Figure 1). This section of road would be converted to an ATV trail after project implementation and would be closed during the winter and spring months (December 2 - June 15). Although the type of motorized use would be changed from full size vehicle to ATV use, the road bed would not be altered, only seeded.

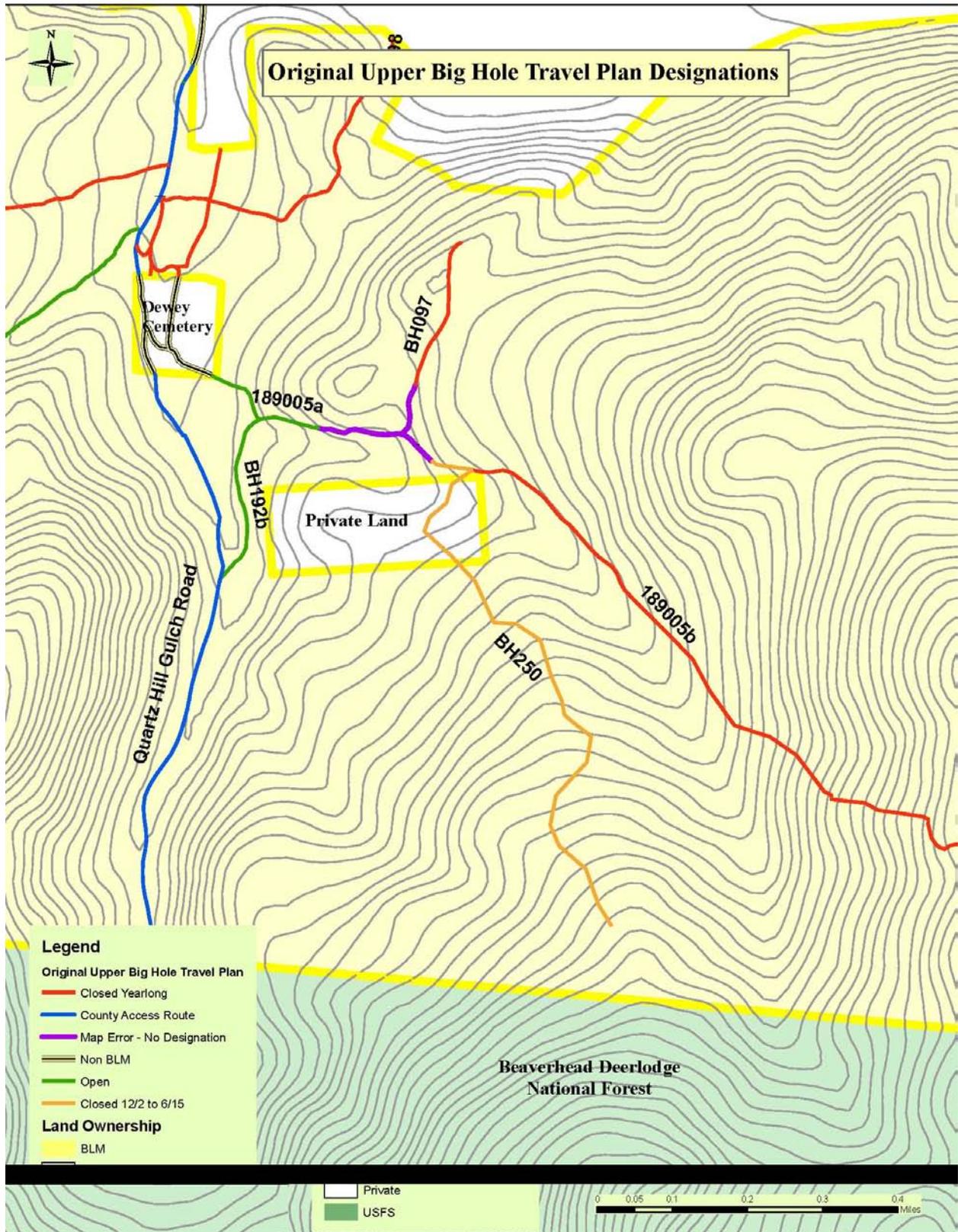
The existing road would be improved to facilitate running mechanized equipment and log trucks over its surface. Planned improvement activities include blading the road and establishing rolling drain dips. All materials (soil, rock, etc) from the existing roadbed would be cast off the road bed to the uphill side away from the stream and riparian zone to prevent them from entering the stream. Barriers would be installed as needed on the downhill side of the road to catch materials and prevent them from entering the streamside zone. No trees and/or shrubs between the road and stream would be removed during this process, existing riparian vegetation would persist. Disturbed sites would be seeded after the completion of the project.

The existing (non-functioning) 16" culvert would be replaced with a 24" culvert. The new culvert would be better aligned with the existing stream flow to facilitate rerouting this flow into the adjacent ditch on the lower section of road. Currently the stream runs down the middle of the road below the existing culvert during wet months.

The placement of the culverts and permanent road would be done using heavy equipment and require some riparian vegetation to be removed including but not limited to; aspen, willows and spruce. Less than 1/4 acre of riparian vegetation would be cleared for the stream crossing. No heavy equipment would be allowed in or on the active banks of Nez Perce Gulch. Equipment would operate on or above the dry banks; at least 5 feet from the active bank, and reach into the stream channel for culvert placement. No trees would be allowed to be yarded through the drainage.

In addition, the placement of the culverts would require some fill and, possibly, some excavation of the stream bank and bed.

Under this alternative, the Upper Big Hole Travel Plan would be modified to address mapping errors on the undesignated BLM routes and implement a reroute around private land. Figure 3 shows the road designations identified under the original Upper Big Hole Travel Plan (USDI 2009a).

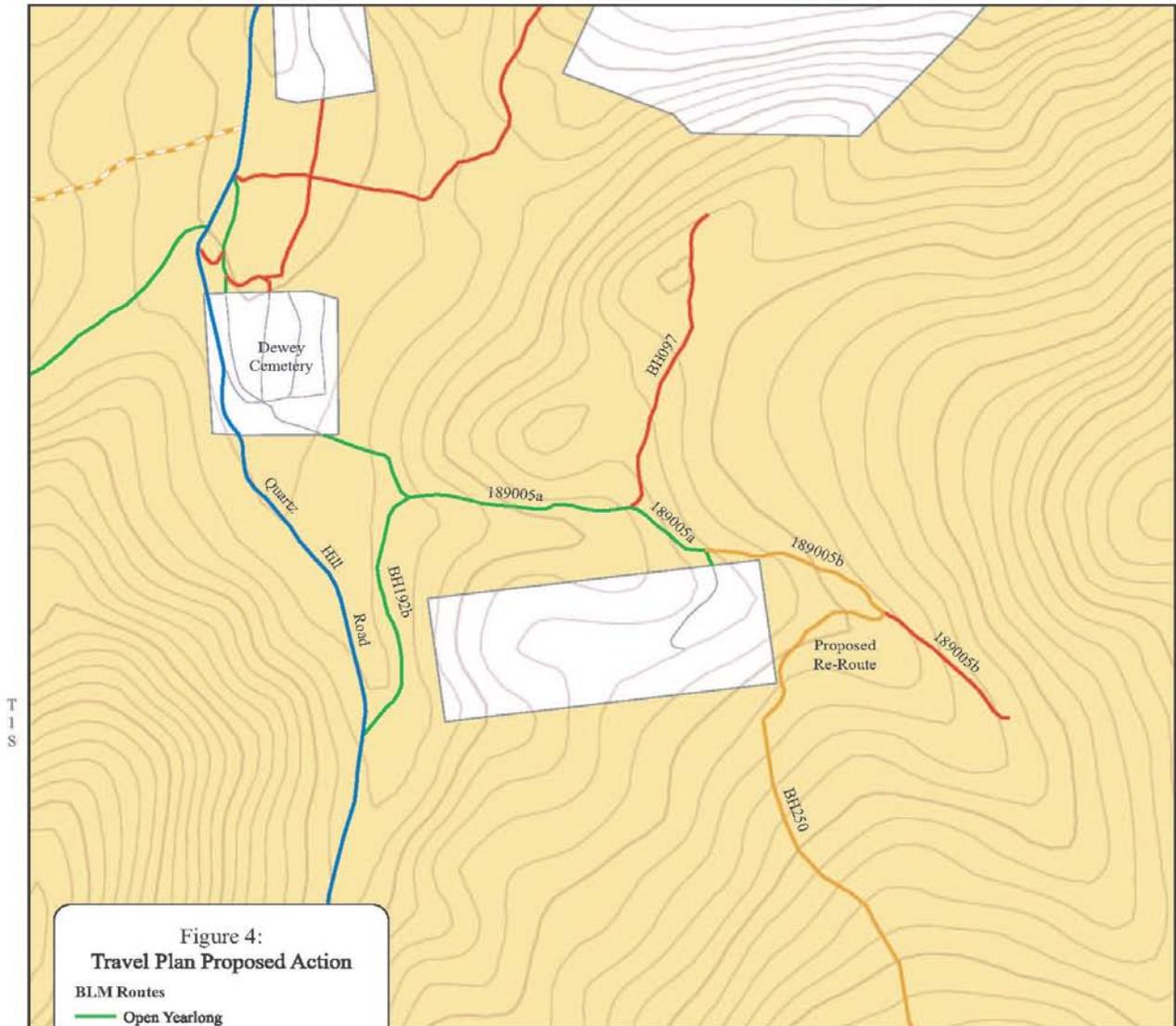


**Figure 3. Original Upper Big Hole Travel Plan Designations.**

Route 189005a, which currently travels east/southeast from the Dewey Cemetery into the project area, would remain “Open Yearlong” to full size vehicles, but only to the junction with Route BH250, which travels south into the private property (Figure 3). At this junction, the approximately 50’ of route that is located on BLM lands (before it meets the boundary with private property) would remain “Open Yearlong” to full size vehicles. This would allow the private property owners continued to access their property. The entire length of Route BH097 would be “Closed” under the proposed action.

Back at the junction, Route 189005b, which continues to the east, would become an ATV route (after thinning activities) that would be closed each year from December 2 – June 15 to reduce soil erosion. This route would continue toward the new stream crossing and then travel west and then southwest, following the newly created access road segment (Figure 4). It would then intersect back to Route BH250, currently located to the south of the private property. From the new stream crossing, the remaining portion of Route 189005b, which travels southeast into the Nez Perce drainage, would remain “Closed Yearlong” to all motorized use.

Minor erosion concerns have been identified on the existing ATV Route (BH250) located south of the private land. Therefore, upon completion of the forest thinning project, it would be possible to utilize the temporary road constructed for the thinning operation in this unit (identified through the Wise River Forest Health and Habitat Restoration EA) to replace sections of the existing ATV route that contains erosion problems. This method would only be utilized if it doesn’t significantly increase the length of the ATV route, or drastically change the type of use the route is currently receiving.



**Figure 4. Proposed Travel Plan Modifications.**

## **Nez Perce Gulch Aspen/Willow Enhancement and Riparian Restoration**

The proposed action would maintain or restore aspen and willow in the Nez Perce drainage by removing conifer colonization. Douglas-fir and Rocky Mountain juniper up to 16" diameter located in and around aspen and willow clumps along 1 mile of Nez Perce Gulch could be cut by chainsaw, masticator, or other type of heavy equipment. Conifers could be cut up to one tree height (height of dominant tree) away from aspen stands or willow clumps on either side of the drainage. Aspen stands could be temporarily fenced with either 4-strand wire fence (with BLM specifications), 7.5-8' mesh wildlife fencing or with natural materials (i.e. cut trees) to keep livestock and/or wildlife from damaging aspen/willow regeneration.

Large conifers (>16" diameter) would be left uncut for vegetative diversity within and/or adjacent to aspen stands and willow clumps. Up to 90 percent of conifers could be removed from within aspen stands and willow clumps. Between the edge of aspen and willow clumps going upslope for 1 dominant tree height, 40-60 percent of conifers could also be removed to increase light and nutrients to the aspen/willow areas.

Trees within the riparian zone would only be allowed to be removed as commercial product once down wood objectives have been met or exceeded and only if the trees would not be needed to create natural "fence" barriers. Additionally, before commercial product could be removed from the Stream Management Zone (SMZ), the Montana Department of Natural Resources and Conservation would be consulted, as the Variance the BLM applied for stipulated no commercial product would be removed from riparian areas.

Cut trees would be dealt with in a variety of ways. Trees could be masticated, limbed and scattered, left as down woody material (whole trees), dropped into Nez Perce Gulch or removed as commercial product. No snags of any size would be cut unless necessary for human safety. During road re-construction or construction, no slash materials (branches or tops with needles, or fine branches) would be deposited within the stream channel. No heavy equipment would be allowed in or on the active banks of Nez Perce Gulch and no trees would be allowed to be yarded through the stream channel or riparian zone. Equipment would operate at least 5 feet from the active bank and reach into the channel for culvert placement.

If an active northern goshawk, great gray owl, or other raptor nest is discovered before or during project implementation, a 40-acre buffer would be established around the nest to conserve the nest area. No treatment related disturbance would occur within the nest buffer area from mid-April through late July, or from March through late July for active great gray nests. The size of the buffer could be larger than 40 acres depending on the species and location of the nest. Outside of the nesting season, restoration activities could be conducted within the 40-acre buffer area surrounding any active or inactive raptor or owl nest sites (or the adequate buffer size determined for the site) as long as suitable habitat is retained within this core area.

If any active song bird nests are identified before or during project implementation, the nest tree would be retained and a "no disturbance" area around the nest would be established

(depending on the species and location of nest) for the nesting period. Project implementation could resume after the nesting season.

### **Application of Chemicals to Control Douglas-fir Beetle Activity**

Under the Proposed Action Alternative, an anti-aggregant pheromone methylcyclohexanone (MCH), would be applied to mature Douglas-fir trees (generally >11" diameter) at a rate of approximately 30 packs per acre (~ 40' x 40' spacing) or on individual trees as needed. Chemical would be applied in thinned stands within treatment units (Figure 1).

The proposed beetle suppression activities in the Nez Perce area include reducing the number of trees per acre by thinning and/or masticating in conjunction with the application of MCH as described above. Recommended basal area (BA) per acre after thinning is approximately 40-60 square feet per acre. Under the Wise River Forest Health and Habitat Restoration Project (USDI 2009), several hundred acres could be treated in this manner. It is hoped that thinning activities will reduce existing stand conditions (which currently favor both spruce budworm and Douglas-fir beetle activity) enough to allow the stand to recover without as much chemical application. However, monitoring plots will be used to determine if this is the case and determine out-year chemical applications.

## **CHAPTER 3**

### **Affected Environment and Environmental Impacts**

#### **Introduction and General Setting**

The affected environment of the No Action and Proposed Action Alternative were considered and analyzed by an interdisciplinary team as documented in this EA and the Critical Elements Checklist found in Table 1. The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Critical Elements of the Human Environment are those elements that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (BLM H-1790-1, Appendix 5). The existing condition and potential impacts are described for resources including Critical Elements that are potentially affected by the proposal.

Determination*	Resource	Rationale for Determination
<b>CRITICAL ELEMENTS</b>		
NI	Air Quality	Temporary dust and engine exhaust during construction.
NP	Areas of Critical Environmental Concern	Project location not in an ACEC.
NI	Cultural Resources	A prehistoric site is actively eroding into the access road. This site would be protected from further damage by placing a landscape fabric barrier on the present ground surface, then covering that fabric with 6" of gravel to allow vehicles to use the road without causing further damage. All sites would have a cultural survey before any ground disturbing activities begin. All cultural sites would be avoided or protected during project implementation.
NI	Environmental Justice	No alternative considered in the course of this analysis resulted in any identifiable effects or issues specific to any minority or low income population or community as defined in Executive Order 12898.
NP	Farmlands (Prime or Unique)	Project not located on prime or unique farmlands.
NP	Floodplains	Projects not located on a major floodplain.
NI	Invasive, Non-native Species	Invasive weeds are found in the area but annual spraying and monitoring is expected to keep noxious weeds under control.
NP	Native American Religious Concerns	Project not located in area with Native American religious concerns. See Cultural Resource Section.
PI	Threatened, Endangered or Candidate Plant or Animal Species	Gray wolves (de-listed), lynx and grizzly bear may be present in the project area but would not be impacted by the project. Although habitat would be altered, the prey base for these species would not be impacted and no individuals would be affected. This area is mostly likely used for dispersal and migration for the gray wolf, lynx and grizzly bear.
NP	Wastes (hazardous or solid)	No hazardous or solid wastes located in project area.
PI	Water Quality (drinking/ground)	Water quality would not be impacted due to the ephemeral nature of the stream and distance away from the Big Hole River, the nearest perennial stream.
PI	Wetlands/Riparian Zones	The small area where the road crossing is located would remove riparian species, however the treatment overall would improve riparian resources.
NP	Wild and Scenic Rivers	None present.
NP	Wilderness	Project located outside WSA boundary.

**Table 1. BLM Critical Elements**

\*Possible determinations:

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for significant impact analyzed in detail in the EA; or identified in a DNA as requiring further analysis

## **Affected Environment**

### **Soils**

Soils in the project area have been mapped by the Natural Resources Conservation Service as part of the Soil Survey for Silver Bow County and parts of Beaverhead and Jefferson Counties, Montana (NRCS 2010). Soils are predominantly residuum and colluvium derived from granite on moderately steep hillsides (about 20-60 percent slope), or mixed alluvium on inset fans and drainages on 1-15 percent slopes. Soils on hillsides range from shallow to deep, are generally coarse textured, and have high organic matter content, particularly in the upper horizon and have a duff layer under trees. Soils on fans and in drainages are generally deep, medium to fine textured, and also have high organic matter content. Alluvial soils have variable calcium carbonate content, resulting from the influence of limestone derived soils upslope or updrainage, but outside the geographic scope of the project area.

The risk of erosion and compaction from mechanized equipment is rated based on a combination of soil properties and slope (NRCS 2004). The risk of erosion on alluvial soils is low, due to the combination of texture and slope. The risk of erosion on hillsides soils is predominantly moderate due to slope and coarse textures, ranging to severe in pockets where slopes approach 60 percent.

The risk of soil compaction from mechanized equipment is moderate for the project area, except for the drainage bottom near the Dewey Cemetery. Should mechanized activity occur in this drainage bottom, treatment design and mitigation measures should account for remediating compaction.

No hydric, or wet soils that form the criteria for wetlands have been identified in the soil survey for the project area; however, small pockets of hydric soils around springs and in the Nez Perce Gulch channel bottom could qualify as hydric soils.

### **Water Quality**

Drainages in the project area are ephemeral, flowing only during high flow events such as spring runoff and storm events. Nez Perce Gulch, which parallels the proposed road access, is ephemeral as well, experiencing intermittent surface flow. Well established grasses and shrubs, such as wild rose in the channel bottom, are evidence of the intermittent and seasonal flow patterns which leaves the channel surface dry for much of the growing season. Grass roots and other vegetation in riparian areas serve as effective soil binding agents against erosion and sedimentation.

Nez Perce Gulch connects to Quartz Hill Gulch, which flows near the Dewey Cemetery, eventually connecting to the Big Hole River, the nearest perennial stream. There is no evidence of surface flow in Nez Perce Gulch reaching the Big Hole River. Quartz Hill Gulch and Nez Perce Gulch are not listed as impaired waters, per the Clean Water Act, on the Montana State Department of Environmental Quality 303-d list (DEQ 2009).

The combination of incised morphology of Nez Perce Gulch, with the presence of mature trees along the banks and in the channel suggest that historic placer mining, or other historic human activities have altered the natural stream morphology.

Ephemeral flow in Nez Perce Gulch has been observed flowing over an access road that parallels the channel. At a crossing upstream of the Dewey Cemetery, the channel flow should be conveyed through a 16” culvert, however, the culvert is not properly aligned with the channel, resulting in flow intercepting and flowing down the road at that point. Increased flow, due to natural or human influenced causes may cause increased erosion where Nez Perce Gulch intercepts the road near the 16” culvert.

## **Vegetation**

Forested habitats within the proposed project area are a blend of cool, dry and cool, moist habitat types, with Douglas-fir being the dominant tree species (USDA 2009). The predominate understory species are; snowberry, pinegrass, common and Rocky Mountain juniper, and Canada buffaloberry. Riparian vegetation in Nez Perce Gulch is dominated by Douglas-fir, spruce, aspen, willow, dogwood and other riparian species.

Pfister (1977) describes 15 Rocky Mountain Douglas-fir habitat types in Montana based on potential natural vegetation. Those identified within the project area are: Douglas-fir/pinegrass habitat (PSME/CARU), the pinegrass phase of Douglas-fir/pinegrass habitat type (PSME/CARU/CARU), Douglas-fir/common juniper (PSME/JUCO), and Douglas-fir/snowberry (PSME/SYAL). Descriptions of these are found in Appendix A.

Due to its location at lower elevations on the landscape, the Douglas-fir habitat type has historically had the most activity and disturbance from human activities in the Pioneer Mountains. Mining, livestock grazing, timber harvest and fire suppression all began in the 1800s and have significantly altered this habitat type. The result has been Douglas-fir habitats with a lack of structural and vegetative diversity they historically had.

Historically, fire was likely the dominant disturbance agent in the proposed project area, with insects and disease causing localized mortality. Exclusion of fire and years of drought have made these forest stands more susceptible to insect and disease. Heavy defoliation by western spruce budworm is prevalent throughout the Nez Perce area with up to 90 percent of trees in this area infested with the western spruce budworm. Heavy defoliation of pole to large size Douglas-fir trees has resulted in mortality throughout the Nez Perce area and widespread decline in foliage.

Trees weakened by defoliation have also become more susceptible to Douglas-fir beetle. The Nez Perce Gulch area is experiencing high populations of Douglas-fir beetle and many large, old Douglas-fir have died in the project and adjacent areas. Douglas-fir beetles have attacked and killed many trees in the 13-25” diameter size range.

The Wise River Forest Health and Habitat Restoration Project (USDI 2009) began implementation in 2009 and will focus on restoring Douglas-fir stands in the Nez Perce

watershed to increase forest vigor and structure and to move forested stands back towards historic densities. This project will also thin stands to diversify size classes of vegetation and increase the diversity of understory plant species.

The primary noxious weeds in the Nez Perce Project Area are spotted knapweed, yellow toadflax, houndstongue and Canada thistle. There is also an area of oxeye daisy found on Forest Service land, higher in elevation, which is now located on both sides of the main Quartz Hill Gulch road. There are also several undesirable, invasive species present (including common mullein, black henbane and musk thistle). Most infestations are found along roadways, animal trails and south-facing slopes.

The BLM works with the Forest Service, the counties and the Big Hole Watershed Committee to annually spray and monitor weeds in the Big Hole watershed, including the proposed project area. Although weeds are present in the proposed project area, the committed partnerships from all interested parties have resulted in low densities of infestations. Annual spraying and monitoring of noxious weeds in the proposed project area will continue.

## **Riparian**

Nez Perce Gulch is an ephemeral drainage that flows during large storm events and snow melt. Within this drainage, however, there are a number of springs and surface flow can be found at and downstream of these spring sources. The length of flow varies from year to year depending on weather.

The streambanks along Nez Perce Gulch are dominated by an overstory of Douglas-fir, spruce and aspen and an understory of dogwood, willow and other riparian shrubs. Riparian grasses and forbs are limited, because water is not consistently present throughout the growing season to support their growth and reproduction. In the vicinity of the seeps and springs along the gulch, riparian grasses and forbs can be found intermixed with upland species.

The location of the stream crossing is fairly open, within a small natural opening and a break in the vegetation (Figure 5).



**Figure 5. Looking across the proposed Nez Perce Gulch stream crossing location.**

As seen in Figure 5, some aspen regeneration that is 1-4' in height would have to be removed along with several large and moderate size Douglas-fir and spruce trees.

Nez Perce Gulch was rated to be functioning-at-risk in 1994 due to conifer colonization causing a decline in aspen and willow regeneration.

## **Travel Management**

Travel within the Nez Perce Gulch area is currently “limited to designated routes.” Route 189005a, which is currently “Open Yearlong,” travels from the Dewey Cemetery to just north of the project area (Figure 3). Continuing on, there are two short sections along Routes 189005a and BH097 without travel designations, roughly 0.4 mile. During development of the Upper Big Hole Travel Plan, these sections of road between the Dewey Cemetery and route BH250 were inadvertently missed and not given travel designations (Figure 3). These routes will be addressed under the Proposed Action.

Route 189005a eventually intersects with Route 189005b and Route BH250. Route 189005b is currently “Closed Yearlong.” Route BH250 travels south from its junction with Routes 189005a and 189005b, through private property, and then back onto BLM managed land. Route BH250 is closed seasonally each year from December 2 to June 15 to reduce soil erosion, but is open the remainder of the year.

## Wildlife

Existing stands of dense Douglas-fir currently provide habitat for those wildlife and avian species that prefer closed canopy, dense forest or forest generalists. Wildlife species and/or their habitats found or expected to be found in the proposed project area include but are not limited to: elk, mule deer, moose, red fox, black bear, coyote, bobcat, mountain lion, pine marten and other weasel species, porcupine, badger, red squirrel, mountain cottontail, snowshoe hare, ground squirrels and other small mammals.

Fire most likely played a dominant role in shaping vegetation species composition and structure of forest stands in the project area. Frequent fires (35-40 years) were probably characteristic in these stands. Due to fire suppression, dry forests in the project area have become denser and more homogeneous. It could also be expected that vegetation along Nez Perce Gulch would also have been historically influenced by fire. Although moist conditions and riparian vegetation would have resulted in different fire behavior than upslope forests, fire would still have been a factor in riparian vegetation maintenance and development. Plants with the ability to resprout after the loss of all or most of the aboveground biomass, such as aspen and willow, would be favored in environments with a high frequency of disturbance such as fire.

The proposed project is within the riparian habitat along Nez Perce Gulch. This habitat is dominated by a diversity of vegetation including shrubs, grasses, forbs and trees and provides habitat for many wildlife species. A riparian zone is the swath of land adjacent to a river or stream and is the transition area between terrestrial uplands and the stream. Riparian areas are important because they generally have better quality soils than the surrounding hillslopes and, because of their position lower in the landscape, often retain moisture over a longer period. Riparian areas support a higher diversity of plants and animals than non-riparian land. This is a result of the wider range of habitats and food types present as well as the proximity to water, microclimate and refuge. Many native plants are found only, or primarily, in riparian areas, and these areas are essential to many animals for all or part of their lifecycle. Riparian lands also provide a refuge for native plants and animals in times of stress, such as drought or fire, and play a large role in providing corridors for wildlife movement.

Although riparian zones may occupy a relatively narrow band, they are critical to maintaining the biodiversity of the more extensive, adjoining uplands and a variety of wildlife species utilize riparian habitats.

Quaking aspen is extremely important to wildlife and avian species. Aspen within Nez Perce Gulch is in a state of decline due to over-topping by Douglas-fir and resource competition with juniper. These stands appear to be shrinking in size and some stands are decadent with little regeneration due to conifer shading. Being shade-intolerant, aspen would not be able to remain on sites dominated by conifers.

The loss of aspen and willow can result in a potential decrease in water yields. The loss of water means that it is not available to produce undergrowth vegetation, recharge soil profiles or increase flows in springs and/or streams (USDA 2001).

Aspen, often the only broad-leafed tree within coniferous forests, provides unique foraging substrates for a variety of insectivorous birds. Aspen suckers, twigs and bark are used by wintering ungulates, particularly deer, elk and moose. Snowshoe hare and cottontail rabbits feed on its twigs and buds, while ruffed grouse are highly dependent on aspen buds in winter. Because aspen stands provide habitat for many song birds and small mammals, these areas are often frequented by hunting raptors and other predators. Aspen is very susceptible to heart rot and provides cavities and snags for cavity-dependant wildlife. In mature aspen stands, many of the trees that otherwise appear healthy are infested with decay fungi. The punky interiors of these trees are readily excavated by woodpeckers, but live trees may stand for years after initial decay permits cavity excavation (USDA 1985).

Aspen-dominated sites are high in biodiversity and provide important habitat for many wildlife species. When aspen habitat is converted to conifers, there is a marked change in both flora and fauna. Not only is there a loss of forage, but there is a substantial decrease in plant species and richness. The density and diversity of birds are much greater in aspen than conifer stands, and older aspen stands have more bird species than young aspen stands. Bird species diversity also increases with the size of aspen stands and cavities in aspen are especially critical for numerous bird and mammal species (USDA 2001 and USDA 1985).

The loss of aspen due to conifer encroachment is having and would continue to have a significant impact on those species that depend on aspen for foraging and breeding and especially those species that depend on cavity development.

Willows found along Nez Perce Gulch provide an important food source for wildlife in this riparian area. Unlike most species, especially grasses, willow provide a stable protein source throughout the summer months. Snowshoe hare, deer, elk, and moose browse willow and the buds, shoots, and catkins are eaten by a variety of birds and small mammals.

## **BLM Sensitive Wildlife Species**

The proposed project area and adjacent lands also provides habitat for several BLM sensitive species including: the northern goshawk, three-toed woodpecker, flammulated owl and boreal toad.

### **Northern Goshawk**

The northern goshawk is currently listed as a sensitive species on all National Forests and on all BLM lands in Montana. Montana Fish, Wildlife and Parks (MFWP) identifies the northern goshawk as a species of concern.

Northern goshawks are forest raptors that prefer mature to old growth forests, although they will use a broad range of forest conditions. Both single and multi-storied stands with relatively open understories are used. Goshawks prefer vegetation structure that permits them to approach prey unseen and to use their flight maneuverability. Forest-meadow and forest-sagebrush/grassland habitats are also considered to be important foraging habitat.

Goshawks in southwest Montana tend to nest predominately in mature coniferous forests with a moderate to high canopy cover and little to sparse undergrowth (Clough 2000). Northern goshawk nest trees in southwest Montana are usually in lodgepole pine or Douglas-fir, with an average diameter of 13" and average height of 72 feet. Within territories, northern goshawks often shift their breeding among several alternative nests up to one mile apart and forested landscapes need to provide for several nest stands distributed throughout goshawk home ranges. In the Big Hole watershed and the Pioneer Mountains, goshawk nests have been found in both Douglas-fir and lodgepole pine; and most of the nest sites have been located at lower elevations.

Goshawk surveys conducted throughout the project area in 2007 and 2008 did not detect goshawks or locate any active nest sites in the Nez Perce drainage or adjacent areas. An occupied nest site was located on FS land approximately 6 miles west of Nez Perce Gulch.

### **Gray Wolf**

Key components of wolf habitat include sufficient year-round big game prey base and secluded denning and rendezvous sites with minimal exposure to humans. Habitat includes forests of all types, rangelands, shrubland, steppes, agricultural lands and wetlands. Wolves do not have any particular habitat requirement, except for avoiding areas with heavy human use.

Wolves prey primarily on large wild ungulates (such as deer, elk, moose and bighorn sheep). However, wolves are opportunistic feeders, eating a wide variety of food including cattle, sheep, horses, dogs, birds, small mammals, fish, plants and fruits. Prey items often depend on availability and ease of capture. Wolves are also successful scavengers.

The proposed project area is within occupied gray wolf habitat and gray wolf sightings are common in the Big Hole Valley. Individual wolves and entire packs in the Big Hole watershed, however, are often subject to lethal removal due to livestock depredation. There are no known packs within the analysis area, but individual wolves are known to move through the area and have been observed.

No denning habitat or rendezvous sites have been observed in or near the proposed project area, but suitable habitat and prey base is found in the analysis area.

### **Flammulated Owl**

The flammulated owl is a BLM and Forest Service sensitive species and a MFWP species of concern.

In Montana, flammulated owls are associated with mature and old growth dry ponderosa pine or Douglas-fir stands and in landscapes with forest of low to moderate canopy closure (Wright et al. 1997). They prefer mature growth with open canopy, avoiding dense young stands. Flammulated owls are found in cooler, semi-arid climates with a high abundance of nocturnal arthropod prey and some dense foliage for roosting.

Breeding habitat for flammulated owls consists primarily of mid-elevation, open ponderosa pine or Douglas-fir forests. They usually occur on lower and mid southern slopes and occasionally on ridgetops. Flammulated owls consistently select habitat that combines open forest stands with large trees and snags for nesting and foraging, occasional clusters of thick understory vegetation for roosting and calling and adjacent grassland openings that provide optimum edge habitat for foraging.

There are no known flammulated owls in the proposed project area; minimal surveys conducted for flammulated owls in the Pioneers did not detect this species (USDA 1998). Additional surveys conducted by the BLM in June 2008 did not detect flammulated owls. Habitat is likely present in the analysis area but may be poor quality due to the density of forested stands.

### **Three-toed Woodpecker**

The three-toed woodpecker is both a BLM and Forest Service sensitive species.

Three-toed woodpeckers are non-migratory residents and primary cavity nesters associated with trees characterized by scaly or flaky bark. Primary cavity excavators, such as three-toed woodpeckers, can penetrate through the sound layer of sapwood and excavate a nest chamber in the softened heartwood. Because woodpeckers usually excavate a new nest each year, old nest cavities are available for secondary cavity users (such as owls and flying squirrel) which cannot excavate their own cavities.

Three-toed woodpeckers' main prey consists of bark-boring insects such as the Douglas-fir beetle and the mountain pine beetle. These woodpeckers key in on forests suffering from insect epidemics, oftentimes after fire, or any event that causes stress to host trees and attracts insects.

Three-toed woodpeckers prefer areas where fire or insects have created large stands of dead trees (>15" diameter) for nesting. This species was encountered during 2007 and 2010 field reviews in the Nez Perce drainage.

### **Federally Listed, Threatened, Endangered and Proposed Species**

The proposed project area provides habitat for one species listed under the Endangered Species Act, Canada lynx.

#### **Canada Lynx**

The Canada lynx was listed as "threatened" under the Endangered Species Act in March 2000. In Montana, lynx habitat is dominated by lodgepole pine, Engelmann spruce, aspen, subalpine fir and cool, wet Douglas-fir. Snowshoe hare are the primary prey of lynx, comprising 35-97 percent of the diet. Other prey species include red squirrel, grouse, flying squirrel and ground squirrels. During the cycle when hares become scarce, the proportion and importance of other prey species, especially red squirrel, increases in the diet. However,

a diet of red squirrels alone might not be adequate to ensure lynx reproduction and survival of kittens.

The proposed project area is within suitable denning and travel habitat for lynx but provides very limited hunting habitat. Disturbance due to development of adjacent private lands may also limit use of this area by lynx.

Lynx had been observed adjacent to the project area in the 1980s. Although the proposed project area may be used for travel and dispersal habitat, very little hunting habitat is available to the lynx.

### **Wildlife Corridor and Core Areas**

The project area is mapped as “core or sub-core habitat” and as a wildlife movement corridor. Core areas are those large enough for wildlife (especially animals with large home ranges such as carnivores and big game) to forage and reproduce; sub-core areas are described as areas that could act as stepping stones for wildlife as they move through the region. Wildlife corridors are areas of predicted movement within or between core and sub-core areas. The proposed project area receives use by resident and migratory moose, elk, deer and black bear. The Quartz Hill Gulch drainage is used as a travel corridor for elk between foraging areas (USDA 2001b) and is also an important movement area for elk in the fall.

Under historic fire regimes, forested stands within the analysis area would have been more open and savannah/woodland-like. The nature of these fire regimes suggests that dry Douglas-fir forests had a mosaic of age classes and that the native fauna could disperse readily through the mosaic. Under the current condition, disturbance from human use affects how wildlife disperses across the landscape and how habitats are used. Roads open to motor vehicles often follow drainage bottoms that provide movement corridors for different species. These roads likely have significant effects on how wildlife uses these movement corridors. Under the 2009 Upper Big Hole Travel Plan, the road along Nez Perce Gulch will be closed year-round.

### **Migratory Birds**

Migratory birds can be classified as canopy nesters, shrub nesters and cavity nesters. The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC. 703-711) states that it is unlawful to pursue, hunt, take, capture, kill, attempt to take, possess, sell, barter, purchase, deliver, ship, export, import, transport, carry, or receive any migratory bird, part, nest, egg or product, manufactured or not. Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (2001), addresses the need to “minimize...adverse impacts.” This order also requires that each agency shall “restore and enhance habitat for migratory birds.” This would include management of vegetation to maintain or improve habitats for a variety of forest and riparian bird species in the Butte Field Office. Management for neotropical migratory birds is generally accomplished by providing a diversity of habitat conditions at appropriate levels across the landscape.

Specific surveys for neotropical birds were not done in the proposed project area. However, data obtained from the Northern Region Landbird Monitoring Program within the area was used to determine representative species. Species found at two monitoring sites that could also be found in the proposed project area include: American robin, Cassin's finch, chipping sparrow, Clark's nutcracker, evening grosbeak, mountain chickadee, northern flicker, red-breasted nuthatch, ruby-crowned kinglet, red-naped sapsucker, warbling vireo, western tanager, yellow warbler, yellow-rumped warbler, and Townsend's solitaire.

Other avian species known or suspected to use the proposed project area include: hairy, downy, three-toed and pileated woodpeckers, brown creeper, northern goshawk, gray jay, common raven, dark-eyed junco, Cooper's hawk, flammulated owl, northern saw-whet, northern pygmy owl, pine siskin, and hermit thrush.

Fire exclusion and other human activities (logging, grazing and mining) have altered the structure of pre-settlement Douglas-fir communities from open savannah/woodlands with large, scattered or pockets of Douglas-fir trees to a dense forest and from riparian areas dominated by aspen and willow to those with heavy concentrations of Douglas-fir. This situation is typical of Douglas-fir communities over the West.

The decline of aspen and willow clumps along Nez Perce Gulch has resulted in a loss of quality breeding and foraging habitat for a wide variety of avian species found in this area.

## **Environmental Impacts**

### **No Action**

(Direct and Indirect Impacts of No Action)

### **Soils**

Conifers would continue to increase in number, shading out aspen and consuming soil moisture. Subirrigated conditions that can produce saturated soils, characteristic of hydric/wetland soils, would likely decline in frequency and size.

### **Water Quality**

Water would continue to flow down the road in high flow events, causing erosion where the stream intersects the existing road near the Dewey cemetery. Shading from conifers could decrease the understory presence of grasses along stream banks, thereby increasing the risk of erosion.

### **Vegetation**

Without the permanent road crossing, access around private land would be extremely difficult and not cost effective. This could prevent forest restoration activities as identified under the Wise River Forest Health and Habitat Restoration EA. Further degradation of

forest stands due to spruce budworm and Douglas-fir beetle would continue. All size classes of Douglas-fir trees would be damaged and a substantial number of very large, old Douglas-fir trees would be killed.

The health of aspen stands and willow clumps would continue to decline along Nez Perce Gulch as conifers out-compete these species for water, nutrients and sunlight as part of the succession process.

As water resources decline, upland shrubs and herbaceous species would continue to increase and become more dominant along Nez Perce Gulch. The already limited riparian vegetation remaining would continue to become less resilient to grazing and browsing to the point that desirable riparian species could be eliminated from Nez Perce Gulch.

Spruce budworm defoliation and Douglas-fir beetle activity could be sustained at current high levels for a number of years. This scenario would likely continue until enough trees are killed to open up stands making them less hospitable to spruce budworm. Also, as the number of dead trees increases, competition for resources between trees decreases. Trees become more vigorous, which in turn enables them to more successfully fight off bug attacks. However, under this scenario, older large diameter Douglas-fir trees are likely to be killed off at a higher rate than smaller trees. These larger more ecologically desirable trees could easily disappear from affected stands in this area.

The potential for beetle populations to increase and kill additional large-diameter Douglas-fir would remain high. These large-diameter trees are a desirable feature on the landscape and a component of stands which developed under the presettlement mid-severity fire regime. Many more of these trees are likely to die without the application of chemicals to control beetle activity.

Under the No Action Alternative, noxious weeds and invasive species would continue to expand at the current rate.

## **Travel Management**

Under this alternative, no changes would occur to the decisions made in the Upper Big Hole Travel Plan (Figure 3). Motorized vehicle use would continue to occur on designated routes in the area, including Route BH250, which passes directly through private land. However, the private landowner could choose to limit or deny access to members of the public at any time, thereby removing access to an upper elevation hunting area, which, is directly accessed, via this route.

Several routes between the Dewey Cemetery and route BH250 would not have travel designations under the No Action Alternative (Figure 3).

## **Wildlife**

The No Action Alternative would not remove any conifer trees from the riparian area of Nez Perce Gulch. No small aspen regeneration, Douglas-fir, spruce or other species would be removed to construct the permanent stream crossing over Nez Perce Gulch. No habitat for any threatened, endangered, proposed, BLM sensitive species or wildlife species of interest would be directly removed.

Under the No Action Alternative, aspen and willow clumps could continue to decline along Nez Perce Gulch as conifers over-top and out-compete these species. The continued decline and loss of aspen and willow clumps along Nez Perce Gulch could have a considerable negative impact on those wildlife species that use this riparian zone for foraging and breeding.

If aspen and willow habitat is converted to conifers along Nez Perce Gulch, there would be a change in both flora and fauna. Not only would there be a loss of forage for a variety of wildlife and avian species, but there could also be a substantial decrease in plant species and richness. The loss of aspen and willow due to conifer encroachment is having and would continue to have a substantial impact on those species that depend on aspen and willow for foraging and breeding and especially those species that depend on cavity development in aspen trees.

### **BLM Sensitive and Listed Wildlife Species**

No trees would be removed along Nez Perce Gulch and habitat for the northern goshawk would not be directly affected by the No Action Alternative. Although spruce budworm and the Douglas-fir beetle would cause mortality of some trees along the drainage, conifers are expected to continue out-competing aspen and willow.

The loss of vegetation diversity along Nez Perce Gulch by conifer colonization could ultimately reduce hunting opportunities for the goshawk by decreasing avian and small mammal populations.

Under the No Action Alternative, no MCH pheromone would be used to protect large Douglas-fir trees, especially those with old growth characteristics. This would result in the loss of many large “legacy” trees and lead to a substantial decline in nesting habitat for the goshawk.

By not using MCH pheromone to protect large, old Douglas-fir trees, the No Action Alternative could impact individuals and alter habitat for the goshawk and this species would have a “May Impact” determination under the No Action Alternative but this lack of action would not likely result in a trend toward federal listing or reduced viability.

The No Action Alternative would not directly remove or alter habitat for the flammulated owl. Because the flammulated owl is associated with more open canopies, habitat for the owl along Nez Perce Gulch would remain in a marginal or unsuitable condition. The continued loss of large upland Douglas-fir from the Douglas-fir beetle could increase nesting

habitat for the flammulated owl but could also result in a loss of structure favored by the owl (large, open grown trees).

The No Action Alternative would not impact individuals or alter habitat for the flammulated owl, gray wolf, or three-toed woodpecker and these species would have a “No Impact” determination under the No Action Alternative.

The No Action Alternative would not impact individuals or alter habitat for the lynx, this species would have a “No Effect” determination under the No Action Alternative. However, the continued loss of riparian vegetation could reduce hunting opportunities for lynx traveling through the drainage.

## **Wildlife Corridors**

The No Action Alternative would not have any impact on wildlife movement corridors or core habitat. The continued decline of aspen and willow could, however, result in a loss of forage for big game species that use Nez Perce Gulch as well as a loss of forage and breeding habitat other large and small mammals and avian species.

Under the No Action Alternative, there would be no temporary fencing along Nez Perce Gulch. The lack of fencing in conjunction with conifer competition would result in less aspen and willow regeneration along the stream. However, under the No Action Alternative, wildlife movement along the drainage would not be impeded by fencing.

## **Migratory Birds**

The No Action Alternative would not directly remove habitat for migratory birds. However, the loss of riparian vegetation due to conifer encroachment could ultimately lead to a decline in habitat for migratory birds that depend on riparian vegetation such as aspen and willow for nesting and foraging. Since the density and diversity of birds are much greater in aspen than conifer stands, and older aspen stands have more bird species than young aspen stands, bird abundance and diversity could be reduced.

The continued loss of large, old Douglas-fir would also have a substantial negative impact on resident and migratory birds in the area.

## **Proposed Action**

(Direct and Indirect Impacts of the Proposed Action)

### **Soils**

Removing conifers in the stream channel would reduce consumption of soil water, thereby improving hydric soil conditions and opportunities for riparian vegetation to establish (Gifford et al. 1984; Shepperd et al. 2006). Removal of conifers would also remove overstory shading, therefore ensuring that an understory of grass and forb vegetation is present to hold stream bank soils in place.

The process of improving the road and installing a new culvert would expose the soil surface to erosion. Implementing Best Management Practices (BMPs) would mitigate soil erosion.

## **Water Quality**

Road improvement and stream crossing construction would expose the soil surface, thereby producing erosion and sedimentation. The surface roughness provided by established vegetation in the stream channel should serve to trap sediment. The ephemeral and intermittent nature of the stream would inhibit sediment transport down the channel and would not reach the Big Hole River. Employing BMPs would mitigate effects of sedimentation from occurring.

Depositing woody material in the stream channel would help to dissipate stream energy during high flow events, therefore preventing potential downcutting in response to the altered morphology resulting from historic mining activity.

Improving the existing stream crossing by replacing the 16' culvert with a properly aligned 24" culvert should direct stream flow, when present, back into a natural channel, rather than flowing down the road. This would reduce sedimentation and promote riparian vegetation establishment in the stream channel.

## **Vegetation**

Removing conifers from aspen stands would alleviate competition for water, sunlight, and nutrients and promote increased health and vigor of aspen. Setting back the succession process would release many young aspen trees that are becoming crowded out by conifers. This would maintain and, in many cases, improve the density and diversity of aspen age classes as well as increase the diversity of riparian species, including willow, along the creek. Reducing the competition for resources, especially water, would allow more successful reproduction and growth aspen and willow seedlings and saplings, as well as promote riparian forbs and graminoids.

To install the new stream crossing, a small patch of aspen suckers, some willow, and a few mature Douglas-fir and spruce would be cleared in an area approximately 1/8<sup>th</sup> of an acre in size within the streamside management zone. This would be a permanent net loss of vegetation since this culvert would remain permanently, and no vegetation would grow back in the small area that the culvert and road crossing occupies.

The replacement of the 16" culvert with the 24" culvert would impact a very small amount of riparian vegetation since this crossing is located on a sagebrush flat with few riparian species present.

Where MCH pheromone would be applied, emerging adult Douglas-fir beetles would be deterred from attacking large old trees. As a result, large old trees would not disappear from the landscape and would persist as an important feature of late-seral open stands in the Nez Perce area.

Treatments to restore wildlife habitat in aspen stands, willow clumps and forest habitat would help native vegetation, thus creating natural competition against weed infestations. An additional route through this landscape, however, could increase motorized use and result in greater occurrences of invasive and non-native plant species in the project area.

## **Travel Management**

Closing a small portion of Route BH250 would not create a significant loss of motorized recreation, or general travel access, opportunities because access would remain available to the destination areas served by the existing route, via the new access route rerouted around a private in-holding. By utilizing the newly created route, recreation and travel access opportunities would remain on BLM managed lands, and thus would no longer cross private land, thereby significantly reducing the potential for negative encounters and experiences with the private landowners (Figure 4). The road from the new stream crossing around private land would become an ATV trail open between June 16 and December 1 after forest thinning activities under the proposed action.

Because minor erosion concerns have been previously identified on the existing Route (BH250), located south of the private land, it would be possible to utilize portions of the temporary road, constructed for the thinning operation in this unit, as the new permanent ATV route. If this method is utilized, it would not create a significant loss of recreation, or general travel access opportunities, because the newly created route would still provide access to the same overall destination points in the area. Elevation access for hunting, and continued access for other recreation and travel-related opportunities, would continue. By utilizing portions of the newly created access road as the permanent ATV Route (BH250), erosion concerns could be addressed through proper route design, layout and construction.

Although this method could create a change to visitor experiences by making the access route slightly less challenging, the amount of change would not be significant, and since the route and destination are typically utilized by hunters, the route is generally not considered to be utilized for challenge or skill improvement purposes.

The section of Route 189005a that did not have a travel designation under the original Upper Big Hole Travel Plan would remain “Open” yearlong and would not have any negative affects to recreational opportunities.

The section of Route BH097 that did not have a travel designation under the original Upper Big Hole Travel Plan would be “Closed Yearlong” under the Proposed Action. This would not have a negative impact on motorized use in the area since Route BH097 was closed approximately 0.1 mile from the junction of 189005a under the original travel plan.

## **Wildlife**

The Proposed Action Alternative would remove conifers (Douglas-fir and juniper) up to 16” diameter from in and around aspen stands and willow clumps along Nez Perce Gulch. The

proposed project is intended to release aspen and willow and to promote a diversity of understory species, density, age classes and structure. The proposed project would also construct a permanent crossing over Nez Perce Gulch with up to ½ mile of associated permanent road to access thinning units identified under the Wise River Forest Health and Habitat Restoration Project (USDI 2009).

Since Nez Perce Gulch is an ephemeral stream, the environmental effects from a permanent stream crossing and associated permanent road construction would be related to stream bank stability, sedimentation, the loss of streamside vegetation and potential effects to amphibians. The installation of a culvert, replacing the existing 16” culvert and ground disturbing activities associated with aspen/riparian restoration has the potential to expose mineral soil, create localized surface erosion and generate sediment that could be transported to Nez Perce Gulch. The ephemeral nature of the drainage and the lack of connection with the Big Hole River make it unlikely that any sediment generated by the project would have negative effects on fish or other aquatic dependant species. Nez Perce Gulch becomes a low gradient flat near the Dewey Cemetery and any runoff or sediment from the Nez Perce drainage would go subsurface or be deposited at this location and not make it to the Big Hole River.

The effects from permanent road construction would be expected to be short-term, but disturbance to wildlife could be high during project implementation. Disturbed sites, such as permanent roads, tend to be conduits for noxious weed infestations to become established. These sites can also have a reduction in vegetation productivity due to compaction or a loss of soil. An increase in weeds, loss of soil productivity and/or compaction could result in a loss of habitat. Any loss of habitat from these factors is expected to be small because permanent road construction would be kept to a minimum (less than 1/2 acre), and weeds would continue to be sprayed and monitored in the area.

Quaking aspen is extremely important to wildlife and avian species. Aspen within Nez Perce Gulch is in a state of decline due to over-topping by Douglas-fir and resource competition with juniper. These stands appear to be shrinking in size and some stands are decadent with little regeneration due to conifer shading. Being shade-intolerant, aspen would not be able to remain on sites dominated by conifers. Restoring aspen stands would be expected to increase plant species diversity, leading to an increase in forage, breeding and hiding opportunities for both mammal and avian species.

Restoring aspen and willow could also result in a potential increase of water yield in Nez Perce Gulch. This additional water would be available to produce undergrowth vegetation, recharge soil profiles or increase flows in the many springs found throughout the Nez Perce drainage (USDA 2001a).

Maintaining or increasing aspen and willow density, distribution and structure in the drainage would ensure that unique foraging substrates for a variety of insectivorous birds are available. Aspen and willow suckers, twigs and bark are used by wintering ungulates; particularly deer, elk and moose, as well as snowshoe hares and cottontail rabbits and the availability of these important sources of food would be expected to increase under the Proposed Action Alternative. The proposed project would also highlight future recruitment

of mature aspen that would provide cavities and snags for cavity-dependant wildlife. An increase in aspen stands could also lead to enhances hunting opportunities for raptors.

Aspen dominated sites are high in biodiversity. When aspen habitat is converted to conifers, there is a marked change in both flora and fauna. Maintaining or increasing aspen would increase forage for a variety of wildlife species by increasing plant species and richness.

Using MCH pheromone to protect the largest and oldest Douglas-fir trees in the Nez Perce drainage would also protect this crucial habitat element across the landscape. Although the death of large trees creates habitat for many species, the loss of numerous acres of this habitat feature would be extremely detrimental by changing a historic “savannah” type Douglas-fir type (although currently overstocked with young conifers) to a much younger and homogenous stand. Protecting pockets of large Douglas-fir trees would maintain valuable habitat preferred by species such as the flammulated owl as well as maintain long-term nesting and foraging habitat for raptors and song birds. Douglas-fir savannah provides a unique habitat type between lower elevation grassland/shrubland and higher elevation lodgepole pine and moist Douglas-fir forest types. The loss of large numbers of large, old trees due to the Douglas-fir beetle would result in a loss of structure that could take up to 300 years to develop.

### **BLM Sensitive and Listed Wildlife Species**

Habitat for the northern goshawk could be directly altered by the removal of conifers along Nez Perce Gulch. The canopy along the drainage would be expected to be more open but would still be in a forested stand. Since goshawks have been found to nest in trees down to 13” diameter in southwest Montana, some potential nest trees could be removed. No trees with active or inactive nests, however, would be removed and a buffer would be retained around any nest sites. Active goshawk nests would be protected from disturbance during project implementation and suitable habitat would be retained within the 40-acre buffer around both active and inactive nest sites. The buffer could be larger than 40 acres depending on the surrounding topography and existing vegetation.

Promoting aspen and willow regeneration along Nez Perce Gulch could enhance hunting opportunities for the goshawk by increasing vegetation diversity and, thereby, increasing avian density and diversity as well as small mammal populations.

Roughly 20 acres of suitable goshawk habitat could be thinned under the Action Alternative. Negative effects to the goshawk would be expected to be minor and the proposed project could have some beneficial affects due to increased hunting opportunities. The use of MCH pheromone to protect old structure Douglas-fir would protect goshawk nesting habitat. Overall, the Action Alternative may impact individuals or habitats but would not likely result in a trend toward federal listing or reduce viability for northern goshawk populations.

Although no flammulated owls were identified in the project area, opening the forest canopy could improve habitat conditions for the flammulated owl on approximately 20 acres. The use of MCH pheromone would protect flammulated owl nesting and foraging habitat. There would be no negative effects to the flammulated owl. The Action Alternative would not

impact individuals or negatively alter habitat for the flammulated owl and this species would have a “No Impact” determination under this alternative.

Habitat within occupied gray wolf habitat would be altered under the Action Alternative but would remain suitable for the wolf. The Action Alternative would not impact individuals or negatively alter habitat for the gray wolf and this species would have a “No Impact” determination under this alternative.

Reducing the number of insect infested trees per acre under the Action Alternative could have a negative impact on individual three-toed woodpeckers. Retaining large trees (>16” diameter) and all snags regardless of size would help to minimize the effects to this species. In addition, the surrounding upland forest habitat is experiencing high levels of attack by Douglas-fir beetle, a preferred prey for the three-toed woodpecker. The Action Alternative may impact individuals or habitats but would not likely result in a trend toward federal listing or reduce viability of the three-toed woodpecker population.

Although the project area would reduce cover in the short-term (5 years) for lynx using the area for travel habitat, the proposed project would not prevent these species from using the area for travel. The proposed project could benefit lynx by increasing snowshoe hare populations along Nez Perce Gulch. The Action Alternative would not impact individuals or degrade habitat for the lynx and this species would have a “No Effect” determination under the Action Alternative.

## **Wildlife Corridors**

Since the project area is within wildlife core habitat and a movement corridor, the proposed action could have both beneficial and negative effects to these habitats. Reducing the loss of aspen stands and willow clumps by improving the vigor of stands would retain crucial habitat components in the long-term. Increasing plant diversity through thinning would improve forage for big game, as well as black bear and other species with large and small home ranges.

Removing conifers from approximately 20 acres along Nez Perce Gulch would open the canopy and reduce hiding cover in this area. This could have some mid-term (5-10 years) negative impacts to those species that currently use the drainage as a movement corridor but prefer dense forest conditions. Thinning, however, would not be uniform over the entire length of Nez Perce. The removal of conifers would be focused in and around aspen and willow clumps and the habitat would be expected to have a “patchy” appearance. Young aspen would be expected get to a height that could provide hiding cover within 10 years.

The road along Nez Perce Gulch was identified as “closed” under the recent travel plan revision (USDI 2009). Under the proposed action, approximately 0.2 mile of the Nez Perce Road would now be “Open” but seasonally restricted (closed December 2 - June 15). This change in the travel plan along with the new road construction around private land (better access) could result in increased use of the area. There would be disturbance to wildlife using the movement corridor or in core habitat during project implementation as well as through the use of the new road/ATV trail. Although motorized use through the private land

would be discouraged under the proposed travel plan modifications, the new road/ATV trail could promote additional use of the area. Some species would likely avoid the area during construction of the stream crossing, road and during riparian restoration but after implementation wildlife should readjust and are expected to again use this area if motorized use remains low.

The use of temporary fencing (8-10 years) to prevent livestock and/or wildlife from hindering aspen and willow regeneration could have mid-term negative affects to big game and other species using the drainage for movement. Movement would be obstructed and forage/hunting opportunities within the exclosure would not be available to these species. The effects would be expected to last until aspen gets to a height where it could survive browsing pressure, roughly 8-10 years.

## **Migratory Birds**

The Action Alternative would remove some habitat for migratory birds. However, the loss of riparian vegetation due to conifer colonization would ultimately lead to a decline in habitat for migratory birds that depend on riparian species such as aspen, willow and other riparian shrubs for nesting, foraging and cover. The proposed project would remove small to medium size conifers (up to 16" diameter) that could be used for nesting. The size and species removed with the project would not be considered to be "limiting" for nesting habitat, when available habitat adjacent to the project area is considered. However, aspen stands within the project area that would ultimately be lost or reduced in size due to conifer colonization are considered to be "limiting" habitat. The Action Alternative would remove a minor to moderate amount of nesting habitat provided by small to medium diameter conifer species when adjacent lands are considered but would restore or maintain crucial riparian vegetation used by a large percent of avian species.

The density and diversity of birds are much greater in aspen than conifer stands, and older aspen stands have more bird species than young aspen stands. Maintaining and expanding aspen stands and willow clumps in the Nez Perce drainage would ensure bird species diversity and density increases and that high quality habitat is available.

The use of MCH pheromone to protect large Douglas-fir would also maintain and protect important habitat for both migratory and resident birds.

## **Cumulative Impacts**

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

The proposed stream crossing, road construction, culvert replacement, aspen/willow restoration and MCH deployment are located within the planning boundary of the Wise River Forest Health and Habitat Restoration Project (USDI 2009). This project encompasses roughly 6,000 acres of BLM land in the Big Hole Watershed and will thin or burn up to 1,600 acres of dry Douglas-fir habitat as well as remove invading conifers on an additional

900 acres of grassland and sagebrush habitats. In addition, the project will remove invading conifers from over 30 aspen stands.

The original Wise River Forest Health and Habitat Restoration Project Environmental Assessment (EA) (2009) identified thinning 200 acres of dense, insect damaged Douglas-fir forest stands in the Nez Perce area. The proposed stream crossing and associated road would be necessary to access these thinning units.

Restoration activities in the Wise River Forest Health and Habitat Restoration Project began in 2009 with approximately 250 acres of sagebrush/grassland habitat maintained or restored through mastication. Seventy to ninety percent of trees up to 10" in diameter were removed on 250 acres with roughly 130 of these acres located in the Quartz Hill Gulch area, approximately 1 mile from the proposed project area.

The proximity of private lands within the analysis area would result in the continuation of activities beyond the BLM's control. Private grazing, widespread recreation use (motorized and non-motorized) and development could potentially influence vegetation, wildlife use and riparian and soil impacts.

Although the Beaverhead-Deerlodge National Forest does not have any proposed projects adjacent to the project area, future vegetation projects by the forest are possible.

Chemical weed control activities are expected to continue in this area. Recreation, development, forest management and grassland/shrubland restoration all have the potential to increase weed populations.

Out year application of anti-aggregant pheromone may continue for several years. Beetle activity is dependent upon weather, efforts to reduce bug populations, and the success of thinning to reduce competition in affected stands.

## **Wildlife**

Vegetation management and travel management have the most potential to affect wildlife. Many other activities expected to continue or occur within the analysis area that can also affect wildlife include timber harvest, livestock grazing, fire (and lack of fire), road construction/reconstruction and use, mining, weed treatment, residential and commercial development and recreational activities.

Land that was traditionally used for ranching is now being converted to home sites in the Big Hole Valley. Although these lands had historic human uses, they also provided quality and/or functioning wildlife habitat. Historically, these areas provided a diversity of habitats that contributed to big game winter range, travel corridors, habitat for resident and migrating wildlife and foraging, breeding and hiding habitat. For many plant and animal communities, native species richness decreases as housing density increases. Non-native species, however, tend to increase with development (Hansen et al. 2005). Wildlife populations, including carnivores, may be reduced even at very low levels of residential development due to loss of

habitat, an increase in human access (from roads) in areas that previously had low levels of disturbance and an increase in hunting pressure.

Throughout the analysis area, regardless of land ownership, roads can impact wildlife in a number of ways. Roads can increase harassment, poaching, collisions with vehicles and displacement of terrestrial vertebrates, affecting a variety of large mammals such as bighorn sheep, mountain goat, pronghorn antelope, grizzly bear and gray wolf. Forest roads pose a greater hazard to slow-moving migratory amphibians and small mammals than to large mammals. Roads can prevent wildlife movement, create disturbance, cause the spread of noxious weeds and fragment habitats on the landscape. Open roads typically increase the level of recreation within areas adjacent to them. Additional disturbance or displacement of wildlife species within the vicinities of more heavily used open roads could result.

The Beaverhead-Deerlodge National Forest is currently working on travel planning as part of their Land Management Plan Revision. This could result in roads being closed or seasonally restricted on the forest. The BLM Butte Field Office recently completed travel planning in the Upper Big Hole Travel Plan Area (USDI 2009). The planning effort resulted in 0.9 mile of road being closed in the Nez Perce area. Once fully implemented, this will result in reducing human disturbances to wildlife.

Due to its location at lower elevations on the landscape, the Douglas-fir habitat type has historically had the most activity and disturbance from human activities in the Pioneer Mountains. Mining, livestock grazing, timber harvest and fire suppression all began in the 1800s and have significantly altered this habitat type. The result has been Douglas-fir habitats with a lack of structural and vegetative diversity they historically had. The Forest Service, BLM and private lands could expect vegetation projects in the future. On federal lands, vegetation projects would be designed to restore forest habitats or reduce fuels but could also result in salvage of insect or fire killed stands.

While the overall climate condition prevailing during various time periods determined the typical plant community, fire in southwest Montana was the fine-tuning mechanism. In fire-dependent communities of the analysis area, fire was responsible for the long-term stability of woodlands and a diversity of vegetation species. The lack of fire might be considered more of a “disturbance” to the overall system, causing widespread species replacement and loss of heterogeneity of habitats (Losensky 2002).

## **No Action**

The No Action Alternative would continue existing affects of the current land management in the project area and would have no short-term effects on forest habitats, aspen, or riparian vegetation. Long-term effects from continuing forest succession and would likely increase the amount of dense forest habitat and conifer colonization in aspen stands and riparian vegetation.

Without access into the Nez Perce thinning units (USDI 2009), restoration activities might not be possible.

Water yield could increase as a result of thinning operations conducted in the watershed, thereby increasing the frequency, duration and extent of surface flow in the Nez Perce Gulch stream channel (Gifford et al. 1984; Shepperd et al. 2006). Not replacing the existing 16” culvert could result in increased erosion and sedimentation where erosion is currently occurring. The presence of conifers along channel would continue to increase, shading out soil stabilizing understory riparian vegetation and grasses, thereby increasing the risk of bank erosion in response to an increase in yield.

The structure and function of future Douglas-fir forests would be shaped by spruce budworm and Douglas-fir beetle activity. This may mean a net loss in the number of old, large Douglas-fir trees which are very ecologically desirable and characteristic of stands which develop under the pre-settlement mixed severity fire regime. These trees not only provide structural diversity as they anchor grassland openings, they also provide an important seed source for the development of future stands. Since they are very old trees (greater than 200 years) it would take some time to generate this feature back into stands where they are lost.

## **Proposed Action**

Under the Action Alternative, roughly 20 acres along Nez Perce Gulch would be thinned to promote aspen and willow development. This alternative would have more direct, indirect, cumulative and beneficial effects within the Nez Perce watershed than the No Action Alternative.

Noxious weeds and non-native species are already in the area. With the disturbance of soils and traffic on permanent roads, undesirable non-native species could gain an added advantage in the area. With ground disturbance, the potential exists for weed introduction to occur on these sites. Weeds usually emerge and set seed earlier and are more prolific than native species. Under the proposed action, there would be an active inventory, spraying and monitoring project in the Nez Perce area. The Big Hole Watershed Weed Committee, an active group that works with all organizations concerning weeds in the Big Hole Watershed Area, volunteers to spray weeds in the area. Numerous spray days are also held to keep the non-native plants from becoming prolific or invading the Big Hole River Area, which is relatively “clean” of weeds.

Trail closures and re-routes on the portion of Route BH250 that crosses private land would help reduce potential negative encounters with the private landowners and would also help reduce soil disturbance and the spread of weeds.

Disturbance associated with the proposed action could be mitigated through use of BMPs. Vegetative treatments in the watershed could increase water yield, which in conjunction with aspen treatments in the proposed action, could improve conditions for establishment of riparian vegetation and hydric soils.

## CHAPTER 4

### **Persons, Groups and Agencies Consulted**

During preparation of the EA, the public was notified of the proposed action through a posting on the Butte Field Office NEPA Log on December 9, 2009. Contacts established in response to the notice are shown below. A public comment period was not offered because very little interest in the proposal has been expressed.

**Table 2. List of Persons, Agencies and Organizations Consulted**

<b>Name/Agency</b>	<b>Purpose &amp; Authorities for Consultation or Coordination</b>	<b>Findings &amp; Conclusions</b>
<b>Department of Natural Resources</b>	<b>Variance from Streamside Management Zone Law</b>	<b>Alternative Practices Authorization – March 28, 2010</b>
<b>Montana FWP</b>	<b>Permitting</b>	<b>124 Permit</b>

**Table 3. List of Preparers**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
<b>Sarah LaMarr</b>	<b>Team Lead - Wildlife Biologist</b>	<b>Wildlife and T&amp;E Species</b>
<b>MaryLou Zimmerman</b>	<b>Forester</b>	<b>Forestry and Forest Ecology</b>
<b>Tanya Thrift</b>	<b>Rangeland Management Specialist</b>	<b>Riparian, Range, Special Status Plants</b>
<b>Carrie Kiely</b>	<b>Archaeologist</b>	<b>Cultural survey and report</b>
<b>Lacy D Decker</b>	<b>Natural Resource Specialist (Weeds)</b>	<b>Weeds and invasive species</b>
<b>Brad Rixford</b>	<b>Outdoor Recreation Planner</b>	<b>Recreation, Wilderness, VRM, ACEC, &amp; WSR</b>
<b>Corey Meier</b>	<b>Soil Scientist</b>	<b>Hazardous materials, AML, soils, water, and air</b>
<b>Brad Colin</b>	<b>Outdoor Recreation Planner</b>	<b>Travel Management</b>
<b>Renee Johnson</b>	<b>Assistant Field Manager</b>	<b>Review</b>

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## Appendix A:

### *Pfister Habitat Types:*

*PSME/CARU habitat type— occurs on moderately dry mountainsides and upper slopes. At lower elevations it often occupies northerly aspects or benches, shifting to southerly positions at higher elevations. Douglas fir dominates most stands. Old- growth stands often with a park-like appearance. Undergrowth varies by phase.*

*PSME/CARU/CARU phase – these sites are too cold for Pinus ponderosa. Timber productivity is lowest in this phase. Clearcutting and shelterwood systems will favor seral species, while partial cutting will lead to eventual dominance by Doug-fir in most cases. Extensive scarification may be needed to reduce grass competition for successful regeneration of trees.*

*PSME/JUCO habitat type – locally abundant in southwestern Montana, it is found on gentle, north-facing slopes on decomposed granite or calcareous substrates. On calcareous substrates, lodgepole pine and limber pine are only minor seral components, with Doug-fir dominating even in young stands. Common juniper is the dominant understory; kinnikinnick is often present but usually poorly represented. Timber productivity is low to moderate with overstories strongly even-aged.*

*PSME/SYAL/SYAL habitat type – one of the more common habitat types, it is found throughout Montana on moderately warm slopes and benches. Occasionally it occurs on northerly aspects on toeslopes of drier mountain ranges. Seral stands at lower elevations are frequently dominated by ponderosa pine. At higher elevations, Doug-fir dominates most seral stages of succession*

*PSME/SYAL/SYAL phase- Bunchgrasses, pinegrass, and elk sedge are poorly represented in old-growth stands. In many stands Doug-fir dominates most stages of succession. Timber productivity ranges from low to moderate in the Big Hole area. Basal area stocking is good in the CARU and SYAL phases but the AGSP phase may have stockability issues and the lowest site index values. Regeneration may be difficult in droughty AGSP sites.*