

SUMMARY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Introduction

This Draft Environmental Impact Statement (DEIS) discloses the analysis of the environmental effects of various alternatives proposing activities in the Sheppard Creek Post-Fire Project area. A No Action Alternative is also evaluated. Proposed management activities are primarily designed to salvage merchantable wood products affected by the Brush Creek wildland fire in 2007.

The Brush Creek Fire is located in Flathead County and is approximately 20 air miles west of Whitefish, Montana. The area is approximately 30,000 total acres with about 24,700 of this managed by the Tally Lake Ranger District. The remaining acres are on lands administered by the Kootenai National Forest, Plum Creek Timber Company, and a small amount of other private property.

Proposed activities were developed by an interdisciplinary team (IDT) and were based upon an evaluation of areas in and around those that burned in 2007. The evaluation was conducted to better understand the impact of the fire on the resources across the landscape; the existing condition of key resources within the area on a broader, landscape scale; and a desired future range of conditions using past public involvement, current management direction, regulations, and laws. The evaluation (resource specialist reports in the Project Record) suggested several management actions appear appropriate at this time. The Proposed Action was then developed through interdisciplinary consideration of resource conditions.

Purpose and Need for Action

The Flathead National Forest Land and Resource Management Plan provides direction for managing the Flathead National Forest. The social, economic, and ecological conditions of the Sheppard Creek Project area were considered by the Forest Supervisor in determining the purpose and need for management action. The Forest Supervisor defined the purpose and need for this project as harvesting fire affected trees and recover merchantable wood fiber while it is still economically feasible to do so. Timely recovery of wood fiber would support the economies of local and regional communities.

Decision to be Made

The Responsible Official for this project is the Forest Supervisor of the Flathead National Forest. The Responsible Official may choose any of the alternatives analyzed in this document, including the No Action Alternative, or some combination of elements of action alter-

natives, as long as they are within the range of effects of the alternatives that have been analyzed.

Public Review and Comment

Public participation helps the Forest Service identify concerns with possible effects of its proposals. It is also a means of disclosing to the public the nature and consequences of actions on national forest land.

A public involvement strategy for this project was developed to ensure that potentially interested members of the public and other government agencies received timely information about the upcoming analysis so they may participate in the planning process.

Identification of Issues

Issues are identified through the public scoping process and by review from other agencies and Forest Service personnel. The scoping process is used not only to identify important environmental issues, but also to identify and eliminate issues that do not pertain to the Proposed Action thus narrowing the scope of the environmental documentation process accordingly. The following issues were identified to address concerns about, and develop alternatives to, the Proposed Action.

Too Much Helicopter Yarding is Being Proposed

Many comments were received that indicated the proposal is not economically desirable because it proposed too much helicopter yarding, which is very expensive and involves contractors who do not employ local workers.

Possible Old Growth and “Recruitment” Old Growth should not be Salvage Logged

The amount of individual tree mortality in stands experiencing low to moderate vegetation fire severity is often difficult to determine until the summer following the fire event. Comments were received expressing concern that all areas where the old growth status is uncertain should not have timber salvage. In addition, they felt that certain other areas would attain old growth characteristics more quickly and be of better habitat quality if left unsalvaged. Members of the public wanted the Forest Service to determine the status of these areas for their old growth and “recruitment” old growth characteristics and avoid logging if they still meet established criteria.

Canada Lynx and Snowshoe Hare Habitat is Reduced

The large wildfires (in 1994 and 2007) and past timber management have affected Canada lynx habitat in and near the Brush Creek Fire area. Proposed salvage harvest and temporary road construction would occur in numerous areas with potential for use by Canada lynx. Some of this appears to be excellent habitat for snowshoe hares and thus feeding habitat for

Canada lynx. Other lynx habitats that would be affected appear to function as multi-story non-feeding or travel habitat for lynx.

Post-Fire Reserve Areas Should Be Left Unsalvaged

Setting aside larger burned areas, particularly where unlogged, was proposed as the best way to assure retention of ecosystem function across the landscape. These areas may be particularly important for many species likely to help contain insect populations such as spruce bark beetles. It was recommended these areas: a) represent the diversity across the fire area, b) have connectivity corridors between reserves where possible, and c) include high-quality low-elevation habitat, as retention of such areas is relatively rare.

Water Quality Must be Maintained or Improved

Construction of some temporary roads or re-opening historic roads can result in a short term increase in erosion and sediment delivery potential. The amount of erosion and sediment delivery depends on many factors, including the steepness of the slope, need for stream crossings, and relative location to wet areas and streams. Roads located in upland areas do not have the same potential to transport sediment into streams as temporary roads located close to streams.

Stream Channel Stability and Channel Morphology Must be Maintained or Improved

Construction of some temporary roads or re-opening historic roads may contribute to changes in local water flow regimes, which in turn could impact stream channel stability and morphology. However, short lengths of road construction within a watershed would seem to have minimal effect, especially if it is not located near other recent disturbance. Also, roads located far up the hillside in dry areas would tend to capture less groundwater movement than roads nearer a stream channel or moist area.

Bark Beetle Management is not Adequately Addressed in the Proposed Action

The Brush Creek Fire area has favorable habitat for Douglas-fir and spruce bark beetles. Many trees in the fire area were killed by underburning that left upper boles and crowns intact. Many large spruce were felled for hazard tree reduction and many more fell because their roots were severely damaged. In addition, Douglas-fir beetles have been active in and near the fire area for the last ten years. These conditions result in a high probability that bark beetles could increase populations within the fire area and attack trees in the surrounding areas over the next several years.

Alternative Descriptions

Alternative A is the No Action Alternative, under which no timber salvage or other activities are proposed. The Proposed Action, Alternative B, was designed to meet the Purpose and Need of the project while implementing the Forest Plan. The other action alternatives are variations of reduced or increased timber salvage from the Proposed Action to emphasize the

issues discussed above. Alternative C was designed in response to issues regarding helicopter yarding, salvage of old growth or “recruitment old growth, Canada Lynx and snowshoe hare habitat, reserve areas, water quality, and stream channel stability and morphology. Alternative D was designed primarily in response to issues regarding bark beetle management. These alternatives were designed to address the key issues and represent a reasonable range of actions, while at least partially meeting the Purpose and Need for Action defined in Chapter 1.

Alternative A - "The No Action Alternative"

Under this Alternative, none of the actions proposed in any of the other alternatives would occur. The analysis in this DEIS describes the possible or likely consequences of not managing the Sheppard Creek Post-Fire Project as proposed in the action alternatives.

Alternative B - "The Proposed Action"

The Proposed Action is designed to meet the Purpose and Need of timber salvage harvest. The action was developed as a strategy to salvage merchantable wood while complying with Forest Plan direction. Treatments would total approximately 6346 acres of commercial timber salvage, along with 1844 acres of tree planting, and 2337 acres of interplanting. About 17.3 miles of temporary roads would be constructed over historic road templates, and 9.6 miles of new temporary roads would be built. All temporary roads constructed for salvage harvest would be reclaimed upon completion of harvest activities.

Implementation of the Proposed Action, as well as the other action alternatives, is designed to take place over the course of several years. Most timber salvage activities would be conducted in the first year after the Record of Decision is signed with other activities such as tree planting taking longer.

Alternative C

Using the Proposed Action as a base, Alternative C was developed in response to the first six *Issues* listed above. This alternative proposes no helicopter yarding; eliminates logging in stands that may be old growth or “recruitment” old growth; reduces the number of acres harvested and amount of road construction through lynx habitat; reduces road construction through RHCAs and moist areas; and reduces the number of culverts installed. Treatments total approximately 3902 acres of commercial timber salvage, along with 1198 acres of tree planting, and 1654 acres of interplanting. About 6.6 miles of temporary road would be constructed over historic road templates, and 2.9 miles of new temporary roads would be built. All temporary roads constructed for salvage harvest would be reclaimed upon completion of harvest activities.

Alternative D

This alternative was designed in response to issues related to bark beetle management not being adequately addressed in the Proposed Action. It also proposes a reduction in the amount of temporary road construction needed to access units.

Alternative D was also developed using the Proposed Action as the base. Changes to this alternative primarily involve additional areas of timber salvage harvest being proposed to manage for possible epidemic levels of Douglas-fir and spruce bark beetle. Some of these additional areas are within RHCAs. This alternative also keeps helicopter logging and reduces the number of temporary roads being built to access units. Treatments total approximately 7465 acres of commercial timber salvage, along with 2159 acres of tree planting, and 2978 acres of interplanting. About 8.5 miles of road would be constructed over historic road templates, and 3.2 miles of new temporary roads would be built. All temporary roads constructed for salvage harvest would be reclaimed upon completion of harvest activities.

Comparison of Alternatives

Each alternative is evaluated for its effects on important resources and issues that were identified by the public and by Forest Service employees involved with the project. A narrative comparison of the affected environment and environmental consequences of the alternatives by resource or issue area follows. A tabular comparison can be found at the end of Chapter 2.

Vegetation

The Proposed Action and its alternatives would have an effect on existing and future vegetation. However, the wildfire dramatically altered vegetation conditions. It changed almost 50 percent of the fire area from mid and late to early successional stages. Salvage harvest would remove dead or dying trees, which would have a minor influence on post-fire forest composition, structure, function, or regeneration. Salvage harvest would remove potential downed wood essential for nutrient cycling, wildlife habitat, and other ecosystem processes. However, the level of proposed harvest would leave adequate amounts of standing and downed wood for ecosystem function. Tree planting would have the most effect on forest vegetation because it would minimize the time for stands to become adequately stocked and would improve species diversity with higher proportions of desired species than expected naturally.

The acres harvested, volume recovered, and acres planted vary by alternative. Treatments and outputs are the greatest in Alternative D and the least in Alternative C.

Spruce and Douglas-fir Bark Beetles

There is a potential for outbreaks of both Douglas-fir and spruce beetles in the fire area. The wildfire created an abundance of susceptible trees by killing or damaging them, yet leaving much of the cambium intact and attractive to beetles. More than half of the fire area has stands that are susceptible to Douglas-fir bark beetles and approximately 40 percent of the area outside and near the fire area is susceptible. In addition, Douglas-fir beetles have been at high population levels throughout western Montana and northern Idaho for the last ten years, including in the project area. More than one-half of the fire area and one-half of the area outside and near the fire are also susceptible to spruce beetles. Although there is currently no evidence of active spruce beetle populations nearby, there are undoubtedly some at low, endemic levels that could be attracted to the fire area. Therefore, both spruce and Douglas-fir

beetles present a threat of population increases within the fires that could spread up to five miles outside the fires.

All action alternatives salvage dead and dying spruce and Douglas-fir that could otherwise contribute to bark beetle outbreaks. The alternatives vary in bark beetle hazard reduction effectiveness. Alternative D would salvage from the largest amount of susceptible stands. It also includes salvage in areas susceptible to bark beetles that were not included in the proposed action because they are in sensitive areas, have low volumes, or are difficult to access. These units would be treated only if monitoring shows a build-up of bark beetles and only spruce and Douglas-fir would be removed. Spruce and Douglas-fir would function as trap trees and removing those infested trees could remove large numbers of beetles and avert a potential outbreak. Therefore, Alternative D has the most opportunity to reduce a potential bark beetle outbreak. For Douglas-fir beetle, Alternative D salvages about 42 percent of the susceptible stands in the fire area, Alternative B salvages about 36 percent of susceptible stands, and Alternative C removes about 22 percent; or a little more than half of the susceptible stands in Alternative D. For spruce beetle, Alternative D salvages about 40 percent of the susceptible stands within the fire area. Alternative B harvests about 33 percent of the susceptible stands, and Alternative C harvests about 19 percent; or less than half of the susceptible stands in Alternatives D.

Noxious Weeds

Orange and yellow hawkweeds (*Hieracium* spp.), rush skeletonweed (*Chondrilla juncea*), and tansy ragwort (*Senecio jacobaea*) are of greatest concern in the project area. Populations of orange and yellow hawkweed and tansy ragwort currently exist in extensive areas within the analysis area and have the potential to spread. Rush skeletonweed is not currently found on the Flathead National Forest but populations are spreading from the west. The Brush Creek Fire has created conditions ideal for weed spread, and the Sheppard Creek Post-Fire Project may contribute to the potential spread of weeds by: 1) hindering natural recovery of vegetation that could compete with weeds, 2) serving as a vector for new populations, and 3) by creating additional ground disturbance and weed establishment substrate. Project features designed to reduce the potential for weed spread into and out of the project area include aggressive weed treatments such as washing of vehicles, winter logging, soil stabilization measures, Riparian Habitat Conservation Area (RHCA) buffers, revegetation of disturbed sites, and restoration of constructed temporary roads. Roadside noxious weed herbicide treatments will occur in summer 2008 and are expected to continue in the future. Treatment would be consistent with a strategy outlined in the forest-wide noxious weed plan.

Threatened and Sensitive Plants

A habitat suitability analysis was conducted for all 53 recognized Regional Forester's sensitive plants for the Flathead National Forest and for federally threatened plants (water howellia and Spalding's catchfly). None of the action alternatives are expected to have direct or indirect effects on any known occurrences of sensitive plants due to the lack of known occurrences. However, habitat for sensitive plants does occur within the project area. Surveys for potentially occurring plants in this project area will be conducted in the summer of 2008. If Regional Forester's sensitive plants are found prior to ground disturbing activities, mitigation measures will be implemented to protect the population and its habitat. The potential spread

of noxious weeds resulting from this proposed salvage project and past, present, and future projects has the greatest potential for cumulative effects on potentially occurring sensitive plant populations. The potential for weed spread would be reduced by project design criteria. There is no suitable habitat for water howellia or Spalding's catchfly within the project area and no effects are expected due to the lack of habitat. The total of the direct and indirect effects from the proposed project and the contributing cumulative effects from past, present, and reasonably foreseeable future actions would not likely reach thresholds.

Fire and Fuels

Salvage harvest would reduce the eventual accumulation of fuel that would exist within the fire boundaries. This accumulation of fuel can contribute to a reburn, which often cause severe wildland fire effects. All action alternatives reduce fuel to varying degrees proportionate to the amount of salvage harvest acres proposed in each alternative. This is accomplished by in-unit salvage harvest with associated landing slash treatments. Alternative D performs the most fuel reduction with Alternative C performing the least.

Air Quality and Smoke Management

The amount of smoke emissions include particulate matter produced from landing slash disposal and is proportional to the amount of salvage harvest acres proposed in each alternative. All pile burning would be conducted in a manner to comply with all established regulations and no health or ambient air quality thresholds would normally be exceeded. Short-term potential impacts to visibility in Class I airsheds would usually be less than one day and typically occur during low visitation periods. Alternative D creates the most smoke emissions with Alternative C creating the least.

Hydrology

Analysis of the action alternatives focused primarily on erosion and sediment delivery that may result from ground disturbing activities such as summer logging and temporary road construction. This is a primary concern on a burned landscape because accelerated sediment delivery can degrade water quality and have long term impacts on aquatic habitat. Analysis of Alternative D focused on proposed removal of spruce and Douglas-fir trees within RHCAs. Units proposed for winter logging or summer helicopter logging were not included in the analysis because ground disturbance associated with these activities is considered to be negligible.

Potential erosion and sediment delivery associated with burned conditions on the landscape are several orders of magnitude greater than what may result from proposed management activities. For example, culvert installation and subsequent removals proposed in Alternative B may produce 8.4 tons of sediment, while the amount of sediment produced by the burned landscape, even in the absence of management activities, may exceed 7000 tons in 2009.

Total sediment that may result from the action alternatives vary by the amount of ground disturbing activities. Harvest of spruce and Douglas-fir trees proposed in Alternative D has the potential to cause short- and long-term impacts on water quality and channel morphology.

Fisheries

The vast majority of proposed management activities are within the Sheppard Creek drainage; with some activities in the Good Creek, Griffin Creek, and Sylvia Lake drainages. Most of the streams in the project area contain brook trout, a non-native species that typically displaces westslope cutthroat trout. Upper Sheppard Creek contains a small population of native westslope cutthroat trout that are believed to be genetically pure. This population is important in a regional context because pure cutthroat populations are rare in this vicinity.

Analysis of fisheries resources focused on the potential for habitat degradation that may result from temporary road construction, culvert replacements, and harvest of trees in RHCAs. Of primary concern in all the action alternatives is the potential to accelerate erosion and sediment delivery. Increased levels of fine sediment in streams can degrade habitat used by westslope cutthroat trout. However, the hydrologic analysis predicts that potential erosion and sediment delivery associated with burned conditions on the landscape are several orders of magnitude greater than what may result from proposed management activities.

Proposed harvest of trees in RHCAs in Alternative D is of particular concern in terms of aquatic habitat. Harvest of spruce and Douglas-fir trees within one tree height (typically 120 feet) can potentially reduce long term recruitment of woody material into fish-bearing streams. This can result in decreased pool habitat (quantity and size) and decreased spawning habitat. Because recruitment of woody material is typically episodic and associated with disturbance, this potential impact could persist for a period greater than a century.

Soils

The effects of management activities on the soil resource primarily involve soil productivity impacts in a burned environment. All action alternatives are designed to minimize harvest activity impacts. Impacts from tractor yarding are lowered by using primarily winter only operation. To a lesser extent, some units have optional summer harvest using inwoods processing where green and lightly burned foliage is adequate for a slash mat and unit location is in a less erosion prone position in the watershed. Higher risk areas are included in Alternatives B and D, though primarily related to units with potential wet soils. Alternative B has 160 acres and Alternative D has 526 acres with this high risk.

The high risk for soil disturbance for Alternative D is from planned harvest of bark beetle infested spruce and Douglas-fir in and around RHCAs, though outside state streamside management zones (SMZs). SMZs have effective controls on tractor yarding to reduce the high potential for soil disturbance in wet areas. Log suspension using aerial cable, helicopter, or presence of large logs to prevent log dragging on the ground limits disturbance in these areas.

The wildland fire reduced forest floor and vegetation biomass from pre-fire conditions. Timber salvage operations can affect site organic matter. Preliminary analysis found sufficient material would be available to ameliorate site conditions for soil recovery. The most critical areas are those that experienced High Crown Fire where adequate biomass retention is needed to promote soil recovery. Estimated biomass retention in these areas is just above 50 percent of total current stocks of wood. Secondary impacts to productivity are from an influx

of noxious weeds that inhibit natural vegetation recovery. Soil erosion is a secondary concern since the project area does have a low probability for sufficient rainfall intensity to drive surface erosion. Erosion would be localized to roads and not widespread. Preliminary data also suggests residual harvest effects are low within the burned area, with highest potential impacts along the clay rich glacial soils along the valley bottom. Past harvest is a relatively small portion within the proposed alternatives.

The soil analysis indicates all alternatives and all activities proposed by the alternatives would meet the Regional Soil Quality Standards and all Forest Plan management direction.

Snags and Downed Woody Material Wildlife Habitat

In all action alternatives, the largest larch and Douglas-fir and most of the live trees would be retained, as would all live and dead black cottonwood, quaking aspen, paper birch, and ponderosa pine. Site-specific prescriptions would be followed to meet Forest Plan Amendment 21 snag and downed wood standards.

The action alternatives would remove snags and downed wood from 3902 to 7465 acres burned by the fire. Alternative C would retain many areas of recruitment old growth that would typically provide the best areas for snag patches. In Alternative C, about 27 percent of the analysis area would continue to function as post-fire reserve areas, compared to only four percent in Alternative D and eight percent in Alternative B. Alternatives B and D would salvage most of the trees in 47 to 56 percent of the burned areas that did not already have timber harvest. In Alternatives B and D, cavity-nesting species would be less able to respond to insect outbreaks due to the removal of a substantial amount of large snag habitat as they would under Alternative C, which would salvage most of the trees in 29 percent of the burned areas that did not have previous harvest. Alternative A would best favor species associated with recent burns, large amounts of snag and downed wood habitat, and abundant insect prey.

Temporary roads would also have an effect on snag and downed wood habitat, with up to 9.6 miles of new temporary roads constructed through areas where snag and downed wood habitat is currently abundant.

Old Growth Habitat and Old Growth Associated Wildlife Species

No salvage is proposed in areas that are known to be old growth habitat. A considerable amount of salvage would occur in areas where old growth and recruitment old growth values are currently uncertain, amounting to 888 acres in Alternative B and 1212 acres in Alternative D. All areas of proposed salvage where old growth or recruitment old growth values are uncertain will be field-reviewed for old growth habitat attributes in the spring and summer of 2008, and design criteria would require any areas that are still old growth or recruitment old growth to be eliminated from units. Removing the snags and future large downed wood, as well as some of the live trees, would increase the length of time until these areas could function as old growth habitat or supply the particular old growth habitat components necessary for specific old growth associated species. Up to 73 percent of the burned-up old growth habitat (1710 acres) would be salvaged. In the no-action alternative, bark beetle populations could increase to attack trees on thousands of acres, and enough large trees may die that many stands may no longer function as old growth habitat.

Management Indicator Species - Commonly Hunted Big Game

Due mostly to the effects of the Brush Creek Fire, hiding cover and hunting season security areas will be limited for the next 15 to 20 years. Alternative D would reduce the remaining cover the most of all alternatives, from 33 percent to 24 percent in the fire area. Alternatives B and D reduce both hunting season security blocks within the fire area below 250 acres, although approximately one-half of the security habitat is already marginal hiding cover. Salvage harvest would occur in up to 68 acres that could function as elk moist sites. Approximately four acres of this is habitat more likely to contain elk wallows based on topography and photo interpretation. Harvest activities and temporary road construction and obliteration would affect some hiding cover and cause temporary displacement of ungulates throughout the project area. The analysis area does not provide winter range; therefore, winter harvest would have less affect on ungulates.

Riparian Wildlife Habitats and Neotropical Migratory Birds

In Alternative D, salvage harvest would overlap with nearly 300 acres of riparian landtypes. In these areas, habitat values may be less than optimal for some Neotropical migrants and other wildlife species due to the removal of many snags and downed logs in and near riparian and wetland areas. Alternative B would construct nearly 2500 feet of temporary road through riparian landtypes, while temporary roads in Alternatives B and C would pass through less than 800 feet. Alternative C would not salvage in many areas, such as recruitment old growth, which would typically provide the best areas for snag patches and habitat diversity. Some nest failure and temporary displacement of Neotropical migrants and other wildlife species may occur.

Threatened Wildlife Species

The analysis area is outside the Northern Continental Divide *Grizzly Bear* Ecosystem recovery zone, although grizzlies are reasonably expected to occur anywhere in the analysis area. Under Alternative A, habitat values associated with dead and fallen dead trees would be available to grizzly bears over the long term. The action alternatives could displace or disrupt bear behavior due to the extensive amount of logging activities. The short-term loss of hiding cover would occur on a range of 733 acres (Alternative C) to 2251 acres (Alternative D). Most of this would be marginal cover, where limby dead trees provide a residual level of cover value. There would be no direct or indirect effects on grizzlies from disturbance to key habitat areas such as den sites. A determination of "May affect -- not likely to adversely affect" was made for grizzly bear for all alternatives.

A determination of "May affect -- not likely to adversely affect" was also made for *Canada lynx* for all alternatives. Under Alternative A, only natural processes would further change lynx habitat, with no loss in future potential denning habitat. About 1020 acres of salvage harvest in Alternative B, 112 acres in Alternative C, and 1427 acres in Alternative D would occur in stands that appear to be suitable lynx habitat, with a possible corresponding increase in temporarily unsuitable habitat. A small amount of sapling hare habitat and multistory hare habitat would be affected in Alternative D. However, areas found during 2008 field visits to match these habitats, or where this is still uncertain at the time of unit layout, will not be entered for timber salvage. The action alternatives would also construct 1.3 to 6.9 miles of temporary road through lynx habitats.

Sensitive Wildlife Species

None of the proposed alternatives would cause permanent habitat loss for any sensitive species. Of the 13 sensitive wildlife species (including the recently delisted bald eagle and gray wolf), for three there would be no impact from any of the alternatives as a result of a lack of presence, suitable habitat, or lack of effects on suitable habitat. These three species are the *flamulated owl*, *harlequin duck*, and *peregrine falcon*.

Alternative A would continue to provide abundant foraging and nesting habitat for the *black-backed woodpecker* in the proposed project area. Alternative D would reduce from six to zero the potential home ranges created on the Flathead National Forest side of the fire. Alternative C would reduce from six to two of them and Alternative B would reduce from six to one. If an insect outbreak occurs, Alternative D includes measures to control bark beetle populations via additional salvage. These efforts may reduce prey and subsequently black-backed woodpecker numbers in and near the fire area. Well over 30,000 acres of potential black-backed woodpecker habitat would remain at the scale of the ecological province.

There is a potential for a small amount of impact on riparian habitat for *boreal toads*, *northern leopard frogs*, *northern bog lemmings*, and *Townsend's big-eared bats* by 74 acres of salvage harvest in Alternative D and by 188 to 376 feet of temporary road construction across all action alternatives. Much of this habitat would be protected by measures outlined in the *Fisheries* and *Hydrology* sections of Chapter 3. In addition, timber salvage would reduce roosting habitat that could be used by Townsend's big-eared bats and a limited direct mortality risk to toads is expected during timber harvest activities and temporary road construction. Best Management Practice (BMP) improvements in the action alternatives could improve riparian habitat conditions. Suitable habitat for all four species would remain in the Sheppard Creek and surrounding drainages, and across the Flathead National Forest.

Salvage harvest and temporary road construction in Alternatives B, C, and D are expected to cause short-term displacement of individual *bald eagles* or *common loons* feeding at Sylvia Lake. The project area does not contain potential nesting habitat for either species.

Existing *fisher* habitat would not be affected by any alternative, as the connected suitable habitat was burned with the Brush Creek Fire, and the Sheppard Creek drainage is likely to be avoided by fisher for up to 100 years. Salvage activities in Alternatives B through D would prolong the time to recovery of denning and resting habitat in salvaged areas.

Under Alternative A, habitat values associated with dead and fallen dead trees would be available to *gray wolves* over the long term. The action alternatives could displace or disrupt wolf behavior and would affect cover values, as described above for grizzly bears. There would be no direct or indirect effects on wolves from disturbance to key habitat areas such as den sites, rendezvous sites, or whelping sites.

There is no suitable *wolverine* denning habitat and no ungulate winter range, so the area is assumed to provide only dispersal or travel habitat. Salvage harvest and associated activities are not expected to change wolverine use, since the Brush Creek Fire created large areas that wolverine may avoid because of the lack of cover. Wolverines traveling between higher quality habitats may experience short-duration displacement.

Recreation

There are no substantial differences between the action alternatives related to salvage timber sales for developed and dispersed recreation. The No Action Alternative would increase trail maintenance needs for approximately the next ten years due to dead trees along the trail corridors not being removed during salvage operations. The short-term effects of salvage timber sales may restrict how and where the public recreates when the sales are operating. All lands, trails, and campgrounds within sale area boundaries may be closed to public access, for the duration of the sale contracts, to provide for public safety and expedite salvage operations. All temporary roads created or opened for salvage, would be reclaimed after operations are complete.

Visuals / Scenery

Alternative A does not remove vegetation from the landscape through timber harvest or prescribed burning. The natural evolution of the landscape would continue and the vegetation in the existing harvested areas would grow and eventually fill in the burned areas but the shapes would remain evident. All of the other alternatives salvage timber to about the same number of acres, with Alternative D the greatest and Alternative B the least. Salvage harvesting in areas of moderate to high burn severity change the color and pattern of the landscape very little, particularly when the vast majority of live trees would be retained and large numbers of snags are left within the salvage areas. Features common to all action alternatives include the placement of logging slash in skid and skyline trails, thus ensuring continuity of color and pattern.

Heritage Resources

A search of in-house files identified five recorded cultural sites in the Sheppard Creek Project area. All five are historic period sites. There have been at least thirteen previous cultural resource inventories in the analysis area. A complete pedestrian inventory for discovery of important cultural resources has not been completed for the entire project area. None of the known, recorded sites appear to be eligible or listing on the National Register of Historic Places. Surveys have been and would continue to focus on areas proposed for ground-disturbing activities, such as timber harvest and road construction. Additional field review would occur during the snow-free periods beginning in 2008. Discussion with the Confederated Salish and Kootenai Tribes are on-going but have not identified any concerns in the project area. Consultation with the CSKT will continue.

Socio-Economics

Each action alternative positively affects the economic and employment conditions of local and regional areas. The No Action Alternative would not provide employment or economic stimulus. The value of the action alternatives are similar even though Alternative C offers substantially less timber volume for sale, due primarily to the high costs of helicopter yarding. However, the employment opportunities provided by the action alternatives vary greatly, with Alternative D having the most and Alternative C having the least.