Knott Ranch Salvage Sale
Comment Content Analysis

Introduction

A scoping letter and notice of opportunity to comment on a proposal for the Knott Ranch Salvage Sale was mailed to 38 potentially interested parties on December 26, 2006. In addition, a legal notice was published in the Delta County Independent on January 3, 2007. Two comment letters and one phone call were received, shown in the following table. Each comment has been reviewed. Summaries of comments are presented below. Each specific comment is given two numbers. The first number refers to the "letter" (including one phone call), while the second number refers to the specific comment made. A response is provided after each comment summary. The full text of each letter, and notes from the phone call, are located in the project record.

Agencies, Individuals or Organizations Providing Comments on the Proposed Knott Ranch Salvage Sale		
Respondent	**Organization (if applicable)**	**Letter Number**
Harold & Jo Cunningham	Grazing Permittees	1
Rob Peters	Western Slope Environmental Resource Council	2
Ryan Bidwell	Colorado Wild	3
Dan Morse	High Country Citizens' Alliance	

General Comments

Comment (1-1): "Sounds good to us."

Response: The Responsible Official will consider this opinion of the proposed action when reaching a final decision.

Comment (3-14): "The GMUG NF is using … blowdown … as an excuse for further commercial logging."

Response: The purpose and need for the commercial timber sale is stated in the scoping letter (page 2) and decision memo (page 1).

Previous Management Activities

Comment (2-1): Could future green timber sales be designed to avoid subsequent blowdown?
(3-1): Timber harvest leads to an increased incidence of blowdown.

Response: Engelmann spruce is a shallow rooted tree species and is vulnerable to windthrow. Designing timber sales to reduce post-sale windthrow has long been an objective of the USDA Forest Service. For example, the booklet "Silviculture of Spruce-Fir Forests," by W.D. Shepperd and R.R. Alexander, published in 1983, describes various harvest techniques based on stand structure and wind risk. Initial harvest entries into spruce/fir forests are designed to remove only 20 to 40 percent of the standing basal

area to minimize wind damage. Topographic position, prevailing wind direction, and stand density are used to determine what percent of basal area to remove.

Even when only a small amount of basal area is removed, it is not unusual to have minor amounts of blowdown occur within 5 years after a timber sale is completed. Residual trees become more windfirm following a timber sale as they respond to increased movement by increasing diameter growth close to the ground. In the case of the Knott Ranch Timber Sale, more than a minor amount of blowdown was caused by strong winds soon after logging was completed. In addition, the ground was saturated at the time of the windstorm, and not covered with snow, so the roots had less resistance than usual.

Field observations indicate the blowdown at Knott Ranch was concentrated at intersections of skid trails with temporary roads. Additional requirements have been implemented in recent green sales to limit the impacts of skid trails.

Project Effectiveness

Comment (3-2): Can the Forest Service implement the proposed sale prior to completion of the beetles' breeding cycle? If the sale is not timed right, then the proposed sale would not be effective at meeting the purpose and need of protecting adjacent healthy forest.

Response: Compared to other common forest bark beetles, the spruce bark beetle has a long breeding cycle. Two years are generally required for the spruce beetle to complete its life cycle. Adult spruce beetles attack freshly downed trees in June and July. The larval stage generally dominates during the first winter. The larvae pupate approximately one year after attack. During the second year of the life cycle, the pupae develop into pre-mature adults. New adults either overwinter in their pupal sites or move to the base of standing trees. The following summer, adults emerge from overwintering sites and attack new host material. This long breeding cycle gives forest managers some flexibility in detecting and removing infested trees prior to the next generation of beetles emerging from downed trees.

The trees blown down in October 2005 would have attracted adult beetles in June 2006. These beetles' offspring will fly in June 2008. Field observations in August 2007 found a moderate amount of fresh blowdown within the same areas as the original blowdown. These fresh trees will absorb most of the beetles flying in June 2008. Adult beetles from the fresh trees will fly in June 2010. The proposed salvage sale is expected to be completed in 2008 or 2009. Beetles will be removed with trees infested within two years of removal. Even though the sale has been delayed from the original proposal, the sale will still meet the purpose and need of protecting adjacent healthy forest. The other three purposes identified for the sale will also still be met.

Comment (3-3): If this sale does not treat the total blowdown in the area, it will not be effective at meeting the purpose and need of protecting adjacent healthy forest.

Response: Surveys were performed in 2006 and 2007. Some scattered blowdown was identified outside the proposed Knott Ranch Salvage area, but no concentrations of spruce blowdown were found on the Black Mesa outside of the proposed salvage area.

When populations build up from a large amount of blowdown, and when standing trees are drought-stressed, large numbers of green trees may be killed by beetles. The proposed Knott Ranch Salvage area presents the highest known risk of spruce beetle population build-up on the Black Mesa due to the concentrations of blowdown present. In areas with small amounts of blowdown, it is neither necessary

nor desired to remove every down tree from the forest to protect green standing trees. Spruce beetles are native insects, and their populations are normally controlled by predators such as woodpeckers and wasps, harsh winter weather, and pitch-outs from healthy green trees.

Comment (3-4): Logging could "exacerbate beetle infestation if large cull sections are left on the ground, or if logging results in still additional blowdown in the future."

Response: The purchaser will be required to either cut cull material greater than 8 inches into 18 inch pieces, or peel the bark on two sides, in order to dry the cambium, or to pile large cull material for later burning by the Forest Service.

Salvage of down, standing dead, and dying trees is not anticipated to increase the risk of future blowdown.

Comment (3-12): There is only a "minor chance that beetle infestation will occur and spread widely."

Response: Wind-thrown spruce trees are the most favorable habitat for the spruce bark beetle (Holsten et al. 1999). An increase in suitable spruce beetle habitat can result in a dramatic increase in their population numbers. Most outbreaks of spruce beetle in standing spruce trees originate in windthrown trees (Holsten et al. 1999).

The increasing population of spruce beetles may change from endemic to epidemic status, particularly if the surrounding stands are densely stocked, mature to over-mature, stands of almost pure spruce. The large numbers of beetles emerging from downed spruce are able to overwhelm adjacent trees as the beetle population reaches epidemic levels. Once epidemic populations develop, they are extremely difficult to control and substantial amounts of tree mortality can result, altering species composition and stand structures. The potential for an epidemic to develop is based on physiographic location, tree diameter, basal area, and percentage of spruce in the canopy (Schmid and Frye 1976).

Based on field reconnaissance of the Knott Ranch salvage area, surrounding stands are moderately susceptible. Due to active timber management while the area was part of the Black Mesa Experimental Forest, stands tended to have multi-age structures even before the recent Knott Ranch timber sale. The majority of the timber stands are mature spruce, but densities are moderate and young growth is present.

Despite factors that create a high potential for spruce beetle outbreak, an epidemic is not inevitable. Weather conditions influence the build-up of spruce beetle populations. Recent weather conditions in southwest Colorado have been conducive to increasing beetle populations due to drought conditions and mild winter temperatures. While some relief from drought conditions occurred in 2005, it is unknown whether a long-term weather pattern of more normal precipitation and temperatures will develop over the area. Even under normal weather patterns, the precipitation and temperature regimes may not be severe enough to affect developing spruce beetle populations. Weather unfavorable to beetle development would be either a sudden, sharp drop in temperature in the early fall or late spring or a period of intensely cold weather. Extended temperatures around negative 35 degrees Fahrenheit during the winter are necessary to significantly reduce spruce beetle populations.

If adequate downed host material exists, endemic spruce beetle population levels take advantage of the available host material, surrounding forest stands have susceptible structures, and weather conditions are mild, a spruce beetle outbreak is likely. Although most spruce beetle activity is restricted to individual

stands, at times entire watersheds can be affected and occasionally huge areas can suffer from widespread mortality.

It is our professional judgment that the blowdown in the Knott Ranch project area poses a minor chance of widespread mortality, and a moderate chance of localized mortality, in surrounding stands of mature spruce trees.

Beetles and Blowdown are part of Natural Ecosystem Processes

Comment (3-5): "a small patch of beetle infestation might be desirable and could assist in creating a diverse forest containing patches of age class and structural diversity."

Response: While spruce beetle outbreaks can be considered "natural" events, when they conflict with human goals and desires they can be viewed as undesirable. Since spruce beetles are an integral part of the dynamics of spruce stands it would be unwise and impractical to consider eradicating them. However, it may be desirable and practical to attempt to reduce the scale and duration of spruce beetle outbreaks prior to their occurrence. Once a full-blown outbreak is underway, there is very little that can be done to affect it.

The forest on the Black Mesa is currently diverse in terms of age class and structural diversity. When spruce beetles attack live trees, they tend to kill the largest, oldest trees. A spruce beetle outbreak in mature spruce on the Black Mesa would have the effect of decreasing age class and structural diversity because the oldest and largest age class would be removed. Subalpine fir and aspen are shorter lived than spruce, so they would not substitute for large, old spruce.

Comment (3-6): Because Colorado's spruce-fir forests remain within their natural range of variability, there is no reason to manage them.

Response: The 1991 GMUG Forest Plan identified these lands as suitable for timber production, with a management emphasis of wood fiber production on the majority of the project, and a management emphasis of livestock grazing on the southernmost part of the project. In addition, GMUG Forest Plan goals (Forest Plan pages III-3 and III-4) include "utilize the commercial timber sales program to help decrease the risk of insect and disease infestations" and "prevent and control insect and disease infestations."

The response to comment 3-5 applies here as well.

Comment (3-7): The GMUG NF is exaggerating the severity of wind events. Characterizing the October 2005 wind event as "severe" tends to mislead the public as to normal ecosystem processes. Anderson Reservoir Salvage Sale, Corral Gulch Blowdown Project, Big Creek Reservoir Salvage Sale, and Ward Lake Vegetation Management Project all cited "severe" wind events.

Response: The October 2005 wind event created swaths of blowdown in the Ward Lake area on the Grand Mesa, caused the Knott Ranch blowdown, and created blowdown on other lands in southwest Colorado. Anderson Reservoir Salvage Sale and Corral Gulch Blowdown Project experienced regional windstorms in 2002 and 2003. Big Creek Reservoir experienced a strong localized wind on July 27, 2004. Our characterization of the windthrow-producing storms as "unusual," "severe," or "higher than usual" has been meant to separate them from the normally windy conditions common in these areas.

Some of the effects of timber harvesting on blowdown are addressed under comments 2-1 and 3-1 above. Observations of older and recent sales indicate there may be more windthrow occurring in the recent sales. Reasons for this may include increased frequency of strong winds, especially during times when the ground is saturated and not snow covered; wider trails and roads cut by the new mechanized equipment used in the past decade; and aging trees with increased height, self-pruning of lower branches, and flatter crowns all making the trees more vulnerable to windthrow.

Older sales may have been opened to firewood gathering that removed scattered blowdown. Roads in recent sales are closed, making firewood gathering more difficult. At the same time, wood prices have increased, making blowdown more economical to log. Thus, recent green sales may be more likely than older sales to have commercial blowdown removal after the timber sale.

CE Authority

Comment (3-8): The design of the proposal must not be artificially limited to allow use of categorical exclusions (CE's).

Response: The Forest Service was notified in Spring 2006, by a local rancher and by a local logger, that blowdown had occurred within the Knott Ranch Timber Sale. A crew performed a walking survey of the Knott Ranch Timber Sale area along with surrounding timber stands. Results of the survey are located in the project record. Based on the survey and on-the-ground reconnaissance by a silviculturist, tentative boundaries were drawn on a map and acreage calculated. The tentative boundaries represent the maximum acreage of proposed treatment. The actual acreage treated, and actual mileage of temporary roads needed, may be smaller than the proposal. Note that additional on-the ground reconnaissance in 2007 resulted in slight changes to the proposed access routes.

Effects Analysis

Comment (2-2): Will re-opening skid trails and roads set back regeneration?

Response: A minor amount of regeneration is likely to be killed in the proposed re-entry. However, removing windthrow will allow new regeneration where the trees are on the ground. Generally, revegetation of skid trails and roads is with grass and forbs rather than trees. Some of the skid trails have aspen regeneration that sprouted in 2005 through 2007. It is expected that the aspen will sprout again if the current stems are killed. Only a few years of growth will be lost compared to a 80 to 100 year age at maturity.

Comment (2-3): Will re-opening skid trails and roads perpetuate wind risk?

Response: The initial removal of mature trees to create the skid trails and roads increased the wind risk to residual trees. Re-using the skid trails and roads will not change the wind risk. Any trees that regenerate in the skid trails and roads will not be tall enough to change wind conditions until they are mature – about 80 years from now.

Comment (3-9): Cumulative impacts to soils, watersheds, wildlife, and other resources, from this project and previous activities, must be considered.

Response: Forest Service Interim Directive No. 1909.15-2003-2 established categorical exclusions (CE's) for limited timber harvest activities of live trees to maintain forest health and improve stand conditions (category #12), salvage dead and dying trees (category #13) and conduct sanitation harvests in response to ongoing insect and disease infestations (category #14). In the development of these CE's for limited timber harvest activities, the Forest Service reviewed the effects of 154 projects nationwide with actions similar to those allowed in the three CE categories. Small timber sales from the Grand Mesa, Uncompahgre and Gunnison National Forests were included in this analysis. A few of the projects reviewed resulted in minor soil disturbance and compaction. A few other projects reviewed showed that a small number of noxious weeds or invasive plants entered the area where trees had been removed. Based upon a post-implementation field review of these projects by professional experts, the responsible officials found that these impacts were within forest plan standards and were not significant in the NEPA context.

Soil and water resources are protected during timber harvest through implementation of Best Management Practices (BMP's), as described in Forest Service Handbook 2409.25 Chapter 2, as well as Forest Plan standards and guidelines. The Knott Ranch Salvage Sale will incorporate these practices into project design.

With regards to wildlife, the Forest Service must ensure that any action authorized is not likely to jeopardize the continued existence of any endangered, threatened, or candidate species, or result in the destruction or adverse modification of designated critical habitat. A Biological Assessment for this project was signed on January 31, 2007. A determination was made that the project "may effect but is not likely to adversely affect" Canada lynx. Cumulative effects were considered, and the wildlife biologist found that "cumulatively, this project is unlikely to contribute towards substantial habitat loss or alteration, or to significant disturbance to" lynx. No other endangered, threatened, or candidate species have the potential to be found in the project area other than incidentally.

A Biological Evaluation (BE) was signed on January 23, 2007. The following effects determinations were made: the project will have "no impact" to wolverine, ferruginous hawk, peregrine falcon, and northern harrier; and, the project "may impact individuals or habitat, but is not likely to contribute to a trend towards federal listing" for pygmy shrew, marten, northern goshawk, boreal owl, flammulated owl, three-toed woodpecker, olive-sided flycatcher, purple martin, boreal toad, and northern leopard frog. The BE also considered effects on management indicator species (MIS). The wildlife biologist found that "the negative effects from this project are of short duration and magnitude and do not result in a substantial Forest-wide decrease in trends, or deter from meeting the MIS objectives in the Forest Plans."

Forest Plan standards and guidelines address structural components for wildlife habitat. Specifically, the GMUG Amended Forest Plan states that 90 – 225 snags per 100 acres and 10 – 20 tons of logs and other down woody material per acre will be maintained on sites (where biologically feasible). These standards and guidelines will apply to the Knott Ranch Salvage Sale.

Comment (3-10): It is inappropriate to combine a unit from Bear Pen Timber Sale, analyzed in the Paonia Small Sales EA, with units resulting from the Knott Ranch Salvage Sale proposal. The cumulative effects of both actions are not adequately considered.

Response: The Decision Notice for the Paonia Small Sales EA, signed in 2002, included salvage of blowdown and beetle-infested trees from the former Bear Pen and Old Timber Sales. Volume was estimated at 0 to 800 CCF per year for five years. The only salvage sale in the former Bear Pen and Old

Timber Sale areas was logged in 2003, with a volume of 33 CCF. The proposed unit is well within the amount of salvage already approved by the Paonia Small Sales Decision Notice.

Existing conditions in the project area, including previous decisions on nearby small salvage sales, were considered by Forest Service specialists in analyzing cumulative effects for the Knott Ranch Salvage Sale.

Whether to combine the Bear Pen and Knott Ranch units into one sale will be an administrative decision. Potential benefits of combining the sales include lower costs of sale preparation and administration; a lower possibility of disturbance to wildlife because the likely single operator will be in the areas sequentially rather than simultaneously; and a lower possibility of recreation conflicts because trucks are likely to be hauling from only one area at a time.

Comment (3-13): The impacts of "reasonably foreseeable future actions," such as additional salvage, should be disclosed.

Response: Additional field reconnaissance was performed in August 2007 to predict how much additional blowdown might be expected. It was observed that the most vulnerable trees have already blown down. Because of this and because residual trees become more windfirm as they add diameter growth at their bases (see the response to comments 2-1 and 3-1), the amount of yearly blowdown is expected to decrease. Future spruce bark beetle mortality is predicted to be low assuming the currently proposed sale is logged in 2008 or 2009. Overall, it is predicted that this will be the only sale needed until the next silvicultural entry. No future sales are scheduled on the Forest 5-year Timber Sale Action Plan.

If a future sale becomes necessary, the appropriate level of environmental analysis will be performed at that time.

Request for Additional Information

Comment (3-11): Maps of windthrow events and of current beetle infestations should be provided.

Response: As stated in the scoping letter, spruce beetle populations on the Black Mesa are currently low. A map of the windthrow survey results is located in the project record.

Literature Cited

Holsten, E.H., R.W. Their, A.S. Munson and K.E. Gibson. 1999. Forest Insect & Disease Leaflet 127: The Spruce Beetle. USDA Forest Service. Washington, D.C.

Schmid, J. M, and R. H. Frye. 1976. Stand Ratings for Spruce Beetles. USDA Forest Service Research Note RM309. Rocky Mountain Forest and Range Experimental Station.