ISSUE 35: SNAGS/DOWN WOODY DEBRIS

Changes from the Draft to the Final EIS

There were no major changes between Draft and Final EIS. Minor editorial changes were made, including reference to proposed programmatic direction.

Introduction

This section addresses the potential effects the Travel Plan alternatives may have on snags and down woody habitat. Snags, or standing dead trees, are recognized as a vital component of habitat for many wildlife species and a normal and necessary part of forested landscapes (Thomas 1979, Ganey 1999, Harris 1999, Duncan 2002, Laudenslayer et al. 2002, Hillis et al. 2003). Dead trees are created through events such as fire, insect attack or wind throw. Snags that have undergone considerable decay are easy to excavate and are inhabited by insects, thus providing nesting and foraging habitat to meet a variety of behavioral and physiological needs for a variety of wildlife species. These include primary excavators such as woodpeckers, secondary cavity nesters such as chickadees and bluebirds, and mammals such as squirrels, bats, black bears, and American marten.

Snags are also important to wildlife once they fall and become down logs. Down logs provide habitat including foraging sites, hiding and thermal cover, denning, nesting, and travel corridors for a variety of species (Rose et al. 2001). Amphibians, reptiles, birds, and mammals use logs as escape cover, shelter, and foraging areas. As down logs further decay, they play an important role in nutrient cycling, soil fertility and erosion control, among other functions (Maser et al. 1979).

Roads can negatively affect snag and log habitat, directly and indirectly. Direct effects to snag and down logs habitat occur when habitat is converted to non-habitat through road construction (Reed et al. 1996, Hann et al. 1997, Trombulak and Frissell 2000). There are no direct effects on snags and down logs, since new road or trail construction is not a part of any of the alternatives. One of the factors indirectly affecting the availability of snags is increased access by firewood cutters (Harris 1999; Bate and Wisdom, in preparation).

Discussion

The vegetation communities in the travel planning areas (TPAs) may be categorized as dry Douglas fir, mixed lodgepole pine/ Douglas fir forest, and cool lodgepole or spruce-fir forests, which differ in their ability to produce snags making snag density variable across the landscape. Similarly, the amount of down logs and woody debris is generally low in warm, dry forests and much higher in cool, moist forests. The snag and down woody debris component is currently lacking in areas that recently experienced moderate and high intensity wildfires.

Snag and down log occurrence in the TPAs is not only dependent on historic fire regimes, but also on management activities such as fire suppression, timber harvest, hazard tree removal, and firewood removal that have led to snag attrition. The primary impact of travel management would be the access available to fuel wood gatherers. There is no evidence of a threshold of how many

snags are adequate to maintain viable populations across landscapes. However, for the purposes of this travel plan analysis, the focus was on the presence of the roads and trails themselves that leave snags accessible for firewood gathering.

The effects of the existing transportation system were analyzed for the snag resource. This was determined by modeling for total available snag habitat, buffering the roads and motorized trails by 200 meters and 50 meters, respectively, to identify where routes overlap available snag habitat, and determining acres and percent of snag habitat impacted by roads and trails. Additional information regarding the modeling methodology and assumptions is located in the project file. These indirect effects will be displayed as number of acres and percentage of total snag habitat potentially lost due to firewood gathering along roads.

General Effects

This section addresses the potential effects that the existing Travel Plan (Alternative 1) may have on snag and down woody habitat; it would have the greatest effect by virtue of the initial direct loss of snags due to road and trail construction and subsequent access to firewood that has already occurred. In addition, Alternative 1 also does not designate routes such that firewood could be retrieved from any site physically accessible. New road and trail construction directly reduced habitat based on the amount of vegetation removal necessary to meet standards for construction. Non-motorized trail construction also has standards for vegetation removal, but more flexibility to avoid snags and other landscape features desired for retention. All other alternatives would have similar effects as the amount of motorized route miles stays somewhat constant and they include proposed actions that may locally magnify effects directly through additional routes through forested habitat and indirectly through increased access for firewood harvest. Any future road relocation or construction that might remove snag and down logs directly is not a part of this proposal and additional NEPA analysis would have to be completed for any newly constructed routes.

Indirectly, roads negatively impact snags and down logs by providing access for firewood retrieval (Hann et al. 1997, Hamann et al. 1999, Bate and Wisdom, in preparation). Loss of snags means loss of nesting, roosting, foraging, hiding and thermal cover. Bate and Wisdom (in preparation) found only a third as many snags near roads when comparing snags in roaded to un-roaded landscapes. In general, snag and log density increased with increasing distance to the nearest road. They concluded that ease of firewood cutting is the most likely explanation for reduced snag density near roads. Similarly, effects on down logs are also the result of snag attrition and firewood removal. Loss of down logs includes loss of foraging sites, hiding and thermal cover, denning, nesting, travel corridors and vantage points for predator avoidance. Additional effects include removal of snags or down log through timber harvest, hazardous fuel treatment, fire suppression, or wildfire.

The following table groups TPAs according to their numerical ranking of percentages of lost snag habitat and provides a relative magnitude of effect. The relative rating of effect (Very High, High, Moderate, Low, Very Low) is a means to display groups of TPAs with similar effects analysis results and does not correlate to irretrievable adverse effects.

Table 4.35. 1 Lost snag habitat; grouped TPAs and relative magnitude of effect.

Travel Plan Areas	Percent Impact Range	Relative Rating of Effect
Bangtails, Bridger Canyon, Hebgen Lake Basin, Hyalite, South Plateau	35-45	Very High
Bear Canyon, Fairy Lake, Gallatin Roaded, Gardiner Basin, Ibex, Shields, Yellowstone	26-33	High
Deer Creeks, Lionhead, North Bridgers, West Bridgers South	18-23	Moderate
Big Sky, Bozeman Creek, Cabin Creek, Cherry Creek, Cooke City, East Boulder, East Crazies, Gallatin Crest, Mill Creek, Mission Creek, Porcupine Buffalo Horn, Taylor Fork, Tom Miner Rock, West Bridgers North	10-16	Low
AB Beartooth Plateau, A-B Wilderness, Gallatin River Canyon, LM Wilderness Hilgards, L-M Wilderness Monument, LM Wilderness Spanish Peaks, Main Boulder, Sawtooth, Yankee Jim Canyon	0-8	Very Low

Further loss of snag habitat may occur if not abated. Alternatives 2 through 7-M provide some management direction that will minimize impacts to snag habitat from firewood removal through the adoption of programmatic direction which allows wheeled vehicles cross-country travel only in designated firewood gathering areas. Direction for snag management is outlined in Snag Management Direction, Amendment No. 15 to the Gallatin Forest Plan. The direction provides numerical standards to be followed and includes one objective that specifically addresses firewood removal. Objective A2 states: *"Protect snags, purposely retained for wildlife use, from loss to firewood cutting. Emphasize snag retention in areas away from easy access for firewood cutting."* (USDA 1987). Direction can also be found in the Northern Region Snag Management Protocol (2000), which provides further guidance at the landscape level. Additional efforts to mitigate these potential impacts may be identified in the future, apart from the travel plan process.