

# FINAL ENVIRONMENTAL ASSESSMENT

## MANAGEMENT INDICATOR SPECIES FOREST PLAN AMENDMENT 30

TO THE LAND AND RESOURCE MANAGEMENT PLAN FOR THE  
PIKE AND SAN ISABEL NATIONAL FORESTS,  
CIMARRON AND COMANCHE NATIONAL GRASSLANDS

**August 2005**

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## INTRODUCTION

This document discloses the environmental impacts of implementing the recommendations which form the Proposed Action as presented in “*Management Indicator Species (MIS) Review for the Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands (PSICC)*”, aka 2005 MIS Review (USDA-FS 2005). The 2005 MIS Review is included in this Environmental Assessment (EA) as [Appendix A](#). Implementing either the Proposed Action or the No Action alternative would constitute a non-significant amendment to the Land and Resource Management Plan (Plan) (USDA-FS 1984) for the PSICC. As such, the following analysis would reveal any immediate and/or foreseeable changes in the management direction (goals, objectives, standards and guidelines) or in the anticipated goods and services, as anticipated in the Plan. Implementing the Proposed Action would be an interim modification to the existing list until Plan Revision is complete<sup>1</sup>. The information presented enables the responsible official to make an informed decision on the appropriate action to be taken. The decision will be documented in a Decision Notice accompanying the EA.

### **TRANSITION PROCESS TO THE 2005 PLANNING REGULATIONS FOR MIS**

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The 1982 Planning regulations (1982 Rule) provided guidance for implementing NFMA when the Plan was promulgated in 1984. The 1982 Rule has now been superseded by regulations published in the Federal Register on January 5, 2005 (2005 Rule), 70 Fed. Reg. 1022. The 2005 Rule addresses only Forest Planning and has no application to project-level planning, 36 CFR 219.12(c). The 2005 Rule expressly drops the 1982 Rule’s concept of wildlife viability and the related requirements to monitor management indicator species.

However, during a three-year transition period, the 2005 Rule allows amendment of an existing Forest Plan under the provisions of the superseded 1982 Rule with certain modifications, 36 CFR 219.14. The 1982 Rule directed Forests to manage fish and wildlife habitat to maintain viable populations, and directed Forests to select MIS as a process or method to help ensure species viability, 36 CFR 219.19 (1982 Rule).

MIS WERE defined as “plant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent” (FSM 2620.5). The role of MIS and the criteria to select MIS are described in 36 CFR 219.19 (a)(1) (1982 Rule) as follows:

“In order to estimate the effects of each [Forest Plan] alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection

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<sup>1</sup> Plan Revision will be conducted as two separate events ... the Cimarron & Comanche National Grasslands Plan Revision has been initiated with the projected release of a final decision document in 2006; the Pike & San Isabel National Forests Plan Revision is scheduled, with a projected release of a final decision document in 2009.

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.”

Important characteristics of MIS are that they have narrow habitat associations and are capable of being effectively monitored. MIS and their habitats have been used as part of a strategy to monitor implementation of the Forest Plan and the effects to wildlife and plants. Deciding officials have broad discretion to select MIS under the 1982 Rule. The deciding official, using information provided by an interdisciplinary planning team, determines whether the population changes of certain species are “believed to indicate the effects of management activities.” Beliefs or opinions about the reliability of such relationships are subject to change because of increased scientific knowledge, and as a result of implementation and monitoring of Forest Plans. Therefore, deciding officials may periodically need to reevaluate the MIS selected for forest plans and make appropriate adjustments. Furthermore, the 1982 Rule specifies that species are to be selected from various categories “where appropriate,” indicating there is no requirement that all categories of species or habitats be represented.

As a final note of introduction, we observe that both the concept and application of MIS have come under considerable criticism. Growing doubts about the usefulness of the concept and/or its application are reflected in the literature (Caro and O’Doherty 1999; Landres, Verner, and Thomas 1988; Noss 1990; Simberloff 1998).

The 2005 Rule modifies the MIS concept during transition to the 2005 Rule, at 219.14(f):  
“Management indicator species. For units with plans developed, amended, or revised using the provisions of the planning rule in effect prior to November 9, 2000, [the 1982 Rule] the Responsible Official may comply with any obligations relating to management indicator species by considering data and analysis relating to habitat unless the plan specifically requires population monitoring or population surveys for the species. Site-specific monitoring or surveying of a proposed project or activity area is not required, but may be conducted at the discretion of the Responsible Official.”

This language explicitly relieves the Forest Service of obligations regarding monitoring or survey of wildlife populations of MIS but nonetheless does retain reference to MIS developed in Plans prepared using the 1982 Rule. While the 1982 Rule has been superceded and no longer exists, the Forest has elected to conduct this amendment under the provisions of the former 1982 Rule, as modified by 36 CFR 219.14.

**§219.14 (b) and (e) Effective dates and transition.**

(b) Transition period. For each unit of the National Forest System, the transition period

begins on January 5, 2005 and ends on the unit's establishment of an EMS in accordance with §219.5 or on January 7, 2008 whichever comes first.

(e) Plan development, plan amendments, or plan revisions previously initiated. Plan development, plan amendments, or plan revisions initiated before the transition period may continue to use the provisions of the planning regulations in effect before November 9, 2000 (See 36 CFR parts 200 to 299, Revised as of July 1, 2000), or may conform to the requirements of this subpart, in accordance with the following:

(1) The Responsible Official is not required to halt the process and start over. Rather, upon the unit's establishment of an EMS in accordance with §219.5, the Responsible Official may apply this subpart as appropriate to complete the plan development, plan amendment, or plan revision process.

The transition rule allows for use of the provisions of the 1982 Rule for the limited purpose of plan amendment or revision during the transition period. This amendment is prepared using the MIS concept of the transition rule.

The 2005 Rule limits its application to planning at the forest-wide level and imposes no requirements on project decisions which implement the Forest Plan, 36 CFR 219.2(c). The 2005 Rule also allows a Forest that elects to amend during the transition period to remove any mandatory MIS population monitoring from the Plan, 36 CFR 219.14(f). Accordingly, this amendment imposes no obligation to collect population data and imposes no obligation to collect or analyze data regarding MIS at the project level.

## **PURPOSE AND NEED OF THE ACTION**

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The purpose of the proposed action, therefore, is to establish a revised MIS list that is better aligned with the applicable regulation, better serves to indicate the effects of management activities, and ensures monitoring is conducted on species for which monitoring population trend is most feasible and useful.

Implementing the No Action alternative would cause the PSICC to continue monitoring species from the existing MIS list even though the 2005 MIS Review found them no longer effective in meeting the intent of MIS.

The purpose of this amendment is to establish an updated MIS list. An updated list is needed to ensure better alignment with the 1982 planning regulations, to adequately serve the PSICC's monitoring of management activities' potential effects, and to adequately ensure that the appropriate monitoring is feasible, useful and not redundant. The rationale is briefly summarized below.

The 2005 MIS review found that several species on the existing MIS list did not serve valid roles as indicators of major management activities' effects or of ecosystem change. For some species the effects of management activities are difficult to determine because of the infeasibility and ineffectiveness of collecting monitoring data at appropriate scales. The 2005 MIS review also

considered other ongoing Plan monitoring, which was not a consideration during development of the 1984 Plan.

Recent interpretations of MIS monitoring requirements that are specifically tied to population data (36 CFR 219.19) point to the need to review the feasibility of monitoring populations of existing MIS which vary by scale, methodology, cost, and objectives. Although the Plan indicated that population data collected by State wildlife agencies could be used to determine species trend, the original intent of the Plan's MIS monitoring program (Chapter IV-6) was to assess the effects of management activities and species trend by focusing primarily on habitat capability.

### **SCOPE OF THE ACTION**

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The scope of the proposed action involves the existing MIS list and those species whose removal would improve the list's compliance with the MIS regulation. The proposed action is intended to clarify how the existing MIS list will be used to monitor the Plan. Adding new species to the existing MIS list was considered at an early point in the amendment process, but due to Regional consistency and other issues was dropped from further consideration. As appropriate and/or required under the planning regulations, additional species can be considered during the Plan revision process.

The scope of the action does not necessitate a species viability assessment or an evaluation of sustainable commodity outputs.

### **DECISION TO BE MADE**

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The decision to be made involves amending the Plan to modify the existing MIS list and associated standards and guidelines, along with the associated monitoring and evaluation requirements found in the Plan (Chapters III and IV-6, respectively). Also to be decided is whether implementing the decision would require preparation of an Environmental Impact Statement (EIS). The authority to make these decisions is found in the National Forest Management Act (NFMA) 1982 Regulations (36 CFR 219.10(f)), which states that the Forest Supervisor may amend the Plan based upon new information that may have a bearing on the objectives, guidelines and other contents of the Plan. Both the 2002 MIS Review and updated by 2005 MIS Review provided such new information.

### **PUBLIC INVOLVEMENT**

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On July 24, 2003, an interest/scoping letter was sent to approximately 700 individuals, agencies, and organizations on the PSICC's Schedule of Proposed Actions (SOPA) mailing list. This letter, which described the purpose and need for the action, included a table of existing MIS and the retention/removal recommendations. The letter included a deadline for written responses to the PSICC from those wishing to comment at that time and/or from those interested in future mailings about this action.

During scoping seven written responses were received, four of which included comments pertinent to the Proposed Action being considered. One of the four responses described numerous concerns with the proposed MIS list modification and Plan Amendment. The remaining responses offered either general support for modifying the MIS list or support to retain and/or remove individual species as recommended. Responses to written comments are found in [Appendix B](#).

An opportunity was provided the public in mid-April 2005, for a 15-day review and comment period on the EA. During this period, approximately 680 individuals, agencies and organizations were provided an opportunity to read and comment on the EA. Six formal replies were received. Many of the comments received during the April 2005 comment period were very similar to those received in 2003. However, there were numerous questions related to the use and interpretation, as well as legality of the 2005 Planning Rule (36 CFR 219). Responses to the substantive comments were prepared and mailed to each of the six commenters, and are found in [Appendix E](#) of the EA.

## ISSUES

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### Key Issues

From the scoping process, and through informal intra- and interagency discussions, the PSICC identified the following key issues that were used to generate and assess the effects of the Alternatives. Other issues addressed include those inherent to the analysis process. Those issues outside the scope of this analysis are also identified.

1. The action must meet the intent of monitoring and evaluating MIS as described in the NFMA 1982 Regulations (36 CFR 219.19). This issue includes the following elements:
  - Through monitoring, the species selected should indicate the effects of management activities.
  - The species selected should represent the ecosystems affected by anticipated major management activities and serve as indicators of change to those ecosystems.
2. The action needs to be implementable and feasible. This issue includes the following elements:
  - Appropriate thresholds of concern need to be established for monitoring MIS.
  - The species selected should be feasible and effective to monitor.
  - The action should not increase the risk of viability loss for any species, as proposed,

### Issues Outside the Scope of this Analysis

1. The action should include the addition of other species or community types not currently represented (e.g. herptile and plant species), and should increase the number of species included for aquatic habitats.

*Response:* The scope of this action is to reduce the existing MIS list to avoid redundancy and increase efficiency, rather than undergo a complete revision at this time. In conjunction with

Plan Revision, and as appropriate, the most current MIS list will be reviewed, analyzing potential additions and associated changes in management direction and outputs.

2. The action is not legal nor an appropriate use of Forest Service resources due to: 1) the status of the Plan Revision; and 2) other, “more pressing issues such as controlling illegal, off-road motorized recreation and the creation of trails and roadways that disturb and destroy critical habitat for species of special concern.”

*Response:* Modifying the existing MIS list is consistent with NFMA (36 CFR 219.10 (f)) which provides that a Plan may be amended in any manner whatsoever after public notice. Through the 2005 MIS Review, factual and scientific information was presented to enable the Forest Supervisor to exercise discretionary decision authority to modify the existing MIS list.

The purpose and need of this action is to modify the list as an interim measure only until the Plan is revised. Given the timelines for completing the two Plan Revisions (2006 and 2009) and the recommendations/rationale for modifying the existing list as described in the 2005 MIS Review, it is appropriate to analyze this action now.

Focusing monitoring and evaluation efforts on the best indicators will also increase efficiency, allowing the PSICC to better address other “pressing issues” such as those mentioned. Monitoring and evaluating ineffective or impractical MIS can be a substantial drain on scarce resources.

## **ALTERNATIVES**

### **ALTERNATIVE 1 – NO ACTION**

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The No Action alternative represents the existing Plan management situation for the PSICC. The MIS listed in the Plan (Chapter III-28 to 29) (Table 1, below), and the monitoring and evaluation requirements for those MIS (Chapter IV-6) would not be changed. This would result in no change to the management direction or outputs of the Plan. Implementing this alternative would not involve preparing a Plan Amendment.

### **ALTERNATIVE 2 – PROPOSED ACTION**

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Under this alternative, the 2005 MIS Review recommendations to modify the existing MIS list would be implemented through a Plan Amendment ([Appendix C](#)). These recommendations are made to remove MIS status from those species that: 1) population trend cannot be monitored at the Forest/Grassland scale; and/or 2) whose population changes are not indicators of major management activities; and/or 3) are indicators of similar land-types or habitats. The entire process used to develop the recommendations, including a list of the evaluation criteria applied to determine whether or not a species should be retained or removed from the existing MIS list is detailed in the 2005 MIS Review ([Appendix A](#)).



Implementing the recommendations from the 2005 MIS Review would retain 8 MIS<sup>2</sup> for monitoring and evaluation, rather than the existing 40 species<sup>3</sup> (Table 1). General and species-specific Standards and Guidelines directly linked to a species status as a MIS would no longer apply to species removed from the existing MIS list.

Also under this Alternative, the monitoring and evaluation requirements in the Plan (Chapter IV-6) would be updated, where necessary, to clarify MIS monitoring procedures, timelines and/or protocols that: 1) indicate the effects of management activities (36 CFR 219.19(a)(1)); 2) evaluate species viability (36 CFR 219.19); and 3) evaluate diversity in terms of prior and present condition (36 CFR 219.26). These monitoring procedures would include the collection and evaluation of quantitative population data as well as data to assess trends in habitat capability<sup>4</sup>. Specific changes to existing monitoring and evaluation requirements would be reflected in the Plan Amendment ([Appendix C](#)).

Implementing this Alternative would apply to all future projects planned and authorized on lands managed by PSICC.

**Table 1. Existing and Modified MIS Lists by Alternative**

MIS	Species Status					Alternative 1 No Action	Alternative 2 Proposed Action
	Federal <sup>b</sup>				FS Sensitive	Retain	Retain
	E	T	P	C			
<b>CIMARRON NATIONAL GRASSLAND</b>							
Black-tailed prairie dog					X	X	X
Bobwhite						X	
Burrowing owl					X	X	
Cassin's sparrow					X	X	
Lesser prairie chicken					X	X	X
McCown's longspur					X	X	
Mississippi kite						X	
Mourning dove						X	
Mule deer						X	
Northern/Bullock's oriole						X	X
Red-headed woodpecker*						X	
Scaled quail						X	
Turkey						X	
White-tailed deer						X	
<b>COMANCHE NATIONAL GRASSLAND</b>							
Antelope						X	
Bewick's wren						X	
Black-tailed jackrabbit						X	
Black-tailed prairie dog					X	X	X
Bobcat						X	

<sup>2</sup>The 2005 MIS Review recommends 8 species of fish and wildlife be retained from the existing list. Of this total, three species appear on the list more than once across PSICC's two Grassland units.

<sup>3</sup>The 2002 MIS Review states that 51 species of fish and wildlife comprise the existing list in the Plan. Of this total, 11 species appear on the list more than once across PSICC's four administrative units. Counting each existing MIS once would total 40 different species.

<sup>4</sup> "To insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area." 36 CFR 219.19

MIS	Species Status					Alternative 1 No Action	Alternative 2 Proposed Action
	Federal <sup>b</sup>				FS Sensitive	Retain	Retain
	E	T	P	C			
Burrowing owl					X	X	
Cassin's sparrow					X	X	
Cliff swallow						X	
Ferruginous hawk					X	X	
Great horned owl						X	
Lesser prairie chicken					X	X	X
Lewis' woodpecker					X	X	
Long-billed curlew					X	X	X
Mule deer						X	
Northern/Bullock's oriole						X	X
Scaled quail						X	
Turkey						X	
<b>PIKE &amp; SAN ISABEL NATIONAL FORESTS</b>							
Abert's squirrel						X	X
Beaver						X	
Bighorn sheep						X	
Black-throated gray warbler						X	
Brook trout						X	X
Elk						X	X
Greenback cutthroat trout		X				X	X
Green-tailed towhee						X	
Lewis' woodpecker					X	X	
Mallard						X	
Mountain bluebird						X	
Mule deer						X	
Northern 3-toed woodpecker					X	X	
Peregrine falcon					X	X	
Pine marten					X	X	
Turkey						X	
Virginia's warbler						X	
Water pipit						X	
Wilson's warbler						X	
Yellow-bellied sapsucker*						X	

<sup>a</sup>Recommendations based on PSICC MIS Review (USDA-FS 2005)

<sup>b</sup>Status: E=Endangered, T=Threatened, P=Proposed, C=Candidate, FS Sensitive=R2 sensitive species List

\*Red-naped sapsucker

### **ALTERNATIVE NOT CONSIDERED IN DETAIL**

An alternative was considered to go beyond the scope of the Proposed Action by evaluating the suitability of adding species and/or communities as MIS. This particular alternative would require an additional, more complex level of analysis to determine if possible changes in management direction and/or outputs could result or are necessary. This may show some species and/or communities would not require any changes in management direction. However, the added time and resources necessary to process literature on additional species is not presently warranted. Expanding the MIS list will be considered in conjunction with Plan Revision, as necessary.

## **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

Following is a description of the affected environment and the environmental consequences of implementing Alternatives 1 and 2. Because the scope of this action is limited to modifying the existing MIS list and associated monitoring and evaluation requirements, the following would be true upon implementation of either of the alternatives:

- there are no anticipated changes to the goals and objectives, standards, and guidelines of the Plan;
- the direct, indirect, and cumulative effects of the Alternatives would not differ from those disclosed in the 1984 Final Environmental Impact Statement (FEIS) for the Plan; and
- implementing either of the alternatives would not dictate, result in or cause any ground-disturbing activities.

### **AFFECTED ENVIRONMENT**

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The environment affected by the Alternatives includes all National Forest System lands administered by the PSICC. However, because neither Alternative results in any ground-disturbing activities, the analysis of environmental consequences focuses on:

- direction and guidance relative to MIS, wildlife habitat diversity and population viability based on current regulations, Regional guidance, and the Plan Standards and Guidelines;
- the existing 40 MIS across PSICC's four units (Table 1, above); and
- the findings and recommendations from the 2005 MIS Review, included in its entirety as [Appendix A](#).

Since the establishment of the original 40 MIS in 1984, there have been advancements in MIS knowledge and application, including a Region 2 clarification (Hayward et al. 2001 and 2004) of the selection criteria found in the 1982 NFMA planning regulations at 36 CFR 219.19(a)(1). Based on this clarification, the PSICC conducted a literature and data review (USDA-FS 2002) involving the 40 species on the existing MIS list. The goal of the review was to determine the usefulness of each species as a MIS and the practicality of monitoring population trend for each based on species biology, available methodologies, feasibility and effectiveness. The outcome was the recommendation to modify the existing MIS list by retaining 8 of the original 40 species (expressed as Alternative 2 herein).

The 2005 MIS Review, detailing the process and rationale for retaining the recommended 8 species, is found in [Appendix A](#).

## **ENVIRONMENTAL CONSEQUENCES**

### **ALTERNATIVE 1 – NO ACTION**

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### **Direct and Indirect Effects**

Management activities proposed and implemented on the PSICC would continue to utilize MIS from the existing list (Table 1, above) as a means to assess the effects of those activities on the accomplishment of Plan objectives including maintaining species viability. Monitoring and evaluation of MIS would continue to be based upon the original goals of the Plan, with a strong focus on habitat trends. The HABCAP model (USDA-FS 1994), one analysis tool used by Forest Service biologists, has and continues to be effective in predicting potential impacts of vegetation change on habitat capability. Data generated from HABCAP and R2 Veg have been supplemented as needed, and if possible with quantitative population monitoring data provided by State wildlife agencies or other entities, and by population monitoring conducted by PSICC. Because the Plan's General Direction/Standards and Guidelines (S&Gs) (Chapter III) focus on habitat capability, most project analyses and associated monitoring have and are expected to continue utilizing habitat trends to assess the effects of management activities on species viability. By following the existing MIS monitoring and evaluation requirements of the Plan (Chapter IV-6), focus would continue on habitat capability assessments and periodic population estimates.

With regard to the key issues, when the Plan was approved in 1984, the MIS direction was believed to be in full compliance with the 1982 NFMA planning regulations (36 CFR 219.19). Following years of Plan implementation, a review of the existing MIS (USDA-FS 2005) documented the need to remove certain species from the list based upon the evaluation criteria and guidelines used in selecting species as MIS ([Appendix A](#)). One of the reasons supporting a species removal from the list was that it does not serve a valid role as an indicator of the effects of management activities or ecosystem change. The 2005 MIS Review also concluded that for some species, the effects of management activities are difficult to determine due to the infeasibility and ineffectiveness of collecting monitoring data at appropriate scales (i.e. Forest/Grassland scale or at the section or province level). Therefore, implementing the No Action alternative would retain all existing species on the MIS list, even if they no longer meet the evaluation criteria and guidelines.

Legal interpretations of NFMA indicate that MIS habitats and population trends (including collection of quantitative population data) must be monitored at the Forest or project scale. Therefore, under this Alternative, the PSICC would be required to monitor habitat and populations for a large number of species that provide little useful information regarding the effects of management activities on species populations or their habitats. This required monitoring of all existing MIS would result in unnecessary expenditures of funding and effort, and would be contrary to the 1982 NFMA planning regulations requirement for establishing and maintaining a MIS list.

Monitoring efforts at scales larger than the Forest/Grassland (Planning Area) scale (i.e. section or province level) would be utilized when possible and when inferences can be made about the relationship between trends at larger scales and those at the Planning Area or Forest scale.

The one Federally-listed threatened species (greenback cutthroat trout) and 11 Region 2 Regional Forester Sensitive Species that are on the existing MIS list would retain MIS status under this Alternative. There would be no direct or indirect effects or impacts to these species from

implementing this Alternative. No other past or currently listed species (Federal, proposed, candidate or sensitive species) would be affected by implementing this Alternative. Federally-listed, proposed and candidate species and Region 2 sensitive species continue to receive special management emphasis according to current Forest Service policy (FSM 2670) and in compliance with the Endangered Species Act of 1972, as amended. Refer to the Biological Evaluation in [Appendix D](#) for additional information on special status species.

This Alternative would not provide advanced knowledge or application of MIS that would be useful during Plan Revision.

### **Cumulative Effects**

In this analysis, the cumulative effects were estimated from the time the Plan was approved (1984) through 2009+. The following are the past, present, and reasonably foreseeable actions in the Planning Area pertinent to this Alternative:

- approval of the 1984 Plan, subsequent Plan amendments and Plan monitoring reports;
- 2005 MIS Review;
- past, on-going and proposed management activities;
- pending Plan Revision for the Grasslands, scheduled for completion in 2006;
- pending Plan Revision for the Forests, scheduled for completion in 2009;
- 2005 NFMA planning regulations and application of MIS and sustainability.

Since 1984, the PSICC has been applying MIS direction and guidelines for species on the existing list. Over the years, the evaluation of monitoring data and scientific literature for MIS has shown there are species on the list that no longer serve or may never have served as good indicators of major management activities. MIS monitoring and evaluation efforts have continued, with the Plan being implemented through project-level decisions. As documented in the 2005 MIS Review, maintaining the status quo is not effective, efficient or feasible in meeting MIS requirements of the 1982 NFMA planning regulations, or in measuring our success in achieving the goals and objectives of the Plan.

The reasonably foreseeable future actions listed above have the potential to interact with this Alternative in the following ways:

- The risk of implementing future project-level decisions would be minimal as other ongoing Plan monitoring efforts continue to indicate potential effects of management activities on species populations and habitat. Achieving the goals and objectives of the Plan along with the anticipated outputs would continue.
- If Plan Revision timelines deviate from the proposed timelines, the existing MIS list would remain as is for a longer, undefined period of time. The likelihood of realizing an accelerated timeline for either Plan Revision is unlikely. This would mean continuing to implement the MIS program of monitoring and evaluating all 40 species for this undefined period of time, until each individual Plan Revision is complete. By maintaining the status quo, critical resources would continue to be diverted to MIS monitoring and evaluation efforts that do not produce meaningful results related to Plan implementation and/or species viability.

- For Plans prepared under the 1982 NFMA planning regulations, compliance with MIS requirements is mandatory until the Plan is revised.
- For the two pending Plan Revisions, which will be done under the 2005 NFMA planning regulations, the diversity of native plant and animal species in the plan area based upon suitability and capability will be addressed first through ecosystem diversity. However, additional steps may be needed and then established to ensure species diversity and to provide appropriate ecological conditions for specific threatened and endangered species, species of concern, and/or species of interest.

## **ALTERNATIVE 2 – PROPOSED ACTION**

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### **Direct and Indirect Effects**

Minimum habitat capability requirements of 60 to 80% for all MIS, along with direction for species-specific MIS, are shown in Chapter III of the Plan as General Direction and Management Area (MA) direction, and as Standards and Guidelines.

For species removed as MIS, the 60 to 80% minimum habitat capability requirements would no longer apply. However the Forest-wide General Direction requiring 40% minimum habitat capability would apply, and as was analyzed in the 1984 FEIS to the Plan, this would continue to provide for adequate diversity to maintain viable populations. The species-specific General Direction, MA direction, and other Standards and Guidelines would no longer apply to species removed as MIS. As with the minimum habitat capability requirements identified in the Plan, the PSICC – through the Plan – is required to provide for diversity and maintain viable populations of all species occurring in the planning area.

Under this Alternative, there would be no change in the Plan’s General Direction, goals, objectives, or the goods and services produced as a result of modifying the existing MIS list. The Biological Evaluation (BE) ([Appendix D](#)) prepared for this EA contains more detailed analysis of the potential effects/impacts to species removed from the existing MIS list.

**Species Retained** – Compared to Alternative 1, the Proposed Action retains a more useful, efficient and less redundant MIS list to monitor and evaluate the effects of major management activities. These species are the most responsive to the major management activities occurring in the Management Indicator Groups (MIGs) identified for the plan area, as displayed in Table 2, below. Under this Alternative, the Forest would monitor and evaluate the recommended eight species as MIS to ensure the goals and objectives of implementing the Plan continue to be achieved.

The only Federally-listed species on the existing MIS list is the threatened greenback cutthroat trout, which would be retained as a MIS under this alternative.

**Table 2. Distribution of Major Management Activities on the PSICC based on MIG.**

MIG	Major Land Management Activities								
	Recreation	Range Management	Timber	Water Uses	Minerals	Property Boundary	Transportation	Fire Suppression	Vegetation Treatments
<b>Pike &amp; San Isabel NFs</b>									
Riparian	X	X		X		X	X		X
Deciduous	X	X	X					X	X
Spruce/Fir	X		X		X				X
Ponderosa Pine	X		X		X				X
Grass/Shrubland	X	X			X		X		
<b>Cimarron NG</b>									
Riparian	X	X		X	X		X		X
Sandsage Prairie	X	X			X			X	X
Shortgrass Prairie	X	X					X	X	X
<b>Comanche NG</b>									
Canyonlands	X	X		X		X	X		X
Riparian	X	X		X		X	X		X
Sandsage Prairie	X	X			X	X		X	X
Shortgrass Prairie	X	X				X		X	X

**Species Removed** - The 2005 MIS Review recommends removing from the existing list 32 species that serve as poor MIS due to uncertain relationships between management effects and population trends, and/or are inefficient, infeasible or redundant to monitor. Of these, eight are currently on the Region 2 sensitive species list (refer to Table 1). Although these eight species would be removed as MIS, they would retain sensitive species status along with all direction and guidelines applicable to sensitive species management (FSM 2670.22 and 2672.1).

For species that would be removed as MIS, the Standards and Guidelines in the Plan (Plan III-32) would not change from requiring a 40% minimum habitat capability level which is necessary “to provide for the diversity and maintenance of viable populations of all wildlife and fish species presently occurring in the planning area”.

[Appendix A](#) details the supporting rationale and recommendations for removing the 32 species from the existing MIS list.

**Monitoring and Evaluation** - The existing monitoring and evaluation requirements for MIS would be amended, as necessary, to ensure continued data collection at appropriate scales to



assess population trends as related to the effects of management activities within the Planning Area.

[Appendix C](#) contains the proposed wording for a Plan Amendment under this Alternative, which includes the modification to the existing MIS list, and the monitoring and evaluation requirements.

**Summary** – There would be no change in any goals and objectives or commodity outputs of the existing Plan. Habitat objectives and predicted trends in habitat and species populations would not change over those levels analyzed in the Plan. This Alternative would more adequately implement and better meet the intent of the MIS program by removing those species that do not serve as useful indicators of the potential impacts of major management activities in the Planning Area. This Alternative incorporates by reference the information compiled from the 2005 MIS Review, found in its entirety as [Appendix A](#), and reflects an improvement in the knowledge and understanding of how to implement the MIS program in a way that is practical for Plan implementation.

There would be no direct and/or indirect impacts to those species retained as MIS, as there would be no change in management direction.

The action of removing species from the existing MIS list would not result in a loss of viability for those species. The 32 species that would be removed as MIS under this Alternative would be managed according to the general viability requirements of NFMA (36 CFR 219.19) as described in the Plan's Standards and Guidelines (Chapter III). Furthermore, viability is not a concern for 24 of the 32 species that would be removed as MIS; they do not appear on the recently-revised Region 2 sensitive species list (USDA-FS 2003b) and do not have a heritage database ranking that would indicate their rarity or viability concern. The other eight species recommended for removal as MIS that are Region 2 sensitive species would continue to be managed as such.

Regardless of a species status, whether identified as MIS or not, population monitoring for many game and some non-game species would continue through the Colorado Division of Wildlife (CDOW) and the Kansas Department of Wildlife and Parks. Several other entities and agencies also track population trends of particular species or groups of species, such as the U.S. Fish and Wildlife Service, State Natural Heritage Programs, Rocky Mountain Bird Observatory, U.S. Geological Survey, university researchers, and others. The PSICC would continue to collaborate with the States regarding habitat management for many of the MIS species, and would continue to seek the best available information on species biology and population trend from the full range of reputable sources, as needed.

In addition to on-going MIS monitoring efforts, the PSICC monitors a multitude of resources – reporting the results on an annual basis, as required by the Plan. This monitoring, which supplements MIS monitoring, involves the following: soil and water resources, watershed assessments, burned areas rehabilitation, soil and water quality, wildlife habitat diversity units and acreages, threatened, endangered and sensitive species, habitat modification and enhancements, riparian and aquatic assessments, rangeland conditions and utilization (including rangelands administered to Plan standard), forestland treatments and improvements (including



forestlands administered to Plan standard), as well as recreational development and use. The annual MIS monitoring information is also contained in the annual report as a small part of the overall effort to measure changes in the resource from management activities and naturally induced biotic/abiotic effects. The process of reducing the PSICC's MIS list is viewed in the context of these and other significant local and regional monitoring efforts (such as goshawk, burrowing owl, white-tailed ptarmigan, peregrine falcon, Mexican spotted owl, boreal toad, black swift, Pawnee montane skipper, rare plant surveys, etc.) that provide specific and direct information related to these potential effects and management issues.

Other direct or indirect impacts to the species removed are not expected to increase under this Alternative as implementation would not impact or change species-specific, non-MIS related management direction or outputs. This Alternative does not propose or dictate any ground-disturbing activities.

Analysis of all Federally-listed, proposed, candidate, and Region 2 sensitive species would continue prior to any future project implementation through preparation of biological evaluations, as prescribed by agency manual direction (FSM 2670). Implementation of this alternative would have no effect on Federally-listed, proposed, candidate, or sensitive species because no changes would occur in management direction, commodity outputs or analysis of these species. [Appendix D](#) contains the BE prepared for this EA, along with a list of existing MIS that are Federally-listed, proposed, candidate, or Region 2 sensitive species on the PSICC.

While a Plan Amendment under this Alternative may help provide information useful for Plan Revision, it is not directly tied to it, and is not a necessary part of it.

### **Cumulative Effects**

As with the No Action Alternative, in this cumulative effects analysis the following are the past, present, and reasonably foreseeable actions in the Planning Area, from 1984 to 2009+, that may have or are likely to affect implementation of this Alternative:

- approval of the 1984 Plan, subsequent Plan amendments and Plan monitoring reports;
- 2005 MIS Review;
- past, on-going and proposed management activities;
- pending Plan Revision for the Grasslands, scheduled for completion in 2006;
- pending Plan Revision for the Forests, scheduled for completion in 2009;
- 2005 NFMA planning regulations and application of MIS and sustainability.

Since 1984, the PSICC has been applying MIS direction and guidelines for all species on the existing list. Over the years, the evaluation of monitoring data and scientific literature for MIS has shown there are species on the list that no longer serve or may never have served as good indicators of management activities. As documented in the 2005 MIS Review, maintaining the status quo is no longer effective, efficient or feasible in meeting MIS requirements of the 1982 NFMA planning regulations, or in measuring our success in achieving the goals and objectives of the Plan.

The reasonably foreseeable future actions listed above have the potential to interact with this Alternative in the following ways:

- The effects on species viability from implementing future project-level decisions would be better assessed by utilizing MIS that are true indicators for this purpose. This would help to better determine our ability to achieve the goals and objectives, and anticipated outputs of the Plan.
- The effectiveness and feasibility of monitoring and evaluating 8 rather than 40 MIS would be realized, thereby allowing increased focus on priority work (planning, implementation, monitoring and evaluation), producing more meaningful results related to implementing the Plan.
- If Plan Revision timelines deviate from the proposed timelines, the amended MIS list would remain in place for a longer period of time. The likelihood of realizing an accelerated timeline for either Plan Revision is unlikely. However, the amended MIS list would ensure the monitoring and evaluation of the retained species would provide useful information related to the effects of our major management activities on population viability.
- For the two pending Plan Revisions, which will be done under the 2005 NFMA planning regulations, the diversity of native plant and animal species in the plan area based upon suitability and capability will be addressed first through ecosystem diversity. However, additional steps may be needed and then established to ensure species diversity and to provide appropriate ecological conditions for specific threatened and endangered species, species of concern, and/or species of interest.

## **OTHER CONSEQUENCES OR EFFECTS CONSIDERED**

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

None of the Alternatives would affect the productivity of the PSICC as compared with 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 BE found in [Appendix D](#).

### **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 neither 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**

Neither of the Alternatives makes any changes in Plan goals and objectives nor affects any Plan outputs.

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

Neither of the Alternatives changes management prescriptions nor alters Management Area boundaries.

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## APPENDIX A

### Management Indicator Species Review and Detailed Description of the Proposed Action

for the

### Environmental Assessment for Management Indicator Species Amendment #30 to the 1984 Land and Resource Management Plan

### Pike and San Isabel National Forests Cimarron and Comanche National Grasslands

#### PURPOSE AND NEED

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Provide a review of the Management Indicator Species (MIS) identified in the 1984 Land and Resource Management Plan (Plan) for the Pike and San Isabel National Forests and Cimarron and Comanche National Grasslands (PSICC) (USDA 1984). Re-analysis of the MIS list and monitoring status under the current Plan is necessary to effectively employ the MIS concept in further Plan implementation.

**Table A-1. Monitoring requirements in the Plan for MIS (1984 FEIS, page IV-7).**

Action, Effects, or Resources to be Monitored	Monitoring Techniques Or Data Sources	Precision Reliability	Measurement Frequency	Reporting Period	Variability Which Would Initiate Evaluation
Trend of Management Indicator Species Habitats or Populations	Habitat Capability Assessments, population estimates by State Wildlife Agencies, Resource Information System, Professional judgment by Forest Service biologists, and activity reviews.	Moderate	5 years	5 years	± 25% change in species habitat capability or population size.

Improved understanding of monitoring requirements and approaches to effectively use MIS (36 CFR 219.19) has resulted in the need for this re-analysis and changes to Forest direction for management of MIS. Important changes relate to: 1) the relationship between MIS and management issues and 2) the role of MIS monitoring in light of other ongoing Forest Plan (Plan) monitoring. The feasibility of population monitoring varies among species, monitoring methods, cost and MIS monitoring objectives. The PSICC needs to re-evaluate the application of MIS in the Plan to gain efficiency and effectiveness, which is the goal of this assessment.

The Plan identifies 40 species of fish and wildlife as MIS, and provides direction, standards, and guidelines for MIS management under the Plan. The Plan implements the MIS program primarily through standards for habitat capability. Therefore, the PSICC focus for project analysis and monitoring has been on habitat. Population monitoring for all MIS was not the intention of monitoring requirements when the Plan was written; population monitoring only intended to make use of Kansas and Colorado State Wildlife Agencies' population data (FEIS Chapter III, pages 78 - 80).

## **INTRODUCTION**

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Changes in understanding of the role of MIS in forest and grassland management and in the roles of population and habitat monitoring in an MIS program motivate change in the MIS list under the current Plan. Therefore, this review is intended to determine: 1) the degree to which population and habitat data for the identified MIS contribute to effective adaptive management for the Plan; 2) availability of PSICC-wide population data for MIS from other sources; 3) the feasibility of collecting additional population data; 4) based on 1, 2, and 3, a set of MIS whose monitoring would effectively and efficiently supplement ongoing Plan monitoring; and 5) identify the management activities and issues for the set of MIS that would be retained in light of other Plan monitoring that occurs annually on the PSICC.

This review does not intend to identify or analyze new MIS for the Plan. Rather, it only identifies how the current MIS list will be used to supplement other PSICC monitoring efforts of the existing Plan. Therefore, recommendations are made to remove MIS status from those species whose population trend: 1) cannot be monitored at the Forest/Grassland scale; 2) monitoring purpose can be accomplished with other ongoing Plan monitoring; 3) changes are not indicators or a reflection of major management activities, and; 4) are indicators of similar MIS land-types or habitats.

## **MANAGEMENT INDICATOR SPECIES EVALUATION CATEGORIES**

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Categories of Species To Consider-- Species are to be selected as MIS because their population changes are believed to indicate the effects of land management activities (36 CFR 219.19 (a)(1)). The NFMA regulations used to write the current plan suggest that several categories be considered when selecting MIS. The categories listed under 36 CFR 219.19 (a)(1) are:

1. *Endangered and threatened plant and animal species identified on State and Federal lists:*  
Species chosen based on this selection criterion are not considered indicators of broad management consequences, but are chosen because of their special management status. Therefore, monitoring would focus on the effectiveness of management efforts to conserve the particular threatened or endangered species.
2. *Species commonly hunted, fished, or trapped:*  
Species chosen based on this selection criteria should occur in habitats likely to be influenced by planned management activities. If planned management activities are

unlikely to influence the habitat characteristics or population trends of the species, evaluate whether selecting the species as an MIS will significantly improve management.

3. *Non-game species of special interest:*

As with the previous category, evaluate whether management activities are likely to influence habitat characteristics or population trends of the species, in order to assess its usefulness as an MIS.

4. *Species with special habitat needs that may be influenced significantly by planned management programs:*

Species selected as MIS from this category will provide information to decision makers regarding the status of species dependent on specialized habitat that could be significantly affected by Plan implementation. This presumes that MIS population abundance or other population characteristics (i.e. trend) are statistical correlates with the Plan's anticipated anthropogenic effects on ecological characteristics sustaining the ecosystem where the species' life history occurs.

5. *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:*

Species selected as MIS from this category will provide information to decision makers regarding the effects of management activities on portions of the environment beyond the individual species. Select ecological indicators only if scientific evidence exists confirming that measurable changes in these species or groups would indicate trends in the abundance of other species or the conditions of biological communities they are expected to represent (FSM 2621.1).

The NFMA regulations (36 CFR 219.19 (a) (1)) specify that all 5 categories of MIS be considered, but also emphasize that MIS "shall be selected because their population changes are believed to indicate the effects of management activities." The MIS selection process prescribed in the manual (FSM 2621.1) uses the expanded principles of Management Indicators and Ecological Indicators.

## **MIS EFFORTS SUPPLEMENT OTHER ANNUAL MONITORING**

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The PSICC includes 2.8 million acres of public land located in central and southeastern Colorado and southwestern Kansas. Annual monitoring of soil and water resources, watershed assessments, burned areas rehabilitation, soil and water quality, wildlife habitat diversity units and acreages, threatened, endangered and sensitive species, habitat modification and enhancements, riparian and aquatic assessments, rangeland conditions and utilization (including rangelands administered to Plan standard), forestland treatments and improvements (including forestlands administered to Plan standard), as well as recreational development and use are reported each year in the Plan's Monitoring Report. The annual MIS monitoring information is also contained in the Plan's Monitoring Report as a small part of the overall effort to measure changes in the resource from management activities and naturally induced biotic/abiotic effects. The process of reducing the PSICC's MIS list is viewed in the context of these and other

significant local and regional monitoring efforts (such as goshawk, burrowing owl, white-tailed ptarmigan, peregrine falcon, Mexican spotted owl, boreal toad, black swift, Pawnee montane skipper, rare plant surveys, etc.) that provides specific and direct information related to these potential effects and management issues.

### **MANAGEMENT INDICATOR SPECIES SELECTION CRITERIA**

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The first step in reviewing the current MIS list was to develop a set of evaluation criteria to assess each species effectiveness as an indicator of major management activities or issues that may evolve from these activities.

1. MIS population dynamics should respond with major management activities in the Plan (i.e. trends not cyclical, no planned activities in habitat, unrelated impacts, weather-driven, etc.).
2. Local life history should not contain temporal limitations (species that spend the majority of their lifecycle outside the Plan's Management Areas).
3. Redundant MIS selections or habitats covered by other ongoing annual monitoring efforts correlating similar areas, major management activities and issues should be avoided.
4. Technical feasibility (field identification of species, annual sample sizes are large enough to be meaningful for the time and money spent searching) for PSICC MIS monitoring.
5. Logistical feasibility (time spent and access to survey areas are possible and reasonable) for surveying MIS trends.
6. MIS selected are pervasive or abundant enough on Forest/Grassland to cover adequate areas to be relevant to correlated activities/issues at a Plan (meaningful) level.
7. Where direct on-going Plan monitoring occurs, selecting another surrogate species addressing similar major management activities is inefficient and inappropriate.

### **PSICC MANAGEMENT AND ECOLOGICAL INDICATORS – COMBINING THE PLAN LAND-TYPES INTO MANAGEMENT INDICATOR GROUPS**

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The ability to connect ecology-based land-types (from the Plan) with major management activity planning for the purposes of MIS population trends and viability analysis is essential for assessing potential impacts of proposed projects. Between 1996 and 1998, the habitat types or plant series (e.g., land-types) from the 1984 Final Environmental Impact Statement (FEIS) for the Plan (pages III-80 to 81) were remapped using photo index<sup>5</sup> to create a revised vegetation layer. Discussions with PSICC program managers involving the 1998 vegetation layer produced improved groupings of land-types that are more readily mapped and tracked, and bridge ecological indicators with the planning of PSICC major management activities. These new land-type groupings combined the 1984 land-types into Management Indicator Groups (MIGs), as displayed in the following two tables. (Note: Alpine is combined with non-habitat as an MIG only for this MIS-related management issue analysis.)

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<sup>5</sup> Photo index is a point coverage that displays the center point locations of the 1995-1997 aerial photos on the PSICC. The coverage was generated using Arc Info by digitizing the photo points off of a 1:126,720-scale Mylar Secondary Base Series map.



**Table A-2. 1984 FEIS Forests Land-types and Combined MIGs.**

1984 Land-type	Management Indicator Groups					
	Non-habitat	Deciduous	Grass/ Shrubland	Ponderosa	Spruce/ Fir	Riparian/ Lake
Water						X
Cottonwood		X				
Sagebrush			X			
Oak		X				
Lodgepole Pine				X		
Aspen		X				
Grassland			X			
Spruce/fir					X	
Piñon-Juniper			X			
Douglas fir					X	
Ponderosa Pine				X		
High Riparian						X
Alpine	X					

**Table A-3. 1984 FEIS Grasslands Land-Types and Combined MIGs.**

1984 Land-type	Management Indicator Groups			
	Riparian	Sandsage Prairie	Shortgrass Prairie	Canyonlands (Comanche NG)
Blue Grama/ Buffalograss			X	X
Sandsage/Galleta/ Bluestem/Sandreed/ Sand Dropseed		X		X
Cottonwood	X			X
Piñon-Juniper				X

**GUIDING PRINCIPLES – CROSS-WALKING MANAGEMENT INDICATOR GROUPS WITH MAJOR MANAGEMENT ACTIVITIES**

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In Hayward et al. (2004), five principles are described to guide the selection of MIS. These are displayed below, with the corresponding information relevant to the Cimarron and Comanche National Grasslands (Grasslands).

**1) Principle 1 -- Choose MIS to reflect major management issues and challenges.**

The Plan identified the following major management activities on the PSICC:

- a. Recreation (dispersed and developed)
- b. Rangeland utilization by domestic livestock (grazing)
- c. Timber Stand Improvements (silviculture)
- d. Water Uses Management (use permits, improvements and maintenance)
- e. Minerals (mining, oil, gas, nonrenewable minerals and leasing)
- f. Property Boundary Locations (ownership patterns and fragmentation)
- g. Transportation (roads, trails, construction and maintenance)
- h. Fire Suppression (intensive and extensive management)
- i. Vegetation Treatments (insects, disease, invasive and noxious weeds, wildfire fuel reduction on both forested and grassland land-types)

**2) Principle 2 -- MIS function to facilitate evaluation of activities.**

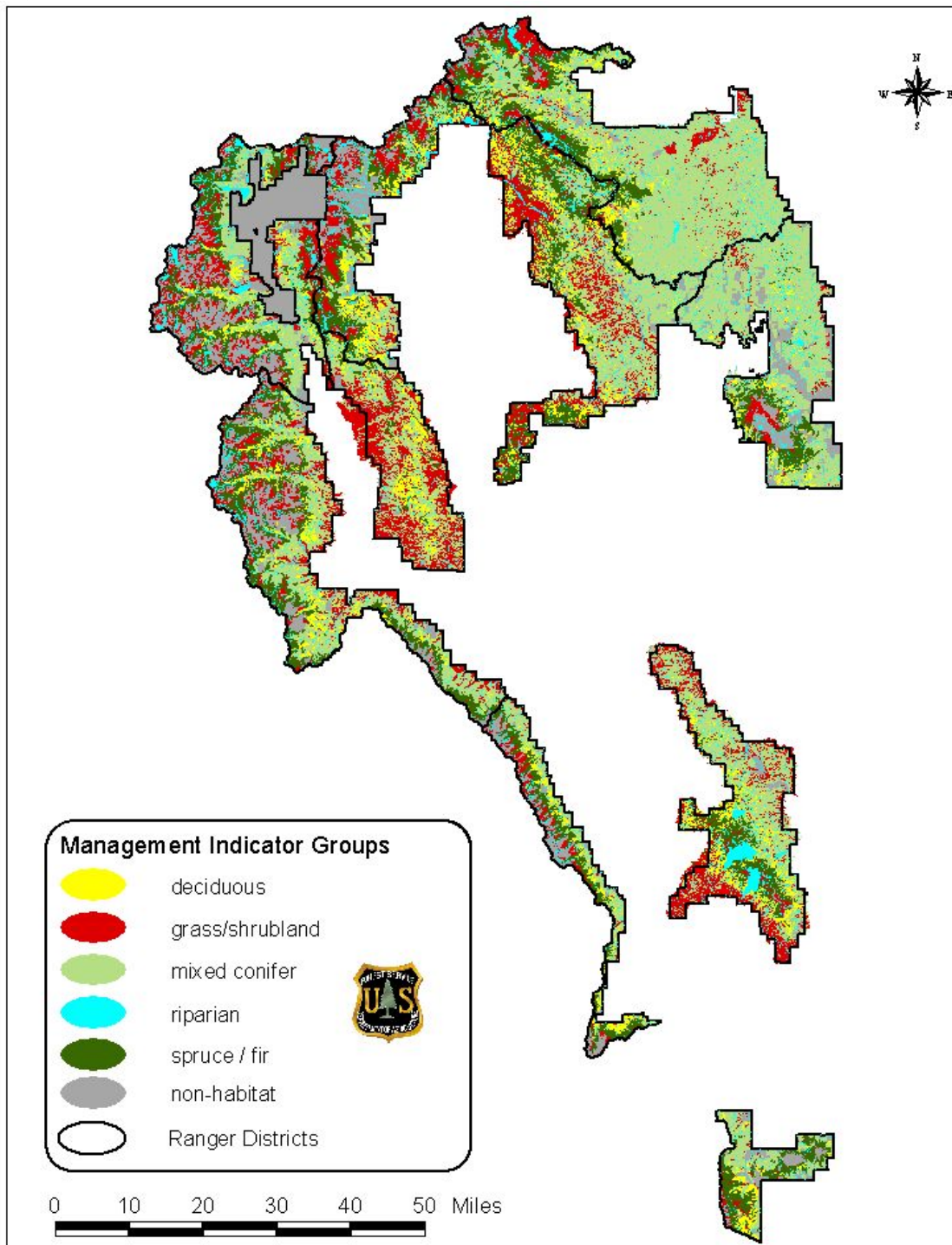
According to Hayward et al. (2004), MIS selection "... must be anchored by the principle that each MIS will significantly improve the agency's ability to evaluate the consequences of land management activities." Given the nine major management activities listed above in Principle 1, relate MIGs to these activities for the purposes of MIS selection and evaluation (Table 4 on the next page).

**Table A-4. Distribution of Major Management Activities on the PSICC based on MIG.**

MIG	Major Land Management Activities								
	Recreation	Range Management	Timber	Water Uses	Minerals	Property Boundary	Transportation	Fire Suppression	Vegetation Treatments
<b>Pike &amp; San Isabel NFs</b>									
Riparian	X	X		X		X	X		X
Deciduous	X	X	X					X	X
Spruce/Fir	X		X		X				X
Ponderosa Pine	X		X		X				X
Grass/Shrubland	X	X			X		X		
<b>Cimarron NG</b>									
Riparian	X	X		X	X		X		X
Sandsage Prairie	X	X			X			X	X
Shortgrass Prairie	X	X					X	X	X
<b>Comanche NG</b>									
Canyonlands	X	X		X		X	X		X
Riparian	X	X		X		X	X		X
Sandsage Prairie	X	X			X	X		X	X

MIG	Major Land Management Activities								
	Recreation	Range Management	Timber	Water Uses	Minerals	Property Boundary	Transportation	Fire Suppression	Vegetation Treatments
Shortgrass Prairie	X	X				X		X	X

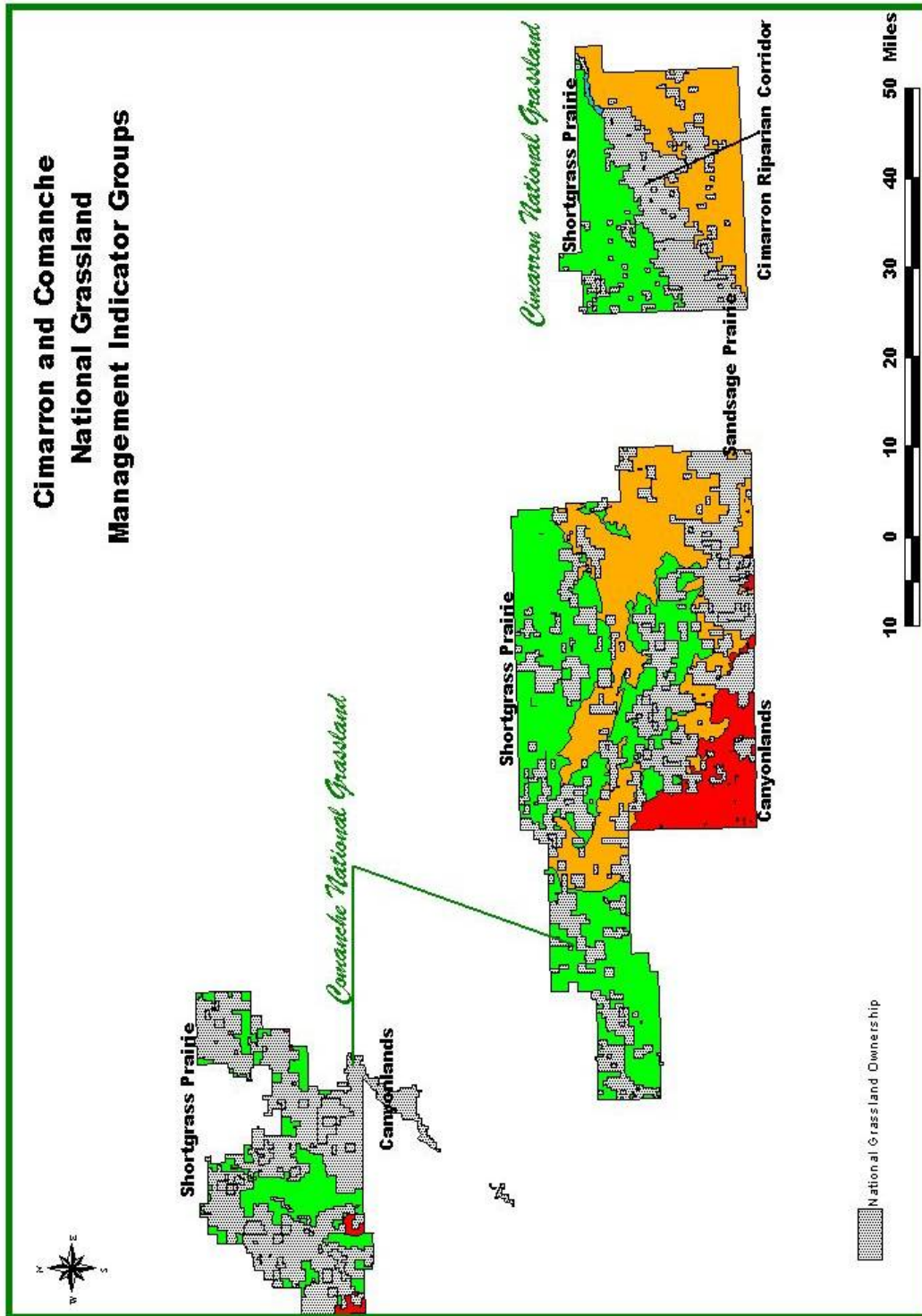
Figure A-1. MIGs on the Pike & San Isabel National Forests (December 2004).



**Table A-5. MIG acreages on the Pike & San Isabel National Forests.**

<b>GIS Cover Type</b>	<b>MIG</b>	<b>Riparian</b>	<b>Acres</b>	<b>Percent</b>	<b>Percent of Total Per Grouping</b>
Aspen	deciduous		212,911	8.5	<b>9.5</b>
Aspen	deciduous	riparian	25,866	1.0	
Cottonwood	deciduous		474	0.0	
Cottonwood	deciduous	riparian	352	0.0	
Forb	grass/shrubland		27,563	1.1	<b>21.4</b>
Forb	grass/shrubland	riparian	885	0.0	
Grassland	grass/shrubland		277,966	11.0	
Grassland	grass/shrubland	riparian	28,534	1.1	
Piñon-Juniper	grass/shrubland		69,892	2.8	
Piñon-Juniper	grass/shrubland	riparian	1,038	0.0	
Shrubland	grass/shrubland		97,434	3.9	
Shrubland	grass/shrubland	riparian	34,398	1.4	
Lodgepole pine	ponderosa		199,110	7.9	<b>40.3</b>
Lodgepole pine	ponderosa	riparian	8,639	0.3	
Ponderosa Pine	ponderosa		319,010	12.7	
Ponderosa Pine	ponderosa	riparian	11,765	0.5	
Douglas Fir	ponderosa		410,073	16.3	
Douglas Fir	ponderosa	riparian	20,738	0.8	
Limber Pine	ponderosa		43,249	1.7	
Limber Pine	ponderosa	riparian	1,419	0.1	
Spruce / Fir	spruce / fir		325,623	12.9	<b>16.9</b>
Spruce / Fir	spruce / fir	riparian	29,581	1.2	
Blue Spruce	spruce / fir		3,112	0.1	
Blue Spruce	spruce / fir	riparian	455	0.0	
Bristle Cone Pine	spruce / fir		63,876	2.5	
Bristle Cone Pine	spruce / fir	riparian	1,612	0.1	
Barren / Rock	non-habitat		163,909	6.5	<b>12.0</b>
Barren / Rock	non-habitat	riparian	3,204	0.1	
Litter / Duff	non-habitat		834	0.0	
Litter / Duff	non-habitat	riparian	10	0.0	
Unknown	non-habitat		111,115	4.4	
Unknown	non-habitat	riparian	14,435	0.6	
Water	non-habitat		3,062	0.1	
Water	non-habitat	riparian	5,110	0.2	
<b>Total</b>			<b>2,517,256</b>	<b>100.0</b>	<b>100.0</b>

Figure A-2. MIGs on the Cimarron & Comanche National Grasslands (December 2004).



**Table A-6. Acres by MIG on the Grasslands.**

MIGs	Acres
Canyonlands	42,568
Riparian Corridor	9,511
Sandsage Prairie	164,276
Shortgrass Prairie	335,946
<b>Total</b>	<b>552,301</b>

**3) Principle 3 -- Consider MIS chosen on neighboring National Forest and Grassland planning units.**

Generally, species population trends are most effectively monitored at broad scales. Therefore, a single National Forest or Grassland may not represent an appropriate unit for monitoring population trend. Partnerships or data sharing among neighboring forests/grasslands or across forests in a region may be necessary to build effective monitoring networks (Hayward et. al 2004). The Cimarron and Comanche National Grasslands (Grasslands) are isolated from other National Grasslands; neighboring planning units' MIS lists do not transfer the benefits intended by this principle of data sharing, and is not a helpful MIS selection criterion for the Grasslands. The Pawnee National Grassland (PNG), approximately 220 miles north of the Comanche, supports a different grassland system than the lands in southeastern Colorado or southwestern Kansas and is currently re-evaluating their MIS list. The Kiowa and Rita Blanca National Grasslands (KRB) are located approximately 50 miles south of both the Cimarron and Comanche. The KRB has two MIS: the long-billed curlew and grasshopper sparrow. Both the KRB and PNG lack the diversity of habitats and species present on the Cimarron and Comanche. Although nearby National Forests' MIS lists in Region 2 (Table 7) were taken into consideration during review and selection of appropriate MIS for the Pike and San Isabel National Forests (PSI), the MIS previously selected in the 1984 Plan limited the selection process. The PSI is working with San Juan NF to develop a consistent MIS survey protocol for Abert's squirrel. Region 2 plans to develop a National northern goshawk survey protocol to create a more robust region-wide program to consistently analyze this Forest Service sensitive species. The northern goshawk, however, is not a current PSI MIS.

**\* Note: The Routt and San Juan National Forests MIS listed in Table 7 are both currently under revision and these are the anticipated MIS lists.**

**Table A-7. Comparison of other National Forest's MIS lists with 1984 PSICC MIS:**

PSI NF	Rio Grande NF	*Routt NF	White River NF	*San Juan NF	ARNFs & PNG
2005 Proposed	2004 Amendment	2005 Revised MIS	2002 Revised Plan	2005 Revised MIS	2004 Amendment
8 MIS	9 MIS	5 MIS	15 MIS	15 MIS	18 MIS
<u>Mammals</u>	<u>Mammals</u>	<u>Mammals</u>	<u>Mammals</u>	<u>Mammals</u>	<u>Mammals</u>
Abert's squirrel			Cave bats	Abert's squirrel	

<b>PSI NF</b>	<b>Rio Grande NF</b>	<b>*Routt NF</b>	<b>White River NF</b>	<b>*San Juan NF</b>	<b>ARNFs &amp; PNG</b>
2005 Proposed	2004 Amendment	2005 Revised MIS	2002 Revised Plan	2005 Revised MIS	2004 Amendment
8 MIS	9 MIS	5 MIS	15 MIS	15 MIS	18 MIS
				American marten	Bighorn sheep
			Snowshoe hare	Northern river otter	
Elk	Elk		Elk	Elk	Elk
	Mule deer			Mule deer	Mule deer
Black-tailed prairie dog				Black bear	Black-tailed prairie dog
				Deer mouse	
<b><u>Birds</u></b>	<b><u>Birds</u></b>	<b><u>Birds</u></b>	<b><u>Birds</u></b>	<b><u>Birds</u></b>	<b><u>Birds</u></b>
Long-billed curlew	Brown creeper	Golden-crowned kinglet			Golden-crowned kinglet
Bullock's oriole	Hermit thrush		Juniper titmouse	Green-tailed towhee	Warbling vireo
Lesser prairie chicken	Lincoln's sparrow		Brewer's sparrow	Mallard	Mountain plover
	Pygmy nuthatch		Pygmy nuthatch	Mountain bluebird	Pygmy nuthatch
	Vesper sparrow	Vesper sparrow	Black swift	Bald eagle	Burrowing owl
	Wilson's warbler	Wilson's warbler	MacGillivray's warbler	Hairy woodpecker	Wilson's warbler
		Northern goshawk	Horned lark	Merriam's turkey	Ferruginous hawk
			Northern sage grouse	Sharp-tailed grouse	
<b><u>Amphibian</u></b>	<b><u>Amphibian</u></b>	<b><u>Amphibian</u></b>	<b><u>Amphibian</u></b>	<b><u>Amphibian</u></b>	<b><u>Amphibian</u></b>
					Boreal Toad
<b><u>Plants</u></b>	<b><u>Plants</u></b>	<b><u>Plants</u></b>	<b><u>Plants</u></b>	<b><u>Plants</u></b>	<b><u>Plants</u></b>
			Alpine willow		
			Piñon-juniper		
<b><u>Fish</u></b>	<b><u>Fish</u></b>	<b><u>Fish</u></b>	<b><u>Fish</u></b>	<b><u>Fish</u></b>	<b><u>Fish</u></b>
Brook trout	Brook trout	Common trout	Brook trout	Common trout	Brook trout
Greenback cutthroat trout	Rio Grande cutthroat				Greenback cutthroat trout
		CO River cutthroat			CO River cutthroat
			Brown trout		Brown trout
			macroinvertebrates		Plains killifish, Plains topminnow

**4) Principle 4 -- Consider whether employing MIS is the best approach to evaluate the management problem.**

The MIS selected are expected to contribute more to other ongoing monitoring and evaluation efforts, using MIS to supplement these other efforts to monitor population and habitat changes and major management activities or issues. The MIS selected must be feasible (e.g., establishing trends is difficult for species that are rare or difficult to sample) and relevant (the trend and/or distribution of most species are not usually indicative of major management activities or issues, but instead are a consequence of other biotic/abiotic factors directly affecting species populations trend). Important rare plants and animals (such as the listed Mexican spotted owl, Canada lynx, Preble's jumping mouse, etc.) are better directly monitored and managed along with their Critical Habitat and Recovery Plans than trying to use them as MIS.

**5) Principle 5 -- Choose an adequate but limited number of species.**

MIS should represent the collection of indicators necessary to effectively monitor the Plan's major management activities and issues (Hayward et. al 2004), balancing the



potential benefits of monitoring any particular species with the cost in time and funds necessary to adequately implement the monitoring work. The PSICC also has numerous other natural resources, populations and habitat monitoring efforts related to management activities/issues outside of the MIS effort. Also, data from other state and federal agencies monitoring efforts are utilized to track population and habitat changes of many flora and fauna species. More than one species may be an appropriate indicator for a single MIG or major management activity. Therefore, it is important to avoid redundancy in MIS selection. Also, one MIS may be the best indicator (from the current PSICC MIS list) for several MIGs and related management issues/activities from the Plan. The PSICC's approach to MIS retention was to match major management activities/issues with relevant MIG(s) to connect to target MIS from the current MIS list, while also considering other ongoing internal and external monitoring efforts.

**Table A-8. Major Management Activities (MMA) occurring in MIGs, matched with the (proposed) retained MIS.**

MMA \ MIG	MIG							
	Deciduous	Spruce/ Fir	Ponderosa Pine	Grass/ Shrubland	Forest & Grassland Riparian	Sandsage Prairie	Shortgrass Prairie	Canyonlands
<b>Recreation</b>	Elk	Elk	Abert's Squirrel	Elk	Greenback & Brook Trout or Northern Oriole	Lesser Prairie Chicken	Black-tailed Prairie Dog	Northern Oriole
<b>Range Management</b>	Elk	N/A	N/A	Elk	Greenback & Brook Trout or Northern Oriole	Lesser Prairie Chicken	Black-tailed Prairie Dog	N/A
<b>Timber</b>	N/A	Abert's Squirrel	Abert's Squirrel	N/A	Greenback & Brook Trout	N/A	N/A	N/A
<b>Water Uses</b>	Greenback & Brook Trout	Greenback & Brook Trout	Greenback & Brook Trout	Greenback & Brook Trout	Greenback & Brook Trout or Northern Oriole	N/A	N/A	Northern Oriole
<b>Minerals</b>	N/A	N/A	N/A	N/A	Greenback & Brook Trout or Northern Oriole	Lesser Prairie Chicken	Black-tailed Prairie Dog	N/A
<b>Property Boundary</b>	N/A	N/A	N/A	N/A	Greenback & Brook Trout or Northern Oriole	Lesser Prairie Chicken	Black-tailed Prairie Dog	N/A

MIG MMA	Deciduous	Spruce/ Fir	Ponderosa Pine	Grass/ Shrubland	Forest & Grassland Riparian	Sandsage Prairie	Shortgrass Prairie	Canyonlands
Transportation	Elk	Elk	Abert's Squirrel	Elk	Greenback & Brook Trout or Northern Oriole	Lesser Prairie Chicken	Black- tailed Prairie Dog	N/A
Fire Suppression	Elk	Abert's Squirrel	Abert's Squirrel	N/A	N/A	Long- billed Curlew	Long-billed Curlew	N/A
Vegetation Treatments	Elk	Elk	Abert's Squirrel	Elk	Greenback & Brook Trout or Northern Oriole	Lesser Prairie Chicken	Black- tailed Prairie Dog	Northern Oriole

## PROCESS STEPS FOR SELECTION OF MIS

### Step I. Assemble information about the planning area and species-habitat relationships.

Planning areas and species-habitats relationships were presented and discussed in the 1984 Plan and further updated with specific discussions in the species review and suitability portion of this document.

### Step II. Establish MIS monitoring priorities.

Population and habitat trend information from MIS that relate to management uncertainties will provide the greatest opportunity to inform management direction in the future (Hayward et. al 2004). Monitoring priorities were established in the 1984 FEIS chapters discussing planned major management activities. These major management activities and monitoring priorities remain valid at the MIG level, and were covered in the previous discussion of the *Guiding Principles*.

### Step III. Identify potential MIS based on categories identified in the regulations and the Forest Service Manual.

Selected MIS for the PSICC were identified in the 1984 Plan (pages III-28 & III-29) according to 1982 regulations and existing Forest Service Manual direction. Because potential MIS were adequately considered using the required criteria in 36 CFR 219.19(a)(1), for this review we accept the existing MIS as the list of potential MIS and proceed through the remainder of the report to evaluate this group.

## **Step IV. Sort the potential MIS identified in Step III, grouped by each important monitoring priority identified in Step II.**

Identify plants, animals, communities, or special habitats that would facilitate answering the question or identifying important trends in the environmental characteristics of concern.

Consider the following criteria (Hayward et. al 2004):

- Scientific literature should support the assumed limiting factors and habitat associations. Favor species with well-documented habitat relationship models or research from several locales describing habitat associations.
- Favor species whose population trends can be monitored effectively and efficiently using established or accepted survey protocols at geographic and temporal scales that are commensurate with management objectives.
- Population trends are more likely to reflect changes in habitat when a substantial portion of a species' life history occurs on National Forest System lands.
- In general, when choosing among a group of potential MIS, favor indigenous species.
- MIS should reflect habitat change at appropriate spatial and temporal scales.

This step was completed to develop the original Plan MIS list. Because potential MIS were adequately considered using the required criteria in 36 CFR 219.19(a)(1) in the 1984 Plan and FEIS, this step does not need repeating. However, related to Steps II and III (above), the 1984 Plan assumed adequacy of monitoring MIS habitats only (not direct population or indices counts). Therefore, a review of the current MIS list would be necessary to evaluate the appropriateness of all 40 species selected in the 1984 Plan. The six *MIS Evaluation Criteria* would be applied and each species tested for its current relevance under the *Guiding Principles*, although habitat monitoring and capability would continue as intended in the Plan and its later amendments. Considering the foregoing discussion of *Guiding Principles* and *Process Steps for Selection*, a reconsideration of the current MIS list is appropriate.

### **List 1 - 1984 Plan MIS Considered for PSICC**

The original PSICC MIS list contains 40 species:

#### **Pike & San Isabel National Forests**

Abert's squirrel, Rocky Mountain elk, greenback cutthroat trout, brook trout, beaver, bighorn sheep, black-throated gray warbler, green-tailed towhee, Lewis' woodpecker, mallard, mountain bluebird, mule deer, northern three-toed woodpecker, peregrine falcon, pine marten, wild turkey, Virginia's warbler, water pipit, Wilson's warbler, and yellow-bellied sapsucker (red-naped sapsucker).

#### **Comanche National Grassland**

Bullock's (northern) oriole, black-tailed prairie dog, lesser prairie chicken, long-billed curlew, antelope, Bewick's wren, black-tailed jackrabbit, bobcat, burrowing owl, Cassin's sparrow, cliff swallow, ferruginous hawk, great horned owl, Lewis' woodpecker, mule deer, scaled quail, and wild turkey.

## **Cimarron National Grassland**

Bullock's (northern) oriole, black-tailed prairie dog, lesser prairie chicken, bobwhite, burrowing owl, Cassin's sparrow, McCown's longspur, Mississippi kite, mourning dove, mule deer, red-headed woodpecker, scaled quail, wild turkey, and white-tailed deer.

## **Step V. Species Review of List 1 for MIS Suitability**

### **Pike & San Isabel National Forests, Cimarron & Comanche National Grasslands**

#### **FINAL REVIEW - MIS SELECTION**

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Review the list of selected species to determine how well it fulfills *Principle 3* (consider MIS chosen on neighboring planning units), *Principle 4* (consider whether employing MIS is the best approach to evaluate the management problem), and *Principle 5* (choose an adequate but limited number of species). Determine whether, as a unit, they will serve as an effective tool for forest/grassland and project level effects analyses, and as a reliable feedback mechanism for Plan implementation. Consider the six *MIS Evaluation Criteria* for species retention to monitor major management activities within the MIGs.

### **Rocky Mountain Elk**

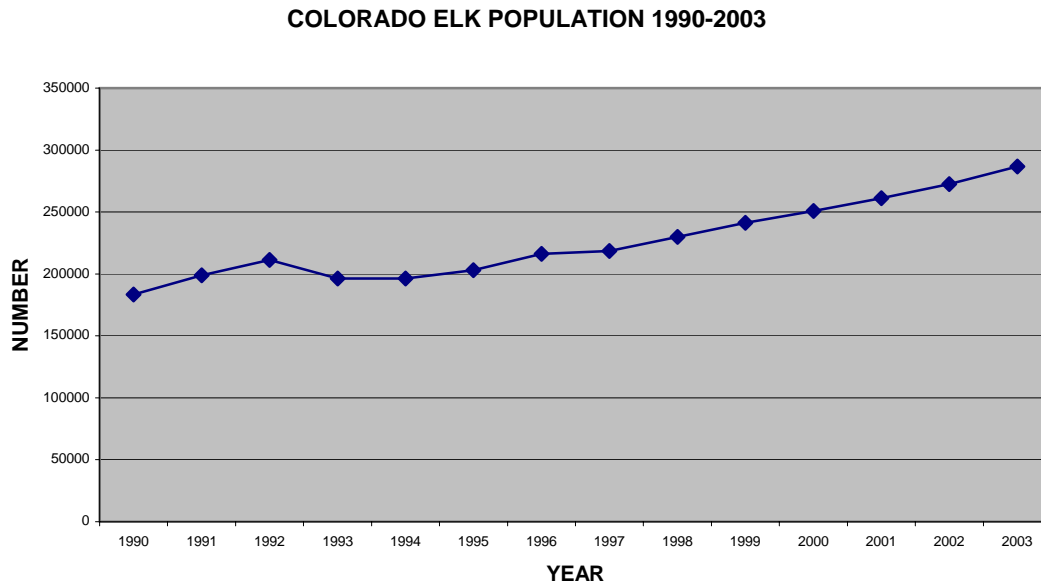
Background – Habitat relationships of elk are well studied. Because elk have had a historically wide distribution, their preferred habitat also varies widely (Snyder 1991). Elk tend to inhabit coniferous forests associated with rugged, broken terrain or foothill ranges. During summer elk spend most of their time in high mountain meadows in the alpine or subalpine zones or in stream bottoms (Adams 1982). Winters are spent at lower elevations, which primarily occur on private land. Forage may be limiting to elk, particularly on winter ranges or calving habitats (Roderick and Milner 1991). Open road densities greater than 1.5 miles per square mile of habitat on summer range or one mile per square mile of habitat on winter range are also considered a correlate for local abundance (Rodrick and Milner 1991).

Population Trend – Global and Colorado elk populations are known to be increasing (COVERS 2001). Elk are widespread throughout northern United States and southern Canada. They are intensively managed and there are good data on population size and trend increases (Fitzgerald et al. 1994; Zeveloff 1988; Peek 1982). Elk are currently expanding their range due to reintroductions, management, and habitat conversion (COVERS 2001). The 2003 post-hunt estimate for Colorado elk was approximately 287,000 (CDOW).

MIS Suitability on PSICC - Elk was originally selected as a MIS on PSI because of the public's interest for hunting and viewing. This species has specific habitat management guidelines in the 1984 Plan. The CDOW annually monitors elk at the Game Management Unit (GMU) scale to assess population trend changes. Other local factors such as human disturbance (recreation), roads, hazard fuel reduction, fire suppression and forest/range management can directly influence local elk numbers on the PSICC. The Plan provides some specific treatment guidance in big game Diversity Units (DU) that is unique from other Plan prescriptions for providing forest-wide habitat diversity. Also, statewide and local elk distributions from GMU surveys can be readily related with PSI major management activities and issues at the district and forest scale.

Other ongoing monitoring efforts, however, do not provide these types of quantitative data that can relate recreation, fuel treatments and fire suppression efforts with statistically relevant (large sample size) district and forest population trends. Elk meet the selection criteria for MIS retention and it is recommend that elk be **retained** as a MIS on the PSI.

**Figure A-3. Post-harvest elk population estimates in Colorado.**



### **Abert's Squirrel**

Background – Abert’s squirrel is ecologically dependent on ponderosa pine with open understory for both nesting sites and food (Keith 1965) and therefore generally limited to open montane forests. Target feed trees represent less than 10% of the trees in stands populated by Abert’s squirrel along the Front Range, and they are chemically and physiologically different from trees not used (Allred and Gaud 1994). Tree chemistry also affects nest-site selection. On the PSICC, surveys show approximately 92% of nests were in a tree group with 75% having 3 or more interlocking canopy trees. Hypogenous fungi are an important part of their diet and bone and antlers are often gnawed for their mineral content (Pederson et al. 1987). Home ranges are from 5 to 20 ha, depending on season and sex of animal (Hall 1981). Fires and insects have had a greater influence on the vegetation trends on the Forest than timber harvesting activity. Since 1989, fires and insect activity on the PSICC have combined to remove the canopy cover on 60,000 acres of ponderosa pine/Douglas-fir in large blocks of habitat. Since 1984, timber related vegetation management activities on the PSICC have annually averaged less than 0.3% of the lower montane forest.

Population Trend – Abert’s squirrel population trend estimates for Colorado suggests stable or increasing abundance, and populations are sufficient to withstand some hunting in Colorado, Arizona and New Mexico. The NDIS database states that the species is “fairly common” in all seven counties within the PSI where habitat is suitable and sufficient information is known. Extensions of the known range have occurred in recent years in southwest and western Colorado.

Population dynamics are poorly known. Population estimates range from 12 to 30 animals per km<sup>2</sup> in the Black Forest of El Paso County, Colorado, and from 82 to 114 km<sup>2</sup>, near Boulder, Colorado. Spring population counts tend to be lowest. Population estimates contain spatial and temporal variation, attributed to normal cyclic variations in annual biomass production of pine seeds (Patton 1974 and Pederson et al. 1987).

MIS Suitability on PSICC - Abert's squirrel was originally elected as a MIS as an ecological indicator for ponderosa pine, a species of high economic and aesthetic values. Also, Abert's squirrel is a species with specific habitat needs yet covers a significant portion of the forest in the landscape context. With the recent fieldwork conducted in 2003 and 2004, a protocol is being refined for Abert's squirrel to be monitored at the Forest scale. Because of the increased emphasis on Front Range ponderosa pine fuels treatments and increased recreation/development, an MIS indicator would be helpful in trying to relate these increasing management issues with the Plan's current actions. Abert's squirrel meets the selection criteria for MIS retention; recommend **retaining** Abert's squirrel as a MIS on the PSI. *There is currently 330,775 acres of estimated suitable habitat on the PSI for Abert's squirrels, an estimated decrease of 40,000 acres since 1996.*

### **Greenback Cutthroat Trout**

Background - Existing greenback cutthroat trout populations are restricted to small, remote high elevation streams and lakes where populations often have been protected by fish movement barriers. Many of these habitats are colder, less productive and undergo significant flow fluctuations, leading to small, slow-growing trout populations (Young 1995). The primary threat to these existing greenback populations is not habitat degradation, but is invasion by non-native trout that either hybridize with greenbacks or compete for food and space, combined with over-harvest of greenbacks. The lack of suitable habitat free of non-native trout is also considered a constraint (Harig et al. 2000, USFWS 1998). Greenback cutthroat trout recovery is the PSICC fishery program's #1 priority, as the bulk of the pure genetic greenback populations and available habitat occur on the Forest.

In accordance with the Plan, the USFS has worked closely with the CDOW and USFWS to implement the Greenback Cutthroat Trout Recovery Plan, resulting in the reintroduction of greenbacks into 30 kilometers of stream habitat and 32 hectares of lake habitat on the PSI.

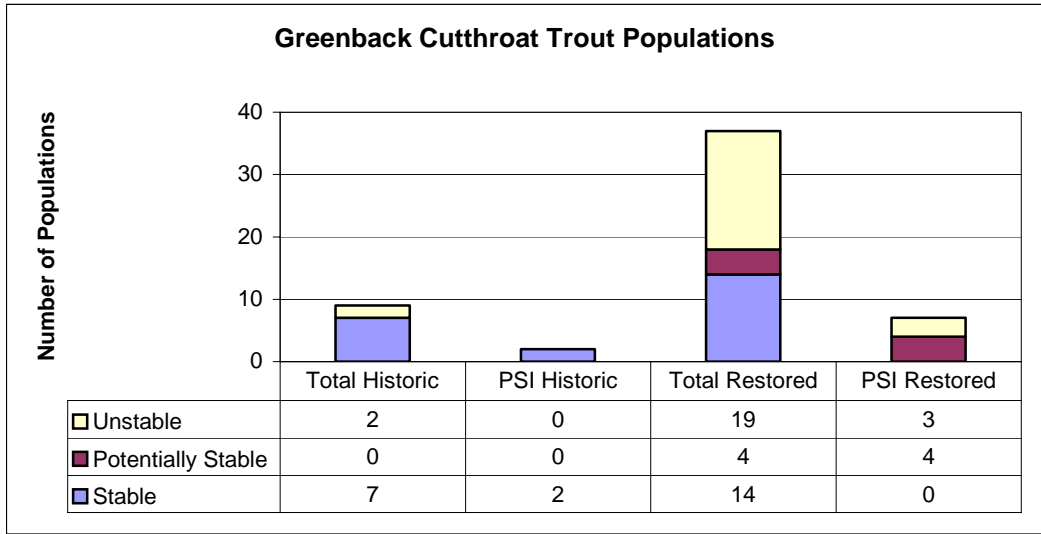
Population Trend – The greenback cutthroat trout population in Colorado is suspected to be stable or increasing (COVERS 2001). Found almost entirely in Colorado along the Front Range of the Colorado Rocky Mountains, with small extension into Wyoming (Behnke 1992). Greenback cutthroat trout were once abundant in all mountain foothill streams in the South Platte and Arkansas River drainages, but populations declined drastically due to habitat degradation, over-harvest, and introductions of non-native trout species. Intense competition with non-native trout, particularly brook trout, has caused the greatest reductions in population numbers and range. Once thought extinct by the 1930s (Green 1937), greenback cutthroat trout were discovered in two streams in 1965 and 1970. These two small populations represented about 2,000 greenbacks in 4.6km of stream. They were listed as endangered under the Endangered Species Act in 1973 (USFWS 1998).

Recent stocking has improved population numbers and range (Dwyer and Rosenlund 1988, Behnke 1992). Efforts to re-establish populations included stocking of 160,000 fry into native Colorado habitat from 1979 to 1988 (USFWS 1998). However, recent inventories of greenback streams and lakes have shown these reintroduction efforts to only be partially successful (Harig et al. 2000). The reasons for these partial failures include breached fish barriers, incomplete removal of non-native salmonids, illegal stocking of nonnative salmonids, and poor habitat conditions.

In 1998, the USFWS reported greenback cutthroat trout present in 179 hectares of lakes and ponds, and 164km of stream habitat. Many sites are open to catch and release fishing and 21 populations are considered stable. Eighteen stable populations are located in the South Platte drainage, and three stable populations are located within the Arkansas drainage (USFWS 1998, Harig et al. 2000). In addition to the two historic populations on the PSI, seven populations have been restored. At this time, two of the PSI populations are considered stable, four potentially stable, and three unstable (Harig et al. 2000). The following graph (Figure 10) shows an increased number of populations due to greenback recovery efforts over the existing historic populations for all of Colorado and the PSI.

MIS Suitability on PSICC - Greenback cutthroat trout populations are increasing in the state and PSI because of the cooperative recovery efforts by the CDOW, USFWS and USFS. The primary threats to existing greenbacks are invasion of their habitat by non-native trout, and over-fishing. Because many of the existing populations are small and occur in isolated headwater streams, ground disturbance that could result in severe erosion and sediment loading, are also concerns. Populations can be monitored at the various watershed scales and related with some major management activities (especially wilderness and recreation) and issues (fire suppression, human population growth and urban water consumption) not covered with other ongoing riparian, aquatic, watershed and water quality monitoring (e.g., roads, wildfire, hazardous fuel reduction, sediment loads, water temperature, etc.). Greenback cutthroat trout meet the selection criteria for MIS retention; recommend **retaining** greenback cutthroat trout as a mountain districts MIS.

**Figure A-4: MIS population trend for greenback cutthroat trout on the PSICC.**



**Brook Trout**

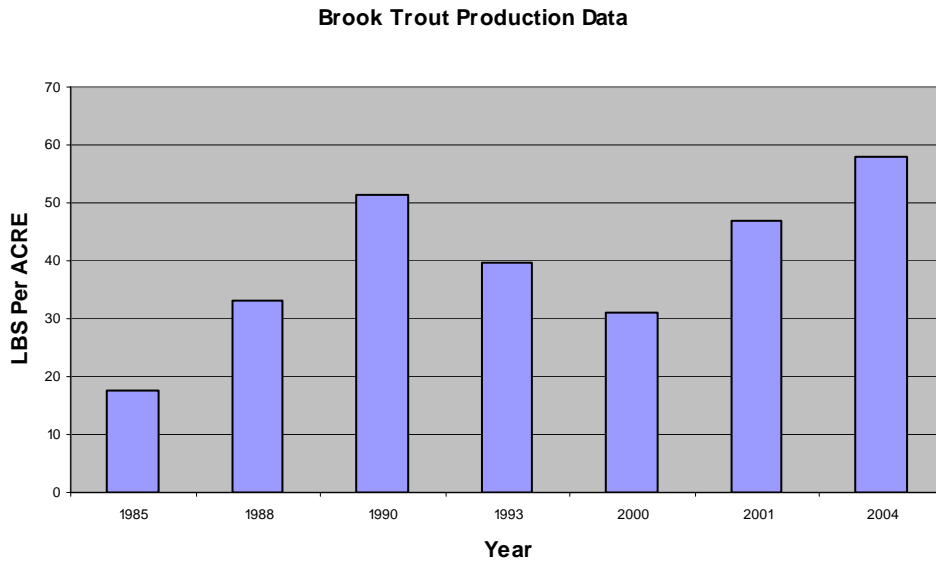
Background - Brook trout are a non-native species introduced in Colorado streams some time after European settlement. They spread quickly throughout Colorado mountain streams competing directly with the native cutthroat trout species (Trotter 1987). Brook trout have displaced native trout from most of Colorado’s high mountain streams, which is one of reasons that greenback cutthroat trout is a federally threatened species. The CDOW, USFWS, and many other land management agencies have poisoned many streams and lakes to remove brook trout as part of an intensive effort to restore native trout species in Colorado (USFWS 1998).

Population Trend – Besides these intentional removals, Colorado brook trout populations seem to be declining, possibly because of competition with non-native brown trout or infection of whirling disease (CDOW, Doug Krieger and Steve Puttmann, per. com. March 2001). The exact reasons for these recently observed declines are unclear. Brook trout do provide recreational fishing opportunities, but the CDOW does not systematically monitor brook trout populations (CDOW, Steve Puttmann, per. com. March 2001).

MIS Suitability on PSICC – Brook trout populations on the PSI tend to be located below the greenback cutthroat trout recovery areas. Because the greenback populations need to be protected from the superior competitor non-native trout species, their populations are kept at higher elevations above natural and man-made stream barriers. Brook trout surveys, combined with greenback population monitoring, provide a more thorough assessment of the relationship between some PSI major management activities (especially recreation) and issues (human population growth and urban water consumption) not covered with other ongoing riparian, aquatic, watershed and water quality monitoring (e.g., roads, wildfire, hazardous fuel reduction, sediment loads, water temperature, etc.). Also, because brook trout are listed as a recovery threat to greenbacks, it is important to monitor their populations to help measure the effectiveness of PSI riparian improvement projects and riparian enhancement efforts that benefit greenback cutthroat trout populations on the PSI. Species can be monitored at various watershed scales and



related to local brook trout population trends. Brook trout meet the selection criteria for MIS retention; recommend **retaining** brook trout as a PSI MIS.



**Figure A-5: Trout Creek production trend for brook trout.**

### **Black-tailed Prairie Dog**

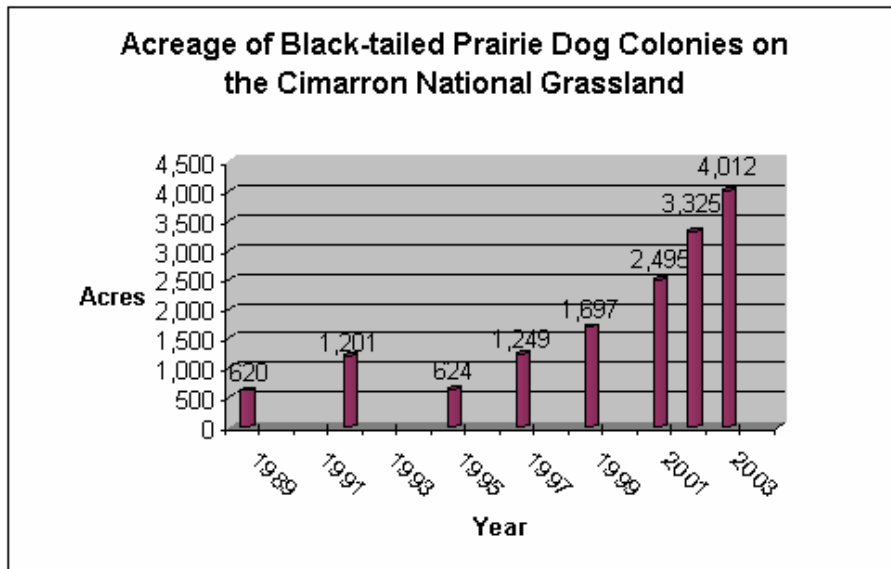
Background – The black-tailed prairie dog (BTPD) is considered an important species in temperate grassland ecosystems, because they: 1) directly impact vegetation height and composition (herbivory); 2) provide physical structures (burrows) used by other prairie species; and 3) are an important prey source for many native raptors and mammalian predators (Miller et al. 1994, Kotliar et al. 1999, 2000, Kretzer and Cully 2001). The BTPD lives in towns or colonies covering up to thousands of acres of grassland habitat (Hoogland 1995). Historically, the BTPD occupied shortgrass and midgrass prairies from Mexico to Canada (Foster and Hynstrom 1990). Within the Great Plains, suitable habitat for BTPD is influenced by soil characteristics, vegetation height and composition, and topography (Clippinger 1989). BTPD prefer sites with high visibility afforded by low vegetation, and they will remove vegetation that impedes their view (Hoogland 1995, Weltzin et al. 1997). In the Habitat Suitability Index Model developed by the US Fish and Wildlife Service for BTPD (Clippinger 1989), optimal habitat consisted of grassland with a vegetative height of 2 - 8 inches, vegetative cover of 15 – 90%, slopes less than 10%, and loamy or clayey soils.

Population Trend – Sylvatic plague is a disease that affects a wide range of rodent species and was introduced to North America from Asia early in the 1900s. Plague has been identified as a primary threat to BTPD. Prairie dogs do not have effective antibodies or immunity to plague, and show nearly 100 percent mortality when exposed to the disease (Cully 1993). Studies at the Rocky Mountain Arsenal National Wildlife Refuge indicate plague can severely depress BTPD populations and cause local extirpations (USFWS 1998). As BTPD populations grow during their upswings, management conflicts with livestock grazing usually develop. Because of the light-to-moderate grazing implemented in the 1984 Plan, most BTPD colonies are maintained on

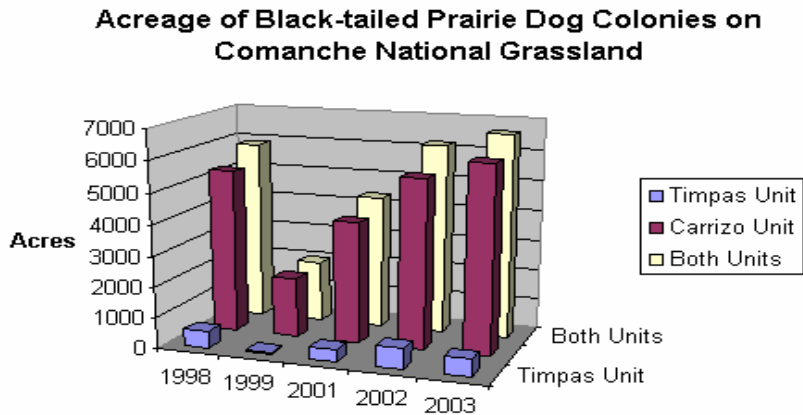
more heavily grazed private land and move onto the Grasslands from adjacent private lands as colonies expand. Although the overall area of the Grasslands occupied by BTPD (even with peak numbers) is less than 10% of the federal ownership, perceptions of potential health risks and reduced livestock carrying capacity can directly affect major management decisions or implementation.

MIS Suitability on PSICC – Although the BTPD has population fluctuations from sylvatic plague, colony expansions are sensitive to most of the major management activities proposed on the Grasslands, including land ownership patterns, allocation, and fragmentation with nonfederal landowners. Ongoing allotment management plans and grazing implementation monitoring and range condition analyses do not measure the effectiveness of the shortgrass prairie dependent wildlife species. Healthy prairie dog populations provide structure for mountain plover nesting, burrowing owl nests, swift fox den sites as well as other avian and mammalian species. The BTPD colonies also provide supporting forage biomass for predators (i.e., black-footed ferret, burrowing owl, bobcat, coyote, ferruginous hawk, swift fox, etc.) in shortgrass prairie grassland ecosystems. Black-tailed prairie dog meets the selection criteria for MIS retention; recommend **retaining** BTPD as a MIS on the Grasslands.

**Figure A-6: Grasslands BTPD colony acreages - Cimarron.**



**Figure A-7: Grasslands BTPD colony acreages - Comanche.**



### Long-billed Curlew

**Background** - The long-billed curlew is North America's largest shorebird, standing about 16 inches tall, and breeds in grasslands throughout the Great Plains and the inter-mountain west. On the Cimarron, avian surveys have occasionally documented nonbreeding birds in shortgrass prairie north of the Cimarron River, but sightings are more frequent on agricultural lands in this area (Chynoweth 1998). Southeastern Colorado and the western edge of the Oklahoma panhandle is one of the most important breeding areas for long-billed curlews in North America (Sauer et al. 2003). On the Comanche, this species is most often observed in shortgrass prairie where at least one other type of taller vegetation is present in the immediate vicinity of the observation (King 1977). Breeding pairs observed during 2003 and 2004 were primarily in allotments that contained a heterogeneous mosaic of both shortgrass prairie and mid-height grasses; such habitat conditions are widespread throughout rangelands utilized by the Pritchett Grazing Association, the western portion of the Campo Grazing Association, and the eastern portion of the Kim Grazing Association.

**Population Trend** – Populations declined rapidly in Colorado during 1966 – 2002 (Sauer et al. 2003). Sections-based breeding season surveys of the Grasslands conducted annually by the Rocky Mountain Bird Observatory during 2001 – 2004 provide population trend data for the long-billed curlew. In 2001 and 2002, a total of 127 and 116 sections respectively were surveyed within the administrative boundaries of the Comanche. Survey sample size was increased and expanded to include both Grasslands in 2003 and 2004, with a respective total of 189 and 202 sections surveyed in those years. Analysis of the proportion of sections surveyed that had long-billed curlew present on the Comanche during 2001 - 2004 (Table 9) indicates a stable population trend across the 4-year period. In addition, there was no statistically significant change in proportion of sections with long-billed curlew present between 2003 and 2004 for the Grasslands combined (i.e., a stable population trend was detected for the years with the highest

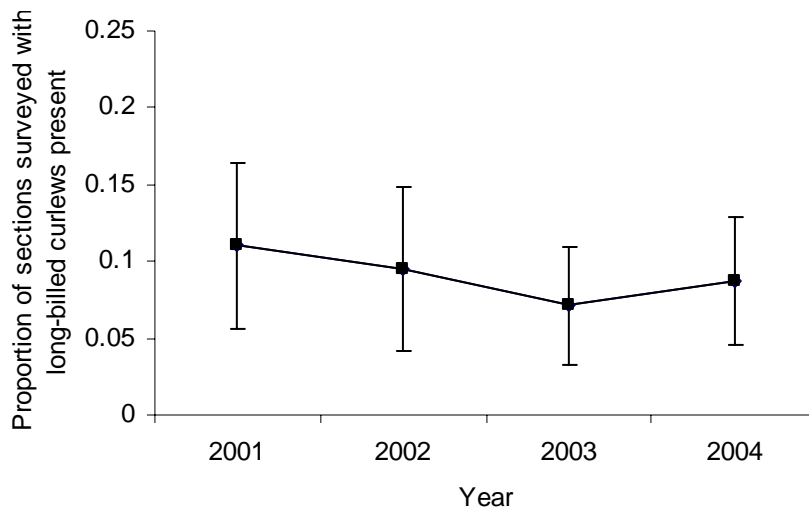
sampling intensity). The 2004 survey showed that long-billed curlews were breeding in 15 of the 202 sections surveyed. All breeding curlews (30 total observed) occurred on the Carrizo Unit of the Comanche (curlews present in 15 of 109 sections surveyed in this area, or 13.8%).

Extrapolating these results to the total area within the Carrizo Unit’s administrative boundaries suggests a minimum local breeding population of 360 long-billed curlews.

**Table A-9. Presence/absence results for sections (640 acre blocks) surveyed for long-billed curlew during the breeding season on the Comanche.**

Comanche NG, 2001-2004				
	2001	2002	2003	2004
Sections with LBCU present	14	11	12	15
Sections Surveyed	127	116	169	172
% with LBCU present	11.0	9.5	7.1	8.7

**Figure A-8. Index of population trend (proportion of sections surveyed with long-billed curlew present) for long-billed curlews during 2001-2004 on the Comanche. Results indicate a stable MIS population trend.**



**Error bars show 95% confidence intervals.**

MIS Suitability on PSICC – Long-billed curlew was originally selected as a Comanche MIS because it was considered an ecological indicator for the mixing of shortgrass/midgrass prairie habitats and idle cropland. Long-billed curlews are sensitive to some PSICC major management activities (grazing, fire management) where the shortgrass/midgrass prairie MIG habitats come together on the Grasslands. Other ongoing monitoring efforts do not address this unique mixture of taller and shorter grass species ecotype within the Plan. Because of its unique breeding habitat and sensitivity to some planned major management issues and activities, recommend **retaining** long-billed curlew as a MIS on the Comanche.

**Lesser Prairie Chicken**

Background – The lesser prairie chicken (LPC) was originally chosen as a MIS because it was an upland game bird and a strong associate with the sandsage prairie. It breeds in flat open areas called leks during the spring, but utilizes tall structure vegetation for ambient mitigation, brood rearing and predation security (Giesen 2000). It forages on seeds and insects in open areas adjacent to the taller vegetation within the sandsage prairie grassland areas. These areas for brood rearing are generally referred to as “complexes” (Giesen 200).

Population Trend – *Cimarron* - Six “complexes” of LPC habitat have been identified on the Cimarron. Complexes 1, 2, 3, 4 and 6 run sequentially from west to east in a band of sandsage prairie between Highway 56 and the Cimarron River. Complex 5 occurs south of Highway 56 and east of Wilburton, Kansas.

**Table A-10. Allotment names for each of the 6 LPC habitat complexes on the Cimarron.**

Complex	Allotments
1	Stateline, Steer
2	Steer, College, Headquarters
3	East Artesian, West Artesian
4	South Lowe
5	Rolla, Santa Fe, Wilburton
6	Bridge, South Lowe

**Table A-11. Population estimates of LPC on the Cimarron during 1995-1999 using the lek-census method.**

	Birds Flushed	Estimated # of males	Estimated total # LPC	Total Acres Surveyed	Sq mi Surveyed	Total Pop Estimate Birds per mi <sup>2</sup>
<b>1995</b>	142	135	270	61638	96.3	2.80
<b>1996</b>	129	123	245	61638	96.3	2.54
<b>1997</b>	91	86	173	61638	96.3	1.80
<b>1998</b>	138	131	262	61638	96.3	2.72
<b>1999</b>	149	142	283	61638	96.3	2.94

**Table A-12. Counts of LPC along four ten-mile listening transects surveyed on the Cimarron in 2004.**

Transect #	Counted By	Habitat Complex	Allotments	Date Surveyed	# LPC Counted
1	FS	1, 2	Stateline/Steer/College	5/4/2004	6
2	FS	3	East Artesian/West Artesian	5/5/2004	26
3	FS	5	Wilburton	5/6/2004	3
4	KDPW	4, 6	South Lowe, Bridge	3/24/2004	53

Population Trend –Comanche - Four “complexes” of LPC habitat occur on the Comanche. Complexes 1 and 2 are located east of Campo, Colorado and are in close proximity to one another, so LPC using these complexes may be considered 1 local population. Habitat complex 3 is located west of Campo and is separated from complex 2 by a strip of non-habitat approximately 3 miles wide (Campo town, shortgrass prairie, and crop fields). Habitat complex 4 is located along Sand Arroyo, approximately 9 miles north of complexes 1-3, and is an isolated area of LPC habitat.

**Table A-13. Allotments that occur in the 4 habitat complexes on the Comanche.**

Complex	Allotments
1	Prairie Chicken, Sunrise, Bethel, Mt Carmel, Sunflower, Rattlesnake
2	Las Vacas Blancas, Sandsage, Aubrey Trail, Lowder Knoll
3	Deweese, Ute Canyon, State Line, Gardener, Sandy Plains, Hawks Nest, Lyons Camp, Salisbury
4	Vilas Grade, Arroyo, Sand Hills

**Table A-14. Counts of LPC along four ten-mile listening transects surveyed on the Comanche in 2004.**

Transect	Males Counted	Sq Miles surveyed	Males/mi <sup>2</sup>	Birds/mi <sup>2</sup>
1	16	20	0.8	1.60
2	6	20	0.3	0.60
3	4	20	0.2	0.40
4	0	20	0	0.00
<b>Mean</b>	6.5	20	0.325	<b>0.65</b>

Extrapolating the LPC density estimate of 0.65/mi<sup>2</sup> to the 92.4 mi<sup>2</sup> of LPC habitat on the Comanche gives a total population estimate of 60 birds in 2004. The difference between the lek-count estimate (104) and the transect-count estimate (60) likely reflects the low precision of the transect-count estimate, which is a consequence of the large among-transect variation (ranging from 0 to 16 males per transect). The 95% confidence interval for the estimates derived from transect counts is from -40 to +160 birds, i.e., the estimate is neither statistically different from zero nor statistically different from 104 (the lek-count estimate). The lek-count estimate does not have an associated confidence interval because it is a census.

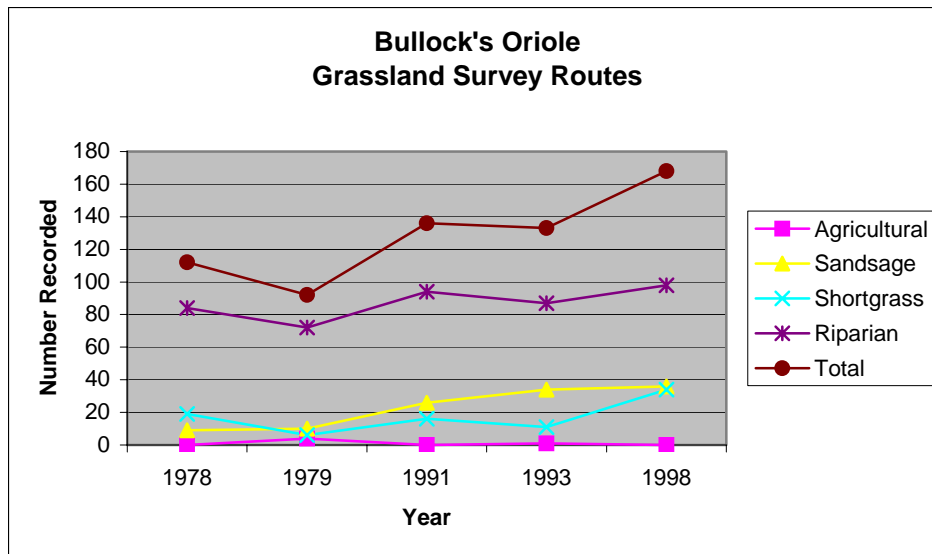
MIS Suitability on PSICC – Ongoing monitoring of sandsage prairie grazing allotments do not measure tall structure ratios, but measure forage grasses utilization. Monitoring LPC habitat (Robel Pole method) and population census provide data relating unique habitat structure information that standard range management monitoring does not provide. Also, LPC complexes can be impacted by other management activities (oil and gas wells) that cannot be addressed with current monitoring efforts. Keeping the LPC as a MIS will continue to provide information on specific habitat and major activities/issues management that if removed, could not be substituted with other current PSICC monitoring efforts. Lesser prairie chicken meets the selection criteria for MIS retention; recommend **retaining** lesser prairie chicken as a Grasslands MIS.

## Northern Oriole (Bullock's Oriole)

Background – Listed as northern oriole in the Plan, a taxonomic name change by the American Ornithologists Union changed its name to Bullock's oriole. Bullock's oriole is a native avian species that nests in lowland riparian forests and some urban areas with taller trees (Rising 1996). On the PSICC grasslands, it utilizes cottonwood/riparian habitats for nesting and foraging.

Population Trend – Since 1978, the population trend on the PSICC has been stable to slightly increasing (Figure 8).

**Figure A-9: MIS population trend for Bullock's oriole on the PSICC.**



MIS Suitability on PSICC – The Bullock's oriole was originally selected as a MIS because of its high fidelity for grassland riparian habitat during its life history. Although these lowland riparian areas comprise less than 5% of total PSICC grassland acreage, they are considered vital to the overall productivity and ecological viability of the local ecosystem. No aquatic vertebrate or riparian obligate was selected as a grassland MIS in the 1984 Plan (Cimarron River flows subsurface only, except during flood events). The preferred MIS to supplement other ongoing riparian monitoring would be to track cottonwood population trends and age classes to correlate specific management activities/issues such as fire suppression, riparian stability and noxious plant species threats (tamarisk invasion). Because this amendment is restricted to the current MIS list, Bullock's oriole continues to be the best available surrogate for relating riparian health with relevant management challenges. Bullock's oriole meets the selection criteria for MIS retention as a potential indicator of major management issues and activities; recommend **retaining** Bullock's oriole as a Grasslands MIS.

## Black-tailed jackrabbit

Background – Black-tailed jackrabbit was originally selected as a MIS for the Comanche NG for shortgrass prairie. The reason(s) for its selection are unknown.

Population Trend – Harvest records from CDOW (mid-1980s to mid-1990s) represent the best source of information on PSICC (local) trend and abundance. These records suggest self-sustaining population numbers with high natural variability in local abundance, as well as 7-10 years cyclical population trends. Harvest records indicate that black-tailed jackrabbits are well distributed within the shortgrass prairie MIG, but not across the other (MIG) grassland types. Jackrabbits are logistically difficult to monitor at the grassland scale, because the one square mile grid surveys are done at night with a large number of people searching simultaneously across each surveyed section of grassland (640 acres).

MIS Suitability on PSICC – This MIS analysis selected the BTPD as the most suitable indicator for major management activities within the shortgrass prairie MIG; selecting another small herbivore for the same MIG would be unnecessary and redundant. Black-tailed jackrabbits do not create the ecologic structural components used by other shortgrass prairie wildlife species (burrows for denning and nesting, etc.) that the BTPD provides. There are no current major management activities or issues that can be related with jackrabbit habitat, numbers or trend. Even historic precipitation patterns and drought do not correlate well with the high natural variation in historic trends of local jackrabbit abundance. The black-tailed jackrabbit fails MIS Evaluation Criteria 1, 3 & 6.

### **Burrowing owl**

Background – Burrowing owl was originally selected as a MIS for both Grasslands, based on its association with specific habitat characteristics (i.e., open grassland habitat use of abandoned BTPD burrows for nesting) during the reproductive part of its life cycle. It was selected as one of several ecological indicators for the shortgrass prairie MIG.

Population Trend – Burrowing owl populations are considered declining in Canada, Washington, California and Oregon (Franken and Wellicome 2003). On the American plains, burrowing owls rely heavily (up to 97%) on prairie dog colonies for nest structure (burrows) and for food biomass (McDonald et al. 2004), especially during the nesting season when foraging areas are more limited by immobile young at natal rearing areas. Burrowing owl populations are directly linked with prairie dog populations in Colorado and Kansas (McDonald et al. 2004). Breeding Birds Survey data shows a 1.6% decrease in population trend from 1966-2000 (Sauer et al. 2001). Burrowing owl population trends on the Great Plains (PSICC's ecoregion) are unknown, but prairie dog colonies on the Great Plains are now estimated at 2% of their historic range (Franken and Wellicome 2003).

MIS Suitability on PSICC – This MIS analysis selected the BTPD as the best indicator for the shortgrass prairie MIG, and selecting the burrowing owl would be redundant. Burrowing owls within the PSICC's ecoregion are very heavily dependent on BTPD colonies for reproductive success (McDonald et al. 2004). It is more effective and efficient to track BTPD colonies that support burrowing owls, especially when the major management activities on the grasslands are directly related to BTPD rather than the indirect relationship to burrowing owls via BTPD. In



fact, if a management activity would affect burrowing owl productivity, it will likely be discovered sooner if BTPDs are being monitored. Burrowing owl fails MIS Evaluation Criteria 3 & 6. (Note: Burrowing owls are being studied as part of a regional wildlife management and research program. It is hoped that this multi-regional effort will shed light on the demographics of burrowing owls within the Great Plains ecoregion.)

### **Ferruginous hawk**

Background – Ferruginous hawk is a Regional Forester Sensitive Species (RFSS) on both the Cimarron and Comanche NG. However, it was only selected as a MIS on the Comanche NG because there was no known ferruginous hawk nest present on the Cimarron NG during plan development. The primary selection criteria were, 1) public concern for large raptors, and 2) its unique nest site requirements during reproduction (grassland nesting structures). This species is one of several vertebrate indicators for the shortgrass prairie habitat land-type in the 1984 Plan. Ferruginous hawks nest in isolated trees or small groves of trees and on other elevated sites such as rock outcrops and buttes in prairie or other open habitats. Ferruginous hawks are closely associated with prairie dog colonies on the Comanche, especially in winter.

Population Trend – The PSICC population has a long-term upward trend since 1984 (n= 15). Breeding ferruginous hawk surveys conducted for the Comanche by the Rocky Mountain Bird Observatory and through the Denver Museum of Nature and Science show a positive and stable trend, although a data gaps exist between 1978 and 1984. The Comanche NG's population of ferruginous hawks has averaged about 15 active nests per year, with unusually successful years such as 1997, when 32 active ferruginous hawk nests were documented on the Comanche NG. There are now 2 - 3 known active ferruginous hawk nests on the Cimarron NG.

MIS Suitability on PSICC – This MIS analysis selected the BTPD as the best indicator of major management activities and issues for the shortgrass prairie MIG; selecting the ferruginous hawk would be inefficient and redundant. Ferruginous hawks within the PSICC are heavily dependent on BTPD colonies for foraging, especially in winter. Because of their requirement for structure, however, ferruginous hawks can only inhabit certain portions of the shortgrass prairie MIG. The BTPD does not have this constraint on their use of the shortgrass MIG areas. In areas on the PSICC where ferruginous hawks are using trees or other structures for nesting, management activities with the potential to cause disturbance are restricted near the active nests. Trees, rocky outcrops and other structures used for nesting by any RFSS are protected from degradation or removal. Because ferruginous hawks and their nests are tracked and given special protection, the major management activities with potential to affect habitat and breeding behavior (i.e., disturbance and nest site protection) are monitored and managed using the RFSS criteria. The RFSS criteria for monitoring and management, plus the BTPD as the indicator for major management activities affecting the shortgrass prairie MIG, makes retention of the ferruginous hawk as a MIS unnecessary. Ferruginous hawk fails MIS Evaluation Criteria 1, 3, 4 & 6, but will continue to be managed on the Grasslands as a RFSS.

### **Great horned owl**

Background – The great horned owl was originally selected as a MIS for the Comanche as a habitat indicator for piñon-juniper and cottonwood riparian habitats. However, the great horned owl is actually a habitat generalist that can nest from old tree groves in homesteads found

throughout the Comanche and adjacent parcels, to canyon areas both with and without trees (where they use cliff ledges for nesting).

Population Trend – **Positive** and stable population trend in Colorado for the great horned owl (COVERS 2001). Sauer et al. (2003) analysis shows the nationwide population trend for great horned owls is declining ( $p < 0.1$ , -1.95%).

MIS Suitability on PSICC – Owls in general are very difficult to survey during the day, requiring night surveys. Great horned owls occupy more diverse habitats than any other owl; therefore, it is not truly an indicator of piñon-juniper and cottonwood riparian systems (its original MIS purpose in 1984). Because of its very broad habitat associations, it is not a sensitive indicator of management actions or issues, making great horned owls an inappropriate MIS for the PSICC. Also, the major management activities in the cottonwood/riparian MIG areas already have an MIS selected (Bullock's oriole). Great horned owl fails MIS Evaluation Criteria 1, 3 & 5.

### **Scaled quail**

Background – Scaled quail was originally selected as a MIS for the Grasslands because of public interest in hunting and viewing, and as an ecological indicator of sandsage prairie MIG. However, this is a species of the Chihuahua Desert with small populations extending into southern Colorado.

Population Trend – Local (PSICC) scaled quail population trend, based on CDOW harvest records, is highly variable in abundance. Its high natural variation in trend responds directly to weather patterns (especially drought) and thus is a poor ecological indicator of major management activities and issues. There are other important biotic and abiotic factors significantly impacting their local population trend, such as: crop production and selection, CRP participation that takes cropland out of production, winter weather, and timing of precipitation (excluding drought). Data samples from CDOW harvest records provide too little information (sample size) and it contains data gaps, preventing assessments of abundance or trend. Because hunting is still permitted (unlike lesser prairie chickens in Colorado), a self-sustained and reproducing population is inferred.

MIS Suitability on PSICC – Fauna with intrinsic and locally specific demographic characteristics that are driven by factors outside of planned management activities make poor MIS. Changes in scaled quail populations in southern Colorado would not relate with Forest Service management due to confounding biotic and abiotic factors. Also, the lesser prairie chicken has been selected as the MIS for the sandsage prairie MIG, and keeping scaled quail as a MIS would be redundant. Furthermore, the species is not a MIS on neighboring grasslands and it would be difficult to determine regional population trend changes, even if they do occur. This is especially important when local numbers contain high natural variability. As a hunted species, CDOW will continue to monitor the local (PSICC and southern CO) viability of scaled quail populations, including nonfederal habitats. Scaled quail fails MIS Evaluation Criteria 1, 3, 4 & 6.

### **Mississippi kite**

Background – Mississippi kite was originally selected as a MIS for the Cimarron NG based on its historic use of the Cimarron River riparian corridor for nesting. Mississippi Kites have become fairly common nesters in the towns of Elkhart and Rolla, Kansas adjacent to the Cimarron National Grassland. Mississippi Kites are summer residents only (Cable et al. 1996) in Kansas.

Population Trend – No Mississippi kite nests have been recorded on the grasslands in the past decade. The nationwide population trend estimate for this species is statistically nonsignificant and declining (Sauer et al. 2003).

MIS Suitability on PSICC – Mississippi kite is no longer a summer riparian resident on the Cimarron NG. There is no collectable data trend to correlate with major management activities on the PSICC, making it an inappropriate MIS selection. Also, the Bullock's oriole is currently the MIS representing the riparian MIG across the Grasslands. Mississippi kite fails MIS Evaluation Criteria 1, 2, 3, 4 & 6.

### **McCown's longspur**

Background – McCown's longspur was originally selected as a MIS for shortgrass prairie. In eastern Colorado and southwestern Kansas McCown's longspur is primarily associated with shortgrass prairie, but also occurs in other habitats, especially heavily grazed rangelands. However, McCown's longspur is an uncommon migrant and winter resident on the Cimarron (Cable et al. 1996).

Population Trend – Across the U.S., BBS trend estimate for most regions are increasing (Sauer et al. 2001). There are no breeding records of McCown's longspur on the Cimarron or Comanche National Grasslands (Cable 1996). The sparrow is detected infrequently during Christmas Bird Counts, and the irregular records suggest that the species does not winter in large numbers on either of the National Grasslands.

MIS Suitability on PSICC – Based on its irregular occurrence limited to the nonbreeding season on the grasslands, the species does not represent a suitable MIS for relating major management activities with local or regional trend data. Also, the BTPD has been selected to represent the shortgrass prairie MIS on the PSICC. McCown's longspur fails MIS Evaluation Criteria 2, 3, 4 & 6.

### **Cliff swallow**

Background – Cliff swallow was originally selected as a MIS on the Comanche because of its use of canyon walls for nesting. This species is abundant on the Comanche; associated with cliff walls, bridges, and other vertical structures providing nesting substrate.

Population Trend – Breeding Bird Surveys between 1980 and 2003 indicate a positive trend in cliff swallow abundance for our region (Sauer et al. 2001).

MIS Suitability on PSICC – The relationship between cliff swallows and canyon habitat provides no strong link with major management issues. No major management activities are planned within or adjacent to the Canyonland walls. Furthermore, the species is not a MIS on neighboring grasslands and it would be difficult to associate changes in local bird numbers on a

only a few hundred acres of habitat with any management activities. Cliff swallow fails MIS Evaluation Criteria 1, 2, 3 & 6.

### **Bewick's wren**

Background – Bewick's wren, a MIS on the Comanche, was selected as an ecological indicator for certain canyonland habitats (piñon-juniper).

Population Trend – Breeding Bird Survey data shows that this species has declined in some western parts of its range, but no significant trend nationwide (Sauer et al. 2001), surveys on the Comanche show an increase from 1968-1998 (n = 92; Comanche data on file 2000). The western range decline is hypothesized by competition with such species as European starling and house sparrow, the use of pesticides on agricultural lands and severe winters (Kennedy and White 1997).

MIS Suitability on PSICC – The relationship between Bewick's wren and canyon habitat provides no strong link with major management issues. No major management activities are planned within the canyonland MIG (piñon-juniper habitat complex). Furthermore, the species is not a MIS on neighboring grasslands and it would be difficult to associate changes in local bird numbers on a only a few hundred acres of habitat with any management activities. Bewick's wren fails MIS Evaluation Criteria 1, 2, 3, 4 & 6.

### **Northern bobwhite**

Background – Bobwhite was originally selected as a MIS on the Cimarron as an indicator of shortgrass prairie due to public interest as a hunted upland game bird. Quail require more specific habitat needs than is normally present on the grasslands, because they require diversity; Guthrey (1986) lists major food groups needed by bobwhites: hard seed grasses, legumes, winter greens, mast, grains, insects and open water in drought.

Population Trend – Its populations vary in abundance influenced by fire ants, weather and local agricultural choice of crops (Peoples et al. 1994, Cable et al. 1996, Robel and Kemp 1997). Private pasturelands placed in CRP have a deleterious impact on local northern bobwhite populations (Townsend et al. 1999). No local demographic or distribution data is available, however, BBS trend data supports the conclusion of a declining northern bobwhite population trend nationwide (Sauer et al. 2003).

MIS Suitability on PSICC – Bobwhite habitat selection focuses on croplands during the major portions of their lifecycle disproportionate to its availability on the landscape (Guthrey 1986). Their population trend will always be most affected by private lands agricultural production and choice of crops (Guthrey 1986). Relating their local trends with any management activities would be highly unlikely. Also, the BTPD has been selected as the MIS for shortgrass prairie MIG. Northern bobwhite fails MIS Evaluation Criteria 1, 3, 4 & 6.

### **Mourning dove**

Background – Mourning dove was originally selected on the Cimarron as a MIS for shortgrass prairie due to public interest as an upland game bird. Mourning doves usually arrive in April and migrate south in September.

Population Trend – Although nationwide BBS counts have declined since 1980 (Sauer et al. 2001); the number of mourning doves locally recorded on these counts is quite variable and highly dependant upon local weather conditions. Inter-year variation of dove population estimates are related to local weather patterns.

MIS Suitability on PSICC – The local mourning dove population is not a year-round resident on the Cimarron. Also, BTPD has been selected as the MIS for shortgrass prairie MIG. Most summer-nesting mourning doves on the Grassland migrate south for the winter with the first major cold front (frequently in September), followed by the northern populations migrating through the Grassland on their way south. Mourning dove fails MIS Evaluation Criteria 1, 2 & 3.

### **Mallard**

Background – The mallard was originally selected as a MIS for lakes and ponds and because of public interest for hunting the species. Mallard has a circumpolar distribution, is very adaptable and has few specific habitat requirements that would facilitate monitoring. In the Southern Rocky Mountains this species inhabits low elevation mountain lakes and streams, marshes and ponds.

Population Trend – Wetland density is the limiting factor for mallard populations in the Southern Rocky Mountain Province (COVERS 2001). The North American BBS reported a statistically significant upward trend for mallards from 1980 to 2002 (Sauer et al. 2003).

MIS Suitability on PSICC – Setting numerical goals for PSICC populations may be futile due to regional and continental population shifts from wetland habitat changes. No management activities for removing or degrading wetlands used by mallards are planned. Due to its transient nature on the PSI and its significant annual hunting pressure, this species is a very poor indicator of local forest or grassland management activities or issues. Mallard fails MIS Evaluation Criteria 1, 2, 3, 5 & 7.

### **Red-headed woodpecker**

Background – Like the northern oriole, the red-headed woodpecker was originally selected as a MIS for the Cimarron riparian MIG. On the Cimarron, the red-headed woodpecker is not a year-round resident (Cable et al. 1996 and Thompson and Ely 1989), and has not been recorded during annual Christmas bird counts.

Population Trend – No local counts are available due to its rare and seasonal occurrence on the grasslands. Nationwide trend data from BBS indicates a statistically significant decline for red-headed woodpeckers (Sauer et al. 2003). If any breeding pairs do occur on the grassland, they would likely number fewer than five.

MIS Suitability on PSICC – It is difficult to monitor any seasonal species that may not have individuals present to count, or where only a few pairs may occur annually (at most). Relating major management/issues with single digit samples is not feasible. This is one of the primary objectives in selecting MIS. Because of its transient local life history, population and

redundancy (riparian MIS selection of Bullock's oriole), the red-headed woodpecker fails MIS Evaluation Criteria 2, 3, 5, 6 & 7.

### **Beaver**

Background – In 1984, the beaver was selected as a MIS in the Plan due to the public's interest in this charismatic mammal and its habitat, economic interest and increased controversy surrounding fur-bearer trapping in Colorado. Beaver commonly inhabit riparian areas of mixed coniferous-deciduous forests and deciduous forests containing abundant beaver foods and lodge building material such as aspen, willows, alders, dogwood, and cottonwoods. It was originally selected as a MIS for the riparian MIG (e.g., Land-type).

Population Trend – Global beaver populations are thought to be stable or increasing. The Colorado beaver population experienced mid-20<sup>th</sup> century declines, but is now believed stable (COVERS 2001).

MIS Suitability on PSICC – The PSICC uses a number of direct monitoring approaches to assess the Plan's major management activities and their potential effects within the riparian MIG, an important ecological component in the southern Rockies. Identified major management activities and their potential issues involving riparian area grazing, roads and recreation are directly monitored via allotment management plans (permit terms and conditions, riparian key areas and utilization limits), recreation planning and project implementation (moving trails away from riparian zones), road planning (Transportation Management Plan to reduce open road miles and reduce negative effects to riparian areas), watershed monitoring (such as the Middle East Watershed Monitoring and Evaluation project, 303d stream monitoring, water quality monitoring and watershed assessments) as well as pre- and post-project implementation field surveys to reduce potential project impacts and create proactive projects to enhance both streams and riparian areas. These ongoing Plan monitoring efforts can directly identify both opportunities for riparian enhancement projects and potential major management activity conflicts or issues. Directly monitoring the aquatic and riparian vegetation components produces a quicker feedback loop to PSICC managers than an indirect measurement using short-term estimates of beaver numbers to track fast-moving changes in local riparian conditions. Therefore, it would be less efficient to spend time and resources tracking PSICC beaver populations when a more direct local monitoring relationship has already been established.

Beaver can cause management issues when: 1) lodges are blown-out during high flows, causing blocked culverts, roadside flooding, damage, and erosion; 2) removal of healthy riparian vegetation occurs; and 3) reduced water quality from increases in water temperature and sediment affects fishery production. Problem beaver are normally removed, making local trend counts less reliable for long-term correlations with major management activities. Riparian areas on the PSICC are not targeted for major management activities; they are actively enhanced, protected and monitored as part of the ongoing aquatic and riparian management efforts. Lastly, the riparian MIG has three MIS vertebrates (northern oriole, greenback and brook trout) that more directly relate to the planned major management activities (recreation, water use, etc.), which supplements non-MIS Plan monitoring. Beaver fails MIS Evaluation Criteria 1, 3, 4, 5 & 7.

### **Bighorn Sheep**

Background – Bighorn sheep was originally selected as a MIS because: 1) it has protected habitat needs; and 2) public interest for hunting and viewing. Bighorn sheep habitat consists primarily of grasslands or grass/shrub habitats next to or intermixed with precipitous terrain, characterized by rocky slopes, ridges, cliffs or rugged canyons. Human disturbance and domestic livestock disease within bighorn sheep habitat, especially during winter and through mid-June (lambing), contributes to displacement and population decline (Rodrick and Milner 1991).

Population Trend – Global and Colorado bighorn sheep populations have experienced declines, but populations in Colorado have been considered stable since 1980 (COVERS 2001). Bighorn sheep in Colorado experienced a major health setback in the past decade due to disease called lungworm pneumonia (Fitzgerald et al. 1994). They seem to be highly vulnerable to this particular virus, usually spread by domestic sheep and goats. Using harvests inferred from management units that have been open to public hunting since 1991, it indicates that populations have been increasing or stable within bighorn sheep Colorado GMUs (harvest data from CDOW 2001) on the PSI.

MIS Suitability on PSICC - This species has specific management by CDOW for Colorado and guidelines in the PSI Forest Plan. Protection of bighorn sheep habitat will continue regardless of its MIS status. In situ GMU site analysis by CDOW determines bighorn sheep herd targets and habitat management prescriptions on the PSICC. There are no active domestic sheep (or goat) allotments currently on the PSICC (the primary potential impact from PSI major management activities). Bighorn sheep summer/wintering areas on the PSI are protected and managed in cooperation with CDOW. There are no management activities or issues to relate with this species in the MIS context. Other biotic and abiotic factors (such as locally spread diseases, hunting and snowfall) influence sheep population trend numbers beyond what can be monitored and correlated with any major management activities on PSICC. Bighorn sheep fails MIS Evaluation Criteria 1, 4 & 6.

#### **Deer (Mule deer and White-tailed deer)**

Background – Both white-tailed deer and mule deer were originally selected as MIS on the PSI and the Grasslands because the public has a significant interest in hunting and viewing these two species. Habitat relationships of deer are well known. Mule deer are found in open forested regions or on the plains and prairies (Snyder 1991). Primary grassland habitat for white-tailed deer is cottonwood-riparian zone along the Cimarron River, also occurring in draws, shortgrass prairie, sandsage prairie and agricultural areas. Mule deer prefer rocky or broken terrain at elevations near or at the subalpine zone in the mountainous regions of the West (Carpenter et al. 1981). They are also found in alpine, montane, grasslands and foothill zones. Deer seek shelter at lower elevations when snows become deep. In the high ranges of the Rocky Mountains, mule deer migrate during winter, sometimes moving 50 to 100 miles (Mackie et al. 1987; Wallamo 1981). Open road densities greater than one mile per square mile of habitat are considered a correlate (Hoover and Willis 1984) for local deer abundance.

Population Trend – Kansas and Colorado mule deer populations are known to be increasing (COVERS 2001). There was a population decline at the turn of the century, but deer now have reached unprecedented numbers and distribution (Mackie et al. 1987). Hunter harvest numbers are used by CDOW as an indicator of population trend; harvests have been increasing in Colorado since 1975 (Fitzgerald et al. 1994).

MIS Suitability on PSICC - There are specific big game habitat management diversity unit guidelines in the 1984 Plan. These would remain in place. Stand treatment projects benefiting big game (approximately 2,000 acres per year) will also continue. Elk (on the PSI) and prairie dogs (on the Grasslands) already represent the same management issues being monitored by MIS within the MIG habitats utilized by mule deer and white-tailed deer respectively. Both deer species fail MIS Evaluation Criterion 3.

### **Antelope (Pronghorn)**

Background – Pronghorn was originally selected as a MIS on the PSI because of public interest for this species due to depredation conflicts with agriculture producers, and the desire for hunting and viewing. Numbers are widespread in the shortgrass MIG area of the Grasslands. The pronghorn has developed physiological and behavioral adaptations to survive in large expanses of flat, open shortgrass prairie. It is an important wildlife species for hunting and recreational viewing in Kansas and Colorado. State management objectives in Colorado for this species are to suppress numbers in areas surrounding the National Grasslands due to depredation conflicts on adjacent private agriculture fields. Livestock water sources benefit pronghorn, while fences can restrict movement and distribution. Prescribed burning conducted on the Grasslands provides high-quality spring forage that attracts pronghorn herds. Prescribed burning in late fall/winter has been proposed as a strategy to decrease private lands depredation by pronghorn.

Population Trend – Populations are stable (< 1,000) but intentionally kept low due to heavy hunting pressure on both private and federal lands as well as depredation reduction efforts by CDOW on private lands. In both Kansas and Colorado, populations are monitored annually by the state wildlife agencies via aerial counts. Population viability is not considered an issue for this species (COVERS 2001).

MIS Suitability on PSICC – Although this species has specific habitat management guidelines in the Plan, it is not feasible to monitor at the Forest scale to assess population changes as a result of PSICC major management activities due to the fragmented ownership patterns with private and state lands. Because the species ranges infrequently into southwest Kansas, individuals are rarely present on the Cimarron National Grassland; pronghorn could only serve as a potential indicator of major management activities on portions of the Comanche National Grassland. Other biotic and abiotic factors (such as private ownership fencing, adjacent private lands depredation removal and local small CDOW population management GMU objectives) influence pronghorn numbers beyond what could be monitored and correlated with any Grasslands major management activities. Intentional population suppression by CDOW confounds any trend information being related to habitat. Also, the BTPD is the MIS for the shortgrass prairie MIG on both the Comanche and Cimarron NGs. Pronghorn fails MIS Evaluation Criteria 1, 2, 3 & 6.

### **Bobcat**

Background – Bobcat was originally selected as a MIS on the Comanche because the public has a high interest in this species and its habitat. Habitat relationships of bobcats are fairly well understood. Bobcats use a wide variety of habitats including coniferous forests, deciduous forest, mixed forest, sagebrush and grasslands, and mixed scrub (Boyle et al. 1987, Tesky 1995). They are typically most abundant in early to mid-succession habitats with high prey density. See



Boyle et al. (1987) and Tesky (1995) for a more detailed description of bobcat habitat associations.

Population Trend – The global bobcat population has experienced declines, but thought to be stable. Colorado bobcat population trend is thought to be slowly declining (COVERS 2001). The CDOW [1981] approximated Colorado's pre-harvest bobcat population to be 34,000 animals (Fitzgerald 1994). Bobcat populations appear to have declined in numbers based on trapping and hunting records, but that may reflect market values (Fitzgerald 1994). Harvest of bobcats consistently declined from 2,505 animals in 1982 to 515 in 1991 (Fitzgerald 1994) to 285 during the 2000-2001 season (CDOW 2001), suggesting a decline in bobcat numbers at the state level. However, the decline in harvest could also be attributed to reduced market value of bobcat and the elimination of most trapping under Colorado's Amendment 14 passed in November 1996. Some Colorado populations may have been over harvested in the past (Fitzgerald 1994). This species was listed as a species of special concern in Colorado (Fitzgerald 1986), but was later removed from this list (COVERS 2001). If harvest provides an indication of population trends, then populations are declining as harvest numbers have decreased within Baca and Otero Counties including Comanche National Grasslands (harvest data from CDOW 2001).

MIS Suitability on PSICC – The Plan General Direction for native grasslands' wildlife is to provide for their habitat needs on the Grasslands. Bobcat harvests are likely declining in Colorado and on the Comanche either due to historic overharvests (COVERS 2001) or reduced harvest effort. The increased survival from reduced trapping pressure has reduced concerns about local population viability. The only feasible method to count bobcats would be to run large grid trap lines and perform a mark-recapture program to estimate the number of individuals. This effort would be very logistically challenging, costly and would likely create a negative public reaction. The public would not support trapping this species when the data collected provides little value (e.g., no other Grassland would be participating and the data would be limited to the PSICC). Because there is no recent bobcat population estimate (only harvest records), the target number for a local viable bobcat population is unknown. Furthermore, predator populations are driven by prey availability, and management efforts would focus on prairie dogs and other bobcat prey. No relationship can be made with bobcat numbers and major management activities on the PSICC. Also, the BTPD and lesser prairie chicken already have been selected as MIS for the shortgrass prairie and sandsage prairie MIGs. Bobcat fails MIS Evaluation Criteria 1, 3 & 5.

### **Pine Marten (American Marten)**

Background – Marten was originally selected as a MIS primarily because it is considered a charismatic megafauna and was commercially trapped. The pine marten is a furbearer and was historically trapped in Colorado (Fitzgerald 1999). Trapping of this species ended in 1995 when CDOW closed the season and a ballot initiative (Amendment 14) in November 1996 closed the state from taking of all furbearers by snares. It is considered a habitat generalist using both early and late seral forests (Fitzgerald 1999).

Population Trend – No population estimates for Colorado have been made, and CDOW no longer collects harvest numbers for the American marten due to the statewide closure to furbearer trapping. The 2000 Marten Status Questionnaire indicates an increase in population trend from 1995 – 2000. This estimated trend is based on professional judgment, local knowledge and the assumption that the lack of trapping pressure is having a positive effect on

Colorado population numbers. Byrne (1998) conducted a statewide winter track survey in the higher elevations of Colorado and found marten to be widely distributed across the state in all forested habitats, and marten is listed as the fifth most common mammal in Colorado behind red squirrels, snowshoe hare, weasel, mice/vole and coyotes.

MIS Suitability on PSICC – It used to be believed by biologists that marten required old-growth forest conditions to support viable populations. Trapping pressure was also a concern to its viability. However, field studies by Byrne (1998) and others have revealed it as a forest-generalist, and legal trapping of marten in Colorado has ceased. It is logistically difficult (safety and trap line hours spent) and costly (e.g., equipment, winter access limitations and skill labor-intensive to cover sufficient survey routes on foot would cost \$50,000+ each year) to monitor this species at the scale necessary to achieve an adequate annual sample size to assess a PSI population trend. The public would not support trapping a charismatic species when the data collected provides little value (e.g., no other Forest would be participating and the data would be limited to the PSI). Even if statistically non-significant marten population trends were obtainable, correlating trend indices with planned major management activities would be completely confounded by its varied habitat requirements and seasonal pattern of use within the PSI forests. Moreover, the major management activities on the PSI potentially affecting local marten habitat use are monitored as part of wildlife biologists' project planning and prescriptions (snags and downed woody debris from stand treatments). Finally, the major management activities in the forested MIGs related to MIS have been chosen (Rocky Mountain elk and Abert's squirrel). The pine marten fails MIS Evaluation Criteria 1, 3, 4, 5 & 7.

### **Peregrine Falcon**

Background – Peregrine falcon was originally selected as a MIS for its specific habitat needs (i.e. cliff-dependent) and special status as an endangered species. The species range is cosmopolitan; in Colorado the majority migrate and winter south of the state border. This species is highly specialized, as it relies completely on cliff habitat for nest sites and the number of suitable nest sites is finite and essentially non-renewable.

Population Trend – In 1998 CDOW personnel found peregrines occupying 90 of 107 known nesting sites and located six new sites; all known eyries are annually for occupancy and reproduction as part of the post-delisting requirements by the USFWS.

MIS Suitability on PSICC - This species is a RFSS, but can only be monitored at a site (eyrie) scale. It is not realistic to assess impacts of major management activities on population trend since its historic causes of decline and recovery are unrelated to forest management (DDT pesticide use). Recreational climbing is still a concern, which can be better assessed on an in situ, permit-by-permit and eyrie basis. There are only a few known historic nest sites on the PSI. Relating these few sites to major management activities via MIS monitoring would be very unrealistic. The Plan requires all known peregrine nests to be protected from disturbance and destruction. Peregrine falcon fails MIS Evaluation Criteria 1, 4, 6 & 7.

### **Water Pipit (American Pipit)**

Background – The water pipit was originally selected as a MIS for the alpine land-type. There are an estimated 7.4 million acres of alpine habitat in the western United States, nearly 1/3<sup>rd</sup> of

which is in Colorado (2.4 million acres). Nearly all of Colorado's alpine tundra occurs in the Southern Rocky Mountains. This species is a common breeder in all Colorado mountain ranges having suitable alpine habitat (11,500-14,500 feet). Virtually all suitable habitats on the PSI are in wilderness-designated areas.

Population Trend – Current monitoring programs, including the North American BBS, do not monitor species restricted to breeding in alpine tundra habitats of Colorado. The few intensive studies of this species suggest that breeding densities range from 0.2 to 2.1 pairs/km in suitable breeding habitat (Verbeek and Hendricks 1994).

MIS Suitability on PSICC - Most of this habitat on the forest occurs in wilderness. Threats to habitat are limited by high elevation (mapped as “other” in the MIG designations for the mountain districts) and wilderness designation. Although some recreation activity occurs (hiking) in this alpine habitat, it is extremely difficult to monitor this species due to access limitations. It is not possible to draw science-based conclusions of hiking from the local breeding population on the PSICC, as water pipits are impacted significantly elsewhere during the majority (9 months) of their life cycle. Other than foot traffic, no other major management activities are planned in these high elevation tundra habitats. Water pipit fails MIS Evaluation Criteria 1, 2, 3, 4, 5 & 7.

#### **Yellow-bellied Sapsucker (Red-naped Sapsucker)**

Background – The red-naped sapsucker was originally selected as a MIS, because of specific habitat needs during the breeding phase of its life cycle (snags). Red-naped sapsucker favors live aspen with rotten heartwood as a nesting tree (Winkler and others 1995). Fungus is a major agent responsible for causing heart rot in aspen and enters the tree through open wounds. The red-naped sapsucker is known for its characteristic drilling patterns in deciduous and pine trees. Population Trend – There is no information available to indicate a local population trend this species. Breeding Bird Surveys indicate a significant increase in trend counts for the red-naped sapsucker nationwide (Sauer et al. 2003). Data on a group of three sapsucker species indicate sapsucker populations in general are stable in Colorado and in the Western BBS Region (Sauer et al. 2003).

MIS Suitability on PSICC - This wilderness area species would be very costly to monitor at the scale needed to develop a minimal sample size (n = 30) large enough each year to be usable for trend or management assessments. Local BBS routes from the Rocky Mountain Bird Observatory have recorded much smaller numbers than this minimum sample size on the PSI (n = 0-7). Because red-naped sapsuckers occur at low densities, it limits any attempt to calculate a meaningful trend change. The major management activities affecting its habitat (snags) are prescribed in project planning and are part of ongoing forest monitoring after stand treatments are implemented. Insect outbreaks (forest health issue) and wildfire (hazardous fuels) actually increases sapsucker habitat (Goggans et al. 1988), but these increases are a function of biotic and abiotic factors (fire, windthrow, disease and insects), not forest management activities. Snag retention requirements (snags per acre) outside of the 300-foot woodland-urban interface (WUI) will continue to be implemented and monitored irrespective of any MIS list or monitoring program. Red-naped sapsucker fails MIS Evaluation Criteria 1, 5, 6 & 7.

#### **Green-tailed Towhee**

Background – The green-tailed towhee was originally selected as a MIS for the mountain shrub MIG vegetation community. This species breeds in shrubby hillsides dominated by Gambel oak and associated shrub species (mountain mahogany, serviceberry, chokecherry, snowberry) at an average 7,300 feet elevation. It has been estimated that Colorado contains about 20% of the surveyed breeding population of green-tailed towhees (COVERS 2001).

Population Trend – This species ranks as the thirteenth most numerous vertebrate species in Colorado with almost 1 million breeding pairs (COVERS 2001). All BBS data proved inadequate to provide accurate population trend counts for Colorado. Within the Southern Rocky Mountain province this species was present on an average of 87% of BBS routes (mean # routes = 21) from 1988-1997 at an average abundance of 12.20 individuals per route. This species is monitored by Colorado Bird Observatory's "Monitoring Colorado's Birds" program using point transects. Colorado Bird Observatory's conducted an average of 28 transects between 1999 and 2003.

MIS Suitability on PSICC – The PSICC mountain districts proportionally contain very little shrub habitat (3.9% of total acreage). The major management activities occurring in this MIG is limited to cattle grazing and recreation, neither of which can be correlated with green-tailed towhee trend data for management purposes. A more appropriate species, Rocky Mountain elk, has been selected as an indicator of this MIG mountain shrub community (including scrub oak). Elk are much more pervasive across the MIG and are sensitive to recreation-induced displacement and range management activities. Also, this locally limited towhee habitat (3.9% of total PSI acreage) is too small for a science-based inference from population trend changes within the overall recreation and range management programs. Green-tailed towhee fails MIS Evaluation Criteria 1, 3, 4 & 6.

### **Turkey (Wild Turkey)**

Background – Wild turkey was originally selected as a MIS because: 1) it uses human-influenced habitat (agriculture); and 2) public interest in this species for hunting and viewing. Wild turkey uses a combination of forested and open habitats, including conifers, hardwoods, mixed woodlands, riparian areas, and open grasslands. Wild turkey needs mature, open forests interspersed with grassy openings; amount of openings required varies from 10-25% of total occupied range (Snyder 1992). Turkeys are limited by a number of natural and artificial factors. Scarcity of suitable roost trees may be a limiting factor. Nest and poult predation may significantly impact wild turkey populations when they occur in conjunction with natural (predation, disease) and human-related (hunting, habitat change) mortality (Snyder 1992).

Population Trend – Wild turkey populations are estimated to be stable or increasing statewide (COVERS 2001). There have been recent increases due to reintroductions and other management activities (Eaton 1992). Recently, populations have been increasing in many areas of the state due to a series of mild winters and because of increased food availability (Hoffman 1996).

MIS Suitability on PSICC - Estimating precise wild turkey population numbers is very difficult (COVERS 2001) primarily because no techniques are available to reliably estimate density or total population size of wild turkeys (CDOW, Rick Hoffman, pers. com., March 2001; Hoffman et al. 1994). Population trend is based on hunter harvest, not actual bird counts. Local biotic and abiotic factors (such as hunting, agricultural crops and precipitation) influence turkey numbers beyond what can be measured and correlated with any Plan major management activities. Also,

other MIS have been selected to correlate with shrub/oak MIG areas with major management activities. Wild turkey fails MIS Evaluation Criteria 1 & 4.

### **Lewis' Woodpecker**

Background – Lewis' woodpecker was originally selected as a MIS because it requires snags for nesting and foraging. Lewis' woodpecker habit consists of single storied structural stages of ponderosa pine and multi-storied stages of Douglas fir, and cottonwood woodlands with scattered snags or live trees and bushy undergrowth (Wisdom et al. 2000). Lewis's woodpecker is an aerial insectivore and requires openings for foraging maneuvers (Wisdom et al. 2000). Dead trees with decayed wood, open ponderosa pine forests logged or burned forests and open riparian cottonwood woodlands are important habitats.

Population Trend – Results of BBS compiled by the USFWS indicate that the Lewis's woodpecker populations may be declining in the Western United States since the 1960s. Sauer et al's (2003) analysis of BBS data throughout Colorado from 1966 to 2003 indicates a stable trend in abundance for this species ( $p = <0.92$ ). However, a negative trend was reported ( $-0.6$ ,  $n = 11$ ,  $p < 0.92$ ) from 1980 – 2003 (Sauer et al. 2003). In a burned forests study, Lewis' woodpecker nest densities increased by a factor of four over unburned sites (Saab and Vierling 2001).

MIS Suitability on PSICC – Quantifying any population trend is an extremely difficult task for this species due to its spatially and temporally patchy distribution (DeSante and Pyle 1986). Huge costs to acquire tiny samples would render any local estimates ineffective. The entire province of British Columbia has an estimated population of 350 or so breeding pairs (Cooper et al. 1998). Also, the cottonwood/riparian MIGs already have more pervasive (thus better monitoring capability) MIS representatives, and keeping Lewis' woodpecker as a MIS would be redundant. Lewis' woodpecker fails MIS Evaluation Criteria 3, 4, 6 & 7.

### **Mountain Bluebird**

Background - Mountain bluebird was originally selected as a MIS for the mountain grassland vegetation type. Mountain bluebirds are secondary cavity nesters that occupy open woodland or edge habitat. The mountain bluebird is the most ecologically tolerant of the three bluebird species, is usually found above 7,000 feet during the breeding season in Colorado, and nest in natural cavities, old woodpecker holes in dead/dying trees with diameters 10"-29" DBH, or nest boxes (Fire Effects Information Web page 2002). Mountain bluebirds prefer perches on bare branches near open areas with sparse ground cover, feeding on ground insects; generally are correlated with early post-fire conditions (Hutto 1995).

Population Trend – It is considered abundant (observations of 15 individuals per day in suitable habitat) in BBS transects. Prior to the 2002 Hayman Fire, nest site availability was considered a limiting factor in local habitats for mountain bluebird productivity. Mountain bluebird population estimates generated from BBS data collected 1966-2003 in the Southern Rockies Ecosystem and in the Colorado indicate an increasing, but non-significant trend.

MIS Suitability on PSICC – PSICC timber-related vegetation management activities have annually averaged less than 0.3% of the lower montane forests, as local forest vegetation seral stages are more influenced by wildfire and insects than the timber management-related activities

(Thinnes 2001). Snag retention in fuel reduction treatments (7+ snags per acre on average) is part of other ongoing non-MIS implementation and monitoring. The other major management activities within this MIG are livestock grazing and recreation. A more appropriate species, Rocky Mountain elk, has been selected as an indicator of this MIG community and related activities. Elk are much more pervasive and sensitive to recreation-induced displacement and utilization within this MIG by livestock. Also, the PSICC's seral stage suitability for mountain bluebirds is controlled by biotic (insects) and abiotic (wildfire) factors. Mountain bluebird fails MIS Evaluation Criteria 1, 2 & 7.

### **Cassin's Sparrow**

Background – Cassin's sparrow was originally selected as a MIS because it was a habitat generalist that used both shrubland and shortgrass prairie habitats, and due to estimated population trend decline in the two decades leading up to the Plan. Cassin's sparrow inhabits the Great Plains shrublands with scattered grass openings or shortgrass prairie with scattered shrubs, yucca, cactus or bunchgrass patches (Gillihan et al. 2001). They can generally use habitats with a wide range of shrub cover as long as some grass cover is also present. In eastern Colorado, breeding populations primarily occur in the southern half of the state, especially within and around the Comanche (Hanni et al. 2003).

Population Trend - In Colorado, Cassin's sparrow populations declined during 1966 – 1979, but recovered during 1980 – 2003 (Sauer et al. 2003). Sections-based breeding season surveys of the Grasslands conducted annually by the Rocky Mountain Bird Observatory during 2001 – 2004 provide population trend data for the Cassin's sparrow. In 2001 and 2002, a total of 127 and 116 sections (640 acre blocks) respectively were surveyed within the administrative boundaries of the Comanche. Survey sample size was increased and expanded to include the Grasslands in 2003 and 2004, with a total of 189 and 202 sections surveyed, respectively, in those years. Analysis of the proportion of sections surveyed that had Cassin's sparrow present on the Comanche during 2001 – 2004 BBS indicates a stable population trend across the four-year period. In addition, there was no statistically significant change in proportion of sections with Cassin's sparrow present between 2003 and 2004 for the Grasslands combined (i.e., a stable population trend was detected for the years with the highest sampling intensity).

MIS Suitability on PSICC – No major management activities can be related to Cassin's sparrow population trends. The reasons for the decline from 1966-1979 and following increase from 1980-2003 are unknown; management activities on the grasslands have increased since 1980, especially related to recreation and oil and gas development. The shortgrass prairie MIG has a MIS representative already selected (prairie dog) for the habitat, which provides a stronger relationship that reflects local changes from planned major management activities with habitat or population changes on the grasslands. Cassin's sparrow fails MIS Evaluation Criteria 1, 2 & 3.

### **Northern Three-toed Woodpecker (Three-toed Woodpecker)**

Background – Three-toed woodpecker was originally selected as a MIS because it has special habitat need during some phase of the life cycle (mature forest, snags), and public interest for the species. In Colorado three-toed woodpeckers prefer old-growth/late seral forests of spruce-fir, lodgepole/ponderosa pine and/or mixed conifer. Fire killed conifers are sought for cavity nesting and beetle foraging. In Colorado, the three-toed woodpecker prefers spruce-fir habitats (Wiggins 2004).

Population Trend –Results from BBS data for Colorado (n =2 from 1966 to 1999) and the reported declining trend is not reliable, because three-toed woodpeckers occur at such low densities. Similar results are reported for the Southern Rockies (n =3) along with a declining trend. North American BBS data analysis shows a nonsignificant population decline in the western U.S. since 1980 (Sauer et al. 2003).

MIS Suitability on PSICC – Habitat removal of three-toed woodpecker (mature forest) is not part of the planned PSICC activities. In fact, old-growth development and retention is a management objective for the PSI. Three-toed woodpecker local carrying capacity is driven by large wildfires (such as the Hayman fire in 2002) and insect outbreaks over greater areas of forest, not small ( $\leq$  1% of the forest) area treatments from PSI major management activities (Thinnes 2001). Snag retention in fuel reduction treatments (7+ snags per acre on average) is part of other ongoing non-MIS implementation and monitoring. Large costs to acquire tiny samples (see BBS data above) would render any local trend estimates statistically meaningless for correlating population data with tiny portions of the forest treatments ( $\leq$  1% of the PSI acreage). Also, Abert's squirrel has been selected as a MIS for the ponderosa pine MIG. Northern three-toed woodpecker fails MIS Evaluation Criteria 1, 4, 6 & 7.

### **Black-throated Gray Warbler**

Background – Black-throated gray warbler was originally selected as a MIS for the grass/shrub MIS community type. Black-throated gray warbler is a common summer resident of Colorado (Sauer et al. 2003). It breeds in a variety of semi-arid woodlands and brushlands. In Colorado it is commonly found in piñon-juniper forests with brush understories. The forested ecosystems used seasonally and the relative abundances are:

Piñon-juniper (spring, summer, fall) - fairly common

Gambel oak (spring, summer, fall) - uncommon

Cottonwood riparian (spring, fall) - uncommon

Population Trend – The BBS data show significant population increase nationwide, 1966 to 2003 for an estimated 2.2% average annual change (Sauer et al. 2003).

MIS Suitability on PSICC – Due to its local migratory life history, black-throated gray warblers can be significantly impacted by biotic and abiotic factors beyond the PSICC's management or control. Population (N) trend data that could be collected locally would be too small ( $N < 10$ ) and the PSICC would not be able to correlate trend with major management activities. PSICC timber management-related vegetation management activities have annually averaged less than 0.3% of the lower montane forests, as local forest vegetation seral stages are more influenced by wildfire and insects than the timber-related activities (Thinnes 2001). The other major management activities within this MIG are livestock grazing and recreation. A more appropriate species, Rocky Mountain elk, has been selected as an indicator of this MIG community and related activities. Elk are much more pervasive and sensitive to recreation-induced displacement and more directly indicate riparian vegetation utilization by wild and domestic ungulates. Also, the PSICC's seral stage suitability for black-throated gray warbler is controlled by biotic

(insects) and abiotic (wildfire) factors. Black-throated gray warbler fails MIS Evaluation Criteria 1, 2, 4 & 6.

### **Virginia's Warbler**

Background – Virginia's warbler was originally selected as a MIS for the grass/shrub community. Virginia's warbler nests in dense shrublands, especially Gambel oak, and on scrub slopes of mesas, foothills, open ravines, and mountain valleys in semi-arid country at 5,000-9,000 feet. They also breed in canyonland (piñon-juniper) woodlands and open ponderosa pine savannahs that have a dense understory of tall shrubs.

Population Trend – BBS trend data indicate a slight decrease in Colorado, but no indication of decline throughout their range. Due to its small breeding range, Colorado has a moderate responsibility in protecting this species. Within the Southern Rocky Mountain province in Colorado, BBS returns are too sparse for meaningful analysis. Virginia's warbler was present on an average of 23 BBS routes from 1988-1997 at an average abundance of 1.2 individuals per route (N<20). This species is monitored by Rocky Mountain Bird Observatory's "Monitoring Colorado's Birds" program using point transects.

MIS Suitability on PSICC – Due to its local migratory life history, Virginia's warblers' population trend will be significantly impacted by biotic and abiotic factors outside of the PSI's local three-month breeding season. Population trend data collected on the PSI would be insufficient in size (N<20) to correlate with major management activities. PSI timber-related vegetation management activities have annually averaged less than 0.3% of the lower montane forests (LRMP-MR). Southern Rocky Mountain forest vegetation seral stages are much more influenced by wildfire and insects than the PSI forest management-related activities (Thinnes 2001). The other major management activities within this MIG are livestock grazing and recreation. A more appropriate species, Rocky Mountain elk, has been selected as an indicator of this MIG community and related activities. Identified major management activities and their potential issues involving riparian area grazing, roads and recreation are directly monitored via allotment management plans (permit terms and conditions, riparian key areas and utilization limits), recreation planning and project implementation (moving trails away from riparian zones), road planning (Transportation Management Plan to reduce open road miles and reduce negative effects to riparian areas), watershed monitoring (such as the Middle East Watershed Monitoring and Evaluation project, 303d stream monitoring, water quality monitoring and watershed assessments) as well as pre- and post-project implementation field surveys to reduce potential project impacts. Elk are much more pervasive and sensitive to recreation-induced displacement and browse utilization within this MIG by ungulates. Also, Abert's squirrel has been selected as a MIS for portions containing the mixed conifer, but is mapped as a ponderosa pine dominated MIG. Finally, the PSICC's habitat suitability for Virginia's warbler is controlled by biotic (insects) and abiotic (wildfire) factors. Virginia's warbler fails MIS Evaluation Criteria 2, 3, 4, 6 & 7.

### **Wilson's Warbler**

Background – Wilson's warbler was originally selected as a MIS for the mountain riparian habitat type. In Colorado, this species is a fairly common summer resident in mountain parks and higher mountains at 10,000-13,000 feet (Johnson and Anderson 2003). They nest in willow



and alder thickets of stream banks, lakeshores and wet meadows. They may be the most common breeding birds in Colorado's montane and subalpine willow habitats (Andrews and Righter 1992).

Population Trend – BBS data in the Southern Rocky Mountain Province during 1966-2003 (Sauer et al. 2003) and do not show a statistically significant rate of change. They were present on an average of 51% of BBS routes from 1988-1997 with an average abundance of 4.3 individuals per route (mean # routes = 21). This species is monitored by Rocky Mountain Bird Observatory's "Monitoring Colorado's Birds" program using point transects.

MIS Suitability on PSICC – All proposed PSI projects that include riparian habitats, contain both riparian protection measures and mitigation for anticipated impacts. Riparian vegetation enhancement projects to improve willow recruitment (Wilson's warbler's primary nesting habitat) and other riparian flora occur annually on the PSI, averaging  $\geq 500$ -1,000 acres per year since FY2001-02 (LRMP-MR 2004). Identified major management activities and their potential issues involving riparian area grazing, roads and recreation are directly monitored via allotment management plans (permit terms and conditions, riparian key areas and utilization limits), recreation planning and project implementation (moving trails away from riparian zones), road planning (Transportation Management Plan to reduce open road miles and reduce negative effects to riparian areas), watershed monitoring (such as the Middle East Watershed Monitoring and Evaluation project, 303d stream monitoring, water quality monitoring and watershed assessments) as well as pre- and post-project implementation field surveys to reduce potential project impacts. Due to its migratory life history on the PSI, local Wilson's warblers' population trend will also be significantly impacted by biotic and abiotic factors outside of PSI management activities during its local three-month breeding season. These ongoing Plan monitoring efforts identify developing opportunities for riparian enhancement projects and management activity conflicts or issues more quickly by directly measuring the aquatic and riparian vegetation resources, than by attempting to use local Wilson's warbler point-count trends to indicate potential riparian issues. With other ongoing avian population trend data collection (BBS and RMBO), riparian monitoring, watershed assessments and MIS selection of brook trout and greenback cutthroat trout for mid-to-high elevation aquatic species monitoring, selecting a third MIS for this habitat type would be redundant. Wilson's warbler fails MIS Evaluation Criteria 2, 3, 6 & 7.

## **SUMMARY OF RECOMMENDATIONS**

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As discussed in the introduction, assumptions used in the Plan need to be modified if recent legal interpretations on the purpose and use of MIS are upheld. The result is that the number of MIS for the Comanche is reduced from 17 to 3 species; Cimarron is reduced from 14 to 4; PSI is reduced from 20 to 4 species.

## **Retained MIS List**

### **Pike & San Isabel National Forests**

1. Rocky Mountain elk
2. Abert's squirrel
3. Greenback cutthroat trout
4. Brook trout

### **Comanche National Grassland**

1. Black-tailed prairie dog
2. Lesser prairie chicken
3. Long-billed curlew
4. Bullock's oriole

### **Cimarron National Grassland**

1. Black-tailed prairie dog
2. Lesser Prairie chicken
3. Bullock's oriole

### **Inherent limitations for those MIS recommended to be retained in the Plan:**

MIS are used in forest planning to analyze potential effects of alternatives and to evaluate the consequences of implementing the plan. Effects of alternatives were evaluated when the plan was developed in 1982-83. Evaluating the consistency of plan outcomes with objectives, however, requires some monitoring of MIS. This document seeks to identify those MIS that can continue to play the strongest role supplementing evaluation of Plan implementation. Therefore, the efficacy of the proposed MIS lies, to a significant degree upon the potential to monitor MIS and draw relevant conclusions from the trend data.

Populations of all MIS proposed for retention occur at spatial scales larger than most projects implemented under the plan. Furthermore, population processes for most of the proposed MIS occur at temporal scales that do not match the temporal scale of changes from projects. Therefore, meaningful project-scale population monitoring is not feasible for these species.

In addition to challenges related to a mismatch in spatial scale between MIS populations and management projects, the MIS program faces significant problems relating MIS trends to management of the forest. Therefore, our approach with MIS is cautionary; PSICC seeks to monitor the proposed MIS. If trend data demonstrates problems (defined as 25% change "trigger points" in the Plan), then closer analysis will be pursued and management changed if a review of existing data suggests that management is likely responsible for the habitat or population changes.

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## APPENDIX B

### Summary of Comments Received During Scoping

**Table B-1. Summary of Comments Received During the Pre-scoping and Public Comment Period**

Comment	Response
<b>1. Monitoring Related</b>	
<p>The Amendment is an effort by FS to evade monitoring responsibilities by dropping species from MIS list rather than design &amp; implement a strong monitoring program as required by both NFMA and principles of good land stewardship. [1 – page 1]</p>	<p>This amendment does not evade monitoring responsibilities. Rather, it modifies them in light of recently obtained information and aligns them with available monitoring resources. Dropping ineffective and redundant species from MIS list would allow limited monitoring funds to be focused on those species most beneficial as management indicators, thus developing a strong monitoring program as required by NFMA and principles of good land stewardship.</p>
<p>It is unclear if impacts from all major land uses would be observed by monitoring the proposed list. [1 – page 2]</p>	<p>In both Alternatives, management activities that occur on the PSICC are associated with a MIS, as identified in the EA and BE (Appendix D).</p>
<p>Monitoring species on the proposed list ... “will not provide the necessary ecosystem health and species viability information.” [1 – page 3]</p>	<p>The proposed MIS list identifies the most useful species from the 1984 Plan to monitor and evaluate major management activities with species population trends. Habitat capability, viability and diversity will continue to be monitored for all species with identified viability issues.</p>
<p>Scaled quail would not be a useful MIS due to cyclic populations; agreed with decision to drop turkey, jackrabbits and mule deer due to lack of methodology for monitoring abundance [2 – page 1]</p>	<p>PSICC agrees with rationale to remove these species, as is substantiated in the MIS Review (Appendix A).</p>
<p>Retain pronghorn antelope ... populations can be monitored at the Grassland scale and changes in antelope abundance could potentially be related to management activities on the Grasslands [2 – page 1]</p>	<p>The MIS Review in Appendix A recommended removal based on inability to monitor at Grasslands scale and depredation removal on adjacent private lands, which directly impacts pronghorn population trends but have little correlation with PSICC major management activities.</p>
<p>Consider dropping game species, since monitoring data for these animals are readily available [6 – page 2 of letter]</p>	<p>After further review and additional analyses in FY2004, Alternative 2 – Proposed Action, was developed that would retain elk. This species has been determined to be the most useful MIS for relating major management activities to habitat capability and population trend for certain ecotypes (e.g., Management Indicator Groups) on the existing list.</p>
<p>Of the 3 Cimarron NG woodland species recommended for retention (northern oriole [aka Baltimore oriole and Bullock’s oriole] and the red-headed woodpecker), the red-headed woodpecker is the easiest to monitor and is of the greater conservation concern [3 – page 1]</p>	<p>Woodpeckers are not well represented in traditional point count surveys and are expensive to monitor enough areas to obtain a statistically valid sample size for scientific analysis. Monitoring Bullock’s orioles (much more common on the Grassland units) would be more effective and scientifically valid monitoring choice since less intensive, standard methods could be used for developing population trend.</p>

Comment	Response
<p>Recommend black-tailed prairie dog be added to the MIS list [for the Cimarron] – easily monitored, likely to be somewhat sensitive to management practices, is a species of conservation concern, relatively common on the Cimarron [3 – page 1].</p>	<p>This species is already on existing MIS list, and is retained as a MIS under both alternatives.</p>
<p><b>2. Legality of Amendment and/or Scoping Process, and Relationship to Other Policies, Procedures and Laws</b></p>	
<p>The “approach proposed in this Plan amendment” is not legal, ....” [1 – page 1]</p>	<p>Under NFMA 1982 Regulations (36 CFR 219.10(f)), the Forest Supervisor may amend the Plan based upon new information that may have a bearing on the objectives, guidelines and other contents of the Plan. The approach proposed in a Plan Amendment that would occur upon implementation of the proposed action is explicitly legal. The Forest Supervisor has the same discretion to amend the Plan under the NFMA 2005 Regulations.</p>
<p>There are “severe flaws in the MIS program ...” [1 - page 4]</p>	<p>This is outside the scope of this proposed action.</p>
<p>The “proposed MIS list revision will almost certainly contribute to more frequent listings of imperiled species under [ESA] and more extensive restrictions on FS management direction.” [1 – page 4]</p>	<p>FSM 2670 guides management activities implemented on all Forests and Grasslands with a focus on protecting Federal and State listed species and their habitat from irretrievable and irreversible harm. The FS does not have the authority to conduct activities, which will contribute to the listing of species under ESA. Species proposed for MIS list removal either have no viability concern, or will continue to be managed as sensitive species to address identified viability concerns.</p>
<p>The “proposed changes constitute a significant amendment to the Plan ... FS must prepare a full [EIS] ...” [1 – page 4]</p>	<p>Alternative 2 was evaluated against the established “significance” criteria for impacts. The analyses in this EA and its appendices determined potential effects to be not “significant”. The primary factors of “significance” address any changes in the level of commodity outputs or administrative standards and guidelines from the original Plan, neither of which are proposed.</p>
<p>It “makes little sense for the FS to proceed with this MIS list revision at all given that a complete Forest Plan revision is underway.” [1 – page 4]</p>	<p>A thorough review of the 40 MIS species listed in the Plan was begun in 2002 and completed in 2005 to assess the current species list’s efficacy against established criteria (Appendix A) as appropriate MIS. This amendment effort was undertaken as an interim measure to implement the recommendations in the MIS Review until the time that both Plan Revisions are completed – which will be in 2006 (for the Grassland Districts) and 2009 (for the Forest Districts). As part of each Plan Revision, the then-current MIS list will be reviewed, and it was intended that basic questions related to efficiency, redundancy and effectiveness of the existing MIS will not need to be reassessed, saving time and money in the Revision efforts.</p>
<p>The “proposed gutting of the FS’ MIS list is especially odd ... the Plan includes numerous provisions aimed at appropriate management of some important species, such as mule deer and elk. Dropping such species ... will prevent the FS from assessing whether the existing provisions are effective.” [1 page 4]</p>	<p>Alternative 2 – Proposed Action retains elk as a MIS. This alternative also proposes retaining the specific Big Game Management Areas General Direction and management guidelines for these species (other Management Areas’ habitat capability standards would retain the 40% default value for all species).</p>

Comment	Response
<p>The “FS is required to analyze a reasonable range of alternatives to the proposed MIS Amendment.” [1 – page 4]</p>	<p>The draft EA analyzed three alternatives, including No Action, draft Alternative 2 (based on the recommendations from the 2002 MIS Review), and the final Alternative 2 (Proposed Action) was updated with further analyses and recommendations based on comments received during public scoping, additional data and supplemental information received since the 2002 MIS Review was prepared. The scope of this amendment was limited to reducing the current MIS list using Region 2 selection criteria (Appendix A).</p>
<p>The “FS is only considering dropping species, and not adding species to fill key monitoring gaps ...” “...with minimal regard for the biological and management value of the resulting monitoring data.” [1 – page 4]</p>	<p>Retention or removal recommendations are based on an assessment of each species against objective selection criteria (Appendix A) within the scope of this amendment. The MIS Review specifically assessed with full regard the potential biological and management value of collecting monitoring data of all 40 current MIS. Adding new MIS was considered but determined to be inappropriate at this time.</p>
<p>The FS is encouraged to comply with all applicable state and federal laws protecting Native American cultural resources [4 – page 1]</p>	<p>The FS is required to comply with all applicable state and federal laws including those that protect Native American cultural resources. There would be no impacts to cultural resources from implementing the Proposed Action.</p>
<p>There is insufficient information has been disseminated to be considered a scoping notice for legal purposes, since necessary information for public comments was not included regarding the action the FS is considering taking; issue a meaningful and information scoping notice that explains what changes might be made to the list and why [6 – page 1 of letter]</p>	<p>The public scoping letter mailed to over 700 individuals included a table with the proposed modifications to the existing MIS list. Both the letter and table specified that the 2002 MIS Review compiled by the FS was the source of this information from where the Proposed Action was derived. In addition, the letter clearly stated that inquiries for additional information or questions regarding the proposed Plan Amendment could be addressed to the PSICC. Inquiries for this additional information were received during the scoping period identified in the letter. Finally, a formal comment period will follow the release of the EA.</p>
<p><b>3.Serving the Public’s Interests</b></p>	
<p>The Amendment will not serve the FS’s interests; is at odds with the interests of the public and publicly-owned lands. [1 – page 1]</p>	<p>The FS’s interests as responsible stewards of public lands motivated the need to reevaluate the species on the existing MIS list. The modification to the existing list as recommended in the 2002 MIS Review was based upon many years of implementation and monitoring experience. Those species recommended for retention are desirable and feasible as MIS, and can be effectively used as indicators to assess the affects of the major management activities on associated habitats across the PSICC.</p>
<p><b>4. Representation of Ecosystems (indication for ecosystems)</b></p>	
<p>The retention list for PSI “will not indicate for numerous important ecosystem types and conditions [1 – page 1]</p>	<p>The FS is not required to have indicators for all Plan land-types, but the list does address major habitats and management activities.</p>
<p>The proposed MIS list for Comanche NG does not include “shrub, pinyon-juniper, sage, or canyon species. The only riparian species ... Lewis’ woodpecker, which may not indicate well for mature riparian areas; includes only a single species for mixed grass prairie.” [1 – page 2]</p>	<p>Species were selected based on major management activities and their affected habitats. Lesser prairie chicken would be retained under both alternatives as an indicator for sandsage prairie. On the Comanche, there are no major management issues in piñon-juniper or canyon habitats; these habitats do not occur on the Cimarron. Alternative 2</p>

Comment	Response
<p>The proposed MIS list for Cimarron NG does not include “shrub, sage, pinyon-juniper, or canyon species; does include northern oriole and red-headed woodpecker for riparian areas, but these may not capture mature riparian habitat; includes only a single species for mixed grass habitat.” [1 - page 2]</p>	<p>proposes the use of northern (Bullock’s) oriole rather than Lewis’ woodpecker as an indicator for riparian habitats on the Comanche. Both EA alternatives propose retaining northern (Bullock’s) oriole on the Cimarron.</p>
<p>The proposed MIS list for PSI does not include “mid-elevation forest riparian, rocky slope and cliff, Lodgepole, low-elevation lake, alpine, sagebrush, montane or lower-elevation shrub, and pinyon-juniper” species; “includes only one, the yellow-bellied sapsucker, for aspen and this species may not indicate well for young or mid-seral aspen habitat.” ... includes only Lewis’ woodpecker for Douglas fir, and only one, northern three-toed woodpecker, for mature montane and subalpine forests. Only two species are included for aquatic habitats, ...” [1 – page 2]</p>	<p>There is no requirement to have indicators for all possible ecosystem land-types identified in the Plan, but the species retained in the proposed action does address major habitats and management activities per the evaluation criteria outlined in Appendix A.</p>
<p>The proposed MIS list (and existing list) does not include amphibians as indicators of soil conditions and water quality in wetlands and riparian areas [1 – page 2]</p>	<p>Adding new MIS is outside the scope of this project.</p>
<p>The proposed MIS list (and existing list) does not include plant species as indicators of “various habitat conditions and can be relatively easy to monitor given their generally sessile nature.” [1 – page 2]</p>	
<p>“... proposed removal of beaver ... beavers play a critical role in shaping natural watershed conditions and supporting healthy aquatic habitats ... ensuring that FS management activities are compatible with beavers’ role in riparian and aquatic systems, ... not to drop them as an MIS.” [7 – page 1]</p>	<p>MIS are not selected based on an individual’s or group’s perceived value or role in the ecosystem, but are chosen based on the selection criteria and in relation to other current MIS (see Appendix A). Wilson’s warbler was determined to not be the most useful indicator for riparian habitats based on local life history, major management activities, redundancy and ability to monitor effectively. Brook trout would be retained under both alternatives.</p>
<p>Keep beaver as an indicator; agree to drop Wilson’s Warbler &amp; brook trout as these 2 species are indicators for the same habitat [8 – page 1]</p>	
<p>Keep deer to monitor trend related in road densities – otherwise, dropping both deer and elk removes road density analysis conducted with the HABCAP model (8 – page 1]</p>	<p>Implementing Alternative 2 would result in removing deer and keeping elk as a MIS; Alternative 1 (No Action) would retain deer and elk as MIS. However, selecting either alternative for implementation would not cause any change to management goals and objectives for these species even in Management Area 5B (where emphasis is placed on managing big game). The current road density analyses conducted with the HABCAP model for projects would continue.</p>

Comment	Response
Retain MIS for ‘existing and proposed old growth forests’ [6 – page 2 of letter]	Old growth is not a Plan land-type, but a structural description. The MIS Review used land-types (combined into Management Indicator Groups) from the Plan in conjunction with major management activities and specific evaluation criteria (see Appendix A) for the MIS selection process.
Specific to the Cimarron NG and grassland ecosystems, northern oriole and red-headed woodpecker are woodland species. These 2 species are recommended for retention on the Cimarron MIS list – the hope is that disproportionate management and conservation attention is not given to the relatively minor woodland habitats on the Cimarron [3 – page 1]	Alternative 2 proposes retaining northern (Bullock’s) oriole, but not redheaded woodpecker. Riparian woodland areas are a vital habitat capability and are affected by major management activities (Appendix A) on the Cimarron NG.
Northern oriole is actually 2 species – Baltimore oriole & Bullock’s oriole – for a total of 3 of the 7 MIS on the retention list representing woodland habitats [3 – page 1]	Since the 1984 Plan was completed, the northern oriole has been split into the Baltimore and Bullock’s oriole. Bullock’s oriole is more numerous on the Grassland units, and would be the focus of continued monitoring efforts and analysis.
Concur with recommendation to remove the 6 species on the Cimarron list – they are either habitat generalist and unlikely to be sensitive to management, or are too infrequent to be easily monitored at the grassland scale [3 – page 1]	Alternative 2 reflects the analyses recommendations made in the MIS Review.
<b>5.Indication for all Land Uses</b>	
“... proposed MIS list does not include species sufficiently indicating for the range of key habitat types and the range of major land uses ...” MIS list should include species that indicate for all key land uses across the major habitat types [1 – page 2]	The proposed new MIS list does directly assess the Plan’s land-types by combining them into Management Indicator Groups, matches them with major management activities and selects appropriate indicator species (within the scope of existing MIS list) to be retained. See Appendix A.
“... FS must consider the full range of major management activities on the land management unit.” [1 – page 4]	The proposed action does consider the full range of major management activities. See Table 4 and the Species Reviews contained in Appendix A.
<b>6.Impact Analysis</b>	
There is no analysis of how various management actions may affect species. [1 – page 2]	The scope of this proposed action is a Plan-level review of the existing MIS list, and in doing so to consider the responsiveness of species to major management activities. Analyses of potential future management actions occur at the project level.
The primary concern regarding this project [MIS amendment] is the protection of Native American cultural resources potentially impacted by any survey conducted; avoid Native American cultural resources whenever possible [4 - page 1]	The FS is required to comply with all applicable state and federal laws including those that protect Native American cultural resources. There are no impacts to cultural resources in the proposed action; specific management impacts are analyzed at the project level.
<b>7.Review Process and Resultant Proposed MIS List</b>	



Comment	Response
The rationale for dropping many species is either arbitrary or misguided, unreasonable and indefensible [1 – page 3]	The proposals are based on an assessment of more than 20 years of implementation and monitoring experience with the species on the list and the best available scientific information. The rationale for species retention adheres to Evaluation Criteria on page 3 of Appendix A, as well as other factors within the MIS Review. See Appendices A and D.
Rationale used by the FS: factors other than FS management actions bear heavily on their population status and trends; population levels must not be affected by anything other than FS land management activities. [1 – page 3]	It would be impossible to select species whose populations are only affected by FS actions, but proposed modifications to the existing MIS list are based on species, which may be most useful in indicating the effects of the major FS activities.
Rationale used by the FS: difficulty in monitoring species (i.e. monitoring big game species is not feasible is an odd and indefensible rationale since CDOW already monitors these species; pine marten monitoring is not inordinately difficult and their close association with mature forest conditions should justify retention as MIS). [1 – page 3]	Elk is retained in the proposed action for which CDOW data is available. Although pine marten would not be retained as a MIS, this species is a Region 2 Regional Forester Sensitive Species, and would continue to be managed according to Forest Service policy and guidelines (FSM 2670.22 and 2672.1). Page 25 of Appendix A discusses the rationale for not retaining marten as a MIS. Structure was not one the selection Evaluation Criteria (see page 3 of Appendix A); habitat (Management Indicator Groups) and major management activities in those habitats were selection criteria (Table 8 in Appendix A). Marten require hundreds of survey days for statistically valid trend data sets.
Rationale used by the FS: species cannot easily be monitored at project level (i.e. because species inhabit landscapes at larger than project scale and move across landscapes, monitoring would provide little useful management information). [1 – page 4]	Actual selection criteria and analyses rationale are contained in the MIS Species Review in Appendix A.
Rationale used by the FS: species is a generalist and not tied to any particular habitat type. [1 – page 4]	

**Index to Source of Comments:**

- 1 = Letter of September 9, 2003, from Center for Native Ecosystems, Boulder, Colorado
- 2 = Email message on record of June 9, 2003, documenting meeting between USDA-FS/Comanche NG and CDOW/La Junta, Colorado
- 3 = Letter of August 25, 2003, from William H. Busby, University of Kansas, Lawrence, Kansas
- 4 = Letter of August 4, 2003, from Karen Wilde Rogers, CO Commission of Indian Affairs
- 5 = Letter of August 11, 2003, from Tom Troxel, Director, Intermountain Forest Association, Rocky Mountain Division, Rapid City, South Dakota
- 6 = Email of August 19, 2003, from Judy Enderle, Prairie Preservation Alliance, Denver, Colorado
- 7 = Email of August 15, 2003, from David Nickum, Exec Director, Colorado Trout Unlimited, Boulder, Colorado
- 8 = Memo on record of July 03, 2003, documenting meeting between USDA-FS/PSICC and CDOW/Salida, Colorado

## APPENDIX C

### PROPOSED PLAN CHANGES

A decision to select Alternative 1 or Alternative 2 (Preferred Alternative), would result in certain changes to the existing wording in the Plan. Only the changes in existing wording are shown below, which would be reflected in a subsequent Plan Amendment, as part of the overall action.

**Table C-1. Proposed Changes to Chapter III of the Plan (USDA-FS 1984)**

Note – In the Plan, there are 21 designated MAs, each emphasizing a specific resource. Of these 21, only 11 relate directly to MIS and/or habitat needs of specific MIS.

Pertinent Section of the Plan	Existing Wording Alternative 1 No Action	Proposed Wording Alternative 2 Proposed Action
<b>Chapter III pages III-28 &amp; III-29 General Direction</b>	The following species are management indicator species (MIS) for the respective administrative units:	The following species are management indicator species (MIS) for the respective administrative units:
	<b>Pike &amp; San Isabel National Forests</b> Beaver Bighorn sheep Mule deer Elk Pine marten Abert's squirrel Mountain bluebird Peregrine falcon Mallard Water pipit Yellow-bellied sapsucker Green-tailed towhee Turkey Lewis' woodpecker Northern three-toed woodpecker Black-throated gray warbler Virginia's warbler Wilson's warbler Brook trout Greenback cutthroat trout	<b>Pike &amp; San Isabel National Forests</b> Rocky Mountain elk Abert's squirrel Greenback cutthroat trout Brook trout

Pertinent Section of the Plan	Existing Wording Alternative 1 No Action	Proposed Wording Alternative 2 Proposed Action
	<p><b>Comanche National Grassland</b></p> <p>Antelope Bobcat Mule deer Black-tailed prairie dog Black-tailed jackrabbit Long-billed curlew Ferruginous hawk Northern oriole Burrowing owl Great horned owl Lesser prairie chicken Scaled quail Cassin’s sparrow Turkey Lewis’ woodpecker Bewick’s wren Cliff swallow</p>	<p><b>Comanche National Grassland</b></p> <p>Black-tailed prairie dog Lesser prairie chicken Long-billed curlew Bullock’s (Northern) oriole</p>
	<p><b>Cimarron National Grassland</b></p> <p>Mule deer White-tailed deer Black-tailed prairie dog Bobwhite Mourning dove Mississippi kite McCown’s longspur Northern oriole Burrowing owl Lesser prairie chicken Scaled quail Cassin’s sparrow Turkey Red-headed woodpecker</p>	<p><b>Cimarron National Grassland</b></p> <p>Black-tailed prairie dog Lesser prairie chicken Bullock’s (Northern) oriole</p>
<p><b>Chapter III</b>  <b>pages III-28 &amp; III-29</b>  <b>General Direction</b></p>	<p><b>PROVIDE FOR THE HABITAT NEEDS OF MIS SPECIES ON THE NATIONAL FOREST.</b></p> <p>a. Bighorn sheep – protect lambing concentration areas from disturbance April 1 – June 15, annually. Protect lambing areas from habitat modification.</p> <p>b. Elk and mule deer – protect calving and fawning concentration areas from habitat modification and disturbance from May 15 – June 30.</p> <p>c. Abert’s squirrel – protect or provide for one Abert’s squirrel nest tree clump (0.1 acres of 9” to 22” DBH ponderosa pine with a basal area of 180 to 220 and an interlocking canopy) per six acres on ponderosa pine sale areas</p>	<p>Removed</p> <p>Elk– protect calving and fawning concentration areas from habitat modification and disturbance from May 15 – June 30.</p> <p>Abert’s squirrel – protect or provide for one Abert’s squirrel nest tree clump (0.1 acres of 9” to 22” DBH ponderosa pine with a basal area of 180 to 220 and an interlocking canopy) per six acres on ponderosa pine sale areas</p>

Pertinent Section of the Plan	Existing Wording Alternative 1 No Action	Proposed Wording Alternative 2 Proposed Action
	d. Turkey – protect two turkey roost tree clumps/section in ponderosa pine sale areas, if available. Minimum size of a clump is one-tenth acre.	Removed
<b>PROVIDE FOR THE HABITAT NEEDS OF MIS SPECIES ON THE NATIONAL GRASSLANDS.</b>		
	a. Ferruginous hawk, great horned owl, Mississippi kite – protect all large cottonwood and other trees which have had raptor nests. Provide and maintain mature deciduous trees where clumps exist or potentially exist.	Removed
	b. Long-billed curlew – provide habitat of open-buffalo grama Shortgrass adjacent to fields of mid-grasses and forbs. Protect established nesting areas.	Long-billed curlew - provide heterogeneous mosaic of open buffalo-grama shortgrass prairie interspersed with areas covered with mid-height grasses and forbs.
	c. Lewis’ woodpecker, red-headed woodpecker, turkey, mule deer, white-tailed deer – maintain understory vegetation in riparian and adjacent areas. Maintain roost tree groups for turkey. Maintain and provide for the recruitment of mature deciduous trees.	Bullock’s (Northern) oriole - maintain understory vegetation in riparian and adjacent areas. Maintain a diverse age and size structure in riparian cottonwood populations, and provide for the recruitment of mature deciduous trees.
	d. Scaled quail – provide small soap weed, and sagebrush and mid-grass habitats.	Removed
	e. Black-tailed prairie dog – maintain the size and location of prairie dog towns in accordance with the prairie dog management plan.	Black-tailed prairie dog – maintain the size and location of black-tailed prairie dog towns in accordance with the black tailed-prairie dog management objective.
	f. Antelope – construct and reconstruct fences so they are not a barrier to antelope movement.	Removed
	g. Bobwhite quail – provide adequate food and cover habitat in riparian and adjacent areas.	Removed
	<u>Guideline a.</u> In antelope habitat, construct fences so that the top strand is not over 40 inches high and the bottom strand is not less than 18 inches high.	Removed
	<u>Guideline b.</u> Conduct black-footed ferret surveys in all prairie dog control areas.	<u>Guideline.</u> Conduct black-footed ferret surveys in all prairie dog control areas.
<b>Chapter III-137 Management Area 4B</b>	Manage for habitat needs of management indicator species.	Manage for habitat needs of management indicator species.
	a. Maintain habitat capability at a level at least 80% of potential capability.	a. Maintain habitat capability at a level at least 80% of potential capability.
	b. Protect all lesser prairie chicken leks from surface disturbance at all time. Protect nesting habitat from surface disturbance from April 15 – June 30.	b. Protect all lesser prairie chicken leks from surface disturbance at all time. Protect nesting habitat from surface disturbance from April 15 – June 30.

<b>Pertinent Section of the Plan</b>	<b>Existing Wording Alternative 1 No Action</b>	<b>Proposed Wording Alternative 2 Proposed Action</b>
	c. Livestock and wild herbivore allowable forage use in lesser prairie chicken habitat will not exceed 40 percent.	c. Livestock and wild herbivore allowable forage use in lesser prairie chicken habitat will not exceed 40 percent.
<b>Chapter III-145 Management Area 4D</b>	Manage for habitat needs of management indicator species.	Manage for habitat needs of management indicator species.
	a. Maintain big game hiding cover next to aspen viewing areas, and along the edge of arterial and collector roads.	Removed
	b. Maintain habitat capability at a level at least 70% of potential capability for aspen dependent and big game species.	b. Maintain habitat capability at a level at least 70% of pre-project levels for aspen dependent and big game species.

The following table displays the existing language in the Plan and proposed wording amend Chapter IV-6 - Monitoring and Evaluation, as would be modified by implementing Alternatives 2 or 3.

**Table C-2. Proposed Changes to Chapter IV of the Plan (USDA-FS 1984) – Monitoring and Evaluation**

<b>Pertinent Section of the Plan</b>	<b>Existing Language from Table IV-1 Alternative 1</b>	<b>Proposed Language Alternative 2</b>
	<b>Chapter IV- 6 Monitoring &amp; Evaluation</b>	<p><b>Actions, Effects or Resources to be Monitored/Fish and Wildlife:</b> Trend of Management Indicator Species Habitats and Populations</p> <p><b>Monitoring Techniques or Data Sources:</b> Habitat capability assessments, population estimates by State Wildlife Agencies, Resource Information System, Professional judgment by Forest Service biologists and activity reviews.</p> <p><b>Precision Reliability:</b> Moderate</p> <p><b>Measurement Frequency:</b> 5 years</p> <p><b>Reporting Period:</b> 5 years</p>

Pertinent Section of the Plan	Existing Language from Table IV-1 Alternative 1	Proposed Language
		Alternative 2
	<b>Variability which would Initiate Evaluation:</b> ± 25% change in species habitat capability or population size.	<b>Variability which would Initiate Evaluation:</b> ± 25% change in species habitat capability or population size.

**There are no other proposed changes to the Plan.**

## APPENDIX D

### BIOLOGICAL EVALUATION FOR IMPLEMENTING AMENDMENT 30 TO THE LAND AND RESOURCE MANAGEMENT PLAN FOR THE PIKE & SAN ISABEL NATIONAL FORESTS, CIMARRON & COMANCHE NATIONAL GRASSLANDS

#### INTRODUCTION

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The purpose of this Biological Evaluation (BE) is to document any potential effects of implementing the range of Alternatives addressed in the Environmental Assessment (EA) for Amendment 30 on Federally-listed, proposed or candidate species, designated critical habitat or proposed critical habitat, and Region 2 sensitive species. Documentation of these potential effects will ensure that future land management decisions are made with the benefit of such knowledge.

The purpose of the action is to modify, through a Plan Amendment, the existing Management Indicator Species (MIS) list and the associated sections of Chapters III and IV of the Plan. The full disclosure of the effects and/or impacts to species and habitats is documented in the EA of which this BE is a part of and relies upon for reference.

#### PROJECT AREA DESCRIPTION AND LOCATION

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The project area includes all lands managed by the PSICC in the States of Colorado and Kansas.

#### ENDANGERED, THREATENED & SENSITIVE SPECIES

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**Table D-1. Current Sensitive Species that were designated MIS in the 1984 Plan.**

<b>Sensitive Species</b>	<b>Retained as MIS</b>	<b>Removed as MIS</b>
Black-tailed prairie dog	X	
Burrowing owl	X	
Cassin's sparrow		X
Lesser prairie chicken	X	
McCown's longspur		X
Ferruginous hawk		X
Lewis' woodpecker		X
Long-billed curlew	X	
Northern 3-toed woodpecker		X
Peregrine falcon		X
Pine marten		X

## **CURRENT REGIONAL FORESTER SENSITIVE SPECIES THAT WERE NOT DESIGNATED MIS IN THE 1984 PLAN**

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### **Vertebrates**

Fringed myotis, spotted bat, Townsend's big-eared bat, Gunnison's prairie dog, swift fox, river otter, common hog-nosed skunk, American bittern, northern goshawk, northern harrier, Gunnison sage-grouse, greater sage-grouse, white-tailed ptarmigan, mountain plover, black tern, yellow-billed cuckoo, boreal owl, flammulated owl, short-eared owl, black swift, olive-sided flycatcher, purple martin, loggerhead shrike, Brewer's sparrow, grasshopper sparrow, sage sparrow, chestnut-collared longspur, boreal toad, plains leopard frog, northern leopard frog, Massasauga rattlesnake, and southern redbelly dace.

### **Invertebrates**

Rocky Mountain capshell snail, Ottoe skipper, Hudsonian emerald, and regal fritillary butterfly.

### **Plants**

*Botrychium lineare*, *Carex leptalea*, *Carex livida*, *Cypripedium parviflorum*, *Epipactis gigantea*, *Eriophorum altaicum* var. *neogaeum*, *Eriophorum gracile*, *Festuca campestris*, *Festuca hallii*, *Kobresia simpliciuscula*, *Malaxis brachypoda*, *Ptilagrostis porteri*, *Aquilegia chrysantha* var. *rydbergii*, *Armeria maritima* ssp. *sibirica*, *Asclepias uncialis*, *Braya glabella*, *Chenopodium cycloids*, *Draba exunguiculata*, *Draba grayana*, *Draba smithii*, *Eriogonum brandegeei*, *Machaeranthera coloradoensis*, *Mimulus gemmiparus*, *Oenothera harringtonii*, *Parnassia kotzebuei*, *Penstemon degeneri*, *Penstemon jamesii*, *Potentilla rupicola*, *Primula egaliksensis*, *Ranunculus karelinii*, *Rubus arcticus* var. *acaulis*, *Salix arizonica*, *Salix candida*, *Salix myrtilifolia*, *Salix serissima*, and *Viola selkirkii*.

## **PROPOSED, THREATENED AND ENDANGERED SPECIES OCCURRING ON THE PSICC AS OF JANUARY 2005**

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### **Vertebrates**

Canada lynx, Preble's meadow jumping mouse, Mexican spotted owl, bald eagle, and greenback cutthroat trout.

### **Invertebrates**

Pawnee montane skipper

### **Plants**

*Eutrema penlandii*



## **ANALYSIS OF DIRECT, INDIRECT AND CUMULATIVE EFFECTS**

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### **Alternative 1 – No Action**

There is no proposal to change the existing situation (all existing MIS would be retained on the list). Implementing this Alternative would not contribute toward Federal listing of any of the 11 Region 2 sensitive species or result in a loss of species viability in the Planning Area. Therefore:

- There would be **no effect** on the Federally-listed greenback cutthroat trout by retaining this species as a MIS.
- There would be **no impact** on the 11 Region 2 sensitive species by retaining them as MIS.

### **Alternative 2 – Proposed Action**

This Alternative recommends retaining the Federally-listed greenback cutthroat trout and removing eight Region 2 sensitive species as MIS. Removing sensitive species from the existing MIS list will not result in a change in management or protection for these species or their habitats. A species chosen as a MIS is selected because it serves as an effective and efficient species to evaluate the impacts of management activities. Because these eight species will retain sensitive species status under this Alternative, Forest Service directives related to sensitive species management continue to apply. From FSM 2672.1 – “Sensitive species ... must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for Federal listing.” For the sensitive species that would be removed from the existing MIS list, sufficient monitoring would continue to address any management or viability concerns.

## **FEDERALLY LISTED SPECIES**

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### **Direct, Indirect & Cumulative Effects**

**No Effect:** There is no change of the federally listed species on the new MIS list in Alternative 2 – Proposed Action. No projects or activities are authorized under this amendment to the Plan. Consultation with the U.S. Fish & Wildlife Service was not required because the Proposed Action will have no effect on any threatened, endangered or proposed species. Any future projects or activities must be analyzed for potential effects to listed and proposed species with concurrence (if necessary) by the U.S. Fish & Wildlife Service.

## **USDA FOREST SERVICE REGION 2 REGIONAL FORESTER SENSITIVE SPECIES**

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### **Direct & Indirect Effects**

There are no direct effects to any Regional Forester Sensitive Species (RFSS) from a change in the MIS list, because no activities are authorized or implemented under the preferred alternative.

There are no indirect effects from a change in the MIS list to the four RFSS that are being retained as MIS or RFSS that were not on the MIS list as shown in the Plan.

Approximately 125,000 acres of spruce/fir and mixed-conifer on the PSICC are designated as Management Area 4B in the Plan which was designated to emphasize habitat capability for MIS and related species. Plan General Direction indicates that conflicts in management alternatives in these and other 4B areas should be decided in favor of wildlife. Lewis' woodpecker, northern three-toed woodpecker and pine marten are the three RFSS in these habitats being removed from the MIS list under the preferred alternative. "Habitat for each species on the forest will be maintained at least at 40% or more of potential" (Plan Chapter III-32). In 4B Management Areas, "Maintain habitat capability at a level of 80% of potential capability" (Plan Chapter III-137) for MIS.

Also, some RFSS being removed from the current MIS list have further prescription standards within the Plan's 4B Management Area designations:

- Species commonly hunted or trapped<sup>6</sup> (pine marten) [Plan Direction]
  - In forested areas of a unit, 15% or more should be maintained in old growth (Plan Chapter III-138). [Plan Standards & Guidelines]
  - Maintain at least 80% habitat effectiveness (Plan Chapter III-138). [Plan Standards & Guidelines]
- Maintain standing dead trees (Lewis' and 3-toed woodpeckers) [Plan Direction]
  - Provide snags needed to maintain habitat capability for cavity-dependent wildlife at 80% or more of potential (Plan Chapter III-146). [Plan Standards & Guidelines]

Although the Standards and Guidelines minimum habitat capability requirements within 4B Management Areas for seven RFSS being removed from the MIS list are being reduced from 80% to 40%, this retention reduction does not mean actual habitat capabilities will be reduced by future proposed projects. The General Direction for designated 4B Management Areas still applies, with an overall emphasis on benefiting wildlife. Any project with the potential to impact wildlife and its related habitats must be analyzed for effects on all Proposed, Threatened, Endangered and RFSS. Maintaining species viability is a National Forest Management Act (NFMA) requirement. Habitat capability is directly related to species viability. Although a specific project may reduce local habitat capability for some species temporarily, the forest-wide habitat capability would remain virtually unchanged when measured on a percent basis. The 40% provides a project minimum requirement in habitat maintenance, not a Plan objective. Furthermore, in areas containing Abert's squirrel habitat (approximately 75% of the spruce/fir

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<sup>6</sup> Legal trapping of pine marten in Colorado ended in 1996.

and mixed conifer 4B habitat areas affected by the removal of pine marten, Lewis' and three-toed woodpeckers), its life-history requirements will necessitate maintaining the habitat capability for these species near the 80% in order to meet MIS recommendations, Standards and Guidelines for Abert's squirrel within 4B Management Areas. The maximum potential reduction of habitat for pine marten, Lewis' and three-toed woodpeckers is approximately 38% within 4B Management Areas (about 9% forest-wide) if all of their habitats were reduced to the 40% habitat capability minimum within the MIS-emphasis management areas (assuming all projects had maximum allowable negative impacts). This potential reduction would not occur, however, as Plan General Direction clearly outlines 4B Management Areas as wildlife emphasis and many treatments are designed to enhance down wood and snag retention for these and other wildlife species occurring on the PSICC.

There will be no indirect impacts to peregrine falcon, ferruginous hawk, Cassin's sparrow, and McCown's longspur from their removal off the MIS list. These four RFSS will still receive the same analysis and NFMA viability protection requirements for any future project occurring within their potential habitat that they presently enjoy.

- Occupied and historic peregrine falcon eyries/territories will continue to be protected on National Forest System (NFS) lands, and no projects within any potential cliff habitats are anticipated during the life of the current Plan.
- Occupied and historic ferruginous hawk nests/territories will continue to be protected on NFS lands, and due to their close association with shortgrass/prairie dog colonies on the Comanche National Grassland, they will continue to receive MIS-level consideration with the retention of black-tailed prairie dogs as a MIS for shortgrass prairie.
- Cassin's sparrow also breeds in the shortgrass prairie, but McCown's longspur is only a sporadic winter/migratory resident on the Cimarron National Grassland. These two species are also closely associated with shortgrass prairie, and their selection will not change the MIS habitat capability requirements being maintained for black-tailed prairie dogs in this habitat type. Removal of both Cassin's sparrow and McCown's longspur will have no effect on the 80% habitat capability requirements in the Plan represented by prairie dogs on both grasslands shortgrass prairie habitats.

### **Cumulative Effects**

Fire suppression during Plan implementation has allowed many areas of the PSICC forests to become densely stocked. Other portions have smaller diameter trees in a relatively open canopied forest (30-50% canopy closure) remaining where historic timber harvesting removed many of the larger trees. The Hayman burn in 2002 and other recent wildfires (~200,000 acres) will continue to regenerate and retain a portion of its current high snag density, with down wood increasing as snags deteriorate and fall. Most mining claims on the PSICC occur at high elevations outside of TEPS vertebrate species habitats. The wilderness areas are anticipated to retain most of the current habitat characteristics with few anthropogenic disturbances. There has been some sub-dividing of the private land adjacent to the National Forest boundaries and there will probably be additional development of these private lands in the future. Some (approximately 25% of acreage) future projects within 4B Management Areas will have 50% reduced requirements for maintaining minimum habitat capability for three RFSS (pine marten, Lewis' and three-toed woodpeckers). However, whether any real cumulative habitat capability

reductions occur in future projects between now and 2009 (the scheduled completion year for Forests Plan Revision) are unlikely if normal forest prescriptions for snags/down wood are used<sup>7</sup>. Projects currently occurring on the PSICC contain both positive and negative short-term impacts in habitat capability for these three RFSS. Although the removal of the MIS 80% habitat capability in 4B Management Areas to the Plan standard of 40% has the potential for overall habitat loss over the next four years (for pine marten, Lewis' and three-toed woodpecker), any estimate of actual cumulative effects would be speculative because this amendment only addresses the MIS list and proposes no specific management actions.

## **SUMMARY OF DETERMINATION OF IMPACTS**

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### **Plants**

Based on the above stated rationale of no change to any TEPS plant, the **Direct/Indirect/Cumulative Effects Analysis** is **NO IMPACT** to any of the Forest TEPS plant species (*Eutrema penlandii*, *Botrychium lineare*, *Carex leptalea*, *Carex livida*, *Cypripedium parviflorum*, *Epipactis gigantea*, *Eriophorum altaicum* var. *neogaeum*, *Eriophorum gracile*, *Festuca campestris*, *Festuca hallii*, *Kobresia simpliciuscula*, *Malaxis brachypoda*, *Ptilagrostis porteri*, *Aquilegia chrysantha* var. *rydbergii*, *Armeria maritima* ssp. *sibirica*, *Asclepias uncialis*, *Braya glabella*, *Chenopodium cycloids*, *Draba exunguiculata*, *Draba grayana*, *Draba smithii*, *Eriogonum brandegeei*, *Machaeranthera coloradoensis*, *Mimulus gemmiparus*, *Oenothera harringtonii*, *Parnassia kotzebuei*, *Penstemon degeneri*, *Penstemon jamesii*, *Potentilla rupincola*, *Primula egaliksensis*, *Ranunculus karelinii* (*R. gelidus* ssp. *grayi*), *Rubus arcticus* var. *acaulis*, *Salix arizonica*, *Salix candida*, *Salix myrtilifolia*, *Salix serissima*, and *Viola selkirkii*).

### **Vertebrates & Invertebrates**

There are no direct effects from a change in the MIS list to any species (**NO IMPACT**).

It is unlikely that there would be any indirect, or cumulative effects to the TEPS vertebrates/invertebrates species on the PSICC (except for pine marten, Lewis' woodpecker and three-toed woodpecker) for this Proposed Action due to the previously listed reasons found in the effects analysis of this BE. Therefore except for pine marten, Lewis' woodpecker and northern three-toed woodpecker, the **Indirect/Cumulative Effects Determination** is **NO IMPACT** to any of the Forest TEPS vertebrates/invertebrates species (Canada lynx, Preble's meadow jumping mouse, Mexican spotted owl, burrowing owl, bald eagle, peregrine falcon, greenback cutthroat trout, Pawnee montane skipper, fringed myotis, spotted bat, Townsend's big-eared bat, Gunnison's prairie dog, black-tailed prairie dog, swift fox, river otter, common hog-nosed skunk, American bittern, northern goshawk, ferruginous hawk, northern harrier, Gunnison sage-grouse, greater sage-grouse, white-tailed ptarmigan, lesser prairie chicken, mountain plover, black tern, yellow-billed cuckoo, long-billed curlew, boreal owl, flammulated owl, short-eared owl, black swift, olive-sided flycatcher, purple martin, loggerhead shrike, Brewer's sparrow, grasshopper sparrow, sage sparrow, Cassin's sparrow, chestnut-collared longspur, McCown's longspur,

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<sup>7</sup> PSICC Wildlife Biologists recommend 7-10 snags per acre and 200-600 ft<sup>2</sup> of down wood per acre in timber treatment areas containing the capacity. {Snags include soft and small snags}

boreal toad, plains leopard frog, northern leopard frog, Massasauga rattlesnake, and southern redbelly dace).

For three RFSS (pine marten, Lewis' woodpecker, three-toed woodpecker) the affect of the Proposed Action **MAY ADVERSELY IMPACT INDIVIDUALS, BUT NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE**, for indirect and cumulative effects.

### **Additional Mitigation Measures**

Additional mitigation measures are not necessary for the species addressed in this evaluation/assessment. Measures needed to protect the three impacted species and maintain their habitat capability and viability have been incorporated into the NFMA requirements for RFSS.

There are 40 species on the existing MIS list for the PSICC. Of those, only one species is listed as threatened under the Endangered Species Act or 1972, as amended (ESA), and 11 species are on the Forest Services' Region 2 sensitive species list (see Attachment 1). The Proposed Action only involves modifying the existing MIS list, and updating the monitoring and evaluation requirements, as necessary – as described in the Plan (Chapters III and IV).

As described in the EA for the Plan Amendment, the potential effects/impacts to the 12 species from implementing either of the two alternatives are based upon the following:

- There are no anticipated changes to the goals and objectives, standards, and guidelines of the Plan;
- The direct, indirect, and cumulative effects of the Alternatives would not differ from those disclosed in the 1984 Final Environmental Impact Statement (FEIS) for the Plan;
- Implementing the Alternative 2 – Proposed Action would not dictate, result in or propose any ground-disturbing activities (i.e. no habitat impacts are associated with the action);
- There would be no irreversible or irretrievable commitment of resources permitted.
- For each site-specific project planned for implementation in the future, a separate BE will be prepared that evaluates the potential effects/impacts from project implementation on those listed or sensitive species that occur within the project area.

### **REFERENCES**

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EA for Plan Amendment 30, August 2005. Copy on file at the Supervisor's Office of the PSICC.

**PREPARED BY:** /s/Brian Cox

Title: Wildlife, Fisheries, Rare Plant Program Leader

Date: February 9, 2005

**Attachment D-1**

A letter from the U.S. Fish and Wildlife Service dated October 17, 2003 listed the candidate, proposed, threatened and endangered species that are known to occur or have the potential to occur in the Planning Area. On November 3, 2003, the Regional Forester updated the Region 2 sensitive species list. Copies of both lists are on file at the Supervisor’s Office of the PSICC. From those lists, the current Federally listed and Region 2 sensitive species on the existing MIS list and proposed modifications to the existing MIS list, by Alternative, are shown below in Table D-2.

**Table D-2. Existing MIS that are either Federally-listed or considered Regionally Sensitive**

MIS	Species Status				FS Sensitive	Alternative 1	Alternative 2
	Federal <sup>b</sup>					No Action	Proposed Action
	E	T	P	C		Retain	Retain
<b>CIMARRON NATIONAL GRASSLAND</b>							
Black-tailed prairie dog					X	X	X
Bobwhite						X	
Burrowing owl					X	X	
Cassin’s sparrow					X	X	
Lesser prairie chicken					X	X	X
McCown’s longspur					X	X	
Mississippi kite						X	
Mourning dove						X	
Mule deer						X	
Northern/Bullock’s oriole						X	X
Red-headed woodpecker*						X	
Scaled quail						X	
Turkey						X	
White-tailed deer						X	
<b>COMANCHE NATIONAL GRASSLAND</b>							
Antelope						X	
Bewick’s wren						X	
Black-tailed jackrabbit						X	
Black-tailed prairie dog					X	X	X
Bobcat						X	
Burrowing owl					X	X	
Cassin’s sparrow					X	X	
Cliff swallow						X	
Ferruginous hawk					X	X	
Great horned owl						X	
Lesser prairie chicken					X	X	X
Lewis’ woodpecker					X	X	
Long-billed curlew					X	X	X
Mule deer						X	
Northern/Bullock’s oriole						X	X
Scaled quail						X	
Turkey						X	
<b>PIKE &amp; SAN ISABEL NATIONAL FORESTS</b>							
Abert’s squirrel						X	X
Beaver						X	
Bighorn sheep						X	

MIS	Species Status				FS Sensitive	Alternative 1 No Action	Alternative 2 Proposed Action
	Federal <sup>b</sup>					Retain	Retain
	E	T	P	C			
Black-throated gray warbler						X	
Brook trout						X	X
Elk						X	X
Greenback cutthroat trout		X				X	X
Green-tailed towhee						X	
Lewis' woodpecker					X	X	
Mallard						X	
Mountain bluebird						X	
Mule deer						X	
Northern 3-toed woodpecker					X	X	
Peregrine falcon					X	X	
Pine marten					X	X	
Turkey						X	
Virginia's warbler						X	
Water pipit						X	
Wilson's warbler						X	
Yellow-bellied sapsucker*						X	

<sup>a</sup>Recommendations based on PSICC MIS Review (USDA-FS 2005)

<sup>b</sup>Status: E=Endangered, T=Threatened, P=Proposed, C=Candidate, FS Sensitive=R2 sensitive species List

\*Red-naped sapsucker

## **APPENDIX E**

### **RESPONSE TO COMMENTS ENVIRONMENTAL ASSESSMENT FOR PLAN AMENDMENT #30 MANAGEMENT INDICATOR SPECIES (MIS) COMMENT PERIOD ENDING MAY 3, 2005**

#### ***Comment Letter A***

John R. Swanson  
3400 Edmund Blvd.  
Minneapolis, MN 55406-2942

**Comment 1:** Urge all species be fully protected and included in Habitat Sanctuary Preserves (such as black-tailed prairie dog and black-footed ferret).

Response: The Environmental Assessment (EA) for the Plan Amendment analyzed the utility of Management Indicator Species (MIS) for major management activities (MMA) on the Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands (PSICC). Creation of special management areas for wildlife requires a different analyses and a significant amendment to the Forest Plan (and an Environmental Impact Statement (EIS)).

#### ***Comment Letter B***

Dave C. Lovell, Action Regional Manager  
Department of Natural Resources  
Division of Wildlife  
Southeast Region  
4255 Sinton Road  
Colorado Springs, CO 80907

**Comment 2:** Recommend retention of bighorn sheep & mule deer [on the Pike and San Isabel National Forests).

Response: Although Alternative 2 does not retain bighorn sheep or mule deer as big game species on the MIS list, this alternative does propose retaining the existing Big Game Management Areas General Direction and management guidelines for these species (other Management Areas' habitat capability standards would retain the 40% default value for all species). As such, implementing Alternative 2 would not cause any change to management goals and objectives for these species. Retention of elk made deer redundant, and bighorn sheep are already specifically managed in conjunction with the Colorado Department of Wildlife (CDOW) (see Appendix A of the EA).

**Comment 3:** Recommend retention of antelope (Comanche National Grassland).

Response: The MIS Review in Appendix A of the EA recommended removing this species as MIS based on 1) the inability to monitor populations at a Grasslands scale; and 2) due to depredation removal on adjacent private lands which directly impacts antelope population trends but have



little correlation with PSICC major management activities. Antelope were not retained as a MIS, because of their failure to match management activity/issue with the characteristics of its life history and its relationship to the environment.

**Comment 4:** Habitat requirements for bighorn sheep, mule deer and antelope are not covered regarding possible major management activities impacts.

Response: See response to comment number 2. As with bighorn sheep and mule deer, the existing big game general management guidelines for antelope would be retained. Native ungulates occurring on the PSICC are analyzed for impacts by proposed management at the project level and by diversity unit. The MIS list analysis was limited to updating the usefulness of and ability of the 1984 MIS to supplement other monitoring of major management activities and their potential impacts.

### **Comment Letter C**

SeEtta Moss, M.S., Conservation Chairperson  
Arkansas Valley Audubon Society  
725 Frankie Lane  
Canon City, CO 81212

**Comment 5:** Recommend conducting [an] EIS addressing the following needs and concerns: more robust and comprehensive evaluation should be conducted in an EIS; major change in MIS species monitoring; and drastic/extreme changes with proposed reduction from 40 to 8 species.

Response: An EA was written rather than an EIS based on the requirements for conducting an EIS. In the EA, Alternative 2 was evaluated against the established “significance” criteria for impacts used to set the requirements for an EIS under NEPA. The analyses in this EA and its appendices determined potential effects to be not “significant”. The primary factors of “significance” address any changes in the level of commodity outputs or administrative standards and guidelines from the 1984 Plan, neither of which are proposed.

To further clarify, “Forest Plan significance” (FSM 1922.5, FSH 1909.12) and significance under NEPA (40 CFR 1508.27) are not the same. There would be no environmental impact from this change of administrative and analysis procedures as described in this amendment. MIS analysis and monitoring requirements are designed to understand the effects of management decisions, and in and of themselves have no effect. We have used an EA as a familiar vehicle to disclose our process of considering this change to the Plan to facilitate public review and comment. Therefore, this Plan Amendment is not considered significant, nor do the environmental effects (on the quality of the human environment) approach reasonable levels of significance as defined at 40 CFR 1508.27. An EIS is not needed or appropriate.

**Comment 6:** “...concern ... that 8 species is unrealistic in terms of providing adequate indicators of forest/grassland health.”

Response: The selection criteria did not set a specific number of species for MIS. Arbitrarily picking a number of MIS species as “adequate” would not address the specific function MIS bring to the overall monitoring effort on the PSICC. The Forest Service’s interests as responsible and efficient land stewards motivated the need to reevaluate the 21-year old MIS species list. The modification to the existing list as recommended in the MIS review was based upon many years

of implementation and monitoring experience. Those species recommended for retention are desirable and useful as MIS, and can be effectively used as indicators to assess the potential affects of the major management activities on associated habitats across the PSICC. Forest and grassland health are monitored with a wide array of natural indicators on the PSICC, and MIS are just one portion of this larger effort. The analysis in Appendix A of the EA focused on species utility, not a specific number of species as a goal.

**Comment 7:** "... concerned that none of the 4 species ... are birds." [PSI]

Response: This analysis was limited to a review of the MIS established in 1984 for the PSICC.

Therefore, the potential list of birds was limited to those on the 1984 list. None of the four avian species met the requirements established by the Forest for the analysis process, and they were not retained after this analysis (Appendix A of the EA). We also wish to note that the MIS evaluation does not specifically consider one taxa group as preferable to another. Species were individually evaluated with the MIS selection criteria.

The PSICC participates in extensive monitoring of wildlife and natural resources outside the MIS program. The PSICC cooperates with several universities, two state wildlife agencies, researchers and organizations (including Monitoring Colorado Birds) that conduct wildlife and natural resource surveys and studies. The MIS program is not the only source of monitoring and research data the PSICC utilizes to assist determinations of major management activities.

**Comment 8:** Only 2 mammal and 2 fish species [Pike & San Isabel National Forests] have been chosen as MIS. It is unrealistic to propose too few species to monitor all 5 Management Indicator Groups (MIGs). The timing of activities with species migrations is out of sync.

Response: See response to comment number 7. The analysis in Appendix A of the EA was limited to the current MIS list, therefore the potential list of mammals and fish were few. These four (4) species met the requirements established by the selection criteria. We also wish to note that the MIS evaluation does not specifically consider one taxa group as preferable to another. Species were individually evaluated with the MIS selection criteria. Not all MIG categories are required to have their own designated MIS (or any species at all). Migration was not considered the primary factor in selecting MIS, although the movement patterns of species was considered an important aspect of natural history that influenced the efficacy of species as MIS.

**Comment 9:** Provide a more realistic timeframe for EA review. Specifically "...concerned with ... a 15-review (sic) and comment period ..." and recommend additional 30-day comment period.

Response: Amendments to Forest Plans come under the 36 CFR 217 appeal regulations. As such, there is no fixed or required comment period linked with development of an EA associated with a non-significant amendment to a Forest Plan. At a minimum only public notice of the decision to amend and compliance with NEPA procedures is required (FSM 1922.5, FSH 1909.12). As this was determined to be a non-significant Plan Amendment, the minimum requirements have been surpassed by offering a comment period, which was provided to solicit feedback from interested parties.

## ***Comment Letter D***

Ken Strom, Director of Bird Conservation  
Audubon Colorado  
1966 13<sup>th</sup> St., Suite 230  
Boulder, CO 80302

**Comment 10:** Request preparation of a full EIS because changes proposed are potentially very significant, and a reduction of MIS from 40 to only 8 is too severe for EA.

Response: See response to comment number 5.

**Comment 11:** Insufficient opportunity for public review and comment was provided. Request the comment period be reopened.

Response: See response to comment number 9.

**Comment 12:** A number of key habitat types and key land use types will not have indicators.

Response: There is no requirement in law, regulation or policy to have all habitat types, all successional stages, and key land use types represented by individual or multiple species. The procedures of the 1982 regulations specify that the deciding officials have broad discretion in selecting MIS from various categories "*where appropriate*". Using information provided by the interdisciplinary planning team, the deciding official determines whether population changes of certain species are "*believed to indicate the effects of management activities*". The MIS list retained, as ecological indicators of change, are based upon the potential of these specific population/habitat indices to reflect potential effects of PSICC's major management activities listed in the 1984 Plan. The evaluation of the 1984 MIS list used seven (7) selection criteria (contained in Appendix A) to determine which MIS still proved to be valuable indicators, when viewed in the context of the other MIS and within PSICC's numerous natural resources and species monitoring programs. The results of this analysis are reflected in Alternative 2 to the EA. We feel that all key habitat types are adequately monitored with either MIS or other ongoing Plan monitoring efforts on the PSICC. The objective of the MIS program on the PSICC is to supplement concurrent monitoring efforts in a holistic way, and not rely on a 21-year old MIS list to cover every biological or management component. Removal of a species from the PSICC MIS list should not be viewed as a measure of any species' value or importance to its ecosystem or PSICC's land management priority. Our Forest's seven (7) selection criteria for MIS focused on the utility of these species to be used as a management tool within our monitoring program.

**Comment 13:** On the PSI - the reduction from 20 to 4 species without retaining any birds raises the question of biological soundness if 4 MIS can adequately serve to indicate ecological health of the diversity of forest habitats in serving survival needs of a wide variety of bird species.

Response: See response to comment numbers 6, 7, 8 and 12. The PSICC uses many methods to monitor ecosystem health and diversity, which MIS is one component. If the PSICC waited for wildlife populations to have a  $\geq 25\%$  change (the start point for analysis in the 1984 Plan) before "triggering" the need to take steps for fire risk, invasive species, noxious weeds and forest or grassland health, serious ecological problems could occur. It is often better to monitor wildlife habitat, as changes in habitat usually occurs before changes are reflected in wildlife populations. This is true especially if a declining trend is needed to substantiate shifts in resources. This analysis was limited to reviewing the MIS list from 1984; assessing 21 years of MIS on the PSICC produced four (4) of the original 20 species as meeting the seven (7) selection criteria established by the Forest for MIS retention. We found, for example, that directly measuring aspen is more accurate, efficient and cost effective than gathering survey data of a species that uses aspen in portions of its life cycle. It is important to reemphasize the fact that MIS

monitoring is one piece in the overall PSICC monitoring puzzle. Management Indicator Species monitoring supplements the overall data collection effort. The MIS list was not and is not designed to measure every habitat type or management activity.

**Comment 14:** By not considering additional species be added to the MIS list to make up for deficits is a disservice to the public interest. Recommend the issue be addressed fully during Forest Plan Revision process.

Response: When this Plan Amendment was initiated, the PSICC intended to reanalyze the existing MIS list during the Plan revision process, which could have included adding new species, if appropriate. This Amendment was and continues to serve as an interim measure to ensure the MIS recommended for retention in the 2005 MIS Review continue as indicators of major management activities while the Plan is being revised. Since this Amendment was initiated, the final 2005 Planning Rule, under which National Forest System Land Management Plans are prepared, was released. The PSICC then decided to transition the ongoing Grasslands Plan Revision process and the pending Forests Plan Revision process this new planning rule. Even though the 2005 Planning Rule does not include the concept of MIS, the PSICC decided to continue with the MIS Amendment to the 1984 Plan because until the Grasslands Revised Plan is finalized in September 2006, and until the Forests Revised Plan is finalized in September 2009, MIS must still be used as indicators of major management activities. Further, the species assessment information will be used during each Plan revision effort to help describe current conditions and trends, and desired conditions based upon the sustainability of ecosystems and their dependent species.

**Comment 15:** Have not developed a reasonable range of alternatives. At a minimum – offer and assess a middle-ground alternative that would reduce MIS numbers and coverage less significantly.

Response: This EA has been used as the means for disclosing the proposed amendment of the Plan, and to document processes for arriving at the proposal. The range of possible selections of species is very large (including all possible combinations of species in the 1984 list). The PSICC did in fact consider a larger number of potential species for designation, and ultimately chose to portray only two (2) sets of lists in the EA. A third alternative was considered, based on the recommendations from the 2002 MIS Review, which included twice the number of species recommended as MIS. However, Alternative 2 as described in the EA was the preferred alternative due, in part, to comments received during public scoping in 2003, and a subsequent MIS Review which analyzed additional data and supplemental information received since the first 2002 MIS Review was prepared. The scope of this amendment was limited to analysis of the current MIS list, using a set of seven (7) objective selection criteria developed by the PSICC. The process for retaining or eliminating species is well documented in Appendix A of this EA.

In addition, see responses to comment numbers 6, 7, 8, 12, and 13.

## ***Comment Letter E***

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On behalf of:

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**Comment 16:** The Forest Service must prepare an Environmental Impact Statement. “Modifying the MIS list and monitoring requirements is a significant amendment ....” “...the amendment will expand the domain of projects possible under the Forest Plan by adding those projects that are currently ‘prevented or hampered by unworkable standards’”.

Response: See response to comment number 5.

**Comment 17:** “... the Forest Service should not waste resources on this amendment while the Forest Plan Revision process is already underway, but should instead couple MIS revision with that process and its accompanying EIS.”

Response: See response to comment number 15.

**Comment 18:** The proposed amendment is governed by the 1982 NFMA Planning Regulations. The notice initiating the amendment process was published before January 5, 2005, before the transition period to the new rule began. The proposed amendment appears to be controlled by section 219.14(e), which “... does not permit the FS to incorporate the provisions of the new regulations – including elimination of monitoring – until an EMS is adopted.” The FS is incorporating provisions of new planning regulations in the absence of EMS, amending the plan to remove current monitoring requirements, removing habitat monitoring requirements, and skipping quantitative monitoring if the existing plan requires collection of such data.

Response: While it is true that the notice initiating the amendment process was published before the effective date of the 2005 Planning Rule (January 5, 2005), this is not legally significant. Since the decision to amend the Plan will be issued after the effective date of the 2005 Planning Rule, the transition provision of the Rule clearly applies (36 CFR 219.14(f)). Based on this transition provision, the PSICC properly applied the 1982 regulation as modified to exclude any

requirement to collect population data. The transition provision allows the Plan Amendment without completing an EMS.

**Comment 19:** The proposed MIS list fails to include adequate habitat indicators. “FS should adopt several species for each major habitat type ...” Relying exclusively or primarily on a single species to indicate for an entire and wide-ranging habitat type is insufficient.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 20:** Sandsage prairie - Recommend including the massasauga rattlesnake as a MIS on both Grasslands. Another recommendation is the greater short-horned lizard.

Response: See response to comment number 14.

**Comment 21:** Shortgrass prairie - Concur with the FS that the black-tailed prairie dog and the long-billed curlew should be retained.

Response: No response necessary. Thank you for your comment.

**Comment 22:** Shortgrass prairie – current proposals are insufficient to adequately monitor management practices, since the Shortgrass Prairie MIG includes over twice the acreage as the other grassland MIGs.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 23(a):** FS fails to select any species representing other key habitat types preventing adequate assessment of impacts of various land uses - Grasslands.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 23(b):** Comanche and Cimarron MIS lists do not include shrub, piñon-juniper, sage, or canyon species. On the Comanche MIS list, the only riparian species included is the Lewis’ woodpecker, which may not indicate well for mature riparian areas. On the Cimarron MIS list, northern oriole and red-headed woodpecker may not capture mature riparian habitat.

Response: The PSICC agrees that piñon-juniper and canyon habitats are rare, unique and highly valued components on the Comanche National Grassland. However, species were selected or rejected based on the selection criteria for all MIG habitats. A basis for measuring major management activities with their affected habitats needed a defined relationship that was not already being monitored by other methods or MIS. The seven (7) selection criteria did not use presence of a species as the sole factor for MIS retention. Lesser prairie chicken would be retained under both alternatives as a biological indicator for sandsage prairie. On the Comanche National Grassland, there are no major management issues in piñon-juniper or canyon habitats that can be effectively monitored with current MIS; neither of these two (2) MIG habitats occurs on the Cimarron National Grassland. Alternative 2 proposes the use of northern (Bullock’s) oriole rather than Lewis’ woodpecker as an indicator for riparian habitats on the Comanche National Grassland. Both EA alternatives propose retaining northern (Bullock’s) oriole on the Cimarron National Grassland.

In addition, see responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 23(c):** Comanche and Cimarron MIS lists only include a single species for mixed grass prairie.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 24(a):** Forest Service fails to select any species representing other key habitat types preventing adequate assessment of impacts of various land uses - PSI.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 24(b):** PSI MIS list does not include species that indicate for: mid-elevation forest riparian, rocky slope and cliff, lodgepole, low-elevation lake, alpine, sagebrush, montane or lower elevation shrub, and piñon-juniper.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 24(c):** PSI MIS list only includes yellow-bellied sapsucker for aspen which may not indicate well for younger or mid-seral aspen habitat.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 24(d):** PSI MIS list only includes Lewis' woodpecker for Douglas fir.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 24(e):** PSI MIS list only includes three-toed woodpecker for mature montane and subalpine forests.

Response: See responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 24(f):** PSI MIS list only includes two species for aquatic habitats – greenback cutthroat trout (only inhabits a very small number of high-elevation streams), and brook trout (a stocked exotic and a major threat to the greenback cutthroat).

Response: As with all MIS, this process was one that began with the 1984 MIS list. Species were then examined against a set of seven (7) selection criteria to determine whether each functioned as an effective management indicator. Both of the fish species on the original list for the Forest units were retained. While we appreciate the importance of accounting for the impacts of non-native trout on native species, the Forest can address these concerns when interpreting its monitoring data. Native cutthroat trout tend to be more sensitive to environmental disturbance than non-native species and are relatively efficient to monitor. They are, thus, retained as MIS. Participating with CDOW, recovery of greenback populations is PSICC's first priority for the fishery program.

**Comment 25:** "Concerned by the absence of any herptile and plant species from the proposed MIS list."

Response: See response to comment number 14.

**Comment 26:** "...proposed MIS fails to include species that indicate for key habitat conditions, including standing snags (e.g., three-toed woodpecker).

Response: The list of retained MIS does not cover all habitats. There is no requirement that MIS be selected to represent all habitats. We evaluated MIS based on a set of seven (7) selection criteria with an eye towards a list of effective MIS. The 1984 Plan includes a

focus on the significance of snags to ecosystem function and as habitat for particular species. Snag guidelines are implemented in all management activities that could impact these habitats. These are Standards and Guidelines in the Forest Plan.

In addition, see responses to comment numbers 6, 7, 8, 12, and 13.

**Comment 27:** The proposed MIS list fails to include adequate indicators for key land use types. The proposed MIS list is insufficient to provide for a reasonable understanding of the impacts of transportation management and motorized recreation, other recreational uses, hunting and trapping, pesticide use, and energy development.

Response: Alternative 2 of the EA (Appendix A, Table 4) does consider the full range of major management activities, issues and challenges facing the PSICC. However, there is no requirement to employ MIS as the tool to monitor all management activities/issues. Instead, our approach focuses on employing MIS when they are most effective supplementing other monitoring efforts.

In addition, see response to comment number 6, 7, 8, 12, 13 and 26.

**Comment 28:** The EA offers inadequate justification for removing many species from the MIS list.

Difficulty of adequately monitoring them [MIS] is an invalid reason for removing a species from MIS. Just because a species is challenging to monitor does not mean it should not be used as a MIS if it would meet the criteria of a MIS by serving as an appropriate indicator of the effects of management activities.

Response: Retention or removal recommendations are based on an assessment of each species against PSICC's seven (7) objective selection criteria (Appendix A) within the scope of this amendment. Ability to monitor a species is only one element in the analyses. No MIS was dropped from the retained list for this reason alone, and virtually all species removed from the list failed multiple selection criteria. The MIS Review specifically assessed with full regard the potential biological and management value of collecting monitoring data of all 40 current MIS. Our process favored employing MIS in those cases where monitoring species was considered the most effective approach to examine the consequences of management activities.

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26 and 27.

**Comment 29:** The proposed MIS list would violate NFMA by substituting ecological indicators for MIS. The planning regulations unambiguously require the FS to collect population data for specific MIS, not proxies such as ecological indicators.

Response: PSICC employs ecological indicators as one tool to examine the consequences of management. However, as your input emphasizes, it would be inappropriate to substitute ecological indicators for all MIS. Therefore, ecological indicators have not been employed to the exclusion of MIS. The proposed alternative's revised list of MIS identifies a set of individual species (e.g., long-billed curlew, Abert's squirrel, etc.) as MIS.

**Comment 30:** The EA fails to analyze a reasonable range of alternatives.

Response: See response to comment number 15.



**Comment 31:** The proposed amendment is unlawful because the regulations under which they are proposed are unlawful.

Response: The procedures of the 1982 regulation (36 CFR 219, of 1982) under which this amendment is prepared, and the 2005 regulation (36 CFR 219, of 2005) with language applicable in this circumstance (36 CFR 219.14(f)) are both lawful and appropriate as applied here.

**Comment 32:** The proposed amendment does not articulate extensive monitoring requirements.

Response: Each species has its own monitoring protocols. This EA did not analyze monitoring requirements because this is outside the scope of the EA. The existing 5-year monitoring requirements identified in the 1984 Plan remain unchanged.

**Comment 33:** The proposed amendment does not adequately analyze the efficacy of the current MIS list before removing species from that list.

Response: See response to comment number 28.

**Comment 34:** The Forest Service applied arbitrary and unreasonable rationales for eliminating MIS from the existing MIS list and from consideration for the new MIS list.

Response: The proposal for Alternative 2 is based on an assessment of more than 20 years of implementation and monitoring experience with the species on the list and the best available scientific information. The rationale for species retention adheres to the set of evaluation criteria on page 3 of Appendix A, as well as other factors within the MIS Review.

**Comment 35:** The Forest Service is conducting an unnecessary and wasteful forest plan amendment process while the forest plan revision process is simultaneously underway.

Response: See response to comment number 14.

## ***Comment Letter F***

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and

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**Comment 36:** “Instead of following the rules that require the PSICC to collect population trend data ... the Forest is going to change those rules. Simply stated in the EA, “[t]he 2004 Rule allows a forest that elects to amend during the transition period to remove any mandatory MIS population

monitoring from the plan...this amendment imposes no obligation to collect population data and imposes no obligation to collect or analyze data regarding MIS at the project level.”

Response: The 1984 Plan specifically stated that population size or habitat capability are the variability factors that would trigger evaluation. This EA does not change the factors PSICC utilizes for monitoring MIS.

**Comment 37:** In the EA, there are several activities (PSICC fire management program and water uses) where impacts are ignored, and the species selected are not necessarily indicators of the effect of these management activities. “The EA must address these deficiencies or risk violating ... NEPA.”

Response: See response to comment number 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 38:** The Forest Service must prepare an Environmental Impact Statement. “The proposed amendment is especially significant because the impacts to the environment are highly controversial.” “Modifying the MIS list and monitoring requirements is a significant amendment ....”

Response: See response to comment number 5.

**Comment 39:** “... the Forest Service should not waste resources on this amendment while the Forest Plan Revision process is already underway, but should instead couple MIS revision with that process and its accompanying EIS.”

Response: See response to comment number 15.

**Comment 40:** The proposed amendment is governed by the 1982 NFMA Planning Regulations. The notice initiating the amendment process was published before January 5, 2005, before the transition period to the new rule began. Based on 219.14(e), “... the Forest Service is not permitted to incorporate the provisions of the new regulations – including elimination of monitoring – until an Environmental Management System (EMS) is adopted.” The FS is incorporating provisions of new planning regulations in the absence of EMS, amending the plan to remove current monitoring requirements, removing habitat monitoring requirements, and skipping quantitative monitoring if the existing plan requires collection of such data.

Response: See response to comment number 18.

**Comment 41:** The proposed MIS list fails to include adequate habitat indicators and fails to include adequate indicators for Key Land Use types. “FS should adopt several species for each major habitat type ...” Relying exclusively or primarily on a single species to indicate for an entire and wide-ranging habitat type is insufficient.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 42:** “Recommend the inclusion of herptile, plant, and fish (in the grasslands) species in any revised MIS list.”

Response: See response to comment number 14.

**Comment 43:** FS proposed to remove several designated sensitive species from the MIS list. Without monitoring processes in place to assess population trends, the FS can gain no information about the effects of management practices on the viability of these species. Lack of sensitive species monitoring will prevent the FS from being alerted to potential effects of land uses in combination with conditions, such as drought.

Response: MIS and Regional Forester's Sensitive Species (RFSS) lists have approaches that are linked as part of a broad approach to stewardship of biological diversity. These two programs represent different components of the holistic approach. Removing a species from MIS does not diminish its importance as a RFSS. These species will still be analyzed in projects' Biological Evaluations, and the agency will still focus on improving conditions for RFSS. Forest Service Manual 2670 provides guidelines for management activities implemented on all Forests and Grasslands with a focus on protecting Federal and State listed species and their habitat from irretrievable and irreversible harm. The Forest Service does not have the authority to conduct activities which will contribute to the listing of species under the Endangered Species Act (ESA). Also, our actions to remove any RFSS from the MIS list followed PSICC's selection criteria – those criteria were designed to develop a more effective MIS program. Finally, there is no link between MIS status and RFSS viability concerns, as these are different programs with differing objectives.

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 44:** The FS fails to designate MIS for multiple key community types and would not meet its legal responsibility to understand the effects site-specific management activities in these habitat types. Conspicuous and critical gaps in habitat representation on the PSI include lodgepole, alpine, aspen, piñon-juniper, mountain shrub, Douglas fir, fen/wetland/riparian, cliff and cave habitats.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 45:** The proposed MIS list fails to indicate adequately for the potential impact of key land use types such as transportation management and motorized recreation, other recreational uses (including ski area expansion), hunting and trapping, pesticide and herbicide use, livestock grazing, and energy development.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 46:** MIS for rare habitat components are also ignored – such as snags and downed logs and “fails to consider species that would indicate the effects on these habitat components from management activities.” EA ignores or dismisses several critical management activities or their impacts on particular rare habitat components based solely on BMPs and mitigation measures – for example noxious weeds, snags and downed logs, fire and fuels, hydrology, soil compaction, etc.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 47:** On the PSI, a list of four species, one a generalist and one a non-native invasive, is inadequate and a violation of NFMA (as is the selection of Rocky Mountain elk as the main indicator for 3 MIGs and 5 management activities). Indicator deficiencies occur for the following habitats: alpine and subalpine, mountain shrub, fen/wetland/riparian, aquatic, cliff and cave, aspen forest, early seral forest type, mature spruce-fir, mature mixed conifer, and mature

lodgepole, early and mid-seral piñon-juniper, early and mid-seral oak, and other early and mid-seral woodlands, early and mid-seral sagebrush, montane grasslands, Douglas-fir, rare forest seral conditions (especially mature and old growth forests), and snags and down wood.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 48:** Retain beaver as a MIS to indicate healthy, functioning ecosystems, rare habitat components, or key ecosystem processes.

Response: MIS on the PSICC were not selected based on an individual's or group's perceived value or role in the ecosystem, but are chosen based on the 7 selection criteria. The relationship to other monitoring efforts and current MIS (see Appendix A) were important selection criteria concerning beaver.

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 49:** Retain Lewis' woodpecker and three-toed woodpecker as MIS to serve as indicators of vegetation management and timber sales activities.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 50:** Retain Wilson's warbler as a MIS for alpine and mountain riparian habitats instead of Rocky Mountain elk.

Response: The 7 selection criteria were used for all MIS to determine which were appropriate for retention (see Appendix A of the EA).

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 51:** Retain pine marten as a MIS for mature and old growth spruce fir and lodgepole pine forests.

Response: Appendix A, page 25, discusses the rationale for not retaining marten as a MIS. "...mature and old growth" are not considered Plan land types, but structural descriptions. Structure was not one of our seven (7) selection criteria (Appendix A, page 3); habitat (Management Indicator Groups) and major management activities in those habitats were considered (Appendix A, Table 8). There is a poor link between the marten and dominant management issues. Marten are not limited to mature forest, but are pervasive in all forest structure types at different times of the year, and their habits would not reflect any MMA, suggesting it would be a poor MIS.

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 52:** Retain red-naped sapsucker as a MIS for mature and old growth aspen forests. The impacts of fire and insect management through fire suppression and logging will directly impact the population of this species and its viability on the PSICC.

Response: We feel that directly monitoring aspen acres, populations and health on the PSICC provides a more direct link to measuring aspen than monitoring species that use it for portions of its life cycle. Forest structure is not a land-type that was used in the 1984 Plan, and we believe consistency with the Plan is important.

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 53:** The proposed MIS list for the Comanche and Cimarron National Grasslands is insufficient to gauge the effects on management practices on a range of grassland habitats.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 54:** Sandsage prairie - Strongly recommend including the massasauga rattlesnake as a MIS on both Grasslands. Another recommendation is the greater short-horned lizard.

Response: See response to comment number 14.

**Comment 55:** Shortgrass prairie - Strongly concur with the FS that the black-tailed prairie dog and the long-billed curlew should be retained.

Response: No response necessary. Thank you for your comment.

**Comment 56:** Shortgrass prairie - Strongly recommend a broader set of species to assess management practices (livestock grazing, fire suppression, and mineral extraction) on the diversity of habitats. The burrowing owl, Cassin's sparrow, grasshopper sparrow, and pronghorn should be retained as MIS.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 57:** Shortgrass prairie – Suggest considering sensitive species not included on the original MIS list: the swift fox, mountain plover, loggerhead shrike, Texas horned lizard, and tiger salamander.

Response: See response to comment number 14.

**Comment 58:** Riparian habitats – Bullock's oriole will likely not adequately indicate the full effects of land use practices on the grasslands, including water management and diversion, and livestock grazing.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 59:** Riparian habitats – Strongly recommend including herptiles to the MIS list: the northern cricket frog and the many-lined skink. Strongly recommend including cottonwood trees. Also recommend including beavers.

Response: See response to comment number 14 and 48.

**Comment 60:** Canyonlands – Canyons and cliff habitats attract recreationists and management issues involve presence of designated trails and parking lots, public access, and other recreation activities including hunting, OHV use, wildlife watching, rock climbing, and just the increased presence of humans can have a significant impact on wildlife using canyonland areas. Consider retaining turkey, Mississippi kite and cliff swallow as MIS on both grasslands.

Response: Canyon and cliff habitats as a MIG apply only to the Comanche National Grassland in this MIS analysis. Although these areas do occur on some mountain districts, they were not classified as a MIG for analysis of MIS. We followed the 1984 Plan land-types to develop our MIGs. The canyon habitat on the Comanche National Grassland, unlike most non-wilderness areas on the PSICC, has restricted access. Thus, recreational impacts in this MIG were not considered

problematic. Direct monitoring of use and habitat conditions (i.e. hunting pressure via CDOW, tamarisk, etc.) was determined to be a superior way to assess these activities rather than monitoring species that spend a portion of their life cycle in this MIG.

In addition, see responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 61:** There are gaps in representation of key habitat types on both grasslands, including piñon-juniper and shrub habitat types and communities. For piñon-juniper indicators, recommend retaining Bewick's wren and adding Texas horned lizard. For plains shrub indicators, Cassin's sparrow should be retained, and propose adding the Bell's vireo.

Response: See response to comment numbers 12 and 14.

**Comment 62:** Recommend returning pronghorn to the MIS list for the Comanche and add to the Cimarron list.

Response: The MIS Review in Appendix A recommended removal based on inability to monitor at a Grasslands scale and depredation removal on adjacent private lands, which directly impacts pronghorn population trends but have little relationship with PSICC major management activities.

In addition, see response to comment numbers 6, 7, 8, 12 and 13. Also, see comment 14 regarding consideration of additional species and monitoring forest and grassland habitats.

**Comment 63:** The EA fails to analyze a reasonable range of alternatives. The EA dismisses the option of adding new MIS to its list, providing no rationale for why new species should not be considered. This is a reasonable alternative.

Response: See response to comment numbers 14 and 15.

**Comment 64:** The EA offers inadequate justification for removing many species from the MIS list. The difficulty of adequately monitoring them is an invalid reason. Just because a species is challenging to monitor does not mean it should not be used as a MIS if it would meet the criteria of a MIS by serving as an appropriate indicator of the effects of management activities.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 65:** Other species monitoring programs (those conducted by state wildlife agencies and the Rocky Mountain Bird Observatory) do not justify removing MIS from the list.

Response: See responses to comment numbers 6, 7, 8, 12, 13, 26, 27 and 28.

**Comment 66:** The proposed amendment is unlawful because the regulations under which they are proposed are unlawful. (The new planning regulations are unlawful.)

Response: See response to comment number 31.

**Comment 67:** The Forest Service has chosen to be wasteful by attempting to push through a forest plan amendment process while the forest plan revision process is simultaneously underway.

Response: See response to comment number 14.

**Comment 68:** The Forest Service applied arbitrary and unreasonable rationales for eliminating MIS from the existing MIS list and from consideration for the new MIS list.

Response: See response to comment number 34.