

Wildlife and Fisheries Specialist Report

For the

2007

**Larson II
Timber Sale and Fuel Reduction Project**

Medicine Bow-Routt National Forest
Hahn's Peak/Bears Ears Ranger District

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INTRODUCTION:

This purpose of this report is to describe the effects of the **Larson II Timber Sale and Fuel Reduction Project** on terrestrial and aquatic animal species located in the analysis area. This report will discuss the direct, indirect, and cumulative effects of activities associated with the timber sale and fuels reduction activities specific to terrestrial and aquatic animal species. An additional specialist report specific to Management Indicator Species was also prepared for this project and provides additional detail on the anticipated effects of the project to MIS.

Threatened, endangered, sensitive, proposed, and candidate animal species known or suspected to exist or with potential habitat, are analyzed in the Larson II Timber Sale and Fuel Reduction Project Animal Biological Evaluation (BE) & Animal Biological Assessment (BA) (two separate documents). These documents provide additional information on how implementation of the proposed action would affect TES species occurring on, or with suitable habitat within the analysis area.

A separate Biological Evaluation and Assessment specific to plant species was prepared for this project by the Forest Botanist, John Proctor.

PURPOSE AND NEED

The purpose of the Larson II proposal is to improve forest health conditions, regenerate stands, and reduce hazard fuels within the analysis area. Maintenance and improvement of forested stands growth and vigor in the project area through silvicultural methods is prescribed through the Forest Plan in 5.13 Management Areas. In 7.1 Management Areas hazard fuel reductions are prescribed around the growing residential/forest interface in the project area to reduce potential fire line intensities and provide for safe and effective suppression strategies.

There is a need to work with state and private partners to reduce hazard fuels to develop adequate defensible space, while protecting the scenic values of the area. There is also a need to maintain and improve aspen stand health, to provide roundwood and sawtimber products for sale, to thin overstocked sawtimber stands and release regeneration, and to remove infested and high hazard trees.

DESCRIPTION OF THE ALTERNATIVES

Alternative 1 – No Action

This ‘alternative’ is used as a basis of comparison for this analysis and is required to be analyzed in a NEPA analysis. With this alternative, no management actions are proposed and the alternative represents the existing condition of the area.

Alternative 2 – Proposed Action

The HPBE Ranger District proposes to treat approximately 711 acres of mature and overmature forested stands in the analysis area where the emphasis is to reduce hazard fuels, improve forest health conditions and provide forest products. The proposed action includes hazard fuel vegetation management occurring on approximately 290 acres. This would include shaded fuel breaks (approximately 140 acres) to reduce potential fireline intensities. Aspen maintenance would promote healthy aspen stands which provide natural fuel breaks, and release and weed treatments would remove diseased, poor formed, and stunted trees from previously treated timber

stands to improve growth and vigor, (approximately 89 acres). Canopy density reduction along selected roadsides to create potential fire control lines (approximately 28 acres), and a Christmas tree cutting area (approximately 36 acres). The timber harvest would include selective harvest of approximately 222 acres, overstory removal on approximately 116 acres, and clearcuts of approximately 83 acres.

Alternative 3

Alternative 3 would treat approximately 647 acres of mature and overmature forested stands in the analysis area where the emphasis is to reduce hazard fuels, improve forest health conditions and provide forest products. The proposed action includes hazard fuel vegetation management occurring on approximately 232 acres. This would include shaded fuel breaks (approximately 150 acres), aspen maintenance treatments (approximately 55 acres), canopy density reduction along selected roadsides to create potential fire control lines (approximately 27 acres), and a Christmas tree cutting area of approximately 36 acres. The timber harvest would include selective harvest of approximately 220 acres, overstory removal on approximately 121 acres, and clearcuts of approximately 38 acres. In this alternative the 15 acres of release and weed proposed in unit A was dropped. Approximately 405 acres would be done commercially with approximately 242 acres of non commercial treatments.

Description of Management Actions Associated with Action Alternatives

Hazard fuel treatments include shaded fuelbreaks which may involve mechanically removing or altering the vegetation, whether live or dead, to provide a zone of lessened fuel loading in close proximity to the forest boundary and existing structures. The action typically would be accomplished by hand, using chainsaws for bucking, limbing and felling of small live trees or treating dead and down material. The stand characteristics are typically pole-sized younger lodgepole pine with minor amounts of aspen, spruce and fir. The created slash would either be hand piled for later burning, used as firewood by the public or chipped. Much of the treated live vegetation would be small diameter (< 7" diameter at breast height) trees that may be removed and/or pruned, thus decreasing interlocking crowns and reducing ladder fuel components in the urban interface. The selection criteria for removal of larger trees would be trees diseased, suppressed or in otherwise poor form, balanced with the need to reduce interlocking crowns and ladder fuels.

Downed woody material would be treated similarly in fuel hazard treatment units. The remaining stand may appear more open with visual quality and screening of high consideration. The defensible space treatments would work in conjunction with similar efforts occurring on adjacent private and state lands. Canopy treatments along certain roadways would include thinning along a road corridor to provide additional space between tree canopies to provide a potential fire break. Aspen treatments would include conifer removal and regeneration to promote aspen stands which provide natural fire breaks in the area.

Silvicultural treatments of clearcut, overstory removal, and selective harvest would be used for the Larson II project. Clearcut treated stands are those that have already reached their full growth potential, are decadent or dying, or are heavily infested/infected with insects or disease. Overstory removals typically remove an older overstory with poor form, disease and/or infestations while leaving an already established more advanced regeneration of a desirable tree species. Selective harvesting (shelterwood cuts, salvage and sanitation) is designed to enhance growth, quality, vigor, and composition of the stand between regeneration periods.

Clearcut and Group Selection - Clearcutting involves the harvesting of all trees in a designated area. Group selection is essentially very small 1-3 acre clearcuts. Clearcutting is used primarily to regenerate plant species less tolerant to regeneration in more shaded conditions. Clearcutting will be applied to stands which have either culminated in mean annual increment of growth, have a high infestation of bark beetles or dwarf mistletoe or a low to moderate infestation of dwarf mistletoe but are adjacent to a seedling/sapling stand. Slash treatments may be by any of the following methods: machine pile and burn, machine trampling or roller chopping. Slash treatment is dependent on the density of the stand and the average crown ratio of the trees. Snags and down woody debris would be retained as specified in project design criteria.

Clearcut Fire Salvage Clear-cut fire salvage is a clearcut proposed in an area (unit 27) that burned with high intensity a few years ago.

Aspen Maintenance: Units D, E, G. Aspen maintenance is a fuels treatment prescription that works to achieve retention of aspen stands that are succeeding to conifer. The management action is the cutting of understory conifer species that are growing within the aspen stand.

Canopy Reduction: Units B and C. Canopy reduction is a fuels management prescription that will reduce interlocking crowns through commercial timber harvest.

Overstory Removal (units 2 and 10), **Overstory removal – Conifer** (units 26 and 39) and **Overstory removal – lodgepole** (units 15, 19 and 24): The overstory removal prescription involves the harvesting of a stand's overstory. This prescription is used for stands that have a sufficient amount of regeneration or young trees growing up under an overstory of mature trees. The objective of this prescription is to remove the inhibiting mature overstory trees so that the regenerated understory trees can grow freely. Removing the overstory has the advantages of improving the growth of the residual stand, removing trees susceptible to mountain pine beetle, and reducing the spread of dwarf mistletoe. Slash is typically lopped and scattered.

Overstory removal with a conifer or lodgepole emphasis are designed within stands that are likely dominated by aspen. This action in these stands is likely to encourage the maintenance and regeneration of aspen.

Sanitation Salvage: 4A, 11, 14, 21, 22 and 38. Under this treatment, 20 to 50 percent of the existing overstory in a stand would be cut and removed. This treatment is an intermediate harvest system that consists of 2 connected actions. Salvage is the cutting and removal of dead, dying, currently-infested or deteriorating trees primarily to put the wood to use before it becomes worthless. This method is usually applied to obtain utilization of material and consideration of regeneration or desired stocking levels is not given much attention. Sanitation, is used to harvest insect or disease infested trees before death occurs. The purpose for removing some susceptible trees is to impair beetle spread in the stand by decreasing the availability of suitable brooding habitat. A special emphasis is placed on harvesting lodgepole infested with mistletoe that are adjacent to healthy lodgepole regeneration. The principle aim of this prescription is to create more growing space for retained trees to produce a healthier future stand, while maintaining the existing big tree character. This treatment can also be used to create a more balanced mix of conifer tree species within a stand.

Typically there is no slash treatment in stands that are treated with a sanitation/salvage prescription. This treatment rarely creates as much slash as does a clearcut prescription. Delimbed branches and treetops are left to naturally decompose.

Shaded Fuel Break: Units F, H and I. Shaded fuelbreaks may involve mechanically removing or altering the vegetation, whether live or dead, to provide a zone of lessened fuel loading in close proximity to the forest boundary and existing structures. The action typically would be accomplished by hand, using chainsaws for bucking, limbing and felling of small live trees or treating dead and down material. The created slash would either be hand piled for later burning, used as firewood by the public or chipped. Much of the treated live vegetation would be small diameter (< 7" diameter at breast height) trees that may be removed and/or pruned, thus decreasing interlocking crowns and reducing ladder fuel components in the urban interface. The selection criteria for removal of larger trees would be trees diseased, suppressed or in otherwise poor form, balanced with the need to reduce interlocking crowns and ladder fuels. Downed woody material would be treated similarly in fuel hazard treatment units. The remaining stand may appear more open with visual quality and screening of high consideration.

Shelterwood Preparatory Cut: Units 25 and 31. The objective of this method is to create a new even-aged stand through natural regeneration. Enough of the old stand is retained to provide both seed and a sheltered microclimate during the period of regeneration. There are three steps to this method: preparatory cut, seed cut, and removal cut. In many situations only the seed cut and removal cut are essential to successful implementation of the method. In this preliminary (first) phase of stand regeneration, 25 to 35 percent of existing overstory trees would be felled and removed to promote good seed-bearing qualities of the remaining trees. Along with improving the health of the stand, this step is often prescribed to test wind firmness and not to develop it. It is also often prescribed to avoid the appearance of sudden changes in existing stand conditions. This first entry concentrates on removing trees that are diseased and/or of poor form, leaving the healthiest trees. This treatment would be aimed at forest stands where few pines are infested with beetles. Additionally, this treatment is designed to reduce stand density and thus reduce the likelihood of future attack by MPB or SB. The emphasis for tree cutting in this treatment is to harvest merchantable timber that would be most susceptible to future MPB or SB attack and to leave trees believed to be the most vigorous or resilient. Slash is typically lopped and scattered.

Shelterwood Seed Cut: Units 6, 7, 12, 13, 17 and 18. The seed cutting (second) phase of the shelterwood regeneration system is aimed at getting the new crop of trees established by providing growing space while simultaneously maintaining shelter for developing seedlings. A shelterwood seed cut applies to stands which have an established conifer understory. To accomplish this, approximately 40 to 60 percent of the remaining overstory would be felled and removed with this treatment, retaining healthy lodgepole pines, spruces and other overstory tree species to act as seed source for new regeneration and to protect seedlings. An emphasis is made on harvesting diseased, infested, and trees of poor form. Additionally, this treatment reduces stand density, thus decreasing the likelihood of attack by mountain pine beetle. Along with improving the resiliency of the stand to insects and disease this treatment provides growing space for new and existing regeneration in the understory. Slash is typically lopped and scattered.

Personal Christmas tree Cutting Area: Unit J. This unit was established to encourage the public to assist with the fuels management in this analysis area. Is not clear how much public interest there will be in cutting Christmas trees from this area or how many younger trees may be removed. Typically younger subalpine firs are selected for Christmas trees.

Release and Weed: Unit A (Alternative 2 only). Release and weed management is pre-commercial thinning of a regenerating stand to improve the tree vigor of the remaining trees.

Road Construction: All road construction associated with the Larson II project would be temporary in nature and these roads would be closed and rehabilitated following implementation of commercial harvest operations.

DESCRIPTION OF PROJECT AREA

The analysis area is approximately 6,570 acres and is located in the Sand Mountain Geographic Area, which encompasses approximately 43,971 acres of National Forest System lands on the northwest portion of the HPBE Ranger District. The proposed project is located in T9&10N, R86W, specifically west and southwest of Steamboat Lake State Park and private lands, bounded to the north by Larson Creek, the south by Red Creek, and the west by Diamond Peak. Private residences are scattered along the National Forest Service Road (NFSR) 42, which accesses the project area from the east.

The Larson II Analysis area contains two management areas: 5.13 – Forest Products and 7.1 – Residential/Forest Interface. Additionally there are some private lands within the analysis area. Management actions are not proposed for private lands.

Management Area	Description	Acres
5.13	Forest Products	4891
7.1	Residential/Forest Interface	1000
PVT	Private Lands	679
TOTAL		6570

FOREST PLAN DIRECTION

This section of this report is an evaluation of the action alternatives consistency with direction in the Routt National Forest Land and Resource Management Plan, as amended (USDA Forest Service 1998) as related to wildlife and fisheries.

The action alternatives developed for this project, as described above and designed are consistent with applicable Forest-wide threatened, endangered, sensitive species and wildlife standards and guidelines defined within the *Routt National Forest Land and Resource Management Plan* (USDA Forest Service 1998a). The proposed action is also consistent with the desired conditions for wildlife habitat specific to the management area prescription land allocations and it conforms to the desired wildlife habitat conditions identified for the Sand Mountain geographical areas.

Forest-wide Standards and Guidelines

- TES Standard #1 “Apply seasonal restrictions on use of travelways under Forest Service jurisdiction to reduce disturbance in sensitive big game areas, such as birthing areas and winter ranges. This does not imply that all birthing areas and winter range are considered equally important, and not all will be considered ‘sensitive’”.
 - The alternatives developed for this project do not change seasonal restrictions on NFSR 42 that are in effect from May 1 to July 1 to help protect important elk calving areas, thus design criteria to incorporate this standard are unnecessary for this project. This closure will also help protect nesting sandhill cranes.

- TES Standard #2: “Manage human disturbance at caves and abandoned mines where bat populations exist. When closing mines or caves for safety or protection reasons, reduce disturbance to resident bat populations and provide access for bats”.
 - ☑ The project does not affect caves or abandoned mines where bat populations exist, thus design criteria to incorporate this standard are unnecessary for this project.
- TES Standard #3: “Provide adequate cover to maintain screening, through time, along roads where timber management activities are taking place to minimize disturbance and harassment of deer and elk”.
 - ☑ This project is consistent with this standard. This is clarified in the ‘elk analysis’ associated with this report.
- TES Standard #4 “In areas where tall dense cover is desired for ground-nesting birds, retain adequate residual cover from previous growing seasons since some species begin nesting in April and May before spring growth.
 - ☑ This project does not affect residual cover, thus design criteria to incorporate this standard are unnecessary for this project.
- TES Standard #5 “Some bird species prefer to nest in undisturbed cover. In areas where these species are a primary consideration, manage livestock grazing to avoid adverse impacts to nesting habitat.”
 - ☑ This project does not include livestock grazing that would influence cover, thus design criteria to incorporate this standard are unnecessary for this project.
- TES Standard #6: "Protect known active and inactive raptor nest areas. The extent of protection will be based on proposed management activities, human activities existing before nest establishment, species, topography, vegetative cover, and other factors. A no-disturbance buffer around active nest sites will be required from nest site selection to fledging. Exceptions may occur when animals are adapted to human activity".
 - ☑ Design Criteria to ensure consistency with this standard have been developed for this project.
- TES Standard #7: “Where newly discovered threatened, endangered, proposed, or sensitive species habitat is identified, conduct an analysis to determine if any adjustments in the forest plan are needed.”
 - ☑ No ‘newly discovered’ TEPS habitat has been discovered in the project area, thus an analysis to determine if adjustments to the Forest Plan are needed is not necessary and no design criteria have been developed for this standard for this project.
- TES Standard #8: "Manage activities to avoid disturbance to sensitive species which would result in a trend toward federal listing or loss of population viability."
 - ☑ Design Criteria to ensure consistency with this standard have been developed for this project.
- TES Standard #9: "Avoid disturbing threatened, endangered, and proposed species during breeding, young rearing, or at other times critical to survival by closing areas to activities. Exceptions may occur when animals are adapted to human activity, or the activities are not considered a threat."
 - ☑ No TEP species other than the Canada lynx are anticipated to occur in the project area. The Canada lynx is addressed in the Biological Assessment developed for this project

and that analysis concluded that no design criteria regarding closures of the project areas to operational associated to this project were necessary.

- TES Standard #10: “In forested ecosystems, maintain habitat effectiveness for deer and elk at 50% or greater, as measured at the Geographic Area scale”.
 - ☑ This project is consistent with this standard. This is clarified in the ‘elk analysis’ associated with this report.
- TES Standard #11: “Restrict new developments, including new facilities, roads and trails, and concentrations of humans, within a one-mile sight distance of bighorn sheep lambing and mountain goat kidding areas if they would adversely impact lambing or kidding. Restrictions on activities are usually required from April 1 to June 30”.
 - ☑ No bighorn sheep lambing or mountain goat kidding areas occur in the project area, thus design criteria to incorporate this standard are unnecessary for this project.
- TES Standard #12: “Prevent interaction between bighorn sheep and domestic sheep, where feasible.”
 - ☑ Bighorn sheep do not occur in this project area and this project would not affect interactions between livestock and bighorn sheep, thus design criteria to incorporate this standard are unnecessary for this project.
- TES Guideline #1: “Protect wildlife habitat values when enhancing watchable wildlife opportunities for the public.”
 - ☑ This project does not include enhancing watchable wildlife opportunities, thus design criteria to incorporate this standard are unnecessary for this project.
- Biological Diversity Standard #1: "Develop prescriptions prior to timber harvest to identify the amount, size(s), and distribution of down logs and snags to be left on site, as well as live, green replacement trees for future snags ...".
 - ☑ Design Criteria to ensure consistency with this standard have been developed for this project.
- Biological Diversity Standard #2: "Retain all soft (rotten) snags unless they are a safety hazard".
 - ☑ Design Criteria to ensure consistency with this standard have been developed for this project.
- Biological Diversity Standard #3: "Use genetically local (at the sub-section level), native plant species for revegetation efforts where technically and economically feasible. Use weed-free seed mixtures. Where native perennials are becoming established, nonnative annuals or sterile perennial species may be used to prevent soil erosion".
 - ☑ Design Criteria to ensure consistency with this standard have been developed for this project.
- Biological Diversity Guideline #1: “Maintain aspen, even at the expense of spruce/fir or other late-successional stands”.
 - ☑ This project has been designed to maintain aspen and includes proposed management actions that would regenerate aspen. Additional design criteria are not needed to ensure further consistency with this guideline.

- Silviculture Standard #10: “Leave large woody debris on harvested or thinned sites to help retain moisture, trap soil movement, provide microsites for establishment of forbs, grasses, shrubs and trees, and to provide habitat for wildlife.
 - ☑ Design Criteria to ensure consistency with this standard have been developed for this project.

Geographic Area Direction

- Sand Mountain - Guideline: "In management Areas 5.13, late successional habitats should be provided and well distributed so that individuals of species requiring those habitats can interact with others in the planning area."
 - ☑ Late successional habitats will continue to be provided and well distributed such that species requiring those habitats can interact with others in the planning area. The analysis area is dominated by 3B, 3C and 4B, 4C late successional covertypes (Table 1 of the wildlife specialist report) and the project implementation would not significantly affect this amount or distribution. The American marten represents a species that may be affected by distribution and abundance of late successional habitat. If habitat was inadequate abundance and spatial arrangement for the species, interaction with others on the planning area would be difficult. The Biological Evaluation prepared for this project did not indicate that implementation of an action alternative would prevent the interaction of this species within the analysis area or planning area.

Management Area Direction

5.13 Forest Products Management Area Direction

- Desired condition - "...snags will be scattered throughout the areas."
 - ☑ Design Criteria to ensure consistency with this desired condition have been developed for this project.
- Standard - "Wherever available, retain live trees that are broken at the top, have mechanical damage or genetic defect, to replace snags. At a minimum, retain two live trees to replace each snag."
 - ☑ Design Criteria to ensure consistency with this desired condition have been developed for this project.
- Guideline - "Retain snags in various conditions of decay and distribution. Select trees with a larger-than-average diameter for the stand, when available."
 - ☑ Design Criteria to ensure consistency with this desired condition have been developed for this project.
- Guideline: “Provide a big-game habitat effectiveness level of 50% or greater”.
 - ☑ This project is consistent with this standard. This is clarified in the ‘elk analysis’ associated with this report.

7.1 Residential/Forest Interface

- Guideline – “Discourage public access on areas identified as winter range”.
 - ☑ There are no areas identified as winter range close to the project area, thus design criteria to incorporate this standard are unnecessary for this project.

PROJECT DESIGN CRITERIA

The action alternatives for this project were developed with the inclusion of project design criteria as fundamental and integral to the design of the action alternatives. The Environmental Assessment lists all of the design criteria associated with the action alternatives. Some design criteria developed by other resource specialists also serve to protect the wildlife and fisheries resources, such as the best management practices for watershed and soils protection.

This section briefly described nine design criteria specifically developed for the management and protection of the wildlife and fisheries resources that ensure consistency with the Forest Plan. A complete and detailed description of these design criteria are included Appendix A of this report.

Design Criteria for Snag Retention: Snags are important for many species of wildlife and snag retention is included in the project design to ensure that these important habitat components are retained for the wildlife species that need these structures. The snag retention design criteria that were developed are consistent with the direction provided in the Forest Plan: Biological Diversity Standards 1 and 2 (p. 1-8); 5.11 Vegetation Standard 2 (p.2-40); 5.13 Vegetation Guideline 4 (p. 2-45).

Design Criteria for Live ('Character') Tree Retention: Live tree retention design criteria were developed to ensure that snags will be present on the landscape over the long-term. Live 'character' trees will act as replacement snags to ensure that the important habitat structures provided by snags are maintained over the long-term and available as the new forest developed following management. Additionally, anticipated loss (cutting or natural collapse) of live reserve trees will provide for meeting Forest LRMP standards for retention of coarse woody debris. The live tree retention design criteria was established to ensure consistency with the following Forest Plan direction: Biological Diversity Standards 1 (p. 1-8); 5.11 Vegetation Standard 3 (p.2-40); 5.13 Vegetation Standard 2 (p. 2-45).

Design Criteria for the Protection of Known Goshawk Nest Stands (identified before award of timber sale contract): The protection of known goshawk nest stands is necessary to ensure that this species is not impacted to a degree that may affect its species viability or cause a reduction in the Forest population. A criterion was developed that is specific to goshawks because of this species specific nesting requirements within forested landscapes. This project design criteria was established to ensure consistency with the following Forest Plan direction: TES Standards 6, 7 and 8 (p. 1-14); General Technical Report RM-217; Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992).

Design Criteria for the Protection of Raptor Nesting Sites (identified before award of timber sale contract and all species other than goshawks): The protection of raptor nest sites is critical to maintain raptor populations. This criterion was developed for raptor nesting areas other than those of the northern goshawk. This project design criteria was established to ensure consistency with the following Forest Plan direction: TES Standards 6, 7 and 8 (p. 1-14).

Design Criteria for Raptor Nesting Period Seasonal Restriction in Logging Operations: Because many raptor species are sensitive to disturbance, seasonal restrictions have been developed to reduce disturbance to nesting raptors within the project area. This project design criteria was established to ensure consistency with the following Forest Plan direction: TES Standards 6, 7 and 8 (p. 1-14); General Technical Report RM-217; Management

Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992).

Design Criteria for Monitoring of Goshawk Nest Locations during Implementation: The intent of this criterion is to ensure that if goshawk nest sites change in location from year to year, that those changes are discovered and can be incorporated into consideration and ensure appropriate management changes are made that will avoid unacceptable impacts. This project design criteria was established to ensure consistency with the following Forest Plan direction: TES Standards 6, 7 and 8 (p. 1-14); General Technical Report RM-217; Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992).

Design Criteria for Protection of Newly Discovered Goshawk Nests and other critical TES Habitats/Sites Identified after the Award of the Timber Sale or other Treatment Contract: This project design criteria was established to ensure that critical TES habitats are protected following the award of the timber sale contract. This criteria ensures consistency with the following Forest Plan direction and laws: TES Standards 6, 8 and 9 (p. 1-14); The Endangered Species Act of 1973; Timber sale contracting authorities.

Design Criteria for Conservation of Old-growth Lodgepole Pine: This criteria was established to ensure the maintenance of the unique habitat provided by old-growth lodgepole pine to sensitive wildlife species. This project design criteria was established to ensure consistency with the following Forest Plan direction: Late Successional Forests 1 (p. 3-76); Forest Goal 1 (Ecosystem Management); Objective described at the 6th “bullet” (p. 1-2).

Design Criteria for Conservation of Coarse Woody Debris

Coarse woody debris is an important habitat component for wildlife including several sensitive species. Additionally coarse-woody debris is important for ecosystem function and maintenance of soil and watershed health, which also benefits wildlife and fish species. This project design criteria was established to ensure consistency with the following Forest Plan direction: Biological Diversity Standard 1 (p. 1-8).

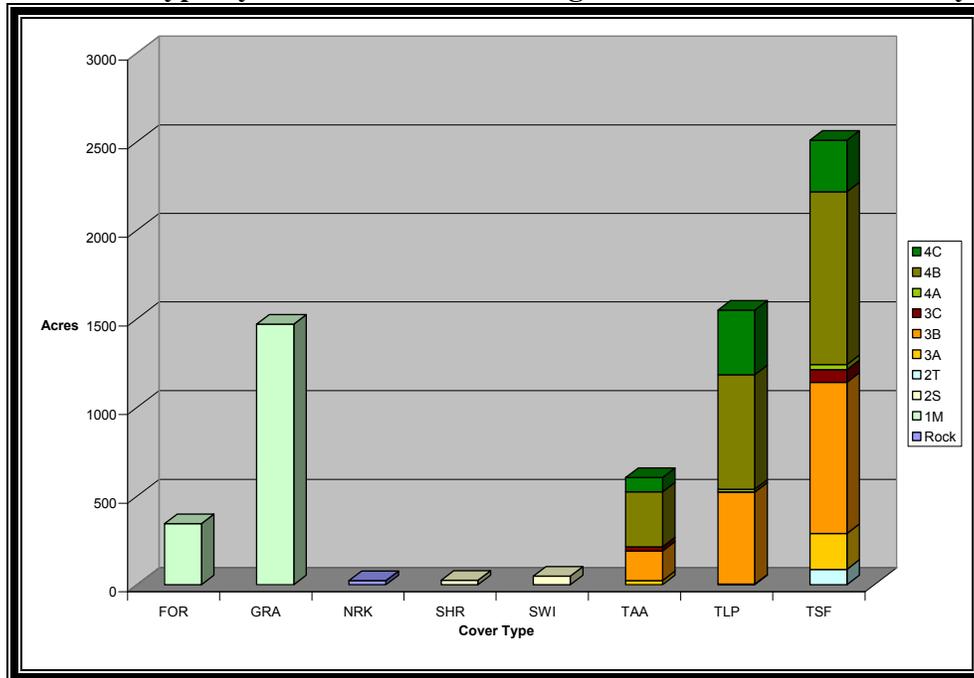
EXISTING CONDITIONS

The Larson II Analysis Area contains covertypes typical of the forested portions of the Routt National Forest. The Forests in the analysis area are dominated by a mix of aspen (TAA), lodgepole pine (TLP) and spruce-fir (TSF). Other designated covertypes found in the analysis area include forbs (FOR), grasses (GRA), rock (NRK), shrub (SHR) and willow (SWI). Table 1 and Figure 1 and Figure 2 provide the summary of the amounts of these covertypes found in the analysis area.

Table 1 - Larson II Analysis Area Acres of Cover Type by Habitat Structural Stage

		<i>1M</i>	<i>2S</i>	<i>2T</i>	<i>3A</i>	<i>3B</i>	<i>3C</i>	<i>4A</i>	<i>4B</i>	<i>4C</i>	<i>TOTAL</i>
<i>FOR</i>	0	344.81	0	0	0	0	0	0	0	0	<i>344.81</i>
<i>GRA</i>	0	1,470.49	0	0	0	0	0	0	0	0	<i>1,470.49</i>
<i>NRK</i>	23.58	0	0	0	0	0	0	0	0	0	<i>23.58</i>
<i>SHR</i>	0	0	23.94	0	0	0	0	0	0	0	<i>23.94</i>
<i>SWI</i>	0	0	47.02	0	0	0	0	0	0	0	<i>47.02</i>
<i>TAA</i>	0	0	0	0	22.23	166.71	23.7	0	310.37	80.99	<i>604</i>
<i>TLP</i>	0	0	0	0	3.6	518.59	0.76	15.77	646.45	363.35	<i>1,548.52</i>
<i>TSF</i>	0	0	0	85.92	202.65	853.43	71.42	27.72	975.32	291.26	<i>2,507.73</i>
<i>Total</i>	<i>23.58</i>	<i>1,815.30</i>	<i>70.96</i>	<i>85.92</i>	<i>228.48</i>	<i>1,538.73</i>	<i>95.89</i>	<i>43.49</i>	<i>1,932.14</i>	<i>735.6</i>	<i>6,570.08</i>

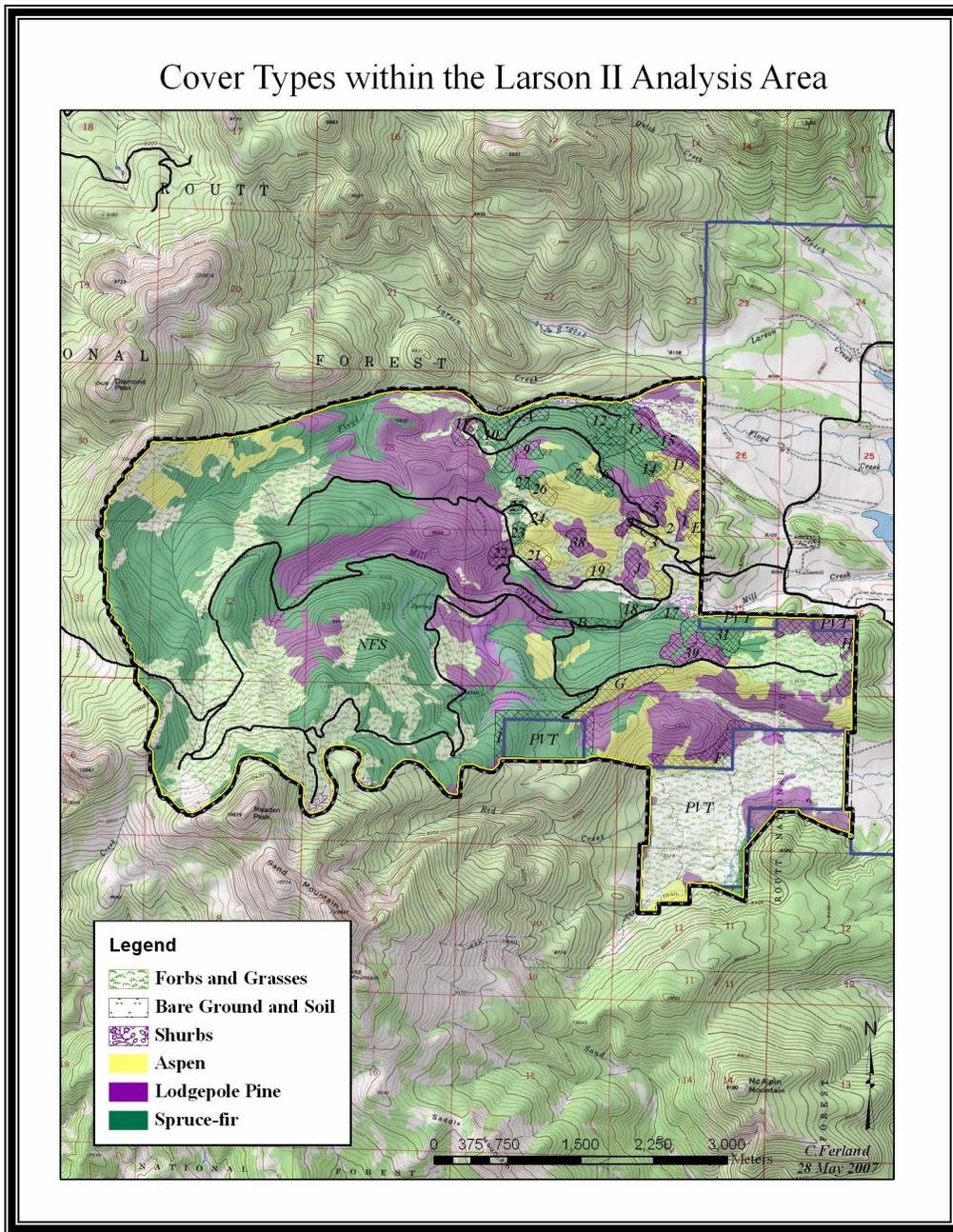
Figure 1 –Cover Type by Habitat Structural Stage within the Larson II Analysis Area



Some timber cutting has occurred in the analysis area in the past, but generally the area has not been managed heavily or entered in recent years. Most of the forest types are generally mature and in size classes 3 & 4. The bulk of the proposed management units in alternatives 2 and 3 are located in lower-elevation portion of the analysis area closer to the Forest boundary. In the analysis area this coincides with a greater relative abundance of the aspen cover type.

Figure 2 displays the general cover types in the analysis area and the alternative 2 units.

Figure 2 – Map of Dominate cover types within the Larson II Analysis Area



Note: units shown on the figure above are for Alternative 2.

Animal species that occur in the covertypes found in the analysis area are typical for those covertypes on the Routt National Forest. A wide range of taxa occur in the analysis area including: mammals, birds, amphibians, fish and probably at least 1 species of reptile.

Mammals: Mammals known to occur in the area include: elk, mule deer, moose, bear, American marten (4 records), snowshoe hare, pine squirrels as well as many other species of smaller mammals (bats, mice, shrews, ..). Elk are a very common large mammal in the analysis area and the area is seasonally managed through the spring closure of NFSR 42 to protect the relatively large elk herds during spring calving.

Birds: Bird species that occur in the area are typical of those occurring in the covertypes found in the analysis area. The Forest Service wildlife database (Fauna database) has 10 records of the greater sandhill crane along with 6 nesting locations for this Colorado species of local concern, 4 records of the golden-crowned kinglet and 1 historic (1983) record of two osprey soaring in the analysis area.

Amphibians: The project area does not offer much amphibian habitat. Amphibians require standing water habitat for breeding. In the project area, standing water habitat would be provided by beaver dams. The streams are rather steep and wooded and thus there are not many beaver dams. The most likely habitat for amphibians is closer to the forest boundary where the gradient is low and willow stands are present.

Amphibian surveys were done in August 2005 by Biological Technicians Lacie Ellsworth, Chrissy Plotner and Merry Waugh. No amphibians were found although the tiger salamander and chorus frog are likely to occur within the analysis area. A review of the Colorado Natural Heritage Program database and Colorado Division of Wildlife Amphibian database identifies chorus frogs and leopard frogs on private land near Steamboat Lake. It is recognized that all amphibian are cryptic species and a one time survey does not confirm or deny presence or absence (Foster 2007).

Fish: Streams in the Larson II project area include Floyd Creek, Mill Creek and Red Creek. Floyd Creek and Mill Creek flow into Steamboat Lake. Red Creek is a tributary to Willow Creek, which is a tributary to the Elk River. Steamboat Lake is routinely stocked with rainbow trout and Snake River cutthroat trout (Foster 2007).

Floyd Creek has had no recent surveys. Information from Colorado Division of Wildlife Database identifies brook trout as the only game fish in Floyd Creek. Mill Creek was sampled in August 2005 by Biological Technicians Lacie Ellsworth, Chrissy Plotner and Merry Waugh. Mill Creek was sampled about ¼ mile upstream from the forest boundary and then about 3 miles upstream from the forest boundary. Brook trout, cutthroat trout and mottled sculpin were sampled at the lower site. Brook trout had a density of 377 fish per mile. Given that Steamboat Lake is stocked with Snake River cutthroat trout it is presumed that the 5 cutthroat sampled in Mill Creek were Snake River subspecies that had migrated from Steamboat Lake. The upper site contained only brook trout with a density of 84 fish per mile. Red Creek has had no recent surveys. Information for the Colorado Division of Wildlife Database identifies brook trout as the only game fish in Red Creek (Foster 2007).

Reptiles: There are no records of reptiles occurring in the analysis area although it is likely that the common garter snake and possibly the smooth green snake occur within the analysis area.

ENVIRONMENTAL CONSEQUENCES

Direct, Indirect, and Cumulative Effects to Wildlife and Fisheries:

This section will discuss the predicted effects of implementing the Larson II Timber Sale and Fuel Reduction Project to the wildlife and fisheries resources. Although this section may touch on threatened, endangered, proposed, candidate or sensitive species (TEPCS), a more detailed discussion on the effects of implementation of the project to TEPCS species please refer to the animal and plant Biological Evaluation and Assessment prepared for this project.

Alternative 1 - No Action:

With the 'no-action' alternative there are no immediate effects to the lands within the analysis area, or to the wildlife or fishery resources. With the current bark beetle epidemics occurring in both the pine and spruce cover type, some mortality of mature conifer species is anticipated. This could increase wildfire potential within the analysis area. Although both bark beetle mortality and wildfire are natural events, they too have the potential for affecting wildlife and fisheries populations. Existing bark beetle mortality is currently occurring at relatively low levels compared to other areas on the Routt National Forest. Although a large scale wildfire is a speculative scenario of the no-action alternative, bark beetle mortality is occurring. While some wildfires are small often they spread rapidly and grow to thousands of acres quickly. An uncontrolled wildfire likely would result in the loss of many nesting and breeding sites of raptors as well as other impacts to threatened, endangered and sensitive species.

Alternatively if these ecosystem disturbance processes do not occur at large scales, then the existing forests would continue to grow and age as they have been for the last several decades.

With 'no-action' there would be no direct effects to wildlife or fisheries resources. Indirect effects may result if a large scale natural disturbance such as a large scale wild fire occurred in the project area. This indirect effect scenario is speculative and the amount of impact would vary depending on the scale of the natural disturbance. There are no cumulative effects anticipated with the 'no-action' alternative.

Alternative 2 (Proposed Action) and Alternative 3:

Fisheries - No impacts; direct, indirect or cumulative are anticipated to the fish species from implementation of the Proposed Action or alternative 3 as the project is designed. Watershed best management practices (BMP's) should adequately protect aquatic species habitat and populations (Foster 2007).

Wildlife

MIS - The MIS analysis prepared for this project indicates that implementation of an action alternative may impact habitat for 2 Routt National Forest Management Indicator Species: the golden-crowned kinglet and the northern goshawk. The action alternatives are anticipated to have no-impact to the other 4 Routt National Forest Management Indicator species (Wilson's warbler, vesper sparrow, brook trout and Colorado River cutthroat trout).

Impacts to the golden-crowned kinglet and northern goshawk from implementation of an action alternative are not anticipated to affect forest-wide population trend. Project design criteria have been established to reduce impacts to the northern goshawk. Impacts to both species habitat are considered within the range of natural variability. Habitats that are affected will recover for these species in the long-term. Impacts are anticipated to be less with Alternative 3 as fewer acres of habitat for goshawks and golden-crowned kinglets would be affected by the project implementation. Please refer to the MIS report prepared for this project for more detail

Sensitive Species

Implementation of the an action alternative “**may impact individuals , but is not expected to cause a trend toward federal listing or a loss of viability**” for the American marten, fringe-tailed myotis, Townsend's big-eared bat, pygmy shrew, boreal owl, flammulated owl, northern goshawk, olive-sided flycatcher, purple martin, American three-toed woodpecker and the boreal toad. Implementation of an action alternative would have “**No Impact**” on all other Region 2 sensitive species. Additional detail on these findings can be found in the Biological Evaluation prepared for this project.

This determination would not differ between alternatives 2 and 3, however the scope of the potential for impact would be reduced in alternative 3.

Threatened and Endangered Species

A Biological Assessment was prepared for federally the listed species for Alternative 3. These findings and determinations are anticipated to be the same for listed species with Alternative 2 for all species except the Canada lynx. The difference between the alternatives for Canada lynx is that Alternative 2 is not consistent with the Canada Lynx Conservation Agreement and Strategy in that it proposes unit A which is release and weed (pre-commercial thinning) of a lynx winter foraging habitat area.

There are no water-depletions associated with this project and thus ‘No Effect’ to the endangered river fishes of the Platte and Colorado River basins is anticipated. Bald eagles may soar over the analysis area, but the analysis area and the associated management actions are not anticipated to effect bald eagles or any habitat that this species may use. Canada lynx habitat exists in the

project area and would be affected by implementation of an Alternative. Please refer to the Biological Assessment prepared for this project for additional detail regarding the project's effects to threatened and endangered species.

- Bald Eagle – No Effect
- Canada Lynx –
 - May Affect, Likely to Adversely Affect (Alternative 2)
 - May Affect, Not Likely to Adversely Affect (Alternative 3)
- Bonnettail – No Effect
- Colorado Pikeminnow – No Effect
- Razorback sucker – No Effect
- Humpback chub – No Effect
- Pallid sturgeon – No Effect
- Yellow-billed cuckoo – No Impact (Biological Evaluation determination)
- Botrychium linare – “May adversely affect individuals but is not likely to result in a loss of viability on the planning area, nor cause a trend towards Federal Listing or a loss of Species Viability” (Biological Evaluation determination)

Raptors

The Routt National Forest Plan clarifies that all raptor nest sites should be protected. Field surveys did not result in the detection of any nesting raptors. Project design criteria have been developed to ensure protection of raptor nest areas and thus raptor nest sites will be protected in both alternative 2 and 3. There is no difference between the alternatives in regards to the protection of raptor nest sites.

- TES Standard #6: "Protect known active and inactive raptor nest areas. The extent of protection will be based on proposed management activities, human activities existing before nest establishment, species, topography, vegetative cover, and other factors. A no-disturbance buffer around active nest sites will be required from nest site selection to fledging. Exceptions may occur when animals are adapted to human activity".
 - Design Criteria to ensure consistency with this standard have been developed for this project.

Elk

The Larson II Timber Sale and Fuel Reduction Project has the potential to affect elk summer range in the analysis area. The alternatives developed for this project do not change seasonal restrictions on NFSR 42 that are in effect from May 1 to July 1 to help protect important elk calving areas, thus design criteria to incorporate TES standard #1 are unnecessary for this project. This project is consistent with this standard

TES Standard #3 states: “Provide adequate cover to maintain screening, through time, along roads where timber management activities are taking place to minimize disturbance and harassment of deer and elk”. Both alternatives for this project are consistent with this standard. Although there are timber management actions occurring along roads, much of the activity would occur off of road system NFSR 481 and NFSR 482 which are currently gated closed to the

public. These existing gates would be maintained following implementation to minimize disturbance and harassment to deer and elk. Harassment to deer and elk would be eliminated between May 1 and July 1 during the calving period on all the rest of the areas through the seasonal closure of NFSR 42. Some areas along roads would be managed that may affect hiding cover, however with the relatively low road density in this geographic area this is not anticipated to affect hiding cover such that it would not be adequately maintained through time.

TES Standard #10 states: “In forested ecosystems, maintain habitat effectiveness for deer and elk at 50% or greater, as measured at the Geographic Area scale” and 5.13 guideline states “Provide a big-game habitat effectiveness level of 50% or greater”. Elk habitat effectiveness is driven by changes in the hiding cover index as well as the road density index. The road density index applies to roads open to the general public. The action alternative will not result in an increased open road density within the geographic area and thus changes to the road density index would not occur. Since the hiding cover index is driven by the structural stages of the forest cover types. Actions that affect the habitat structural stages (timber and fuels management) will affect hiding cover. Since there has been very little recent vegetation management in the Sand Mountain Geographic Area and the proposed action would mostly affect hiding cover behind closed roads, elk habitat effectiveness is not anticipated to change significantly at either the geographic area scale or within the 5.13 management area within the geographic area.

Timber cutting and management actions that open the canopy cover will increase summer foraging habitat quality, which is the primary use of the analysis area for elk.

Greater Sandhill Crane

This is a species of local concern for the Colorado Division of wildlife. There are 10 observation records for this species as well as 6 documented nesting locations within the analysis area. In order to protect this nesting migratory bird, implementation of an action alternative should be avoided within ¼ mile of an active nest site until after July 1. Since NFSR 42 is closed until July 1 and this closure will be maintained during project implementation. Disturbance to this species during its critical nesting period is unlikely. This would not differ between alternatives.

General Effects to Wildlife and Wildlife Habitat

Implementation of an action alternative will result in some disturbance to wildlife in the analysis area and effects to existing habitat conditions. Effects of management actions will impact some species and be beneficial to other species.

Cumulative effects

Implementation of an action alternative is not anticipated to result in any cumulative effects to wildlife.

APPENDIX A

Wildlife and Fisheries Design Criteria for the Larson II Timber Sale and Fuel Reduction Project

Design Criteria for Snag Retention

Measure Description and Implementation Criteria

- Applicable to all units within the project area.

Retain on average 2 existing ‘hard’ snags (typically, lodgepole pines killed by mountain pine beetles or spruces killed by spruce beetles, decay class 1 or 2) per acre within treatment units. Distribute snags singly or in groups of up to 16 trees (equivalent to 2 snags/acre x 8 acres). Leaving a mixture of single snags (occasionally) as well as snag groups (2 to 16 trees/group) would be the most desirable result. Snag clumps are preferred and when the opportunity exists these should be placed in the locations of rare plant species identified as also needing protection (this would result in the snag retention clumps meeting two biological purposes). If a stand does not contain adequate snags to meet this criteria, meet this requirement by retaining this required tree density as additional snag replacement ‘live trees’ Use the design criteria for ‘live tree’ retention for marking guidance.

Selected ‘hard’ snags should have a larger-than-average diameter for the stand and be at least 25 feet tall, but in no case should a retained snag be smaller than 10 inches dbh. Snags with evidence of existing wildlife use (cavities, nests, etc.) should receive precedence for retention. Select snags that are away from roads or likely landing locations and that appear to be firmly rooted and free of potentially dangerous defects (such as an unstable top or “widow maker” limbs). It is acceptable to connect some snag groups to the unit perimeter (a “peninsula”) but most groups ($\geq 70\%$ by stem count) should be “islands” retained inside the treatment unit perimeter.

Retain all ‘soft’ (*i.e.*, rotten, decay class 3 to 5) snags unless they are a safety hazard (Biological Diversity Standard 2 in RNF LRMP on p. 1-8).

Paint retention snags (hard and soft) with an identifiable “wildlife tree” marking. Furthermore, protect snags under special provisions identified in Section A (of the timber sale contract), List of Special Provisions, by distinguishing marked snags as “reserve trees” under provisions C[T]2.3# (Reserve Trees) and C[T]6.32# (Protection of Reserve Trees). **Retention snags should be considered and avoided in the sale layout of skidding and timber removal activities. Should it be determined at the time of logging that a reserve snag would be in a skid trail or that it is a hazard to people, fell (or top) the snag; however, the snag shall be retained on site as coarse woody debris and an equitable replacement snag within the unit should be marked for each snag that cannot be avoided.**

Wildlife Objectives/Purpose met by the Measure

Post-harvest retention of standing dead trees provides for wildlife denning, nesting and feeding habitat as well as for a ‘biological legacy’ to the site. Sensitive wildlife species such as marten, three-toed woodpecker, goshawk and boreal owl are likely to benefit in the near and long term.

The anticipated loss (cutting or natural collapse) of reserved standing snags will provide for meeting RNF LRMP standards for retention of coarse woody debris.

This project design criteria was established to ensure consistency with the following Forest Plan direction:

- Biological Diversity Standards 1 and 2 (p. 1-8)
- 5.11 Vegetation Standard 2 (p.2-40);
- 5.13 Vegetation Guideline 4 (p. 2-45).

Design Criteria for Live ('Character'¹) Tree Retention

Measure Description and Implementation Criteria

- Applicable to management actions that include all intermediate harvest cuts

Retain an average of 2 live character trees per acre. Trees may be retained singly as well as in groups of up to 8 trees (equivalent to 2 live trees/acre x 4 acres). Leaving a mixture of single trees (occasionally) and groups (2 to 8 trees/group) would be the most desirable result. Fewer designated live trees need to be identified for an intermediate harvest because a stocked stand will be retained on the site. As the stand continues to grow and mature, additional trees useful as wildlife habitat will become evident prior to regeneration harvest.

Measure Description and Implementation Criteria

- Applicable to management actions that include: clearcuts, shelterwood preparatory cuts and all other regeneration harvest systems.

Retain on average 4 live character trees per acre. Trees may be retained singly or in groups of up to 32 trees (equivalent to 4 live trees/acre x 8 acres). Leaving a mixture of single trees (occasionally) and groups (2 to 32 trees/group) would be the most desirable result.

Select trees that are away from roads or likely landing locations. It is acceptable to connect some groups to the unit perimeter (a "peninsula") but most groups ($\geq 70\%$ by stem count) should be "islands" retained inside the treatment unit perimeter. Snag clumps are preferred and when the opportunity exists these should be placed in the locations of rare plant species identified as also needing protection (this would result in the snag retention clumps meeting two biological purposes).

Select live trees that are dominant or co-dominant in the stand, but in no case should a retained tree be smaller than 10 inches dbh or 25 feet tall. Character trees have obvious (even severe) bole or crown defects (broken top, forked bole, spike top, stem decay, cat face, bayonet top, lop-sided-crown, etc.) or have a squirrel midden at the base and are preferred over undamaged, symmetrical trees. Any conifer species is an acceptable choice for retention but Douglas-fir, spruce and subalpine fir trees are preferred. Up to 20% of character trees may be aspens.

¹ Character trees are defined in the Routt National Forest LMP (1997 Revision) as live trees that are broken at the top, have mechanical damage or genetic defect. They serve as replacement snags.

However, do not mark for retention any live tree infested with bark beetles (mountain pine beetle or other species) or root disease or that is an obvious safety hazard. Generally, select lodgepole pines with a Hawksworth dwarf mistletoe rating of 2 or less. Occasionally, however, it may be necessary to leave a pine with a mistletoe rating of 3 or more to satisfy the spatial distribution criteria for snags and replacement snags within units.

Paint all live retention trees with an identifiable 'wildlife tree' marking. Protect these trees under special provisions identified in Section A (of the timber sale contract), List of Special Provisions, by distinguishing marked trees as "reserve trees" under provisions C[T]2.3# (Reserve Trees) and C[T]6.32# (Protection of Reserve Trees). **Should it be determined at the time of logging that a reserve tree would be in a skid trail or that it is a hazard to people, fell (or top) the snag; however, the snag shall be retained on site as coarse woody debris and an equitable replacement reserve tree within the unit should be marked for each reserve tree that cannot be avoided.**

Within 2 years after completion of the timber sale, it is desirable to install a 'Wildlife Tree' sign on all surviving live reserve trees (collect K-V \$'s for this purpose). One sign should be attached to the trunk at dbh using at least 2 aluminum nails.

Eight years or more following treatment, an evaluation may be scheduled to ascertain the number of surviving live character trees per acre. Wind, ice, beetle infestation and other factors are expected to substantially reduce the number of live trees standing after 8 years. Where more than 2 live reserve trees are present per acre, and where potential mistletoe infection of young trees is unacceptable, girdling or branch-pruning of mistletoe-infested lodgepole pines in excess of 1/acre may be considered.

Wildlife Objectives/Purpose met by the Measure

Post-harvest retention of standing live character trees provides for current and future wildlife habitat as well as a 'biological legacy.' The purpose for leaving live trees is for the trees to grow larger (during the next rotation) while also accruing increased stem and crown decadence (e.g., trunk hollows, stem decay, etc.). The stem and crown defects create habitat structure beneficial for wildlife denning, nesting and feeding. The greatest value for these trees would be reached 50 years or more into the future when a new forest grows up around surviving reserve trees. The long-term objective is to have 1 or 2 live reserve trees/acre present 50 years following treatment. Sensitive wildlife species such as marten, three-toed woodpecker, goshawk and boreal owl are likely to benefit near and long term.

This project design criteria was established to ensure consistency with the following Forest Plan direction:

- Biological Diversity Standards 1 (p. 1-8)
- 5.11 Vegetation Standard 3 (p.2-40);
- 5.13 Vegetation Standard 2 (p. 2-45).
- Anticipated loss (cutting or natural collapse) of live reserve trees will provide for meeting Forest LRMP standards for retention of coarse woody debris.

Design Criteria for the Protection of Known Goshawk Nest Stands (identified before award of timber sale contract)

Measure Description and Implementation Standards

- Applicable to all management units.

This measure would modify any planned silvicultural RX to conserve key elements of nesting habitat in a treatment stand where a nest is present or in a stand which is designated as alternative nesting habitat. The design of the RX would be devised at the time of marking and implementation in consultation with a wildlife biologist.

‘Known’ goshawk nest stands are those verified as active anytime from 1992 through to completion of sale layout. Where treatment management actions are proposed within a 3/8-mile radius of a known goshawk nest site, a wildlife biologist will delineate three 30-acre nesting habitat protection areas.

One protection area of no less than 30-acres shall be centered on the stand where goshawk nesting is currently active or where nesting occurred most recently. The other two 30-acre reserve areas would be used to protect two additional nearby stands (alternate sites) that are apparently suitable (structurally and compositionally appropriate) for goshawk nesting. Optionally, some or all 60 acres may be used to expand the 30-acre protection area of the active/recently active nest site or to create a single alternative nest stand larger than 30 acres. In any case, a total of no less than 90 mature-forest acres would be segregated as goshawk nest stand protection area(s). Trees within the nest stands and/or reserve nest stands shall not be marked for removal.

The project NEPA decision should document the establishment of goshawk known and reserve nest stands. The spatial location of these nest stands should be recorded in the US Forest Service corporate data system and include references to the decision that established management protections for these stands.

Wildlife Objectives/Purpose met by the Measure

Nest-stand protection areas are intended to maintain or promote stand structural conditions favorable for goshawk nesting.

This project design criteria was established to ensure consistency with the following Forest Plan direction:

- TES Standards 6, 7 and 8 (p. 1-14);
- General Technical Report RM-217, Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992).

Design Criteria for the Protection of Raptor Nesting Sites (identified before award of timber sale contract and all species other than goshawks)

Measure Description and Implementation Standards

- Applicable to all management units.

This measure would modify any planned silvicultural RX to conserve key elements of nesting habitat in a treatment stand where a nest is present or in a stand which is designated as alternative nesting habitat. The design of the RX would be devised at the time of marking and implementation in consultation with a wildlife biologist.

‘Known’ raptor nesting sites are those verified as active anytime from 1992 through to completion of sale layout. Where treatment management actions are proposed within a 3/8-mile radius of a known raptor nesting site, a wildlife biologist will establish one nesting habitat protection area of no more than 30 acres in size. The size of a nest stand protection area necessary for a species’ protection will vary by species and for many small owl species is typically no more than 5 acres. One protection area of no more than 30-acres shall be centered on the active or inactive raptor nest site. Trees within the nest stands and/or reserve nest stands shall not be marked for removal.

The project NEPA decision should document the establishment of known and reserve raptor nest stands. The spatial location of these nest stands should be recorded in the US Forest Service corporate data system and include references to the decision that established management protections for these stands.

Wildlife Objectives/Purpose met by the Measure

Nest-stand protection areas are intended to maintain or promote stand structural conditions favorable for goshawk nesting.

This project design criteria was established to ensure consistency with the following Forest Plan direction:

- TES Standards 6, 7 and 8 (p. 1-14);

Design Criteria for Raptor Nesting Period Seasonal Restriction in Logging Operations

Measure Description and Implementation Standards

- Applicable to applies to all management units.

This criteria will be implemented as stated for the northern goshawk but may be reduced for other species if determined appropriate to do so by a wildlife biologist. Prohibit all logging-related operations or activities, including log haul, within ¼-mile of an active raptor nest between March 15 and September 15. Use of national forest roads, otherwise open to unrestricted public vehicle use, is specifically exempted from this seasonal control. A wildlife biologist must determine nesting status (active or inactive) for each year during sale implementation.

Within ¼-mile of an active raptor nest, ***limited use*** of an existing road (that has been and is currently closed to public travel) ***may be granted*** to allow workers to access worksites more than ¼-mile beyond the nest. However, permission to use a road for daily access to a worksite would be granted on a case by case basis only and in consultation with a wildlife biologist. On average, no more than 4 separate vehicle passes/day would be allowed on a road that is adjacent to (*i.e.*, within ¼-mile of) an active raptor nest. One “pass” is defined here as the single disruptive event caused by 1 vehicle (or as many as 3 vehicles together) traveling along the road segment (adjacent to an active nest) on a single occasion. This limited use exception is NOT intended to allow log haul past the nest during the seasonally restricted period. Only vehicles used for transporting workers (including FS sale administration personnel), logging machinery, machinery maintenance equipment or fuel would be permitted to use a road during the seasonal restriction.

Include language in timber sale contract provision C[T]6.25# (Site Specific Protection Measures for Threatened, Endangered and Sensitive Species) defining this nest-centered seasonal restriction. The roads and sections of roads where the seasonal restriction is potentially applicable may be displayed on the sale area map(s). For purposes of identifying in the TS contract areas where logging operations are seasonally restricted, roads or road sections affected by this project design criteria may be shown on contract maps.

Wildlife Objectives/Purpose met by the Measure

To minimize noise, commotion, human presence and other disruptive stresses that increase the likelihood of nest abandonment or depredation of eggs/young caused by diverting raptors from nest attendance.

This project design criteria was established to ensure consistency with the following Forest Plan direction:

- TES Standards 6, 7 and 8 (p. 1-14);
- General Technical Report RM-217, Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992).

Design Criteria for Monitoring of Goshawk Nest Locations during Implementation

Measure Description and Implementation Standards

- Applicable to and applies to all management units.

Prior to TS contract award: Train timber sale layout, engineering and resource personnel to identify and report active goshawk nests (or goshawks defending a territory) found during routine fieldwork. Protect new nests located during layout as described for “Protection of Known Goshawk Nest Stands.”

After TS contract award: Between May 1 and July 31st of each year, a wildlife biologist or trained crew will conduct goshawk inventory (detection) surveys in areas scheduled for treatment during the upcoming operating season if adequate surveys have not been completed to the degree to evaluate goshawk occupancy. An adequate survey requires appropriate surveys of the area for two consecutive years. Protect new nests located during these surveys as described below for “Protection of Newly Discovered Goshawk Nest Stands.”

Wildlife Objectives/Purpose met by the Measure

Because of the extended duration of proposed treatments, and because of continuing lodgepole pine mortality across the landscape, known goshawk nest stands may be abandoned and/or new nest stands may be established. The intent of ongoing monitoring is to identify new/changed nest locations and to keep a current chronicle of active goshawk nest sites within treatment areas.

This project design criteria was established to ensure consistency with the following Forest Plan direction:

- TES Standards 6, 7 and 8 (p. 1-14);
- General Technical Report RM-217, Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992).

Design Criteria for Protection of Newly Discovered Goshawk Nests and other critical TES Habitats/Sites Identified After the Award of the Timber Sale or other Treatment Contract

Measure Description and Implementation Standards

- Applicable to all management units.

Pursuant to TS contract standard provision B[T]6.25 (Protection of Threatened, Endangered and Sensitive Species), upon discovery of a new goshawk nest location or other TES wildlife species nesting/breeding (or other essential) site, suspend any active logging or other contract operations underway in the immediate vicinity until a wildlife biologist assesses the situation and determines appropriate action(s) to take for protection of habitat or individual animals. Completion of the assessment and determination of appropriate action should typically occur within 3 working days of discovery.

Appropriate action(s) include(s): Imposition of a seasonal restriction to protect a TES species from disruption/harassment or habitat destruction; changes in timber marking (and included timber species or quantities) to protect or maintain existing habitat(s); or complete withdrawal of included timber within a specified protection area.

Size of Area: Typically, these actions would not be applied over an area larger than 40 acres (roughly equivalent to the area of a circle having a 750 foot radius or a square having 1320 foot sides).

Language in TS contract provision C[T]8.24 (Termination) defines causes for contract termination in whole or in part.

Wildlife Objectives/Purpose met by the Measure

To protect individuals or habitat of known goshawks and other threatened, endangered and sensitive species when a new nesting/breeding (or other vital) site is located after contract award.

This project design criteria was established to ensure consistency with the following Forest Plan direction and laws:

- **TES Standards 6, 8 and 9 (p. 1-14)**
- **The Endangered Species Act of 1973**
- **Timber sale contracting authorities**

Design Criteria for Conservation of Old-growth Lodgepole Pine

- Applicable to all management units.

Measure Description and Implementation Standards

Retain all old-growth lodgepole pine trees not infested (at the time of timber marking) with MPB. Old-growth pines can be identified by their structural conformation (Mehl 1992, p. 111), which is reflective of advanced age (150+ years old). Trees over 150 years old typically have boles, crowns and individual limbs that are distinctive from trees of lesser age (second growth). However, tree diameter at breast height might not be substantially larger than nearby second growth (especially wolf) trees, so care in identification is needed.

Usually, old-growth pines have boles that are free of live branches on the lower half of the tree. In addition, crowns are sparse and have flattened tops or are otherwise misshapen. Frequently, too, most live limbs are clustered toward the top of the tree and/or the crown is lop-sided. Moreover, individual limbs have diameters that are unusually large, compared to second growth trees, and/or fewer branches occur at each whorl than would be expected (1 to 3 vs. 3 to 6) such that the crown has a more “open” appearance. Often, mistletoe, rust or stem decay is present and contributes to tree/stand decadence (Mehl 1992).

Live old-growth trees do not necessarily need to be reserved by marking (painting) each tree but their retention must be unequivocally clear to loggers during harvesting. However, marking of old-growth pines within units is encouraged to fulfill live character tree retention requirements.

Wildlife Objectives/Purpose met by the Measure

To maintain structural diversity on the landscape by conserving the oldest age classes of lodgepole pine. Typically, the more diverse the structural features available, the greater the opportunity for increased numbers, mixes and kinds of habitat niches and wildlife species. Sensitive wildlife species such as marten, three-toed woodpecker, goshawk and boreal owl are likely to benefit near and long term.

This project design criteria was established to ensure consistency with the following Forest Plan direction and laws:

- Late Successional Forests 1 (p. 3-76)
- Forest Goal 1 (Ecosystem Management)
- Objective described at the 6th “bullet” (p. 1-2).

Design Criteria for Conservation of Coarse Woody Debris

- Applicable to all management units.

Measure Description and Implementation Standards

To the extent practicable, and where available, retain in place within timber harvest units some existing deadfalls (whole trees) or logs (portions of tree boles) measuring ≥ 16 inches in diameter and that are ≥ 20 feet in length. Where existing large (*i.e.*, $\geq 16'' \times 20'$) deadfalls and logs are plentiful within a cutting unit, no attempt should be made to retain all (or even most) existing down woody pieces because interference with cutting and skidding operations would result. In particular, avoid retention of deadfalls and logs in areas close to proposed landings or near to open access roads. On the other hand, in cutting units where deadfalls and logs are sparse, retention of much or most of the existing large woody material should be emphasized.

Large deadfalls and logs identified for retention need not be painted or marked as “reserve” trees/timber. However, to effectively “retain” this material in place on the site during harvest operations, use standing leave (non-included timber) or wildlife reserve trees (snags and live character trees) to shield the deadfall or log from mechanical damage or displacement. The conservation purpose is to maintain the existing integrity of a deadfall or log by preventing cutting (bucking), displacement from its “bed” or utilization of the material during harvest operations.

In addition to purposeful retention of existing large deadfalls during sale preparation, CWD conservation should be the continuing objective during slash disposal operations conducted in post-harvest cutting units. Only limbs, tops and short chunks of woody material should be the targets of debris collection. Rotten or otherwise unutilized whole down trees or logs left scattered throughout a stand following logging, and that are larger than 8 inches diameter on the small end, should not be targeted for disposal. To the extent practicable, leave this larger woody debris well-distributed in treatment areas and expend diligent effort to conserve coarse woody debris on site.

Wildlife Objectives/Purpose met by the Measure

Post-harvest retention of some existing deadfalls and logs provides for current and future wildlife habitat as well as a “biological legacy” for the site. Large down wood is valuable to small mammals for runways, food caches, escape cover, denning sites and weather protection. Sensitive wildlife species such as marten, goshawk and boreal owl are likely to benefit near and long term.

This project design criteria was established to ensure consistency with the following Forest Plan direction and laws:

- Biological Diversity Standard 1 (p. 1-8).

LITERATURE CITED:

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