CHAPTER 2
ALTERNATIVES

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2.1 INTRODUCTION

This chapter describes and discusses internal and external public involvement activities that have occurred to date, issues and concerns with the Proposed Action identified through these efforts, and how the issues and concerns were addressed or resolved. Alternative management direction responding to identified issues and concerns are included in this chapter. Described in-depth are the alternatives considered but eliminated from detailed study (2.3.1) and alternatives considered in detail, including the Proposed Action (2.3.2).

The purpose and need for action resulted in the development of the following questions relative to how habitat needed to continue to support goshawk viability will be evaluated and compared in various alternatives.

- To what extent will the alternative affect goshawk population viability during the remainder of the current planning period?
- To what extent will an alternative reduce risk to loss of habitat needed to support the currently viable population of goshawks in Utah?
- How will implementation of an alternative affect management activities, and at what cost (including social and economic costs)?

In addition, seven indicators (components) were identified in the Assessment and HCS as important considerations in the management of the northern goshawk and will be used as the basis for deriving management direction and comparing alternatives. These are:

1. Native processes
2. Forest composition
3. Forest structure
4. Nest and post-fledgling areas
5. Other miscellaneous areas of concern
6. Treatment prioritization
7. Monitoring requirements

2.2 PUBLIC INVOLVEMENT

2.2.1 Scoping

The Intermountain Region filed a notice in the **Federal Register** (**FR**) on September 4, 1998, stating, that in cooperation with the USDI, Bureau of Land Management and Fish and Wildlife Service (FWS) and Utah Division of Wildlife Resources, the Forest Service was reviewing the latest Utah state-wide information relating to the sustainability of habitat for northern goshawk (*Northern Goshawk in Utah: Habitat Assessment and Recommendations* [Graham et al. 1999]) and the FWS 12-month finding on a petition to list the northern goshawk (**FR**, June 29, 1998). This notice stated that the Intermountain Region was proposing to amend management direction in the forest plans to incorporate interim direction in the form of goals and objectives, desired habitat conditions, standards and guidelines, and monitoring requirements developed in response to new scientific information concerning the management of forested habitat for the northern goshawk and its prey in Utah. Further, it sought information and comments from federal, state and local agencies, and other individuals and organizations interested in or affected by the Proposed Action. Ten comment letters were received and analyzed.

In late December 1998, more than 2500 flyers were mailed to tribal governments, Congressional representatives, federal, state and local agencies, and other individuals and organizations interested in or affected by the Proposed Action. The flyer announced the project, important dates, and how to access background information and updates, and how to submit comments. A homepage on the World Wide Web was established February 1, 1999 (www.fs.fed.us/r4/goshawk) as well as an e-mail address (goshawk3/r4_uinta@fs.fed.us).

The Intermountain Region posted a second notice in the **FR** on February 5, 1999 announcing that it was proposing to amend management direction in specific Forest Plans. That notice also (1) described the proposed management direction; (2) stated the desired habitat condition; (3) announced a series of open houses to be held across Utah in February 1999; and (4) provided the location of the Internet website for the project. At the same time, approximately 2,500 packages providing information on the Proposed Action and soliciting comments were sent to Tribal governments, Congressional representatives, federal, state and local agencies, and other individuals and organizations interested in or affected by the Proposed Action.

In February and March of 1999, ten open houses were held throughout Utah. Individuals attending the open houses represented a wide variety of interests, including state, federal, and county agencies, the Utah Congressional delegation, special interest groups, utility companies, academia, falconers, and others. Total attendance was approximately 138 people. Sessions were conducted in an open house format to provide maximum opportunity for informal discussion between ID Team members, local Forest Service representatives, and the public.

A total of 445 comments were received in response to scoping activities. These comments were compiled from the ten public meetings, 88 letters, oral comments, and e-mail comments received between February and April, 1999. The record of these comments is maintained at the Regional Office, Planning, Appeals and Litigation Staff, Ogden, Utah.

2.2.2 Comments Resulting From the Scoping Process

Significant issues and themes of other concerns were identified from the comments received. The issues provided the foundation for alternative development (see 2.3.1 and 2.3.2) and are discussed below first. Other concerns received that were not used to generate alternatives have been grouped under common themes and discussed following issues used to generate alternatives.

<u>Issues Used to Generated Alternatives</u>

- *Management direction in the Proposed Action is not consistent with recommendations found in its own science foundation and conservation strategy; not correcting these inconsistencies will likely result in continued habitat degradation and loss of management options in the future*.

  Respondents called attention to inconsistencies in elements of the Proposed Action and the science it claimed to use as its foundation (Graham et al. 1999; Reynolds et al. 1992) and HCS. In their opinion, these inconsistencies will result in habitat degradation and loss of future management options. The specific concerns are:

  ~ The range of percent canopy closures found in the HCS are not indicated in the Proposed Action. Percent canopy closures are below, or could exceed, those recommended in some cover types and habitat areas;
  ~ Nest surveys are not required prior to habitat-disturbing activities;

~ Extreme disturbance events allowed under the full range of historic range of variation are not desirable (i.e., landscape scale bark beetle or wildfire events);
~ Landscape assessments must address more than just the balance of forest structure classes to fully understand the broader context and effects of project level decisions; and
~ Effectiveness of standards and guidelines in preventing territory abandonment during habitat disturbing activities must be emphasized in monitoring.

Alternative C responds to this issue by incorporating all of the identified factors. In addition, the Proposed Action (Alternative B) was updated to include direction on the need to conduct nest surveys (see 2.3.2).

- *The Proposed Action does not contain all the recommendations for habitat management found in the science document used as its foundation; this will result in continued habitat degradation and loss of future management options*

  Respondents identified additional habitat management recommendations found in Reynolds et al. 1992 that were not included in the Proposed Action for this project. By not including these additional recommendations respondents contend that habitat degradation will continue and management options will be lost.

  Respondents used the agency's previous recommendations relating to goshawk habitat management (USDA Forest Service 1995) as evidence of why these additional measures are needed. Respondents contended that the agency already recognized the importance of these additional recommendations by including them in previous amendments; therefore, they should have been included in the Proposed Action to amend Utah's forest plans. The specific concerns are:

  ~ Percent canopy closures are not differentiated between cover types or goshawk habitat area (nest, post fledgling area (PFA) and foraging area);
  ~ Priority of slash disposal is not identified;
  ~ Road use and construction are not restricted in foraging areas;
  ~ Nest surveys are not required prior to habitat-disturbing activities;
  ~ Opening sizes are not restricted in the foraging area;
  ~ Groups of mature and old live trees are not emphasized for retention throughout territories;
  ~ Current livestock utilization requirements are unchanged; and
  ~ Extreme disturbance events allowed under the full range of historic range of variation are not desirable (i.e., landscape scale bark beetle or wildfire events).

  Alternative D responds to this issue (see 2.3.2).

- *Use of the wrong management recommendations for management of goshawk habitat will result in habitat degradation and loss of future management options.*

  Respondents noted the ongoing debate in the biological community, as well as among credible agencies, on how habitat for the goshawk and its prey should be managed. Credible agencies such as Arizona Game and Fish Department (AGFD) and the USDI's Fish and Wildlife Service (FWS Region 2, Arizona and New Mexico), professional societies such as The Wildlife Society, biologists such as Crocker-Bedford and Chaney (1988) with published documents relating to raptors, and other individuals claiming expertise in areas of habitat management, were cited. The debate brought forward varied from questioning the sufficiency of different aspects of the Graham et al. (1999) and

Reynolds et al. (1992) recommendations for management of habitat for goshawk and its prey to the scale at which the recommendations should be applied. The specific concerns are:

~ Percent canopy closures are inadequate and will not provide for the needs of the goshawk and its prey;
~ Existing mature and old forest is key to preserving management options; it should not be treated or only minimally; human disturbance should be minimized, if not eliminated, in mature and old forest groups/patches within landscapes;
~ Open understories are not needed or desirable in the older forest structural classes; inadequate understory cover could be adverse to prey habitat.
~ Allowance for use of non-native species in management activities will contribute to habitat degradation;
~ The full range of native disturbance processes should be allowed; goshawks and their prey have evolved with extreme events;
~ Some scientists, such as those who completed a review of the Reynolds' et al. (1992) recommendations for The Wildlife Society (Braun et. al. 1996), generally agree with the concepts in the Reynolds' recommendations, but question their broad application and recommend further research to test the effectiveness of the Reynolds recommendations. They believe implementation should move at a slower pace until some of the premises of the Reynolds' recommendations are verified through monitoring.

Alternative E responds to all items under this issue. See 2.3.2.

- *Management activities should concentrate on maintenance of at-risk habitat areas to provide for the greatest opportunity to minimize any further degradation of habitat, and loss of management options*

Some respondents believe that projects should be prioritized to first treat landscapes where systems are functioning-at-risk, relative to desired habitat conditions for goshawk and its prey. Respondents believe that by treating these areas first, the greatest benefits to goshawk will be gained, and the lowest risk of losing currently functioning suitable habitat will be realized.

Alternative F responds to this issue, see 2.3.2.

- *If current goshawk habitat is sufficient, then additional exemption areas should be added to minimize impacts to other uses; conversely, areas such as wilderness should not be exempted because the two uses are compatible.*

Some respondents wrote that the basis for exempting certain areas may not be sound, and is not justified. While some respondents suggested that some areas, such as wilderness, should not be exempted, others believe no area should be exempt. And a third segment suggest that lands designated as suitable timber lands should be added to the exemptions.

An alternative responding to this issue was considered but dropped from detailed analysis. See discussion in 2.3.1. However, a statement was added to the discussion of exemption areas (common to all alternatives, 2.3.2) which states: "When the direction adopted for management of goshawk habitat does not conflict with the primary use in the exemption area, it will be applied."

- *All currently identified roadless and undeveloped areas should be maintained to minimize any further disturbance to habitat for goshawk and its prey; minimizing disturbance is key to preventing further habitat degradation.*

Some respondents believed this project provided an opportunity to designate more wilderness and/or change management area prescriptions within identified roadless areas on national forests to preserve their roadless and undeveloped character. Retention of these areas in their current condition was needed to help reduce risk to further habitat degradation and loss of management options.

An alternative responding to this issue was considered but dropped from detailed analysis, see 2.3.1.

- *Due to the far-ranging nature of the northern goshawk, to properly address needs for providing sufficient habitat to support a viable population of goshawks other national forests with lands in Utah, as well as other national forests outside Utah, should be included in this amendment process.*

  While some respondents commended the Forest Service for their work in providing connected corridors within each of the six national forests involved in the amendment process, they questioned why the limitation. They believed there was a need for connectivity across landscapes throughout the state and throughout neighboring states in order to truly provide for adequate habitat, recruitment, and migration to nesting sites.

  An alternative responding to this issue was considered but dropped from detailed analysis, see 2.3.1.

<u>Concerns which were not determined to raise significant issues:</u>

- *Add long-term monitoring to monitoring plan*. The value of establishing long-term monitoring processes to further understanding of goshawk population trends and prey availability is recognized, but is outside the identified purpose and need of this amendment. Some of the suggested monitoring was also research level monitoring and is outside the scope of this project. Though data collected during the life of this amendment could add to data sets that will be used to assess long term trends, this data will not contribute to maintaining or restoring habitat needed to support the currently viable goshawk population during the interim period. Nor is the establishment of this long-term monitoring needed to retain habitat management options that could, again, be considered during forest plan revision.

  However, population data is proposed to be collected through monitoring activities under each action alternative which will contribute to long-term data sets to evaluate trends. The data proposed for collection is as outlined in the HCS.

- *Leave homes (nest sites) for the goshawk, but still use timber harvest to remove forest habitat as needed to support timber industry*. One respondent suggested that direction be designed to harvest the timber but leave abundant "homes" for the hawks. The suggestion was to require those who cut timber to leave goshawk homes. Homes were described as "strategically placed or located hollow trees" with holes drilled. Or, if this was not an adequate "home," the Forest Service could design a better home.

  A "home" includes more than just a location for a nest. It must provide all the components for which the goshawk needs to reproduce, grow, competitively hunt, and provide habitat for the prey on which it feeds. The proposed management direction provides for all the components the agency believes is needed for a "home" to support northern goshawks in Utah.

- *Adjust snag and down woody guideline to follow recommendations from other studies*. Two respondents referred to a study done by Kennedy (1989) which recommended that 4 snags per acre be maintained near goshawk nest sites in the Jemez Mountains of New Mexico. One of these

respondents also discussed recommendations from Bull et al. (1997) that recommended 4.8 snags (>10 inches DBH) per acre in ponderosa pine forests, and in mixed conifer as many as 48 per acres. This respondent also felt the recommended 3-5 down logs per acre was to few.

Recommendations in the Proposed Action were developed from the best information available for Utah at the current time. Bull, Kennedy, Reynolds and Graham all recognize that limited information is available to determine exact snag or down log densities in Utah or Arizona/New Mexico. All these researchers' recommendations are based on the limited information available for the habitats they are working with. Future monitoring and research will help validate current recommendations and may result in changes in the future.

- *Adjust guidelines for aspen and lodgepole pine (LPP) forests to require that they be managed for small openings as described for other forest cover types in alternatives*

  The proposed direction calls for following current direction for aspen and LPP in goshawk home ranges. Current forest plan direction allows for openings up to 40 acres.

  Respondents believe that allowing openings of the size discussed above will degrade habitat important to goshawk and its prey in aspen and lodgepole cover types. Thus habitat will not be maintained as needed to support the currently viable goshawk population, nor will management options be retained. They felt that opening size in aspen and lodgepole forests should be consistent with open sizes described for ponderosa pine, mixed conifer and spruce/fir forests addressed in the Reynolds et al. (1992) recommendations.

  Unlike the forests addressed in the Reynolds et al. (1992) recommendations, managing aspen and lodgepole forests through use of small openings (i.e., 1/2 acre to 4 acres) will not be within the historic range of variation (HRV) for these types. Managing for disturbance patterns and intensity levels that are outside HRV will put sustainability of these cover types at risk. The likelihood of events occurring that may degrade habitat for the goshawk and its prey becomes higher and less predictable when managing outside HRV. Managing for conditions (i.e., opening sizes, etc.) that are within HRV is our best indicator of what is sustainable (USDA 1999).

- *Direction to protect habitat for the goshawk and its prey should not be lost in a trade-off with resource outputs.* A concern was voiced that the direction needed to maintain species viability will lose out to a trade-off in resource outputs. Many of these respondents voiced the opinion that the proposed management direction was simply a justification for continuing commercial timber harvest.

  The effects on habitat as it pertains to resource outputs and services are disclosed in Chapter 4.

- *Consider the full economic and social effects of a change in management direction, especially in light of other recent policies and pending changes.* Respondents from rural communities voiced concern that the analysis and decision will not consider the affect on other resources, especially timber and range management, along with the affect on communities and families dependent on the use of related resources. They feared that new direction will result in a shut-down of activities, which will not only have a detrimental effect on forest health, but also have a direct effect on their jobs and life-style. They believed this proposed change, in combination with other recent or pending changes (i.e., interim roads policy, future long term roads policy, formal and informal policies for roadless areas, lynx strategy) could be devastating.

  The social and economic effects are disclosed in Chapter 4.

- *An EIS is needed*. Some respondents felt an Environmental Impact Statement (EIS) should be prepared for an assessment of this magnitude, especially considering the debate in the scientific community on how to retain habitat for the northern goshawk and its prey.

  Based on a review of information available at this point in the process and the "severity of impact" that this proposal will have to items identified in regulations at 40 CFR §1508.27, the Regional Forester believes that an Environmental Assessment (EA) and its corresponding Finding of No Significant Impact (FONSI) is appropriate. Included with this document is a draft FONSI. Comments received on these documents during the 60-day comment period will be used by the Regional Forester in making a final decision on the level of documentation needed to disclose effects and make a decision. The rationale for continuing with an EA and Decision Notice/FONSI, or moving to disclosure under an EIS with a Record of Decision, will be included in the decision document.

- *Prospective vs. retroactive application of management direction*. As described in the scoping package, the direction will be prospective only. That is, it will only apply to future projects for which decisions have yet to be made. Responsible officials will not be required to revisit decisions on completed projects to be consistent with the amendment. Some respondents identified current projects that are in the planning stages, or for which a recent decision has been issued, that are likely to impact habitat for the goshawk and its prey because of the type of treatments proposed, the extent of areas impacted or the spatial location. Respondents believed that allowing these activities to proceed may result in loss of options for habitat management that could be considered during forest plan revision.

  Projects with decisions made prior to completion of this project underwent the NEPA process, including environmental analysis and completion of a Biological Evaluation (BE), disclosing effects to the goshawk (if applicable) based on the best information available at the time.

  In an October 13, 1992, letter, the Intermountain Regional Forester recommended that forests use the *Management Recommendations for the Northern Goshawk in the Southwestern United States* (Reynolds et al., 1992) as important information to be considered along with other goshawk and ecosystem management information that may be available for their specific habitat types. Also, the Regional Forester directed that all forests having potential goshawk habitat ensure that adequate goshawk surveys are undertaken to identify any goshawk occupancy of the area prior to implementation of a habitat disturbing action. A second letter (August 2, 1993) directed forests to use a formal goshawk survey protocol tailored to meet Regional needs as well as continue to draw from the intent of the Reynolds et al. (1992) management recommendations and other pertinent information until an assessment and management strategy is developed specific to the needs of Region 4.

- *Need for further public review*. Many respondents felt strongly that they should have an opportunity to review the alternatives and effects of alternatives documented in the environmental assessment. They have come to expect this under current regulations at 36 CFR §215 which govern project-level analyses. This project falls under forest planning regulations (36 CFR §217). While these regulations do not require a public notice and comment period for an environmental assessment, this distinction is not recognized and/or accepted by the public.

  In response to this concern, a 60-day review and comment period of the Environmental Assessment is provided. Comments received will be used by the deciding officer to make a more informed decision.

More specific information concerning public involvement is included in the project record (Exhibit D).

2.3 DEVELOPMENT OF ALTERNATIVES

The ID Team held several team meetings to review the significant issues identified during the internal scoping and public involvement participation activities. Using a process that addressed both agency and public issues, the ID Team developed a range of preliminary alternatives. Of these, six were carried through a detailed analysis process (2.3.2), and three alternatives were eliminated from further study for various reasons (2.3.1).

2.3.1 Alternatives Considered But Not Analyzed In Detail

- *All currently identified roadless and undeveloped areas should be maintained to minimize any further disturbance to habitat for goshawk and its prey; minimizing disturbance is key to preventing further habitat degradation.* Some respondents thought this project afforded them an opportunity to designate more wilderness and/or change management area prescriptions within identified roadless areas on national forests to preserve their roadless and undeveloped character. Elimination of all mining, cattle grazing, logging, road construction and obliteration of existing roads is outside the scope of this project, and it is not consistent with the Forest Service mission, "To sustain the health, productivity and diversity of the land to meet the needs of present and future generations" (GPRA, 1999). Providing for these outputs and services within the capability of the available resources is important to furthering that mission. Further, it is not needed to meet the purpose and need for this project. Therefore, alternatives including these items were considered but dropped from detailed study. However, wilderness and roadless area allocations will be reviewed and considered during forest plan revision.

- *If current goshawk habitat is sufficient then additional exemption areas should be added to minimize impacts to other uses; conversely, areas such as wilderness should not be exempted because the two uses are compatible* Alternatives excluding all exemptions and one that added all suitable timber lands were considered and dropped, as discussed below.

  Of the total 8.1 million acres of NFS lands within the six Utah National Forests affected by this proposal, 1.2 million acres, or 15%, are exempt. Of the 1.2 million acres exempt, 65% is in category 1 (wilderness) and 11% is in category 2 (other Congressionally or Administratively-designated areas). Acres in both of these categories are likely to continue to provide habitat for goshawk, as described below. Current forest plan direction and regulations for management of these areas are not inconsistent with achievement of the desired habitat condition.

  A point of clarification. There appears to be a misunderstanding about the exemption areas, especially the wilderness area exemption. An exemption from applying direction from this amendment does not mean an area will not provide habitat, or in some cases continue to provide habitat, in the future. For example, designated wilderness areas on NFS lands in Utah will likely continue to provide suitable habitat for goshawk because management direction for wilderness areas is generally consistent with the needs of the goshawk.

  The remaining 292,000 acres in exemption categories 3, 4 and 5 (concentrated recreation use and development, urban interface areas, and mining/special use permits) represent less than 4% of the total 8.1 million acres. Generally, these areas have been heavily manipulated already to meet their intended purpose and will not provide any more or less habitat value to goshawks than they currently

provide over the life of this amendment. Essentially, over the short time period of this amendment there is little the agency could do in these areas to improve habitat. Also, the Assessment determined that sufficient amounts of habitat currently exist in Utah to support a viable goshawk population; thus, restoration of these acres is not needed to meet the purpose and need for this project.

Conversely, adding a category which exempts all suitable timber lands is not consistent with the purpose and need for this amendment. Exempting these lands, which is where the majority of suitable habitat occurs, will not provide reasonable assurances that sufficient amounts of habitat needed to support viable populations of goshawks in Utah will be maintained.

As stated previously (**FR,** February 5, 1999), managing these exempt areas consistent with current management direction is important to meeting other goals and objectives in the forest plan and the basis for the proposed exemption areas (2.3.2) is still sound. Managing these areas pursuant to current management direction will not result in the loss of habitat needed to support viable populations of goshawks in Utah nor reduce options for habitat management that could be considered during revision. Further disclosure of the effects of these exclusions is in Chapter 4.

- *Include other national forests with lands in Utah, as well as other national forests outside Utah, in this amendment process.* This action was initiated to amend forest plans in Utah, as needed, to provide reasonable assurance that management options that could be considered in forest plan revision or subsequent amendment processes for the six Utah National Forests were retained. The foundation for preserving options is primarily based on retaining current habitat connections in Utah. While some respondents commended the Forest Service for their work in providing connected corridors within each of the six national forests involved in the amendment process, they questioned why the limitation. They believed there was a need for connectivity across landscapes throughout the state and throughout neighboring states in order to truly provide for adequate habitat, recruitment, and migration to nesting sites. This was considered but dropped from detailed study.

  The habitat assessment was completed for the State of Utah, only. The amendment was based on information found within this assessment. Therefore this amendment only addressed national forests with the majority of lands within Utah.

  Further, the HCS states, "The scientific committee presently evaluating the need to change future National Forest System planning regulations equated species viability with self sustaining populations (Committee of Scientists Report, 1998 DRAFT). It is our professional judgement based on home range sizes of goshawks and recent population viability analysis (PVA) literature that a large scale is required to identify a self sustaining population because of the far-ranging nature of the goshawk. The State of Utah is one of the scales at which population viability analysis and determinations may be appropriate. It is our belief that the use of the state scale (i.e., its aggregation of landscapes) to conduct a habitat based analysis for PVA will provide us with the information needed to understand the different ecological processes that influence the life histories of this far-ranging, broadly distributed species." (Utah NFs et al. 1998)

  National forests in surrounding states are in the process of developing strategies for goshawk habitat management through other integrated resource efforts. Idaho's NFs are responding to the needs of the goshawk through the Interior Columbia Basin Ecosystem Management Project (ICBEMP) and ongoing, or completed, forest plan revision efforts. Wyoming and Colorado have initiated the assessment phase for goshawk habitat; findings from the assessment will determine their next step. Arizona and New Mexico have completed amendments to all forest plans relative to habitat needs for the goshawk (USDA Forest Service 1995). Nevada is addressing the needs of the goshawk, in

part, through the on-oing broad scale assessment referred to as the Sierra Nevada Framework Project. All efforts are drawing from the same base of scientific data, where applicable.

There was also a specific question of why the Caribou and Sawtooth NFs were not included in the Utah effort. While these Forests include small amounts of acreage within Utah, the majority of their acreage is in Idaho. And, they are actively in forest plan revision as well as being a part of the ongoing ICBEMP. In addition, the Graham et al. Assessment (1999) did not classify lands in Utah within the administrative boundaries of the Caribou or Sawtooth NFs as high or optimum habitat at the current time, though some acres were considered suitable habitat. Habitat had to be rated as high or optimum to be integral to maintaining habitat connectivity at the present time. Based on these findings in the Assessment (ibid.), and the fact that these forests are actively engaged in forest plan revision, they were not included in this amendment process along with Utah's NFs.

There was no identified need to include additional national forests with lands in Utah or outside Utah to preserve options for management direction that the six Utah National Forests may want to consider during forest plan revision or subsequent amendment processes. Based on the efforts and findings discussed above as well as budget, personnel, and time constraints, the Intermountain Regional Forester limited the scope of this project to the six Utah National Forests identified in the purpose and need.

2.3.2. Alternatives Considered In Detail, Including The Proposed Action

Described below are the specific features of the six alternatives (including the No Action Alternative) that respond to the issues (2.2.2) as well as the purpose and need (1.3.1 and 1.3.2, respectively). Components of the alternatives as well as features common to all alternatives precede alternative description summaries. For a detailed description of proposed management direction in each alternative refer to *Appendix A;* refer to *Appendix B* for the monitoring plan associated with each alternative.

Components of the Action Alternatives - The proposed management direction will apply to all forested habitats on the affected national forests except as exempted (see "Features Common to All Action Alternatives"). Seven categories of management direction/requirements have been developed. These management direction categories are:

1. *Native processes.* This category applies to all aspects of a goshawk home range[1]. Natural disturbances (i.e., fire, insects, disease and wind) are integral processes in many systems. Species like the goshawk and its prey have evolved in response to environmental changes triggered by disturbance. Restoring or mimicing these disturbances is one of the best indicators of ecological sustainability, including sustaining populations of goshawks (Graham et al. 1999; Utah NFs et al.1998; USDA Forest Service 1998).

2. *Forest composition*. This category applies to all aspects of a goshawk home range. Forest composition focuses on the importance of seral species and native species in landscape diversity. Landscape diversity is the variety of plant communities evaluated at the landscape level (including their identity, distribution, juxtaposition, and seral stage). The diversity of plant species present within a landscape, especially seral and native species, can have a profound influence on the resiliency of a system and the ability of a system to renew or maintain and propagate itself after disturbance. The continuing productivity of an ecological system, including

[1] A home range refers to all non-exempt forested acres within nest, post-fledgling (brood rearing) and foraging areas where management direction under the category will apply.

its ability to produce desirable outputs such as habitat for goshawk and its prey, depends upon potential renewal (ibid.).

3. *Forest structure*. This category applies to all aspects of a goshawk home range. Alternatives address biological landscape structural attributes (i.e., vegetative structural stage, snags, down logs and woody debris, and canopy closure) important to habitat for the goshawk and its prey. The sizes, shapes, patterns, and connectivity of these habitat attributes all influence the ability of the goshawk and its prey to exist in landscapes (Graham et al. 1999; Utah NFs et al. 1998; Reynolds et al. 1992).

4. *Nest and post-fledgling areas only*. This category applies only to non-exempt forested acres within defined nest and post-fledgling areas. Direction provides additional requirements/guidance specifically designed to sustain nest and post-fledgling areas (ibid.).

5. *Other miscellaneous areas of concern*. Some alternatives provide a mix of additional direction addressing other areas of concern that may be important to sustaining habitat for the goshawk and its prey. When management direction is included in this category, it applies to all aspects of a goshawk home range, all forested acres except as exempted. Alternatives address items such as road disturbance, grazing practices, and the need to do landscape assessments to provide context for future project design and implementation (Graham et al. 1999; Utah NFs et al. 1998; Reynolds et al. 1992; Arizona Game and Fish 1993; Braun et al. 1996; conservation biologist for Forest Guardians and Southwest Center for Biological Diversity).

6. *Treatment prioritization*. Alternative F specifically addresses the importance of providing direction to prioritize treatments in areas requiring restoration or areas at high risk to being lost or degraded for the remainder of the current planning period. Management direction is applied to all aspects of a goshawk home range (Graham et al. 1999).

7. *Monitoring Requirements*. Key features in any adaptive management strategy are implementation monitoring and, to a lesser extent, effectiveness monitoring; validation monitoring is not addressed. The short-term nature of this direction (remainder of the current planning period) will not allow for meaningful validation monitoring. Monitoring is incorporated into all alternatives, but will not be used to compare alternatives. Monitoring associated with this proposal does not preclude established monitoring efforts by the individual national forests (Utah NFs et al. 1998).

Features Common to All Action Alternatives (B-F)

Desired Habitat Condition: The Assessment (Graham et al. 1999) states that all forested landscapes in Utah are potentially suitable as goshawk habitat for some portion of their life cycle. Forested landscapes include those areas dominated by coniferous and aspen forest; but not woodlands such as pinyon-juniper.

In general, when forested landscapes of Utah are in a properly functioning condition (USDA Forest Service 1998) they will provide excellent habitat for the goshawk and its prey (Graham et al. 1999). Desired habitat attributes important to the home range of the goshawk and its prey, as stated in the HCS, include :

1. Diverse forest cover types with strong representation of early seral tree species dominate the landscape.

2. High quality habitat patches that are no more than 60 miles apart, preferably less than 20 miles apart, exist throughout landscapes (connected habitat).
3. Forested landscapes have 40% of the coniferous land area and 30% of the aspen land area dominated by large trees **(***older vegetative structural stages (VSS) 5 and 6),* well distributed. Large trees are defined based on the average size of trees found in the area and by the site potential.
4. Habitats for prey and other associated species are present to meet their needs as described by Reynolds el al. 1992 and Graham et al. 1999 (e.g., snags, down woody, cover, etc.).
5. A variety of structural stages as recommended by Reynolds et al. (1992) are present.

A balance of structural stages across the landscape is needed to ensure the larger structural stages are sustained over time. Tree densities in the smaller structural stages should promote accelerated tree growth into the larger structural stages and maintain crown development important to meeting desired canopy closures in the larger stages. Outside of nest areas, there should be open understories in the larger structural stages with trees irregularly spaced (Reynolds et al. 1992; Graham et al. 1999).

Nesting habitat is an essential component of goshawk home range. With the associated post-fledgling family area, it contributes to habitat connectivity across landscapes and the continuous recruitment of goshawks into the population (Graham et al. 1999). Both habitat connectivity and continuous recruitment are important components for sustaining viable populations of the northern goshawk in Utah. Thus, it is desirable to have nesting habitat and the associated post-fledgling areas well-distributed within and across forested landscapes. Desired nest area habitat varies from the overall home range habitat in that it typically occurs in older-aged stands that have a higher density of large trees, high tree canopy cover, and higher understory tree density.

To understand relationships of these desired habitat conditions they must be viewed in scales at tens of thousands of acres or larger. Scales greater than hundreds of thousands of acres are too large to ensure that desired habitat connectivity attributes are sufficiently distributed.

Where the Proposed Management Direction Will and Will Not Be Applied: The proposed management direction will apply to NFS lands within the Ashley, Dixie, Fishlake, Manti-LaSal, Uinta, and Wasatch-Cache NFs found within the State of Utah, with small portions of these forests in Wyoming and Colorado.

This direction will apply to forested habitats found within the approximately 8.1 million acres of National Forest System lands within the six Utah National Forest identified, *except* in the following areas:

1. Designated wilderness areas;
2. Administratively or Congressionally designated areas with a defined purpose (e.g., Research Natural Areas, National Recreation Areas, etc.);
3. Areas currently managed or allocated for concentrated recreation use and development (does not include ski resorts; ski resorts included under category #5 below);
4. National Forest System lands that are significantly influenced by lands in other ownership (e.g., high use urban interface areas); or,
5. Areas allocated for leasable mineral activities in current forest plans[2], areas under existing special use permits (includes ski resorts) which allow vegetative disturbance or treatments

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[2] ***Areas Allocated for Mineral Activities under a Forest Plan***: Areas designated by existing Forest Plans with management emphasis on mineral activities. For example: This includes MMA management units (Minerals Management Area) on the Manti-La Sal National Forest where coal mine facilities exist or are reasonably foreseeable and are specifically managed for leasable mineral activities.

(vegetation will be managed to meet the intent of the permit), or current administrative site uses and development.

In these areas, current forest plan direction will still apply. However, *when the direction adopted for management of goshawk habitat through this amendment does not conflict with the primary use in the exemption area, it will be applied*. Refer to Table 1 for acres by forest and exemption area.

While the direction adopted in this amendment will only be applied when it does not conflict with the primary use of an area, the contribution of these areas to sustaining habitat components for the goshawk and its prey are still important and will be analyzed and evaluated through the landscape assessment process. For example, areas such as wilderness may provide suitable goshawk habitat which may influence how habitat attributes in areas outside the wilderness are managed through time. However, vegetation in the wilderness is managed to meet the goals of the wilderness resource which may or may not be contrary to suitable goshawk habitat.

Areas where the proposed direction will and will not apply (#1-5 above) are shown on Maps 1 through 7 in Appendix C, when of sufficient size to be mapped. Due to the small size of some areas included under #5, all areas are not shown on the attached map. Examples of these types of areas include existing electronic sites, Federal Aviation Administration (FAA) sites, research plots, and some utility corridors and rights-of-way.

In addition to areas defined in #1-5 above, any valid, prior existing rights on NFS lands will not be affected by this amendment. Also, locatable, mineral material or leasable mineral activities and facilities[3] that have been authorized for such use under existing plans, licenses or permits[4], or have been leased or authorized for leasing[5] prior to the decision date of this amendment, will not be affected by this amendment. Restrictions required on mineral activities in these situations must be consistent with the mining laws, lease rights, and existing lease stipulations. Leasable mineral uses and activities that will not be affected include both on and off-lease activities and facilities[6] reasonably required to exercise rights granted by the mineral leases. However, appropriate measures will be taken to protect goshawk habitat and nesting activity to the extent agreed to by the lessee, permittee, or operator and/or within the legal authorities of the responsible agencies.

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[3] ***Mineral Activities and Facilities***: Those activities and facilities needed to reasonably explore for and produce locatable and leasable minerals and mineral materials consistent with the rights granted by a plan of operation, permit, license, lease and requirements of applicable laws, regulations, and lease terms, conditions, and stipulations.

[4] ***Plans or Permit Areas***: Areas where plans, licenses or permits have already been approved or issued for mineral related activities. They will include the permit areas for mines, oil and gas fields, oil and gas exploratory and development wells, preliminary exploration activities such as geophysical surveys, as well as ancillary facilities within or outside of existing leases, including (but not limited to) access roads, sediment ponds, staging or office facilities, pipelines, ventilation breakouts/shafts, etc.

[5] ***Areas Authorized for Leasing***: Area included within existing leases and those areas authorized and forwarded to the responsible agency for leasing by the Forest Service prior to the date of the Goshawk decision. This does not include all areas potentiality available for mineral leasing under Forest Plans.

[6] ***Activities/Facilities Required to Exercise Rights Granted by a Lease***: This will include such activities and facilities within or outside of existing leases reasonably necessary to exercise pre-existing rights granted by a lease and subject to existing lease terms, conditions, and stipulations. They will include exploration and production facilities, reconstruction of existing Forest Service roads for access to leases/facilities, and construction of new access/transportation facilities (roads, pipelines, powerlines).

Table 1: Acres by forest and exemption category

National Forest	Total National Forest Acres (millions)	Acres (Millions) and Percent of Total Acres Direction *Will* Apply	Acres Direction will not apply (acres rounded to thousands)					
			Total Acres (Millions) and Percent of Total Acres	#1 Wilderness	#2 i.e., RNAs, NRAs, etc.	#3 Developed Recreation[7]	#4 Urban Interface	#5 MMAs, Special Uses[8]
Ashley	1.3	0.9 -- 70%	0.4 -- 30%	273,000	83,000	57,000	0	6,000
Dixie	1.9	1.8 -- 94%	0.1 -- 6%	83,000	14,000	13,000	0	7,000
Fishlake	1.5	1.4 -- 96%	0.1 -- 4%	0	10,000	37,000	0	8,000
Manti-Lasal	1.3	1.2 -- 94%	0.1 -- 6%	45,000	20,000	5,000	0	9,000
Uinta	0.9	0.8 -- 88%	0.1 -- 12%	58,000	4,000	20,000	11,000	6,000
Wasatch-Cache	1.2	0.8 -- 64%	0.4 -- 36%	313,000	6,000	9,000	51,000	53,000
Totals	8.1	6.9 -- 85%	1.2 -- 15%	772,000	137,000	141,000	62,000	89,000

[7] Total Forest acres includes both forested and non-forested. Though recent Forest Inventory and Analysis (FIA) work has estimated that approximately 3.9 million acres of the total 8.1 million acres are forested (not including woodland), there is no data set currently available to spatially tie this data set to locations on the ground. GAP data was considered for this purpose, but based on reviews was determined not to be accurate enough for addressing location information of items in categories 3,4 and 5; and marginal in categories 1 and 2. GAP data was intended to be used at the state scale; use at smaller scales has mixed results. Therefore, direction relates to any forested acres found outside exemption areas within the total 6.9 million acres it will be applied to.

[8] #5 - Includes ski resort acres. Several special use permit areas are of small spatial area and highly dispersed. It is impractical to map these small special use areas at the scale of maps contained in Appendix C and forestwide mapping of these areas is still being developed; therefore they are not included on these maps. However, these areas are in the acreage calculation in Table 1 based on acres estimated under permit. Refer the special uses section in chapter 3 and 4 of this document (3.5.6 and 4.5.6, respectively) for a discussions relating to this subject.

The proposed direction will not apply in areas 1-5 above, or relative to existing uses or rights discussed, because:

- the forested habitats in these areas are managed for other purposes as defined by current policy, permits or regulations; or,
- the existing use permitted under the current forest plan will not always allow for the management of habitat as outlined in the proposed management direction; or
- the degree of influence resulting from adjacent lands in other ownership may preclude application of this direction.

Managing these areas consistent with current management direction and allowing for uses discussed above is important to meeting other goals and objectives in the forest plan. Doing so will not result in the loss of sufficient habitat needed to support the currently viable population of goshawks in the State of Utah (refer to Chapter 4, section 4.3.2).

Application of Management Direction: The management direction in the selected alternative will only apply prospectively, i.e., to projects for which there has not been a decision document issued prior to the effective date of this amendment.

Alternative Descriptions - Each alternative discussion below summarizes the issues addressed and the key factors that differentiates it from other alternatives. Appendix A contains the detailed management direction for each alternative in table format. The table assigns each goal, objective, standard, and guideline a unique number (ID). The format is: Goal - "G-# of goal"; Objective - "O-# of objective"; standard - "s-# of standard"; and, guideline - "g-# of guideline. Appendix B contains monitoring requirements associated with each alternative in table format. The table in Appendix B assigns each monitoring requirement a unique number (ID); format is "m-# of monitoring requirement". Following the alternative discussions, Table 2 provides a quick view of what goals, objectives, standards, guidelines and monitoring requirements are included in each alternative for a quick comparison.

Alternative A: This is the current management alternative, No Action. This alternative continues the current management direction; goals, objectives, standards and guidelines in each forest plan. Individual projects are evaluated by current NEPA and NFMA requirements. No specific landscape analyses are required. Since the goshawk is designated a sensitive species in the Intermountain Region, biological evaluations (BEs) will continue to be prepared for all projects to disclose any potential impacts.

This alternative responds to those that questioned the need to change management direction given the current good condition of the goshawk populations in Utah. For a more complete description of how current forest plan direction provides for the habitat needs of the northern goshawk (as described in the HCS (Utah NFs et al. 1998) and the Assessment [Graham et al. 1999]), refer to the SIRs completed by the Ashley (10/30/98), Dixie (10/28/98), Fishlake (12/16/98), Manti-LaSal (1/29/99), Uinta (12/8/98) and Wasatch-Cache (11/9/98) National Forests (Project Record, Exhibit K)

As part of the No Action alternative, the Regional Forester will require the establishment of a statewide monitoring strategy with the State of Utah and other interested agency partners. This will not require an amendment to the six Utah National Forest plans. Statewide habitat and population monitoring strategies will provide for:

- Habitat Monitoring: This will be done to track changes in goshawk habitat over time. Within one year following the decision for this action, the Intermountain Region will

establish a monitoring protocol with the State of Utah for tracking changes in suitable goshawk habitat across the State. The processes used in Graham et al. (1999) for assessing habitat quality, quantity and connectivity at the state scale will be used.

- Population Monitoring: Concurrent with habitat monitoring, the Intermountain Region will establish a monitoring protocol with the State of Utah for tracking changes in identified goshawk territory occupancy. Territory occupancy data currently collected and analyzed at the national forest level will be shared with the UDWR for aggregation and analysis at larger scales, including the State.

Results from these monitoring efforts will be used, in part, to:

- assess impacts of management activities across interagency boundaries;
- continue to assess and refine what role NFS lands play in maintaining habitat needed to support viable goshawk populations in Utah; and
- the need to change management direction at some future date.

Alternative B (Proposed Action): This is the alternative proposed by the Forest Service in response to the project's purpose and need and released for public review and comment on February 5, 1999 (**FR,** Vol. 64, No. 24, pgs 5758-5764). The Proposed Action provides reasonable assurance that key habitat elements at greatest risk to change during the life of this amendment will be maintained on areas affected by management, as well as providing greater consistency in management of the habitat elements across all six Utah National Forests. A series of goal statements depict the desired condition of habitat elements that pertain to the maintenance of goshawk habitat over time.

The key elements of the Proposed Action are:

1. It allows the design and implementation of actions which mimic the variability in size, intensity, and frequency of native disturbance regimes within the full historic range of variation, including extreme events.
2. Direction addresses the importance of using native plant species and provide for a full range of seral stages in forest cover types within landscapes.
3. Direction is also provided that addresses the importance of sustaining mature and old structures in the landscape and that landscape assessments must be completed to describe existing structural conditions and determine opportunities to move toward desired structural habitat conditions.
4. Additional direction for protection of nest and post fledgling areas (PFA) is also provided. This includes requirements for pre-project territory occupancy surveys 1 year prior to activity, 2 years preferred. These surveys are essential and have been regional policy since 1993.

A clarification of the guideline **(***g-21***)** concerning restrictions on permitted human uses in active nest areas makes it clear that the restricted permitted human uses are only those for which the Forest Service issues permits; and, clarifies that permitted livestock grazing is not affected.

Four areas are to be monitored: (1) Goshawk Territory Occupancy (m-1); (2) Goshawk Habitat Connectivity and the relationship of mature and old forests to habitat diversity (m-3); (3) Snag Management and its relationship to habitat diversity (m-4); and, (4) Down Woody Material and its relationship to habitat diversity (m-5).

Alternative C: This alternative responds to those that said "Management direction found in the Proposed Action is *not consistent* with recommendations found in its own science foundation and conservation strategy; not correcting these inconsistencies will likely result in continued habitat degradation and loss

of management options in the future." Similar to the Proposed Action, this alternative provides reasonable assurance that key habitat elements at greatest risk to change during the life of this amendment will be maintained on areas affected by management, as well as providing for consistency in management of the habitat elements across all six Utah NFs. A series of goal statements depict the desired condition of habitat elements that pertain to the maintenance of properly functioning habitat over time.

The key elements in this alternative that differ from the Proposed Action (Alternative B) are:

1. Guideline g-1 was modified (g-2) to make it clear that the desire to work within disturbance events characteristic of HRV will be as defined by PFC (refer to Appendix D); this means landscape scale disturbance events are not desired.
2. Goal G-3 was modified (G-4) to reflect the desire to maintain structures in landscape patterns that are within HRV as defined by PFC.
3. Goal G-7 was modified (G-8) to reflect the desire to maintain clumps of trees with interlocking branches/crowns to achieve desired canopy closures.
4. Guideline g-13 was modified (g-15) to direct that density of tree clumps in stands be used to achieve canopies and that it was desired to have a range of densities to achieve canopy closures versus a minimum as described in Alternative B.
5. A guideline (g-33) was added concerning the need to do landscape assessments for more than just balance of forest structure classes.

The four monitoring requirements in Alternative B (m-1; m-3; m-4; m-5) are included. In addition, a monitoring requirement is included which requires post-vegetative treatment goshawk territory occupancy surveys, m-2. Requirement m-2 will assess the effectiveness of standards and guidelines in preventing territory abandonment.

Alternative D: This alternative responds to the issue that "The Proposed Action does not contain *all* the recommendations for habitat management found in the science document used as its foundation; this will result in continued habitat degradation and loss of future management options." This alternative provides direction similar to Alternative B and C, but adds additional and more prescriptive direction developed from recommendations identified in Reynolds et al. (1992) as important to the maintenance and enhancement of goshawk habitat *over the long term*.

The key elements in this alternative that differ from the Proposed Action (Alternative B) are:

1. Guideline g-1 was modified (g-2) to make it clear that the desire to work within disturbance events characteristic of HRV will be as defined by PFC (refer to Appendix D); this means landscape scale disturbance events are not desired;
2. The same two goals modified in Alternative C are included in this alternative (G-4 and G-8);
3. A more prescriptive canopy closure guideline was added (g-16) that differentiates between cover types and goshawk habitat area (nest, PFAs and foraging area);
4. A guideline was added (g-12) which prioritizes slash disposal treatments that should be used;
5. Two guidelines were added (g-31 and g-32) to manage road use and development throughout all habitat areas (the Proposed Action only restricted this in active nest sites and PFAs);
6. A standard was added (s-7) which requires 2 years of nest surveys prior to habitat-disturbing activities;
7. A guideline was added (g-8) which restricted opening sizes (1-4 acres) resulting from mechanical treatments throughout all habitat areas except in aspen and lodgepole cover types (the Proposed Action only restricted this in active nest sites and PFAs);

8. Two standards were added (s-3 and s-4) requiring retention of groups of mature and old live trees throughout territories;
9. An ungulate grazing guideline was added (g-27) that includes a single average and maximum utilization standard for forage (20% and 40%, respectively) and shrubs (40% and 60%, respectively) on the six Utah National Forests;
10. A guideline was added (g-33) concerning the need to do landscape assessments for more than just balance of forest structure classes; and

Monitoring requirements are the same as Alternative C (m-1 through m-5), plus an additional monitoring requirement is added (m-6) concerning ungulate grazing and utilization. Requirement m-6 will assess whether utilization direction was implemented and if it was effective.

Alternative E: This alternative responds to the issue that the "Use of the wrong management recommendations for management of goshawk habitat will result in habitat degradation and loss of future management options." Respondents noted the debate in the biological community, as well as among credible agencies, on how habitat for the goshawk and its prey should be managed.

Because this issue was based on the disagreements between Reynolds et al. (1992) and others in the biological community, direction in Alternative D was used as the base. Direction was modified in Alternative D to address disagreements, resulting in more prescriptive and less flexible direction than found in Alternative D, as well as other action alternatives. The key elements in this alternative that changed from Alternative D are:

1. Goal (G-3) and guideline (g-1) allow for the full range of native disturbance processes, including extreme events (this is the same as Alternative B);
2. The canopy closure guideline (g-14) reflects higher desired canopies, higher than any other alternative;
3. A standard was added (s-2) which prohibits treatment in existing mature and old forest structures;
4. A standard was added (s-1) requiring the use of *only* native species in management activities;
5. A standard was added (s-10) that prohibits any human disturbance (as permitted by the Forest Service, excluding livestock grazing) in active nesting areas during the breeding period. Other alternatives provide flexibility through a guideline that will allow disturbance if it is determined that the disturbance will not likely result in nest abandonment.
6. A guideline was added (g-30) concerning restrictions for treatments in lands classified as unsuitable timber lands.
7. The grazing guideline was eliminated, and current forest plan requirements will be followed (this is the same as Alternatives B and C).

Monitoring requirements are the same as Alternative C and D (m-1 through m-5), except the grazing monitoring requirement (m-6) was deleted.

Alternative F: This alternative responds to the issue that "Management activities should concentrate on maintenance of habitat areas at risk to provide for the greatest opportunity to minimize any further degradation of habitat and loss of management options." This alternative focuses management on goshawk habitat acres at-risk. Acres at-risk are defined as those that, during the life of this amendment, may lose sufficient habitat elements important to the goshawk and its prey, such that they will no longer be rated as high and optimum habitat based on the Graham et al. (1999) rating process. By focusing management on those forested acres that are at greatest risk of dropping from high and optimum goshawk habitat to low or moderate, the agency will do the most it can do in over the projected 4 year life of this amendment to minimize any further loss of key habitat areas.

Graham et al. (1999) use the current distribution and connectivity of high and optimum habitat as their basis for determining if sufficient amounts of habitat are available in the State of Utah to support the currently viable population of goshawks.

This alternative is similar to Alternative C. The key elements that changed in this alternative are:

1. All long term goals common to Alternative C and other action alternatives were deleted and replaced with a single goal which focuses on short-term maintenance or restoration of high or optimum habitats (per Graham et al. 1999 assessment process);
2. Unlike other action alternatives, an objective was added which emphasizes the need to treat at least 1000 acres per year on each administrative unit to further achievement of the short term goal previously discussed.
3. This alternative includes grazing direction. The focus is on the need to change grazing practices only in those areas where landscape assessments determine grazing is a factor in putting a landscape at-risk relative to habitat needs of the goshawk.

Six monitoring requirements are included under this alternative, m-1 through m-5, and m-7. This is the same as Alternatives C, D and E except the grazing requirement under Alternative D, m-6, is replaced with m-7**.**

<u>Table 2:</u> Applicable Goals (G), Guidelines (g), Standards (s), Objectives (o), and Monitoring Requirements (m) for Alternatives. Refer to Appendix A for a detailed description of the proposed management direction and Appendix B for alternative monitoring requirements.

Indicator	A	B	C	D	E	F
Native Processes	current plan direction variable	G: 1 g: 1, 3	G: 1 g: 2, 3	G: 1 g: 2, 3	G: 1 g: 1, 3	g: 2, 3
Forest Composition	current plan direction variable	G: 2 g: 4, 5	G: 2 g: 4, 5	G: 2 g: 4, 5	G: 2 g: 5 s: 1	g: 4, 5
Forest Structure	current plan direction variable	G: 3, 5, 6, 7 g: 6, 7, 9, 11, 13	G: 4, 5, 6, 8 g: 7, 9, 11, 15	G: 4, 5, 6, 8 g: 7, 8, 9, 10, 11, 12, 16 s: 3, 4	G: 3, 5, 6, 7 g: 8, 9, 10, 11 12, 14 s: 2, 3, 4	g: 7, 9, 11, 15
Nest and PFA	current plan direction variable	G: 9 g: 17, 18, 19, 20, 21, 22, 24, 25 s: 5, 6, 8, 9	G: 9 g: 17, 18, 19, 20 21, 22, 24, 25 s: 5, 6, 8, 9	G: 9 g: 18, 19, 20, 21, 22, 24, 26 s: 5, 7, 8, 9	G: 9 g: 18, 19, 20, 23, 24, 26 s: 5, 7, 8, 9, 10	g: 17, 18, 19, 20 21, 22, 24, 25 s: 5, 6, 8, 9
Other Misc.	current plan direction variable	None	g: 33	g: 27, 31, 32, 33	g: 30, 31, 32, 33	g: 28, 29, 33
Treatment Prioritization	current plan direction variable	None	None	None	None	G: 10 g: 34 o: 1 s: 11
Monitoring Requirements	current plan requirements variable	m: 1, 3, 4, 5	m: 1, 2, 3, 4, 5	m: 1, 2, 3, 4, 5, 6	m: 1, 2, 3, 4, 5	m: 1, 2, 3, 4, 5, 7

2.4 Alternative Comparison

1. *To what extent will the alternative affect goshawk population viability during the remainder of the current planning period?*

   None of the alternatives, including the No Action Alternative, will result in the loss of goshawk population viability during the short time frame of this amendment. Habitat in Utah is of sufficient quality, quantity and distribution to continue to support this viable population (Graham et al. 1999).

2. *To what extent will an alternative reduce risk to loss of habitat needed to support the currently viable population of goshawks in Utah?*

   Each alternative varies in its ability to reduce risk to loss of habitat needed to support the currently viable population of goshawks in Utah. Looking at the alternatives in a very broad perspective, they can be rated from highest to lowest reduction in risk to habitat. The alternative with the highest risk reduction provides the greatest opportunity for maintenance, and possibly restoration and enhancements.

   Highest reduction in risk <----------> Lowest reduction in risk
   Alt. F Alt. C Alt. D Alt. B Alt. E Alt. A

   This is a very simplistic comparison of alternatives; additional insight into the reasons for this rating of risk reduction follow. The discussion briefly highlights key differences in each alternative found through the detailed analysis. For a more in-depth discussion of all aspects of each alternative, refer to Chapters 3 and 4.

   Alternative F: Based on this assessment, this alternative provides direction that focuses management activities for the remainder of the planning period on those areas at greatest risk to falling from high or optimum goshawk habitat to low or moderate, *thus providing the greatest reduction in risk in the short-term.*

   Alternative C: This alternative also offers a high level of risk reduction; however, it is lower than Alternative F because it does not focus on high and optimum habitat areas that are currently at-risk. As a result, more of these at-risk areas could fall into low to moderate quality habitat over the projected 4 year life of the amendment.

   Alternative C, unlike Alternative F, does not address grazing practices. The analysis determined that during the short life of the amendment, not changing grazing practices from what is currently allowed under direction in forest plans is not likely to result in any measurable difference in terms of maintenance of goshawk populations that are currently viable in Utah.

   Alternative D: This alternative has a lower level of risk reduction over the projected 4 year life of the amendment than Alternatives C or F because of the degree of complexity involved with future project design and implementation. This complexity causes two things to happen:

   1. It costs more in time and funds to implement and reduces the overall number of acres that may be treated over the amendment period; and

2. The complexity of implementation may affect the degree of success and ability to duplicate actions (consistency).

As a result, more of the high and optimum habitat quality areas identified as at-risk could drop in to lower quality habitat over the time period of the amendment.

The ungulate utilization guideline is a conservative approach to dealing with potential goshawk habitat problems that can be attributed to grazing. Though this adjustment will likely resolve many of the effects caused by grazing on more acres than Alternative F, in many cases it may not be the only resolution to the problem and, in some cases, will be applied to areas where grazing is not a problem.

Alternative B: Alternative B is similar to Alternative C, with differences in why landscape assessments are done, canopy closures retained and allowing treatments to mimic conditions within the full range of the Historic Range of Variation (HRV). Because of these three items, it provides a slightly lower level of risk reduction for maintenance of habitat than Alternative C and D.

Alternative E: This alternative provides direction similar to Alternative D, except grazing direction is deleted and treatments in groups of mature and old forests are prohibited. Also, treatment of unsuitable acres is restricted when treatments are designed to foster goshawk habitat needs only, and treatments are allowed to mimic patterns within the full range of HRV, including extreme events. Finally, this alternative will promote substantial increases in canopy closure requirements throughout forested acres not exempt from application of this direction.

By applying direction in this alternative in future project design and implementation, the effects analysis determined that it will likely promote conditions that are not sustainable over the long-term in patterns and landscape scales desired, and will be at high risk to loss over time.

Alternative A: The No Action alternative is the most variable in terms of risk. Direction in current plans for project design and implementation concerning the aspects addressed in the action alternatives is either lacking or too broad. Current direction allows decisions to be made that may adversely affect goshawk habitat, or direction is not sufficient to provide consistency in habitat management across NFS lands.

3. *How will implementation of an alternative affect management activities, and at what cost (including social and economic costs)?*

Though an alternative may provide the most risk reduction to habitat needed to support viable populations of goshawks, it may have moderate to high costs socially and economically. The relative degree of social impacts will follow the same degree of change as the economic impacts experienced by that group. There is a close tie between economic and social factors. For example, Alternatives D requires the greatest change to grazing and could impact some grazing interests economically at the point it is integrated into a grazing permit. The primary basis for determining the effects to the social environment is the economic changes that may result from each alternative.

Looking at the alternatives in a very broad perspective, they can be rated from lowest to highest in terms of social and economic costs based on the assumptions stated above.

Lowest costs <----------> Highest costs
Alt. A Alt. C ~ Alt. B Alt. F Alt. D Alt. E

This is a very simplistic comparison of alternatives; additional insight into the primary reasons for this rating of costs follows. For detailed disclosures, refer to Chapters 3 and 4.

Alternative A: Because activities are likely to continue as planned it is expected that this alternative will result in the lowest costs socially and economically.

Alternative C: Of the action alternatives, this alternative results in the lowest costs socially and economically. Recreational and scenic resources are retained to support tourism and recreational uses on National Forests. Current plan direction protecting heritage resources, soil, water, air quality and human health and safety are unaffected. Current direction on grazing management does not change. Current special use permits, mining and mineral leases currently with plans or permits, and developed recreation facilities are not affected because they are exempt. The output likely affected is commercial wood products. However, as discussed in 4.6.1, no measurable change in overall outputs is expected at the state or forest scale over the period the amendment will be in effect, though potential product size changes could occur.

Administrative costs associated with future project design and implementation will not measurably change. Though some increases may result, many aspects of the alternative are already being implemented under different parameters. Direction in this alternative may change how things are looked at but not add substantially to the workload. Monitoring will add some additional costs but not beyond capabilities of current Forest programs.

Alternative B: The primary difference in the social and economic environment between this alternative and Alternative C is the ability to design and implement actions which include extreme events. This variance results in a potential for higher costs to the social and economic environment. Due to the short time frame of this amendment and the corresponding low probability that an extreme disturbance will manifest itself at a scale that will be noticeable across the analysis area, a large difference was not identified. Administrative costs are similar to Alternative C, with slightly lower costs resulting from the reduction in one of the monitoring requirements (m-2) found in Alternative C.

Alternative F: This alternative projects slightly greater costs socially and economically over Alternatives C and B but, again, not likely to be measurable over the amendment period. Recreational and scenic resources are retained to support tourism and recreational uses on national forests. Current plan direction protecting heritage resources, soil, water, air quality and human health and safety is unaffected, and current special use permits, mining and mineral leases currently with plans or permits, and developed recreation facilities are not affected, as they are exempt.

The outputs that may be affected are commercial wood products and livestock grazing. While measurable change in overall outputs at the forest or state scale are not likely over the amendment period, the potential for localized effects are identified (see 4.5.2). For example, where grazing is determined to be contributing to an at-risk condition, grazing practices will be changed as needed to initiate correction of the identified problem. Because this guideline will only be implemented when and if problems are found where grazing is contributing to habitat degradation as landscape assessments are done, the degree of change that will occur at

the forest or state scale during the life of the amendment is not likely to be measurable (see 4.5.2).

When and if grazing practices are modified, administrative costs will likely be slightly higher due to the modifications. Monitoring will add some additional costs but not beyond capabilities of current Forest programs (see 4.5.7).

Alternative D: This alternative imposes substantially more restrictions to project design and implementation than other alternatives. The restriction that results in the most noticeable change to the social and economic environment is the substantial reduction in grazing utilization across all non-exempt forested acres within Utah's NFs. Based on the analysiss in Chapter 4, the effects will be measurable at the state scale with an estimated reduction of approximately 23% in permitted animal unit months (AUMs) across Utah's NFs. Measurable reductions are expected at the forest and local scales as well; however, the % reduction will be variable depending on site specific conditions. In some cases, livestock grazing permits could be reduced to a level where it may no longer be economically viable for a permittee to continue to graze livestock on some allotments.

Administrative costs are likely to increase as a result of the complexity of integrating proposed direction in future project design and implementation. Monitoring will add some additional costs but not beyond capabilities of current Forest programs.

Alternative E: This alternative imposes many of the same restrictions as Alternative D, except:

- it eliminates grazing restrictions; current forest plan direction will apply.
- it prohibits vegetative management activities in all forested groups dominated by mature and old forests and on unsuitable forest lands for purposes of promoting habitat for the goshawk and its prey.

The key social and economic impact of this alternative results from prohibiting any further commercial harvest in forests dominated by mature and old trees for the period the amendment is in affect (the time frame between now and when current forest plans are revised). This will have local, forest, and state level impacts to timber industry. These impacts will be measurable, resulting in reductions from current levels of wood product outputs by an estimated 30% of total volume offered in a year.

These discussions highlight the key differences between the effects of alternatives. Table 3 provides an easy comparison of key outcome differences expected from each alternative. Other refinements were made and their effects are discussed in Chapter 4.

Table 3: Key Outcome Differences Among Alternatives

	ALTERNATIVE					
Indicator	**A**	**B**	**C**	**D**	**E**	**F**
Native Processes	Variable depending on Forest Plan	allows for mimicing extreme disturbance events within HRV	does not attempt to mimic extreme disturbance events (PFC)	does not attempt to mimic extreme disturbance events (PFC)	allows for mimicing extreme disturbance events within HRV	does not attempt to mimic extreme disturbance events (PFC)
Forest Composition	Variable depending on Forest Plan	prefer the use of locally adapted native species in management activities when and where practical	prefer the use of locally adapted native species in management activities when and where practical	prefer the use of locally adapted native species in management activities when and where practical	*requires* use of locally adapted native species in management activities	prefer the use of locally adapted native species in management activities when and where practical
Forest Structure	Variable depending on Forest Plan	40%+ canopy closure in foraging area, 50%+ in nest and PFAs as measured within the stand; 1-2 acre opening limit in only the Nest and PFA;	40-70% of stand covered by clumps of trees with interlocking branches in foraging and PFAs, 50-70% of stand covered by clumps in nest areas to provide desired canopy closure; 1-2 acre opening limit in only the Nest and PFA;	40-70%+ canopy closure as measured within the stand and is specific by cover type and goshawk habitat area (see g-16); 1-4 acre opening limit within entire territory (home range); 1-2 acre opening limit in Nest and PFA; retains green tree clumps in vegetative management areas	60%+ canopy closure in foraging area, 75%+ in nests and PFA areas; as measured within the stand; 1-4 acre opening limit within entire territory; 1-2 acre opening limit in Nest and PFA; retains green tree clumps in vegetative management areas prohibits any treatment in older structural stages	40-70% of stand covered by clumps of trees with interlocking branches in foraging and PFAs, 50-70% of stand covered by clumps in nest areas to provide desired canopy closure; 1-2 acre opening limit in only the Nest and PFA;
Nest and PFA	Variable depending on Forest Plan	1 year required/ 2 years preferred of surveys prior to treatment	1 year required/ 2 years preferred of surveys prior to treatment	2 years of surveys required prior to treatment	2 years of surveys required prior to treatment; requires the least disturbance in nest and PFAs	1 year required/ 2 years preferred of surveys prior to treatment

	ALTERNATIVE					
Indicator	**A**	**B**	**C**	**D**	**E**	**F**
Other Misc.	Variable depending on Forest Plan	none	requires landscape assessments to help identify opportunities for project proposals;	requires landscape assessments to help identify opportunities for project proposals; flat ungulate utilization guidelines, 20% average, 40% max of grass/forbs within forested habitats; Where timber harvest is prescribed manage transportation system to minimize territory disturbance (likely to result in nest abandonment).	requires landscape assessments to help identify opportunities for project proposals; no treatment in unsuitable forest lands for the sole purpose of goshawk habitat management; Where timber harvest is prescribed manage transportation system to minimize territory disturbance (likely to result in nest abandonment).	requires landscape assessments to help identify opportunities for project proposals; application of livestock grazing practices guideline if grazing is contributing to at-risk condition;
Treatment Prioritization	Variable depending on Forest Plan	none	none	none	none	Management activities prioritized in habitats at-risk
Monitoring Requirements	Variable depending on Forest Plan	none	post-treatment occupancy monitoring	post-treatment occupancy monitoring ungulate grazing monitoring required on % of all allotments	post-treatment occupancy monitoring	post-treatment occupancy monitoring ungulate grazing monitoring required where landscape assessment identifies problem