

**Environmental Assessment  
For the  
Amendment to  
the Ashley National Forest Land and Resource Management Plan  
Management Indicator Species**

**June 2004**



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## **Chapter 1 – Purpose and Need**

### **Introduction**

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Forest Management Act (NFMA), National Environmental Policy Act (NEPA), and other relevant federal and state laws and regulations. The proposed action is to amend the Ashley National Forest Land and Resource Management Plan (Forest Plan) relative to the designated management indicator species (MIS), and their associated monitoring procedures.

This EA presents alternatives, evaluates the alternatives in terms of meeting the purpose and need, analyzes the alternatives against criteria for the selection of MIS, and analyzes the significance of the proposed Forest Plan amendment. Additional documentation can be found in the project planning record located in the Supervisors Office, Ashley National Forest, in Vernal, Utah.

The designated management indicator species (MIS) in the 1986 Ashley Forest Plan were evaluated for their suitability (as indicators) and effectiveness in meeting the requirements and achieving the goals of the NFMA and its implementing regulations 36 CFR 219.19 (Appendix A). This evaluation concludes that the Ashley National Forest should retain northern goshawk and cutthroat trout and evaluate other species that use the major vegetation communities on the forest. Appendix A also includes background information from NFMA regarding MIS.

### **Purpose and Need**

The purpose and need to amend the designated MIS in the Ashley National Forest Land and Resource Plan is to identify a set of MIS whose population changes indicate the effects of management activities for the community they represent. This includes:

- Species for whom population data is readily available or for whom protocols exist for the collection of scientifically credible population data.
- Species for which there is a relationship between population trends and habitat management activity which is documented in the scientific literature and which can be modeled.
- Species who reside in habitats where forest management activities occur (e.g., timber harvest, road construction, mining, and livestock grazing).

In addition, part of the purpose and need is to consider MIS for the Ashley that are also MIS on the Uinta and Wasatch-Cache National Forests, so that analysis of data can include the entire ecosystem.

### **Proposed Action**

The Forest Supervisor proposes to amend the Ashley Land and Resource Management Plan to change the designated management indicator species (MIS) for an interim period until the Plan is revised. The amendment would include the monitoring and evaluation procedures for each

species.

The amendment would change the designated MIS and their monitoring requirements in Chapter 5 of the 1986 Forest Plan. If the 1982 NFMA regulations govern the revision of the Ashley Forest Plan, MIS would again be reviewed during revision of the Forest Plan. The Ashley National Forest is undergoing revision of its Forest Plan, starting in 2004 with the expected completion date of 2009.

The proposed list of Management Indicator Species is found in Table 1. The monitoring requirements for these species are found in Appendix B.

**Table 1.**

<b>MIS</b>	<b>Habitat</b>
Northern Goshawk	Forest
Snowshoe Hare	Forest
American Beaver	Riparian
Colorado River Cutthroat Trout	Aquatic (Lotic systems)

The proposed action does not include a MIS for aspen, sagebrush, cliff, or alpine habitats. It does not include the current MIS that have no habitat affiliation (see the No Action Alternative description in Chapter 2).

## **Location**

The Ashley National Forest covers approximately 1.4 million acres in northeast Utah, and spans a major portion of the east-west Uinta Mountain Range. The Uinta and Ouray Indian Reservation and two other National Forests – the Uinta and Wasatch-Cache - border the Ashley National Forest along with BLM lands, State lands, and private property.

## **Decision to Be Made**

The Forest Supervisor will decide whether or not to amend the Ashley Land and Resource Management Plan to modify the designation of MIS and their associated monitoring parameters.

## **Public Involvement**

A scoping letter was mailed December 16, 2003 to about 800 parties that are on the Forest Mailing list. The proposed action was enclosed with a cover letter inviting comments by January 23, 2004. Seventeen written comments were received. A summary of the comments and responses to those comments is found in Appendix C. In addition to issues, many of the comments included specific references to suggested MIS. These are evaluated in Appendix D.

In mid-April, all parties that commented on the proposed action were sent a letter that outlined four draft alternatives based on internal and public issues, including the No Action and the Proposed Action. Alternative 3 included many of the specific MIS referenced in the comment letters. Alternative 4 responded to the issue of monitoring feasibility. Three comment letters were received. A summary of the comments and responses to those comments is also found in Appendix C.

## **Issues**

The major issues from public comments on the proposed action included:

1. Representing the major vegetation communities and management issues on the Ashley National Forest by a MIS (especially sagebrush and aspen; livestock grazing)
2. Designating MIS that are cost-effective to monitor
3. Waiting to review MIS until Forest Plan revision
4. Retaining mule deer and elk due to their importance as big game species
5. Doing an environmental impact statement (EIS) for this amendment

Issues 1 and 2 are addressed in alternatives to the proposed action. Issues 3 and 4 are addressed in the No Action Alternative. The question of significance (Issue 5) is determined in the “Finding of No Significant Impact” and an evaluation of the significance of the amendment under NFMA in the Decision Notice.

Other public comments, including those issues that are outside the scope of this analysis (e.g., travel management) are addressed in the response to comments in Appendix C.

## Chapter 2 – Alternatives

In addition to the Proposed Action and the No Action Alternatives, two more alternatives were developed based on the issues discussed in Chapter 1. The four alternatives are described in this chapter. Monitoring parameters for each of the species in all four alternatives is found in Appendix B. Figure 1 shows the distribution of the major vegetation types on the Ashley National Forest.

### Alternative 1 (No Action)

The No Action Alternative would retain the current list of management indicator species.

This alternative responds to the concerns brought up in scoping that a change to the MIS list should be postponed until Forest Plan revision, and also to the comments about retaining mule deer and elk as MIS due to their importance as big game species.

Existing management indicator species in the Ashley Forest Plan include:

Sagebrush: *sage grouse*

Riparian: *Lincoln's sparrow and song sparrow*

Aspen: *red-naped sapsucker and warbling vireo*

Forest: *northern goshawk*

Aquatic: *cutthroat trout and macroinvertebrates*

Other: *golden eagle, white-tailed ptarmigan, mule deer, and Rocky Mountain elk*

The monitoring requirements from Chapter IV of the 1986 Ashley Forest Plan for MIS are on page 19 in Appendix A. The distribution of suitable habitat or observation points (golden eagle) for these species on the Ashley National Forest is depicted in Figures 2-8. The distribution and status of cutthroat trout on the Ashley is depicted in Figure 11.

### Alternative 2 (Proposed Action)

Alternative 2 responds to purpose and need described in Chapter 1 with a strong emphasis on adding MIS from the Uinta and Wasatch-Cache National Forests, which share management responsibility of the Uinta Mountains, so that analysis of data can include the entire ecosystem.

The proposed MIS include:

Sagebrush: *no MIS*

Riparian: *beaver*

Aspen: *no MIS*

Forest: *northern goshawk and snowshoe hare*

Aquatic: *Colorado River cutthroat trout*

The distribution of suitable habitat for these species on the Ashley National Forest is depicted in Figures 5, 6, and 9.

The Ashley National Forest currently has a water quality and vegetation-monitoring program includes gathering information and evaluating management activities on the major vegetation communities (pages 20-27 in Appendix A).

### **Alternative 3 (Major Vegetation Communities)**

Alternative 3 responds to Issue 1 (see Chapter 1) and includes MIS to represent sagebrush and aspen communities as well as the habitat categories in the proposed action (riparian, aquatic, forest). Under this alternative, the following species would be MIS in the Ashley Forest Plan:

Sagebrush: *Brewer's sparrow*

Riparian: *song sparrow*

Aspen: *warbling vireo*

Forest: *northern goshawk*

Aquatic: *cutthroat trout*

Population trends for the three migratory bird species would be derived from Regional data (state of Utah) represented by the Breeding Bird Surveys (BBS) (Sauer et al. 2003). These regional trends would be compared to data from BBS transects on the Ashley National Forest in conjunction with habitat based point count locations. Monitoring for goshawk would follow the protocols in Chapter V of the Ashley Forest Plan, as amended by the Utah Goshawk Project.

The distribution of suitable habitat for Brewer's sparrow on the Ashley National Forest is depicted in Figure 10.

### **Alternative 4 (Two Species)**

Alternative 4 responds to the public comments that asked for MIS that are cost-effective to monitor. Under this alternative, the following species would be MIS in the Ashley Forest Plan:

Sagebrush: *no MIS*

Riparian: *no MIS*

Aspen: *no MIS*

Forest: *northern goshawk*

Aquatic: *cutthroat trout*

The Ashley National Forest's currently has a water quality and vegetation-monitoring program that includes gathering information and evaluating management activities on the major vegetation communities (Appendix A).

## Chapter 3 – Affected Environment and Environmental Consequences

### Affected Environment

The affected environment includes the habitats and communities on the Ashley National Forest that have active forest management. The affected environment also includes the Forest Plan direction for Fish and Wildlife in the 1986 Ashley Forest Plan.

#### Habitats and Management Activities

Table 2 displays the following Ashley National Forest major habitat groups (AMS 1982). Figure 1 also displays this information.

**Table 2.**

Habitat/Community Type	Acres	% of Forest
Grassland/Meadow	65,023	5
Sagebrush	113,221	8
Desert Shrub	94,119	7
Mountain Shrub	49,862	3
Pinyon/Juniper	59,512	4
Conifer forest	669,442	46
Aspen	70,686	5
Alpine Meadow	104,284	7
Barren or Rock	94,625	7
Aquatic	51,447	4
Riparian	69,028	4

An estimated 437 species of fish, amphibians, reptiles, birds, and mammals inhabit the Ashley National Forest (Ashley Forest Plan EIS, page III-18).

Management activities on the Ashley National Forest include livestock grazing, timber harvest, prescribed fire, fire suppression, recreation and travel management, habitat enhancements (such as aspen restoration, stream projects for cutthroat trout), and administration of special use permits relative to oil and gas, irrigation diversions, utility and irrigation water rights on streams. Table 3 displays the outputs from the Ashley National Forest in 2003.

**Table 3.**

Program Area	Activity	Actual 2003
Range	1,000 AUMS	82
Timber	Sawtimber outputs – softwood (MMCF)	0.4
	Sawtimber outputs – hardwood	0

Program Area	Activity	Actual 2003
	(MMCF)	
	Roundwood outputs (MMCF)	0.0178
	Fuelwood outputs (MMCF)	0.36
	Reforestation (acres)	40
	Timber stand improvement (acres)	600
Wildlife and Fish	Structural habitat improvements (each)	3
	Nonstructural habitat improvements (acres)	400
Minerals	Leases, permits, NOIs, operating plans (each)	35
Roads	Total road construction or reconstruction (miles)	16.7

### Forest Plan Direction for Fish and Wildlife

Appendix E evaluates the effects of the alternatives relative to the overall management direction for fish and wildlife. The specific references from the Forest Plan relative to MIS are presented here.

Objective: Develop and implement habitat management plan that will include key ecosystems and maintain habitat for supporting T&E or sensitive plants and animal species and management indicator species.

Standard-Guideline: Complete inventory of management indicator species on the Forest to determine their occurrence, abundance, distribution, habitat requirements, and population trends.

Standard-Guideline: Establish and maintain thermal and security cover needs to meet the Forest’s big game and Management Indicator Species habitat objectives.

### Evaluation of the Alternatives

An overview of the species in the No Action Alternative is found in the evaluation of existing MIS on the Ashley National Forest in Appendix A. An overview of the new MIS (beaver, snowshoe hare, Brewer’s sparrow) is found in Appendix D. In this section, the MIS in all the alternatives are evaluated relative to the Purpose and Need, and the alternatives themselves are evaluated relative to their effects on the Forest Plan direction.

### MIS Comparison Evaluation Criteria

The individual MIS in the four alternatives are evaluated with respect to the Purpose and Need using the following nine criteria:

1. The species life history relates to forest management.

2. The species is a yearlong resident on the planning unit (i.e., not migratory).
3. The MIS are currently being monitored by a state, federal, or private entity and population data is available or protocols exist for collection of scientifically credible population data, which could be reasonably accomplished by the Forest.
4. The overall local population is large enough to enable sample sizes sufficient for reliable statistical analysis and to fluctuate without threat of extinction so that the population trends can be analyzed relative to management activities.
5. The species is not hunted or trapped, fished or stocked (i.e., the forest has little control over population objectives or levels).
6. The species is not dramatically cyclic.
7. The species is somewhat representative of other species that use the habitat type.
8. The species and its habitat are widely distributed on the planning unit.
9. Species from adjacent units are considered so that analysis of data from adjacent forests can be compared and contrasted to local forests.

**MIS Evaluation**

Table 4 provides a comparison of the species featured in the alternatives. The species are rated on a scale of 1-3 (1 – weakly meets criteria; 2- moderately meets criteria; 3- strongly meets criteria).

**Table 4.**

CRITERIA	Habitat	1	2	3	4	5	6	7	8	9	TOTAL SCORE
Red-naped sapsucker	Aspen	2	1	2	2	3	3	2	2	1	18
Warbling vireo	Aspen	2	1	2	3	3	3	2	3	1	20
Northern goshawk	Forest	3	2	3	3	3	3	2	3	3	25
Golden eagle	Cliff	1	2	2	1	3	3	1	1	1	15
Lincoln’s sparrow	Riparian	2	1	2	2	3	3	2	2	1	18
Song sparrow	Riparian	2	1	2	3	3	3	2	2	1	19
Sage grouse	Sagebrush	3	2	3	2	3	3	2	2	1	21
White-tailed ptarmigan	Alpine meadow	2	3	1	2	2	3	2	2	1	18
Mule deer	General	3	2	2	3	1	3	1	3	1	19
Rocky Mountain elk	General	3	2	2	3	1	3	1	3	1	19
Cutthroat trout	Aquatic (lotic)	3	3	2	3	2	3	3	3	3	25
Macroinvertebrates	Aquatic (lotic)	3	3	3	3	3	3	3	3	1	25
Snowshoe Hare	Forest	2	3	2	2	2	2	1	2	3	19
Beaver	Riparian	2	3	2	3	2	3	3	3	3	24
Brewer’s sparrow	Sagebrush	2	1	2	3	3	3	2	2	1	19
Colorado Cutthroat Trout	Aquatic (lotic)	3	3	2	1	2	3	3	2	2	21

Rating Explanations:

Criteria 1: There is a documented relationship between the species and some aspect of forest management = 3; a relationship between the species and some aspect of forest management can be inferred from life history and species habitat relationships = 2; relationships between the species and management are weak or unknown = 1.

Criteria 2: Yearlong resident = 3; some of the population migrates off forest = 2; migratory =1.

Criteria 3: Population is monitored presently with adequate results = 3; population is monitored presently or there is monitoring protocol, but results cannot be interpreted relative to management activities = 2; population monitoring is not occurring presently and protocol is not available or monitoring would be difficult (logistically or budgetary) to develop or implement =1.

Criteria 4: The species is common on the Ashley National Forest and populations are sufficiently large to monitor trends = 3; the species is known to occur on the Ashley in low-moderate numbers = 2; the species is rare on the Ashley or =1.

Criteria 5: Species is not hunted or trapped, fished or stocked = 3; species is hunted or trapped, fished or stocked, but not widely =2; species' population is heavily influenced by human harvest or other manipulation = 1.

Criteria 6: Population does not cycle at all and is relatively uninfluenced by climate=3; population is mildly cyclic or influenced by climate =2; population is strongly cyclic or closely tied to fluctuations in climate variables=1.

Criteria 7: There is a documented association between the species and its habitat representative of the needs of other species that use that habitat (e.g., snags, water quality, prey density) =3; habitat relationship similarities with other species can be inferred from life history information = 2; there is no basis for an association with the habitat requirements of other species = 1.

Criteria 8: The species and its preferred habitat are well distributed on the Ashley National Forest = 3; suitable habitat is limited, but the species is well distributed where the habitat occurs = 2; the preferred habitat is limited and the species is not well distributed within the habitat =1.

Criteria 9: The species is a MIS on both the Wasatch-Cache and Uinta National Forests =3; on one of the adjacent forests =2; on neither = 1.

**Evaluation of the Alternatives**

Averaging the scores of the individual MIS represented in each Alternative provides a comparison of the Alternatives relative to the Purpose and Need (Table 5).

**Table 5.**

Alternative	Average MIS score
1	20.2
2	22.3
3	21.6
4	25.0

It should be noted that NFMA does not require MIS for all habitats or issues. Under all the alternatives, the current direct habitat monitoring programs in sagebrush, pinyon-juniper, aspen, riparian, and alpine habitats, and direct monitoring of water quality parameters would provide information about the effects of management activities on these habitats (see Appendix A).

**Evaluation of the Alternatives Relative to Forest Plan Direction**

The objectives, standards and guidelines for Fish and Wildlife were designed to maintain the diversity and integrity of habitats on the Ashley National Forest independent of habitat requirements for specific MIS. However, the Forest Plan refers specifically to MIS in one objective and two standards and guidelines.

Table 6 features a comparison of the alternatives relative to changes that would be needed to the Forest Plan standards.

**Table 6.**

Forest Plan Direction	Alt 1	Alt 2	Alt 3	Alt 4
<u>Objective:</u> Develop and implement habitat management plan that will include key ecosystems and maintain habitat for supporting threatened and endangered or sensitive plants and animal species and management indicator species.	No effect	No effect	No effect	No effect
<u>Standard/Guideline:</u> Complete inventory of Management indicator Species on the Forest to determine their occurrence, abundance, distribution, habitat requirements, and population trends.	No effect	No change in Forest Plan Direction; Develop relationships for beaver and snowshoe hare	No change in Forest Plan Direction; Develop relationship for Brewer’s sparrow	No effect
<u>Standard/Guideline:</u> Establish and maintain thermal and security cover needs to meet the Forest’s big game and management indicator species habitat objectives.	No effect	Delete reference to MIS	Delete reference to MIS	Delete reference to MIS

**Cumulative Effects**

Reasonably foreseeable actions related to MIS were considered in conjunction with the Alternatives. These include:

- Past, on-going, proposed management activities that implement the 1986 Forest Plan
- Pending Plan revision (2004 through 2009)

**Alternative 1:** Based on the relatively short life left on the 1986 Forest Plan, maintaining the status quo (No Action Alternative) is not cost effective, efficient or feasible in meeting the MIS requirements of NFMA. There is some available trend data on many of the current MIS species, but no clear relationships between the activities that characterize management on the Ashley National Forest and population trends for these species with the exception of goshawks. Alternative 1 would not change the current level or types of management activities (see Table 3 and Attachment 2 in Appendix A).

**Alternative 2:** The proposed action includes adding two species that are not currently MIS on the Ashley National Forest (snowshoe hare and beaver). Monitoring these species for the life of this amendment (about five years) may not be sufficient to provide data on population changes relative to the effects of on-going management activities. Also, the start up cost to develop and collect baseline monitoring for these species may not be justified. Alternative 2 would not change the current level or types of management activities (see Table 3 and Attachment 2 in Appendix A).

**Alternative 3:** There is a new species (Brewer's sparrow) in Alternative 3. However, since there Breeding Bird Survey (BBS) data has been collected for this species, local data could be compared to trends at a larger level (like the state of Utah). Again, the start up cost to develop and collect baseline monitoring for these species may not be justified. Alternative 3 would not change the current level of management activities (see Table 3 and Attachment 2 in Appendix A).

**Alternative 4:** Alternative 4 has one terrestrial and one aquatic species for which there is an adequate data set and good monitoring protocols. Cumulatively, this is the most efficient set of MIS given the uncertainty in the concept pending the new NFMA regulations and the short-time frame relative to Forest Plan revision. Existing direct habitat monitoring information would continue to help fill in the gaps regarding the effects of management on communities not represented by a MIS. Alternative 4 would not change the current level of management activities (see Table 3 and Attachment 2 in Appendix A).

## **Other Consequences or Effects Considered**

### **Summary of the Relationship Between Short-Term and Long-Term Productivity**

None of the alternatives would affect the productivity of the Ashley National Forest from the current management direction, in terms of sustainability of the resources or outputs associated with them.

### **Prime Farmland, Rangeland, and Forest Land; Floodplains and Wetlands; Cultural Resources; Threatened and Endangered Species**

There are no proposed resource disturbances. None of the alternatives would have any effects on

prime farmland, rangeland, and forestland; floodplains and wetlands; or cultural resources. Threatened, endangered, and Forest Service Sensitive species were addressed in the Biological Evaluation in the Project Record.

### **Summary of Irreversible and Irretrievable Commitment of Resources**

This decision would cause no irreversible or irretrievable commitment of resources.

### **Civil Rights**

There are no civil rights issues, and none of the alternatives have any related effects because consideration of MIS does not affect rights protected under civil rights law.

### **Forest Plan Goals, Objectives, and Outputs**

None of the alternatives make any real content change in Forest Plan goals and objectives or affect any Forest Plan outputs.

### **Management Prescriptions and Management Areas**

None of the alternatives changes management prescriptions or alter management area boundaries.

## **Chapter 4 – List of Preparers**

Laura Jo West, Forest Planner  
Earl Kerns, Ecosystem Group Leader  
Jodie Canfield, Wildlife Biologist (Helena National Forest)  
Bill Stroh, Forest Wildlife Biologist  
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Dan Abeyta, Fisheries Biologist  
Ronnee-Sue Helzner, Hydrologist  
Jean Ann Dalton, Wildlife Technician

### **Other Individuals Consulted**

Brian Ferebee, Regional Biologist  
Glen Stein, Regional Planner  
Elise Foster, Attorney, USDA Office of General Council  
Gina Lampman, Regional Fisheries Ecologist  
Brian Maxfield, UDWR Sensitive Species Biologist  
Kirk Mullins, UDWR Fisheries Biologist  
Greg Hayward, Regional Ecologist, Region 2

## **APPENDIX A**

### **EVALUATION OF ASHLEY NATIONAL FOREST PLAN DESIGNATED MANAGEMENT INDICATOR SPECIES**

#### **I. Introduction**

This paper evaluates the designated management indicator species (MIS) in the 1986 Ashley Forest Plan for their suitability (as indicators) and effectiveness in meeting the requirements and achieving the goals of the National Forest Management Act (NFMA) and its implementing regulations 36 CFR 219.19.

#### **II. NFMA and Implementing Regulations**

Currently, the Forest Service is obligated to use the 1982 regulations that implement NFMA. The portions of the regulations that deal with MIS are found at 36 CFR 219.19.

The following are some of the key elements of NFMA related to MIS:

“Each [Forest Plan] alternative shall establish objectives for the maintenance and improvement of habitat for management indicator species...to the degree consistent with overall multiple use objectives of the alternative” (36 CFR 219.19(a)).

“In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as MIS and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality” 219.19(a)(1).

“Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and animal population trends of the management indicator species” 219.19(a)(2).

“Populations trends of MIS will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies, to the extent practicable.” 219.19(a)(6).

### III. Ashley NF Land and Resource Management Plan

#### A. MIS in the 1986 Forest Plan

The 1986 Ashley Forest Plan consists of 12 Ecological Indicators to monitor 8 vegetation types or age classes within a vegetation type. Rivers, lakes, and water quality are also monitored by indicator species. There are also two big game species that are classified as Economic Value Species.

Table 1 depicts the major habitats or vegetation communities represented on the Ashley National Forest (AMS 1982).

**Table 1.**

Habitat/Community Type	Acres	Percent
Grassland/Meadow	65,023	5
Sagebrush	113,221	8
Desert Shrub	94,119	7
Mountain Shrub	49,862	3
Pinyon/Juniper	59,512	4
Conifer forest	669,442	46
Aspen	70,686	5
Alpine Meadow	104,284	7
Barren or Rock	94,625	7
Aquatic	51,447	3
Riparian	69,028	5

Table 2 includes the MIS designated in the 1986 Ashley Forest Plan.

**Table 2.**

MIS	Vegetation Community
Red-naped sapsucker	Deciduous woodlands
Warbling vireo	Deciduous woodlands
Northern goshawk	Old growth timber
Golden eagle	Cliffs/rock
Lincoln's sparrow	Riparian shrub
Song sparrow	Riparian shrub
Sage grouse.	Sagebrush
White-tailed ptarmigan	Alpine meadow
<b>Species of Economic Value</b>	
Mule deer	Various
Rocky Mountain elk	Various
<b>Aquatic Species</b>	
Cutthroat trout	Rivers/lakes
Macroinvertebrates	Rivers/lakes

## Appendix A

The monitoring requirements for MIS in the 1986 Ashley Forest Plan (Pages V-6 through V-7, Ashley Forest Plan) are featured in Attachment 1 of this appendix.

### B. Implementation of the 1986 Forest Plan

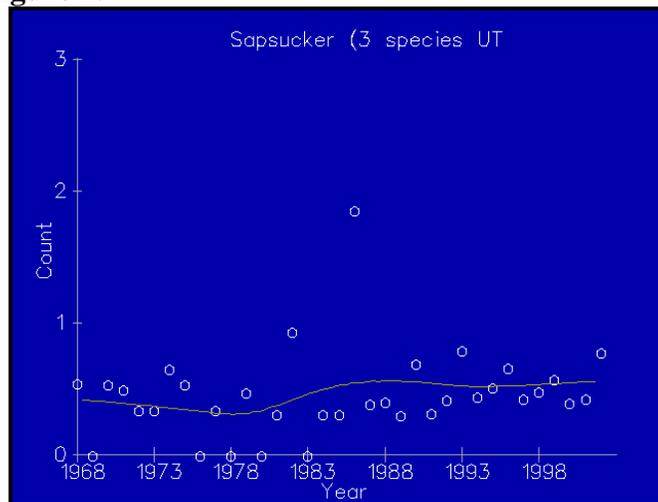
This section summarizes the data available for each of the 1986 Forest Plan MIS and discusses the relevance of the data as it pertains to interpreting the effects of management activities.

**Red-naped sapsucker:** On the Ashley National Forest, this species serves as an indicator for deciduous woodlands. The red-naped sapsucker may be affected by changes in successional stages of forest habitat, especially where conifers replace seral stands of aspen.

Globally, the species appears to be stable with areas of local decline related to loss of cottonwood and aspen nesting habitats (NatureServe 2003).

At the state level, the North American breeding bird survey (BBS) report for the trend period 1966 through 2002 in the state of Utah indicates an increasing population trend (Figure 1) (Trend estimate: 2.43; P-value: 0.07; N=31 routes; Variance: 1.7; Average Count: 6.8).

**Figure 1.**



Credibility Measures as stated in Sauer, J. R., J. E. Hines, and J. Fallon. 2003. *The North American Breeding Bird Survey, Results and Analysis 1966 - 2002. Version 2003.1*, [USGS Patuxent Wildlife Research Center, Laurel, MD](#).

1. The regional abundance is less than 1.0 birds/route (low abundance),
2. The sample is based on less than 14 routes for the long term (small sample size),
3. The results are so imprecise that a 3% per year change would not be detected over the long term (quite imprecise), or
4. The sub-interval trends are significantly different from each other (P less than 0.05, based on a z-test). This suggests inconsistency in trend over time).

In addition to National BBS, the Ashley National Forest designed a forest cover point count survey to sample major habitats on the forest (unpublished data; methods in Paulin et al. 1999). During point count surveys, 17 red-naped sapsuckers were observed in 1994 in three different

## Appendix A

vegetation communities, with the majority of the observations in aspen and riparian canyons. In 1995, red-naped sapsuckers were observed five times in three different vegetation communities.

On the Ashley National Forest, displacement of aspen by coniferous species remains a major trend, although timber harvest and fire has reversed this trend somewhat (see Attachment 2 in this appendix). A decline in persistent aspen stands has been minor and limited to a few isolated stands in the mountain big sagebrush belt. This decline may be more influenced by climate than by management activities. Some of these isolated stands have successfully regenerated. This indicates genetic difference in clones could be a strong factor in the status and trend of these stands (Goodrich 2004).

The red-naped sapsucker is a migratory land bird that summers throughout the Rocky Mountain region, but winters as far south as Baja California and Jalisco. Changes to its population may be a result of situations occurring on wintering grounds rather than a response to management activities on Forest Service administered lands (Burleigh 1972; Groves et al. 1997). Due to the localized nature of habitat and the broad-scale design of BBS sampling, sample sizes are minimal for most states and physiographic regions and variances are high, making statistically reliable conclusions difficult. Lastly, the high coefficient of variability prohibits interpretations about population trends at the planning unit scale. Therefore, red-naped sapsuckers do not meet the intent of CFR 219.19 because the population trend data for red-naped sapsuckers cannot be interpreted relative to management activities on the Ashley National Forest

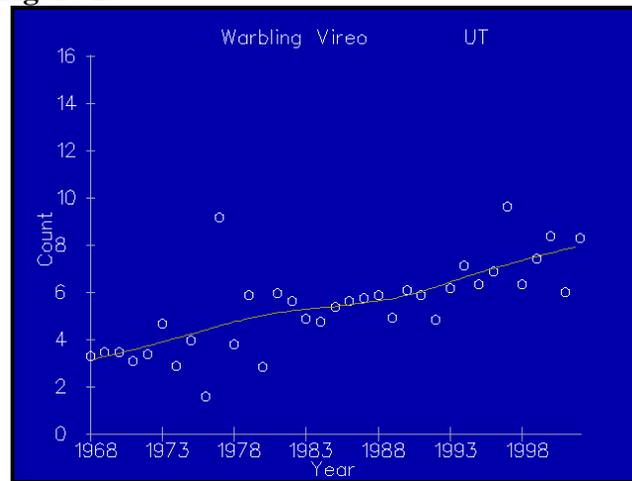
**Warbling Vireo:** On the Ashley National Forest, this species serves as an indicator for deciduous woodlands. Like the red-naped sapsucker, warbling vireos may be affected by changes in successional stages of forest habitat, especially where conifers replace seral stands of aspen.

Globally, BBS data indicate significant population increases throughout North America (NatureServe 2003).

At the state level, the North American breeding bird survey (BBS) report for the trend period 1966 through 2002 in the state of Utah indicates a non-significant increase (Figure 2) (Trend estimate: 2.11; P-value: 0.63; N=19 routes; Variance: 19; Average Count: 0.71).

There is one primary BBS route on the Ashley National Forest (Grizzly Ridge). Warbling vireos have been observed on this route for 12 years with stable trends.

**Figure 2.**



Credibility Measures as stated in Sauer, J. R., J. E. Hines, and J. Fallon. 2003. *The North American Breeding Bird Survey, Results and Analysis 1966 - 2002. Version 2003.1*, [USGS Patuxent Wildlife Research Center](http://www.fws.gov/patuxent/wildlife/researchcenter/), Laurel, MD.

1. The regional abundance is less than 0.1 birds/route (very low abundance),
2. The sample is based on less than 5 routes for the long term, or is based on less than 3 routes for either subinterval (very small samples), or
3. The results are so imprecise that a 5% per year change would not be detected over the long-term (very imprecise).

In addition to National BBS, the Ashley National Forest designed a forest cover point count survey to sample major habitats on the forest (unpublished data; methods in Paulin et al. 1999), 184 warbling vireos were observed in 1994 in 4 different vegetation communities, with the majority of the observations in aspen and riparian canyons. In 1995, 116 warbling vireos were observed in five different vegetation communities, with the majority in aspen.

The warbling vireo, like the red-naped sapsucker, is an indicator for deciduous woodlands and at the State level they both show an increase in trend. The warbling vireo spends the winter in south or Central America and changes to its population may be a result of situations occurring on wintering grounds rather than a response to management activities on Forest Service administered lands (Burleigh 1972; Groves et al. 1997). Variability in breeding bird point counts conducted on the Ashley National Forest is too high to interpret population trends for this species at the planning unit level. Therefore, warbling vireos do not meet the intent of CFR 219.19 because the population trend data for warbling vireo cannot be interpreted relative to management activities on the Ashley National Forest.

**Northern goshawk:** On the Ashley National Forest, this species serves as an indicator for old growth timber. The primary management activity on the Ashley National Forest with the potential to affect northern goshawks is timber harvest.

At the state level, the extreme high variability in BBS data makes interpretations about goshawk trends in Utah impossible (Trend estimate: -24.15, P-value: 0.19; N=2 routes; Variance: 57;

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Average Count: 0.04). This is not unexpected given the ecology of the bird and the unlikelihood they would be picked up during point count surveys.

In 1991, the Ashley National Forest initiated an inventory and monitoring program for goshawks with the primary objective of locating occupied territories. Over the first seven years, (1991-1997) a fairly substantial population of goshawks has been located throughout the forest. However, no formal monitoring protocol was developed or standardized monitoring efforts followed until 1999 (USDA 2003).

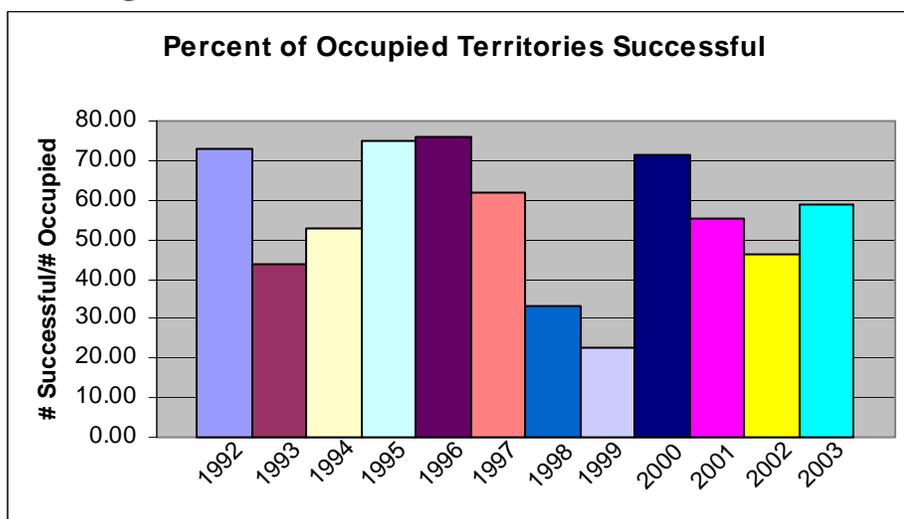
Habitat quality is only one factor that influences occupancy rate of goshawk territories. The addition of new territories (sample size), the level of monitoring effort (number of visits during the breeding season), and observer training and experience (White et al. 1995; Kennedy 1997) may also influence occupancy rate. These variables can, however, be offset by strict observance of monitoring protocol which uses both known and random territories and establishes occupancy based on a minimum of three visits (1999 memo by Sarah Dewey). The Ashley National Forest adheres to this recommended protocol.

If territory occupancy is positively associated with habitat quality, then higher quality habitat should have higher territory occupancy rates than lower quality habitat. Occupancy rate over the period 1992-2003 averaged 46.9%. Territory occupancy was consistent between about 1992 and 2000 and although the data suggest a decline in the last three years (Table 3), it is not statistically significant and therefore the trend is apparently stable. The recent decrease in occupancy may also be related to long-term drought (1999 to 2003) or other weather parameters.

**Table 3.** Northern goshawk data from the Ashley National Forest.

Measurement	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
# Territories	2	4	4	12	27	32	41	44	49	53	53	54	55	55	55	56
# Visited	-	1	2	3	12	27	28	37	43	46	53	49	54	48	45	51
# Occupied	2	3	1	11	25	24	24	23	30	25	21	23	29	9	13	18

**Figure 4.**



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Of the 13-year total of 236 active nests, 162 (69%) fledged young. Success for occupied territories over the same period averaged 67.7%.

Between 1996 and 1999, 33 adult goshawks had radio-tags and were followed. Between 1997 and 1999, four adult female goshawks moved to new breeding territories. Inter-year movements averaged 5.75 kilometers. These results suggest that annual monitoring of known nest sites may provide misleading occupancy data if vacated territories are classified as unoccupied, simply because breeding territories are more mobile than previously thought.

Some of the goshawks that breed on the Ashley National Forest are yearlong residents and some migrate short distances.

Since 1985, the Ashley National Forest has harvested timber on about 45,000 acres, much of which occurred in response to mountain pine beetle epidemics between 1985 to 1989. Levels of pine beetles are now considered endemic. The Ashley National Forest routinely uses guidelines in the Northern Goshawk Conservation Strategy and Agreement (1998) to help design timber sales.

Forest Plan monitoring protocol threshold for a decrease in occupancy is 20% or more over a three-year period. This occurred during the three-year period of 2000 (61%) to 2002 (25%). Correlations with management were examined, but it appears the decrease may be related to long-term drought.

In summary, even though interpretation of population trends in relation to management activities is not without problems, the Ashley National Forest has a relatively good data set that allows interpretation of trends. The life history and ecology of the species suggests that there is some correlation between management activities on the forest and population trends. Specifically, because this bird requires mature trees for nesting, its population trends are valuable in providing feedback on whether the level of timber harvest has resulted in maintaining adequate nesting territories. Continued monitoring through different weather cycles may provide insights on the effect of drought and spring weather on occupancy rate and success.

**Golden Eagle:** The golden eagle was intended as an indicator for cliff habitats on the Ashley National Forest. Generally there are not management activities in this habitat type. In addition, observations of golden eagles on the Ashley National Forest show them to use a variety of habitats.

Globally and statewide in Utah, the species appears to be stable (NatureServe 2003). At the state level, the North American breeding bird survey (BBS) report for the trend period 1966 through 2002 in the state of Utah indicates an insignificant increasing population trend (Trend estimate: 2.46; P-value: 0.37; N=45 routes; Variance: 7.6; Average Count: 0.67).

The state of Utah (UDWR) monitors golden eagle nests to determine activity. They are not tracking any sites on the Ashley National Forest (B. Maxfield, pers. commun.).

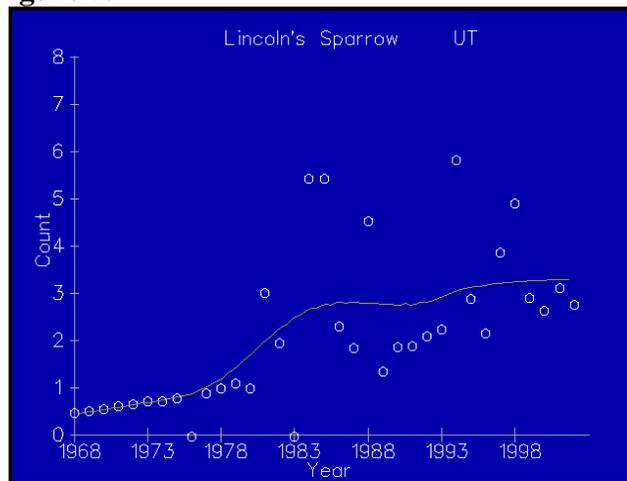
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There have not been forest management activities that have affected cliff habitats since 1985. Therefore, golden eagles do not meet the intent of CFR 219.19 because the population trend data cannot be interpreted relative to management activities on the Ashley National. In summary, this MIS is unnecessary.

**Lincoln's Sparrow:** Generally associated with the willow community, breeding along streams, lakes, and meadows in the grass-shrub successional stage from the mid-elevational ranges to the alpine. Livestock grazing is the primary management activity that affects this habitat.

Globally, the species is secure (G5) (NatureServe 2003). At the state level, the North American breeding bird survey (BBS) report for the trend period 1966 through 2002 in the state of Utah indicates a non-significant increasing population trend (Figure 5) (Trend estimate: 6.12; P-value: 0.15; N=16 routes; Variance: 16.7; Average Count: 2.0).

**Figure 5.**



Credibility Measures as stated in Sauer, J. R., J. E. Hines, and J. Fallon. 2003. *The North American Breeding Bird Survey, Results and Analysis 1966 - 2002. Version 2003.1*, [USGS Patuxent Wildlife Research Center](http://www.fws.gov/USGSPatuxentWildlifeResearchCenter), Laurel, MD.

1. The regional abundance is less than 1.0 birds/route (low abundance),
2. The sample is based on less than 14 routes for the long term (small sample size),
3. The results are so imprecise that a 3% per year change would not be detected over the long-term (quite imprecise), or
4. The sub-interval trends are significantly different from each other (P less than 0.05, based on a z-test). This suggests inconsistency in trend over time).

In addition to National BBS, the Ashley National Forest designed a forest cover point count survey to sample major habitats on the forest. During breeding bird point count surveys on the Ashley National Forest, seven Lincoln's sparrows were observed in 1995, all in riparian canyons.

Livestock grazing on the Ashley National Forest in 1984 included 105,522 permitted Animal Months (AM); actual use was 74,203 AM. Generally, during implementation of the Forest Plan, livestock grazing has declined. In 2003, there were 98,055 permitted AM and 52,249 actual AM.

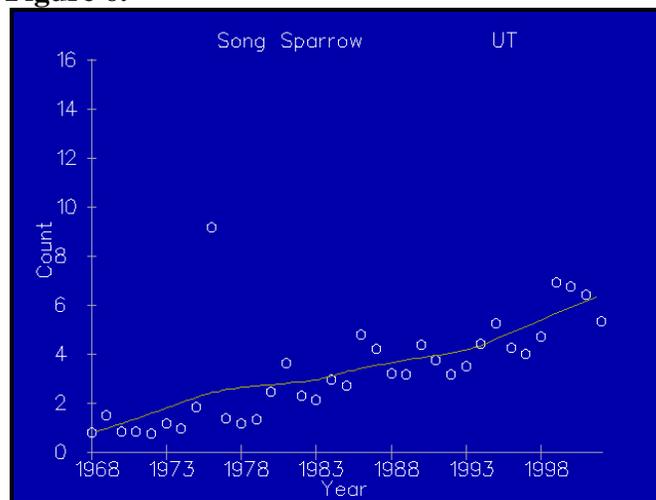
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A recent review of wood riparian vegetation on the Ashley National Forest showed mostly stable levels of woody plants in riparian areas (Goodrich and Huber 2004). While a decreasing level of livestock grazing may have improved the habitat for this species, the lack of reliable trend data, and the potential for populations to be affected by activities on its winter range (southern U.S. to Panama), makes associations with management activities on the Ashley National Forest difficult. Therefore, Lincoln's sparrows do not meet the intent of CFR 219.19 because the population trend data cannot be interpreted relative to management activities on the Ashley National Forest.

**Song Sparrow:** The song sparrow is usually found in lower elevational terrain than the Lincoln sparrow. It is a representative for the riparian shrub community on the Ashley National Forest and typically occurs in the shrub-forest successional stage. Livestock grazing is the primary management activity that affects this habitat.

Globally, the species is secure (G5) (NatureServe 2003). At the state level, the North American breeding bird survey (BBS) report for the trend period 1966 through 2002 in the state of Utah indicates a relatively significant increasing population trend (Figure 6) (Trend estimate: 6.02; P-value: 0.08; N=42 routes; Variance: 11.5; Average Count: 3.2).

**Figure 6.**



Credibility Measures as stated in Sauer, J. R., J. E. Hines, and J. Fallon. 2003. *The North American Breeding Bird Survey, Results and Analysis 1966 - 2002. Version 2003.1*, [USGS Patuxent Wildlife Research Center, Laurel, MD](#).

1. The regional abundance is less than 0.1 birds/route (very low abundance),
2. The sample is based on less than 5 routes for the long term, or is based on less than 3 routes for either subinterval (very small samples), or
3. The results are so imprecise that a 5% per year change would not be detected over the long-term (very imprecise).

In addition to National BBS, the Ashley National Forest designed a forest cover point count survey to sample major habitats on the forest. During breeding bird point count surveys on the Ashley National Forest (Paulin et al. 1999), 129 song sparrows were observed in 1994 in five different vegetation communities. No song sparrows were observed in 1995

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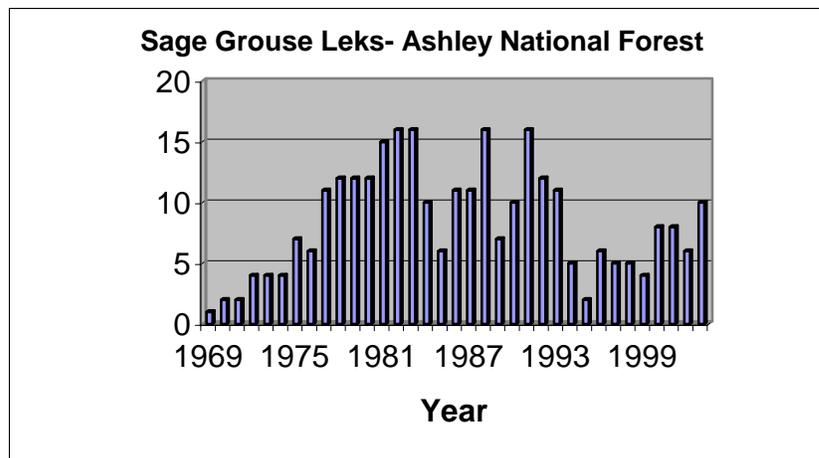
While a decreasing level of livestock grazing may improve the habitat for this species (see Lincoln Sparrow), the lack of reliable trend data, and the potential for populations to be affected by activities on its winter range (southern U.S. to central Mexico), makes associations with management activities on the Ashley National Forest difficult. Therefore, song sparrows do not meet the intent of CFR 219.19 because the population trend data cannot be interpreted relative to management activities on the Ashley National Forest.

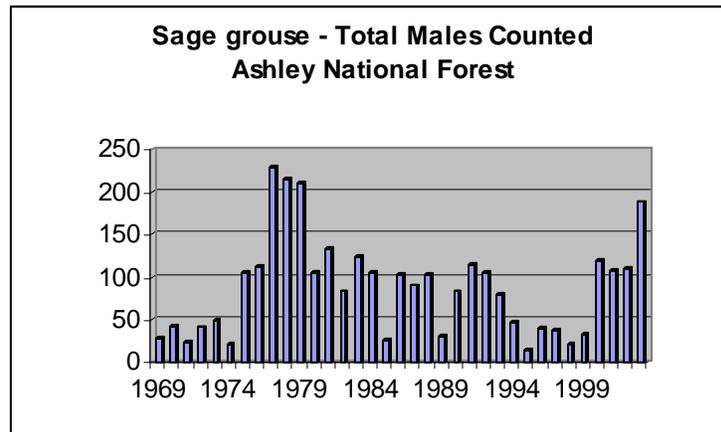
**Sage Grouse:** On the Ashley National Forest, this species serves as an indicator for sagebrush. Livestock grazing and prescribed fire are the primary Forest Service management activities that affect this habitat.

The greater sage grouse is relatively common in the core of its range, but its range has contracted significantly (it is now extirpated in five states and one province). Populations have declined 45 to 80 percent since the 1950s, and by an average of 33 percent across ten states (essentially range-wide) since 1985. This species is threatened by habitat loss, fragmentation and degradation of sagebrush habitat (NatureServe 2003).

In Utah, sage grouse are hunted and their populations controlled in part by harvest. Beginning in 2002, 200 two-bird permits were issued for the Uinta Basin (which includes a portion of the Ashley National Forest). Harvest levels are currently not available for these years. Harvest levels between 1989 and 1999 varied from 114 to 500 birds (UDWR upland game bird report 1999). The state of Utah has monitored number of active leks and the number of male sage grouse from 1969 to 2003 (Figures 7 and 8).

**Figure 7.**



**Figure 8.**

Sage grouse use only about one third of the sagebrush habitats on the Ashley National Forest. The forest supports about 10% of the sage grouse population in the Uintah Basin; the core range occurs at lower elevations. On the limited sage grouse range that occurs on the forest, Utah Division of Wildlife Resources (UDWR) has published habitat conservation measures. In addition, The UDWR monitors all sage grouse in the Uintah Basin including the grouse that use the Ashley National Forest, to determine the threshold populations needed to maintain hunter harvest. Figures 7 and 8 show similar fluctuating trends.

Since 1985, 9,050 acres of sagebrush have burned on the Ashley National Forest; about 3,600 were prescribed burns and the remaining acres burned during two wildfires. Monitoring of these prescribed fires has shown that crown cover of mountain big sagebrush has generally increased to 20% or more within 20 year after fire or other disturbance. A few examples of burning in Wyoming big sagebrush indicates that recovery of the shrub component may take 50 years or more (Goodrich 2004). More recently, widespread die-off of sagebrush – mostly at elevations lower than the Ashley National Forest - has occurred because of severe drought conditions.

Because sage grouse do not occupy much of the sagebrush on the Ashley National Forest, and because populations are hunted, population trends cannot effectively be associated with management activities. Therefore, sage grouse do not meet the intent of CFR 219.19 because the population trend data cannot be interpreted relative to management activities on the Ashley National Forest.

**White-tailed Ptarmigan:** White-tailed ptarmigans are the indicator species for alpine meadows on the Ashley National Forest. Management activities in the alpine habitat include dispersed recreation use, light sheep and recreational stock grazing, and recently, a proposal to repair dams using helicopters. Trend at long-term monitoring sites of alpine areas of the Uinta Mountains indicated stable or upward trend. Low willows have increased at most locations where they were present in early decades of monitoring, and willows are shown in recent photos where they were lacking in photos of earlier decades (Goodrich and Huber 2004).

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Since the release of 57 white-tailed ptarmigan into Painter Basin (Ashley National Forest) in the Uinta Mountains in 1976, this species has populated and dispersed across much of the alpine habitat in the Uinta Mountains. The Utah Division of Wildlife Resources (UDWR) believes white-tailed ptarmigan have increased in this basin to the point of reaching carrying capacity.

Although population surveys have been difficult to complete because the habitat is not accessible due to snow pack during the breeding season when this species is best monitored, observations by UDWR biologists indicate that the population is stable or slightly increasing (Maxfield, UDWR, pers. com). Hunting of white-tailed ptarmigan in the Uinta Mountains started in 1982, and the species has remained a viable hunted population (UDWR 1999). The upland game report indicates that hunting of ptarmigan is generally incidental to big game hunting or fishing. Of 90 permits issued in 1999, only 23 birds were harvested.

In summary, because of the general lack of management activity in its habitat, the hunting influence on the population, and the difficulty in monitoring this species, it does not meet the intent of CFR 219.19 because the population trend data cannot be interpreted relative to management activities on the Ashley National Forest.

**Rocky Mountain Elk:** Elk are an MIS on the Ashley National Forest because of their economic importance to the state of Utah. Management activities on the Ashley National Forest that affect elk include timber harvest, recreation and travel management, prescribed burning, and livestock grazing. There is a standard/guideline in the Forest Plan that deals with maintaining cover around openings greater than 10 acres and also to provide habitat for 5,600 elk.

The Ashley National Forest overlaps five UDWR wildlife management subunits as follows:

Subunit	Population Objective	Population Estimate
North Slope/Daggett	1,300	1,400
South Slope/Vernal	2,500	2,600
South Slope/ Yellowstone	5,600	5,300
Nine Mile/ Anthro	700	810
Wasatch Mountains/ Avintaquin	1,000	1,250

Winter range for elk is at lower elevations than the Ashley National Forest and summer range is wide ranging over many vegetative communities. These populations (total of 9,360) do not reflect the number of animals that occur on the Ashley National Forest since there are portions of these subunits on other land jurisdictions.

While the Forest Service has some control on elk habitat and population numbers, particularly through access management, the UDWR controls populations through hunting seasons and harvest levels. With the exception of the Yellowstone subunit, the elk population on each of these subunits is stable to slightly increasing.

Hunting season regulations and off-Forest winter range decisions are outside the administrative control of the Forest Service. The Forest Service can exert control over access management and vegetation management on Forest administered lands. However, these two factors alone are not

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influential enough alone to correlate to elk population fluctuations. Therefore, elk do not meet the intent of CFR 219.9 to use MIS populations to reflect the effects of management activities.

**Mule Deer:** Similar to elk, mule deer are also economically important in the state of Utah, and potentially affected by the same management activities. Mule deer generally occupy portions of the Ashley National Forest during the spring, summer, and fall; a limited number spend the winter.

Mule deer population objectives and population estimates for the five wildlife management subunits that the Ashley National Forest overlaps are as follows:

Subunit	Population Objective	Population Estimate
Nine Mile Unit	8,500	3,400
South Slope/Vernal	13,000	11,600
South Slope/ Yellowstone	12,000	10,400
North Slope Unit	5,300	4,400
Wasatch Mountains/ Avintaquin	3,000	1,600

There was a sharp decline of mule deer populations in the state of Utah in the winter of 1992 to 1993. This decline has been attributed to several years of drought followed by an unusually hard winter. Following the sharp decline, deer populations slowly rebounded until another downward trend in 2000 to 2003 attributable to the current severe drought (UDWR Statewide Management Plan for Mule Deer 2003).

Hunting season regulations, predation, drought, chronic wasting disease, and off-Forest winter range decisions are outside the administrative control of the Forest Service. The Forest Service can exert control over access management and vegetation management on Forest administered lands. However, these two factors alone are not influential enough alone to correlate to deer population fluctuations. Therefore deer do not meet the intent of CFR 219.9 to use MIS populations to reflect the effects of management activities.

**Cutthroat Trout:** The indicator for aquatic systems, cutthroat as a species is widely distributed on the Ashley National Forest. Population levels are affected by harvest and non-native fish introductions; they also hybridize with rainbow trout. The management activities likely to affect cutthroat trout include livestock grazing, timber harvest, and roads, which generally result in increased sediment delivery to the stream. Numerous studies have shown relationships between cutthroat trout and management activities that affect streams (Armour et al. 1991; CAST 2002; Eaglin and Hubert 1993; Kershner et al. 1996; Keller and Burnham 1982; Platts and Nelson 1989; Wesche et al. 1987).

Successful implementation of the Colorado River cutthroat trout (CRCT) Conservation Agreement and Strategy by the Utah Division of Wildlife Resources (UDWR) and the Ashley National Forest has led to an upward trend for CRCT in several lakes on the south slope of the Uinta Mountains of the Ashley National Forest.

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Stream populations of CRCT still remain at risk due to competition with non-native trout, hybridization, and possibly forest management activities such as livestock grazing, roads, habitat fragmentation, and timber practices. The monitoring plan for cutthroat trout in the Forest Plan states that UDWR data would be used to determine trends that would be collected at five-year intervals. This has not occurred. UDWR has inventoried many streams to determine presence/absence, but there is no population trend data (inventory data is found in the Project File).

The subspecies appears to be distributed throughout much of the Ashley National Forest, but populations in various streams and stream reaches are variable. Some populations are thriving in isolated streams and/or stream reaches. Many populations have been replaced by non-native fish species. However, with continued planned conservation actions for stream populations as outlined in the Conservation Strategy, an upward trend could be achieved within five to seven years on the Ashley National Forest. Considering the Conservation Strategy is a relatively new document (1997), recent actions taken to restore CRCT were not specifically prescribed in the 1986 Forest Plan.

The upward trend for lake populations is largely attributed to the development of a CRCT broodstock program. For example, a healthy and very productive Colorado River cutthroat trout (CRCT) broodstock population exists in Sheep Creek Lake. For the past five years (1999 to 2003), thousands of fingerlings from this source have been stocked in several Uinta Mountain lakes across the south slope of the Uintas. UDWRs 2001 monitoring effort indicates that 14 of the 62 stocked lakes in 1999 and 2000 exhibit a good potential for full establishment. The continued success of this current trend will be dependent upon future stocking.

Cooperative ongoing surveys by UDWR and the Ashley National Forest are helping to better define fish distribution. The Forest Service and UDWR are also actively engaged in habitat protection through various activities such as constructing migration barriers to protect reclaimed streams from non-native trout. Along with the fish barriers, new construction and maintenance of riparian fencing has taken place to protect riparian vegetation and streambanks from cattle grazing. In addition, improvements to existing roads such as culvert replacement and reshaping of roads have occurred to reduce sediment loading in streams. Paramount to the CRCT stream effort is UDWRs lead role in an interagency effort for mechanical and chemical removal of non-native trout to provide non-competitive additional habitat for CRCT. The Ashley completed the necessary NEPA for 5 to 10 years worth of CRCT restoration work on the north slope of the forest in late 2002 and implementation began in 2003.

In summary, cutthroat trout population and condition (length/weight) trend data, although influenced by factors outside of the control of the Forest (non-native fish and hybridization), have a direct link to stream health and management activities on the Ashley National Forest. These outside variables could be minimized through a monitoring strategy that included comparing similar stream reaches in managed and unmanaged situations on the forest.

**Macroinvertebrates:** Macroinvertebrates are one indicator of stream habitat and water quality, which is used in conjunction with other water quality measures. Forest-wide macroinvertebrates

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populations have been monitored on the Ashley National Forest since the early 1980s. The forest wide trend for macroinvertebrates has been steady for the past 20 plus years with an average Biotic Condition Factor (BCI) that exceeds 75 (the Forest Plan minimum value). The genera identified in the Forest Plan, (Mayflies) *Epeorus ssp*, *Ephemerella doddsi*, *Ephemerella inermis*, (Stoneflies) *Zapada spp.*, and the True fly family Chironomidae are all widespread and common on the Forest.

Although macroinvertebrates as a group are widely distributed across the forest, there is a high degree of variability in species within or between sites (Minshall and Andrews 1973). In addition, consistent information is not available across the area to track specific macroinvertebrate species. Indices have been developed that reflect changes due to management activities but this does not strictly fit the definition of MIS, which requires population trend monitoring of specific taxa. In addition, it can be difficult to define what comprises a population (reach, stream, subbasin) to monitor. Sampling results can vary depending on timing of the sample taken because, while the organism may be on the planning unit, the aquatic lifestage may or may not yearlong and some lifestages may be more easily collected than others. Macroinvertebrates may not be “cyclic,” but they are frequently flow-dependent, which in turn is climate-dependent.

Collection of macroinvertebrates is fairly inexpensive; however, samples require specialized taxonomic expertise to identify certain species such that the analysis of the samples can be expensive. The state of Utah is currently reviewing macroinvertebrate data to determine the utility of this type of monitoring for Forest Plan revisions.

In summary, macroinvertebrates do not meet the intent of NFMA (to have a taxa and monitor population trends). Macroinvertebrate monitoring could be continued to augment water quality information but not under the MIS requirements.

### IV. Criteria in the selection of MIS

**Criteria:** The categories of MIS listed in CFR 219.19 are general and not all subsets must be represented (...”the following categories shall be represented where appropriate”). In order to fulfill the NFMA requirement that “species shall be selected because their population changes are believed to indicate the effects of management activities,” we developed the following criteria to help rank our existing MIS, recognizing that the guidelines are not inclusive; that is, very seldom will any species meet all the criteria.

1. The species life history relates to forest management.
2. The species is a yearlong resident on the planning unit (i.e., not migratory).
3. The species is logistically feasible and cost effective to collect population size and trend data.
4. The overall local population is large enough to enable sample sizes sufficient for reliable statistical analysis and to fluctuate without threat of extinction so that the population trends can be analyzed relative to management.

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5. The species is not hunted or trapped, fished or stocked (i.e., the forest has little control over population objectives or levels).
6. The species is not dramatically cyclic.
7. The species is somewhat representative of other species that use the habitat type.
8. The species and its habitat are widely distributed on the planning unit.
9. Species from adjacent units are considered so that analysis of data from adjacent forests can be compared and contrasted to local forests.

### V. Review of Current MIS on the Ashley National Forest

Using the above criteria, the Ashley National Forest reviewed its current designated MIS and looked at the pros and cons of each MIS relative to current criteria. Table 4 summarizes the ID team discussion regarding existing MIS. If species met at least six of the criteria, the recommendation was to retain that species.

**Table 4.** Evaluation of current MIS.

CRITERIA	1	2	3	4	5	6	7	8	9	Recommendation
Red-naped sapsucker	X		X		X	X	X	X		Meets 6/9 criteria; consider dropping as MIS
Warbling vireo	X		X	X	X	X	X	X		Meets 7/9 criteria; consider dropping as MIS
Northern goshawk	X	X <sup>1</sup>	X	X	X	X	X	X	X	Meets 9/9 criteria; consider keeping as MIS
Golden eagle			X		X	X	X			Meets 4/9 criteria; consider dropping as MIS
Lincoln's sparrow	X		X		X	X	X	X		Meets 6/9 criteria; consider dropping as MIS
Song sparrow	X		X	X	X	X	X	X		Meets 7/9 criteria; consider dropping as MIS
Sage grouse	X		X			X	X			Meets 4/9 criteria; consider dropping as MIS
White-tailed ptarmigan	X	X				X		X		Meets 4/9 criteria; consider dropping as MIS
Mule deer <sup>2</sup>	X		X	X		X		X		Meets 5/9 criteria; consider dropping as MIS
Rocky Mountain elk <sup>2</sup>	X		X	X		X		X		Meets 5/9 criteria; consider dropping as MIS
Cutthroat trout	X	X	X	X		X	X	X	X	Meets 8/9 criteria; consider keeping as MIS
Macroinvertebrates	X	X	X	X	X	X	X	X		Meets 8/9 criteria; however, doesn't meet NFMA definition of MIS (specific taxa); consider dropping as MIS.

<sup>1</sup> Some goshawks are short-distant migrants off the forest

<sup>2</sup> There is a limited amount of winter use on the Ashley National Forest by Mule deer and elk

## VII. Need for Change

Since the 1982 planning rule was adopted, the assumption that management indicator species can be used to describe effects on a broader group of species has been challenged. In summary, the response of animals to their environment is not a simple relationship. It is unlikely that one species could very precisely reflect the response of another species or group of species (Morrison et al. 1992).

This argument, however, does not negate the use of MIS as indicators of ecological change. Instead, it cautions against extrapolating from the expected response of a particular MIS to predict similar changes in populations of other species.

Every currently designated MIS on the Ashley National Forest has some attributes; however without exception, there are no “perfect” MIS since a wide array of variables can potentially affect population levels of any species. A decision to keep or drop any MIS cannot be arrived at empirically; the body of evidence must be weighed carefully before a recommendation is made.

Several major points emerged from the evaluation of the current MIS on the Ashley National Forest. The Interdisciplinary team concluded that in many habitat or ecosystems, direct monitoring of the habitat or physical and chemical parameters (Attachment 3 of this Appendix) provides a more meaningful tie to management (see section VI) than MIS. There are only a limited number of current MIS whose population trends can be related to management activities for the following reasons:

- Some of the current MIS have limited distribution on the forest to be of use in answering the question about the effects of management on the vegetation community they supposedly represent. These include sage grouse and golden eagle.
- Macroinvertebrate assemblages do not adhere to the requirement of NFMA to use specific taxa as MIS.
- Some species have not been monitored regularly and there is no current trend data (cutthroat trout, ptarmigan).
- Some species have not been monitored consistently such that trend data can be statistically analyzed (the migratory neotropical bird species).
- Populations of game species are influenced by harvest and hunting regulations, such that habitat relationships to management activities cannot be interpreted and population trend data cannot be used to interpret the effects of management.
- Populations of migratory birds may be influenced on their winter ranges, which make interpretations about the effects of management difficult.

This evaluation concludes that the Ashley National Forest consider keeping the northern goshawk and cutthroat trout as MIS. It may be useful to monitor macroinvertebrates as part of the water quality monitoring program, but not as MIS. Other species that use the major vegetation communities on the forest could be evaluated relative to these same criteria.

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## Attachment 1. Monitoring Requirements for MIS from the 1986 Ashley Forest Plan.

Activity, Practice, or Effect to be Measured	Monitoring Technique/ Data Source	Sample Size	Expected Precision/ Reliability <sup>1</sup>	Measurement Frequency	Reporting Frequency	Variation which would cause further evaluation and/or change in management direction
Elk and Mule Deer	Annual UDWR population estimates. Wildlife Habitat Relationship Models.	100%	M/M	Annual	5 Years	Change in use of key habitat areas. (wallow, fawning and calving areas) +/-20% in population estimates within a herd unit.
Cutthroat Trout and Macroinvertebrates	Annual DWR population estimates and/or macroinvertebrate studies	100%	M/M	5 Year intervals or as required in project EAs	5 Years	20% change in population, age, or size classes. When BCI drops below 75.
Goshawk <sup>2</sup>	Timber stand data, EAs Wildlife habitat Relationship Model	100% of designated stands	M/M	10 Years	10 Years	Any reduction in acreage below 5% of total old growth conditions
Golden Eagle	Survey data	100% of known existing sites	M/M	5 Years	5 Years	+/-10% change in nesting activity
Yellowbellied Sapsucker, Warbling Vireo	Timber stands data habitat diversity modeling	100% of data base	M/M	10 Years	10 Years	+/-10% change in hardwood acreage.
Lincoln's Sparrow, Song Sparrow	Habitat Modeling	100% of data base	M/M	5 Years	5 Years	+/-10% in riparian acreage.
White-tailed Ptarmigan	UDWR Population Census	100%	M/M	Annual	5 Years	20% drop in annual population or 5% drop in 5-year trends.
Sage Grouse	UDWR lek surveys and brood counts, winter ground use surveys	100%	M/M	Annual	5 Years	10% drop in breeding populations.

<sup>1</sup> Expected precision is the accuracy with which data is collected. Expected reliability is a measure of how accurately the monitoring reflects the situation. Precision and reliability are qualitatively rated as High (H), Moderate (M), and Low (L).

<sup>2</sup> Methodology replaced by Forest Plan Amendment #15, which was based on the Utah Goshawk Project

## Attachment 2 – Management Activities on the Ashley National Forest

### I. Total Timber harvested in 5-year increments before and after the Forest Plan:

5-year Range	Acres Harvested			
1950-1954	1,082			
1955-1959	2,386			
1960-1964	6,401			
1965-1969	4,207			
1970-1974	7,788			
1975-1979	8,410			
1980-1984	9,420			
	Select Cuts	Clearcuts	Overstory Removal	Seedling/Sapling Thinning
1985-1989	19,683	5,865	123	48
1990-1994	4,045	5,122	180	73
1995-1999	4,973	1,029	342	594
2000-2004	2,813	452	35	166

### II. Prescribed Burning

Vegetation Type	Acres
Sagebrush	3,600 Rx and 5,450 acres in two wildfires
Pinyon-juniper	4,483
Ponderosa pine	15,675
Aspen	700

### III. Livestock Grazing

Time Period	Permitted Animal Months	Actual
<b>1984 (pre Forest Plan)</b>	105,522	74,203
<b>2003</b>	98,055	52,249

## **Attachment 3 – Monitoring on the Ashley National Forest**

### **I. Water Quality**

Some monitoring of water quality relates directly to specific pre- and post-project conditions. Water quality data is also collected to give a general idea of conditions across the Forest, to check conditions in reference areas, to monitor air quality effects (acid rain), or to check areas where water quality is suspected to have problems, or to determine/monitor status of impaired water bodies (listed by State of Utah/EPA according to section 303d of the Clean Water Act). Data is used routinely in project-level planning where water quality may be affected by proposed actions and where water quality has been identified as a key issue for analysis.

Macroinvertebrates are one indicator of stream habitat water quality, which is used in conjunction with other water quality measures.

Lat/Long locations in STORET were converted to public lands system (Township/Range) using the converter on the website for the Utah Water Rights (State Engineer), POD locator.

### **II. Vegetation**

#### **Aspen**

O'Brien and Tymcio (1997) estimated aspen present on 322,532 acres on the Ashley National Forest with only 101,358 acres currently with the required aspen stocking to be considered aspen forest type. This indicates seral aspen trending toward conifer dominance.

In addition to the study sites on which O'Brien and Tymcio (1997) based their estimates, there are over 75 monitoring studies located in aspen or that show aspen in photos including in the monitoring program of the Ashley National Forest. These were reviewed to determine condition and trend of aspen on the Ashley National Forest. Although some of these studies are randomly placed in aspen, many were located in burns and harvest with the specific goal to monitor release of aspen concurrent with ungulate browsing and other factors.

At and beyond the fringe of coniferous forests, aspen forms persistent, or perhaps climax stands. Numerous studies in this setting generally show aspen has regenerated vigorously after fire and harvest. Older studies show aspen growing beyond the reach of ungulates. Studies in more recent treatments generally show aspen with numerous sprouts and with an apparent trend toward maturity.

Exceptions to the above are generally found in isolated, small, marginal aspen stands set in the mountain big sagebrush belt. Location of these stands indicates they established in a cooler and/or more mesic environment than exists in the current climate. Some of these stands show decadence. Some of these marginal stands have regenerated following disturbance. This indicates genetic differences of clones could be a factor as well as climate.

## Appendix A

In only a few cases, ungulates are clearly identified as the agent causing the demise of aspen following harvest or fire. The most vivid case is at study 68-7 on Anthro Mountain. Another case is found at the Pine Hollow Exclosure at study site 31-1. In both of these cases, small isolated stands of aspen are found within the mountain big sagebrush belt.

Aspen decline mentioned by O'Brien and Tymcio (1997) is based on seral aspen being displaced by conifer. Harvest and fire has reversed this trend somewhat. However, displacement of aspen by coniferous species remains a major trend on the Ashley National Forest.

Decline in persistent aspen stands has been minor and limited to a few isolated stands set out in the mountain big sagebrush belt. This decline could be driven by climate more than by management activities. Some of these isolated stands have successfully regenerated. This indicates genetic difference in clones could be a strong factor in status and trend of these stands.

### **Sagebrush**

There are numerous monitoring studies in sagebrush communities on the Ashley National Forest. Following is a summary of condition and trend of these communities.

**Black sagebrush** - Black sagebrush has generally returned to pretreatment cover in areas cleared of black sagebrush by fire or other means in 20 or so years. Examples include study sites 68-1, 68-65A, and 45-6. The return of black sagebrush to these sites indicates no permanent loss of black sagebrush due to fire, herbicides, or plowing and seeding. There have been comparatively few acres of black sagebrush burned in the past two decades. There have been no other treatments in black sagebrush other than burning from 1985 to the present.

Numerous studies in mountain big sagebrush on the Ashley National Forest show a strong trend of return of mountain big sagebrush following disturbance. Repeat photography at many of these sites is included in Power Point Presentation (Project File). In many cases return to 20 percent canopy cover has taken about 20 years and in some cases fewer than 20 years. However, there are some sites where sagebrush has taken longer to return. These studies also indicate a resilient understory of native graminoids and forbs associated with mountain big sagebrush.

A major exception to the nearly all-native understory is found on steep, southerly facing slopes of a landtype identified as South Face 2 (SF2). In this setting cheatgrass (*Bromus tectorum*) has become abundant. This introduced annual has so far remained absent or of minor abundance on low gradient areas of the mountain big sagebrush belt.

The return of mountain big sagebrush to burned areas indicates no net loss of this sagebrush. However, large fires such as the Whiterocks Fire of 1988 can be expected to temporally decrease overall cover of this shrub.

**Wyoming big sagebrush** - Communities of Wyoming big sagebrush on the Ashley National Forest are found in the Flaming Gorge National Recreation Area. Antelope Flat and Lucerne Peninsula are major examples. Several long-term monitoring studies including 5-2, 5-3, 5-27A-C, 5-28, and 5-52 show Wyoming big sagebrush with crown cover at 5-15% with an understory

## Appendix A

of native graminoids and forbs. However, in the drought of 2002, there was a major die back of sagebrush in this area and crown cover of sagebrush at the Lucerne sites was reduced to less than 1%. This reduction in crown cover of Wyoming big sagebrush extended over about 1,500 acres in the Lucerne area.

Crown cover of Wyoming big sagebrush at the study sites on Antelope Flat remained about the same as before the drought. Recovery of Wyoming big sagebrush following the drought is uncertain. It could take over 50 years to recover.

There are comparative small areas of Wyoming big sagebrush in the Gilsonite and Antelope areas of the Tavaputs Plateau. Associated with the drought of 2002, Wyoming big sagebrush in these areas also decreased greatly in crown cover. Mortality of sagebrush in some of these stands was near 100%.

**Basin big sagebrush** - On the Ashley National Forest communities of this plant are mostly restricted to canyon bottoms of the Tavaputs Plateau. There are small stands in Sheep Creek Canyon in the Uinta Mountains. This shrub appeared to have survived the drought of 2002 much better than did Wyoming big sagebrush. Overall cover of this shrub has been reduced in recent years by prescribed fire in the canyons of the Tavaputs Plateau. Fire has been followed by an abundance of winterfat, thickspike wheatgrass, and other native species. However, there was a dieback of thickspike wheatgrass in the drought of 2002. Winterfat did not seem to die in the drought. It expressed vigor and abundance after the drought at a number of monitoring sites. Black sagebrush has shown high capacity to recover from disturbance. There appears to be no long-term loss of this plant. Mountain big sagebrush on the Ashley National Forest appears to be sustainable under a 20 to 30 year fire interval. Due to its capacity to recover from fire and other disturbance, there appears no long-term loss of this plant or its communities over most of the Forest. There is some potential for lower presence of sagebrush on SF2 where cheatgrass has become abundant. Wyoming big sagebrush has shown comparatively low capacity to return following disturbance. Drought has reduced this plant in the Flaming Gorge National Recreation Area and on the Tavaputs Plateau. Recovery time is unknown, but 50 or more years might be expected. Basin big sagebrush has been reduced by prescribed fire. Winterfat has maintained a strong presence following fire.

### **Ponderosa Pine**

The structure of ponderosa pine communities has been altered by mountain pine beetle epidemics, harvest, and fire. However, there appears to be little, if any, loss of ponderosa pine dominated areas in the past several decades. There is some evidence of small expansions of ponderosa pine in to mountain big sagebrush and mountain shrub types on Dowd Mountain (4-22) and in Dowd Hole (17-1) in the past decade or so. An active program of under-burning and slash management following harvest has reduced fuel loads in many areas.

Since 1992 about 15,676 acres have been prescribed burned. This is a total for 1985 to present. There was little burning in ponderosa pine before 1992.

### **Pinyon/Juniper**

On the Ashley National Forest pinyon/juniper communities are mostly confined to the Green River Corridor of the Flaming Gorge District and to the Tavaputs Plateau on the Duchesne District. There are a few small stands on the south slope of the Uinta Mountains.

The Mustang Fire of 2002 in the Green River Corridor covered about 20,000 acres. This is the largest single event influencing status of pinyon-juniper in the history of the Ashley National Forest. The fire was stand replacing over nearly all of the area. Very few islands of trees remained after the fire. Prescribed burns were reburned in this fire, but at much lower intensity than the previously unburned areas.

Burned mature stands of pinyon-juniper showed very low resilience after the fire. They remain open with a few annual weeds and widely spaced perennial plants. Based on similar burns of the past these areas can be expected to be highly vulnerable to cheatgrass increase and dominance.

Studies in burned areas where pinyon-juniper crown cover was less than about 20%, prior to burning, have shown high resilience with native species recovering rapidly after fire. Areas of dense, mature trees have become dominated by cheatgrass where they were not seeded with vigorous perennials.

Studies in the Green River Corridor and literature indicate burned areas of pinyon-juniper will take 100 years or more to achieve an open tree/shrub stage and up to 200 years to return to mature stands. This and the above comments are based on numerous monitoring studies on the Ashley National Forest and on literature including Erskine and Goodrich 1999, Goodrich 1999, Goodrich and Barber 1999, Goodrich and Gale 1999, Goodrich and Reid 1999, Goodrich and Rooks 1999, Huber et al. 1999.

There has been comparatively little change in status of pinyon-juniper on the Tavaputs Plateau since 1985. Burning in shrub communities of the canyon bottoms has carried into pinyon-juniper communities in a few places for relatively short distances. Areas chained in the 1970s show increase in size of pinyon-juniper trees.

On the south slope of the Uinta Mountains two small wildlife openings of about 5 acres and 10 acres were cut in pinyon/juniper stands in the late 1980s (42-25 and 42-26). The Whiterocks fire of 1988 burned about 150 acres of juniper-covered land. Other than this mature stands cover most of the pinyon-juniper type on the south slope of the Uinta Mountains.

### **Woody Riparian Communities**

There are over 300 monitoring sites on the Ashley National Forest where photos show woody riparian communities. Some of these are set in riparian communities. Camera points for others are outside riparian areas. However, photos from these points provide a means to monitor whole stands of woody vegetation. Many of these monitoring studies have been established in the past five years, and support determination of condition and apparent trend, but do not provide reliable information about trend. They will become increasingly important with increasing time.

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Woody riparian communities in which monitoring studies are located include: low willows, tall willows, aspen, narrowleaf cottonwood, and other deciduous shrubs and trees. Included in this evaluation are grayleaf willow (*Salix glauca*) communities that are not always clearly riparian. However, they likely serve as suitable habitat for at least some wildlife that select riparian willow stands.

About 50 of these monitoring studies with a decade or more of history show increasing deciduous woody plants. Many others indicate a stable trend in woody cover. About 15 of these sites show conifer displacement of deciduous woody riparian plants. Ungulate browsing was noted as an apparent factor in suppression of willow cover at six of the monitoring sites. Three of these were in the same drainage. In a few cases repeat photography shows willows being flooded in new beaver ponds. However, additional photography shows some of these areas reoccupied by willows after the pond is drained.

In general long-term monitoring of deciduous, woody riparian plants indicates they have increased in the past few years or decades on the Ashley National Forest. Conifer displacement is indicated to be the most important factor of demise of deciduous, woody, riparian species.

### **Alpine Vegetation**

There are many monitoring sites located in the alpine of the Uinta Mountains. Alpine communities in which monitoring studies are located include alpine kobresia (*Kobresia myosuroides*), curly sedge (*Carex rupestris*)-cushion plant, black alpine sedge (*Carex nigricans*), timber oatgrass (*Danthonia intermedia*), tufted hairgrass (*Deschampsia cespitosa*), and Geum (*Geum rossii*)/sedge communities. Monitoring in these communities indicates ground cover averaging 90% or more. Snowbed communities including Cloud sedge (*Carex haydeniana*), and snowbed sedge (*Carex pyrenaica*) have much less plant cover and more bare soil and rock than non-snowbed communities. In general ground cover for alpine communities appears to be near potential.

Several of the studies referred to above under woody riparian communities are located in alpine areas. Many of these show and increase in willows in the past few decades. Review of repeat photography of long-term monitoring studies of the Ashley National Forest is consistent with a study by Munroe (2003) that shows trees are expanding at the treeline-alpine interface. Other than the expansion of willows and trees, monitoring studies in alpine areas of the Uinta Mountains indicates little change over the past four or more decades

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**APPENDIX B  
MONITORING PARAMETERS FOR MIS**

**Alternative 1** – see Appendix A, page 20

**Alternative 2**

<b>Activity, Practice, or Effect to be Measured</b>	<b>Monitoring Technique/ Data Source</b>	<b>Sample Size</b>	<b>Measurement Frequency</b>	<b>Reporting Frequency</b>	<b>Variation which would cause further evaluation and/or change in management direction</b>
Colorado River Cutthroat Trout	Develop protocol in conjunction with Utah Division of Wildlife Resources (UDWR) and adjacent forests	As per protocol	3 years	5 years	A statistically significant downward trend in population, size class, or condition index
Goshawk	Develop protocol using the statewide conservation strategy in conjunction with current Ashley National Forest protocol	As per protocol	Annual	3 years	A statistically significant decline in number of active territories over a three year period
American Beaver	Develop protocol in conjunction with Uinta National Forest	As per protocol	As per protocol	5 years	A statistically significant downward trend in population
Snowshoe Hare	Pellet Transects as per protocol in development by Wasatch-Cache National Forest	As per protocol	As per protocol	5 years	A statistically significant downward trend in population

**Alternative 3**

<b>Activity, Practice, or Effect to be Measured</b>	<b>Monitoring Technique/ Data Source</b>	<b>Sample Size</b>	<b>Measurement Frequency</b>	<b>Reporting Frequency</b>	<b>Variation which would cause further evaluation and/or change in management direction</b>
Cutthroat Trout	Develop protocol in conjunction with UDWR and adjacent forests	As per protocol	3 years	5 years	A statistically significant downward trend in population, size class, or condition index
Goshawk	Develop protocol using the statewide conservation strategy in conjunction with current Ashley National Forest protocol	As per protocol	Annual	3 years	A statistically significant decline in number of active territories over a three year period
Song Sparrow	National BBS Survey and Forest Habitat Based Point Counts	As per Monitoring Plan	Annual	5 years	A statistically significant downward trend in population
Warbling Vireo	National BBS Survey and Forest Habitat Based Point Counts	As per Monitoring Plan	Annual	5 years	A statistically significant downward trend in population
Brewer's Sparrow	National BBS Survey and Forest Habitat Based Point Counts	As per Monitoring Plan	Annual	5 years	A statistically significant downward trend in population

**Alternative 4**

<b>Activity, Practice, or Effect to be Measured</b>	<b>Monitoring Technique/ Data Source</b>	<b>Sample Size</b>	<b>Measure- ment Frequency</b>	<b>Reporting Frequency</b>	<b>Variation which would cause further evaluation and/or change in management direction</b>
Cutthroat Trout	Develop protocol in conjunction with UDWR and adjacent forests	As per protocol	3 years	5 years	A statistically significant downward trend in population, size class, or condition index
Goshawk	Develop protocol using the statewide conservation strategy in conjunction with current Ashley NF protocol	As per Protocol	Annual	3 years	A statistically significant decline in number of active territories over a three year period

## APPENDIX C

**RESPONSE TO COMMENTS RECEIVED ON THE PROPOSED ACTION AND  
DRAFT ISSUES AND ALTERNATIVES**

COMMENT	RESPONSE
1. Is the proposed list intended to help guide management decisions on the Flaming Gorge National Recreation Area (NRA)?	Since changes in management indicator species (MIS) will not have “site-specific” or Forest Plan direction consequences, the proposed MIS would not guide management decisions on the Flaming Gorge NRA.
2. Consider adding a native non-game fish species as a MIS	The review team concluded that there were no non-game fish species that met the Purpose and Need.
3. Support no action; more people are being kept out of the forest – birds and bees do fine unless sprayed with poison	The No Action Alternative is considered in detail in the EA.
4. I suggest an EIS since this will have a large negative impact on private property and the economic and cultural uses of the land	The question of significance is determined in the “Finding of No Significant Impact” and an evaluation of the significance of the amendment under the National Forest Management Act (NFMA) in the Decision Notice; there would be no negative effects on changing the list of MIS on private property nor economic and cultural uses of the land since MIS is merely a tool to track the overall effect of the Forest Plan, implemented in its entirety, on viability of vertebrate species. Changes in MIS will not have “site-specific” consequences.
5. Areas are too closed off to be practical to monitor with any kind of efficiency; reinstate the pre-1985 management plan	Travel plan decisions are outside the scope of this project; however, the selection of MIS and monitoring could include consideration of the relative efficiency and cost to monitor based on a variety of factors including accessibility.
6. Keep as much open to ATV use as possible	Travel plan decisions are outside the scope of this project.
7. You’ll have to put together a write-up as to how management could change based on the new list	The analysis will include consideration of Forest Plan management direction.
8. Consider an indicator for sage/juniper habitats of the NRA	There is currently a sagebrush MIS (sage grouse) which will be evaluated as part of the No Action Alternative in the Environmental Assessment (EA).
9. Choose species that are most appropriate to monitor at a site-specific level (vs. Forest Plan)	The objective of MIS monitoring is as a barometer for maintaining species viability at the FOREST PLAN level; site-specific monitoring is “effectiveness” monitoring of the project (did the effects we predicted actually occur).

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COMMENT	RESPONSE
10. Improve the reliability and cost-effectiveness of monitoring	The number of MIS and their monitoring designs relative to efficiency and cost will be evaluated in the EA.
11. Recommend adding a sagebrush obligate	There is currently a sagebrush MIS (sage grouse) which will be evaluated as part of the No Action Alternative in the EA. Because sage grouse distribution does not include much of the Ashley National Forest, another sagebrush species will be evaluated.
12. What is the reason for amending the MIS list- avoid appeals and litigation?	Recent reviews indicate some major flaws with the MIS concept. However, given that the 1982 regulations are still in effect, and that MIS are a requirement, we hope to evaluate the existing MIS in the Ashley Forest Plan and document why or why not they function as the best possible MIS for the forest.
13. Do infrequent occurrences have something to do with how the forest is being managed?	Some of the existing MIS have a distribution pattern that generally speaking, do not and have never had great overlap with the Ashley National Forest.
14. Suggest considering pine marten, lynx, cougar, woodpeckers, wolves, wolverine	NFMA requires specific species for MIS (not groups like “woodpeckers”); wolves currently do not reside in Utah; lynx are an endangered species whose management is regulated by the Endangered Species Act; cougars are hunted and not closely tied to a specific habitat or management activity. Pine marten and wolverine will be evaluated in the analysis.
15. Add a sagebrush representative to address grazing management	See response to #11.
16. Take more time for documentation and send pertinent information to interested publics	Members of the public who commented during scoping were sent the issues and alternatives and a summary of public comments for their consideration.
17. Add a MIS for rock outcroppings in the NRA (3 reptiles and one plant suggested)	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities.” All of these species have very limited distribution on the Ashley National Forest (only on the NRA) and therefore are not high value as MIS; they are not further considered in this analysis.
18. Use upland vegetation as MIS for moisture uptake during precipitation events– indicator of sediment in reservoir	NFMA requires the use of specific taxa of plant or animal; therefore “upland vegetation” is not further considered in this analysis.
19. Macro-invertebrates are too costly to monitor	The relative effectiveness and cost of monitoring MIS will be one factor considered in the evaluation of MIS.

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COMMENT	RESPONSE
20. West Nile affects sage grouse and other birds making them ineffective MIS	The effect of disease on MIS will be considered in the evaluation.
21. CRCT may not be a good MIS because of whirling disease	See response to #20
22. Snowshoe hares are cyclic and affected by predation – not a good MIS	Population cycling and predation are factors that will be considered in the evaluation of MIS.
23. Beaver affect their own environments and populations may fluctuate unrelated to management activities	The tie of MIS to management and specific habitats will be considered in the evaluation.
24. There is no baseline data for beaver	The lack of baseline data will be considered in the evaluation.
25. Mule deer are a good MIS since there is information on harvest, health and condition	The No Action Alternative features mule deer as a MIS.
26. The choice of MIS need to be representative animals that can indicate forest conditions; Consider adding the ubiquitous coyote	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities.” Coyotes are common in Utah occurring in many habitats and even urban settings. Because of this, they would not be good MIS and are not further considered in this analysis.
27. Don’t use TE species – they are too rare and difficult to manage	Threatened and endangered (TE) species are managed according to the Endangered Species Act, and the requirements for their management and analysis under NEPA are specific; therefore, we considered that categorizing TE species as MIS was unnecessary.
28. Add the pine beetle as a MIS for forest health	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities.” Mountain pine beetle will be evaluated against this criterion in the analysis.
29. Disclose the improvements in reliability and cost-effectiveness in the analysis	The relative effectiveness and cost of monitoring MIS will be one factor considered in the evaluation of MIS.
30. Explain how snowshoe hare and beaver fulfill the agency’s regulatory obligations	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities.” Both these species will be evaluated against this criterion in the analysis.
31. Provide the scientific basis for removing species and determine the ability of the agency to assess the biological effects of management activities based on the new MIS list	The evaluation of the No Action Alternative compared to other alternatives will provide the basis for a decision on MIS for the Ashley National Forest.

Appendix C

COMMENT	RESPONSE
32. Of concern is the removal of MIS for non-forested habitats without offering a substitute; the Ashley NF has 377,675 acres of non-forested habitat	The No Action Alternative includes sage grouse as a MIS for non-forested habitat. Because sage grouse distribution does not include much of the Ashley National Forest, another sagebrush species will be evaluated.
33. Must examine how the amendment will fulfill the purpose of MIS to indicate the effects of management activities	This will be an evaluation criteria used to compare alternatives in the EA.
34. Look at alternatives to prevent gaps in covered habitat while removing other redundant or ineffective MIS	The evaluation of the No Action Alternative compared to other alternatives will provide the basis for a decision on MIS for the Ashley National Forest.
35. The affected environment should cover the entire Ashley National Forest	MIS apply to the planning area, which is the Ashley National Forest.
36. The Forest Service argues that the goshawk is a habitat generalist; the FS must analyze the adequacy using goshawk to represent effects of management on species requiring more specific habitat types	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities.” The goshawk will be evaluated against this criterion in the analysis.
37. FS must prepare EIS based on intensity and context (40 CFR 1508/27)	The reference to 40 CFR is significance under NEPA; the decision to do an EIS results from the evaluation in the EA. In addition, forest plan amendments must be evaluated for “significance” under NFMA relative to four factors: 1) timing (relative to revision); 2) location and size of area affected; 3) changes in goals, objectives, and outputs; and 4) changes in the anticipated goods and services to be produced.
38. The Forest Plan is 19 years old and will be revised soon; this is more appropriately analyzed in the Revision process	Deferring a change in MIS for forest plan revision is addressed in the No Action Alternative.
39. The amendment is significant because it will alter the FS management regime for plants and wildlife	See response to #37.
40. By changing MIS and the habitats that are indicated by their inclusion, the analysis for future decisions will be limited	All species brought forth as concerns during scoping for site-specific projects must be considered in the site-specific analysis. MIS are a requirement at the FOREST PLAN level. MIS are analyzed at the site-specific project level to provide the decision maker with information on the tradeoffs of the decision and to identify how well the Plan, as implemented, results in maintaining an array of suitable habitats to maintain species viability as required by NFMA.
41. Applaud the addition of beaver and snowshoe hare; troubled by dropping others	NFMA does not require representation of all habitats; it does require the agency to select species because

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COMMENT	RESPONSE
so that there are no MIS to represent the full variety of habitats on the Ashley in violation of NFMA	their population changes are believed to indicate the effects of management activities.
42. MIS should be dealt with during revision	Deferring a change in MIS for forest plan revision is addressed in the No Action Alternative.
43. Retain sage grouse, deer and elk as sage community indicators to help evaluate the effects of livestock grazing, non-native species and fire suppression	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities.” These species are part of the No Action Alternative, and will be evaluated against this criterion.
44. Removing species means there would not be an obligation to monitor and certain habitat types would deteriorate even further	NFMA does not require representation of all habitats; it does require the agency to select species because their “population changes are believed to indicate the effects of management activities.” In addition, the Ashley National Forest currently monitors many habitats (and water quality) directly.
45. Keep Mule deer and elk as MIS since they are of tremendous importance as big game species in the Ashley and in Utah; mule deer are in decline and are dependent on sagebrush habitat during the winter.	The No Action Alternative features elk and mule deer as MIS.
46. Beaver and Colorado CT will help evaluate water quality	The pros and cons of each of these species as MIS will be part of the effects analysis.
47. Removal of Lincoln’s sparrow and song sparrow would eliminate the public’s ability to evaluate overall riparian health	The pros and cons of each of these species as MIS will be part of the effects analysis.
48. Warbling vireo and yellow-bellied sapsuckers are found in aspen and at least one of these should be left as an MIS	The warbling vireo and red-naped sapsucker (formally yellow-bellied sapsucker) are MIS in the No Action Alternative and will be evaluated against this criterion in the analysis.
49. Retain golden eagle as MIS for cliff habitats	See response to #48. The golden eagle is also a species in the No Action Alternative.
50. FSM direction should be followed	The manual direction was taken into account during the deliberations on the proposed change in MIS.
51. NFMA doesn’t cite “difficulty in locating a species and population infrequency” as factors to be taken into account for selection of MIS	NFMA states “species shall be selected because their population changes are believed to indicate the effects of management activities,” and if a species is only marginally associated with a planning unit, its population trends will not reflect the effects of management.
52. Forest Plan is 19 years old and should have been revised	The Ashley National Forest is starting revision. The amendment would be in effect until revision is complete.

COMMENT	RESPONSE
53. Some of the extant MIS are poor MIS, but this effort is more directed by politics than a desire to find ecologically based MIS; need concise and reputable data to document why the old MIS species are inappropriate and the new MIS are not going to end up with the same problems and concerns with the extant list	Recent reviews indicate some major flaws with the MIS concept. However, given that the 1982 regulations are still in effect, and that MIS are a requirement, we hope to evaluate the existing MIS in the Ashley Forest Plan and document why or why not they function as the best possible MIS for the forest.
54. Need a range of MIS to represent all habitat types and management activities on the forest	NFMA does not require representation of all habitats; it does require the agency to select species because their “population changes are believed to indicate the effects of management activities.”
55. Carnivores make excellent MIS as they make meaningful and documented contributions to ecosystem function	Several carnivores, suggested in other comments, will be evaluated in the analysis.
56. Rare species are excellent indicators to display the connections with habitat types at broad ecoregional levels; more specialized species need more attention	Rare species are generally categorized as threatened, endangered, or sensitive and are monitored and protected by means other than NFMA or MIS status. In addition, a good MIS has a population large enough to enable sample sizes sufficient for reliable statistical analysis and to fluctuate without threat of extinction so that the population trends can be analyzed relative to management activities.
57. Woodpeckers are excellent MIS and should be considered in conjunction with goshawk	The current list has the red-naped sapsucker, a woodpecker; the No Action Alternative will disclose the pros and cons of this species as an MIS
58. Appears that this process is hurried and rushed and focused more on being consistent with the Wasatch-Cache NF and insulating the Ashley from possible appeal and litigation	See response to #53.
59. If any of your proposed species is ever listed it would be of no value as an indicator to anything	See response to #27.
60. The four species proposed for the new MIS list represent a narrow view of habitats on the Ashley NF	NFMA does not require representation of all habitats; it does require the agency to select species because their population changes are believed to indicate the effects of management activities.
61. Consider sage grouse for sagebrush, Williamson’s sapsucker for aspen, Lewis’s woodpecker for ponderosa pine, song sparrow as indicator of riparian health (rather than beaver) and include mule deer as indicator of overall forest health	All of these species are part of the existing MIS list and will be evaluated in the No Action Alternative. The exception is the Lewis’s woodpecker and Williamson’s sapsucker, which will be evaluated in the analysis.

COMMENT	RESPONSE
62. Western (Area Power Administration) fully supports the proposed change and is providing the FS with a brief summary of its activities so the FS can assess the biological effects.	This assessment is more appropriately done at the project level.

**PUBLIC ISSUES SUMMARY**

1. Representing the major vegetation communities and management issues on the Ashley National Forest by a MIS (especially sagebrush and aspen; livestock grazing)
2. Designating MIS that are cost-effective to monitor
3. Waiting to review MIS until Forest Plan revision
4. Retaining mule deer and elk due to their importance as big game species
5. Doing an Environmental Impact Statement (EIS) for this amendment

Appendix C

List of People Who Commented During Scoping for MIS Amendment:

Name	Address
Robert Keith, Regional Fisheries Supervisor	WGFD, Green River Region
Rachel Thomas	Huachuca, AZ
Claire Duncan	Roosevelt, UT
Ken Cluff	Orem, UT
David Clayton	Salinas, CA
John Henderson, BLM	Rock Springs, WY
A. Kent Olsen, Brush Creek Allotment Permittees	Neola UT
Jim and Linda Thompson	SLC, UT
Bill Wichers	Wyoming Game and Fish
Uintah County Commissioners	Vernal, UT
Joel Ban	Wildlaw Southwest UEC
Joro Walker	Western Resource Advocates
Dick Carter	High Uintas Preservation Council, Hyrum, UT
Robert Jensen	Vernal, UT
John Harja, Executive Director, Resource Development Coordination Committee	Governor's Office - UT
Shane Collins, Natural Resource Manager	Dept. of Energy, Western Area Power Administration

<b>Comments on Issues and Alternatives</b>	<b>Response to Comments</b>
We request an opportunity to review and comment on the EA before a decision is made	We think that the comments we have received have provided us with enough information to make an informed decision. Instead of sending out a draft EA, we would like to meet with any and all parties who commented and go over the analysis.
Alternative 2 does not include MIS to represent the diversity and viability of the wide range of species on the forest	NFMA does not require representation of all habitats; it does require the agency to select species because their “population changes are believed to indicate the effects of management activities.”
Consider adding the 3-toed woodpecker as MIS for old growth forest with abundant large snags	Because this woodpecker is a Regionally sensitive species and is therefore analyzed in all project level analyses, it will not be considered as a MIS.
Consider adding the endemic Uinta Mountain snail and other appropriate mollusks and amphibians as MIS	This snail is restricted to calcareous soils and is therefore not well distributed on the Ashley NF; because of the lack of information and inventory data, we did not consider other mollusks or amphibians as MIS.
Add all the MIS in Alternative 3 to the Proposed action	This could be evaluated during the decision-making process.
Include specific Forest Plan direction that triggers the requirement to adjust management when MIS trend data indicates management activities negatively impact the diversity and viability of native and desirable non-native flora and fauna.	Currently there are “thresholds” of review for MIS in Chapter V of the Forest Plan. These are included for each Alternative in Appendix B.
We are concerned that the Forest will lack historical data on the Brewer’s sparrow; in addition the sparrow is not representative of other species that use this habitat; we suggest keeping sage grouse as the MIS for sagebrush.	The Ashley NF collected data on Brewer’s sparrows in 1994 and 1995. In addition, the BBS survey route (Flaming Gorge) provides some historical data that can be compared to statewide data for this species. Appendix C includes an evaluation of Brewer’s sparrows relative to the criteria for MIS.
Mountain pine beetle is not representative of to the species that use the general forest type habitat; consider deer and elk as MIS for this habitat, or create more specific habitat delineations and chose appropriate indicator species for those habitats	Mountain pine beetle was evaluated in Appendix C and the conclusion of the review team was not to further consider this species as MIS. Deer and elk are evaluated as part of Alternative 1 and other forest species (e.g., Lewis’s woodpeckers for ponderosa pine) are evaluated in Appendix C.

New Comments provided by: Joro Walker, Western Resource Advocates, and Kevin Mueller, Utah Environmental Congress

## APPENDIX D

### EVALUATION OF SPECIES PROPOSED AS MIS DURING PUBLIC SCOPING ON THE PROPOSED ACTION AND AN EVALUATION OF PROPOSED NEW MIS IN THE PROPOSED ACTION AND ALTERNATIVE 3

#### MIS Comparison Evaluation Criteria

1. The species life history relates to forest management.
2. The species is a yearlong resident on the planning unit (i.e., not migratory).
3. The MIS are currently being monitored by a state, federal or private entity and population data is available or protocols exist for collection of scientifically credible population data, which could be reasonably accomplished by the Forest.
4. The overall local population is large enough to enable sample sizes sufficient for reliable statistical analysis and to fluctuate without threat of extinction so that the population trends can be analyzed relative to management activities.
5. The species is not hunted or trapped, fished or stocked (i.e., the forest has little control over population objectives or levels).
6. The species is not dramatically cyclic. The species is somewhat representative of other species that use the habitat type.
7. The species and its habitat are widely distributed on the planning unit.
8. Species from adjacent units are considered so that analysis of data from adjacent forests can be compared and contrasted to local forests.

#### Rating Explanations

Criteria 1: There is a documented relationship between the species and some aspect of forest management = 3; a relationship between the species and some aspect of forest management can be inferred from life history and species habitat relationships = 2; relationships between the species and management are weak or unknown = 1.

Criteria 2: Yearlong resident = 3; some of the population migrates off forest = 2; migratory = 1.

Criteria 3: Population is monitored presently with adequate results = 3; population is monitored presently or there is monitoring protocol, but results cannot be interpreted relative to management activities = 2; population monitoring is not occurring presently and protocol is not available or monitoring would be difficult (logistically or budgetary) to develop or implement = 1.

Criteria 4: The species is common on the Ashley National Forest and populations are sufficiently large to monitor trends = 3; the species is known to occur on the Ashley in low-moderate numbers = 2; the species is rare on the Ashley or = 1.

Criteria 5: Species is not hunted or trapped, fished or stocked = 3; species is hunted or

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trapped, fished or stocked, but not widely = 2; species population is heavily influenced by human harvest or other manipulation = 1.

Criteria 6: Population does not cycle at all and is relatively uninfluenced by climate = 3; population is mildly cyclic or influenced by climate = 2; population is strongly cyclic or closely tied to fluctuations in climate variables = 1.

Criteria 7: There is a documented association between the species and its habitat representative of the needs of other species that use that habitat (e.g., snags, water quality, prey density) = 3; habitat relationship similarities with other species can be inferred from life history information = 2; there is no basis for an association with the habitat requirements of other species = 1.

Criteria 8: The species and its preferred habitat are well distributed on the Ashley National Forest = 3; suitable habitat is limited, but the species is well distributed where the habitat occurs = 2; the preferred habitat is limited and the species is not well distributed within the habitat = 1.

Criteria 9: The species is a MIS on both the Wasatch-Cache and Uinta Forests = 3; on one of the adjacent forests = 2; on neither = 1.

### **Overview of Species Suggested By the Public as MIS**

**American Marten:** Marten occur yearlong on the Ashley National Forest in a widespread pattern. They are most commonly associated with continuous mature conifer, with a strong relationship to coarse woody debris (Klaus 2002). During a study in the Uinta Mountains, Hargis and Bissonette (1995) found that marten captures reached zero when openings occupied greater than 35% of the landscape. Because of these relationships, they rated high for Criteria #1 and #2. Other species known to use mature conifer habitats (lynx, fisher) also have some association with continuous cover and coarse woody debris (Criteria #7).

The current population trend is unknown, but indications are that martens occur at naturally low densities (Criteria #4). Marten are trapped in Utah (Criteria #5). With difficulty, marten can be monitored through the use of track surveys or other similar methods used to detect forest carnivores (Zielinski and Kucera 1995). This is the basis for the rating of “1” under Criteria #3.

Based on the Utah Gap Analysis Predicted Habitat map for American Marten, the Ashley has well-distributed habitat for marten. For this reason, the population was assumed to be “moderately large” (Criteria #4), but well distributed (Criteria #8).

There are no indications that marten populations are cyclic or strongly influenced by climatic variables (Criteria #6). The marten is not a MIS on adjacent forests (Criteria #9).

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This species was dropped from further consideration since the Ashley National Forest has a MIS (northern goshawk) for mature conifer forest. Preservation of marten habitat, relative to fragmentation, can be represented by the research thresholds determined from Hargis and Bisonette (1995).

**Wolverine:** The high Uinta Mountains include “critical value habitat” for wolverines (Utah Gap Analysis), however the last known wolverine in the area was in 1912. Wolverines generally have large home ranges; population levels are assumed to be low (Criteria #4); however, potential habitat is well distributed on the Ashley National Forest (Criteria #8). Wolverines prefer habitats not frequented by humans and therefore populations may reflect the influence of recreation management on the forest (Criteria #1).

Wolverines are yearlong residents on the forest (Criteria #2). Like marten, wolverine could be monitored through the use of track surveys or other methods used to detect forest carnivores; however because of their large home ranges, it would be difficult to collect statistically valid estimates using this technology (Gardner et al. 1986) (Criteria #3).

Wolverines are not currently trapped in Utah (Criteria #5) and are not cyclic (Criteria #6). Since they are fairly wide-ranging, they may not be representative of the needs of other species, with the exception of their negative association with human activity (Buskirk and Ruggerio 1994)(Criteria #7). The wolverine is not a MIS on adjacent forests (Criteria #9).

**Pine beetle:** During the 1980s and 1990s, this insect was at epidemic levels on the Ashley National Forest, affecting (direct mortality) primarily dense mature stands of lodgepole pine. Pine beetles have an influence on forest management since they function as an environmental engineer that modifies mature dense forest stands on the landscape level; however, localized management activities such as timber harvest do not seem to influence its population levels (USDA Handbook 606) (Criteria #1). Populations are now considered “endemic” and somewhat well distributed (Criteria #2, #4, #8).

Populations are cyclic and dependent on both the availability of suitable habitat as well as climate-influenced stress factors (e.g., drought) (Criteria # 6).

Population monitoring has occurred in the past and there is an acceptable protocol (Criteria #3). Population levels at a very local level can be modified through the use of pheromones (Criteria #5).

Beetle populations are a reflection of forest structure (dense mature stands), which may provide for the needs of a few other species (Criteria #7). The pine beetle is not a MIS on adjacent forests (Criteria #9).

**Williamson’s sapsucker:** This sapsucker occurs in montane coniferous forest, nesting in dead or decaying pine, fir or aspen, where it eats primarily ants, but also wood-boring

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larvae moths of spruce budworms, and other insects (Terres 1980). Therefore, timber management and firewood cutting directly affect the species habitat (Criteria #1).

It ranges from southern British Columbia to central Mexico, and it is found in Utah mainly in the mountainous areas of the eastern two-thirds of the state, where it is an uncommon breeder. There have been only 14 sightings of this species on various surveys on the Ashley National Forest, in Douglas fir and ponderosa forests (Criteria #2, #3, and #4). These migratory birds are not hunted, nor are populations cyclic (Criteria #5 and 6). As a primary excavator, this species may represent the needs of other species that require dead trees for nesting (Criteria #7). Based on the Utah Gap Analysis, breeding habitat is well distributed on the Ashley National Forest (Criteria #8). Woodpecker surveys on the Ashley have picked up Williamson's sapsuckers; however red-naped sapsuckers are more common. This sapsucker is not a MIS on adjacent forests (Criteria #9).

**Lewis's Woodpecker:** This woodpecker has a large range in the western U.S. and adjacent southern Canada, but distribution can be spotty. It is apparently declining in abundance, and may have declined 60 percent or more since the 1960s. This decline may be the result of the loss of nesting sites (large snags) (NatureServe 2003) resulting from logging, urban and agricultural development; and to degradation of riparian habitats by drought and overgrazing (NatureServe 2003) (Criteria #1).

Populations tend to be scattered and irregular and are considered rare, uncommon, or irregularly common throughout its range; local abundance may be cyclical or irregular (Tobalske 1997) (Criteria #6). In Utah, this woodpecker is a permanent or non-breeding resident (Criteria # 2). There is no Breeding Bird Survey Regional trend data for Utah for this species (Sauer et al. 2003), and there have been only five sightings of Lewis's woodpeckers on the Ashley National Forest in various surveys (all in spruce habitats) (Criteria #3, #4 and #6). They are more likely to be found along the Green River on the Ouray NWR and BLM lands (Paulin, pers. comm.)

Based on the Utah Gap Analysis, the Ashley National Forest has well distributed winter habitat for this species, but very limited breeding habitat (Criteria #2 and #8)

On the Ashley National Forest, fire suppression has resulted in the replacement of ponderosa pine forests by denser, closed-canopy Douglas-fir forests. This species needs stands with regular fire intervals of 10-30 years (Saab and Dudley 1998). The species is most sensitive to the destruction of specialized winter habitat (Sousa 1983). Sousa (1983) also suggested that European starlings might usurp nesting habitat.

These birds are not hunted (Criteria #5). As a primary excavator, this species may represent the needs of other species that require dead trees for nesting (Criteria #7). This species is not a MIS on adjacent forests (Criteria #9).

### Rating and Recommendations

CRITERIA	1	2	3	4	5	6	7	8	9	TOTAL SCORE	Recommendation
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CRITERIA	1	2	3	4	5	6	7	8	9	TOTAL SCORE	Recommendation
Pine Marten	3	3	1	2	2	3	2	3	1	20	Drop; Ashley has research thresholds on opening that is used to maintain habitat
Wolverine	2	1	1	1	3	3	1	2	1	15	Drop due to probable absence from the forest and difficulty in monitoring this species
Pine Beetle	1	3	1	2	3	1	2	3	1	17	Drop due to low correlation with forest management
Williamson’s sapsucker	2	1	2	1	3	3	2	1	1	16	Drop since Ashley currently has similar species, which is more abundant (red-naped sapsucker)
Lewis’s woodpecker	3	3	2	1	3	3	2	1	1	19	Drop because species population is not well distributed on the forest.

**Overview of New Species in Proposed Action and Alternative 3**

**American Beaver:** Beaver were widely distributed across Alaska, Canada, and the continental U.S. prior to 1800. They were trapped out quickly, and by the mid 1800s many beaver populations had been eliminated or dramatically reduced. Populations have reestablished throughout much of the U.S. and Canada and are increasing range-wide. On the Ashley National Forest beavers are widely distributed and yearlong residents. On the Ashley National Forest, the Uinta Mountains are classed as “substantial value” habitat and the rest of the Forest as “critical value” or “high value habitat as indicated on Gap Analysis maps (Criteria #2 and#8).

They inhabit a wide variety of riparian habitats as long as there is permanent water and food. Primary food sources are willow, aspen, and in lower-elevation riparian forests, cottonwood. Populations may be influenced by stream flows due to climate variables (Criteria #6).

Beaver are trapped in Utah, but trapping pressure is not considered to be heavy enough to significantly impact overall population levels on the Forest (Criteria # 5).

The beaver was selected as a potential MIS because livestock grazing and vegetation management potentially impact beaver population levels. Livestock grazing can impact levels of herbaceous vegetation, willow, and aspen, which are all important food sources of beavers. Prescribed burning and mechanical treatments in aspen may also affect beaver food supplies. The beaver is a riparian obligate species, and livestock grazing, especially cattle grazing, can significantly impact riparian vegetation communities. Thus, population trend of beavers may serve to indicate how the Ashley National Forest is managing riparian communities (Criteria #1).

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The beaver can be considered a keystone species because it substantially affects ecosystem structure and function by building dams, and thus influences habitat conditions for numerous other species. Some of the effects include storage of precipitation, which is gradually released through dry periods; decreased current velocity; substantial increases in wetted surface area of the channel and increased water depth; elevation of the water table, which greatly affects riparian vegetation; creation of conditions favorable for wildlife species that depend on ponds, pond edges, and dead trees; and creation of conditions favorable for the growth of willows and other riparian plant species (Criteria #7).

At the present time the Forest has no information on beaver populations on the Forest. The Utah Furbearer Harvest Report, 1998 to 1999 indicates that statewide the number of trappers increased by 36% in 1998 to 1999 but harvest was lower than expected although up 2% from the previous season. Beaver harvested per trapper decreased 25% from the previous season but was still 6% above the long-term average. This indicates that beaver are doing well in the state. Harvest information is not the most reliable source to gain information of beaver populations because it may not be accurately reported and beaver are often removed because dams may block culverts or result in flooding of roads or campgrounds etc. These types of management activities are not part of harvest records. Along with harvest records, beaver can be monitored through aerial surveys or ground surveys (Criteria #3).

Beaver are a MIS on the Uinta National Forest, and monitoring would be consistent with the protocol being developed by the Uinta National Forest (Criteria #9).

**Snowshoe Hare:** Snowshoe hares are a primary prey species for many predators, especially lynx. In the Rockies and westward, hares mainly use coniferous forests. They are predominately associated with forests that have a well-developed understory that provides protection from predation and supplies them with food. Such habitat structure is common in early seral stages but may also occur in coniferous forests with mature but relatively open overstories (Ruggiero 2000). Recent work identified that hare pellets occur most frequently when conifer stem density is over 2,785 trees per hectare at 2 meters above ground level (Shaw and Long 2004). They recommended providing areas of lower stem density also to provide summer forage for hares and future large-diameter trees for other species (Criteria #7). Therefore, timber harvest activities affect snowshoe hare habitat (Criteria #1).

Habitat for snowshoe hares is widely distributed on the Ashley National Forest and populations are large enough for trend monitoring (Criteria #4 and #8). Snowshoe hares are not migratory and population trend can be monitored through the use of pellet transects (Criteria #2 and #3). Home range size varies with location and season; most studies indicate a home range size averaging 5 to 20 hectares (Handley 1991). Hares are solitary except when breeding. They generally nest in a ground depression or hollow log. In summer they eat succulent vegetation. In winter their diet consists of twigs, buds, bark of small trees.

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There is a hunting season for snowshoe hares in Utah (Criteria #5).

Boreal populations experience high peaks and cyclic fluctuations; however, hare populations in the Intermountain West do not fluctuate widely (Dolbeer and Clark 1975) (Criteria #6). The snowshoe hare is a MIS on the Wasatch-Cache National Forest (Criteria #9).

**Brewer's Sparrow:** This species is a shrub obligate that is threatened by large scale reduction and fragmentation of sagebrush habitats occurring due to a number of management activities, including insect and weed control programs, grazing and range improvement programs that remove sagebrush by burning, herbicide application, and mechanical treatment. The species is also an occasional host for brown-headed cowbirds (NatureServe 2003) (Criteria #1).

This migratory species is not hunted (Criteria #5); it spends the winter from the Southwest through Baja and Central Mexico (Rotenberry et al. 1999). Northernmost populations move farthest south (Criteria #2). Year to year variations in abundance and densities can lead to biased conclusions about habitat preferences and effects of management activities (Wiens et al. 1986) (Criteria #6).

This species is often the most abundant bird species in appropriate sagebrush habitats. The North American Breeding Bird Survey (BBS) data for 1966-1996 show a significant and strong survey-wide declines averaging -3.7 percent per year (n = 397 survey routes) (Criteria #3). They are found in decent numbers on the Ashley National Forest during systematic surveys on the Brush Creek and Taylor Mountains transects. BBS surveys also indicated good populations on the Flaming Gorge BBS route (Criteria #4 and #8).

The Brewer's sparrow thrives where extensive areas of sagebrush habitat are maintained, with shrubs occurring in tall, clumped, and vigorous stands. It prefers tall sagebrush shrubs for nesting and song perches but low grass cover to facilitate foraging on the ground. Although it is positively correlated with presence of sage thrashers probably due to similarities in habitat relations (Wiens and Rotenberry 1981), thrashers are not exhibiting the same steep and widespread declines evident in BBS data (Criteria #7).

Brewer's sparrow is not a MIS on neighboring Forests (Criteria #9).

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**APPENDIX E – EVALUATION OF THE ALTERNATIVES RELATIVE TO FOREST PLAN DIRECTION FOR FISH AND WILDLIFE**

The Ashley Forest Plan states “The Forest will be managed to maintain vegetative diversity, providing wildlife habitat for a large variety of wildlife species. Special emphasis will be given to habitat such as winter range, riparian zones, reproductive areas, cliff habitat, talus, caves, snags, aquatic systems, and old growth timber. Winter foraging areas for big game will begin to show an increase in the amounts of shrubs and other plants available for forage” (Ashley Forest Plan, IV-3).

**Wildlife and Fish Goals**

<b>Goal</b>	<b>Alt 1</b>	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 4</b>
Manage fish and wildlife habitat to maintain or improve diversity and productivity.	No effect	No effect	No effect	No effect
Involve concerned government agencies, environmental organizations, and special interest groups in wildlife and fishers management program.	No effect	No effect	No effect	No effect

**Objectives, Standards, and Guidelines**

<b>Forest Plan</b>	<b>Alt 1</b>	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 4</b>
<b>Objective:</b> Develop and implement habitat management plan that will include key ecosystems and maintain habitat for supporting T&E or sensitive plants and animal species and <b>management indicator species.</b>	No effect	No effect	No effect	No effect
The wildlife program will include accomplishing non-structural habitat improvements on approximately 500 acres annually.	No effect	No effect	No effect	No effect
Provide habitat capable of supporting a minimum of 5,600 elk and 43,700 deer.	No effect	No effect	No effect	No effect
Evaluate and update existing aspen management plans every five years.	No effect	No effect	No effect	No effect
Maintain adequate wildlife cover within 100 feet of an opening of 10 acres or more.	No effect	No effect	No effect	No effect

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Maintain adequate downed material and standing snags for wildlife habitat as identified below: Aspen: 70% of maximum population potential or 1.3 snags/acre Douglas-fir: 50% of maximum population potential or 1 snag/acre Lodgepole pine: 40% of maximum population potential or 0.7 snag/acre Ponderosa pine: 80% of maximum population potential or 2.7 snag/acre Riparian: any species, 70% of maximum population potential or 1.3 snags/acre	No effect	No effect	No effect	No effect
Complete management plans (riparian, aspen, old-growth)	No effect	No effect	No effect	No effect
Openings of up to 20 acres may be created for habitat improvement.	No effect	No effect	No effect	No effect
Identify and manage habitats capable of supporting self-sustaining trout populations	No effect	No effect	No effect	No effect
Transitory range may be allocated to wildlife.	No effect	No effect	No effect	No effect
Identify and map elk calving areas, deer and antelope fawning areas, and sage grouse strutting and nesting areas for assessing cumulative impacts.	No effect	No effect	No effect	No effect
Designate and protect old growth areas for dependent species. Old growth should be a minimum of 160 contiguous acres and have old growth characteristics.	No effect	No effect	No effect	No effect
Retain 5% of area in old growth conditions at all times (and close the old growth area to fuelwood harvesting).	No effect	No effect	No effect	No effect
Provide appropriate aquatic and terrestrial habitat analysis input to all resource management activities.	No effect	No effect	No effect	No effect
<u>Objective:</u> Develop the species/habitat relationships of fish and wildlife.	No effect	No effect	No effect	No effect

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Complete inventory of <b>Management indicator Species</b> on the Forest to determine their occurrence, abundance, distribution, habitat requirements, and population trends.	No effect	No change in FP direction; Develop relationships for beaver and snowshoe hare	No change in FP direction; Develop relationship for Brewer's sparrow	No effect
Establish and maintain thermal and security cover needs to meet the Forest's big game and <b>Management Indicator Species habitat objectives.</b>	No effect	Delete reference to MIS	Delete reference to MIS	Delete reference to MIS
Manage Bear Top Mountain giving preference to Rocky Mountain big horn sheep.	No effect	No effect	No effect	No effect
Analyze the need for, and acquire when appropriate, conservation pools in reservoirs to maintain fisheries habitat	No effect	No effect	No effect	No effect
Maintain all streams for a biotic condition index (BCI) of 75 or above and a habitat condition index (HCI) of 42 or above.	No effect	No effect	No effect	No effect
Complete aquatic inventories using General Aquatic Wildlife Survey (GAWS) and R-1 stream channel stability ratings on stream orders 3, 4, and 5. Complete inventory of all streams.	No effect	No effect	No effect	No effect
Mitigation activities associated with the CUP will be designed and implemented to protect or enhance habitat values for existing fish and wildlife species.	No effect	No effect	No effect	No effect
Where feasible, emphasis for terrestrial mitigation from the CUP will be in the area of land acquisition or habitat enhancement projects.	No effect	No effect	No effect	No effect
Emphasis for aquatic mitigation from the CUP will be the establishment of minimum stream flows and the physical enhancement of stream affected by the CUP.	No effect	No effect	No effect	No effect
<u>Objective:</u> Manage the habitat of all T&E or sensitive plant and animal species to maintain or enhance their status.	No effect	No effect	No effect	No effect

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Resource management activities will be allowed if they will not adversely affect any threatened and endangered or sensitive species.	No effect	No effect	No effect	No effect
Participation with state wildlife agencies in evaluating the potential for re-establishment of the peregrine falcon.	No effect	No effect	No effect	No effect
Give priority to structural habitat improvement work in streams containing Colorado River Cutthroat trout strains.	No effect	No effect	No effect	No effect
Complete inventory of sensitive plant and animal species on the Forest to determine their occurrence, abundance, distribution, habitat requirements, and population.	No effect	No effect	No effect	No effect
Consult with the U.S. Fish and Wildlife Service when actions have the potential to affect any threatened or endangered species.	No effect	No effect	No effect	No effect
<u>Objective:</u> Continue to identify species suitable for introduction	No effect	No effect	No effect	No effect
Identify vacant niches and mitigate conflicts with other resources.	No effect	No effect	No effect	No effect
<u>Objective:</u> Develop support from wildlife interest groups for funding or labor for wildlife and fish projects.	No effect	No effect	No effect	No effect
Maintain contacts with local and regional wildlife and fish interest groups.	No effect	No effect	No effect	No effect