

## Forestlands

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The following assessments were based primarily on Whitlach (2009) and Strom (2009). Other scientific information and resource management principles were also considered.

### EXISTING CONDITIONS

The Little Greys Allotment encompasses several forest types, including lodgepole pine, spruce/fir mix (Engelmann spruce and subalpine fir), Douglas-fir, aspen, and whitebark pine. The allotment is overwhelmingly dominated by mature to old forests (i.e., 100 or more years since the last major disturbance). Fire currently is not playing the role that it naturally had prior to human intervention. Mountain pine beetle, which kills lodgepole pine and whitebark pine, is currently at epidemic levels on most parts of the Bridger-Teton National Forest.

An estimated 64% (10,448 acres) of the allotment is forested. Of the forested acres, an estimated 68% is lodgepole pine, 25% is Douglas-fir, 4% is spruce/fir mix, and 3% is aspen. A 4-acre clearcut in the allotment is now about 22 years old. One large fire burned 760 acres and 11 small fires burned 2 acres in this allotment since 1951. Conifer and aspen regeneration in the clearcut area and burned areas do not appear to have suffered as a result of managed domestic grazing practices.

Aspen communities are addressed in more detail; see the “Aspen (MIS)” section, later in this chapter.

### DIRECT AND INDIRECT EFFECTS

#### *Alternative 1 (Current Management)*

Conifer and aspen regeneration in timber harvest areas and burned areas do not appear to have suffered as a result of managed cattle grazing practices, and this would continue. There are no plantations in the analysis area that need protection from cattle grazing.

This alternative does not propose treating any of the forested vegetation to create more early seral/young forest stands. Therefore, there are no direct impacts on conifer trees and no direct impacts on insect and disease levels. Alternative 1 would not interrupt or limit the successional process, and stand structure will remain as predominantly mature/old forest. Young forest stands will continue to age and grow into mature forest, as well.

Cattle grazing may result in increased density of tree seedlings after disturbance, if cattle access disturbed areas. This is because grasses that normally compete with tree seedlings for water, sunlight, and nutrients would be reduced through grazing or trampling.

Also, with grasses (surface fuel) being reduced, the potential for fires carrying to forested areas would continue to be somewhat reduced.

#### *Alternative 2 (No Livestock Grazing)*

Discontinuing livestock grazing would have little to no direct impacts on conifer and aspen trees. It would lead to less soil compaction, more water infiltration, and less erosion, which would be beneficially to forest vegetation. Discontinuing livestock grazing would also allow grasses previously grazed to retain taller heights and densities

through summer. In forestlands that have been burned or logged, these grasses would provide competition for seedlings, but seedling establishment and density would probably be at a more historic level.

### *Alternative 3 (Proposed Action)*

Potential effects of this alternative would be similar to Alternative 1, except Alternative 3 would have a somewhat higher potential for fires in forestlands.

## **CUMULATIVE EFFECTS**

Existing vegetation is the result of past climatic regimes, natural and human-caused disturbances, lack of disturbance through fire suppression, and the natural process of succession—the gradual replacement of one plant community by another over time. Fire was probably the greatest driving force in the vegetation composition and structure of the forest, as fires set back areas of vegetation to earlier seral stages. Fire suppression and lack of logging have kept forested vegetation moving into mature/old forest conditions, and allows them to remain in this condition. Because 60% of the allotment is in an Inventoried Roadless Area, this will continue to limit the potential for logging, although there are preliminary plans for a timber sale to be analyzed in 2014 (an estimated 250 acres). Cattle grazing has contributed to reducing fire frequencies by removing grass/surface fuel, compacting soils, reducing water infiltration and increasing erosion.

Insects and disease, such as Douglas-fir beetle and dwarf mistletoe, are normally found in all forest types at endemic levels. However, mountain pine beetle, which kills lodgepole pine and whitebark pine, is currently at epidemic levels on most parts of the Bridger-Teton National Forest. Historically, large-scale fires would generally follow these epidemics, particularly when coupled with below-average precipitation.

Climate change and years of below-average precipitation have decreased tree vigor, which contributes to impacts from diseases and insects that impact trees. Cumulatively, the factors identified in this and previous paragraphs have made forests less resilient to natural disturbances such as insects and disease (Belsky et. al. 2008). These factors will continue to affect forest health, regardless of alternative, except that cattle grazing would no longer be a factor under Alternative 2.

## **MITIGATION MEASURES**

No mitigation measures are necessary because potential effects would be no more than negligible.

## **SUMMARY OF DETERMINATIONS**

### *Potential Effects*

- Alternatives 1 and 3 would have no more than negligible impacts on conifer forestlands, except Alternative 1 may have a somewhat lower potential of fires carrying into forestlands and Alternative 3 may have a somewhat higher potential for this.
- Alternative 2 would not have any impacts on conifer forestlands, except this alternative may increase the potential for fires carrying into conifer forestlands.

*Ability to Meet Forest Plan Direction*

Alternatives 1 and 3 would have no more than negligible effects on the ability to meet Forest Plan direction with respect to conifer forestlands.

## Wildlife, Fish, and Their Habitat

This section incorporates the following documents by reference: USFS (1997), USFS (2004), USFS (2007), Anderson (2008), Simon (2008), DeLong (2009a-d), Strom (2009), USFS (2009), Whitlach (2009), and data and field observations cited in these reports. These documents provide background information, the basis of assessments and conclusions reached, explanations of methods used in the analysis. Some assessments made in this section are based in part on assessments made previously in this environmental assessment. Other information was used in the analysis of impacts, and this information is contained in the project record. These documents can be obtained from the Greys River Ranger District, Afton, Wyoming. Other scientific information and resource management principles were also considered.

MIS populations and MIS habitat conditions, including capability and suitability of habitat for MIS, were described at the BTNF-wide level in USFS (2007) and USFS (2009), and were described at the project level for each MIS in DeLong (2009a). The analysis in this Environmental Assessment summarizes these discussions.

Discussions of direct and indirect effects were taken from the “Determinations” subsections of DeLong (2009a,b), which were based in part on information in DeLong (2009c) and USFS (2009), as well as DeLong (2007a-c).

### SPECIES NOT ANALYZED IN DETAIL

The following management indicator species (MIS) are not analyzed in detail because the species do not inhabit any of the four allotments or would otherwise not be adversely affected by changes in livestock grazing use (see the *Biological Evaluation and Wildlife Report*, project files, for more detail). The wildlife biologist’s determination is that there would be no impact of Alternative 1, 2, or 3 on any of the following species:

- Bighorn sheep
- Pronghorn
- Pine marten

The following Region 4 sensitive species are not analyzed in detail because the species do not inhabit any of the four allotments or would otherwise not be adversely affected by changes in livestock grazing use (see the *Biological Evaluation and Wildlife Report*, project files, for more detail). The biologist’s determination is that Alternatives 1, 2, and 3 would have **no impact** on any of the following species:

Common loon	Bighorn sheep
Trumpeter swan	Fisher
Greater sage grouse	Spotted bat

Flammulated owl  
Boreal owl

Townsend's big-eared bat

The following endangered, threatened, and candidate species are not analyzed in detail because the species do not inhabit any of the four allotments or would otherwise not be affected by changes in livestock grazing use (see the *Biological Assessment*, project files, for more detail). There would be no effect of Alternatives 1, 2, or 3 on the following species:

Yellow-billed cuckoo (candidate)  
Kendall warm springs dace (endangered)

## **BALD EAGLES AND HARLEQUIN DUCKS (SENSITIVE)**

### **Existing Conditions**

Bald eagles occur in low numbers along the Greys River and some of its tributaries, and on some of the lakes in the Greys River drainage and along the Star Valley Front. Only one nest is known to exist in the Greys River District (about 7 miles south of the allotment), but other nests exist in Star Valley (15 miles southwest of the allotment) and along the Snake River (north of the allotments). The nest site near the mouth of Blind Bull Creek is the district's first documented bald eagle nest site, and it was found the summer of 2007. Adult bald eagles have been seen on the allotment during the past few years.

Harlequin ducks have been reported on the district in past years, but there are no recent reports. Among other requirements, they need dense shrub cover along low-gradient, braided streams with high water-quality for nesting.

Aside from the roads and associated human activity along streams and rivers of sufficient size and with valley bottom characteristics, habitat conditions on the allotments appear to be suitable for bald eagles and harlequin ducks.

### **Direct and Indirect Effects**

#### *Alternative 1 (Current Management)*

The current livestock grazing program on the allotment does not appear to be affecting bald eagle ecology or use of the project area or the Greys River Ranger District by bald eagles. This is due mainly to the low abundance of bald eagles, including only one known nesting pair on the district. In addition, fish abundance in the Little Greys River and major tributaries, including associated beaver ponds, in the allotment appear to be at or near potential (Fogle 2008). Bald eagles using the Little Greys River and tributaries may occasionally be displaced by herding and other livestock management activities, but the potential for displacement is low since very few bald eagles inhabit the area during this period. If bald eagles were to nest in the project area, potential would exist for incidentally displacing adult bald eagles, but would be low relative to other disturbance factors (e.g., recreationists along the Little Greys River).

Similarly, the current livestock grazing program does not appear to be a factor hindering use of the Little Greys River and tributaries by Harlequin ducks. While cattle grazing use (in general) has the potential to significantly reduce willow cover along streams, current

cattle grazing practices do not appear to be adversely impacting willow habitat in the Little Big Greys allotment to any large extent, except in isolated cases. Therefore, while there is potential for livestock use to adversely impact harlequin duck nesting habitat, current cattle grazing practices are likely having no more than negligible effects on the potential use of the project area by harlequin ducks. Disturbance from livestock-related activities (herding) would have no more than inconsequential effects on harlequin ducks, mainly because there is no known nesting activity in the Little Greys River drainage.

#### *Alternative 2 (No Livestock Grazing)*

If cattle grazing in the allotment were discontinued, there may be negligible benefits to bald eagles and potential negligible benefits to harlequin ducks. Negligible benefits to bald eagles may arise from the reduction of adverse impact to fish, greater potential for recovery of stream systems, and elimination of one disturbance source, but (1) fish populations currently are relatively healthy, (2) current availability of fish is likely more than adequate for bald eagles relative to the size of the stream system, and (3) disturbance from current activities related to livestock grazing is small compared to other factors. Any benefits would be negligible. Similarly, any benefits to Harlequin ducks — in terms of relaxing factors that currently limit their use of the Little Greys River drainage — would be negligible since livestock grazing use does not appear to be among the main factors limiting their use of the drainage.

#### *Alternative 3 (Proposed Action)*

Potential effect of Alternative 3 would fall between effects of Alternatives 1 and 2. A higher level of stream channel restoration would occur under Alternative 3 than would occur under Alternative 1, but this would translate into no more than negligible benefits to bald eagles and Harlequin ducks. Stream channel recovery would not be as high as would occur under Alternative 2, but implications to bald eagles and Harlequin ducks would be negligible.

Disturbance effects of Alternative 3 would be similar to Alternative 1, except there may be slightly more disturbance resulting from more herding in some years. However, effects on bald eagles would be negligible. Potential effects of slightly increased herding activity would have no more than negligible effects on Harlequin ducks if they were to inhabit the area. Increased fencing under Alternative 3 would have the potential to adversely affect Harlequin ducks if they were to inhabit the allotment, but the likelihood is low that they would begin using habitat in the allotment in the foreseeable future and fence design in compliance with standards and guidelines would minimize the potential for mortality.

#### *Cumulative Effects*

A detailed cumulative effects analysis is contained in the *Biological Assessment and Wildlife Report* for bald eagles and harlequin ducks, but given the low probability of any of the alternatives adversely affecting these species, only a summary is provided here.

Bald eagles and harlequin ducks are sensitive to human disturbance. Motorized vehicle use, dispersed camping, fishing, kayaking, and other recreational activities along water courses likely is an important factor affecting bald eagle use of the Greys River District. Given the close proximity of high levels of recreational activities (e.g., combined effects of roads adjacent to water courses, motorized vehicle use, camping, fishing,

boating/floating, and other recreational activities along water courses) to apparently capable habitat, human disturbance appears to be a leading cause of harlequin ducks not nesting in the Greys River drainage, including streams in the Little Greys Allotment. Livestock-related activities near streams currently contribute only negligibly to the level of human disturbance, and this would continue under Alternatives 1 and 3. Alternative 2 would remove this possible effect on bald eagles and harlequin ducks. While these activities may also affect bald eagle use of rivers and streams, forage resources may not be capable of supporting more than a low density of nesting bald eagles.

Another factor that has potential to affect bald eagle and harlequin duck use in and near the four allotments is water quality. Rangelands in the headwaters of the Little Greys River that are in non-functioning and functioning-at-risk condition (sheep allotments) have the potential to increase sedimentation in streams. Reduced ground cover on slopes in the Little Greys Allotment may contribute to this condition. Degraded rangeland in headwater areas is primarily a consequence of historic over-use by sheep. Alternative 2 would allow for the quickest recovery of ground cover in the Little Greys Allotment, but low ground cover in the allotment likely only contributes a small amount of the overall amount of sedimentation. Alternative 3 may also reduce sedimentation, but not to the extent of Alternative 2. However, there are no current concerns with fish populations, meaning that water quality is not of concern with respect to bald eagles.

If climate change results in drier conditions, bald eagles would have the potential of being further impacted under Alternative 1, but allowable-use standards of Alternative 3 would greatly minimize the potential for this. Effects of climate change on the potential for harlequin ducks to reestablish use in the Greys River Ranger District would not be different among the alternatives, except there would be greater potential under Alternative 1 for cumulative impacts on water quality and riparian health.

All factors considered, livestock grazing practices under Alternatives 1 and 3 would play, at most, a negligible role in the use of the Greys River Ranger District by bald eagles and harlequin ducks. Therefore, Alternative 2 would have no more than a negligible benefit to bald eagles and harlequin ducks.

### **Mitigation Measures**

While no mitigation measures would be necessary for Alternative 1, more restrictive allowable-use standards that would allow for recovery of stream channels may benefit bald eagles in the long term. No mitigation measures, beyond those already built into the alternatives, would be necessary for Alternatives 2 and 3.

### **Determinations**

#### *Biological Evaluation Determinations*

Alternatives 1, 2, and 3 would have **no impact** on common loons due to the species not being present in the project area and the lack of capable habitat in the project area.

Alternative 2 would have **no impact** on bald eagles, trumpeter swans, and Harlequin ducks because cattle grazing would be discontinued and there are no adverse effects on these species associated with this. Alternative 2 may benefit bald eagles and harlequin ducks, relative to existing conditions and Alternative 1, but only by a negligible amount.

Livestock grazing use under Alternatives 1 and 3 **may impact** individual bald eagles, trumpeter swans, harlequin ducks or parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability because (1) trumpeter swans and Harlequin ducks do not currently inhabit the project area, and there are no recent records; (2) there are no more than negligible effects on existing capable habitat; (3) food supplies of bald eagles would continue to remain healthy; (4) disturbance caused by herding and other livestock management activities would contribute no more than negligibly to human disturbance of bald eagles; (5) continued livestock grazing under either alternative would not limit colonization of the project area by swans and Harlequin ducks; and (6) other factors play a much larger role in limiting colonization of the project area by swans and Harlequin ducks.

#### *Ability to Achieve Forest Plan Direction*

Continued livestock grazing and updates to AMPs would not hinder use of the project area by trumpeter swans and harlequin ducks. Therefore, continued livestock grazing would not limit the achievement of Forest Plan objectives (Objectives 3.3(a) and 4.7(b), and 4.7(d)), Fisheries and Wildlife Prescription, and Habitat Diversity Guideline with respect to trumpeter swans and harlequin ducks.

### **SPOTTED FROG (SENSITIVE) AND BOREAL TOAD AND BOREAL CHORUS FROG (MIS)**

#### **Existing Conditions**

Three species of amphibians likely occur in the project area, and two of these are either sensitive or management indicator species, and a fourth species (boreal toad) may occur in the project area. Boreal toads have been documented in the upper Greys River watershed and districts to the south, east, and north and, because capable habitat exists in the Little Greys Allotment, the potential exists for boreal toads to inhabit the allotment.

Spotted frogs, boreal toads, and chorus frogs breed in shallow waters of isolated pools and ponds, beaver ponds, marshes, slow streams, river backwater channels (sloughs), springs, and along lake edges. Breeding sites of these species typically contain emergent vegetation (e.g., sedges), and eggs are typically laid just after snowmelt. After breeding, adult spotted frogs, chorus frogs, and boreal toads inhabit marshes, riparian areas, moist/seasonally-wet meadows and forests, and adult boreal toads inhabit other habitats as well. Herbaceous vegetation in riparian wet meadows, sedge marshes, and similar habitats also provides cover for these species during the non-breeding season. Habitats outlined in this paragraph constitute capable habitat for management indicator species (see DeLong 2009a and USFS 2009 for more detail). Suitable habitat conditions for MIS and sensitive species are described in the following paragraphs (summarized from DeLong 2009a and USFS 2009).

*Long-Developing Attributes* — Many of the riparian areas in the Little Greys River are in properly functioning condition or close to properly functioning condition (Simon 2009), which means there continues to be capability for producing and sustaining wetland habitat and suitable herbaceous wildlife cover. Parts of Steer Creek, Blind Trail Creek, South Fork, Stewart Creek, and Middle Creek have been altered and are not at properly functioning condition. These areas may be sustaining a reduced amount of wetland

habitat and are sustaining a reduced production of herbaceous vegetation, particularly sedges (see the “Riparian and Moist Meadow” section for more detail). Both of these factors contribute to less-than-satisfactory conditions for spotted frogs and chorus frogs in these areas.

*Annually-Affected Attributes* — With respect to conditions that can or have been affected by livestock grazing, suitable habitat conditions include a sufficient amount of herbaceous cover at breeding and non-breeding sites (e.g.,  $\geq 70\%$  of the annual production of herbaceous vegetation retained), and along migration routes (e.g.,  $\geq 60\%$  of the annual production retained); water quality that is no more than minimally affected by trampling, defecation, urination, and sedimentation from upland areas; water quantity is diminished by no more than a minimally; and no more than limited trampling of tadpoles and metamorphosing frogs and toads. In some breeding and feeding habitat, 70% or more of the annual production is being retained through the livestock grazing season, but in other breeding and feeding areas, less than 60% of the annual production of herbaceous vegetation is being retained in some of the breeding/feeding pools in the first two grazed pastures.

Simon (2009) determined there are no water quality issues at this time in streams. However, concentrations of cattle in some of the small wetlands used by amphibians for breeding likely reduce water quality on an annual basis. It is possible, but as yet undocumented, for cattle to be transporting disease organisms that affect amphibians. Habitat quality is diminished to the extent this is currently happening.

*Population Status* — Spotted frogs and chorus frogs are distributed throughout the allotment in suitable habitat, with chorus frogs being more common. During surveys of breeding sites, only small numbers of spotted frogs are being observed (e.g., 1-3 at any given breeding pool). If boreal toads exist in the allotments, they are less common than the two species of frogs. According to Patla (2000:5), “Within the zone of the main population (central and north Idaho, western Montana, and northwestern Wyoming) spotted frogs are generally believed to be widespread and/or common, with only localized declines.” It is suspected that the boreal toad population in the Greater Yellowstone Ecosystem is declining, which is consistent with documented declines in other parts of the western U.S., including southeastern Idaho. Boreal chorus frogs are the most common and widespread amphibian species on the BTNF and there are no apparent downward trends. (See USFS 2007 and USFS 2009 for more detail on population status.)

## **Direct and Indirect Effects**

### *Alternative 1 (Current Management)*

*Spotted Frogs (Sensitive Species)* — Under Alternative 1, livestock grazing use may impact individual spotted frogs or parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability. Potential impacts would result from (1) insufficient management controls to limit the degree of livestock grazing and associated trampling and water quality impacts; (2) the current level of livestock grazing use in amphibian breeding areas, particularly in dry years; (3) reduced conditions of riparian habitat in some parts of the allotment and inadequate management controls to allow these areas to recover; and (4) confounding livestock grazing effects and other cumulative effects.

Management controls that would be insufficient under Alternative 1 include the following. Retention of less than 70% of the annual production of herbaceous vegetation is possible in spotted frog breeding areas because (1) a maximum of 65% utilization of key forage species in riparian areas and a maximum of 60% utilization of key forage species in non-riparian meadows could result in 60% retention to as low as 45% retention of herbaceous vegetation; and (2) forage utilization standards are for the entire allotment, and less than 45% of herbaceous vegetation may be retained in small to moderate size areas (e.g., vicinity of breeding and foraging pools) while still meeting the standard. No information was found to demonstrate that an adequate amount of suitable cover would be retained in breeding and areas given the utilization standards of Alternative 1.

In areas inhabited by spotted frogs where grazing pressure is heavy as described above, effects would be compounded by trampling, reduced water quality, and reduced amount of water in small pools — all related to grazing intensity — particularly in dry years.

Average stubble heights on streambanks could be as low as 4 inches, depending on levels identified in Annual Operating Instructions, for which there is little indication that suitable habitat would be retained for spotted frogs. However, it is likely that greater than an average of 4 inches would be retained on most streambanks in most years since cattle on the allotment appear not to favor sedges. Retaining an average of 6 inches or more may be sufficient to provide suitable habitat in many areas because substantial patches would remain that have taller than 6-inch tall sedges and grasses.

Even if retention levels are high enough during the regular grazing season to retain at least minimally suitable cover and water quality in breeding/foraging pools, extension of the grazing season could result in less-than-satisfactory cover and water quality even if forage utilization standards (e.g., 60-65% utilization of key species) are met. Deferment would mitigate some of the effects described in the above paragraphs, but deferment would not adequately offset the effects of high livestock utilization levels from the standpoint of meeting the needs of spotted frogs.

Alternative 1, however, would likely not contribute to a trend toward federal listing or loss of population viability because (1) the Little Greys Allotment is less than 1% of the BTNF, the geographic scope of the population for the purposes of this analysis; (2) there is no definitive information demonstrating that spotted frog numbers on the allotment have been reduced or are declining; and (3) if there is a reduction or decline, there is no definitive information showing that livestock grazing under current management is a contributing factor.

*Chorus Frogs and Boreal Toads (MIS)* — Under Alternative 1, livestock grazing use would adversely affect chorus frogs in localized areas in most areas and more widespread in dry years, as discussed above. If boreal toads exist in the allotment, livestock grazing under this alternative would have the potential to adversely affect them, depending on locations of breeding ponds and livestock grazing use on that site. (See discussion for spotted frogs, above, for explanation.)

This alternative would not contribute to the loss of meadowland on private lands of Star Valley — and no indirect effects on chorus frogs and chorus frogs that may inhabit these meadowlands — because continued cattle grazing on the Little Greys Allotment would

be authorized. Therefore, if private lands associated with Little Greys Allotment permits are sold and developed in the future, it would not be a consequence of Alternative 1.

#### *Alternative 2 (No Livestock Grazing)*

*Spotted Frogs (Sensitive Species)* — Alternative 2 would have beneficial effects on spotted frogs because livestock grazing would not occur under this alternative and, therefore, riparian area recovery would not be hindered, nor would there be any potential for cattle water quality or quantity, trampling metamorphosing tadpoles or transporting disease organisms. Alternative 2 would have the most benefits of any alternative to spotted frogs relative to existing conditions and Alternative 1, and would have more benefits than Alternative 3.

*Chorus Frogs and Boreal Toads (MIS)* — Alternative 2 would have beneficial effects on chorus frogs and boreal toads (see discussion for spotted frogs, above, for explanation).

Chorus frogs and spotted frogs that may now be using rangeland and meadowland habitat on private, permittee base properties in Star Valley could potentially be indirectly impacted by this alternative. These adverse impacts would occur if alternate pasture was not found by permittees, if the alternative resulted in base properties being sold, and if any sold properties were to be subdivided and developed (see cumulative effects).

#### *Alternative 3 (Proposed Action)*

*Spotted Frogs (Sensitive Species)* — Under Alternative 3, livestock grazing may impact individual spotted frogs or parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability. Adverse impacts may result from (1) grazing of sedge-dominated and other riparian/wetland habitats by cattle, including marsh habitat, which would slow recovery of damaged riparian areas and reduce cover for frogs; (2) potential trampling effects on tadpoles and metamorphosing frogs; (3) localized reductions in water quality; and (4) possible reductions in the amount of water when tadpoles are metamorphosing. Under Alternative 3, adverse effects would be reduced compared to Alternative 1 and would be maintained within acceptable levels due to (1) more restrictive allowable-use standards, which would result in more herbaceous vegetation being retained and lower impacts on willow, especially in years of below-average precipitation, and would correspondingly reduce the potential for trampling and water quality/quantity impacts; (2) additional fencing, which would help reduce over use in several riparian areas and would allow riparian areas with lowered stream channel integrity to recover; and (3) direction to retain an adequate amount of suitable cover in key amphibian breeding/feeding sites. Elements of Alternative 3 would ameliorate the contribution of livestock grazing use to cumulative effects.

*Chorus Frogs and Boreal Toads (MIS)* — Livestock grazing under Alternative 3 would have localized impacts to chorus frogs and, if present on the allotment, boreal toads. However, management controls of this alternative would be sufficient to maintain adverse effects at an acceptable level. (See discussion for Biological Evaluation Determinations for this alternative.)

Because Alternative 3 would not change permitted cattle numbers or season of use, potential effects on frogs and toads using private lands in Star Valley would be similar to those of Alternative 1.

## Cumulative Effects

In the allotment and throughout the Greys River Ranger District, a variety of factors may contribute to cumulative effects that threaten the conservation of spotted frogs, boreal toads and chorus frogs. This is in contrast to individual factors, which may independently have no more than negligible or minor effects, but together with a large number of other factors can cumulatively have considerable impacts on these species. Factors that affect or have potential to affect amphibian habitat and populations in the Greys River Ranger District include:

- Presence of roads and motorized/non-motorized trails in riparian zones (i.e., habitat loss and fragmentation).
- Mortality from motorized vehicles.
- Spread of disease (e.g., vehicles, boots, equipment, livestock, pets).
- Changes in wetland vegetation conditions due to historic livestock grazing.
- Potential trampling by livestock.
- Possible reductions in water quality and sedimentation (e.g., from roads, trails, deteriorated rangelands).
- Fish stocking in ponds and lakes that did not naturally support trout.
- Historic over-trapping of beavers and present-day relocation of beavers.

Many of these factors have the potential to affect amphibians in the Little Greys Allotment, given the presence of roads, motorized trails (legal and illegal) and access they provide. Roads and trails are prevalent in the Little Greys Allotment.

Conversion of ranchland and farmland to residential and commercial developments in Star Valley is due to many factors, including high demand for new homes (i.e., one of the highest growth rates in the State of Wyoming); low productivity of soils and short frost-free season, which limits options for retaining lands in agricultural production; county zoning regulations and land use restrictions; ability of ranchers to retain livestock grazing permits on federal lands; and other factors. Ultimately, the extent to which ranchland and farmland is converted to residential and commercial development is dictated by the Lincoln County Master Plan and decisions made by Lincoln County. Comparatively, potential effects of changes in livestock grazing on the Greys River Ranger District on subdivision of private land in Star Valley is a minor contributing factor. Nonetheless, it would be a contributing factor to an important issue for amphibians in the area; all contributing factors are important from this standpoint.

There are several factors that offset the ongoing downward trend in non-developed rangelands and meadowlands in Star Valley. Sustaining livestock grazing permits (e.g., Alternatives 1 and 3) would contribute to this by providing for summer forage and pasture for livestock on the Greys River Ranger District. The Wyoming Stock Growers Agricultural Land Trust has acquired two conservation easements on private properties in Star Valley, and continues to seek opportunities for acquiring additional conservation easements. The decline in the economy has reduced the demand for houses in the valley, and the rate at which subdivisions are approved by Lincoln County has declined in 2009.

The *Biological Evaluation and Wildlife Report* provides additional detail on the cumulative effects analysis.

Alternatives 1 and 3 would contribute to the cumulative factors adversely affecting amphibians on the Greys River Ranger District, with Alternative 1 contributing slightly more than Alternative 3. Alternative 2 would not contribute to the cumulative factors adversely affecting amphibians on the district.

Across the Greys River Ranger District and Bridger-Teton National Forest as a whole, the reduced livestock grazing intensity since the late 1800s and early 1900s and the reduced number of active allotments has contributed to a reduction in adverse impacts on amphibians. All alternatives would contribute to this trend, with Alternative 1 contributing the least and Alternative 2 contributing the most.

If climate change results in drier conditions (e.g., a greater proportion of years in which precipitation falls below the 1971-2008 or 1984-2008 average), this would contribute further to adverse impacts on amphibians, particularly under Alternative 1 given its liberal forage utilization standards. Drier conditions would have the potential of proportionally increasing the contributions of cattle grazing use to impacts on amphibians (Alternatives 1 and 3), unless forage utilization were made more conservative in the vicinity of amphibian breeding pools and feeding areas. If drier conditions contributed to slowed recovery of ground cover, this would slow reductions in sediment transport to wetland areas.

### **Mitigation Measures**

Fencing of key amphibian breeding ranges would make it easier to control utilization levels in breeding complexes.

If the fence in McCain Meadow (already part of Alternative 3) were constructed around the spotted frog and chorus frog breeding sites north and east of the proposed location for the fence, this would reduce the potential adverse impacts to amphibian breeding in this area.

For the proposed new water developments, the following mitigation elements would retain spring habitat for amphibians (1) allowing a large portion of the flow to continue flowing at the spring by not diverting the entire flow, (3) returning overflow from troughs back to the spring channel, and (4) fencing the spring and return flow.

### **Summary of Determinations**

#### *Biological Evaluation*

- Alternatives 1 and 3 **may impact** individual spotted frogs or parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability.
- Alternative 2 would have **beneficial impact** on spotted frogs or their habitat.

#### *MIS Determination*

- Under Alternative 1, livestock grazing use would adversely affect chorus frogs in localized areas in most years and more widespread in dry years, as discussed above. If boreal toads exist in the allotment, livestock grazing under this

alternative would have the potential to adversely affect them, depending on locations of breeding ponds and livestock grazing use on that site.

- Alternative 2 would have beneficial effects on chorus frogs and boreal toads.
- Livestock grazing under Alternative 3 would have localized impacts to chorus frogs and, if present on the allotment, boreal toads. However, management controls of this alternative would be sufficient to maintain adverse effects to acceptable levels. Alternative 3 would be somewhat beneficial compared to Alternative 1.

### *Habitat Restoration Needs*

To sufficiently restore habitat conditions for chorus frogs and possibly boreal toads (if boreal toads exist in the area) under Alternative 1, management controls would need to be more restrictive in order to retain a larger amount of herbaceous vegetation, reduce trampling and water quality/quantity effects. Adding these measures would result in a more restrictive alternative, for example, Alternative 3.

No additional habitat restoration practices or actions would be needed with cattle grazing not being authorized under Alternative 2.

Given the provisions of Alternative 3, no additional restoration activities, with respect to effects of livestock grazing and management on habitat suitability, would be needed if this alternative were selected for implementation. Allowable-use standards of Alternative 3 would be sufficient to allow recovery of any deteriorated riparian areas over time

### *Ability to Meet Forest Plan Direction*

Under Alternative 1, there are no safeguards in the livestock grazing program to achieve or meet Objective 3.3(a), Objective 4.7(d), and Fisheries and Wildlife Prescription with respect to amphibians. Therefore, there are no assurances these objectives would be achieved under this Alternative 1. Grazing pressure in 2007 illustrated the downsides of this in terms of resulting habitat conditions for amphibians being less-than-satisfactory.

Sufficient management controls would be in place under Alternative 3 to allow Objective 3.3(a), Objective 4.7(d), and the Fisheries and Wildlife Prescription to be achieved with respect to spotted frogs, boreal toads, and chorus frogs.

Alternative 2 would not limit the achievement of any of the objectives and prescriptions with respect to amphibians.

## **BREWER'S SPARROW (MIS)**

### **Existing Conditions**

Being a sagebrush obligate, Brewer's sparrows inhabit mountain big sagebrush communities in the allotments. They typically use areas where big sagebrush plants are mature and where sagebrush canopy is  $\geq 10\%$  (USFS 2009). While herbaceous vegetation is needed, no specific requirements have been identified in the literature. Brewer's sparrows use big sagebrush communities with both grass and forb understories. So long as herbaceous concealment cover is present and so long as there is sufficient herbaceous

vegetation to provide adequate forage (seeds and insects) and cover, it appears that habitat conditions are suitable for this species.

Breeding Bird Survey data from 1980 to 2004 indicates that Brewer's sparrow numbers in Wyoming have declined and rebounded, but that there is no discernable downward or upward trend (USFS 2009). USFS (2007) provides additional population trend information. There is no indication of downward trends or reduced populations on the Greys River Ranger District. Rather, it is likely that Brewer's sparrow abundance on the district is higher than what it was prior to Euro-American settlement due to the much higher proportion of the big sagebrush vegetation type being in late succession.

An estimated 4,258 acres of big sagebrush habitat is within land designated as being capable land for grazing cattle, which is about 83% of the lands designated as capable on the allotment (Table 3-2). Much of this big sagebrush habitat is in Blind Trail, Steer Creek, and McCain pastures. Additional sagebrush habitat exists outside of lands designated as capable for cattle grazing that are actually grazed by cattle, primarily in the Neck and River pastures where a considerable amount of big sagebrush exists, but much of this was excluded due to steep slopes.

Most of the capable habitat for Brewer's sparrows (>100-acre patches of sagebrush having canopy cover >10%) on the allotment is in satisfactory condition for this species with respect to rangeland health and functionality, with only small amounts in less-than-satisfactory condition for this species. Conifer encroachment is reducing the amount of big sagebrush habitat along edges and may be fragmenting some big sagebrush habitat. Conversely, however, late-seral big sagebrush communities is overrepresented in the allotment and throughout the Greys River watershed, due primarily to greatly expanded fire-return intervals, and this likely offsets at least to some degree the decline in suitability of some big sagebrush habitats.

Suitability of habitat for Brewer's sparrows varies from year to year with respect to the amount of herbaceous vegetation that is retained. In years of average or higher-than-average precipitation (i.e., 5-6 out of every 10 years) and possibly years of somewhat less-than-average precipitation, herbaceous forage and cover for Brewer's sparrows ( $\geq 60\%$  of the annual production) is retained across an estimated  $\geq 55-80\%$  of big sagebrush habitat in each pasture. Therefore, suitable habitat conditions for Brewer's sparrows would be retained in most years on the allotment.

In years of below-average precipitation, suitable herbaceous forage and cover would be retained across 25% or less of the big sagebrush habitat in each pasture. The allowable standards of Alternative 1 would allow suitable herbaceous forage and cover to be retained on as little as 25% or less of big sagebrush habitat. Most of the Brewer's sparrow habitat is in the largest and most easily accessible rangelands on the allotment, meaning that increased distribution of cattle could compound these effects. Granting requests by the permittees for season extensions would contribute to this as well. In other words, safe guards for retaining an adequate amount of suitable forage and cover for Brewer's sparrows are inadequate under this alternative. (See DeLong 2009a and USFS 2009 for more information on capable and suitable habitat for Brewer's sparrows.)

## Direct and Indirect Effects

### *Alternative 1 (Current Management)*

Alternative 1 would have the potential to adversely impact Brewer's sparrows in localized areas, except in dry years when adverse effects would be more widespread. Several effects of livestock grazing use under Alternative 1 (e.g., low levels of herbaceous retention in years of below-average precipitation, trampling effects, cowbird parasitism) would potentially adversely affect Brewer's sparrows. Existing conditions described above would continue. Allowable-use standards of this alternative would allow for retention levels of herbaceous vegetation in big sagebrush habitat to be as low as 50%, which would result in large areas being below suitable conditions for Brewer's sparrows, particularly in dry years (retention levels of herbaceous vegetation were lower than 40% in many parts of the allotment in 2007). However, four factors would offset these impacts to a large degree: (1) the large over-representation of late-seral big sagebrush compared to pre-Euro-American settlement, (2) the reduced potential for fire and fire spread in big sagebrush under this alternative, (3) retention levels would be higher than identified above in most years, and (4) deferment would mitigate many of the effects outlined above by allowing at least two pastures to remain ungrazed through most of the nesting season.

### *Alternative 2 (No Livestock Grazing)*

Alternative 2 may benefit Brewer's sparrows to some degree since livestock grazing use would not be authorized. Although this alternative could potentially raise the potential of fire spreading through big sagebrush habitat, retention of herbaceous vegetation would be >90% every year and there would be no potential of livestock directly impacting eggs and young, and there would be no potential for increased cowbird nest parasitism due to the presence of cattle. Periodic fire is a natural part of the landscape and a return of this natural process to this part of the Greys River watershed would merely reduce by a small degree the artificial benefits that have accrued during the past century. However, the larger amounts of fine fuels would also carry with it the potential for visitor-caused fires (e.g., escaped campfires) to burn through sagebrush habitat.

### *Alternative 3 (Proposed Action)*

Effects would be similar to those of Alternative 1, with a few exceptions:

- The propensity for fire would be somewhat higher due to somewhat higher levels of herbaceous vegetation retained, somewhat faster rate of recovery of plant species composition (including higher vegetation cover), and provisions for accommodating wildland fire use and prescribed burns. This would reduce by a small extent the large benefits to Brewer's sparrows that have accrued during the last century as a result of fire suppression.
- Herbaceous vegetation would recover somewhat more quickly in big sagebrush communities that currently are functioning at risk. This is a beneficial effect.
- The allowable-use standards, including greater adherence to once-over grazing, greater frequency of rest, and prolonged rest in some deteriorated big sagebrush communities, would result in a larger amount of herbaceous vegetation being retained each year. This is another beneficial effect.

Therefore, adverse effects of livestock grazing under Alternative 3 would be less than Alternative 1 for Brewer's sparrows.

### **Cumulative Effects**

Applicable cumulative effects are addressed in other parts of Chapter 3, including cumulative effects pertaining to overrepresentation of big sagebrush in late succession (a beneficial effect); reduced soil productivity, ground cover, and plant species composition; and increased prevalence and spread of noxious weeds (negative effects); and expansion of conifer trees into big sagebrush communities (negative effect). On balance, there appears to have been a long-term net increase in favorable conditions for Brewer's sparrows, mainly driven by the large overrepresentation of big sagebrush in late succession.

Alternative 1 would tend toward contributing to maintaining the abundance of late-seral communities while allowing for the recovery of herbaceous understories in many areas, a net benefit to Brewer's sparrows. Alternative 2 would have the most potential of the three alternatives to reduce, by no more than a small degree, the accrued benefits to Brewer's sparrows by facilitating fire to the largest extent, but it would provide for the most rapid recovery of herbaceous vegetation. There may be a net benefit to Brewer's sparrows under Alternative 2, considering cumulative effects, but it would be the lowest of the three alternatives due to the increased potential of fire. However, any reductions in the amount of big sagebrush in late succession would be a reduction in accrued benefits rather than a negative effect. Effects of Alternative 3 would be similar to Alternative 1, but would have the potential to reduce, by a small degree (smaller than Alternative 2), the accrued benefits to Brewer's sparrows on the allotment.

If climate change results in drier conditions, this could further slow the recovery of herbaceous vegetation and could potentially increase fire potential, both of which would offset to some extent the large benefits to Brewer's sparrows on the Greys River Ranger District that have accrued over the last century due to fire suppression.

### **Summary of Determinations**

#### *MIS Determination*

- Alternative 1 would have the potential to adversely impact Brewer's sparrows in localized areas, except in dry years when adverse effects would be more widespread. However, several factors (described above) would offset these impacts to a large degree.
- Alternative 2 would have net beneficial effects on Brewer's sparrows.
- Livestock grazing under Alternative 3 would have localized impacts to Brewer's sparrows, but management controls of this alternative would be sufficient to maintain adverse effects within acceptable levels. Alternative 3 would be somewhat beneficial compared to Alternative 1.

#### *Habitat Restoration Needs*

To sufficiently restore herbaceous forage and cover conditions for Brewer's sparrows under Alternative 1, management controls would need to be more restrictive in order to retain a larger amount of herbaceous vegetation in years of below-average precipitation.

Adding these measures would result in a more restrictive alternative, for example, Alternative 3.

No additional habitat restoration practices or actions would be needed with cattle grazing not being authorized under Alternative 2.

Given the provisions of Alternative 3, no additional restoration activities, with respect to effects of livestock grazing and management on habitat suitability, would be needed if this alternative were selected for implementation. Allowable-use standards would be sufficient to retain an adequate amount of herbaceous vegetation in all years.

#### *Ability to Meet Forest Plan Direction*

Under Alternative 1, Objective 4.7(d) and the Fisheries and Wildlife Prescription would be met with respect to Brewer's sparrows in most years (years of average and above-average precipitation), but may not be met in years of below-average precipitation due to less-than-satisfactory levels of herbaceous vegetation being retained in big sagebrush communities.

Alternative 2 would not hinder the achievement of Objective 4.7(d) and Fisheries and Wildlife Prescription.

Livestock grazing management under Alternative 3 would allow Objective 4.7(d) and Fisheries and Wildlife Prescription to be met for Brewer's sparrows in all years. Implementation of Alternative 3 would ensure the recovery of big sagebrush areas in less-than-satisfactory condition and, therefore would be consistent with the Fisheries and Wildlife Prescription over the long term.

## **ELK, MULE DEER, AND MOOSE (MIS)**

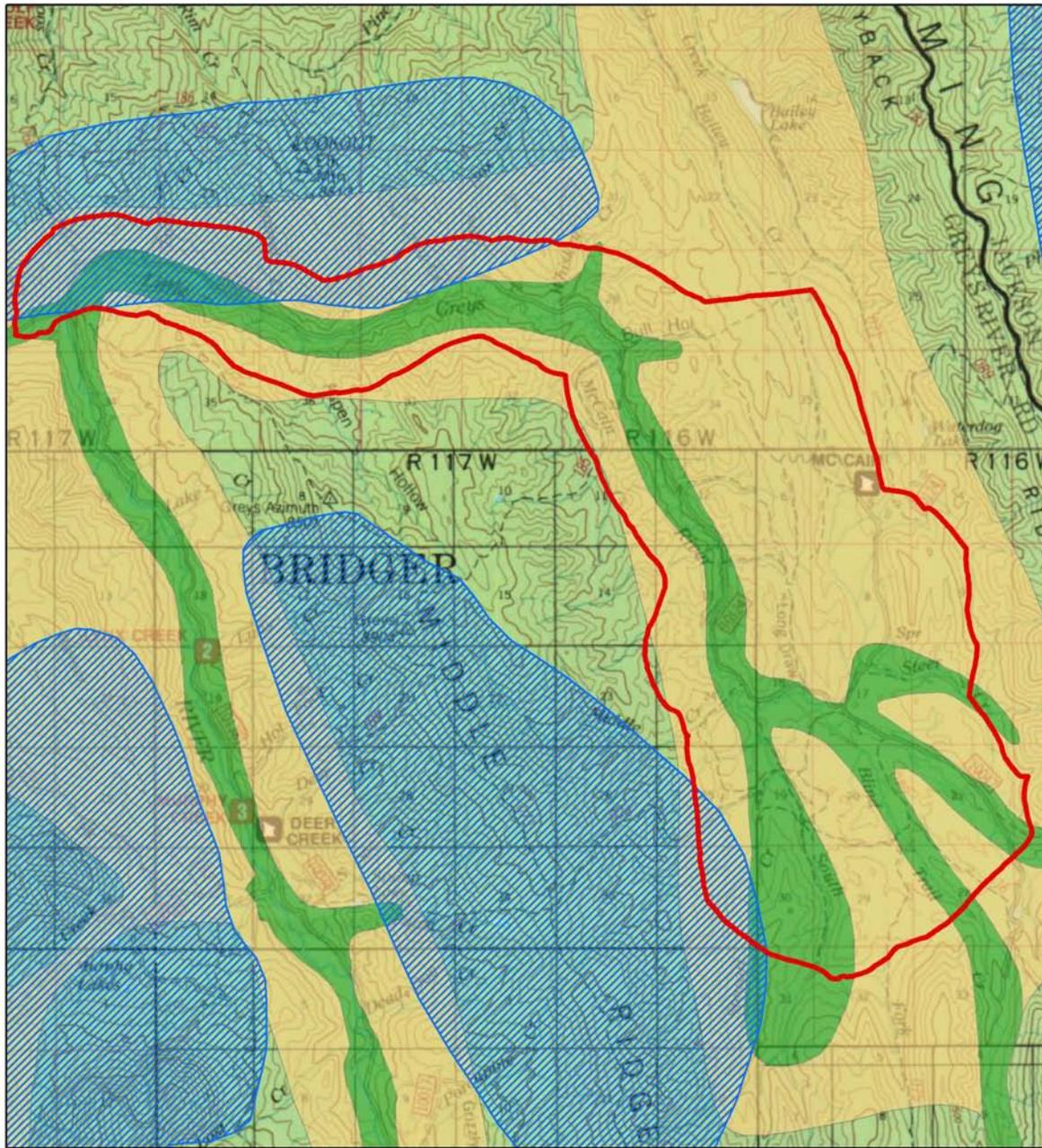
### **Existing Conditions**

#### *Seasonal Ranges*

The project area contains areas designated by Wyoming Game and Fish Department as calving range for elk, and the project area also contains summer, transition, and a small amount of winter range for elk (Map 6). Most use of the project area by elk is during spring, summer, and fall. Habitat within the project area encompasses fawning, summer, and transition range for mule deer (Map 6). They do not winter in the project area. The project area encompasses calving, summer, and winter range for moose (Map 6). Valley-bottom willow communities are important winter habitat.

#### *Habitat Conditions*

Elk, mule deer, and moose use a wide variety of habitats to meet their life history needs, including aspen stands, conifer forestland, big sagebrush, mountain shrubland, meadows, willow stands, herbland, and tall forb communities. Elk and mule deer habitat in the project area encompasses all of the broad vegetation categories providing capable land for grazing cattle (i.e., all 5,132 acres in Table 3-2). Big sagebrush and mountain shrubland (i.e., rangeland) comprise an estimated 83% of this total. Only an estimated 2% of the total is aspen habitat, an estimated 1% is conifer habitat, and the remaining 14% is willow, wet meadow, and other riparian habitat. Moose habitat in the project area encompasses willow, aspen, conifer, mountain shrubland types providing capable land



**Map 6. Native Ungulate Seasonal Ranges**

Greys River  
AMPEA



0 1 2 Miles

**Legend**

- Allotment Boundary
- Deer, Elk and Moose Parturition Areas

\* Note: Entire Allotment is Mule Deer and Elk Spring/Summer/Fall Seasonal Range

**Moose Seasonal Range**

- Crucial Winter Year-Long
- Winter Year-Long

July 21, 2009

for grazing cattle (as many as 874 acres, or 17% of the capable grazing lands). The acreages presented above and in Table 3-2 are only a portion of the acreages of the rangeland, riparian, and open forestland within the allotment and only a portion of what is actually grazed by cattle (although it represents the majority of lands grazed by cattle).

Suitability of foraging habitat for elk, mule deer, and moose — with respect to factors affected by livestock grazing use — is primarily a function of the mix of seral stages in shrub and forest types (i.e., mix young, middle age, and mature shrublands and forestlands); condition of shrublands, herblands, and forblands; and amount of herbaceous vegetation and browse that is retained through the livestock grazing season (USFS 2009). Moose are affected to a lesser degree by conditions in herblands and forblands and retention levels of herbaceous vegetation in these types.

Overall, the Little Greys Allotment encompasses large acreages of foraging habitat intermixed with large acreages of security and thermal cover. There is an abundance of security and thermal cover, which contributes to suitable habitat conditions. Given the large acreages, there is a considerable amount of forage produced and available to elk, mule deer, and moose. There appears to be adequate summer forage for elk that winter on state feedgrounds (e.g., Greys River and Dog Creek) since the Afton elk herd is at the herd objective, but it is less clear whether adequate forage exists on summer ranges for elk that winter on native winter range. The current population level of mule deer is low relative to the population objective. Although this is mostly due to impacts on winter range, winter survival and productivity of mule deer is heavily influenced by condition of deer coming off summer and fall ranges, including summer/fall range on the four allotments. Therefore, it is possible for retention levels of herbaceous vegetation to affect mule deer. The cause of low moose numbers is being studied, and one of several possible reasons involves habitat conditions.

Existing conditions of each of the variables identified above are as follows:

- The under-representation of early-seral shrubland and, to some extent, forestland contributes to less-than-satisfactory conditions for elk, mule deer, and moose in the allotment, but this is a landscape level effect. All of these species heavily favor areas where a mix of age classes of plant communities exists. While there is a mix of successional stages in forestlands (due to the Middle, Aspen Hollow, and Blind Trail fires in and adjacent to the allotment), most of the allotment does not have a mix of successional stages and fires had relatively little effect on big sagebrush and mountain shrubland types.
- Most big sagebrush and mountain shrublands on the allotment are in functioning condition or near functioning condition with respect to ground cover and plant species composition.
- Habitat suitability is also affected by the amount of herbaceous vegetation and browse removed during the cattle grazing season, and this is discussed for each alternative, below. Under existing conditions, it is estimated that overall retention of key forage species in rangeland and riparian areas is  $\geq 50\text{-}55\%$  in years of average and above-average precipitation, with many or most of these years having retention levels of  $\geq 60\%$  in rangelands (i.e.,  $< 40\%$  utilization of key forage species). These levels would provide suitable forage conditions for elk and mule

deer. In years of below-average precipitation (i.e., 3-4 years out of 10), particularly in especially-dry years, retention of key forage species would be as low as an estimated 40-50% (i.e., 60% utilization of key forage species), based on the allowable-use standards for this alternative. This is well below suitable forage conditions for elk and mule deer. In 2007, an especially dry year, retention of key forage species was below 40% throughout most of the rangeland and riparian areas in the four main pastures. In the first grazed pasture in dry years, it is possible that the reduction in herbaceous cover adversely affects mule deer fawns that would otherwise use this vegetation for cover in places.

### *Population Status*

The Afton elk herd continues to remain at or above the population objective (Fralick 2004). In the early 1990s, mid-winter herd counts increased from about 2,100 elk to about 3,200 in the winter of 1996-1997, and then hunting regulations were liberalized until mid-winter counts again declined to about 2,000 in the winter of 2002-2003. About 1,945 elk were counted in the herd unit in the winter of 2005-2006, indicating the Afton elk herd is within 10% of the herd objective of 2,200. (There are more animals in the herd unit than are actually seen during mid-winter classification counts due to sightability factors; also, the WGFD target is for herds to be within 10% of the objective.) In the winter of 2006-2007, 1,827 elk were counted, but many south exposures were snow free which resulted in a larger proportion of elk on native winter range.

Mule deer in the Wyoming Range herd unit are substantially below the herd unit objective of 50,000. Estimated herd numbers have fluctuated between 26,000 and 32,000 during the last several years, down from several years in the late 1980s when mule deer numbers exceeded the herd objective. Numbers declined during the early 1990s to below the herd objective, and they have not rebounded. Currently, the population is 66% below the WGFD herd objective.

Moose numbers in the Sublette moose herd are below objective and moose numbers in the vicinity of the Little Greys allotment reflect this reduction. The number of wintering moose counted from Alpine to the Little Greys River has declined from an average of 15 (winters of 1990-1991 through 1998-1999) to an average of less than 4 (winters of 1999-2000 through 2006-2007).

### **Direct and Indirect Effects**

#### *Alternative 1 (Current Management)*

Livestock grazing use and management under Alternative 1 would have the potential to have localized adverse effects on elk and moose and their habitat due to the combined effects of low retention levels of key forage species in years of below-average precipitation, limitations on recovery of riparian areas and rangelands, management of stubble height possibly being too inconsistent to allow streambank recovery, potential limitations on prescribed burning and wildland fire use, displacement of elk and possibly moose, and potential for disease transmission. However, these effects would likely not contribute to reductions in elk numbers because most elk are artificially fed during winter, and summer and fall forage conditions are less important than they would be if elk wintered on native winter ranges. Because most elk are artificially fed during winter,

survival is artificially high, and hunting is needed to keep the population near the herd objective.

The effects listed above would likely not hinder the ability of moose numbers to recover for several reasons. Most willow habitat on the Little Greys Allotment is in relatively healthy condition, at least as far as livestock grazing effects go. Although cattle trails through willow stands are common in some areas, this likely impacts moose no more than a minor amount. Willow stands are deteriorated only in limited areas (e.g., lower South Fork) and overlap between cattle and moose diets is minimal. Displacement of moose by livestock and herding operations probably occurs, but likely does not impact moose more than a minor amount. Potential for disease transmission from cattle to elk and moose would remain low. Cattle trails and routes used to maintain fences and water developments have the potential to contribute to additional motorized trails becoming established.

Livestock grazing use and management under Alternative 1 has the potential to adversely affect mule deer or their habitat through a combination of low retention levels of key forage species in years of below-average precipitation (e.g., as many as 3-4 years out of 10), limitations on the recovery of riparian areas and rangelands, and potential limitations on prescribed burning and wildland fire use. Management controls of Alternative 1 are not sufficient to prevent less-than-satisfactory habitat conditions being produced, especially in years of below-average precipitation and possibly even in years of average or above-average precipitation. For example, even if retention levels are high enough to retain minimally suitable forage for mule deer within a given livestock grazing season, the grazing season can be extended so long as forage utilization standards (e.g., 60-65% utilization of key species) are not exceeded. No information was located demonstrating that this level of livestock grazing would retain suitable forage for mule deer or that it would allow recovery of their habitat. Deferral would mitigate some of these effects, but deferral would not offset high livestock utilization rates from the standpoint of meeting the needs of mule deer.

The loss and deterioration of winter ranges is likely the largest factor limiting the recovery of mule deer numbers in the Wyoming Ranger herd unit (see cumulative effects). This makes the summer and fall forage resource all the more important because mule deer going into the winter at a high to excellent nutritional status have a better chance of surviving and bearing healthy fawns even when winter range conditions are reduced. Over-use of herbaceous vegetation by cattle on the Little Greys Allotment in years of below-average precipitation, therefore, has the potential to contribute to the limited recovery of mule deer numbers. Any limitations on restoring a more balanced mix of seral stages in shrubland and forestland communities (e.g., through limitations on fire and fire spread) would also have the potential to limit recovery of deer numbers.

There is no clear indication that effects of Alternative 1 would not contribute to the slowed or stalled recovery of the Wyoming Range mule deer herd unit, given the potential effects described above and in the cumulative effects section. There also is no clear indication that livestock grazing use under Alternative 1 would contribute to the slowed recovery of mule deer numbers in this herd.

This alternative would not contribute to the loss of meadow/willow habitat or rangeland on private lands of Star Valley — and no indirect effects on mule deer and moose that may inhabit these areas — because continued livestock grazing use would be authorized on the Little Greys Allotment at existing permitted numbers and season of use. Therefore, if private lands associated with Little Greys Allotment permits are sold and developed in the future, it would not be a consequence of Alternative 1.

#### *Alternative 2 (No Livestock Grazing)*

Elk, mule deer, and moose would benefit under Alternative 2 since livestock grazing would not be authorized: (1) the rate of recovery of riparian areas and rangelands would be fastest under this alternative, (2) no forage preferred by native ungulates would be eaten by livestock (i.e., much higher retention levels than under existing conditions), and (3) potential effects of displacement, new fences, and diseases on native ungulates would no longer be factors. Alternative 2 would have the most benefits of any alternative to elk, mule deer, and moose relative to existing conditions, and would have more benefits than Alternative 3.

Mule deer and moose that may now be using rangeland and meadow/willow habitat on private, permittee base properties in Star Valley could potentially be indirectly impacted by this alternative. These adverse impacts would occur if alternate pasture was not found by permittees, if the alternative resulted in base properties being sold, and if any sold properties were to be subdivided and developed (see cumulative effects).

#### *Alternative 3 (Proposed Action)*

Livestock grazing use and management under Alternative 3 may adversely impact habitat of elk, mule deer, and moose to some extent, but impacts would be within acceptable limits. Alternative 3 would likely affect individual animals and habitat of these native ungulates as a result of low retention levels of herbaceous vegetation in small parts of each pasture, slowed recovery of currently-deteriorated riparian areas, limitations on prescribed burning and wildland fire use, displacement (elk and possibly mule deer and moose), potential for disease transmission, and contributions to illegal motorized travel. However, management controls would be sufficient under Alternative 3 to keep adverse effects within acceptable limits. Retention of herbaceous vegetation would remain high enough each year (i.e., an estimated  $\geq 60\%$  retention of key forage species in DFC 12 areas and  $\geq 50\%$  in DFC 1B areas in all years) to retain suitable forage for elk and mule deer; stubble heights would be consistently applied at a high enough level (i.e.,  $\geq 6$  inches on streambank sedges) to allow riparian areas to recover; a somewhat higher level of fine fuels would be available in the event of a fire in years of below-average precipitation; and vegetation treatments and wildland fire use would be accommodated on the allotment as needed. Deferral would mitigate some of the effects outlined above by deferring livestock grazing until later in the season on some pastures. Cattle trails and routes used to construct new fences and water developments, and to maintain existing and new fences and water developments have the potential to contribute to additional motorized trails becoming established.

Because Alternative 3 would not change permitted cattle numbers or season of use, potential effects on mule deer and moose using private lands in Star Valley would be similar to those of Alternative 1.

## Cumulative Effects

Cumulative factors affecting elk, mule deer, and moose inhabiting the Bridger-Teton National Forest are described in USFS (2009). In summary, the main factors that affect these species are as follows.

- *Winter Range* — The biggest factor affecting mule deer in the Wyoming Range herd unit is lowered condition and loss of winter range due to oil and gas development, other development, reduced frequency of fire, a long history of livestock grazing on winter range, among other factors. Most of the winter range for this herd is in the Green River basin east of the Wyoming Range and between Cokeville and Kemmerer. Winter range of elk has faced similar impacts, but elk winter feeding programs in Western Wyoming have more than mitigated these effects. Exceptionally low winter mortality rates have allowed elk numbers to remain high. It is possible that the loss of moose winter range to development and human disturbance on currently-used winter range (e.g., snowmobiling), and resultant increased use of conifer forestland has contributed to declines in the Sublette moose population.
- *Reduced Amount and Productivity of Non-Forested Habitat and Aspen Habitat* — One of the most pervasive cumulative effects on elk, mule deer, and moose on the Greys River Ranger District has been reduction in the forage base. This has resulted from (1) reduced productivity of rangelands (e.g., rangelands in functioning-at-risk and non-functioning condition) due mainly to historic over-use by sheep (e.g., sheep allotments in the Wyoming Range); (2) large under-representation of early-seral forestland due to reduced frequency of fire; and (3) reduced productivity of aspen stands and shrublands due mainly to reduced fire frequency. Noxious weeds have the potential to further reduce productivity.

Research is increasingly showing that summer and transition range is critical to winter survival and fawn production/survival the subsequent spring. Additionally, as the amount and quality of winter range declines (as it has for the Wyoming mule deer herd), the importance of suitable summer and transition habitat increases. In other words, there is a greater need for native ungulates to go into the winter in good nutritional condition.

- *Below-average Precipitation* — Years of below-average precipitation compound the effects outlined in the above two paragraphs, particularly when precipitation levels approach 50% of average, as shown by an increasing number of research projects.
- *Reduction in Livestock Grazing* — Across the Greys River Ranger District and Bridger-Teton National Forest as a whole, the reduced livestock grazing intensity since the late 1800s and early 1900s and the reduced number of active allotments has offset, at least to some extent, the historic reductions in herbaceous vegetation and reduced availability of forage to native ungulates. Alternative 2 would contribute to this trend, and Alternatives 1 and 3 may have little effect.
- *Reduced Habitat Effectiveness* — Another pervasive and increasing cumulative effect on elk, mule deer, and moose is reduced habitat effectiveness due to human

activity associated with district roads, designated motorized trails, dispersed camping, and a large network of user-created motorized trails. Non-motorized recreation also reduces habitat effectiveness, but not to the same degree.

Alternatives 1 and 3 would contribute to this effect by a small amount because some trails created and maintained by cattle through otherwise dense willow stands and in other locations has led to use by motorized vehicles.

- *Vegetation Disturbances* — Prescribed burns, wild fires, wildland fire use, timber harvest, and insect kill are offsetting, to a small extent, the large surplus of late-seral shrublands and forestland and the expansion of conifer trees throughout this part of the Bridger-Teton National Forest, which is benefiting all three ungulate species by increasing the amount of foraging habitat and restoring productivity of foraging habitat. Thus far, most habitat restoration projects are being undertaken on closed allotments and forage reserve allotments, given the difficulties of burning on active allotments.
- *Livestock Grazing* — On a year-to-year basis, livestock grazing on the four allotments and other allotments reduces the amount of forage available to elk, mule deer, and to a more limited extent, moose.
- *Noxious Weed Management* — Noxious weed control, being carried out by the Lincoln County Weed and Pest District, is reducing the adverse impacts associated with noxious weeds.
- *Non-Use Areas* — Few rangelands on the four main pastures remain ungrazed by cattle, but those rangelands and forest openings that are not grazed by cattle (e.g., faster recovery rate, and no reduction in the amount of herbaceous vegetation available to ungulates) help to offset impact in areas grazed by cattle.
- *Climate Change* — If climate change results in warmer and drier conditions (e.g., a greater proportion of years in which precipitation falls below the current average), this would contribute further to adverse impacts on mule deer and moose due to (1) slowed recovery of herbaceous vegetation; (2) reduced production in any given year, which would result in less forage available to mule deer; and (3) higher temperatures, which may cumulatively impact moose. Therefore, climate change has the potential to further limit recovery of mule deer numbers. Moose have a relatively low threshold for temperatures above 57-68°F during summer months (see USFS 2009). It is possible that higher summertime temperatures during the past decade, compared to the long-term average, have contributed to reduced moose numbers. Any deficiencies in forage quality or quantity may become more pronounced at higher temperatures, and moose may be more vulnerable to disease at higher temperatures.
- *Other* — Other factors that cumulatively affect elk, mule deer, and moose include disease, hunting, predation, road kills (and highway underpasses that mitigate this), and weather.

To the extent that upward trends in ecological condition continue under Alternative 1, this alternative would contribute to offsetting the reduced forage productivity of rangelands and forestlands by a small amount. However, this benefit would be offset to

some extent by year-to-year reductions in forage available to elk, mule deer, and moose due to cattle grazing.

Alternative 2 would contribute the most of any alternative to offsetting the reduced forage productivity of rangelands and forestlands, and would not involve any year-to-year reductions in the amount of forage available to elk, mule deer, and moose.

Contributions of Alternative 3 would fall between Alternatives 1 and 2, and would be closer to Alternative 1.

### **Mitigation Measures**

Adverse effects of Alternative 1 would be mitigated by Alternatives 2 and 3.

No mitigation measures would be needed for Alternative 2.

Several of the important mitigation measures already built into Alternative 3, pertinent to native ungulates, are the allowable-use standards, consequences for not meeting allowable-use standards and required practices, and provisions for accommodating prescribed burning and wildland fire use. Additional mitigation measures not already built into Alternative 3 include continued treatment of noxious weeds on the allotment, especially spotted knapweed, which has the potential of substantially reducing the suitability of elk, mule deer, and moose habitat on the allotment.

### **Summary of Determinations**

#### *MIS Determinations*

- Livestock grazing use and management under Alternative 1 would likely have localized adverse effects on elk and moose and their habitat, but these effects would likely not contribute to reductions in elk numbers (since most elk are artificially fed during winter) and would likely not hinder the ability of moose numbers to recover.
- Livestock grazing use and management under Alternative 1 would likely adversely affect mule deer foraging habitat (e.g., dry years), and there is no clear indication that these effects would not contribute to the slowed recovery of the Wyoming Range mule deer herd.
- Under Alternative 2, elk, mule deer, and moose would likely benefit from livestock grazing not being authorized.
- Livestock grazing use and management under Alternative 3 may adversely impact elk, mule deer, and moose or small parts of their habitat, but management controls of this alternative would be sufficient to keep adverse impacts within acceptable limits.

#### *Habitat Restoration Needs*

The following restoration activities are needed with respect to providing suitable habitat conditions for elk, mule deer, and moose within the area encompassed by the Little Greys Allotment:

- Prescribed burning, wildland fire use, and mechanical treatments to restore a balance of early, mid, and late successional stages. Because livestock grazing use

and management constrain the implementation of these actions, the AMP should address this issue. Of particular relevance would be prescribed burns in aspen, big sagebrush, and mountain shrubland communities.

- Noxious weed control. Beyond mitigating this effect through continued weed-control efforts, retention levels should be set to reduce the potential for contributing to the spread of noxious weeds.
- Allowable-use standards that would result in an adequate amount of forage being retained for elk, mule deer, and moose.
- Allowable-use standards that would allow stream channels and riparian areas to recover, and that would allow damaged willow communities to recover.
- Enforcement of motorized vehicle use, as outlined on motor vehicle use maps. This is important for retaining habitat effectiveness, particularly for elk.

To sufficiently restore herbaceous forage conditions for native ungulates under Alternative 1, management controls would need to be more restrictive in order to retain a larger amount of herbaceous vegetation in years of below-average precipitation and accommodations would need to be made for prescribed burning and wildland fire use. Adding these measures would result in a more restrictive alternative, for example, Alternative 3.

The allowable-use standards built into Alternative 3 would be sufficient to allow for rangeland and riparian area conditions to be sustained in healthy, functioning condition, for deteriorated rangelands and riparian areas to recover, and for an adequate amount of suitable wildlife forage to be retained. Furthermore, sufficient direction would be provided in Alternative 3 to minimize the extent to which livestock grazing use and management hinders prescribed burning and wildland fire use. Therefore, pertinent restoration activities related to livestock grazing management are already built into Alternative 3.

Alternative 2 would not need any additional practices to counter the influence of livestock grazing use and management on fire ecology.

#### *Ability to Meet Forest Plan Direction*

Continued livestock grazing use and management under Alternative 1 would continue to hinder the achievement of Objectives 2.1(a) and 4.7(d), Range Vegetation Prescription (BTNF-wide and for DFCs 1B, 3, 10, and 12), Fisheries and Wildlife Prescription, Big-Game Habitat Guideline, and Habitat Diversity Guideline with respect to elk, mule deer, and moose due to (1) an inadequate amount of forage being retained as a consequence of cattle grazing in years of below-average precipitation, (2) limitations on recovery of less-than-satisfactory rangelands and riparian areas; and (3) no clear direction to permittees on accommodating vegetation treatments and wildland fire use.

Alternative 2 would not hinder achievement of wildlife-related objectives of the Forest Plan and would allow for the most progress to be made toward their achievement.

Livestock grazing use and management under Alternative 3 would continue to limit to some extent the achievement of Objectives 2.1(a) and 4.7(d) and related prescriptions and guidelines. However, this alternative would place sufficient constraints on cattle grazing

use and management to ensure (1) an adequate amount of forage would be retained each year for native ungulates, (2) recovery of rangelands and riparian areas in less-than-satisfactory condition, and (3) vegetation treatments and wildland fire use would be accommodated on the allotments as needed.

## **ASPEN (MIS)**

### **Existing Conditions**

Aspen was identified as an ecological indicator species in a Forest Plan update, June 2005. Aspen occurs in small stands in the Little Greys Allotment. Of the total estimated acreage of lands capable for cattle grazing on the allotment (5,132 acres), only 108 acres (about 2%) is classified as aspen and aspen-mix. This is only a portion of the acreage that supports aspen for two reasons: (1) aspen may also exist outside of the lands designated as lands capable for cattle grazing, and (2) not all aspen stands are delineated in the 2007 BTNF vegetation layer upon which the capable lands was based (e.g., aspen stands where aspen comprise <10% of the canopy). All lands that historically supported aspen remain capable of supporting aspen stands, but there currently is a downward trend in the acreage and condition of aspen communities on the Greys River Ranger District, and this has been occurring since at least as far back as 1975. As is the case for aspen habitat throughout the Greys River Ranger District, the condition of aspen communities in the allotment ranges from fairly healthy to deteriorated and/or declining, mainly due to an imbalanced age structure and unabated expansion of conifer trees, consequences of a increased fire-return interval. Several aspen stands in the Neck pasture were recently burned (Middle and Aspen Hollow fires), which contributed to a small extent to restoring aspen stands.

More than 90% of the acreage supporting aspen in the allotment is in late succession. The range in conditions of aspen stands in the four allotments included (1) aspen stands comprised of mature aspen trees, young aspen trees, and few conifer trees; (2) aspen stands comprised of mature aspen trees, few young aspen trees, and few conifer trees; (3) aspen stands comprised of mature aspen trees, few young aspen trees, and a large number of young and mid-age conifer trees; (4) mixed aspen-conifer stands; and (5) conifer stands with only low density of mature aspen trees remaining and no or very little sapling aspen. Most of the areas supporting aspen are characterized as described in 3-5. These conditions indicate that aspen habitat is out of balance and less-than-satisfactory.

Existing capability and suitability of MIS habitat for aspen is discussed in more detail in DeLong (2009a). (See also USFS 2007 and USFS 2009 for discussions of the status of aspen and capable and suitable habitat conditions.)

### **Direct and Indirect Effects**

#### *Alternative 1 (Current Management)*

Livestock grazing use and management under Alternative 1 may adversely impact individual aspen trees, suckers/saplings, or small parts of stands. Impacts would include browsing of suckers and saplings by cattle, slowed recovery of some rangelands with low vegetation cover (thus delaying recovery of production of fine fuels), removal of fine fuels that may otherwise help carry fire to aspen stands (especially during dry years), and

the potential for opportunities for prescribed burning and wildland fire use to be foregone due to complications with an allotment in active status.

While livestock grazing use and management under Alternative 1 would contribute to limitations on the recovery of some aspen stands in and adjacent to the allotment, this alternative would have no more than a minor effect on aspen habitat in the Greys River drainage because (1) the acreage of aspen stands on the allotment is low, (2) direct impacts of cattle on aspen stands appear minor and this would continue under this alternative, (3) functioning-at-risk rangelands likely only minimally reduces the spread of fire since most rangelands are at or near functioning condition, (4) retention of  $\geq 65\text{-}70\%$  of herbaceous vegetation (most years) would allow fire spread in some to many areas, and (5) there are numerous aspen stands on the district that are in need of treatment and the lower Little Greys watershed has a relatively low density of stands. Fire spread would be especially compromised in dry years when retention levels of herbaceous vegetation may be as low as 35-40%, and options for resting portions of the allotment would be limited. Spread of wildfires would also be low under this alternative, compared to Alternative 2, which would limit possible unintentional benefits to aspen.

#### *Alternative 2 (No Livestock Grazing)*

Under Alternative 2, aspen stands would benefit to a small extent. Alternative 2 would have the most benefits of any alternative to aspen relative to existing conditions and Alternative 1, although benefits would be small. Alternative 2 would be somewhat beneficial by allowing a somewhat faster rate of recovery of herbaceous cover, no reduction in the amount of fine fuels by cattle, and no influence of livestock in decisions about whether to plan and implement prescribed burns and to allow lightning-ignited fires to burn under wildland fire-use practices.

#### *Alternative 3 (Proposed Action)*

Effects would be similar to those of Alternative 1, with two possible exceptions:

- It is possible that browsing of aspen by cattle would decline under Alternative 3 due to the more restrictive forage utilization standards in years of below-average precipitation, but only by a small extent.
- The potential for fire would be somewhat higher under Alternative 3 due to somewhat higher levels of herbaceous vegetation retained, somewhat faster rate of recovery of plant species composition (including slightly higher vegetation cover in the long term), and provisions for accommodating wildland fire use and prescribed burns. This has the potential to benefit aspen in the event of one or more fires, but only by a small extent.

Therefore, Alternative 3 would be slightly more beneficial than Alternative 1 for aspen in the short-term and, because of a somewhat more rapid recovery rate, would be more beneficial than Alternative 1 by a minor extent in the long term.

#### **Cumulative Effects**

Insufficient frequency and extent of fire is the most influential factor that has diminished ecological conditions in aspen (see USFS 2009). This is because aspen stands are highly dependent on recurring fire for their perpetuation, particularly to reduce or eliminate

competing conifers. An estimated 95% of the aspen type in the Greys River drainage is currently in a late succession or old-forest condition, and this is representative of conditions in the project area. This contrasts with properly functioning conditions of no more than about 40% in late succession or old-forest conditions (USFS 2004). Many of the aspen stands in late succession or older have a high amount of conifer canopy cover, and increases in density and canopy cover of conifers in aspen stands continue.

Historic livestock grazing on the Greys River Ranger District may have contributed to the increased fire-return interval on rangelands by reducing the biomass of herbaceous vegetation (fine fuels) annually produced on rangelands, increasing the amount of bare ground, and by further reducing the amount of fine fuels. Any reductions in fire spread on rangelands could have reduced fire spread to aspen stands. Roads may also have played a role in reducing the spread of fires.

Other impacts to aspen stands include noxious weeds, motorized vehicles, elevated browsing rates by elk due to sustained high population levels, browsing by livestock, and climate change. If climate change results in more years of precipitation levels below the current long-term average, drier conditions would be an additional negative effect on aspen stands and their recovery. This would result from reduced soil moisture available to aspen. However, drier forest conditions would increase the potential for greater fire spread in the event of fires, which would benefit aspen. Drier conditions may also increase susceptibility of conifer trees to insect outbreaks, which would also benefit aspen.

Several factors have offset the downward trend in aspen communities by a small extent, including wild fires (e.g., Middle, Aspen Hollow, and Blind Trail fires), prescribed fires, mechanical treatments, and insect infestations that are killing conifer trees.

On balance, Alternative 1 would contribute slightly to the ongoing decline in aspen habitat on the district by slowing the rate of recovery of herbaceous vegetation, reducing the amount of fine fuels on a year-to-year basis, and providing livestock-related reasons to forego opportunities to manage lightning-strike fires as wildland fire use and possibly prescribed burning.

Alternative 2 would contribute slightly to offsetting the cumulative factors that continue the decline in aspen conditions on the district by not limiting recovery of herbaceous vegetation, not reducing the amount of fine fuels year-to-year, and reducing the potential for livestock grazing use to provide a reason for foregoing opportunities for fires to burn.

On balance, Alternative 3 would contribute slightly to the ongoing decline in aspen habitat on the district, but not to the extent of Alternative 1 due to a somewhat faster rate of recovery of herbaceous vegetation (minor change over the long term), somewhat less reductions in fine fuels (minor change), and provisions to better accommodate wildland fire use.

## Summary of Determinations

### *MIS Determination*

- Livestock grazing use and management under Alternative 1 may adversely impact individual aspen trees, suckers/saplings, or small parts of stands, but this

alternative would have no more than a minor effect on aspen habitat in the project area and in the Greys River drainage.

- Under Alternative 2, aspen stands would benefit to a small extent. Alternative 2 would have the most benefits of any alternative to aspen relative to existing conditions and Alternative 1, although benefits would be small.
- Alternative 3 would contribute to limitations on the recovery of aspen stands in and adjacent to the allotment, but less so than Alternative 1.

### *Habitat Restoration Needs*

The main restoration activity that is needed with respect to restoring aspen conditions within the Little Greys Allotment and surrounding area is the implementation or allowance of major disturbances such as prescribed fire, timber harvest, and wildland fire use. Because livestock grazing use constrains the implementation of these actions to some extent, livestock grazing management needs to be addressed in order to effectively restore aspen health and functioning on the Greys River Ranger District. Several aspects of livestock grazing management that would need to be addressed are outlined in the discussion of habitat restoration needs in the “Elk, Mule Deer, and Moose (MIS)” section.

The habitat restoration activities needed for Alternative 1 would result in Alternative 1 transforming into Alternative 3. Sufficient direction would be provided in Alternative 3 to minimize the extent to which livestock grazing use and management hinders prescribed burning and wildland fire use. Therefore, pertinent restoration activities related to livestock grazing management are already built into Alternative 3. Alternative 2 would not need any additional practices to counter the influence of livestock grazing use and management on fire ecology.

### *Forest Plan Objectives*

Continued livestock grazing management under Alternative 1 in the allotments would continue to hinder the achievement of Objectives 2.1(a), 3.3(a), and 4.7(d); Aspen Management Guideline; Range Vegetation Prescription (Forest-wide and for DFC 12); and Fisheries and Wildlife Prescription with respect to aspen due to the factors outlined in the “MIS Determinations” subsection, above.

Alternative 2 would not hinder achievement of wildlife-related objectives, prescriptions, and guidelines of the Forest Plan and would allow for the most progress to be made toward their achievement.

While livestock grazing under Alternative 3 would continue to limit achievement of wildlife-related objectives, prescriptions, and guidelines of the Forest Plan (see above), this alternative would place sufficient constraints on cattle grazing use and management to result in (1) more fine fuels being retained each livestock-grazing season, (2) somewhat faster rate of recovery of rangelands in less-than-satisfactory condition, and (3) vegetation treatments and wildland fire use would be accommodated on the allotments as needed, compared to Alternative 1.

## CANADA LYNX (THREATENED), AND NORTHERN GOSHAWK, GREAT GRAY OWL, AND THREE-TOED WOODPECKER (SENSITIVE)

### Existing Conditions

All of the species in this section are primarily associated with mature conifer forestlands, although they also use early- and mid-seral forestland and, specific to northern three-toed woodpeckers, recently burned areas. There is a mix of age classes in the conifer forestland type on and near the allotment, with much of the type in early succession in the Neck pasture. The conifer type throughout the remainder of the allotment is in late succession. The Blind Trail fire just south of the allotment is also in an early stage of succession. Of all areas on the Greys River Ranger District, this general area is closest to the desired mix of age classes outlined in the *Greys River Landscape Scale Assessment* with respect to conifer types, but late-seral conifer is still overrepresented. Therefore, there continues to be an overall net benefit to species dependent on and favoring late-succession conifer forestlands. Additionally, the recent burns may also benefit species such as great gray owls because of their use of early-seral communities adjacent to late-seral conifer forestland and Canada lynx (in coming years) because of their use of mid-seral forestland. Northern three-toed woodpeckers are benefiting, compared to pre-fire conditions, due to their affinity to recently burned areas.

The Canada lynx population in the contiguous United States was listed as Threatened under the *Endangered Species Act* on March 24, 2000. Critical habitat was designated for this species in March 2009. The historical range of Canada lynx in the Greater Yellowstone Area includes Idaho, Montana, and Wyoming. The southernmost natural population of Canada lynx in North America is found in the Wyoming and Salt River Mountain Ranges. Lynx are rare in the Greys River Ranger District, and are suspected of being present on the district based on historical records, recent radio telemetry studies, and snow tracking. It is likely that lynx occur within the Greys River Ranger District, and it is possible they occasionally pass through the Little Greys Allotment although the predominantly open conifer forestland is not conducive to habitation by this species. Additional information on lynx is provided in DeLong (2009b).

Northern goshawks inhabit mixed conifer forests, preferring to nest in Douglas-fir, lodgepole pine, and aspen forests, particularly dense old-growth conifers. Goshawks feed on small to moderately large birds and mammals, including corvids, thrushes, woodpeckers, grouse, tree and ground squirrels, snowshoe hares, and cottontail rabbits. They generally forage in late-succession forests with relatively dense canopy cover, many times with open understories, but they occasionally forage in open habitats such as sagebrush. Conifer forestland on the allotment exhibit characteristics of favorable goshawk habitat, and at least one known nest exists within ½-mile of the allotment. While population trends in the western U.S. are being assessed, no definitive conclusions have been reached.

Great gray owls inhabit mid- to late-seral conifer forests interspersed with forest openings. Conifer forests are used for nesting and roosting, while forest openings (e.g., meadows, forblands, clearcuts) are needed for foraging. They are uncommon throughout their range, and the Greys River Ranger District is approaching the southern extremity of this distribution. Conifer forestland on the allotment, especially forestland with many

forest openings (e.g., Blind Trail and Stewart pastures), exhibit characteristics of favorable habitat for great gray owls.

Northern three-toed woodpeckers inhabit mixed conifer forests of lodgepole pine, Douglas-fir, Englemann spruce, and subalpine fir, especially stands that have been recently burned. Densities on the Greys River District are relatively low. They likely inhabit the allotment because lodgepole pine, Douglas-fir, subalpine fir, and mixed conifer forestlands exist within the allotment. They have been observed within 2 miles of the allotment, and because of the recent fires they likely occur in an area adjacent to the allotment. Habitat conditions are likely favorable for this species in the Neck pasture, especially given how recent the last burn was (2007). Conifer forestland in other parts of the allotment also provides habitat for northern three-toed woodpeckers, but not of the quality in the Neck Pasture.

### **Direct and Indirect Effects**

#### *Alternative 1 (Current Management)*

Livestock grazing use and management under Alternative 1 may impact individual goshawks, great gray owls, or three-toed woodpeckers or minor parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability. Potential adverse effects for some species (e.g., great gray owls) include slowed recovery of small mammal habitat in forest openings and rangelands currently below functioning condition and less than 60-70% retention of herbaceous vegetation in some forest openings and rangelands (affecting voles, other small mammals) in at least some years. To the extent that Alternative 1 reduces the potential for fire spread across rangelands to conifer forestland, it would benefit goshawks and possibly great gray owls depending on the size of fires, but it would not benefit three-toed woodpeckers. Potential adverse effects of Alternative 1 would not contribute to a trend toward federal listing due to (1) low density of goshawks and great gray owls, (2) non-forest foraging habitat grazed by cattle comprising a small component of the total foraging habitat, and (3) the potential for reduced fire spread in rangelands to affect fire in conifer forestland is small (northern three-toed woodpeckers).

Alternative 1 would have no effect on Canada lynx because (1) the density of lynx in the Greys River drainage is very low, (2) there is a low probability that lynx inhabit the Little Greys allotment other than passing through it (i.e., existing habitat conditions are not favorable to lynx), (3) management direction in the *Northern Rockies Lynx Management Direction* specific to livestock grazing is in the form of guidelines, as opposed to standards, and (4) the potential for Alternative 1 to hinder the achievement of the guidelines GRAZ G1-G4, with respect to direct effects of livestock herbivory on plant communities, would be low. At present, most of the forestland in the allotment has little in the way of conifer understories which provides no more than limited quality snowshoe hare habitat.

#### *Alternative 2 (No Livestock Grazing)*

Alternative 2 may adversely impact individual goshawks and great gray owls or minor parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability. Potential adverse effects on individual goshawks and great gray owls

could potentially result from a possible increase in the probability of fire burning through conifer forestland, but this potential is small. From this standpoint, Alternative 2 would have the potential of benefiting northern three-toed woodpeckers. Alternative 2 would have the most benefits to the prey base of great gray owls and, to a smaller extent, goshawks.

Alternative 2 may benefit northern-three toed woodpeckers due to the small increase in potential for fire.

Alternative 2 would have no effect on Canada lynx because (1) the density of lynx in the Greys River drainage is very low, (2) there is a low probability that lynx inhabit the Little Greys allotment other than passing through it (i.e., existing habitat conditions are not favorable to lynx), and (3) management direction in the *Northern Rockies Lynx Management Direction* specific to livestock grazing is in the form of guidelines, as opposed to standards. Additionally, Alternative 2 would result in a small increase in the potential for additional forestland to be burned, which would have the potential of improving snowshoe hare habitat in the future as early seral forestland succeeds into mid succession. At present, most of the forestland in the allotment has little in the way of conifer understories which provides no more than limited quality snowshoe hare habitat.

#### *Alternative 3 (Proposed Action)*

This alternative would have similar potential effects as Alternative 1, except (1) the recovery rate of small mammal habitat in forest openings and rangelands adjoining forestland would be somewhat higher, (2) retention levels of herbaceous vegetation (e.g., for small mammals) would be higher in dry years, and (3) there would be a small increase in the potential for additional late-seral conifer forestland to burn. Compared to existing conditions and Alternative 1, the first two factors would benefit great gray owls and possibly goshawks (to the extent they inhabit the allotment), and the third would adversely affect goshawks and possibly great gray owls depending on the size of fires. The small increase in potential of fire spread would benefit northern three-toed woodpeckers, but only by a small amount.

Alternative 3 would have no effect on Canada lynx because (1) the density of lynx in the Greys River drainage is very low, (2) there is a low probability that lynx inhabit the Little Greys allotment other than passing through it (i.e., existing habitat conditions are not favorable to lynx), (3) management direction in the *Northern Rockies Lynx Management Direction* specific to livestock grazing is in the form of guidelines, as opposed to standards, and (4) the potential for Alternative to hinder the achievement of the guidelines GRAZ G1-G4, with respect to direct effects of livestock herbivory on plant communities, would be low. Additionally, Alternative 3 would result in a small increase in the potential for additional forestland to be burned, compared to existing conditions and Alternative 1, which would have the potential of improving snowshoe hare habitat in the future as early seral forestland succeeds into mid succession. At present, most of the forestland has little in the way of conifer understories which provides no more than limited quality snowshoe hare habitat. See DeLong (2009b) for additional information on the analysis that was conducted for Canada lynx.

No lynx habitat would be lost temporarily or permanently as a consequence of the authorizing continued cattle grazing as proposed in the Little Greys Allotment. The

project would not have any direct effects on lynx habitat. The project would not have any indirect effects that would result in the temporary or permanent loss of lynx habitat. Limitations imposed or perpetuated by the proposed action on wildland fire use and prescribed burning (see pages 14-16) could potentially change the characteristics of lynx habitat, but lynx habitat would remain in the absence of fire. Lack of fire typically results in older age classes of conifer forestland, at the expense of aspen habitat in some places, and an increase in the acreage of conifer forestland (e.g., as it expands into rangeland areas). Therefore, the project would have no effect on lynx critical habitat.

### **Cumulative Effects**

Because livestock grazing use in the project area would not have any potential to directly adversely affect vegetation composition and structure in conifer forestlands, a cumulative effects analysis is not warranted for this vegetation class.

The distribution and abundance of Canada lynx, goshawks, and great gray owls in the Greys River watershed are influenced by the area's biogeographic characteristics, combined with the culmination of a variety of past and present human activities and management decisions. These include a long history of fire suppression, timber harvest during the late 1800s through the mid 1900s (with dwindling harvest rates through the 1990s), trapping (of lynx) up through the early 1970s, increasing amount and distribution of snowmobile activity, and roads and increasing summer recreational use.

There are many factors that have reduced fire frequency and spread into and through forestlands. These include fire suppression activities (the biggest factor), creation of roads and trails, alteration of vegetation due to recreational activities, reduced vegetation cover and increased bare ground due to historic livestock grazing, and further reductions in herbaceous vegetation (fine fuels) through cattle grazing. Present-day cattle grazing plays a minor role in fire ecology of forestlands, especially since rangelands play such a small role. However, it is possible for reduced vegetation cover combined with further reduction in fine fuels to limit fire spread through rangelands and into adjoining forestlands. Limiting the spread of fire in turn affects late-seral-conifer forestland species, depending on the resulting pattern. If fire starts in a rangeland and does not spread to forestland, goshawks would likely benefit, but this would not benefit lynx, great gray owls, and northern three-toed woodpeckers. However, if depleted rangelands reduce the spread of fire and help create unburned patches of forestland, all species may benefit due to increased patchiness.

The main factor affecting rangelands and forest openings is historic livestock grazing, which substantially altered plant species composition, which in turn continues to play a role in fire ecology within rangelands. Other factors include current livestock grazing, noxious weed introduction and spread, and motorized vehicle use. All of these factors combine to reduce the abundance of small mammals and birds on rangelands and forest openings, which has the potential to adversely affect goshawks and great gray owls.

If climate change resulted in drier conditions, this would make late-seral conifer communities more susceptible to fire, which would reduce the benefits accrued during the past century due to fire suppression and other factors that have reduced fire frequency.

Cumulatively, Alternative 1 would contribute to retaining an overrepresentation of late-seral forestland and under-representation of early- and mid-seral forestland, which would further benefit goshawks, but would limit creation of more suitable habitat for lynx, great gray owls, and northern three-toed woodpeckers.

Cumulatively, Alternative 2 would reduce to a small degree the large cumulative benefits accrued to goshawks over the last 100 or more years of fire reduction, but would favor to a small degree creation of habitat conditions more suitable for lynx, great gray owls, and northern three-toed woodpeckers.

Cumulative effects under Alternative 3 would be similar to those of Alternative 1, except the effects of livestock grazing use and management would be somewhat lessened under Alternative 3.

### Summary of Determinations

#### *Biological Assessment Determination*

- Alternative 3 would have **no effect** on Canada lynx for the reasons outlined above.
- Alternative 3 would have **no effect** on Canada lynx critical for the reasons outlined above.

#### *Biological Evaluation Determinations*

- Alternatives 1 and 3 **may impact** individual goshawks and great gray owls or minor parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability.
- Alternative 2 may benefit northern-three-toed woodpeckers.

#### *Ability to Meet Forest Plan Direction*

Effects of Alternative 3 would not conflict with fulfilling or meeting Forest Plan objectives, standards, and guidelines pertaining to lynx conservation (i.e., *Northern Rockies Lynx Management Direction*) because Alternative 3 would not (1) directly result in a type conversion of vegetation, (2) reduce the amount of snowshoe hare winter foraging habitat, (3) reduce the amount of lynx habitat, (4) reduce the amount of lynx denning habitat, or (5) affect the amount or distribution of recreational activities. Having no conflict assumes that livestock grazing management would accommodate prescribed burning and wildland fire use that may benefit lynx.

Livestock herbivory under Alternatives 1 and 3 would not hinder achievement of Objective 3.3(a) and Fisheries and Wildlife Prescription with respect to conifer habitat for pine marten, goshawks, great gray owls, boreal owls, and three-toed woodpeckers. Adherence to the allowable-use standards and deferment under Alternative 3 would increase the recovery rate of herbaceous vegetation to meet the above-listed objective, prescription, and guideline, as well as Objective 4.7(a) with respect to prey species of goshawks and great gray owls in non-forested habitats. The objective and prescription with respect to prey species may not be met under Alternative 1 during years of below-average precipitation.

Alternative 2 would not limit the achievement of the objectives and associated prescriptions and guidelines.

## **GRAY WOLVES (EXPERIMENTAL), GRIZZLY BEARS, WOLVERINE, AND PEREGRINE FALCON (SENSITIVE)**

### **Existing Conditions**

Any wolves that may occur in this area in the future would likely be part of the “nonessential/experimental” population traced to the Yellowstone Park reintroduction in the mid-1990s. Wolves are habitat generalists that prefer large areas isolated from human disturbance that have an ungulate prey base. Historically, wolves were found throughout Wyoming. Since 2002, there have been reports of sightings of wolves and wolf tracks at various locations in and around the Greys River District, but wolves are rare to uncommon on the district and only occur at very low densities. At the present time, there is no evidence of pack formation and establishment of a home range in the vicinity of the project area. There has been no suspected or verified wolf predation on domestic livestock in the Little Greys Allotment. Additional information on gray wolves is provided in DeLong (2009b).

Grizzly bears range over large areas and inhabit a large variety of habitat types. The project area contains suitable grizzly bear habitat, except that the Little Greys River Road, McCain Meadow Road, and other side-roads reduce habitat effectiveness. Vehicle activity along roads, dispersed camping, other human activities, and the McCain guard station reduce habitat suitability for grizzly bears on all of the Neck and River pastures, most of the Steer Creek and McCain pastures, and some of the Blind Trail and Stewart pastures. The project area is outside the primary conservation area and is not within an area to be managed for grizzly bear occupancy. There have been no verified grizzly bear occurrences in the project area, but there have been verified reports of grizzly bears within 5 miles of the allotment. The population in the Greater Yellowstone ecosystem has grown to an estimated 400-600 bears, and the population appears to be increasing at about 4-6% per year (WGFD 2005b). The Bridger-Teton National Forest encompasses approximately 13% of the occupied grizzly bear range in the Yellowstone Grizzly Bear Ecosystem. This increasing population is expected to cause more grizzly bears to venture outside of their existing range into other areas of suitable habitat, including into the Wyoming and Salt River Ranges.

Wolverines range over a large variety of habitat types in large landscapes that are sparsely inhabited by people. Wolverines are rare on the district and exist at low densities, but there are a number of confirmed reports on different parts of the Wyoming Range and Salt River Range. While there are no reports of wolverines within the Little Greys Allotment, it is possible they pass through the allotment occasionally.

Peregrine falcons are also a species of very low density in the Greys River District. They nest on high cliff ledges often near water and may forage up to 12 miles from nest sites, although foraging usually occurs within 7 miles of the nest. Foraging habitats include wetlands, riparian areas, mountain valleys, and lakes that support good populations of small to medium sized birds, which is their principle prey. An active nest exists within 10 miles of the Little Greys Allotment (and over the top of the Salt River Range), and

individual birds may occasionally pass through the Little Greys allotment. No nests are known to exist within the allotment, and no nesting habitat exists within the allotment. There are no records of this species in the allotment.

### **Direct and Indirect Effects**

The potential for predator control activities removing one or more gray wolves is addressed in cumulative effects because this issue is addressed separately (Animal and Plant Health Inspection Service 1997 and 2008 MOU).

#### *Alternative 1 (Current Management)*

It is possible, but unlikely, that continued livestock grazing might result in incidental short-term displacement of individual wolves due to the presence of cattle and herders. The risk of exposure to such effects is slight because there currently is a low probability of wolves being present in the project area and, if wolves were to be present, they would occur at a very low population density. Although this alternative has the potential to contribute to limiting recovery of mule deer numbers, populations of elk, mule deer, and moose are currently more than sufficient to support a small number of wolves. Effects of continued livestock grazing on vegetation would not measurably diminish the ability of the large ungulate population to support wolves.

Continued livestock grazing use under Alternative 1 may adversely impact individual grizzly bears, wolverines, or peregrine falcons or minor parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability. Potential effects would include disturbance and displacement (grizzly bears, wolverines under both alternatives), removal due to depredation of calves or adult cattle (grizzly bears under both alternatives), and small to moderate effects on prey species in dry years (peregrine falcons under Alternative 1). However, these effects would likely not contribute toward federal listing or loss of viability due to (1) absence of these species in the allotment, (2) very low density of these species on the Greys River Ranger District, (3) low probability of disturbance or displacement, (4) low probability of depredation of livestock on the allotment by grizzly bears, (5) allowance in WGFD management of grizzly bears for periodic removals due to livestock depredations outside of the area managed for grizzly bear occupancy, and (6) low probability of peregrine falcons foraging in the allotment. There would be no more than negligible effects on grizzly bear and wolverine habitat.

#### *Alternative 2 (No Livestock Grazing)*

Alternative 2 would not affect any of these species.

#### *Alternative 3 (Proposed Action)*

Potential effects of Alternative 3 would be similar to Alternative 1. Although elk, mule deer, and moose may benefit from the implementation of Alternative 3, compared to Alternative 1, any changes in native ungulate populations would be too small to affect gray wolves. See DeLong (2009b) for additional information on the analysis that was conducted for gray wolves.

### **Cumulative Effects**

Given no effects to potential negligible effects of Alternatives 1, 2, and 3 on the species in this section, cumulative effects assessments are not needed, with two exceptions:

1. If a grizzly bear were to be removed as a consequence of depredating calves or adult cattle, an unclean camp, or other reasons related to continuation of livestock grazing use on the allotment, this would contribute to the difficulties in range expansion of grizzly bears. However, removing one or more grizzly bears from the project area under these circumstances would not conflict with state management because areas within the Grizzly Bear Data Analysis Unit south of the Snake River Canyon “will be managed to discourage grizzly bear dispersal and occupancy due to human activity levels that will contribute to a high level of human-grizzly bear conflict” (WGFD 2005b:16). Any removal of grizzly bears from the project area due to depredation of cattle would be coordinated with WGFD, and such removal would be accounted for in the development and implementation of grizzly bear hunting regulations, thereby providing for the long-term sustainability of the grizzly bear population in northwestern Wyoming.

The potential impacts of removing one or more grizzly bears as a consequence of livestock depredation was addressed in a 1997 Environmental Assessment/Finding of No Significant Impact and is covered by annual MOUs with the USDA's Animal and Plant Health Inspection Service and Wildlife Services (e.g., 2008 MOU).

2. There is no history of gray wolf predation on livestock in the project area or surrounding area. However, the decision to authorize continued livestock grazing in each of the six allotments would maintain an elevated, albeit low, potential for one or more wolves to be taken if they were to begin depredating sheep or cattle in one of the allotments. The closest wolf depredation of livestock occurred in the Green River basin on the other side of the Wyoming Range. The potential impacts of removing one or more gray wolves as a consequence of livestock depredation was addressed in a 1997 Environmental Assessment/Finding of No Significant Impact and is covered by annual MOUs with the USDA's Animal and Plant Health Inspection Service and Wildlife Services (e.g., 2008 MOU). Among other factors, removing one or more wolves from the project area due to livestock depredation could slow the establishment of a wolf population in the northern part of the Wyoming Range. So far, no wolves have been removed from the National Forest because of predation on domestic livestock in the project area.
3. Low retention levels of herbaceous vegetation during years of low precipitation under Alternative 1 would have the potential to contribute to adverse affects on some prey species, such as green-winged teal, mallards, snipe, and smaller riparian bird species (see cumulative effects discussion in the “Migratory Bird” section, below).

### **Mitigation Measures**

To mitigate potential indirect effects to grizzly bears stemming from improper food storage or storage and sanitation at the permittee/herder camp, requirements could be added to permits as has been done on other districts.

## Summary of Determinations

### *Biological Assessment Determination*

- Due to the very limited exposure to risk, the determination of effect for the gray wolf is “**not likely to jeopardize.**” There are no effects of Alternatives 1 and 3 that would be detectable at the population level. Potential for incidental positive or negative effects on individuals are too slight to assess. Alternative 2 would have **no effect** on gray wolves.

### *Biological Evaluation Determination*

- Alternatives 1 and 3 **may impact** individual grizzly bears, wolverines, or peregrine falcons or minor parts of their habitat, but would likely not contribute to a trend toward federal listing or loss of viability.
- Alternative 2 would have **no impact** on grizzly bears, wolverines, or peregrine falcons.

## Ability to Meet Forest Plan Directives

Alternatives 1, 2, and 3 would not hinder achievement of Objectives 3.1(a), 3.1(b), and 3.3(a); Fisheries and Wildlife Prescription; and grizzly bear standards with respect to grizzly bears, wolves, and wolverines.

## MIGRATORY BIRDS

### Existing Conditions

*Rangelands, Forest Openings, and Meadows* — Although, compared to riparian and aspen communities, bird diversity is lower in big sagebrush, mountain shrubland, and meadow communities in the Little Greys Allotment, these habitats add to the diversity of migratory birds and they are critical habitat for some species. Some species do not occur in any other plant communities. Cover provided by herbaceous plants, as well as flowers and seeds of herbaceous plants, are especially important in these plant communities. Many species of birds that primarily inhabit other plant communities (e.g., willow, aspen, and conifer communities) rely in part on seeds, flowers (e.g., nectar), insects, and small mammals found in forest openings and larger rangeland areas.

Conditions of rangelands and forest openings are described in the “Rangeland Health” section. Rangelands that are at or near functioning condition provide suitable habitat for migratory birds so long as most of the annual production of herbaceous vegetation is retained when grazed before about August 1. From the standpoint of rangeland functionality, most big sagebrush, mountain shrubland, and much of the meadow habitat on the allotment provides suitable habitat for migratory birds, with two exceptions: (1) habitat for bird species requiring or favoring early- and mid-seral big sagebrush and shrubland communities is underrepresented due to reduced frequency of fire; and (2) habitat for bird species requiring or favoring tall, dense meadow habitat is underrepresented due to altered species composition and possibly lowered water tables in some places. From the standpoint of retention levels in any given year, the percent of herbaceous vegetation remaining through the cattle grazing season has been highly variable in recent years, from 40% or less in many rangeland/meadow areas in some

years to 70% or more in other years. It is estimated that a minimum of 70% of the annual production of herbaceous vegetation would be retained in most years, which would retain suitable forage and cover for migratory birds in these years. However, in years when less than 70% is retained, particularly when less than 60% is retained, less-than-satisfactory habitat conditions would be retained for migratory birds using these habitats, especially when this occurs prior to August 1 (e.g., the first two pastures).

*Willow, Cottonwood, and Aspen* — The Little Greys Allotment contains a variety of habitats that support a large diversity of migratory birds. For example, 76 species of birds are closely associated with willow, cottonwood, and aspen communities in this area. A disproportionate number of migratory bird species are associated with these deciduous woody communities, as compared to other types of habitat. Several bird species associated with willow, cottonwood, and aspen habitat and that were identified by Intermountain West Joint Venture (2005:Appendix A) as priority bird species of Wyoming are either known to occur in the project area or nearby areas with potential to occur in the allotment (e.g., broad-tailed hummingbird, red-naped sapsucker, willow flycatcher, Wilson’s warbler, ovenbird). All of these species do best in areas having healthy stands of willow, cottonwood, and/or aspen (Wyoming Partners in Flight).

Willow and cottonwood habitat generally is in or near properly functioning condition in most riparian areas of the allotment, but a few willow stands (e.g., lower South Fork) are in less-than-satisfactory condition for migratory birds. The vast majority of willow habitat is in suitable condition for most migratory birds using this habitat. Aspen habitat conditions are highly variable (see “Aspen (MIS)” section, above), with some of the acreage in suitable condition for dependent migratory birds and some in less-than-satisfactory condition for dependent migratory birds. Retention levels of herbaceous vegetation would be similar to that described in the previous subsection (“Rangelands, Forest Openings, and Meadows,” above).

*Conifer Forestlands* — Although the number of bird species dependent on conifer forestland is lower than the number associated with aspen and riparian habitats, conifer forestlands host a large variety of bird species, and many species are dependent on late-seral conditions. Conditions of conifer forestland are discussed in the “Canada Lynx, Northern Goshawk, Great Gray Owl, and Northern Three-toed Woodpecker” section.

## **Direct and Indirect Effects**

### *Alternative 1 (Current Management)*

Alternative 1 would likely impact individual migratory birds and parts of their habitat, and some of these effects would likely affect productivity and may affect survival. Impacts, which would continue existing conditions, would include (1) slowed recovery of riparian habitat, aspen stands, and rangelands that currently are below functioning condition; (2) low retention levels of herbaceous vegetation in years of below-average precipitation; (3) potential for elevated levels of mortality of eggs and nestlings due to walking and running cattle, particularly where they are regularly herded; (4) potential for elevated levels of nest parasitism by brown-headed cowbirds; and (5) reduced potential for fire spread, compared to the absence of livestock grazing.

While there are few areas on the allotment that are in non-functioning condition and while most plant communities provide at least some level of suitable habitat for most migratory bird species (not including effects of forage utilization), several factors combine to result in less-than-satisfactory habitat being provided for migratory birds: (1) less-than-satisfactory habitat — from the standpoint of cattle forage utilization — would be retained in several years out of every 10 years (as many as 3-4 of 10 years) under Alternative 1 for the first two pastures; (2) trampling effects; (3) increased potential for nest parasitism by cowbirds in one pasture each year during the egg-laying period; (4) a small potential for reduced potential for fire; combined with (5) ongoing loss of habitat and deterioration of habitat conditions in western Wyoming and the Intermountain West, as well as growing impacts on winter ranges.

Management controls of Alternative 1 are not sufficient to prevent less-than-satisfactory habitat conditions being produced, even in years of average and above-average precipitation. For example, even if retention levels are high enough to retain minimally suitable forage and cover for migratory birds within a given livestock grazing season, the grazing season can be extended so long as forage utilization standards (e.g., 60-65% utilization of key species) are not exceeded. There is no information showing that this level of livestock grazing retains suitable forage and cover for migratory birds or that it would allow recovery of their habitat (retention levels would be considerably lower than what is needed for suitable habitat). Deferral would mitigate some of these effects, but deferral would not justify exceeding forage utilization standards from the standpoint of meeting the needs of migratory birds.

A basic principle of wildlife conservation is that less-than-satisfactory habitat conditions can reduce habitat use by migratory birds, animal health, and reproductive success, depending on the gap between existing and suitable conditions with highly altered conditions sometimes resulting in major impacts on habitat use and reproductive success. Management controls of Alternative 1 are insufficient to prevent adverse impacts to habitat use, animal health, and reproductive success.

This alternative would not contribute to the loss of rangelands and meadowland on private lands of Star Valley — and no indirect effects on migratory birds that may inhabit these meadowlands — because continued livestock grazing use would be authorized on the Little Greys Allotment and there would not be any direct or indirect reductions in cattle numbers or season of use. Therefore, if private lands associated with Little Greys Allotment permits are sold and developed in the future, it would not be a consequence of Alternative 1.

#### *Alternative 2 (No Livestock Grazing)*

Under Alternative 2, migratory birds would benefit due to (1) no limitations on recovery from continued cattle grazing, (2) no reductions by cattle in forage and cover for migratory birds, (3) no livestock-related effects on prescribed burning and wildland fire use. Alternative 2 would have the most benefits to migratory birds of any alternative relative to existing conditions and Alternative 1, and would have more benefits than Alternative 3.

Migratory birds now using rangeland and meadowland habitat of private, permittee base properties in Star Valley could potentially be indirectly impacted by this alternative.

These adverse impacts would occur if alternate pasture was not found by permittees, if the alternative resulted in base properties being sold, and if any sold properties were to be subdivided and developed (see cumulative effects).

### *Alternative 3 (Proposed Action)*

Alternative 3 would likely have localized adverse effects on individual migratory birds and their habitat, but an adequate amount of suitable forage and cover would be maintained for these species. Contributions to regional impacts on migratory birds would be minimal. Potential impacts would include (1) slowed recovery of riparian habitat, aspen stands, and rangelands that currently are below functioning condition (but somewhat faster than Alternative 1); (2) low retention levels of herbaceous vegetation in some parts of the allotment, but the extent would be limited compared to Alternative 1; (3) potential for increased mortality of eggs and nestlings due to walking and running cattle, particularly where they are regularly herded; (4) potential for elevated levels of nest parasitism by brown-headed cowbirds; and (5) reduced potential for fire spread (but not as low as under Alternative 1).

However, impacts would not result in a long-term loss of habitat or loss, would allow recovery of currently degraded habitat, and would have fewer effects on individual birds than Alternative 1 because (1) there are few areas on the allotment that are in non-functioning condition, (2) most plant communities would provide at least some level of suitable habitat for migratory bird species (not including effects of forage utilization), (3) an adequate amount of suitable nesting habitat for a wide range of migratory birds — from the standpoint of cattle forage utilization — would be retained in all years under Alternative 3, (4) an adequate amount of suitable nesting habitat for species requiring tall, dense nesting cover would be retained in large parts of pastures every year and throughout entire pastures for the first two pastures, (5) trampling effects would be minimal, (6) increased potential for nest parasitism by cowbirds would only affect one pasture each year and the presence of cattle during the egg-laying period would only add a minor impact to affected migratory birds, and (7) the reduced potential for fire would be small. Deferment would also mitigate some of the adverse effects.

Because Alternative 3 would not change permitted cattle numbers or season of use, potential effects on migratory birds using private lands in Star Valley would be similar to those of Alternative 1.

### **Cumulative Effects**

Cumulative effects applicable to migratory birds inhabiting rangelands and forest openings were discussed in the Brewer's Sparrow; Spotted Frog, Chorus Frog, and Boreal Toad; Elk, Mule, Deer, and Moose; and Aspen sections.

### **Summary of Determinations**

#### *Migratory Bird Determination*

- Alternative 1 would likely impact individual migratory birds and parts of their habitat, and some of these effects would likely affect productivity and may affect survival, thereby cumulatively contributing to regional impacts on migratory birds using riparian, meadow, big sagebrush, and mountain shrubland vegetation types.

- Alternative 2 would benefit migratory birds, populations, and habitat.
- Alternative 3 would likely have localized impacts on individual migratory birds and their habitat, but an adequate amount of suitable forage and cover would be maintained for these species. Contributions to regional impacts on migratory birds would be minimal.

#### *Ability to Meet Forest Plan Direction and Direction for Migratory Birds*

Continued livestock grazing management under Alternative 1 in the allotments would continue to hinder the achievement of Objective 3.3(a) and 4.7(d), Range Vegetation Prescription (forest-wide and for DFCs 1B, 3, and 12), and Fisheries and Wildlife Prescription with respect to migratory birds due to (1) an inadequate amount of forage and cover being retained as a consequence of cattle grazing some areas more than once each season, especially effects on less-than-satisfactory rangelands; (2) limitations on recovery of less-than-satisfactory rangelands; (3) no consequences spelled out in the permit or AMPs for not meeting allowable-use standards; and (4) no clear direction to permittees on accommodating vegetation treatments and wildland fire use.

Alternative 2 would not hinder achievement of wildlife-related objectives of the Forest Plan and would allow for the most progress to be made toward their achievement.

While livestock grazing under Alternative 3 would continue to limit achievement of Objectives 2.1(a), 3.3(a), and 4.7(d) and related prescriptions and guidelines to some extent, this alternative would place sufficient constraints on cattle grazing use and management to ensure (1) an adequate amount of forage and cover would be retained each livestock-grazing season for migratory birds in areas that are at or near functioning condition, (2) recovery of rangelands in less-than-satisfactory condition, and (3) vegetation treatments and wildland fire use would be accommodated on the allotments as needed.

### **CUTTHROAT TROUT, RAINBOW TROUT (MIS, SENSITIVE)**

#### **Existing Conditions**

*Fish Populations* — Recent population estimations indicate that cutthroat trout populations throughout the Snake River Basin above Palisades Reservoir are abundant (USFS 2007). Wyoming Game and Fish Department (2005a) and Forest Service (2002) inventory data do not indicate an upward or downward trend in the fisheries within the project area.

The Snake and Salt River meet WGFD management objectives to conserve the wild trout fishery and the integrity of the indigenous Snake River cutthroat trout while maintaining sport fishing opportunities. The Little Greys River provide spawning, rearing and adult habitat for fine-spotted Snake River cutthroat trout. This species is the dominant species and is well distributed in the project area. Overall health of Snake River cutthroat trout populations in the Little Greys River is strong with good conductivity between the river and its tributaries. The Little Greys River sport fishery meets WGFD management objectives.

Rainbow trout stocking by WGFD has been discontinued, but the species is still present in small numbers in the Snake River.

The status of MIS populations is found in USFS (2007) and USFS (2009), the latter of which discusses capability and suitability of MIS habitat at the BTNF-wide scale.

*Fish Habitat* — The “Riparian Areas and Moist Meadows” section of this chapter describes some of the key components of fish habitat (e.g., streambank stability, stream channel integrity, water quality). The following discussion addresses elements not discussed in the previous section.

The Little Greys watershed encompasses 53,578 acres and approximately 19 miles of streams, but does not contain any lakes. Little Greys River is a natural, free-flowing system with some areas where the valley bottom has been unnaturally narrowed due to road construction, which constrains movement of the channel. The basin has areas of lateral stream channel migration (where the channel moves from side to side over the long term due to erosion and deposition) and areas of large woody debris accumulation. Most of the drainage is characterized by large cobble substrate. Confined canyon sections are dominated by boulder/rubble substrates. Unstable soils and steep terrain contribute substrate material and fine sediment to the river system.

Where streams in the project area are high gradient, they have a poor pool-riffle ratio (< 30% pools). High runoff and low late summer flows result in high stream flow variation. Ice forms on the bottom of channels in the winter, which limits habitat. The trout fishery has limited spawning sites and nursery areas because of the high gradient with substrate too large for spawning. Drought conditions and cold water temperatures contribute to low recruitment of juvenile trout in the system. Although conditions are harsh, native fish are well distributed throughout the project area and connectivity between populations is high.

Habitat inventories and fish surveys were conducted on nine tributaries in 2000 and 2002 to determine fish distribution and species richness (number and types of species).

Tributaries sampled include Aspen Hollow Creek, Trail Creek, Whiskey Creek, Cow Camp Creek, Blind Trail Creek, Bull Hollow Creek, Steer Creek, McCain Creek, and South Fork of the Little Greys River. Habitat conditions ranged from good to fair with bank stability ranging from 59% stable on the South Fork of the Little Greys River to 89% stable on Steer Creek.

Snake River fine spotted and large spotted cutthroat trout are present in all tributaries with young of the year age class fish in largest numbers. Currently, streams in the project area meet the Sensitive Species Management Standard and Fish Habitat Management Guideline. Stream reaches surveyed were below the Streambank Stability Guideline of 90%.

### **Direct and Indirect Effects**

The “Riparian Areas and Moist Meadows” section of this chapter describes the key effects on fish habitat (e.g., streambank stability, water quality). The following discussion summarizes some of these key findings, but does not address reasons for the effects. Causes of effects can be found in the “Riparian Areas and Moist Meadows” section.

#### *Alternative 1 (Current Management)*

Wyoming Game and Fish Department (2005a) and Forest Service (2002) inventory data do not indicate an upward or downward trend in the fisheries within the project area.

Forest Service fish habitat inventory indicate that riparian and streambank conditions are stable, and trout are successfully reproducing under the existing conditions.

Livestock grazing is impacting fish habitat in limited stream reaches throughout the Little Greys Allotment, and this would continue under Alternative 1. The degree of effect would continue to change over time as a result of shifting cattle grazing intensity in different parts of the allotment. Stream impacts would continue to be more pronounced in flat riparian areas and lower stream reaches at or near the confluence with the Little Greys River where livestock tend to congregate. Reduced overhead cover and streambank vegetation in these areas would continue to be impacted by cattle grazing and trampling, which would continue to have short-term impacts on fish habitat. Removal of overhead cover in some locations may affect survival from predators by removing overhead cover in some locations and livestock grazing may reduce reproductive success. However, WGFD data indicate that fish populations are at an acceptable level for long-term sustainability, and this would likely continue.

#### *Alternative 2 (No Livestock Grazing)*

Not authorizing continued livestock grazing would have no quantifiable impact on fish populations in the short-term, but increases in plant species composition and vegetation cover in uplands — combined with considerably more streambank vegetation (height) being retained — would improve hiding cover, shade, and food sources. This in turn may improve survival and increase populations in the long-term.

The discontinuation of livestock grazing would allow ground cover to increase in riparian areas and uplands, which would reduce sedimentation and, in the long term, improve water quality. Improved water quality would indirectly benefit fish populations by reducing sediment and improve egg survival.

The benefits of no livestock grazing may be offset to some extent by the increased fuel loading and potential for fire burning across riparian areas, which could increase sediment and ash, and reduce overhead cover for short time periods. This temporary effect would be offset by improved watershed conditions over the long term.

#### *Alternative 3 (Proposed Action)*

Reduced streambank shearing caused by livestock trampling and additional fences and water developments that move cattle away from sensitive riparian areas may increase the survival of trout eggs, although not to the extent of Alternative 2. Short-term effects leading to improved habitat conditions would be difficult to measure due to incremental changes over time.

Increased and more consistent stubble height standards on streambanks may improve long-term fish populations by reducing sedimentation and larger amounts of overhead vegetation remaining. Potential increase in fences and water developments, combined with the increased and more consistent application of stubble height standards and lower forage utilization standards would allow ground cover to increase and would improve vegetation in riparian areas and uplands. This would reduce sedimentation and, in the long term, improve water quality which in turn would indirectly benefit fish populations by improving egg survival, although not to the extent of Alternative 2.

## Mitigation Measures

Alternative 3 includes a range of mitigation measures that, if added to Alternative 1, would reduce sedimentation and allow damaged streambanks to recover. No additional mitigation measures would be needed for Alternatives 2 and 3.

## Cumulative Effects

Historic and present-day livestock grazing, beaver activity, roads and fire (e.g., Blind Trail, Aspen Hollow, and Middle fires) all contribute to stream conditions (see the “Riparian Health” section).

If climate change results in drier conditions, less water would be making it to streams, which may have the potential to affect fish populations in some streams.

Cumulatively with effects of roads, recreation, and recent fires, cattle grazing under Alternative 1 may reduce reproductive success of fish and impact survival from predators by removing overhead cover in certain locations, but fish populations are at an acceptable level for long term sustainability.

Alternative 2 would not add any effects to the other factors now affecting fish habitat conditions. Alternative 2 may allow fish populations and habitat to improve by allowing ground cover to increase faster and by allowing height of riparian vegetation to increase in isolated locations, which would improve hiding cover, shade, and food sources. However, if a fire were to occur within the project area with increased fuel loading (fine fuels), this could result in short term impacts on fish.

Alternative 3, cumulative with other factors, may result in slight long-term benefits to the fisheries by allowing ground cover in rangelands to improve at a somewhat faster rate than under Alternative 1 and by allowing riparian vegetation to improve.

## Summary of Determinations

### *Biological Evaluation Determination*

- Alternatives 1, 2, and 3 **may impact** individual fine-spotted Snake River cutthroat trout, but would likely not cause a trend to federal listing or a loss of viability due to the absence of substantial additive effects.

### *MIS Determinations*

- Alternatives 1, 2, and 3 **may impact** individual fine-spotted Snake River cutthroat trout or small parts of their habitat, but would likely not contribute to a loss of viability of populations or the species
- Alternatives 1, 2, and 3 would have **no effect** on rainbow trout because stocking by WGFD has been discontinued, although the species are still present in small numbers in the Snake River.

### *MIS Habitat Restoration Needs*

With respect to changing livestock grazing management practices to allow for the recovery of ground cover on rangelands and retention of large amounts of streambank vegetation, Alternative 2 would provide the fastest recovery rate of the three alternatives, and Alternative 3 provides a framework for allowing sufficient recovery of stream

channels, riparian areas, and ground cover on rangelands to occur with continued cattle grazing. Adjustments to livestock grazing management under Alternative 1 to allow for faster and more consistent recovery of herbaceous vegetation and ground cover would result in the development of an alternative similar to Alternative 3. Including allotment-specific objectives and allowable-use standards for restoring riparian and rangeland vegetation, and retention of herbaceous vegetation, as required by the Forest Plan, would facilitate the recovery process. No additional restoration activities, beyond those outlined in Alternative 3, would be needed.

### **Ability to Meet Forest Plan Direction**

Implementation of Little Greys River allotment management plan using Forest Service Standards and Guidelines (e.g., Alternative 3) would result in no measurable direct or indirect adverse impacts to fine-spotted Snake River cutthroat trout populations. Alternative 2 would best meet Forest Plan objectives for sensitive fish species habitat and populations. Alternatives 1 and 3 would also meet these Forest Plan objectives, although to a lesser extent.

## **Recreation — Big Game Hunting, Dispersed Camping, and Off Highway Vehicle Use**

This report was primarily based on Smith (2009), but information from other sources was also considered.

### **Existing Conditions**

The Little Greys River has been found eligible for Wild or Recreational River status along its full length. The Wyoming Range National Recreation Trail (a 75 mile trail) crosses through the upper reaches of this allotment. Wildlife, particularly big game, is a major attraction and attribute of this watershed. Ease of access contributes to high year-round recreation use. The high quality of the scenery and recreation setting, combined with regionally significant hunting and fishing opportunities, contribute to use that is national in scope. Large areas of relatively undisturbed backcountry that are accessed from parts of this allotment include the northern end of the Wyoming Range, the Middle Ridge, and the divide between the Snake River and Little Greys. The Grayback Roadless Area is the largest primitive setting on the BTNF (over 315,000 acres).

Recreation settings across the allotment run the gamut of the Recreation Opportunity Spectrum, with Roaded Natural settings emphasized along the river corridor. Primitive settings are highlighted in the backcountry, while semi-primitive non-motorized comprises the most acreage, with a semi-primitive motorized corridor at the south end of the allotment (north of Telephone Pass).

Recreation use is on the increase, including both commercial guiding and individual visitation, with user party size also increasing. All available roadside dispersed-camping areas in the drainage (mostly in DFC 12 areas) show signs of camping use, and most of that use is quite heavy, with ground disturbance increasing, and more structures and/or tree impacts occurring. Camping parties are fairly distributed between horse camps and

ATV camps, with some large parties using both options for backcountry access. Backcountry camping is more limited on the allotment, with fewer visitors engaging in multi-day trips away from their motorized camp base. Hikers along the National Recreation Trail seem to be the major exception to that trend, and during hunting season, outfitters do provide some drop camp services in the area, although horses are not generally allowed at those camps overnight. Forest products collection is also a popular activity, with emphasis on firewood collection near open roads.

*Developed Recreation* — Developed Recreation (DFC 9A) is provided at the McCain Guard Station compound, approximately 3 acres, within the Little Greys Allotment. Developed recreation is emphasized over other uses in DFC 9A areas. The guard station is rented to the public through a national website, and is also used for administrative use. The compound encompasses a fenced area surrounding the cabin and an enclosure protecting a small spring which is no longer used or tested for drinking water. Guard station fencing, for visual and historical reasons, is constructed of natural materials. Cattle continually push and scratch on the fencing, which requires ongoing maintenance. When they successfully breach the perimeter fences, impacts occur to structures, for example, the deterioration of stairway handrails and scratching on the outhouse. A separate fenced enclosure offers added protection for the station's propane tank.

The nearby Big Dad spring, within the allotment but not in the DFC 9A area, serviced the drinking water needs for both the guard station and dispersed campers throughout the upper Little Greys drainage until recently. Continued failure of water tests led to posting the spring closed in 2007. The spring is enclosed by a small fence made of native material. The fence suffers ongoing stress from livestock. The enclosure was probably designed smaller than what would be appropriate to guard against the impacts of heavy livestock use and their accumulated excretory matter in the uphill vicinity of the spring. Monthly tests too often showed positive fecal coliform and sometimes positive E. coli results, requiring much effort and expense in repeat testing and public notification.

A request has been put forward to replace the spring development with a centrally-located well and hand-pump system to service both the guard station and dispersed camps in the area, but sufficient funding is not available. With no water available for McCain Guard Station, it earns only \$30/night rather than the \$40/night rental fees that are charged at other district cabins. The district receives 95% of the rental fees under the recent Federal Lands Recreation Enhancement Act, so this loss of income directly affects the local economy in terms of District office funding.

*Dispersed Recreation* — Dispersed recreation is one of the uses that are emphasized in DFC 12 areas, along with big game habitat and big game hunting opportunities. Dispersed recreation, including dispersed camping, is common along the Little Greys River Road within DFC 12 areas of the allotment. Outfitter-guide activities are priority uses in DFC 12 parts of the allotment, both for summer backcountry horseback trips and hunting trips in the spring and fall. Winter outfitters do not currently utilize any parts of the project area.

Dispersed recreation, including much roadside use, is part of the mix of managed uses in DFC 1B areas of this allotment, although it is not emphasized to the degree that livestock

grazing use is emphasized in this DFC. Also, little dispersed camping takes place in DFC 1B parts of the allotment.

Frissell Classification System ratings for dispersed site impacts should be at Class 3 or better. Rehabilitation measures, including potential closures, are triggered for any sites with Class 2 or lower. Cattle concentrations in many dispersed camp sites are contributing to downward trends. (Under this system, cattle would need to be excluded from selected dispersed sites.) In many cases, recreationists pack in horse feed for their visit because negligible amounts of feed are available at many dispersed campsites along the Little Greys River Road corridor. Cattle grazing, as well as reduced plant vigor and altered species composition, contribute to lack of forage for horses, thereby contributing to an additional expense to recreationists.

An additional impact of livestock grazing at present on dispersed recreation opportunities is the effect of cattle trails across the landscape. Some of these trails appear to encourage motorized users to operate off designated routes. Signage and barrier placement has met with only limited success. This is partly because livestock many times use available posts for scratching, which can result in broken or leaning (and ineffective) signs. This contributes to the problem of signs being stolen, run over, and/or defaced.

*Outfitting* — Outfitter camps in the allotment area include the Little Greys Camp near the end of the Little Greys Road. The Waterdog Lake Camp, at the base of Grayback Ridge, is just north of the allotment. Cattle can frequently be seen in and around the camp facilities at the Little Greys Camp. Impacts include knocking over structures and defecation in the camp site. Nonetheless, outfitters have, for the most part, been operating without major conflict with the cattle operations. Cattle generally do not access or adversely affect the Waterdog Lake area.

Outfitters at both camps are authorized for summer horseback riding, including both day-use trips either from camp or from town and progressive overnight pack trips. The outfitters are restricted from any horse grazing use at present. They are required to pack in all horse feed for their operations. This resulted from an earlier, district-wide decision made to prioritize forage needs of livestock permittees, but is not consistent with direction for DFC 12 areas. This increases costs to outfitters.

### **Direct and Indirect Effects**

#### *Alternative 1 (Current Management)*

Under Alternative 1, existing conditions would continue forward, as summarized below.

*Developed Recreation* — Potential impacts of continued livestock grazing under current management would continue to include direct effects of cattle on fencing around the McCain Guard Station and outhouse as has occurred in the past. Customer safety and customer service would continue to be a potential issue.

Continued cattle grazing under current management would continue to damage the fence surrounding the Big Dad Spring and would continue to be a potential source of contamination of the spring. There is no indication that fecal coliform and E. coli contamination would not continue. Therefore, continued livestock grazing use would continue to be a contributing factor to the reduced rental rate of the McCain Guard Station and reduced funds for maintaining the cabin.

*Dispersed Recreation* — Under Alternative 1, cattle grazing use would continue to contribute to adverse impacts to dispersed camp sites, including ground disturbance and reductions in and loss of vegetation, impacts to trees and shrubs, accumulations of cattle excrement. (Most of these effects occur in the Neck and River pastures, which is only scheduled for use in early summer and fall for several days to one week each; however, small numbers of cattle have tended to remain in these pastures for longer periods of time.) Some recreationists would need to continue to pack in horse feed for their visit in part due to cattle grazing in the vicinity of dispersed camp sites, which incurs an additional expense for recreationists. A related indirect effect may include the need to construct fences around selected dispersed camp sites, recognizing that funding shortfalls make this unlikely. Existing pasture fences may affect the recreational experience by some visitors.

Continued cattle grazing use would also maintain cattle trails, which would maintain the possibility of ATVs and other motorized vehicles using these trails across the landscape. Continued use by cattle would mean that road barriers and signs would be insufficient to keep motor vehicles off these trails, and cattle would continue to damage barriers and signs.

Cattle grazing use would also continue to provide a historic perspective on landscape uses. Current management does not appear to be limiting fish populations and, therefore, Alternative 1 would not impact fishing opportunities.

*Outfitters* — Adverse effects of continued cattle grazing to outfitting camps in the allotment would continue. Impacts include knocking over and damaging structures, and defecation in the camping area. No major conflicts would be foreseen. Outfitters would continue to be restricted from grazing their horses, and would continue to be required to pack in all horse feed for their operations, in part due to prioritization of feed for livestock. This negative impact is relatively minor for individual recreationists who typically only bring stock onto the district two or three times each year. The cost to the two outfitters in the area, who keep large numbers of horses at their camps for two months or more, can be a substantial cost to these outfitters (approximately \$3,000 for feed and transportation).

#### *Alternative 2 (No Livestock Grazing)*

*Developed Recreation* — The McCain Guard Station, use of the guard station, and the Big Dad spring would benefit from the lack of cattle grazing use due to reduced damage to fences, structures, less frequent need for fence maintenance, and reduced potential for contamination of the spring.

*Dispersed Recreation* — Dispersed recreationists would benefit from the lack of livestock grazing use due to less soil compaction and vegetation loss, lack of cattle excrement, possibly fewer flying insects, and greater availability of on-site forage for pack and saddle stock. Roadway barriers and signing would likely be more effective as rehabilitation measures than with cattle present. The removal of pasture fences may benefit the experience of some visitors. As cattle trails began to regain vegetation cover, they would attract less interest from off-route motorized users.

Not authorizing cattle grazing would eliminate an important historic perspective on landscape uses (i.e., the culture associated with livestock grazing). Restoration of stream channels may increase fish populations, but would likely be insufficient to result in improved fishing opportunities.

*Outfitters* — Outfitter and guiding operations would benefit from the availability of on-site forage, both near the camp locations and throughout the trail system used for progressive pack trips. Structural integrity of facilities would no longer be impacted, and cattle excrement would no longer be an issue at camp sites.

### *Alternative 3 (Proposed Action)*

*Developed Recreation* — Adverse effects of cattle grazing use on McCain Guard Station and Big Dad Spring would be much the same as they would be under Alternative 1.

*Dispersed Recreation* — Dispersed recreation, including dispersed camping along open roads and trail use, would experience much the same impact under Alternative 3 as would occur under Alternative 1. Additional impacts would include the addition of new fences that may affect some visitors. For example, horseback riders may need to dismount to open and close gates in additional areas. For people on foot, primarily anglers, the electric fences would provide no obstacle. Motorized recreation is currently restricted to designated routes, which would not be effected.

Cattle grazing use would continue to provide a historic perspective on landscape uses.

*Outfitters* — Outfitter-guide activities would experience similar impacts under Alternative 3 as would occur under Alternative 1. More careful management of forage use by cattle, including more conservative forage utilization levels, may yield increased opportunity for outfitters to share in the increased productivity of the rangelands within their service area.

### **Cumulative Effects**

Recreation use is on the increase, including both commercial guiding and individual visitation, with user party size also increasing. There are many cumulative factors that contribute to these trends. Besides livestock grazing use and its effects (e.g. damage to fences and developed sites (guard station), contamination of the Big Dad spring, damage to dispersed campsites, lack of forage for horses near dispersed campsites) other factors affect the quality of recreational experiences. Examples include outfitter camps for any individual user, firewood collectors, parking and walking day-use visitors, illegal use by motorized vehicles, defecation by wildlife (Big Dad spring), use by native herbivores, winter weather, aging and natural deterioration of structures and fences, available Forest Service funding, and precipitation levels.

Cattle trails (Alternatives 1 and 3) combine with trends for increased off-road vehicle use to create a plethora of linear bare-ground features. Both cattle trails and routes used by herders and permittees to maintain and construct fences and water developments offer visual attractants to motorized recreationists. These increase the potential for erosion, soil loss, silting in streams, and other effects that may contribute to degraded fishing and hunting opportunities, as well as a degraded visual resource for summer visitors. The Forest Plan revision process presently underway is expected to yield some potential standards to assist in that process. The Motorized Vehicle Use Maps required under the

2005 OHV Rule will be printed in 2009, which will further define some currently open trails by vehicle size class (i.e., motorbikes versus 4-wheelers). Refilling the Law Enforcement Officer position at the Greys River Ranger District would help mitigate unauthorized cross-country motorized use. Completion of travel management planning has the potential to further address problems associated with motorized trail use.

Current concentration of cattle along the roaded river corridor combines with heavy camp trailer use, increasing impacts such as ground compaction and loss of vegetation, potentially yielding a decreased ability of the area to provide forage and cover as necessary for wildlife, livestock, and recreation.

Outfitter-guide operations rely on a healthy and resilient natural system to provide the attractions that bring clients to them, and cattle grazing use (Alternatives 1 and 3) provides a historic perspective on landscape uses. Under Alternative 3, the river corridor may be more able to withstand ongoing increases in recreation levels without resource damage.

One outfitter has included in his potential operations the concept of hosted dude 'herding' trips which he expected to organize in collaboration with livestock permittees. He has not successfully built that collaboration. Instead, the livestock permittee has recently requested information about starting such an operation as a new recreation venture. A potential negative cumulative impact of Alternative 2 would be the loss of opportunity to engage in the as-yet-untried activity of a 'dude herding' experience for clients.

### **Mitigation Measures**

Increasing the size of the enclosure at Big Dad Spring and creating fresh, stout fences there would potentially decrease the negative impact of continued livestock grazing around this recreation resource. If this mitigation were to occur, recreation staff could return to monthly testing to monitor the safety of the restored water supply. Adding maintenance of this fence and the perimeter fence at McCain Guard Station to the permittees' maintenance responsibility should be considered.

Continued monitoring of dispersed site conditions and trends in use as documented on patrol logs will help determine if additional regulatory or educational mitigation measures may be needed. Ratings of Class 2 or lower for dispersed campsites (under the Frissell Classification System) would trigger rehabilitation measures, including potential closure of particular sites. Any closures would require fencing to exclude cattle, above-and-beyond road barrier and signage to keep members of the public out. Fencing is also an option for keeping cattle out of particular camping areas being used by the public.

Provisions for garbage removal from camps should be strengthened and clarified. Any garbage, animal feed or human food/drink which can be wildlife attractants should be kept unavailable whenever camp is not attended. This will improve safety for wildlife and for other recreation visitors to the forest.

Alternative 3 includes the potential construction of additional fences and/or water developments, which might entail some authorized driving of motor vehicles in otherwise closed areas or routes. The authorization for such activities should be in writing and approved on no more than an annual basis. In any case where this occurs, rehabilitation

of the route used must remove any visual indication of driving and may require barricades in order to avoid further proliferation of unauthorized motorized use.

## Summary of Determinations

### *Potential Effects*

Alternatives 1 and 3 would continue to contribute to positive experiences some visitors viewing livestock grazing as an important part of the culture of National Forest System lands. These alternatives would have localized adverse effects on several elements of recreation facilities and opportunities, including the guard station facility, Big Dad Spring, dispersed camp sites, fences to maneuver, outfitting facilities, reduced feed for horses (public and outfitting) in the vicinity of camp sites, and aesthetics (for members of the public not wanting to see livestock in natural settings).

Alternative 2 would discontinue to the localized adverse effects of Alternative 1. However, the discontinuation of cattle grazing on the allotment would be an adverse effect for some visitors (e.g., those viewing livestock grazing in a positive manner).

### *Ability to Meet Forest Plan Direction*

- Under Alternatives 1 and 3, livestock grazing use would limit the achievement of Forest Plan Objectives 1.1(e), 2.2(a), 2.3(a), and 4.7(c), and the Dispersed Camp Site Condition Standard to some extent in DFC 12 areas, but the objectives and standard would be met in DFC 12 areas if cattle do not remain in the Neck and River Pastures after cattle are moved to the four main pastures. Mitigation measures would further assist in meeting Forest Plan direction. While the longer grazing period in DFC 1B areas may contribute to a reduced potential for meeting Forest Plan objectives, this DFC area emphasizes livestock grazing over dispersed recreation and allows for a higher level of livestock related impacts. Alternative 3 may meet these objectives and standard to a larger extent given the more restrictive forage utilization limits.
- Alternative 2 would not present any constraints to achieving Forest Plan Objectives 1.1(e), 2.2(a), 2.3(a), and 4.7(c), and the Dispersed Camp Site Condition Standard.