April 3, 2006

Cimarron / Comanche Draft Grasslands Plan
225 Bush Street, Suite 1700
San Francisco, CA 94104-4207

Re: Comments on the Draft National Grasslands Management Plan and Draft Environmental Assessment and Finding of No Significant Impact for the Cimarron and Comanche National Grasslands

Dear Plan Revision Team:

Thank you for the opportunity to comment on the Draft Grasslands Plan (draft Plan) and Draft Environmental Assessment (EA) / Finding of No Significant Impact (FONSI) for the Cimarron and Comanche National Grasslands (CCNG). We are always interested in the management of the grasslands in the National Forest System and in the Cimarron and Comanche National Grasslands (NG) in particular. We submit these comments on behalf of the undersigned individuals and organizations found at the end of this letter.

We applaud the effort you have engaged in to revise the Grasslands Management Plan. However, we have a number of concerns with the analysis conducted to date. There are significant flaws in the analysis that must be corrected. The actions the National Grasslands takes in managing public lands have real consequences to the land, the plants and animals that inhabit the grassland and the surrounding communities. We do not believe these effects have been adequately analyzed nor disclosed to the public. We believe the questions and concerns in this letter must be addressed before the decisionmaker has the information required to make an informed decision. Hence, we believe the FONSI issued is premature at this time. Overall, we believe that the lack of meaningful analysis and an examination of the requirements that trigger the need to complete an environmental impact statement argue for much more work on the part of the agency. Our concerns are detailed below.

Major Concerns

Overall, we have a number of concerns with the proposed future management of the Cimarron and Comanche National Grasslands as shown by various facets of the Draft Environmental Assessment / FONSI and Proposed Grasslands Plan. Specific explanations for each item follow, but in broad terms we are most concerned with:

- Process Concerns:
  - Federal Actions
  - Plan Decisions
  - Analysis of Intensity - an EIS is Required
  - The FONSI is Premature
  - The EA is Deficient Under NEPA
    - Inadequate Range of Alternatives
    - Lack of Effects Analysis
  - Public Involvement
    - EMS and Monitoring Plan
- Plan Component Concerns:
  - Desired Conditions and Objectives
  - Guidelines
  - Special Areas
  - Suitability Decisions
    - Oil and gas
    - Grazing
    - Off-highway vehicle use
  - Ecosystems
- Monitoring and Evaluation
- Concerns by Resource Area
  - Heritage and Paleontological Resources
  - Economics / Social
  - Recreation
  - Soils
  - Water
  - Fire
  - Species
    - Threatened, Endangered, and Sensitive Species
    - Species of Concern
    - Species of Interest
    - Invasive Species
  - Grazing
  - Aquatics
  - Roads
  - Visuals
  - Energy Development
  - Special Uses

Process Concerns

In December 2004, the G. W. Bush Administration released new regulations governing the development, amendment, and revision of National Forest and Grassland land management plans (36 C.F.R. 219, Subpart A) under the National Forest Management Act (NFMA). The Administration rescinded a prior forest planning rule from 2000 and implemented the new regulations on January 5, 2005 (70 Fed. Reg. 1022-1061). At the time, several National Forests and Grasslands were undergoing management plan revision processes. The Administration gave the various Forest Service divisions the choice of continuing ongoing planning processes under the old regulations or shifting to the new regulations.

The Pike and San Isabel National Forests Cimarron and Comanche National Grasslands (PSICC) announced on May 26, 2005 that it would transition to the new regulations (70 Fed. Reg. 30411). PSICC officials also decided to revise the Grasslands units separate from the Forest units and commenced development of a draft revised management plan for both the Comanche and Cimarron National Grasslands (CCNG).

On December 30, 2005 the PSICC released its Draft Cimarron and Comanche National Grasslands Land Management Plan (Draft Plan), Environmental Assessment (EA), and Finding of No Significant Impact (FONSI) to the public (70 FR 77373-77374). This is the first Forest or Grassland management plan revision process to be conducted under the new planning rules instituted by the Bush Administration in 2005.

We are very concerned that the 2005 NFMA regulations will undermine natural resource conservation, ecosystem protection, and wildlife safeguards on the Comanche and Cimarron Grasslands. The 2005 rule and planning regulations represent a significant departure from how the Forest Service has developed and modified National Forest and Grassland plans since 1982. That departure is likely to result in inadequate protection for the natural features and resources on public lands subjected to planning under the new regulations. The proposed plan highlights our concern.

This letter outlines our concerns regarding application of the current planning regulations for the planning process and ultimately, the final Cimarron and Comanche National Grasslands Land Management Plan. We are concerned that the Draft Plan and the implementation of a final plan based on the regulations will violate the National Forest Management Act (NFMA), the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and a host of other laws.

We have a number of issues and concerns with various components of the NEPA process being used to complete this revision of the grasslands plan. When the Forest Service enacted new regulations governing the development,

amendment and revision of national forest and grassland management plans in January of 2005, it argued that plans should be categorically excluded from analysis under NEPA on the grounds that they do not propose specific actions, such as projects, activities, products or services. However, this argument obscured the definition of a federal action and the many facets requiring analysis under NEPA that a plan undertakes. In addition, the agency's argument was rejected by the Council on Environmental Quality (CEQ) and the proposal to categorically exclude forest and grassland plans has not been approved.

The Forest Service subsequently decided to produce an environmental assessment (EA) and to argue that the plans have no significant impact. The decision to produce an EA carries with it the responsibility to produce an EA with all the required elements. The EA written for the Cimarron and Comanche Grasslands Plan is wholly deficient under NEPA. In addition, we do not agree with the agency issuance of a Finding of No Significant Impact (FONSI) and believe instead that an environmental impact statement must be prepared. Finally, we believe there are problems with the public involvement aspects of this process that must be addressed. All of these concerns are discussed in turn below.

Federal Actions

The CCNG Land Management Plan Implementation Constitutes a "Broad Federal Action"

The National Environment Policy Act mandates that all federal agencies prepare a "detailed statement by the responsible official," (i.e., an EIS) for any proposed "major federal action significantly affecting the quality of the human environment" (42 U.S.C. § 4332 (2)(C)):

> Environmental impact statements may be prepared, and are sometimes required, for broad Federal actions such as the adoption of new agency programs or regulations (Sec. 1508.18). Agencies shall prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning and decisionmaking (40 C.F.R. §1502.4(b)).

The Cimarron and Comanche National Grasslands Land Management Plan constitutes a meaningful point in agency planning and thus falls under this provision.

Forest and Grassland Planning Constitute "Major Federal Actions" Requiring an EIS

The Council on Environmental Quality (CEQ) regulations that implement NEPA regard the development of formal plans and guidance documents to be "federal actions" that fall within the scope of NEPA. Section 1508.18, referred to in the provision above, includes the definition of "major federal action," which includes "actions with effects that may be major." Section 1508(a) further defines the term "actions" to include "new and continuing activities … new or revised agency rules, regulations, plans, policies, or procedures…." The Draft Cimarron and Comanche National Grasslands Land Management Plan is obviously a revised plan under new agency regulations, and so falls under this definition of "actions." Section 1508.18(b) describes categories of federal actions and includes in subsection 2 the "[a]doption of formal plans, such as official documents prepared or approved by federal agencies which guide or prescribe alternative uses of Federal resources, upon which future agency actions will be based." The Cimarron and Comanche National Grasslands Land Management Plan is a formal plan/official document prepared by a federal agency specifically to guide uses of Federal resources, upon which later projects or actions will be based.

Further, as discussed below, the Draft Plan meets the second prong of the NEPA analysis, that it "significantly affect[] the quality of the human environment" (42 U.S.C. § 4332 (2)(C)). The final plan will determine how every acre of the Comanche and Cimarron grasslands are managed for up to fifteen years, and every action on every acre of the grasslands during this time will have to comply with the final plan, unless the action is exempted under the new NFMA regulations.

Plan Decisions

Plans Determine How Areas Will Be Managed and How Projects Will Be Implemented

The National Forest Management Act requires that

> Resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands shall be consistent with the land management plans. 16 U.S.C. 1604(i).

Thus if not first authorized in a land management plan, projects and activities could not occur.

The Forest Service relies on the Supreme Court case Ohio Forestry Association vs. Sierra Club to justify no longer requiring NEPA documentation for Forest Plans. See 70 Fed Reg 1062, January 5, 2005. However, that decision merely stated that specific provisions of a specific forest plan were not ripe for judicial review. It did not say the Wayne National Forest Plan was exempt from

NEPA documentation because that was not at issue in the case, although the Court did note that Plaintiffs' case could have proceeded if they brought a NEPA violation against the forest plan. Indeed, note the following from Justice Souter's majority opinion in Ohio Forestry, referring to logging levels approved in a national forest plan that was challenged in the case:

> Despite the considerable legal distance between the adoption of the Plan and the moment when a tree is cut, the Plan's promulgation nonetheless makes logging more likely in that it is a logging precondition; in its absence logging could not take place. Ohio Forestry Ass'n v. Sierra Club, 523 U.S. 726, 730 (U.S. 1998).

Further, the "considerable legal distance" the Supreme Court relied in large part on has been shrunk considerably. Of the Court's five elements of this "distance", three have been eliminated by the new regulations and one minimized. The Court made its ruling based on the fact that regulations "ensure that the project is consistent with the Plan", Id., whereas the new NFMA regulations now allow forest managers to readily exempt projects from forest plans at the project level. 36 C.F.R. Sec. 219.8(e)(3) ("[t]he Responsible Official may . . . Amend the plan contemporaneously with the approval of the project or activity so that it will be consistent with the plan as amended. The amendment may be limited to apply only to the project or activity."). The Court relied on the prospect that the Forest Service would have to "conduct an environmental analysis pursuant to [NEPA] . . . to evaluate the effects of the specific project and to contemplate alternatives", Ohio Forestry at 730, but legal and regulatory changes now allow many projects, including large timber sales, to be implemented without any NEPA analysis or consideration of alternatives for others, as discussed below. And the Court's reliance on the then true fact that "affected persons may challenge [a final decision] in an administrative appeals process," Ohio Forestry at 730, is undermined by the fact that appeals are no longer accepted by the Forest Service on a wide range of projects. Finally, the Court was partially swayed that the Forest Service "provide[s] those affected by proposed logging notice and an opportunity to be heard." Ohio Forestry at 730. It is questionable whether the lessened opportunities for public notification and involvement on categorically excluded and otherwise fast-tracked projects would still meet this prong of the Court's analysis.

Thus the Forest Service misconstrues the intent of Ohio Forestry in suggesting that it forms a legal basis for exempting Forest Plans from documentation under NEPA.

In addition to the legal reasons why an EIS is necessary, the Forest Service cannot sufficiently account for significant environmental impacts and conduct a meaningful cumulative effects analysis at the project level alone. Analyses at this level, by definition, cover only a small portion of a national forest or grassland. Thus waiting until the project stage will mean that significance assessments and

cumulative effects analysis will never occur on a Grassland- or Forest-wide basis. Such reviews are very important to anticipate effects of proposed actions. Even small, localized action can have far-reaching effects on, for example, watersheds, migratory species, and to wide-ranging wildlife species such as pronghorn, swift fox, and imperiled fishes. This is especially the case when numerous actions take place over the life of a forest or grassland plan.

Furthermore, the planning regulations treatment of NEPA needs to be viewed in the context of other NEPA-related actions by the Bush Administration. This Administration has adopted a series of regulatory changes – mostly under the umbrella of the "Healthy Forests Initiative" -- aimed at reducing the Forest Service's duties to comply with NEPA at the project level, such as for timber sales. NEPA analysis will therefore never be done at all for many significant timber sales and other projects. In addition, the Bureau of Land Management (BLM) leases the subsurface minerals of both the Comanche and Cimarron. BLM does not conduct NEPA analysis prior to leasing. The impacts of oil and gas are never considered through NEPA until the application for permit to drill (APD) stage. And BLM has recently instituted a policy which greatly increases the use of categorical exclusions in processing APDs (BLM Instructional Memorandum No. 2005-247, September 30, 2005).

Two existing and one proposed Categorical Exclusion (CE) categories might apply to the management of the Comanche-Cimarron Grasslands. Under CE category 10, up to 4500 acres of prescribed burning to reduce hazardous fuels can be categorically excluded from NEPA documentation. See FSH 1909.15, section 31.2. See also 70 Fed Reg 33826, June 5, 2003. Similarly, category 11 allows categorical exclusion on up to 4200 acres for post-fire rehabilitation activities, which can include repair of roads, trails, and minor facilities. (See FSH and Fed Reg, id.)

Under a proposal in the December 13, 2005 Federal Register (70 Fed Reg 73726), a surface use plan of operations could be approved for up to four drill sites in a new oil or gas field if there was no more than one mile of road construction and/or reconstruction, and three miles of pipeline construction. Depending on how fast new exploration and production activity is approved on the Comanche-Cimarron Grasslands, all or most new oil and gas wells on the Grasslands could be approved with this CE authority if it is finalized.

Intensity Analysis

The Draft Plan includes desired conditions, objectives, and guidelines that would lead to significant impacts on the quality of the human environment. The CEQ regulations list ten factors to be considered in evaluating the severity of impact [40 C.F.R. § 1508.27(b)]. If, under these ten factors, the a major federal action such as a forest plan might have significant environmental impacts, then

an Environmental Impact Statement is required. Examples of elements of the Draft Plan that would lead to significant impacts are identified below. In addition, the Forest Service in issuing its Finding of No Significant Impact (FONSI) with the draft EA provided its rationale for why the plan is not significant. Examination of the ten elements shows the Draft Plan passes the significance test and an environmental impact statement must be prepared. A few of these elements are discussed below.

> *1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.*

The Forest Service argues that since the plan sets forth strategic guidance and information and does not propose any specific action, that the Plan itself will not have any effects on the environment. We do not believe this is true. The "strategic guidance" is imbedded with a number of decisions that have environmental effects. Designation of Research Natural Areas (RNAs) carries with them numerous measures to protect habitat conditions that are not available to non-designated areas. Once the decision has been made to recommend (or in this case, not recommend) areas for RNA status, those protections are precluded for those areas. Significant adverse effects to unique habitat conditions become more likely. And if, as is the case, suitability decisions have been made that override protection of that habitat (for example, by allowing grazing in unique habitats), then significant adverse effects are likely. This is further compounded by the decisions made in this plan to lump a number of unique ecosystems together into just four recognized ecosystems. The unique characteristics of each ecosystem have been lost in the act of combining, and hence the unique habitat needs are lost to management oversight. As we argue elsewhere, this is likely to result in adverse effects to a number of unique and rare ecosystems.

> *3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

Again, the Forest Service argues that because the plan does not propose any specific actions, the plan itself will have no effect. We do not agree with this conclusion. The decisions on suitability (or in some cases the decisions not to revisit decisions made in the past) are and will continue to have significant adverse effects to unique characteristics such as historic and cultural resources, wetlands, and ecologically critical areas.

For example, the desired condition for livestock grazing includes the role that the Grasslands have in contributing to local economies by continuing to offer livestock grazing permits (Plan Vision, pg. 37). The continuance of livestock grazing in certain areas is causing and will continue to cause significant impacts,

including destruction of significant habitat for species-of-concern and ecologically critical areas, harm to wildlife from fencing, and continued persecution of native fauna seen as harmful to ranching. The Specialist's Report on Water Resources notes that certain riparian areas have been damaged due to livestock grazing and are classified as "non-functioning" (Water Resources, pg. 10). The damages caused to these riparian areas by livestock grazing are significant environmental impacts, and the continuance of livestock grazing will only further add to these impacts.[1]

> *6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

The Forest Service argues that:

> "The Plan itself does not require, compel, or establish a precedent for future actions, with or without significant effects, and does not represent a decision in principle about an implementing action." (EA, pg. 2)

This test of intensity is one of the central reasons a land management plan requires an EIS. The whole purpose of the Plan is to set desired conditions, objectives, and guidelines that establish precedent for future actions and decisions. The desired conditions and objectives will set the future purpose and need statements, which will limit the range of future proposed projects. The Plan may not compel future action, but no project will be proposed, let alone implemented, that is inconsistent with Plan components. The agency is in effect arguing that nothing has to happen just because there is a Plan, but this is disingenuous. The Forest Service will continue to actively manage the Grasslands and those actions will be guided and directed by the Plan. Actions inconsistent with plan components and direction will not occur. Because all future actions having significant impacts on the quality of the human environment will be carried out based on the desired conditions, objectives and guidelines in the Plan, the Plan itself represents a decision in principle about future considerations.

By the Forest Service's own description, Forest Plans establish "desired conditions, objectives, guidelines, suitability of areas and special areas" that guide how National Forest lands and resources will be used, and upon which future agency actions will be based, and are the "starting point for project and activity NEPA analysis." (70 Fed. Reg. 1063, 1064). Final decisions and guidance for future decisions that result from any Forest or Grassland Plan amendment and revision include:

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[1] Under the Draft Plan, all ecosystems and all but one proposed Special Area would remain suitable for livestock grazing. Plan at 77-80.

1. *Determining the Forest-wide multiple-use goals, objectives, and guidelines for the Forest, including estimates of the goods and services expected*. The Draft Plan provides goals (Desired Conditions), objectives (Strategy), and guidelines (Design Criteria) to guide Grassland management and resource uses and lays the foundation for future project-level decisions that, by law, must conform to provisions of the land management plan. The Draft Plan outlines specific goals, objectives and guidelines to govern future land administration (i.e. land ownership, land acquisition by the Forest Service, and land exchanges), management and protection of ecological resources (including specific wildlife species, plant species, and ecosystems), extraction of oil and gas from the Grasslands and revenue and employment generation from this use, wind power development on the Grasslands, livestock grazing management, promotion of recreational opportunities to benefit the local community (which includes increasing access to areas and improving roads and trails), maintenance of physical resources (including heritage resources; oil, gas, and other minerals; and paleontological resources), and Special Area designations.

2. *Identifying land that is suitable for timber production, mineral development (including oil and gas), livestock grazing, and/or other commercial and non-commercial uses*. The Draft Plan is very specific in identifying areas suitable for uses that include livestock grazing, fire use and management, oil and gas development, OHV use, and utility corridors. The Draft Plan presents suitable uses for each ecosystem, as defined by the Forest Service (Plan at 77-78) and for each proposed Special Area (Plan at 79-80).

3. *Recommending special areas, research natural areas, wilderness areas, and wild and scenic river status*. The Draft Plan recommends the designation of seven Special Areas “to protect their unique characteristics” (Plan at 44). Recommendations include: Bent Canyon Bluffs, Mesa de Maya, OU Creek, Picket Wire Canyonlands, Picture Canyon, Santa Fe Trail, and Vogel Canyon. (Plan at 43-50). The Draft Plan provides specific management objectives for these proposed Special Areas that include: removing roads, managing livestock grazing to benefit species of concern, prescribing fire as a management tool, implementing closure orders, protecting heritage and paleontological resources from damage by natural processes and humans, and promoting recreational opportunities. (Plan at 74-76). The Draft Plan establishes a set of suitable uses for the proposed Special Areas (Plan at 79-80) and provides guidelines for managing these areas that include: preventing off-highway vehicle (OHV) use to protect plants of concern, preventing “new structures, facilities, and pipelines that may impact unique geological features,” planting shrubs, and

preventing livestock grazing in some areas to protect the Colorado frasera (a proposed species of concern). (Plan at 89-90).

4. *Determining monitoring and evaluation requirement*. Throughout the Draft Plan, the Forest Service poses various "monitoring questions." These are not monitoring requirements. However, the Forest Service is proposing to develop a separate 15-year monitoring plan for the Grasslands (Plan at 10-11). A draft Monitoring Plan for public comment has not been made available for as part of the management plan revision process. However, the Forest Service has invited select members of the public to scheduled special meetings for the purposes of developing a collaborative monitoring plan. Given the emphasis on "adaptive management" in the NFMA planning regulations, we must assume that monitoring findings would (and should) result in future management actions that correct problems and modify management practices to meet plan objectives and move the Grasslands toward the desired conditions outlined in the Draft Plan.

The Draft Cimarron and Comanche Land Management Plan clearly meets this significance criterion. This factor alone requires an EIS. As the Forest Service itself acknowledges, the plan will set the goals, objectives, and guidelines for how the Grasslands will be managed. It is simply untenable to argue that the plan does not set a precedent for future action.

> *7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.*

The Forest Service argues that "there cannot be cumulative significant effects of the Plan when the Plan itself does not have effects" (EA, pg. 8). As we point out elsewhere, this statement appears without any supporting evidence, thus we disagree with the agency conclusion.

The Strategy section of the Plan indicates that Off-Highway Vehicle use will be suitable in three of the four identified ecosystems in the Grasslands (Plan at 77-78). OHV use may be an individually insignificant impact when considered on one small area alone. However, the cumulative impact of OHV use on three out of the four ecosystems collectively makes it reasonable to anticipate a cumulatively significant impact on the environment.

The Strategy section of the Plan also indicates that livestock grazing, fire use and management, oil and gas development, and utility corridors will be suitable on all four of the identified ecosystems, (Plan, id). The designation of each ecosystem as suitable for all these uses presents cumulatively significant

impacts on the environment. Even the special areas are found suitable for most uses, Plan at 79-80.

> *8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

As noted in the Design Criteria section of the Plan, "[p]rior to ground disturbing activities, significant paleontological resources would be salvaged and curated in a federally approved repository" (pg. 89). This shows that ground disturbing activities would occur with the capacity to damage or destroy paleontological resources. It also assumes that salvage would constitute an acceptable method of preserving site integrity and would not result in an adverse effect under the National Historic Preservation Act (NHPA). We believe this assumption is premature and could result in adverse effects to significant scientific, cultural, and historical resources.

The Forest Service must prepare an environmental impact statement for the Comanche-Cimarron Plan that discloses the possible impacts from implementing the plan over its 10-15 life. The disclosure must include the effects on various resources from implementing various projects likely to be authorized under the plan. The current environmental assessment is woefully insufficient for this purpose.

The Issuance of a FONSI is Premature

We take issue with the issuance of a FONSI at this time. One of the hallmarks of NEPA is the role of public involvement in federal actions. Public comments are requested and should be used as part of the NEPA process to collect issues, concerns, and information the agency may not be aware of in order to inform the decisionmaker so that he or she can make the best possible decision. Issuing a FONSI with the draft EA implies that the agency already thinks it knows everything there is to know about the proposed action and its consequences. Public involvement becomes meaningless.

As detailed above, we do not believe a FONSI is warranted. Impacts are significant and an EIS must be prepared.

The EA is Deficient Under NEPA

Inadequate Range of Alternatives

The environmental assessment defines just two alternatives for the

Grasslands Plan: the proposed and the no action alternative. Clearly, this is insufficient under NEPA.

"NEPA requires that federal agencies consider alternatives to recommended actions whenever those actions 'involve[ ] unresolved conflicts concerning alternative uses of available resources.' 42 U.S.C. § 4332(2)(E) (1982)." *Bob Marshall Alliance v. Hodel,* 852 F.2d 1223, 1228 (9th Cir. 1988). This requirement applies equally to EAs and EISs. *Id*. at 1228-29; *see also Davis v. Mineta*, 302 F.3d 1104, 1120 (10th Cir. 2002).

The purpose of NEPA's alternatives requirement is to ensure agencies do not undertake projects "without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means." *Envnt'l Defense Fund., Inc. v. U.S. Army Corps. of Eng'rs*, 492 F.2d 1123, 1135 (5th Cir. 1974); *see also Or. Envtl. Council v. Kunzman,* 614 F.Supp. 657, 659-660 (D. Or. 1985) (stating that the alternatives that must be considered under NEPA are those that would "avoid or minimize" adverse environmental effects).

Thus, consideration of alternatives is necessary in an EA to further "[t]he goal of the statute … to ensure 'that federal agencies infuse in project planning a thorough consideration of environmental values.'" *Bob Marshall Alliance,* 852 F.2d at 1228 (citations omitted). "The consideration of alternatives requirement furthers that goal by guaranteeing that agency decisionmakers '[have] before [them] and take [ ] into proper account all possible approaches to a particular project (*including total abandonment of the project*) which would alter the environmental impact and the cost-benefit balance.'" *Id*. (quoting *Calvert Cliffs' Coordinating Committee, Inc. v. United States Atomic Energy Commission,* 449 F.2d 1109, 1114 (D.C. Cir. 1971)) (emphasis in original).

NEPA requires that an EA discuss "reasonable alternatives" to the proposed action. 42 U.S.C. § 4332(2)(C)(iii); see also 40 C.F.R. § 1508.9(b). Whether an alternative is "reasonable" or not turns on whether it will accomplish the stated purpose for the project. *Custer County Action Ass'n v. Garvey*, 256 F.3d 1024, 1041 (10th Cir. 2001); *City of Carmel-By-The-Sea v. United States Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("[t]he stated goal of a project necessarily dictates the range of 'reasonable' alternatives").

The purpose and need for this grasslands plan is defined thusly, "the Cimarron and Comanche National Grasslands Plan will provide a strategic framework to guide project and activity design and decisions and budget development" (EA, pg. 4). Given the extremely broad nature of this purpose and need statement, it is hard to believe that just one, and only one, alternative could be created to fulfill this purpose and need. The desired conditions in the plan set a vision for future conditions on the Grasslands. Inherent in those descriptions are resource conflicts and trade-offs. Alternatives could be built around different

visions for resolving those conflicts. Regardless, the agency is required to examine the environmental effects of "accomplishing the same result by entirely different means" through a reasonable range of alternatives.

Realistic Range of Alternatives

In addition, we are concerned that the Forest Service has not presented any evidence that this is a realistic set of alternatives. The agency argues that the plan will guide budget development. But no evidence is presented that current funding levels and projected trends in Grasslands budgets were ever considered in plan development despite requirements to do so.

Environmental Impacts Were Not Analyzed

The environmental impacts of the proposed action and the no action alternative were never addressed. The entire rationale for this lack of <u>any</u> assessment of effects comes down to the following paragraph from page 8 of the EA:

> "The proposed action and the no action alternative contain plan components that provide a strategic framework and guidance. The plan components cannot be linked in a cause-effect relationship over time and within the geographic area to effects on air quality; threatened and endangered species; significant scientific, cultural, and historic resources; water quality; nor other resources. Such relationships cannot exist without specific proposals and without such relationships environmental impacts cannot occur."

The agency presents no evidence for the assertions made in the above paragraph. The public is asked to believe that it is true because it is stated in the plan. This is simply insufficient under NEPA.

First of all, the paragraph above is not true in the case of the no action alternative. The no action alternative is the present Grasslands Plan (part of the 1984 plan for the Pike-San Isabel National Forest, which included the Grasslands), which was analyzed in an environmental impact statement and chosen because of its combination of effects and opportunities. Its plan components can be linked in a cause-effect relationship over time and within the geographic area to a variety of resource effects.

The Plan Has Effects

Secondly, as we have argued above, the proposed action alternative does have effects. The desired conditions, objectives and guidelines effectively set sideboards within which future purpose and need statements will be constructed, i.e. the plan makes decisions about the range of future purpose and need

statements and hence the range of future projects. Proposals and alternatives that fall outside of those ranges and hence the plan will not be considered. For example, the plan declares that grazing is a suitable use for much of the Grasslands. Proposals that call for a reduction in the area grazed would likely be determined to be inconsistent with the Forest Plan, and would not be considered. The only "reasonable" alternatives then become how much grazing would take place.

Effects by Resource Area Are Missing

Instead of an analysis of and comparison of the effects of the alternatives (an affected environment and an environmental effects section), the EA presents existing and desired conditions statements for the ecosystems, heritage and paleontological resources. What is seemingly meant to pass for analysis is instead lifted word for word from the Draft Plan (Part 1: Vision). The EA is missing any analysis of effects by resource area. The only statements on this in the EA are the following:

> "However, for the context of this EA, only a summary of the ecological and physical conditions is provided, taking into account human influences." (EA, pg. 8)

The EA goes on to state,

> "The condition descriptions are not intended to be the effects analysis of future projects because that analysis will not be possible until actual projects are proposed." (EA, pg. 9)

There is no mention of what is intended for the effects analysis of this, the proposed plan. The lack of effects analysis and comparison of effects by alternative is a serious deficiency under NEPA.

Failure to Consider Social and Economic Effects

The EA suggests an explanation for the failure to analyze economic and social effects. The following footnote appears attached to the "summary of ecological conditions" quote above.

> "40 CFR 1508.14 states: "economic or social effects are not intended by themselves to require preparation of an environmental impact statement." Thus, economic and social effects are not included in this environmental assessment." (EA, pg. 8)

While it is true that 40 CFR 1508.14 does state the above, the use of the statement is entirely out of context. No one is arguing that economic and social effects alone should require the Forest Service to prepare an EIS. But the

statement above provides no rationale for excluding economic and social effects analysis from this environmental assessment. In fact, an examination of the remainder of 40 CFR 1508.14 is instructive:

> "When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment."

We believe the plan does have significant effects. Economic and social effects are interrelated with the natural and physical effects. When an EIS is prepared, economic and social effects will have to be examined.

Public Involvement

The EMS and Monitoring Program Must Be Prepared with Public Involvement

Page 7 of the Draft Plan states: "The Grasslands Environmental Management System (EMS) can be expected to be completed in 2006 before the Plan is finalized". The monitoring program will, among other things, "captur[e] the EMS significant aspects". Id. at 10. Given this interaction of the EMS and monitoring program, we believe both should be part of the draft plan to ensue an opportunity for public comment on these important aspects of planning. Therefore, a new draft plan should be issued for public comment, or a separate comment period established prior to the release of the notice of final plan for the EMS and the monitoring program.

The Planning Regulations at 36 CFR 219.6(b) (2005) require the management plan to "describe the monitoring program for the plan area". Under 219.6(b)(1), the monitoring plan must be developed with public participation. The DP states (pg 10),

> Through a collaborative process, a comprehensive 15-year monitoring program will be developed and included as part of the final plan.

How will this "collaborative process" be designed and implemented? Any input must not be limited to those directly participating. See FSH 1909.12 section 31.1, which states that all interested parties, whether they participate in a collaborative process or not, "should be encouraged to participate in public review and comment processes". We believe strongly that the public, whether formally part of the official collaborative process or not, must be allowed to have input into development of the monitoring program. The surest way to accomplish that would be to have the monitoring program be part of a draft plan. That would also be appropriate because monitoring is an important part of national forest

management. Thus we advise the Forest Service to issue an updated draft plan for public comment.

Plan Component Concerns

Desired Conditions and Objectives

Quality of the Objectives

Overall, we are disappointed with the quality of objectives listed in the plan. FSH 1909.12 (11.12) includes the following requirements:

> Plan objectives (36 CFR 219.7((a)(2)(ii)) should:
>
> 1. Describe the focus of unit management during the next 15 years.
>
> 2. Set priorities, with an expectation that high priority work would be completed first, depending on funding.
>
> 3. Be limited to priorities that can be reasonably accomplished during an identified time.
>
> 4. Be based on achieving and monitoring progress toward desired conditions.
>
> 5. Be based on budgets and other assumptions that are realistic expectations for the next 15 years.

The draft plan describes objectives as measurable and time-specific outcomes, Plan at 7, 58. Yet almost all of the objectives are only minimally so. The agency seems to want to meet the time-specific requirement by prefacing every objective with the phrase “within the next 15 years”. This is unacceptable. It sets up a situation where the first two Comprehensive Evaluation Reports (CER) accomplished at the required five-year intervals (at the five and ten year marks) would find no need to change the plan because all objectives could still be accomplished in the last 5-year period (no matter how unrealistic that might be). We believe the requirement for the agency to identify and set priorities necessitates at least some of the objectives being written in such a way as to set measurable tasks to be accomplished in, at minimum, 5 year periods. This “scheduling” of priorities could be used to help the agency identify needed areas of change and the success or failure of specific monitoring measures.

Secondly, objectives are to be measurable. Again, the agency seems to have chosen the absolute minimum to meet this requirement. A large number of the objectives are written in such a way that just one more acre or mile than

previous, one more event or action would be sufficient to fully meet the objective. This too is unacceptable. Citizens have a right to expect a more detailed description of agency priorities as well as some guarantee of more than minimal performance and accomplishment.

Need for Resource Specific Desired Conditions and Objectives

Bison and Black-Footed Ferret

Desired conditions should include restoring species that have been extirpated from the Grasslands due to human alterations of the region and direct exploitation. Returning black-footed ferrets and wild bison to the Grasslands could be achieved within the next 15 years and these goals should be included as desired conditions in the Grasslands plan. Objectives for restoring black-footed ferrets should include, at minimum, establishing a >5,000 acre prairie dog complex on each Grassland and developing a ferret restoration and recovery plan with the Fish and Wildlife Service. Objectives for reestablishing bison would include adjusting rules with the Grasslands grazing associations to allow bison grazing on allotments, ensuring proper fencing for bison, and working with other groups and agencies to find genetically wild individuals to serve as the foundation for a small bison herd.

Need for Objectives for Vegetation Mosaic

We strongly support desired conditions to establish a mosaic of vegetation types and structure heights across different ecosystems. However, the objectives included in the Draft Plan do not ensure that management practices will result in such a mosaic. What is needed are clear objectives to limit cattle grazing in some areas and eliminate it in others. The public needs to know how and over what time period this will be achieved and where livestock grazing will be limited to achieve moderate/midrange structure height in the shortgrass and sandsage prairie ecosystems. Proposed Special Areas and Research Natural Areas are excellent places to eliminate livestock to enable taller vegetation. Objectives for Special Areas should include objectives to eliminate livestock grazing. Additionally, we support returning fire to fire-adapted ecosystems, such as shortgrass prairie. Carefully managed fire treatment can help promote a vegetative mosaic. Again, we need clearer objectives regarding where fire will be used to establish vegetative diversity across the Grasslands. To help assess the achievement of greater vegetative diversity and different height structures, Species of Concern and/or Interest should be selected to help monitor progress toward taller vegetation. We recommend including the Cassin's sparrow as one potential habitat indicator for this purpose.

<u>Guidelines</u>

We were very disappointed that the agency abandoned standards and

guidelines in the latest version of the Planning Regulations promulgated under NFMA. Standards and guidelines were considered by the agency to be the way to "codify" the lessons learned in monitoring and evaluation into the forest plan. When monitoring of forest management actions showed a predictable outcome, it was possible to make it a standard for application to future projects. From an agency perspective, this eliminated the need for much site-specific analysis of the effects of actions through tiering to Land Management Plans. This use and function of standards and guidelines was even taught in internal training courses (particularly 1900-1, the standard NEPA / NFMA course which a majority of Forest Service employees have taken). To then see standards and guidelines abandoned by the agency was quite puzzling. This would seem to presage a future with greatly expanded analysis requirements at the site-specific project stage. (But this would still not allow adequate consideration of cumulative impacts, as we argued earlier in these comments.)

We were then dismayed to find just 45 guidelines in the entire plan, a small number in comparison to past plans. As we point out in other places in our comments, the guidelines are inadequate and weak. It seems as though the agency is abandoning the land management lessons it has learned over the past decades. We question whether guidelines will have any serious role in Forest Service management when there are so few of them and the broad loophole is provided that a decisionmaker can opt out of them with an explanation in the site-specific NEPA documentation. We would like to see a greater effort made to include stronger guidelines in the Grasslands plan. We would also like to see tighter restrictions on the ability to abandon guidelines at the site-specific project level.

Special Areas

The Cimarron and Comanche are islands in a sea of intensive land use, with dryland farms, center-pivot irrigation cropfields, feedlots, intensively grazed pastures, and oil and gas development. The Grasslands provide a vital refuge for wildlife not tolerated on neighboring private lands – such as prairie dogs and coyotes – or who suffer with predominant land uses – such as lesser prairie-chickens and Cassin's sparrows. It is vital that the Forest Service select areas that will be designated as specially protected, in order to serve as living laboratories and to fulfill the life history requirements of the region's native wildlife and plants.

The Forest Service has proposed seven "Special Areas" for designation in the Draft Cimarron and Comanche National Grasslands Land Management Plan. The Forest Service defines Special Areas in the most current Forest Planning Regulations:

> Special Areas are areas within the National Forest System designated

> because of their unique or special characteristics. Special areas such as botanical areas or significant caves may be designated, by the Responsible Official in approving a plan, plan amendment, or plan revision. Such designations are not final decisions approving projects and activities. The plan may also recognize special areas designated by statute or through a separate administrative process in accordance with NEPA requirements (Sec. 219.4) and other applicable laws. (36 CFR 219.7(2)(v).

The Forest Service Directives provide some more detail:

> Special areas are places within the NFS identified or designated because of their unique or special characteristics (36 CFR 219.7(a)(2)(v)). Land management plans may identify areas as special for various reasons without a formal designation. In addition, land management plans should include special areas designated by statute or through a separate administrative process.
>
> > 1. The Responsible Official may recommend the designation or removal of those special areas that require a Congressional or higher level administrative decision; or
> > 2. The Responsible Official may identify, designate, or remove special areas that fall within the Responsible Official's authority through approval of a land management plan, plan amendment, or plan revision.

FSH 1909.12, section 11.15.

While we do not oppose the designation of any of the Special Areas proposed by the Forest Service in the Draft Plan (see table below), we are concerned that the selections do not sufficiently represent the full spectrum of Grasslands ecosystems or capture sufficient sampling of the many unique resources, and we believe that the proposed areas merit the real protections associated with Research Natural Areas. The current proposal would not protect them from human uses such as livestock grazing (except for Picket Wire Canyon, which was already off-limits to grazing) and oil and gas development. Thus, Special Area designations afford no new protections to ecological resources on the Grasslands despite a great need for such protections. We proposed the designation of new Research Natural Areas (RNAs). The EA is clear that these areas were evaluated as potential RNAs, that CNHP has confirmed that they possess important natural values and would serve as key reference points, and that the Forest Service agrees with that assessment and furthermore believes the areas have research potential. The EA presents no rationale for why Special Area designation is adequate to protect the special values at stake. The agency does not explain why these areas do not meet RNA criteria, either. By failing to designate these areas as RNAs the Forest Service is both failing to conserve

irreplaceable natural values at the local level and failing to assemble the reference library of RNAs that it has committed to at the national level.

At a minimum: 1) each ecosystem type[I would recommend ecoregional section instead - I don't know what these ecosystem types are, and R2 had embraced Sectional representation before] should be represented in an RNA using the larger set of ecosystem type classifications defined by NatureServe and adapted by the Colorado Natural Heritage Program (CNHP) (Please see Ecosystem section below for a more comprehensive set of ecosystems that occur on the Comanche and Cimarron Grasslands.); and 2) an RNA should be designated to afford protection to each plant and animal species of concern and interest designated in the Grasslands.

The Forest Service has made no effort at designating special areas that cover the full representation of ecoregional sections on the grasslands. OU Creek, Bent Canyon Bluffs, and Picket Wire Canyonlands are all found within the same subsection according to the EA, and the EA does not disclose which sections the special areas with cultural values are found within. Special areas with cultural values could be expanded to include natural values as well. For example, the Santa Fe National Historic Trail area includes Point of Rocks, which has important natural values, but the EA does not explain how or whether those values would be captured given the proposed boundaries. All special areas should be large enough to conserve the natural processes that will sustain the values they contain. The Forest Service must not evade RNA designation; special area designation is no substitute. It is inconceivable that the Forest Service has not recommended special area designation for any lesser prairie chicken leks. This Candidate species would be well served by having some of its breeding grounds protected as RNAs.

Comanche and Cimarron Proposed Special Areas (Draft Plan) – Table 1

PROPOSED AREA	LOCATION	ACRES	FS ECOSYSTEM	UNIQUE FEATURES	C/I & T/E SPECIES	FS SUITABLE USES	FS NOT SUITABLE
Bent Canyon Bluffs Comanche (Timpas)	T 27S, R 56W, sec 31-34 T 27S, R 57W, sec 33-36 Picket Wire Canyon-Rolling Plains ecological subsection approximately 23 miles southwest of La Junta, CO	4,676	**shortgrass** prairie	botanical geological - limestone outcrops, bluffs up to 150 feet above plain, septarian concretions		LG (2 allotments now), O&G, Fire, UC, RU	OHV
Mesa de Maya Comanche (Carrizo)	T 33S, R 55W, sec 7, 8, 17, 18 Tablelands-Red Hills ecological subsection approximately 15 miles west of Kim, CO	518	**Shortgrass** P&J shrublands	botanical - unique plant associations, shrub communities geological - basalt formations, cliffs, & talus slopes	~long-billed curlew (I)	LV, O&G, Fire, UC	OHV
OU Creek Comanche (Carrizo)	T 31S, R 52, Sec 22, 23, 26, 27, 34, 35 Picket Wire Canyon- Rolling Plains ecological subsection approximately 7 miles northeast of Kim, CO	3,196	**Shortgrass** Shrubland	botanical geological	~Colorado frasera (I)	LV, O&G, Fire, UC	OHV
Picket Wire Canyonlands Comanche (Timpas)	• T 27S, R 55W, sec 20, 26 - 29, 33-35 • T 28S, R 55W, sec 3, 4, 5, 7-9, 17-19, 29, 30-32 • T 29S, R 55W, sec 5 and 6; • T 28S, R 56W, sec 13, 23 - 26, 34-36 • T 29S, R 57W, sect 2 - 5, 7 - 10, 18 • T 30S, R 57W, sect 9, 17-21, 30 Picket Wire Canyon-Rolling Plains ecological subsection approximately 20 miles south of La Junta and extending discontinuously for about 24 miles along the Purgatoire River	15,697	**Riparian & aquatic** Canyonlands	botanical – unique shrubland communities paleontological heritage wildlife acquatic	~ Colorado Frasera (I) ~ Wheel milkweed (C) ~ ferruginous hawks (I) ~ Elk (I)	LV, O&G, Fire, UC	LV, OHV
Picture Canyon Comanche (Carrizo)	T. 35S, R. 47 W, section 7, S½; S½ N½; NE¼ NW¼ T. 35S, R. 47W, section 18, N½ N½	752	sandsage	heritage recreation scenic		LV, O&G, Fire, UC	OHV
Santa Fe Trail Comanche & Cimarron		*[68.5 miles]*		heritage recreation scenic		LV, O&G, Fire, UC	OHV
Vogel Canyon Comanche (Timpas)	• T26S, R.55W, section 24, S½ S½; NE¼SE¼; SE¼NE¼ • T26S, R.54W, section 19, W½ SW¼; SW¼,NW¼ • T26S, R.54W, section 30, NW¼ NW¼	416	canyonland some shortgrass	heritage recreation scenic		LV, O&G, Fire, UC	OHV

LV = livestock grazing, O&G = oil and gas development, Fire = fire use and management, UC = utility corridors, RU = two-track road use for administrative purposes

Proposed Research Natural Areas (RNAs)

Creating a network of Research Natural Areas across the landscape is desirable to:

- Preserve a range of natural habitat types for research and reference
- Protect biodiversity, hotspots and valuable or unusual habitat
- Avoid damaging fragile soils and habitat
- Limit impacts to and enhance the understanding and recovery of imperiled species and ecological associations.

Research Natural Areas allow for the protection of important resources that do not meet wilderness criteria. The Forest Service has committed to assembling a portfolio of protected habitat types as RNAs, with redundancy in the event that one of the representatives is damaged or destroyed by natural or human causes. We urge the Forest Service to take advantage of conservation organization experience to identify and designate RNAs.

Proposed Research Natural Areas

PROPOSED AREA	LOCATION	ACRES	ECOSYSTEM	UNIQUE FEATURES	C/I & T/E SPECIES	SUITABLE, NOT SUITABLE USES
Bent Canyon Bluffs Comanche (Timpas)	(see Forest Service description above)					**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors
Mesa de Maya Comanche (Carrizo)	(see Forest Service description above)					**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors
OU Creek Comanche (Carrizo)	(see Forest Service description above)					**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors
Bravo Canyon Comanche (Timpas)	T29S R56W Sections 4,5,7,8, 18 (that is Forest Service land) with possible co-management with state and Army lands in T28S R56W Sections 27, 26, 34, 35) in the Picket Wire Canyonlands of the Comanche National Grassland	2962	piñon-juniper woodlands, shrublands, & grasslands, canyonlands	Geological and botanical features, extensive canyons and mesas		**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors
Eightmile Cimarron	occupies all or parts of T35S R43W Sections 17, 18, and 19 approximately eight miles west of Elkhart, Kansas on the Cimarron National Grassland	1316	Shrublands, grasslands	Undulating sand dunes, sand dune blowouts, loggerhead shrikes, burrowing owls, prairie dogs	Lesser praire-chicken	**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors
Lone Rock Draw Comanche (Carrizo)	occupies those portions designated as National Forest System lands in T31S R47W Sec. 6,7,18 and 19 and in T31S R48W Sec. 13, 24 and 25	1077	plains shrublands, sandsage and midgrass prairie	flat terrain is punctuated by a series of gravel benches		**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors
Rourke Canyon Comanche (Timpas)	occupies all or parts of T28S R55W Sections 29-32 and 19; T29S R55W Sections 5 and 6; T28S R56W Sections 24, 25, and 36 located on the Picket Wire Canyonlands	3498	piñon -juniper woodlands, plains shrublands and grasslands	bounded on the west and north by the Purgatoire River and on the east by Beatty Canyon, steep canyon walls; sitings of rufous-crowned sparrow (*Aimophila ruficeps*), hepatic tanager (*Piranga flava*), and gray vireo (*Vireo vicinior*).		**Suitable:** non-manipulative research, education, observation and monitoring within the area **Not suitable:** livestock grazing, oil and gas development, Off-road vehicles, recreation, utility corridors

Picket Wire Canyonlands

One objective for Picket Wire Canyonlands is to minimize the effects of the flow of the Purgatoire River on the dinosaur track site (pg 75). How would this be accomplished? Would such flow be diverted or somehow redirected around the track site during high-flow periods? If so, what would be the impacts of such activity? The EA states that only minimal livestock grazing occurs; the Forest Service should close this area to grazing so that it can serve as a true reference area. The Forest Service should ensure that the area designated is large enough to preserve natural processes.

Bent Canyon Bluffs

In the Bent Canyon Bluffs proposed special area, how would livestock grazing "be managed to provide a reference area for comparing the effects of management in similar ecosystems on other areas of the Timpas Unit of the Comanche"? To truly provide a reference for other grazed areas, Bent Canyon would first have to have no grazing for several years or longer, and possibly also have some restoration work done. However. the area is proposed to be suitable for livestock grazing (pg 79). Also, there are no proposed guidelines for restricting livestock grazing in this area (pg 89).

Mesa de Maya

Conserving the tallgrass prairie in this area should be a major priority.

OU Creek

The Desired Conditions for this area should include protecting wheel milkweed.

Suitability Decisions

Plan Finds Too Much Area Suitable for Potentially Damaging Activities

According to the table of "broad use categories", Table 2-2 on pp. 78-79, all four ecosystems are suitable for livestock grazing, even the riparian and aquatic ecosystem. This is unacceptable. Riparian areas are very easily damaged by the presence of livestock, which tend to congregate in such areas. The importance of riparian areas is well known, but on the Grasslands, where surface water is relatively scarce, these areas are even more ecologically critical.

These areas should be unsuited for livestock grazing. We recognize that some grazing allotments may include such areas within their boundaries. Thus it would be difficult to avoid occasionally having livestock traveling through riparian

areas. However, they should not be allowed to congregate there. Rather, only pass-through grazing should be allowed, and to the greatest extent possible, riparian areas must be excluded from grazing allotments.

The canyonlands ecosystem is found suitable for all activities: livestock grazing, fire use and management, oil and gas development, off-highway vehicle use, and utility corridors. Page 78. Similarly, for special areas, all such areas are suitable for oil and gas development, and only Picket Wire is not suitable for livestock grazing. Table 2-13, pp. 79-80. Surprisingly, Picket Wire is even suitable for OHV use, while the other special areas are not. Id.

This is unacceptable. All of these special areas must be unsuitable for oil and gas development, as any such activity would degrade or destroy the qualities that makes each area “special”. There is already a great deal of oil and gas exploration and production on the Grasslands. See p. 41. Surely a few areas with special ecological and historical qualities can be found unsuitable for oil and gas activity.

Picket Wire *must* be found unsuitable for oil and gas activity. Note the following from the law (P.L. 101-510) that transferred jurisdiction of the area (part of the Pinon Canyon Maneuver Site) from the Army to the Forest Service: "Lands of the PWC are withdrawn from operation of mining, mineral leasing, and other mineral entry laws of the United States." Sec. 2825(c)(5).

Alternatively, if a private mineral estate underlies any of the areas other than Picket Wire, the Forest Service can at last insist on no surface occupancy for any mineral leases there. The agency clearly has the authority to do this. See the Federal Offshore Oil and Gas Leasing Reform Act, 30 U. S. C. 226 et seq., and its implementing regulations at 36 CFR 228.102(c)(1)(ii). Notably, the draft Plan does not have a map showing the distribution of mineral and surface estates in the planning area.

The canyonlands ecosystem in general, and Picket Wire in particular, must be unsuitable for OHV use. It is not appropriate to find such an area “generally” suitable for such use, even if certain specific sites are later found to be unsuitable. (See p. 9.) It would be very easy for any such use, even in areas where it might theoretically be manageable, to get out of control and damage vegetation and historic artifacts, as it is not easy to limit OHV use once it is established in any area. The Forest Service, with its limited budget and personnel, simply cannot manage OHV use in a way that would minimize damage to important resources. If any motorized use is allowed, the Forest Service would not be able to prevent damage. Motor vehicle use in these areas must be prohibited.

The Forest Service must not rely on guidelines for OHV use to protect special areas. Guidelines for these areas read as follows:

> Off-highway vehicle (OHV) use should be prevented where necessary to protect populations and habitat of species-of-concern plants.
>
> Pages 89-90; emphasis added.

Most of the identified special areas have this guideline; notably, Picket Wire does not.

This is woefully insufficient protection. First off, these are only guidelines, which are discretionary, as they are "advisable or preferred courses of action". Page 83.[2] In other words, they do not have to be implemented. Second, in any areas with species-of-concern plants, or any other fragile and desirable vegetation, OHV use must be prohibited. Any such use would be very likely to damage such plant and animal populations. As stated above, the Forest Service simply cannot manage OHV use to ensure that damage will be minimized. Thus such use must be prohibited in special areas.

The Forest Service must also not rely on travel management alone to protect ecological resources. Pages 38-39 state:

> A travel management plan will be developed to identify specific travel restrictions… Such a plan would also …provide….protection for wildlife, plants and heritage resources in areas such as Picture Canyon, Picket Wire Canyonlands, and Bent Canyon Bluffs.

Travel management planning is important and necessary for the Grasslands, and we urge that it commence as soon as possible. However, restrictions in the plan for these areas are necessary in order to ensure protection of valuable resources. If the Picket Wire is suitable for OHV use, it will be difficult to enact and enforce enough restrictions via travel management to ensure that resources are protected.

We are displeased to see that there are not even any monitoring questions addressing OHV use in the special areas. See pages 74-76. This is so in spite of objectives for three of these areas that call for closure and restoration of unneeded two-track travelways. Pages 74-75.

We have similar reservations about livestock grazing in the canyonlands ecosystem, which are found suitable for this activity, except for the Picket Wire Canyonlands special area. See pages 77-80. Livestock do not belong in narrow canyon bottom, let alone on the steep sideslopes. Forage is likely concentrated

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[2] Guidelines have an even weaker description in the Planning Regulations: Guidelines provide information and guidance for project and activity decisionmaking to help achieve desired conditions and objectives". 36 CFR 219.7(a)(2)(iii) (2005).

in the bottom lands, which are usually near streams. Livestock, especially cattle, naturally congregate in wetter areas, such as riparian areas. In the canyonlands, topography would force an even greater concentration of livestock, because it would be difficult for them to forage anywhere else.

Ecosystems

The Forest and Grassland planning regulations emphasize the importance of ecological sustainability and supporting ecosystem diversity within a planning area. The regulations cover ecological sustainability in 36 CFR 219.10:

> The overall goal of the ecological sustainability element of sustainability is to provide a framework to contribute to sustaining native ecological systems by providing ecological conditions to support diversity of native plant and animal species in the plan area… (219.10(b))
>
> Ecosystem diversity is the primary means by which a plan contributes to sustaining ecological systems. Plan components must establish a framework to provide the characteristics of ecosystem diversity in the plan area… (36 CFR 219.10(b)(1))

Forest Service directives, finalized in 2006, provide additional guidance to agency employees for meeting ecological sustainability goals. The Draft Cimarron and Comanche Land Management Plan was developed using Interim Directives, which were issued in 2005.

Review of the Desired Conditions, Objectives, and Design Criteria Pertaining to Ecological Resources in the Draft Plan

All Ecosystems

The Draft Plan outlines a set of Desired Conditions to achieve: resilient native plant communities, a heterogeneous mosaic of plant communities, control over invasive plant species, upward trends toward Class 1 watershed conditions, closer approximation to historic fire regime[3], soil productivity, restoration or maintenance of habitats to contribute to T&E, Concern, and Interest (except invasives) species sustainability. We support all of these goals. However, we are concerned that the Plan does not lay out an adequate set of objectives and guidelines to achieve these Desired Conditions. Objectives and guidelines must be written to achieve the desired conditions.

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[3] As we argue elsewhere in these comments, the objectives concerning restoration of fire for each ecosystem addressed would not meet this desired condition.

The Canyonland Ecosystem

The National Grasslands provide a unique situation for the Forest Service; the agency and conservationists can agree—there are actually *too many* trees in some places, especially in the Comanche canyonland areas. These areas are beautiful and a hidden Colorado treasure, but the current ecosystem condition is likely well outside the range of historic variability due, in part, to encroachment by one-seed juniper (*Juniperus monsperma*), other trees, and woody shrubs. Fire suppression and livestock grazing (cattle don't eat trees and juniper saplings, which allows them to mature and spread) in the canyonlands ecosystem have led to these conditions. Reducing the size and density of juniper stands and reducing tree canopy are Plan Desired Conditions (Plan at 31). Plan objectives include achieving a more diverse seral composition for the juniper woodland plant community (Plan at 61) through the use of prescribed burns and/or wildfires and livestock grazing adjustments—all good. We recommend not limiting fire treatment to only 5% or less of the canyonland ecosystem, as stated in objective 6 at pg. 64. Also, the objectives are equivocal regarding livestock grazing in the canyonlands[4]; what is needed is less livestock grazing in the canyonlands than is currently allowed, even removing cattle from some areas, and a clear understanding of how this will be achieved in the Plan. Cattle should definitely be fenced out of riparian areas (streams, seeps, and springs) within the Grasslands' canyonlands (Belsky, et al 1999; Fleischner 1994). There are no guidelines specific to the canyonland ecosystem for any activities (Plan at 87). This oversight must be corrected.

Riparian and Aquatic Ecosystem

Given that private entities own 80% of the watershed areas where the Grasslands exist and the fragmented character of the planning area ownership pattern, we understand that the Forest Service is constrained in its ability to significantly improve watershed conditions through management activities on the Grasslands. When possible and when opportunities arise, the Forest Service should work with adjacent and nearby landowners, local communities, and state government agencies to improve watershed and water system conditions throughout the planning area and the region. One Desired Condition includes having all 303d list stream segments off the list in 30 years (Plan at 33). This is a very appropriate goal, but how realistic is it given the constraints?

Another Desired Condition includes maintaining and improving native fish habitat (Plan at 33). How will improved conditions be assessed if the Plan

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[4] For example, grazing "would be managed to be variable in timing and intensity"; winter grazing could be allowed (Plan at 64); and areas with documented occurrences of wheel milkweed and Andean prairie clover would be managed for low and moderate, respectively, disturbance by livestock grazing (plan at 62).

includes no Species of Concern or Interest with which to assess trends in fish habitat? We recommend including the Arkansas darter as a Species of Concern and addressing the conservation needs of the Arkansas River shiner, a threatened species in the Plan (see TES and Species of Concern sections below).

We do not support the Desired Condition to maintain non-native fishes in "pond habitats" for recreational fishing (Plan, id). Most native fish populations are declining or disappearing from the Grasslands. Non-native fish can out-compete native species, and have been known escape enclosed ponds through water diversions, and during flood events and high water periods (U.S. Forest Service, PSICC(6) 2005 Fisheries Specialist Report at 1, citing Woodling 1985 and Chynoweth 1998).

The only guidelines presented to help achieve riparian and aquatic ecosystem conditions pertain to road construction (Plan at 87). Given the current high road density on both Grasslands, particularly the Comanche Carrizo Unit, it is hard to fathom why new roads would be necessary. However, if new roads are to be constructed in the Grasslands, the Plan must include specific goals for de-commissioning and restoring other roads that are currently contributing to degraded riparian and aquatic conditions. A Plan goal should include a net decrease in miles of roads for both Grasslands with a specific 15-year timeline for converting roads back to native vegetation communities.

We agree that tamarisk control is an important objective (Plan at 65). Tamarisk encroachment is indeed degrading the riparian ecosystems in the Grasslands. However, the methods used to remove tamarisk can also be damaging to streambanks and wetlands. What methods will be used to remove tamarisk? How will the impacts of tamarisk removal be assessed? Guidelines to minimize damages from tamarisk control should be included in the Plan.

We agree that seeps and springs should be rehabilitated to reduce the impacts of livestock (Plan, id). But first, livestock should be excluded from the natural seeps, springs, streams, and playas that occur on the Grasslands. These are rare, precious resources for the Grasslands that are essential for wildlife. They also improve recreational experiences and scenic integrity when they are in good condition. Few natural water sources are excluded from livestock now, except for the Picket Wire Canyon area, a spring in Picture Canyon, and a section of Timpas Creek. Those that allow livestock are suffering from bank damage, trampling, soil compaction, and the inability for cottonwood trees to regenerate in riparian areas.

Removing existing dams and impoundments from riparian areas is a necessary and excellent goal (Plan at 66), although achieving a mere 10 removals within 15 years is rather unambitious. Because these artificial structures were created for livestock and the private economic benefit of grazing

allotment permittee holders at a high cost to grassland and riparian ecosystem health, the Grazing Associations and Districts should contribute to the expenses of removing them and restoring the respective areas. Such restoration projects could also contribute to the local economy and to the social and economic goals of the Plan by providing jobs to community members.

Sandsage Prairie

We support the proposal for progressing toward a more heterogeneous vegetational structure across sandsage prairie areas (Plan at 34). This is an important goal for promoting native biodiversity in the region. But again, the Plan needs clear and enforceable objectives and guidelines for limiting livestock grazing and for monitoring criteria to assess progress toward a mosaic pattern of vegetation structure and composition. Where would livestock grazing be reduced and terminated? We recommend using current species surveys and location information and species habitat needs to determine the frequency, intensity, and duration of livestock grazing by grazing allotment.

Shortgrass Prairie

Enabling a mosaic of vegetation structure heights is also important for the shortgrass prairie ecosystem (Plan at 35). Again, where would livestock grazing be terminated and reduced? The Plan proposes to designate the mountain plover as a Species of Concern to help assess trends for short-structure shortgrass vegetation communities, and the long-billed curlew is an appropriate Species of Interest to help monitor trends toward mid-structure conditions. However, one or more additional species should be designated as Species of Concern or Interest to help assess trends toward tall-structure vegetation. We recommend the Cassin's sparrow (see justification below).

Review of Ecosystem Diversity Issues Addressed in the Draft Plan

Ecosystem diversity is addressed specifically in the Forest Service Manual (FSM) 1921.73a and in 1909.12, Chapter 43 of the Forest Service Handbook (FSH). One of the key goals of Forest and Grassland planning is to manage these public lands to promote ecosystem diversity.

The Forest Service classifies the Comanche and Cimarron Grasslands into four major ecosystem groups. Sandsage prairie, shortgrass prairie, and the canyonlands ecosystems, which also include some riparian areas, occur on the Comanche. Sandsage prairie, shortgrass prairie, and riparian/aquatic (the Cimarron River Corridor) ecosystems occur on the Cimarron. The Comanche is dominated by shortgrass prairie and the Cimarron is dominated by sandsage. (See table below).

ECOSYSTEM	COMANCHE	CIMARRON
Sandsage Prairie	29%	60%
Shortgrass Prairie	61%	30%
Canyonlands	10%	
Riparian & Aquatic		10%

Information from Cimarron and Comanche Specialist Reports.

However, the Forest Service neglects other key Southern Prairie ecosystems in its Draft Management Plan. The Colorado Natural Heritage Program provided the Forest Service with descriptions of 11 distinct ecosystem types that occur on various parts of the Grasslands (R. Rondeau, pers. com. 2005).[5] These ecological types are included in Appendix 3 of the Comanche and Cimarron Grasslands Ecological Sustainability report. These ecosystem accounts were adapted from NatureServe (2003) and are consistent with land cover types described for the Gap Analysis of Kansas project, which mapped out land coverage categories for the state of Kansas (Cully et al. 2002). CNHP has also developed a multi-factor rating system to characterize the conditions of a particular ecosystem patch. This can serve as a guide for the Forest System when evaluating "ecosystem compositions, structure, and processes of terrestrial and aquatic ecosystems," as directed by the Forest Service Handbook (1909.12, Ch. 43.12).

By limiting the number of ecosystems accounted for in the Draft Plan, the Forest Service is ignoring important differences in the larger set of ecosystem types that likely need very different management approaches. The limited ecosystem types selections made in the Plan overlook rare and unique ecosystems of the Southern Plains region. Because irrigated and dry-land crop agriculture and intensive livestock grazing surround the Grasslands, these federal lands are the few places in the entire region where rare, pre-settlement ecosystems can be preserved or restored and studied. Collapsing the ecosystem categories contradicts the goal of achieving diversity, and furthermore, the proposed management activities and land uses in the Draft Plan may not be appropriate for some of the ecosystems within the more general 4-ecosystem scheme. Though more complex, the Forest Service must consider the full range of known ecosystems in the Plan and develop management provisions for each of these. (See table below.)

Major Ecosystems of the Cimarron and Comanche National Grasslands

Forest Service Categories	The Nature Conservancy Categories	CO Natural Heritage Program Categories
Sandsage Prairie	Western Great Plains Sandhill	Sandsage Prairie

[5] CNHP also includes the "Shale Barrens" ecological type in its classification scheme for the Comanche and Cimarron Grasslands but this did not appear in the Comanche and Cimarron Ecological Sustainability Assessment.

	Shrubland	
Shortgrass Prairie (Mesic and Arid)	Western Great Plains Shortgrass Prairie	Shortgrass Prairie
	Central Mixedgrass Prairie	Midgrass Prairie
	Inter-mountain Basins Mixed Salt Desert Scrub	Mixed Salt Desert Scrub
		Shale Barrens
	Inter-mountain Basins Greasewood Flat	Greasewood Flats
	Southern Rocky Mountain Juniper Woodland and Savanna	Juniper Woodland & Savanna
Canyonlands	Southwestern Great Plains Canyon	Southern Great Plains Canyon Ecological System Complex
	Inter-mountain Basins Mixed Salt Desert Scrub	Mixed Salt Desert Scrub
	Inter-mountain Basins Greasewood Flat	Greasewood Flats
	Southern Rocky Mountain Juniper Woodland and Savanna	Juniper Woodland & Savanna
	Rocky Mountain Lower Montane-Foothills Shrubland	Lower Montane-foothills Shrubland –Large Patch
Riparian & Aquatic	Western Plains Riparian Woodland, Shrubland, and Herbaceous	Western Plains Riparian Woodland & Shrubland
	Western Great Plains Closed Depression Wetland	Depressional Wetlands (Playas)
	North American Arid West Emergent Marsh	Seeps & Springs

Sandsage Prairie

The sandsage prairie ecological system is found primarily in the south-central areas of the Western Great Plains Division. Occurrences range from the Nebraska Sandhill region south to central Texas, although some examples may reach as far north as the Badlands of South Dakota.

The greater part of the system occurs in the Central Shortgrass Prairie Ecoregion in eastern Colorado, western Kansas and southwestern Nebraska. The climate is semi-arid to arid for much of the region in which this system occurs. This system is found on somewhat excessively to excessively well-drained, deep sandy soils that are often associated with dune systems and ancient floodplains. In some areas, this system may actually occur as a result of overgrazing in Western Great Plains Tallgrass Prairie or Western Great Plains Sand Prairie (NatureServe 2003).

In eastern Colorado, this system is found in extensive tracts on Quaternary eolian deposits (Tweto 1979) along the South Platte, Arikaree and Republican Rivers, between Big Sandy and Rush Creeks, and along the Arkansas and Cimarron Rivers, where it is contiguous with areas in Kansas (Comer et al. 2003).

Throughout its range, this system is characterized by a sparse to moderately dense woody layer dominated by sand sagebrush. These shrubs usually do not grow as clumps but as individuals, and the intervening ground is most often dominated by a sparse to moderately dense layer of tall, mid- or short grasses (Bruner 1939, Steinauer 1989, Ramaley 1939, Dick-Peddie 1993).

Associated species can vary with geography, precipitation, disturbance and soil texture. Graminoid species such as sand bluestem (*Andropogon hallii*), sand dropseed, prairie sandreed (*Calamovilfa longifolia*), giant sandreed (*Calamovilfa gigantean*), needle and thread, and grama grasses are often associated with this system. Other shrub species may also be present including soapweek yucca (*Yucca glauca*), honey mesquite (*Prosopis glandulosa*), skunkbrush sumac (*Rhus trilobata*), and Chickasaw plum (*Prunus angustifolia*). A few species such as the shrubs *Prunus pumilla* var.*besseyi* and leadplant (*Amorpha canescens*) and the grasses switchgrass (*Panicum virgatum*) and indiangrass (*Sorghastrum nutans*) are believed to have been formerly more common, but now much decreased, most likely by cattle grazing throughout the growing season (pers. comm. Harvey Sprock and Ben Berlinger, Colorado NRCS).

Colorado's eastern plains exhibit climatic differences from north to south which may be reflected in the local expression of sandsage prairie. Occurrences in southern Colorado experience a longer growing season, lower

annual precipitation, and differences in precipitation patterns (Western Regional Climate Center 2004), and may be dominated by different species than northern stands.

In the southern range of this system, Havard oak (*Quercus havardii*) may also be present and represents one succession pathway that develops over time following a disturbance. Havardi oak is able to resprout following a fire and thus may persist for long periods of time once established (Wright and Bailey 1982).

Fire and grazing are the most important dynamic processes for this type, although drought stress can impact this system significantly in some areas (Ramaley 1939). Overgrazing can lead to decreasing dominance of some of the grass species such as sand bluestem*,* giant sandreed, prairie sandreed and little bluestem (*Schizachyrium scoparium*).

Greater and lesser prairie-chickens (*Tympanuchus pallidicinctus*), Cassin's sparrows, and ornate box turtles (*Terrapene ornate*) are indicators of a healthy sandsage prairie system.

Source: S. Kettler, K. Decker, R, Rondeau, and D. Augustine, Date: July 2004)

Shortgrass Prairie

This system is found primarily in the western half of the Western Great Plains Division east of the Rocky Mountains and ranges from the Nebraska Panhandle south into Texas and New Mexico, although some examples may reach as far north as southern Canada where it grades into Northwestern Great Plains Mixedgrass Prairie. This system occurs primarily on flat to rolling uplands with loamy, ustic soils ranging from sandy to clayey. In much of its range, this system forms the matrix system with blue grama grasses (*Bouteloua* spp.) dominating this system. Other associated graminoids may include buffalograss (*Buchloe dactyloides*)*,* needle and thread (*Hesperostipa comata*)*,* prairie Junegrass (*Koeleria macrantha*) *(= Koeleria cristata),* western wheatgrass (*Pascopyrum smithii*) *(= Agropyron smithii)*, purple threeawn (*Aristida purpurea*) and sand dropseed (*Sporobolus cryptandrus*). Although tallgrass and mixedgrass species may be present especially on more mesic soils, they are secondary in importance to the sod-forming short grasses. Shrub species such as sand sagebrush (*Artemisia filifolia*)*,* big sagebrush (*Artemisia tridentate*)*,* and rabbitbrush (*Chrysothamnus* spp.) that dominate the Western Great Plains shrubland systems may also be present. Also, because this system spans a wide range, there can be some differences in the relative dominance of some species from north to south and from east to west.

Large-scale processes such as climate, fire and grazing influence this

system. In contrast to other prairie systems, fire is less important, especially in the western range of this system, because the often dry and xeric climate conditions can decrease the fuel load and thus the relative fire frequency within the system. However, historically, fires that did occur were often very expansive. Currently, fire suppression and certain grazing patterns in the region have likely decreased the fire frequency even more, and it is unlikely that these processes could occur at a natural scale. A large part of the range for this system (especially more mesic areas in the eastern part of the Central Shortgrass Prairie) has been converted to agriculture. Further west in the Central Shortgrass Prairie, areas have been impacted by the unsuccessful attempts to develop dryland cultivation during the Dust Bowl of the 1930s. The short grasses that dominate this system are extremely drought- and grazing-tolerant. These species evolved with drought and large herbivores and, because of their stature, are relatively resistant to overgrazing.

This system in combination with the associated wetland systems represents one of the richest areas, in the United States, for large mammals. Grassland bird species may constitute one of the fastest declining vertebrate populations in North America. A healthy shortgrass prairie system should support viable populations of pronghorn, endemic grassland birds, prairie dog complexes, and other Great Plains mammals. Historically, such areas would also have been populated by bison in sufficient numbers to support populations of wolves.

Sources: K. Decker, S. Kettler, R. Rondeau, Date: May 2004.

Midgrass Prairie (Central Mixedgrass Prairie)

The midgrass prairie system ranges from South Dakota to northern Texas and is bordered by the shortgrass prairie on the western edge and the tallgrass prairie to the east. The loessal regions in west-central Kansas and central Nebraska, the Red Hills region of south-central Kansas and northern Oklahoma are all located within this system (NatureServe 2003). Although the greater part of the midgrass prairie lies to the east of Colorado, the western extent of this system has probably moved in and out of what is now eastern Colorado during much of the Holocene, as climatic conditions alternated between wetter and drier. In the sandhills of eastern Colorado, midgrass prairie dominated large areas in the early years of the 1900s. By the late 1940s, most of these communities had been replaced by shortgrass or sandsage communities, due to the effects of grazing and drought (McGinnies et al. 1991). Due to its position on the periphery of Ecological Sustainability 10/6/2005 Page 44 of 115 the range of the midgrass prairie ecological system, Colorado has probably never supported extensive tracts of this type.

Because of its position between two other prairie systems, this system contains elements from both shortgrass and tallgrass prairies, which combine to form the midgrass prairie ecological system throughout its range. The

distribution, species richness and productivity of plant species within the midgrass ecological system is controlled primarily by environmental conditions, especially soil moisture and topography. Grazing, fire, and drought are important dynamic processes in this system. The relative dominance of the various grass and forb species within different associations in the system also can strongly depend on the history and degree of natural or human disturbance.

The majority of midgrass associations in this system are dominated by western wheatgrass or little bluestem, although other grass species such as sideoats grama *,* big bluestem (*Andropogon gerardii*)*,* needle and thread*,* prairie dropseed *Sporobolus heterolepis*, and blue grama are often present. Numerous forb and sedge species (*Carex* spp.) can also occur within the mixedgrass system in the Western Great Plains. Although forbs do not always significantly contribute to the canopy, they can be very important. Some dominant forb species include Cuman ragweed (*Ambrosia psilostachya*)*,* blacksamson echinacea (*Echinacea angustifolia*), and rush skeletonplant (*Lygodesmia juncea*). Shrubland associations can occur in areas protected from fire due to topographic conditions.

Although there are no species which are strictly endemic to midgrass prairie, grassland birds such as chestnut-collared longspur (*Calcarius ornatus*), lark bunting (*Calamospiza melanocorys*), Cassin's sparrow, and grasshopper sparrow (*Ammodramus savannarum*) do use these mid-height grassland for major portions of their life cycle, and are indicators of a functioning system.

Sources: K. Decker, R. Rondeau, Date: May 2004.

Mixed Salt Desert Scrub (inter-Mountain Basins Mixed Salt Desert Scrub)

This extensive ecological system includes open-canopied shrublands of typically saline desert basins, alluvial slopes and plains across the Intermountain western U.S. This type also extends in limited distribution into the southern Great Plains. In the Central Shortgrass Prairie the Mixed Salt Desert Scrub ecological system is largely confined to the western edge of the ecoregion, although occurrences may be found at some distance from the mountain front in southeastern Colorado. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The salt-desert shrubland system is a matrix system in the Intermountain West, but occurs as a large patch type in the Western Great Plains. Sites can be found on all aspects and include valley bottoms, alluvial and alkaline flats, mesas and plateaus, playas, drainage terraces, washes and interdune basins, bluffs, and gentle to moderately steep sandy or rocky slopes (NatureServe 2003). This system is often adjacent to occurrences of Ecological Sustainability 10/6/2005 Page 51 of 115 the Greasewood Flat ecological system, and may intergrade with it, depending on local variation in hydrologic regime, soil salinity and texture.

In the Western Great Plains, the vegetation of this system is characterized by a typically open to moderately dense (5-15% cover) shrubland. Fourwing saltbush (*Altriplex canescens*) is the most common dominant, although Shadscale saltbush (*Atriplex confertifolia*) is also found in isolated areas of southeastern Colorado (Brown 1982, Branson et al. 1967). Other shrubs that may be present or codominant include winterfat (*Kraschenninnikovia lanata*), pale desert-thorn (*Lycium pallidum*), rubber rabbitbrush, tree cholla, soapweed yucca, and broom snakeweed (*Gutierrezia sarothrae*). Greasewood (*Sarcobatus vermiculatus*) is generally absent, but if present does not codominate. The characteristic shrubs are most common under regimes of infrequent fire and moderate browsing (Carey 1995, Howard 2003). The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as Indian ricegrass (*Achnatherum hymenoides*), blue grama, New Mexico feathergrass (*Hesperostipa neomexicana*), western wheatgrass, James' galleta, or alkali sacoton (*Sporobolus airoides*). Various forbs are also present.

Sources: G. Kittel, K. Decker, Version Date: October 2004.

Shale Barrens

This system includes shale and limestone outcrops of the southern great plains. In some cases, occurrences of this system will be inclusions in the Southern Great Plains Canyon ecological system complex. Barrens are generally found on shales, soft limestone (chalk), or shale-derived soils, and are characterized by a high percentage of open, rocky ground between the low-growing shrubs and herbaceous cover. Some occurrences have an overstory of sparse juniper, and may include scattered larger shubs and bunchgrasses. Shale substrates often form a rocky "pavement" between plants. This system is distinguished from the Western Great Plains Cliff and Outcrop system that is found further north on the Pawnee grasslands by the different substrate and growth patterns of the vegetation. In the Central Shortgrass Prairie ecoregion, this system may provide suitable habitats for northward range extension of species that are more typical further south (Kelso 1999).

Occurrences of this system are most often found Cretaceous bedrock of the Middle and Upper Chalk members of the Smoky Hills Member of the Niobrara Formation. The area between Pueblo and Cañon City contains the highest frequency of such shale barrens in southeastern Colorado (Kelso 1999). Slope angles range from flat on summits to moderately steep on side slopes, and exposures are variable, depending on how uplift, regional erosion, or downcutting has occurred (Kelso 1999). Soils belong to the Penrose series and are typically shallow. Summit flats have shallower soils than slopes, with slope bottoms generally deeper than slope tops (Kelso 1999).

Vegetation is characterized by a "cushion-plant" community, with cover less

than 25%, and often much lower. Some occurrences may support a sparse overstory of Oneseed juniper. Typical shrub species are James' seaheath, spiny greasebush, Fourwing saltbush, and Bigelow sage. Perennial low-growing forbs and sub-shrubs include stemless four-nerve daisy (*Tetraneuris acaulis*), buckwheat (*Eriogonum* spp.), roundleaf four o'clock (*Oxybaphus rotundifolius*), Fendler's bladderpod (*Lesquerella fendleri*), ribseed sandmat (*Chamaesyce glyptosperma*), Hooker's Townsend daisy (*Townsendia hookeri*), plains blackfoot (*Melampodium leucanthum*), Rocky Mountain zinnia (*Zinnia grandiflora*), *Crypthantha* spp., and leafy false goldenweed (*Oönopsis foliosa*). Occurrences may include low cover of bunchgrasses such as New Mexico feathergrass, Indian ricegrass, purple threeawn, and blue grama. Along with the substrate, wind appears to be an important factor shaping the appearance of this system. As this community grades into adjacent communities in more sheltered areas below ridgetops, cover and plant height increases.

Sources: K. Decker, R. Rondeau, May 2004.

Greasewood Flats (Inter-Mountain Basins Greasewood Flat)

This ecological system occurs throughout much of the western U.S. in Intermountain basins and extends onto the western Great Plains. In the Central Shortgrass Prairie, elevations range from perhaps 4500 to 6600 feet, and are largely concentrated in the southwestern portion of the ecoregion. In Colorado, occurrences are found in the lower elevations of the western valleys, throughout much of the San Luis Valley, and in the southeastern plains.

The Greasewood Flats ecological system typically occurs near drainages on stream terraces and flats, on alluvial fans along streams or arroyos, or may form rings around playas. Sites typically have saline soils, a shallow water table and flood intermittently, but remain dry for most of the growing season. The Greasewood Flats ecological system usually occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominated or codominated by greasewood, Fourwing saltbush, Shadscale saltbush, rubber rabbitbrush, *Cylindropuntia candelabra,* or winterfat may be present to codominant.

Occurrences are often surrounded by mixed salt desert scrub, sandsage, or shortgrass prairie.

The herbaceous layer, if present, is usually dominated by graminoids such as *Sporobolus arioides,*saltgrass (*Distichlis spicata*), and blue grama. Small patches of *Sporobolus airoides,* saltgrass (where water remains ponded the longest), or common spikerush (*Eleocharis palustris*) herbaceous types may be found within the shrubland system (NatureServe 2003).

Although most studies indicate that black greasewood is relatively unharmed

by fire, the degree of damage may vary according to season of burn, fuel loading, and intensity of fire. Greasewood is competitive after disturbance, including fire, but is not primarily a disturbance driven system (Tirmenstein 1987). Because greasewood flats are tightly associated with saline soils and groundwater that is near the surface, the primary ecological process that maintains greasewood flats is groundwater recharge, rather than surface water.

Sources: R.J. Rondeau, J. Sanderson, K. Decker; October 2004.

Juniper Woodland & Savanna

The Juniper Woodland and Savanna ecological system occupies the lower and warmest elevations growing from about 4260 to 6000 feet (1300-1830 m) in a semi-arid climate, primarily along the east and south slopes of the southern Rockies and Arizona-New Mexico mountains. Juniper woodlands and savannas are usually found just below the lower elevational range of ponderosa pine and often intermingle with grasslands and shrublands. In the canyons and tablelands of the southern Great Plains this system also forms extensive cover at some distance from the mountain front. In the Central Shortgrass Prairie, this system is largely confined to the southwestern portion of the ecoregion and forms an extensive matrix with the Southwestern Great Plains Canyon ecological system. The Juniper Woodland and Savanna system is best described as a savanna that has widely spaced mature (>150 years old) juniper trees and occasionally twoneedle pinyon (*Pinus edulis*). Oneseed juniper (*Juniperus monosperma*) and Rocky Mountain juniper (*Juniperus scopulorum*) are the dominant tall shrubs or scattered short trees, though there may be inclusions of more dense juniper woodlands. Graminoid species are similar to those found in Western Great Plains Shortgrass Prairie, with blue grama (*Bouteloua gracilis*) and James' galleta (*Pleuraphis jamesii*) being most common. In addition, succulents such as species of yucca and *Opuntia* are typically present.

Although juniper woodlands and savannas are expected to occur naturally on the landscape, the extent and quality of this system has been severely altered since the early 1900's. Numerous studies have shown that juniper has encroached on shrublands and grasslands (e.g., Blackburn and Tueller 1970, West 1999). Processes that influence the formation and persistence of juniper savannas include climate, grazing, fires, tree harvest, and insect-pathogen outbreaks (West 1999; Eager 1999). Within a given region, the density of trees, both historically and currently, is strongly related to topoedaphic gradients. Less steep sites, especially those with finer textured soils, are where savannas, grasslands, and shrub steppes have occurred in the past. Juniper stands on these gentler slopes may have been larger but more savanna-like, with very open upper canopy and high grass production. Alteration of fire intensity and frequency, historic heavy livestock grazing, and changes in climate has led to various densities of younger trees occurring on some sites that were once shrublands or grasslands (West 1999, Commons et al. 1999).

Sources: R. Rondeau, K. Decker, Date: October 2004.

Southern Great Plains Canyon Complex

This system occurs in both perennial- and intermittent-stream canyons of the southwestern Central Shortgrass Prairie ecoregion. Soils can range from deep loams to alluvial to sandy. The mosaic of soil types which have developed from sandstone, limestone, basalt, and shale parent materials create a complex mosaic of grasslands, shrublands, and woodlands within the canyon system (Shaw et al. 1989). Although the system combines many elements from Southern Rocky Mountains Juniper Woodland and Savanna, Southern Rocky Mountains Lower Montane- Foothills Shrubland, Western Great Plains Shortgrass Prairie, and other shrublands, the varied geology, diverse soil types, and topographic dynamics together form a distinct ecological system complex characteristic of the canyons and dissected mesas of the southwestern Great Plains.

Vegetation varies both regionally and locally depending on latitude, aspect, slope position and substrate and can range from riparian vegetation to xeric or mesic woodlands and shrublands.

Rock outcrops with sparse vegetation are also common. Open to moderately dense piñon-juniper woodlands occupy most of the canyonland slopes. Scattered twoneedle pinyon may occur within these community types but are never dominant. Woodlands may be floristically similar to and intergrade with Southern Rocky Mountains Juniper Woodland and Savanna, but are distributed along rocky outcrops, canyon slopes, and mesas. Oneseed juniper is the most common tree species, and forms extensive woodlands with an understory of black grama (*Bouteloua eriopoda*), blue grama, hairy grama (*B. hirsute*), sideouts grama (*B. curtipendula*), and James' galleta, or sometimes with an open shrub layer dominated by alderleaf mountain mahogany (*Cercocarpus montanus*). Isolated small patches of ponderosa pine (*Pinus ponderosa*) or quaking aspen (*Populus tremuloides*) woodland are found in some locations. Shrublands occur on canyon bottoms, in narrow side canyons, and integrate with woodlands on upper slopes. A mosaic of shrub species is characteristic of canyon walls and slopes, and varies with substrate and moisture availability. Common species include Bigelow sage (*Artemisia bigelovii*), alderleaf mountain mahogany, skunkbrush sumac, currant (*Ribes spp*.), common hoptree (*Ptelea trifoliate*), littleleaf mock orange (*Philadelphus microphyllus*), and soapweed yucca. James' seaheath (*Frankenia jamesii*) and spiny greasebush (*Glossopetalon spinescens* var. *meionandrum*) *(Forsellesia meionandra)* form a community restricted to gypsiferous and calciferous soils. Canyon floors, gravelly river benches and the bases of mesa slopes often support a degraded shrubby grassland of rubber rabbitbrush (*Chrysothamnus nauseosus*) and tree cholla (*Opuntia imbricate*) with an understory of blue grama and James' galleta.

Because of the varied topography, relatively permanent water along stream beds and southern location, these canyonlands have a rich herpetofauna. This system provides good habitat for a number of snake species that are otherwise uncommon in the Central Shortgrass Prairie ecoregion, including Texas blind snake (*Leptotyphlops dulcis dissectus*), ringnecked snake (*Diadophis punctatus arnyi*), night snake (*Hypsiglena torquata janii*), ground snake (*Sonora semiannulata*), wandering garter snake (*Thamnophis elegans vagrans*) and blacknecked garter snake (*Thamnophis cyrtopsis cyrtopsis*) (Mackessy 1998). These areas also provide excellent habitat for a variety of other reptiles and amphibians, including eastern fence lizards, collared lizards, Texas horned lizards, six-lined racerunners (*Cnemidophorus sexlineatus*), Colorado checkered whiptail lizards (*Cnemidophorus tesselatus*), plains garter snakes (*Thamnophis radix*) lined snakes, racers, ground snakes and prairie rattlesnakes, green toads (*Bufo debilis insidior*), chorus frogs, red-spotted toads (*Bufo punctatus*), and plains leopard frogs (*Rana blairi*) (Mackessy 1998). Occasional seeps and springs of the canyon walls provide habitat for rare ferns.

Sources: K. Decker, Date: August 2004.

Southern Rocky Mountain Lower Montane-Foothills Shrubland

Lower montane-foothills shrubland ecological system is a large patch system that is found in over 5% of the Southern Rocky Mountains ecoregion and well represented from the most northern latitudes to the most southern area of the ecoregion. This system is found between 5,000-9,000 feet in elevation and usually associated with rocky substrates. This system may have scattered trees but is a shrub dominated system with a variety of shrubs including alderleaf mountain mahogany*,* antelope bitterbrush (*Purshia tridentate*), skunkbrush sumac*,* or wax currant (*Ribes cereum*)*.* The lower montane-foothills shrublands may occur as a mosaic of two or three plant associations often surrounded by grasslands or woodlands. Fires play an important role in this system as the dominant shrubs usually have a severe die back, although some plants will stump sprout (http://www.fs.fed.us/database/feis). Fire suppression has allowed an invasion of trees into some shrublands as well as an invasion of shrubs into grasslands. Additional threats to this system include fragmentation by roads and development, both provide an unnatural fire break as well as a conduit for weeds. Viable populations of Green-tailed towhee and Scrub jay (especially oaks) indicate a healthy occurrence.

Source: Renée Rondeau, Date: July 2, 2000.

Western Plains Riparian Woodland & Shrubland

This system is found in the riparian areas of medium and small rivers and streams throughout the Western Great Plains. It is likely most common in the Central Shortgrass Prairie and Northern Great Plains Steppe, but extends west

into the Wyoming Basins. This system is composed of associations found on alluvial soils in highly variable landscape settings, from deep cut ravines to wide, braided streambeds. Hydrologically, the associated rivers tend to be more flashy with less developed floodplain than on larger rivers, and typically dry down completely for some portion of the year. Dominant vegetation overlaps with generally drier portions of larger floodplain systems downstream, but overall abundance of vegetation is generally lower.

Vegetation may be a mosaic of communities that are not always tree or shrub dominated. Communities within this system range from riparian forests and shrublands to tallgrass wet meadows and gravel/sand flats. Dominant species include eastern cottonwood (*Populus deltoids*), *Salix* spp., silver sagebrush (*Artemisia cana* ssp. *cana*), western wheatgrass*,* sand dropseed, little bluestem*,* big bluestem*,* and indiangrass. Plant associations of the North American Arid West Emergent Marsh ecological system may occurr along or adjacent to portions of this system.

These areas are often subjected to heavy grazing and/or agriculture and can be heavily degraded. Tamarisk (*Tamarix* spp.) and less desirable grasses and forbs can invade degraded examples up through central Colorado. Furthermore, groundwater depletion and lack of fire have created additional species changes.

Native amphibians and reptiles (e.g., leopard frogs, spadefoot toads, ornate box turtles), and native prairie fishes are indicators of a healthy riparian shrubland and woodland system.

Sources: R.J. Rondeau, K. Decker, Date: August 2004.

Depressional Wetlands (Playas)

Closed depression wetlands:

Communities associated with the playa lakes in the southern areas of the Western Great Plains and the rainwater basins in Nebraska characterize this system. They are primarily upland depressional basins. This hydric system is typified by the presence of an impermeable layer such as a dense clay, hydric soil and is usually recharged by rainwater and nearby runoff. They are rarely linked to outside groundwater sources and do not have an extensive watershed. Ponds and lakes associated with this system can experience periodic drawdowns during drier seasons and years, often drying completely, and are often replenished by spring rains or thunderstorms.

Spikerush (*Eleocharis spp.*)*,* foxtail barley (*Hordeum jubatum*)*,* along with common forbs such as golden tickseed (*Coreopsis tinctoria*)*,* eastern annual saltmarsh aster (*Symphyotrichum subulatum* (= *Aster subulatus*), and Pennsylvania smartweed (*Polygonum pensylvanicum* (= *Polygonum bicorne*) are common vegetation in the wetter and deeper depression, while western

wheatgrass and buffalograss are more common in shallow depressions in rangeland. Species richness can vary considerably among individual examples of this system and is especially influenced by adjacent land use, which is often agriculture, and may provide nutrient and herbicide runoff. Dynamic processes that affect these depressions are hydrological changes, grazing, and conversion to agricultural use.

Saline depression wetlands:

This system is very similar to the Western Great Plains Closed Depression Wetland system. This system is distinct from the freshwater depression systems by its brackish nature caused by strongly saline soils. Salt encrustations can occur on the surface in some examples of this system, and the soils are severely affected and have poor structure. Species that typify this system are salt-tolerant and halophytic species such as saltgrass *(Sporobolus airoides),* and foxtail barley. During exceptionally wet years, an increase in precipitation can dilute the salt concentration in the soils of some of examples of this system which may allow for less salt-tolerant species to occur. Communities found within this system may also occur in floodplains (i.e., more open depressions), but probably should not be considered a separate system unless they transition to areas outside the immediate floodplain. This system is primarily driven by hydrological processes. Increases in precipitation and/or runoff can dilute the salt concentration and allow for less salt tolerant species to occur. Conversion to agriculture and pastureland can also impact this system, especially when it alters the hydrology of the system.

Sources: R. J. Rondeau, K. Decker, Date: May 2004.

Seeps and Springs (North American Arid West Emergent Marches)

Seeps and springs are small wetland ecological systems that are hydrologically supported by groundwater discharge (USDI 2001; Hynes 1970). A seep is an area of minor groundwater outflow onto the land surface or into a stream channel or other water body. Flows are usually too small to be a spring. (Horton 2000). A spring is a place where ground water flows naturally from a rock or the soil into the land surface or into a body of surface water. Its occurrence depends on the nature and relationship of rocks, especially permeable and impermeable strata, on the position of the water table, and on the topography (Horton 2000). Seeps differ from springs in that they often periodically dry and consequently support a lower diversity of wetland vegetation. Springs often have a more persistent source of water and thus support a greater diversity of wetland vegetation and often provide aquatic habitat (BLM 2000, Doyle et al. 2002).

Seeps and springs may occur as isolated wetlands, or as extensive riparian complexes that form mosaics of wetland plant communities. These systems are often found as part of the Southern Great Plains Canyon ecological system complex, but are not restricted to canyons. The plant associations of seeps and

springs are those characterized as belonging to the North American Arid West Emergent Marsh ecological system.

This widespread ecological system occurs throughout much of the arid and semi-arid regions of western North America. Natural marshes may occur in depressions in the landscape (ponds, kettle ponds), as fringes around lakes, and along slow-flowing streams and rivers (such riparian marshes are also referred to as sloughs). Marshes are frequently or continually inundated, with water depths up to 2 m. Water levels may be stable, or may fluctuate 1 m or more over the course of the growing season. Marshes have distinctive soils that are typically mineral, but can also accumulate organic material. Soils have characteristics that result from long periods of anaerobic conditions in the soils (e.g., gleyed soils, high organic content, redoximorphic features). The vegetation is characterized by herbaceous plants that are adapted to saturated soil conditions. Common emergent and floating vegetation includes species of *Scirpus* and/or bulrush (*Schoenoplectus*), cattail (*Typha*), rush (*Juncus*), pondweed (*Potamogeton*), *Polygonum,* pond-lily (*Nuphar*), and *Phalaris*. This system may also include areas of relatively deep water with floating-leaved plants such as duckweed (*Lemna*), pondweed, and *Brasenia* and submergent and floating plants such as watermilfoil (*Myriophyllum*), hornwort (*Ceratophyllum*), and waterweed (*Elodea*).

In the Western Great Plains, seeps and springs provide habitat for a variety of amphibian species, including tiger salamander *(Ambystoma tigrinum),* red-spotted toad *(Bufo punctatus),* Woodhouse toad *(Bufo woodhousi),* chorus frog *(Pseudacris triseriata maculata),* plains leopard frog *(Rana blairi),* Couch's spadefoot toad *(Scaphiopus couchiia),* plains spadefoot toad *(Spea bombifrons),* and New Mexico spadefoot toad *(Spea multiplicalus)* (Mackessey 1998).

Sources: R. J. Rondeau, K. Decker, Date: August 2004.

Use Suitability for Grassland Ecosystems

Forest Service Categories	CO Natural Heritage Program Categories	Threats	Unsuitable Uses
Sandsage Prairie	Sandsage Prairie	Fire suppression, Over-grazing, fragmentation	Livestock grazing, oil & gas development, fencing
Shortgrass Prairie (Mesic and Arid)	Shortgrass Prairie	Fire suppression, Fragmentation, Over-grazing	oil & gas development
	Midgrass Prairie	Fire suppression, Fragmentation, Over-grazing	oil & gas development
	Mixed Salt Desert Scrub	Fragmentation, Human disturbance	Livestock grazing, OHVs, Oil & gas development, Mining, Road construction, oil & gas development
	Shale Barrens	Roads, Human structures	Road building, Building construction, oil & gas development
	Greasewood Flats	Fragmentation, Hydrologic alterations, Off-road vehicles	Off-road vehicles, oil & gas development
	Juniper Woodland & Savanna	Fragmentation, Any human disturbance (livestock, oil/gas and mining, roads) –, soils vulnerable to erosion	Livestock grazing, OHVs, Oil & gas development, Mining, Road construction
Canyonlands	Southern Great Plains Canyon Ecological System Complex	Hydrologic alterations	Livestock grazing, Dam building, Water diversion, OHV use, oil & gas development
	Mixed Salt Desert Scrub	(see above)	(see above)
	Greasewood Flats	(see above)	(see above)
	Juniper Woodland & Savanna	(see above)	(see above)
	Lower Montane-foothills Shrubland –Large Patch	Fragmentation	Livestock grazing, OHV use, oil & gas development
Riparian & Aquatic	Western Plains Riparian Woodland & Shrubland	Fragmentation, fire suppression, agricultural runoff, livestock grazing, invasive species (especially tamarisk)	Livestock grazing, Dam building, Water diversion, OHVs, Oil & gas development, Mining, Road construction, oil & gas development
	Depressional Wetlands (Playas)	agricultural runoff, livestock grazing, invasive species (especially tamarisk)	Livestock grazing, Dam building, Water diversion, OHVs, Oil & gas development, Mining, Road construction, oil & gas development
	Seeps & Springs	agricultural runoff, groundwater pumping, other hydrological alterations, livestock grazing, invasive species (especially tamarisk)	Livestock grazing, Dam building, Water diversion, groundwater pumping (wells) OHVs, Oil & gas development, Mining, Road construction, oil & gas development

Ecosystem Processes

The diversity and distribution (location) of ecosystems in the Southern High Plains are controlled by two major factors: (1) the distribution of species according to their unique environmental requirements (e.g., temperature extremes, water availability, cover); and (2) patterns of disturbance and recovery within communities of those species. Historic natural disturbances in the Grasslands region included fire, prairie dog colonization, bison grazing, drought, insect epidemics, and periodic flooding. In healthy, natural ecosystems, these disturbances renew vegetation, promote resilience, create habitat for wildlife, and maintain patterns of diversity. An important management priority is restoring natural disturbances (e.g., floodplain flooding and fire) that have been excluded from the Grasslands' ecosystems.

Fire

Fires are a natural and fundamental component of the Southern Prairie grasslands that have played a central role in shaping them for thousands of years. Fire is a keystone ecosystem process, meaning it regulates a range of other factors such as vegetation structure and pattern, habitat for wildlife, nutrient cycling, soil development and erosion, and carbon storage. Natural fire cycles change with climate, with more fires occurring during drier periods. Historical fire suppression, the conversion of native grasslands to croplands, roads, and livestock grazing have altered fire regimes across the Great Plains and the Comanche and Cimarron Grasslands.

The inability of fire to perform its natural ecological role in the Southern Plains has resulted in significant changes on the landscape. Most obvious is the encroachment of woody shrubs, such as mesquite (Archer 1989), and trees, particularly juniper. While the public urges the Forest Service to protect the remaining trees in the Forests, the Grasslands, especially on the Comanche, have *too many trees* in some areas. Invasive and some exotic species, such as tamarisk, have been able to spread due to fire suppression and cattle grazing.

Climate change (see below) is predicted to increase the frequency of conditions that support more active fire behavior, resulting in historically unprecedented fire frequency and severity in many forest types, magnifying risks of uncharacteristically severe fire in ponderosa pine and drier mixed conifer forests, and threatening habitat for imperiled species. Fires are likely to increase in the Grasslands region as well. Increasing acreage of area burned due to climate change will magnify fire management challenges in the future.

The 2002 fire season was memorable due to the large number of large fires across the West. Forest fires captured the Country's attention but wild fires broke out through the Southern Plains as well. In 2006, drought conditions again created fire conditions. Large fires occurred in Texas, Oklahoma, and New

Mexico. In February 2006 8,800 acres of the Cimarron National Grassland burned.

The long-term challenge for Grassland managers and the public is to safely accommodate fires. This means preventing the loss of human life associated with fire, substantially reducing risks to property from fire, and wherever possible, restoring and maintaining fires' critical role in prairie ecosystems in a way that minimizes impacts to imperiled species.

Within this framework, specific management challenges include:

- Preventing the loss of human life to grassland fire.
- Creating a safer landscape context for fire by increasing fire preparedness and defensibility of at-risk communities.
- Safely restoring fire to areas of the Grasslands where fire exclusion has caused deleterious ecological impacts.
- Delineating areas on the landscape where which natural fires can be allowed to burn under specified conditions.
- Planning in advance for naturally ignited fires so that when they do occur, management areas and containment strategies for them are already in place.
- Ensuring that containment strategies do not cause excessive ecological harm through off-road vehicle use, land disturbance from constructed firebreaks, and toxic retardant.
- Minimizing the negative effects of fire to imperiled species and sensitive ecological values.
- Focusing fire suppression where it most effectively protects communities, and minimizing the impacts of fire suppression to species and ecosystems.
- Understanding and accommodating how fire regimes may change with climate change.

Drought

Droughts are prolonged periods with below normal precipitation. They last from a few years to several decades. Prolonged drought results in less water for plants, animals, and people. Drought can cause vegetation dieback through water-starvation, or through water-stress when vegetation is unable to defend against parasites. Fire activity increases during droughts as forest vegetation becomes unusually dry, and dry, hot, and windy weather helps fires spread. Drought, through vegetation dieback and fire, can change the makeup and structure of ecosystems, and shift boundaries between ecosystems. These changes may last for decades and may affect populations of wildlife that depend on certain types of vegetation. Droughts also affect the availability of resources, including snow pack, spring and stream flows, lake and reservoir levels, and growth and availability of timber and forage. Climate models predict that climate

change will cause increasingly severe droughts in the West in coming decades. Because drought decreases the production and availability of many natural resources, adjusting levels of resource use during drought is often necessary to prevent long-term damage to specific resources, ecosystems, and populations of individual species.

The Comanche and Cimarron Grassland region emerged briefly from a severe several year drought starting in 2005. However, drought conditions are once again affecting the farming and ranching communities in the Southern Plains. Fires in Oklahoma, Texas, New Mexico and other Plains states provide evidence of this. The drought of the 1930s became legend because it initiated the Dust Bowl conditions caused by the loss of native vegetation to crops. However, a drought in the 1950s was more severe but revegetation programs started on the Grasslands helped keep the soil in place to a greater extent. Another sustained drought hit in the 1960s. Regular drought cycles in the Southern Plains of the past 10,000 years are well-documented, and the pattern indicates that we can expect an increase in the severity of droughts compared to those of the twentieth century (Woodhouse 2003).

Herbivory

Prairie Dogs[6]

It is hard to overstate the importance of prairie dogs to the ecology of the shortgrass prairie. The role of prairie dogs as a keystone species is now well-established scientifically (Kotliar et al. 1999; Kotliar 2000; Miller et al. 2000). Prairie dogs probably qualify under multiple categories of keystone species—as prey and for their modification of habitat (Mills et al. 1993). The shortgrass prairie areas that prairie dogs inhabit should probably be considered ecosystems unto themselves.

Keystone species enrich ecosystem function uniquely and significantly through their activities, and their impact is larger than predicted relative to their biomass (Paine 1980; Terborgh 1988; Mills et al. 1993; Power et al. 1996; Kotliar et al. 1999; Miller et al. 1998/1999). Kotliar (2000: 1715). Prairie dogs are functionally unique; they perform roles within their ecosystem not performed by other species or processes. The scientific literature is growing that supports the argument that prairie dogs fulfill all the requirement of keystone species (Coppock et al. 1983a, b; Detling and Whicker 1988; Whicker and Detling 1988a, b; 1993; Reading et al. 1989; Society for Conservation Biology 1994; Kotliar et al. 1997; 1999; Wuerthner 1997; American Society of Mammalogists 1998; Kotliar 2000, Miller et al. 2000).

Prairie dog activities and the changes made by these activities create a

[6] This section adapted from previous work by R. Reading and L. McCain (see references).

unique ecological system known as the “prairie dog ecosystem” (Clark et al. 1989; Miller et al. 1996). Over 200 vertebrate species have been observed on prairie dog colonies (Koford 1958; Tyler 1968; Campbell and Clark 1981, Clark et al. 1982; O’Meilia et al. 1982; Agnew et al. 1986; Reading et al. 1989; Sharps and Uresk 1990; Mellink and Madrigal 1993; Hoogland 1995; Barko 1996; Manzano 1996; Ceballos and Pacheco 1997; Ceballos et al. 1999; Kotliar et al. 1999). Some of these species appear to depend on prairie dog colonies for their survival and many appear to benefit, at least seasonally or opportunistically from their existence (Reading et al. 1989; Hoogland 1995; Manzano 1996; Ceballos et al. 1999; Kotliar et al. 1999).

Prairie dogs and other animals inhabiting prairie dog colonies represent a rich prey patch for a large number of predators (Reading et al. 1989; Miller et al. 1996; Plumpton and Anderson 1997; Berry et al. 1998; Kotliar et al. 1999). A variety of predators including prairie rattlesnakes (*Crotalus viridis*), golden eagles (*Aquila chrysaetos*), great horned owls (*Bubo virginianus*), weasels (*Mustela frenata*), bobcats (*Lynx rufus*), coyotes (*Canis latrans*), and others prey on prairie dogs and small mammals that have a higher abundance on prairie dog colonies (Agnew et al. 1986). Some predators, especially black-footed ferrets (*Mustela nigripes*), are completely dependent on prairie dogs (Clark 1989; Miller et al. 1996). Other species, such as badgers (*Taxidea taxus*), swift foxes (*Vulpes velox*), and ferruginous hawks (*Buteo regalis*), benefit substantially from the presence of prairie dogs as prey (Uresk and Sharps 1986; Sharps and Uresk 1990; Allison et al. 1995; Plumpton and Andersen 1997, 1998; Berry et al. 1998; Goodrich and Buskirk 1998).

The benefits of prairie dogs extend well beyond simply being food for predators (Reading et al. 1989; Ceballos et al. 1999; Kotliar et al. 1999). Prairie dogs also substantially alter their environment. Since prairie dogs excavate more burrows than they regularly utilize[7], they create hibernacula, dens, and nests for many animals, such as black-footed ferrets, swift fox, badgers, cottontails (*Sylvilagus* spp.), burrowing owls, shrews, other rodents, and several species of reptiles and amphibians (Reading et al. 1989; Sharps and Uresk 1990; Plumpton and Lutz 1993; Fitzgerald et al. 1994; Desmond et al. 1995; Kretzer and Cully 2001). These species and more also use the burrows as refugia from predators or temperature extremes. As a result, researchers have found that desert cottontails (*S. audonbonii*), thirteen-lined ground squirrels (*Spermophilis tridecemlineatus*), and northern grasshopper mice (*Onychomys leucogaster*) exist in higher numbers on prairie dog colonies than in surrounding grasslands (O'Meilia et al. 1982; Agnew et al. 1988; Dano 1952 in Stapp 1998). Similarly, studies in Mexico found higher rodent species richness, density, and diversity, and higher avian species richness on prairie dog colonies compared with surrounding grasslands in Chihuahua, Mexico (Manzano 1996; Ceballos and

[7]Despite the common belief that there are several prairie dogs per burrow entrance, there are actually several burrow entrances per prairie dog (Biggins et al. 1993; Hoogland 1995).

Pacheco 1997; Ceballos, Pacheco, and List 1999). Most of the research to date has focused on birds and mammals with considerably less research on reptiles and amphibians (but see Kretzer and Cully 2001). Similarly, little is known about prairie invertebrates, yet the burrows in a prairie dog colony should offer habitat advantages to invertebrates as well.

Prairie dogs also have a large effect on vegetation structure, productivity, nutrient cycling, and ecosystem processes (Coppock et al. 1983; Detling and Whicker 1988; Whicker and Detling 1988a, b; 1993; Weltzin et al. 1997a; Stapp 1998). The activities of prairie dogs, especially their grazing and clipping of tall vegetation, result in changes in plant composition (Bonham and Lerwick 1976; Coppock et al. 1983, Detling and Whicker 1988; Whicker and Detling 1988a, b; 1993, Weltzin et al. 1997a; Detling 1998). In general, the vegetation on prairie dog colonies is characterized by lower biomass and a greater preponderance of annual forbs and short grasses compared to tall grasses and shrubs, but is higher in nitrogen content than vegetation from surrounding areas (Bonham and Lerwick 1976; Coppock et al. 1983, Weltzin et al. 1997a; Detling 1998). Prairie dogs negatively impact some plant species, reducing the prevalence and controlling the spread of taller grasses and several shrubs, such as mesquite (*Prosopis* spp.), sagebrush (*Artemisia* spp.), and longleaf jointfir (*Ephedra trifurca)* (Bonham and Lerwick 1976; Coppock et al. 1983; List 1997; Weltzin et al. 1997b). Ironically, prairie dogs are poisoned for livestock interests, but these shrubs reduce grass available for cattle, and mesquite makes roundups more difficult (Miller 1991).

Prairie dog burrowing activities modify ecosystem processes such as water, mineral and nutrient cycling. Prairie dogs turn over approximately 225 kg of soil per burrow system**,** which translates to several tons of soil per hectare (Whicker and Detling 1993). By mixing in nutrient-rich urine and manure, prairie dog digging can change soil composition, chemistry, and microclimate, facilitate below-ground herbivory, increase porosity of soil to permit deeper penetration of precipitation, and increase the incorporation of organic materials into the soil (Ingham and Detling 1984; Whicker and Detling 1988 a, b; Munn 1993; Outwater 1996). As a result, prairie dog colonies support higher numbers of nematodes and higher levels of soil nitrogen (Ingham and Detling 1984, Detling 1998). All of these processes contribute to aboveground plants with a higher nutritional content, greater digestibility, and a larger live plant to dead plant ratio, creating favorable feeding habitat for other herbivores (Whicker and Detling 1993). Indeed, pronghorn and bison preferentially graze on prairie dog colonies (Coppock et al. 1983; Krueger 1986; Detling and Whicker 1993, Detling 1998). Foraging models predict that bison can gain weight faster by grazing on pastures with prairie dog colonies than on grasslands without prairie dogs (Vanderhyde 1985 in Whicker and Detling 1993).

Kotliar et al. (1999:177) concluded that collectively these functions are large, not wholly duplicated by other species (either in form or extent), and that the loss

of prairie dogs would lead to "substantial erosion of biological diversity and landscape heterogeneity across the prairie." They concluded that the prairie dog therefore fulfills the definition of keystone species (see also Kotliar 2000). We agree (see Stapp 1998 for an alternative view). The structure, form, and function of prairie dog colonies provide a keystone role in the prairie, and the role is large. Despite the difficulty in quantifying a role, we contend that existing evidence indicates prairie dogs (and other associated species) provide important prey to predators, and their grazing and burrowing activities modifies the environment in a manner beneficially used by other prairie organisms (Whicker and Detling 1993; Kotliar et al. 1999). Most importantly, those grazing and burrowing activities affect vegetative composition, vegetation quantity and quality, productivity, nutrient cycling, and soil quality (Bonham and Lerwick 1976; Coppock et al. 1983; Detling and Whicker 1988; Whicker and Detling 1988 a, b; 1993). We suggest that these data should guide our policy decisions until future data prove otherwise (i.e., the 'Precautionary Principle"; Johnston et al. 1999; Foster et al. 2000).

Together, the Cimarron and Comanche Grasslands are home to the largest complex of black-tailed prairie dogs on public land in the Southern Prairie. The prairie dogs on the Comanche Carrizo Unit and the Cimarron Grassland are currently recovering from a plague epizootic that brought the population down to less than one percent occupancy.

In the Draft Cimarron and Comanche management plan, the Forest Service has proposed black-tailed prairie dogs be designated a Species of Concern—a designation we strongly support. Specific recommendations for prairie dog management are outlined in the "Species" section.

Bison

The loss of American bison (*Bison bison*) may represent the greatest ecological damage to the High Plains prairie. The bison of the plains is today ecologically extinct. Bison disturbance (grazing, trampling, and wallowing) no longer exerts control of native vegetation and species composition over large scales as it once did (Truett et al. 2001). Bison grazing no longer promotes the mosaic of vegetative structure that provided habitats for many other species. Gone, too, is the bison as an abundant source of food for predators and scavengers, and decomposing bison carcasses no longer create rich patches of nutrients for vegetative growth (Freilich 2003).

As recently as the mid-1800s, the North American bison populations may have totaled some 30 million animals. While bison exist in a few small public herds and have gained popularity as an alternative breed of domestic livestock, its integrity as a wild species faces mounting threats (Lott 2002). Although some 400,000 animals are found on a number of ranches and in a smattering of public herds, recent evidence (Lott 2002) indicates that only a handful of herds are not

genetically contaminated by cross-breeding with cattle. Moreover, more than 90% of bison herds are undergoing artificial selection by bison growers for less wild, more easily handled, and better meat-producing animals**.** This research points to the need for enough land to support bison numbers in a wild condition, subject to all the vagaries of natural selection, including predation by large carnivores such as the wolf.

While it is argued that management of the predominant ungulate on the prairie today, the cow (*Bos domesticus*), can replicate the effects of bison, the fact is that cattle are not managed as wild bison and we are largely ignorant of how bison would interact with their environment on a large scale. Moreover, cattle differ from bison in significant ecological ways (see section on Grazing); they graze different, have different water needs, and are less able to protect themselves from natural prairie predators, for example. The only way that we may be able to truly replicate the bison grazing regime as it occurred in aboriginal times is to restore grazing by large herds of bison over a large area. Lott suggested we need 5,000 square miles (3.2 million acres) to support an adequate restoration program for bison.

The Grasslands are unable to support bison at the 5,000-square-mile scale. However, to truly move toward the historic pre-settlement range of natural variability for the prairie ecosystems of the Comanche and Cimarron Grasslands, bison must be restored, even at the allotment level in small numbers. Experimentation is needed to determine how to manage small bison herds on the Grasslands, but guidance exists (see Berger and Cunningham 1994).

Climate Change

Climate change poses a fundamental challenge to Grasslands management in coming years and decades. During the past century, global surface temperatures have increased by 1.1°F, but this trend has dramatically increased to a rate approaching 3.6°F/century during the past 25 years, the fastest rate of warming in the past 1000 years (IPCC 2001). Temperatures during the latter period of warming have increased at a rate comparable to the rates of warming that conservative projections predict will occur during the next century with continued increases of greenhouse gases. As climate change progresses, maximum high and minimum low temperatures are expected to increase, as are the magnitude and duration of regional droughts (IPCC 2001).

The ecological effects of warming temperatures and droughts associated with climate change are affecting the Southern Plains, including the Comanche and Cimarron Grasslands. Among those effects are:

1) increased fire activity (McKenzie et al. 2004),
2) increased potential for insect epidemics (EPA 1999),
3) decreased duration and depth of winter snowfall (IPCC 2001),

4) decreased water availability,
5) upward elevation and latitudinal migration of individual species' distributions (IPCC 2001),
6) unprecedented rates of vegetation shifts due to die off, especially along boundaries of semi-arid ecosystems (Allen and Breshears 1998), and
7) decreased productivity and cover of herbaceous vegetation and increased soil erosion (Davenport et al. 1998, Wilcox et al. 2003).

These changes may pose threats to native species as:

1) rates of climate change may exceed species' capabilities to migrate to alleviate effects of warming,
2) losses of existing habitat occur during vegetation shifts,
3) reductions in habitat patch size support fewer species, and,
4) the quality and quantity of aquatic, riparian, and mesic upland ecosystems decline with decreased water availability.

A particular management difficulty arises in setting goals and objectives for ecosystem management in the context of a warming climate. Our understanding of how ecosystems function is based in large part upon our understanding of their historical conditions. Historical conditions also form the basis for assessment tools from which ecosystem management objectives are derived—like properly functioning condition and fire regime condition class. However, managing ecosystems toward a range of historical conditions amidst a warming climate may be problematic because natural ecosystem responses to today's climate may differ from historical conditions. At the same time, protected areas, like reference areas and Research Natural Areas will become increasingly valuable for understanding natural responses to climate change as the basis of comparison for ecosystem management elsewhere on the Grasslands.

Within this framework, specific management challenges associated with climate change include:

- Identifying, understanding, and mitigating impacts to species and other ecological values threatened by the effects of climate change.
- Using reference-based assessments and objectives while taking precautions in the face of their limitations in the context of climate change.
- Developing ecologically functional reference areas, and efficient and informative means of measuring those areas, in order to understand natural ecosystem responses to climate change as a basis of comparison for ecosystem management.
- Understanding the degree to which ecosystem behavior is the result of past management practices or climate change, and developing management responses that are appropriately cautious in light of such uncertainty.

- Tailoring levels of uses to facilitate ecological sustainability amidst rapidly changing and vulnerable ecosystems.
- Educating the public about the relationships between climate change and ecosystem behavior, and about the need for management that is cautious in the face of uncertainty.

Climate change is likely to alter both the distribution of individual species (e.g., moving certain habitat conditions such as temperature, northward) and disturbance patterns (e.g., increasing the frequency of fires). Coming decades will likely witness significant change to the distribution and diversity of species and ecosystems due to climate change.

Monitoring and Evaluation

Proposed OHV Monitoring Questions Are Insufficient

As discussed throughout these comments, OHV use on the Grasslands has the potential to be very detrimental to soils, water quality, rare plants, wildlife, etc. Thus we are concerned that few if any monitoring questions address OHV use and abuse. Indeed the one proposed monitoring question for recreation and tourism states: "Has customer satisfaction increased?" (Plan, pg 72). This is true even though one objective in this section addresses minimizing "resource damage and user conflicts", though this is only for "on-route" use. Id. This objective should be expanded to include preventing or minimizing damage from off-route OHV use, and a monitoring question(s) should be formulated accordingly.

The Planning Directives at FSH 1909.12, section 12.1.state:

> Monitoring questions should address whether management within the plan area maintains or makes progress toward the desired conditions and they should:
>
> a. Address key aspects of desired conditions. …

Further direction there indicates that monitoring questions should be focused on areas where there is "a high degree of disparity between the existing and desired conditions" and to respond to a "key desired condition". Id. Given the potential for damage to important resources, such as soils, wildlife, native plants, etc., we believe that limiting such damage from OHV use must be a key desired condition.

Proposed Fire Monitoring Questions Are Insufficient

Plan p. 26 notes the historical importance of fire as a disturbance process on

the Grasslands. However, there are no monitoring questions associated with fire, even though having part of the Grassland affected by fire each year is an objective for both the sandsage and shortgrass prairie ecosystems (pgs. 67 and 70, respectively).

Concerns by Resource Area

Paleontological Resources / Heritage Resources

Desired Condition Describes Few Changes over Current Management

The Cimarron and Comanche National Grasslands contain some of the most important heritage and paleontological resources in the country, and in the case of paleontology, the world. The desired condition statements for both heritage and paleontological resources describe very few changes over current management. The Paleontological section contains the words "would continue" over and over, Plan at 43. While it is nice to think that current management is on top of and responding to all resources concerns in these areas, the specialist reports make clear that there are problems to be addressed. Both the heritage and paleontological sections are relatively consistent in the problems and opportunities they describe.

It is these issues that are missing specific objectives. Both the paleontological and the heritage resource sections mention the problem of vandalism and law enforcement (Plan at 39, 43), yet no objectives focus on these issues, See Plan at 72-73. This oversight must be corrected. Secondly, the paleontological desired condition describes the need to make historical fossil information both available generally and available in digital format. We believe an objective should be written for this goal as well.

Need for More Aggressive Objectives

As we've described elsewhere in this letter, we are quite concerned with the extent to which the objectives are only minimally time-based and measurable. We believe more specific, measurable objectives must be written for heritage and paleontological resource management. Quite a large percentage of the Grasslands are still in need of the most basic of surveys. We believe the schedule for this work as embodied in the objectives and monitoring questions needs to be more aggressive. As written now, the most minimal of effort over the next 15 years would be sufficient to successfully meet almost all of the objectives. This is not adequate. The heritage and paleontological resources on the CCNG are among the most unique and important in the national forest system. They are national treasures. They hold the potential with proper management to contribute significantly to community economic well being far into

the future. Truly time-based and measurable objectives as well as carefully considered monitoring questions must be included to ensure these resource areas get the priority attention and protection they deserve.

Economics / Social

The utility of using objectives and conducting trend analysis is in anticipating and managing for and / or around future conflicts. While the Forest Service has identified or hinted at sources of future conflict, the plan does not contain desired conditions, objectives or guidelines strategies for acknowledging, managing or lessening these conflicts. Examples follow.

The Implications of Oil and Gas as a Non-Renewable Energy

The Economic and Social Sustainability Report (part of the Comprehensive Evaluation Report or CER), describes management strategies for dealing with the non-renewable nature of oil and gas development:

> "Because the oil and gas output is based on a non-renewable resource, these opportunities are expected to decline in the future (Minerals Specialist Report Part 1). It may be possible for counties to substitute some oil and gas activity with tourism based on Grassland opportunities (for example, increased bird watching and hunting opportunities). These additional activities should be put in place prior to the depletion of oil and gas revenues." (Economic and Social Sustainability Report, page 2)

We think this is a wise plan of action. Not only should this strategy be in place prior to the depletion of oil and gas revenues, but the plan and management activities to implement it must ensure that the resources to be relied upon in the future are not adversely impacted over the life of the plan. The Forest Service is in effect proposing to give primacy to ensuring that bird watching, hunting opportunities, etc. abound over oil and gas development needs. After all, you can't rely on a future resource if you damage or destroy it today. We would add tourism based activity around the heritage and paleontological resources on the Grasslands to the list of future economic resources to be planned for and protected.

In addition to reexamining desired conditions, objectives and guidelines, the suitability decision for oil and gas needs to be revised. The Forest Service should examine the special areas as well as ecosystem types and determine the best places to ensure that desired non-consumptive activities remain viable for the future and declare those areas unsuitable to oil and gas development.

The Implications of Increasing Water Demand and Decreasing Supplies

Another future (and in many ways current) potential conflict that must be examined and embedded in the Plan management strategies is the issue of increasing water demand amidst decreasing supplies. The Social and Economic Specialist Report (Chapter 17) uses Kansas Water Office forecasts that predict future population figures by examining future demands for water. Increased future demand is predicted. While Colorado water demand data was not provided, the steady encroachment of Front Range communities points to increased future demand, at least from the Arkansas River. Pumping of the Oglala Aquifer, drought, and water use outside of the Grasslands boundary all contribute to the situation. But the Forest Service can control some aspects of the problem. Use of dams on the Grassland, water diversions, timing and location of grazing activities, and efforts to control tamarisk are all available to the agency as a way to control or at least modify the effects of this trend. We encourage the agency to examine desired conditions, objectives and guidelines to ensure proactive management to deal with this increasing problem.

Economic Analysis Fails to Account for the Effects of Changing Demographics

The social and economic analysis conducted in the CER shows changes in demographics, including an increasingly aged population in the Cimarron and Comanche Grasslands area. But the analysis fails to adequately examine the implications of this trend. First of all, the percentage and amount of non-labor income is not examined as a proportion of overall personal income. An increase in the number of retirees generally means an increase in non-labor income, as the non-labor income category is made up of retirement benefits, transfer payments, etc.

Secondly, the implications of the resource needs and desires of an aging population, in-migration from Front Range communities and out-migration of area youth must be examined. As has happened elsewhere, in-migration, whether through second homes or permanent residences, often brings with it societal conflict as different populations with different ideas about resource use come together. The Forest Service cannot control local demographics, but ignoring the developing situation won't make it go away. And left unaddressed it is likely to have greater implications for Forest management. Objectives that focus on assessing trends, demands and conflicts over various resource services implemented throughout the plan period would alert the Forest Service to possible management strategies to lessen future conflict.

Plan Fails to Account for Trends in Forest Service Staffing and Budgets

We could find no mention of trends in Forest Service staffing or budgets despite the requirement to create a realistic plan. FSH 1909.12 (11.12) includes the following requirements:

Plan objectives (36 CFR 219.7((a)(2)(ii)) should:

1. Describe the focus of unit management during the next 15 years.

2. Set priorities, with an expectation that high priority work would be completed first, depending on funding.

3. Be limited to priorities that can be reasonably accomplished during an identified time.

4. Be based on achieving and monitoring progress toward desired conditions.

5. Be based on budgets and other assumptions that are realistic expectations for the next 15 years.

Please provide staffing and budget trends so that we and other reviewers may assess whether the plan as proposed is realistic.

Economic Data Questions and Concerns

Please explain how recreation visits were calculated in the Economic and Social Sustainability Report. How were labor income and employment figures attributable to the Grasslands calculated?

Recreation

The Grasslands provide much needed open space and opportunities for solitude and a wide variety of recreational activities. The increasing public interest in recreation on the Grasslands provides opportunities for economic growth and diversity for the local community. The Forest Service has an opportunity on the Cimarron and Comanche National Grasslands to develop comprehensive recreation plans that provide for public use while maintaining protection for the land.

Recreation has an important role in determining landscape condition, since it is a factor determining how, when, and where people access public lands. Recreational experiences are diminished as landscape health declines, and the Forest Service should restrict oil and gas, livestock grazing, and other extractive uses on the grasslands in order to provide the opportunity for recreation. However, the Forest Service must also ensure that recreation does not have significant adverse impacts on wildlife and biodiversity. In addition, the agency should reverse ecological degradation of areas of the Grasslands that have sustained and continue to sustain excessive recreational use. In order to protect and enhance healthy wildlife and plant habitats, the Forest Service must adopt policies that prevent new areas from becoming similarly impacted.

In the planning process, the Forest Service's task is to ensure that recreational uses, in concert with other land uses, do not impair landscape health. The agency should provide a wide spectrum of opportunities within this broader mandate, but at no point should the agency sacrifice the goal of landscape sustainability to provide additional recreational opportunities. In addition, the Forest Service should take feasible steps to prevent harm to private landowners and the environment from littering, vandalism, and trespass by recreationists. Recreational opportunities are heavily influenced by the Forest Service's management of wildlife and plants, historical and paleontological resources, special areas, and scenic beauty.

Compared with the Forest units of the Pike and San Isabel and Cimarron and Comanche Forest System, the Grasslands receive far fewer visitors. However, recreational use has increased over the past two decades on the Comanche. The Cimarron, as the largest unit of public land in Kansas, accounts for more Trout Stamp sales and has more fishing days per acre than any other area in the state. The Grasslands are also nationally recognized for their paleontological, historical, and cultural values. The Cimarron contains the longest Santa Fe Trail segment on public land (the 24 mile-long Cimarron Branch), and the Comanche contains the largest assemblage of dinosaur tracks known to North America.

Draft Plan Desired Conditions seem realistic, but currently do not describe existing conditions on the ground. The Grasslands are indeed a place where one can find solitude, but some recreational and other uses are impacting the recreational experience.

Extractive land uses such as oil and gas can have significant adverse impacts on recreation. Negative impacts on recreational enjoyment are caused by: the noise and emissions from pumpjacks and compressors; cattle feces in both riparian and upland areas; and corrals, stocktanks, and windmills scattered across the grasslands. Public safety concerns include contamination of soil and water by oil and gas operations, water pollution by livestock, M-44s used for predator control, and aggressive behavior by cattle. M-44s have resulted in the deaths of dogs accompanying public land users, and cattle have caused bodily injury to humans.

Livestock are allowed to graze in most recreation areas with the exception of Picket Wire Canyon. Few riparian areas are protected from cattle grazing. The Grasslands visitor who is looking for the rare natural experience in the Great Plains is disappointed to find cattle congregated along trails; historic sites; and in seeps, springs, and other riparian areas in places such as Vogel Canyon, Picture Canyon (although a cattle exclosure fence does help protect the 2 natural springs here), Sand and Holt Canyons, and Point of Rocks. Off-road vehicle use is a problem throughout the Grasslands. Oil and gas operations, particularly on the Cimarron, are prolific—it is difficult to find a place without a view of pumpjacks or

other oil and gas facilities. The high road density just about everywhere makes it difficult to find real solitude without some human disturbance. Historic sites, particularly rock art in the canyon recreation areas, are so degraded by graffiti and other forms of vandalism that it is hard to distinguish the actual ancient art in many places.

Desired Conditions include, “Opportunities for tourism development would be congruent with local recreation use and community needs” (Plan at 39). This is fine, but the Forest Service and the local community must remember that the Grasslands are federally-managed public lands that serve the needs of the larger national community. Serving the recreational needs of the larger public must also be included as a Desired Condition.

We do not oppose any of the recreation objectives or guidelines in the Draft Plan. However, we believe they are insufficient to provide a quality recreational experience for the visitor, especially those seeking a non-motorized experience. Monitoring questions and an actual monitoring plan should include provisions that assess recreational impacts on natural resources. In the table below, we summarize key recreational features on the Grasslands, threats to those features, and a set of recommended objectives for protection of recreational and ecosystem values. Below this table we describe threats of current recreational uses to ecosystem sustainability.

Recreation on the Comanche and Cimarron National Grasslands[1]

Recreation type	Description	Ecological sustainability issues	Economic sustainability issues	Recommended Objectives
Comanche National Grassland				
Developed recreation	▪12 Picnic Areas (Carrizo, Picture Canyon, Timpas, and Vogel Canyon) ▪Five trailheads (Carrizo, Picture Canyon, Timpas, Vogel, Withers Canyon) ▪One wildlife viewing area (Lesser Prairie Chicken observation site) ▪One shooting range	▪Disturbance to wildlife may be significant, depending on how well regulated human visitors are. ▪Loss of habitat occurs with development of recreation site but is small and localized currently.	▪Checkerboarded ownership reduces attractiveness for recreation. ▪Livestock grazing and oil and gas activities in particular areas detracts from recreational values. ▪Picket Wire Canyonlands tours generated $5,030 in fees for USFS in 2003.	▪Conduct education around impacts reckless behavior can cause. ▪Enforce protections of wildlife from disturbance and harassment. ▪Prevent other resource damage.
Wildlife-related recreation	▪Hunting (species commonly hunted include mule deer, pronghorn antelope, dove, quail, and turkey). ▪Bird-watching (235 species of birds to observe)	▪Hunting impacts: harm from use of lead shot. Disturbance of non-target wildlife. Use of off-road vehicles by hunters. ▪Bird-watching impacts: disturbance of birds and other wildlife. ▪Illegal prairie dog shooting is occurring.	▪People travel from across the U.S. to hunt and bird-watch on Comanche & Cimarron. ▪Increased interest in hunter-outfitter guiding on the Comanche. ▪Other rural communities in New Mexico and Texas have organized festivals around lesser prairie-chickens, which provided added economic revenues to local communities.	▪Manage lesser prairie-chicken viewing to avoid any disturbance to the birds. ▪Restrict use of lead shot and off-road vehicles by hunters to prevent adverse environmental impacts. ▪Increase enforcement of prairie dog shooting prohibition.
Motorized recreation	▪234,944 acres of the Comanche are categorized as "Semi-primitive motorized" in the USFS Recreation Opportunity Spectrum ▪An additional 201,374 acres are categorized as "Roaded natural" in the ROS	Existing road system more than adequate for recreation access. Off-road and off-trail use is increasingly becoming a threat to resource protection.	Excessive motorized vehicle use degrades other recreational attractions.	Restrict off-road vehicle use to existing roads and trails to prevent further resource damage.
Non-motorized recreation	▪The Comanche has 14 trails (21 segments), making up a combined total of 81.5 miles. ▪The Santa Fe Trail accounts for approximately 48% (39.5 miles) of Comanche's trail system. ▪All the trails are non-motorized and open for hiking, horseback riding and mountain biking. ▪Star-gazing can be expected to increase in popularity given the low level of light pollution in the Grasslands.	17.5 miles of the Purgatoire River in the Picket Wire Canyonlands is eligible for Wild & Scenic River designation.	Reduction of motorized recreation, oil and gas, and livestock grazing will increase attractiveness of Comanche to hikers and star-gazers.	▪Reduce motorized vehicle use, oil and gas, and remove livestock grazing from special areas. ▪Designate segments of Purgatoire as Wild & Scenic River. Close and obliterate some roads
Cultural and paleontological recreation	▪4 heritage and paleontological sites (Iron Springs, Timpas, Barlow-Sanderson at Vogel Canyon, Sierra Vista Overlook, and Picket Wire Dinosaur Tracksite) ▪The Picket Wire contains the largest concentration of dinosaur tracks in the country. It also contains dinosaur skeletons. ▪The Grasslands contain approximately 1,490 heritage resources that document about 12,000 years of human history, with an additional 5,000 sites estimated to exist. ▪The Santa Fe National Historic Trail	▪Vandalism of historic and paleontological sites. Problem is especially severe in Picture Canyon. ▪Conflict with livestock grazing (e.g., Picture and Vogel Canyons) exists. ▪Vulnerability of Santa Fe Trail to erosion, human, and animal impacts.	National recognition of these values on the Comanche provides tourism, with accompanying economic benefits to local communities.	▪Prevent theft of paleontological and cultural resources. ▪Ensure livestock grazing and other extractive uses do not harm these resources.

	constitutes an important cultural element, with potential for interpretive recreation.			
Cimarron National Grassland				
Developed recreation	▪Four fishing areas (Atwood Ponds, Mallard Ponds, Point of Rocks Ponds, and Wilburton Pond) ▪Three picnic grounds (Cimarron, Cottonwood, and Middle Springs) ▪Four interpreted heritage sites (Cimarron River, Tunnerville Work Center, Middle Springs, and Point of Rocks) ▪Six trailheads (Conestoga, Murphy, Cimarron River, Cottonwood, Middle Springs, and Point of Rocks) ▪ Lesser Prairie Chicken Observation Site ▪Cimarron family campground and group picnic site	▪Disturbance to wildlife may be significant, depending on how well regulated human visitors are. ▪Loss of habitat occurs with development of recreation site but is small and localized currently.	▪Checkerboarded ownership reduces attractiveness for recreation. ▪Livestock grazing and oil and gas activities in particular areas detracts from recreational values.	▪Conduct education around impacts reckless behavior can cause. ▪Enforce protections of wildlife from disturbance and harassment. ▪Prevent other resource damage.
Wildlife-related recreation	▪Hunting (species commonly hunted include mule deer, pronghorn antelope, dove, quail, prairie dog, and turkey) ▪Bird-watching (235 species of birds to observe) ▪Fishing popular on the Cimarron	▪Hunting impacts: prairie dog shooting is occurring throughout the Cimarron, with resulting harms to prairie dogs and associated wildlife. Other hunting impacts include harm from use of lead shot. Disturbance of non-target wildlife. Use of off-road vehicles by hunters. ▪Fishing impacts: release of non-native fish through bait escape. ▪Bird-watching impacts: disturbance of birds and other wildlife.	▪People travel from across the U.S. to hunt and bird-watch on Comanche & Cimarron ▪More fishing days/acre than anywhere in Kansas ▪Rural communities in New Mexico and Texas have organized festivals around lesser prairie-chickens, which provided added economic revenues to local communities	▪Manage lesser prairie-chicken viewing to avoid any disturbance to the birds. ▪Restrict use of lead shot and off-road vehicles by hunters to prevent adverse environmental impacts. ▪Restrict use of non-native baits whose release will harm aquatic species. ▪Prohibit prairie dog shooting. Stop distributing maps to shooters.
Motorized recreation	All 108,127 acres of the Cimarron are authorized for motor vehicle use as they are classified “Roaded natural” in the ROS.	Existing road system adequate for recreation access. Off-road and off-trail use is increasingly becoming a threat to resource protection.	Excessive motorized vehicle use degrades other recreational attractions	Restrict off-road vehicle use to existing roads and trails to prevent further resource damage.
Non-motorized recreation	▪The Cimarron National Grassland has 13 trails making up a combined total of 66.16 miles. ▪The Santa Fe Trail, a National Historic Trail, accounts for approximately 44% (29 miles) of Cimarron’s trail system. ▪This Grassland contains the longest Santa Fe Trail segment (24 miles) on public land. ▪Most trails on the Cimarron are non-motorized, and open for hiking, horseback riding, covered wagon, and mountain biking. ▪A five mile section of the West Turkey Trail is open for motorized use. ▪Star-gazing can be expected to increase in popularity given the low level of light pollution in the Grasslands.	Segment of Cimarron eligible for Wild & Scenic River designation.	Reduction of motorized recreation, oil and gas, and livestock grazing will increase attractiveness of Cimarron to hikers and star-gazers.	▪Reduce motorized vehicle use, oil and gas, and remove livestock grazing from special areas. ▪Designate segment of Cimarron as Wild & Scenic River.
Cultural and paleontological recreation	▪Fullerton Gravel Pit contains Miocene era (six million years ago) remains of camel, horse, elephant, and tortoise. ▪The Santa Fe National Historic Trail constitutes an important cultural element, with interpretive sites	▪Vandalism of historic and paleontological sites can be a problem. ▪Conflict with livestock grazing exists.	National recognition of these values on the Cimarron provides tourism, with accompanying economic benefits to local	▪Prevent theft of paleontological and cultural resources. ▪Ensure livestock grazing and other

	including .Middle Springs and Point of Rocks.	▪Vulnerability of Santa Fe Trail to erosion, human, and animal impacts.	communities.	extractive uses do not harm these resources.

[1]Adapted from: Recreation (Chapter 15). *Cimarron and Comanche National Grasslands Specialist Reports – Existing Condition Descriptions*. (Draft) May 10, 2005. pp. 1-7.

Motorized Recreation

Motorized recreation should be restricted. It is currently allowed throughout the Grasslands. It is permitted on 436,318 acres, or 98%, of the Comanche National Grassland, and across all of the Cimarron. Tire tracks from off-road vehicles are readily apparent in the Cimarron River's bed. In order to better balance a variety of recreational uses and to prevent loss of ecological integrity, motorized recreation needs to be restricted. The ecological harms from motorized recreation include: creation of new trails and roads, which fragment wildlife habitat; increased erosion and sedimentation, leading to soil loss, exotic weed proliferation, and air and water pollution; disturbance, killing, and harassment of wildlife; severe damage, including rutting and permanent scars, during wet conditions; creation of new dispersed campsites and parking areas; and harms to cultural resources, such as Native American sites.

Indeed, the federal government has recognized for over two decades the harms from off-road vehicle use. The White House Council on Environmental Quality wrote:

> ORVs have damaged every kind of ecosystem found in the United States: sand dunes covered with American beach grass on Cape Cod; pine and cyprus woodlands in Florida; hardwood forests in Indiana; prairie grasslands in Montana; chaparral and sagebrush hills in Arizona; alpine meadows in Colorado; conifer forests in Washington; arctic tundras in Alaska. In some cases the wounds will heal naturally; in others they will not, at least not for millennia.[8] (Sheridan 1979)

In the Comanche and Cimarron, there is a need to prevent excessive damage from this activity before it permanently impairs the productivity of the land for a variety of uses.

In addition, extensive motorized vehicle use degrades the attractiveness of these grasslands for other forms of recreation, particularly bird-watching. Bird watching is the most rapidly increasing form of wildlife-related recreation. In 2001, recreation oriented around wildlife brought $170 million into Colorado's and Kansas's economies (USFWS 2002). Southern Plains municipalities have enjoyed income flows from wildlife observation include Canadian, Texas, and

[8]See Havlick, Dave. 1999. "Roaring from the past: off-road vehicles on America's National Forests." Prepared for Wildlands Center for Preventing Roads. Dated November 30, 1999.

Milnesand, NM. Both of these towns host events around observations of lesser prairie-chickens and black-tailed prairie dogs.

Prairie Dog Shooting

An environmentally harmful recreational activity that should be prohibited is prairie dog shooting. Prairie dog shooting is legal on the Cimarron, and the Forest Service even provides maps of colonies for shooting. On a visit to the Cimarron in June 2005, evidence of prairie dog shooting (spent cartridges and prairie dog carcasses) were found on almost every prairie dog colony visited (Lauren McCain and Nicole Rosmarino, pers. observation). While prairie dog shooting is illegal on the Comanche, it continues to occur.

The environmental impacts of prairie dog shooting are several. Prairie dog shooting significantly reduces black-tailed prairie dog populations and population densities (USFWS 1998a, b). Shooting also alters prairie dog behavior. For instance, Irby and Vosburgh (1994) found that even light shooting has a significant effect on prairie dog behavior, with 42% of prairie dogs retreating to the burrows on a lightly shot colony, contrasted with a 22% retreat rate on unshot colonies, and 55% retreat rate on heavily shot colonies. Further, Irby and Vosburgh (1994) found that prairie dog shooters prefer higher densities of prairie dogs. This causes shooters to spread the pressure of their activity depending on population density, causing uniformity in prairie dog populations across colonies. Biologically, such uniformity is destabilizing to prairie dog populations.

Studies also report that shooting may decrease colony expansion rates (Miller et al. 1993; Reading et al. 1989). One study revealed that a colony in Montana had a 15% annual expansion rate when prairie dogs were not hunted, contrasted with a 3% expansion rate when they were (Miller et al. 1993). This dramatic decrease in rates of expansion represents decreased migration, which constitutes human interference with prairie dog dispersal, which is an integral population dynamic in prairie dogs.

Even without shooting pressure, there is a low survival rate of dispersing males (Garrett and Franklin 1981). In addition, prairie dog dispersal takes place in late spring (Knowles 1985; Garrett and Franklin 1981), which is one of the most popular times of the year for recreational prairie dog shooting. The negative impacts of shooting on prairie dog migration may therefore be considerable.

Shooting impacts may be unpredictable and colony-specific. Knowles and Vosburgh (2001: 7) compared black-tailed prairie dog shooting studies conducted in Montana, and concluded, “Shooting can impact prairie dog populations and …it is just a matter of the number of hours of shooting effort expended on a colony in relation to the size of the colony that determines the level of impact.”

Individual shooters can seriously impact prairie dog colonies. Randall (1976) chronicled the activity of three individual shooters who traveled from Minnesota to shoot white-tailed prairie dogs in Wyoming. In one week they concentrated on seven towns and tallied 1023 kills. This was in 1976; prairie dog shooters are much better equipped today. Jerry Godbey of the U.S. Geological Survey Biological Resources Discipline reported that when he surveyed white-tailed prairie dog towns in Colorado, Utah, and Wyoming in 1997-1998, he found spent shells or dead prairie dogs at "virtually every site" (Jerry Godbey, USGS, personal communication to Erin Robertson, 3 August 2001). Mr. Godbey said that he met one shooter near Delta, Colorado with three rifles who said that he shot white-tailed prairie dogs at least four times a week. This shooter estimated that he used 10,000 rounds per year, with an estimated 95% kill rate. Those figures translate to take of 9500 prairie dogs annually by a single person. Keffer et al. (2000) found that after they shot 22% of the black-tailed prairie dogs on one colony as part of a controlled shooting study, 69% (212 individuals) of the remaining prairie dogs left the colony. Small colonies may be particularly vulnerable to negative impacts from shooting (Knowles 2002, citing J. Capodice, pers. comm.). Entire colonies can potentially be eliminated from shooting pressure (Knowles 1988; Livieri 1999).

In addition, the threat that shooting poses extends to prairie dog associated species. For example, prairie dog shooting causes a reduction in the prey base. This may affect a broad range of avian and mammalian predators that prey on prairie dogs. The danger here is apparent:

> Viable populations of associated species cannot be expected at low prairie dog densities. Based on our observations of other prairie dog complexes in Montana, prairie dog complexes need to be broadly distributed and with relatively high occupancy to assure minimal viable populations of associated species (Knowles and Knowles 1994).

Low population densities result from shooting and will therefore work to the detriment of mammalian and avian prairie dog predators. In addition, there is evidence to suggest that prairie dog shoots result in the harming or killing of non-target species, such as the burrowing owl, ferruginous hawk, and mountain plover, as first-hand accounts indicate that these shoots harm and kill of a variety of wildlife species other than prairie dogs (R. Reading, Denver Zoological Foundation and University of Denver, pers. comm. 2004).

Relatedly, there is growing concern about the effects that spent shells may have on prairie dog predators. A preliminary study on the effects of prairie dog shooting on raptors (Wyoming Cooperative Fish and Wildlife Research Unit 2001) showed that black-tailed prairie dog towns on Thunder Basin National Grassland that were shot were visited by raptors an average of 2.42 times per hour, while towns that were not shot were visited an average of 0.5 times per

hour. Blood samples taken from burrowing owls on a town where shooting occurred showed elevated lead levels. Knowles and Vosburgh (2001: 15-16) also raise this issue:

> Fragments of lead ingested by raptors when scavenging shot prairie dog carcasses have the potential to kill or severely disable raptors. Burrowing owls are reported to scavenge poisoned prairie dogs (Butts 1973) and would also be expected to feed on prairie dogs killed by recreational shooting. Ferruginous hawks and golden eagles are 2 other raptors known to scavenge on dead prairie dogs. Shooting in some areas has been sufficiently intense during the past decade to literally put millions of pieces of lead on the ground. It is unknown if passerine birds are picking up pieces of this toxic heavy metal. Mortalities in morning [sic] doves have been noted with ingestion of only 2 lead pellets. Ingestion of lead is a known significant problem for birds (Lewis and Ledger 1968 and Wiemyer et al. 1988).

On his Moreno Valley (NM) study site, Cully (1986: 2) noted that, “One of the major sources of recreation for the residents of the area is shooting prairie dogs, a practice that may contribute to the attraction of raptors to the valley.” He suspected many of the area raptors were primarily subsisting on shot prairie dogs. To the extent shooters were using lead shot – which is extremely likely – those raptors were being exposed to lead poisoning.

While some of the above studies pertain to white-tailed and Gunnison’s prairie dogs, the cited biological impacts - reduced populations and population densities, altered behavior, potential colony extirpation, and impacts on associated wildlife – would reasonably extend to black-tailed prairie dogs on the Cimarron and Comanche.

Recreational Fishing

Wilburton, Mallard, and Point of Rocks Ponds, and an unnamed set of four ponds in the Cimarron Recreation Area, are stocked with non-native fish for sports fishing. Non-native fish have escaped during flood events and high water periods and out-compete native fish species, contributing to the decline of most native fish species in the region.

We recommend the following overall objective for the grasslands: Stocking of non-native fish should not be allowed in any water body where it might threaten native fish populations.

Soils

Healthy soils are an important component of maintaining ecological sustainability. The Forest Service directives proposed that plan components, Desired Conditions and Objectives, be included for "(s)oil resources and soil productivity" (FSH 1909.12, Ch. 43.15).

The Cimarron and Comanche Grasslands were at the epicenter of the Dust Bowl of the 1930s. The loss of native vegetation due to plowing up the land for crops destroyed the scaffolding or "crust" holding the soil in place. When drought hit, the topsoil in the region took flight. Between 1931 and 1938, the Dust Bowl region of the Southern Plains lost about 850 million tons of topsoil annually (Worster 1979). By 1938, 10 million acres of cultivated land in the region lost the top five inches of topsoil; the average acre lost 408 tons of soil. Lands that were not plowed were buried in dirt. Soil and vegetation conditions have dramatically improved in the last 70+ years but improvement is still needed.

Native prairie vegetation, the activities of burrowing fauna, and the build-up of organic soil crusts maintain soil fertility and stability in the Comanche and Cimarron region. However, human uses on and off the Comanche and Cimarron National Grasslands continue to harm their fragile soils and prevent full restoration of the Grasslands' ecosystems. (See soil tables for descriptions of soil threats and use sensitivities at the end of this section.) Livestock grazing and plowing across the Southern Plains region—especially during drought conditions—still contribute to soil loss, soil nutrient depletion, and degradation. Soil erosion and compaction due to livestock grazing continues to be a problem on several allotments (U.S. Forest Service 1998).

Sandy and shallow soils characteristic of the shortgrass prairie, especially sandsage areas, are especially susceptible to soil erosion and the loss of protective biological crusts. Biological soil crusts cover and protect the between-plant surface layer of some soil types on the Grasslands. Soil crusts may contain a range of bacteria, cyanobacteria, green algae, fungi, lichens, and mosses (St. Clair and Johansen 1993; Belnap et al. 2001; Ford et al. 2004). They fix nitrogen to increase soil fertility and improve the establishment of native vegetation. Soil crusts are particularly sensitive to trampling by livestock, vehicles, and humans, and can require a long time to rebuild after disturbance. Other threats include recreation (particularly motorized recreation involving off-route excursions by off-road vehicles), invasive weeds such as tamarisk, and water diversion and depletion. Oil and gas exploration and extraction and mining cause soil damage as well by the construction of facilities and new roads and potential chemical contamination to soils.

The Forest Service provided a brief description of the soils occurring on both the Comanche and Cimarron Grasslands in its Soils Specialist Report (PSICC – Soils(18) 2005) including an estimate of soil productivity (pg. 1-2). Plan

components that address soil resources are sparse within the Cimarron and Comanche Draft Plan. A Desired Condition to “protect the soil from erosion” with a “broader diversity of native grasses and forbs” is included within the Sandsage Prairie Ecosystem section (Plan at 34); however, there are no specific Objectives for soil management in the Draft Plan. There are vegetation Objectives aimed at establishing a vegetative mosaic through livestock grazing changes and fire treatments (Plan at 67), but it is not clear that these activities would really help increase vegetative diversity, and thus, according to the plan, help protect soil from erosion. See comments on livestock grazing.

How are soils that are now degraded by erosion and compaction going to be restored and protected? As stated in the livestock grazing section of these comments, livestock grazing must be reduced or eliminated in grazing allotments that show soil erosion, compaction, and soil movement. How are oil, gas, and mining activities on the Grasslands, especially on the Cimarron, affecting soils? This is not clear from any of the preliminary Grassland condition reports or the Plan itself. Since oil and gas development is considered a suitable use within all four ecosystem types identified by the Forest Service, detailed mitigation measures for protecting soils from damages from these uses must be outlined in the plan. The plan should supply a list of possible mitigation measures that can be applied at the project level as determined to be appropriate.

Four Plan Guidelines pertain to soils: Ecol-1, Ecol-2, Ecol-3, and Short-3 (Plan at 85, 85, and 88, respectively). We support all of these guidelines that pertain to preventing invasive species in vegetation restoration after soil-disturbing projects.

Soils of the Comanche National Grassland[1]

Soil Association	Ecotype	Soil Characteristics	Dominant Vegetation	Site Characteristics	Threats
Manvel-Penrose	Timpas Shortgrass Prairie	Well-drained shallow to deep soils; subsoil is silt loam and silty clay loam that is high in calcium carbonate content.	Shortgrass species are typical of this area, blue grama, snakeweed.	Found in Timpas Unit. Nearly level to strongly sloping topography. Loamy plains, limestone breaks.	Water erosion, compaction
Travessilla-Kim-Wiley	Canyon-lands	Travessilla sandy loams are excessively drained and shallow to sandstone bedrock. Kim soils are composed of deep calcareous material developed from weathered sandstone and limestone. Wiley deep loams are developed from wind deposited silts over weathered bedrock.	Blue grama, side-oats grama, little bluestem, juniper	Restricted to Picket Wire Canyon-lands.	Erosion due to overgrazing, slow recovery; crusts susceptible to livestock/human trampling
Travessilla-Kim	Canyon-lands	Travessilla sandy loams are excessively drained and shallow to sandstone bedrock. Kim soils are composed of deep calcareous material developed from weathered sandstone and limestone. Often have high percentage of cryptogrammic crusts on surface.	Blue grama, side-oats grama, little bluestem, juniper	Limited to canyons in the south central portion of Carrizo Unit. Sandstone outcrop and canyons.	Erosion due to overgrazing, slow recovery; crusts susceptible to livestock/human trampling
Baca-Wiley	Shortgrass Prairie	Deep, well drained clay loams and loams.	Blue grama	Nearly level to gently sloping terrain on loess uplands. Loamy plains.	Blowing & erosion if not protected by vegetation, susceptible to compaction
Vonna-Manter-Dalhart	Shortgrass Prairie & Sandsage	Deep, well drained to somewhat excessively drained sandy loams and loamy sands.	Mix of shortgrass and mid-grass	Nearly level to undulating topography of uplands, Sandy Plains	Wind erosion
Otero-Potter	Sandsage	Deep, sandy loams & strongly calcareous, shallow, gravelly loams that overlie caliche	Blue grama, sandsage, yucca, sand dropseed, sand lovegrass	Low, irregular relief, occurs in Campo/Pritchett area.	Wind & water erosion, compaction

[1]Data from grazing EAs

Soils of the Cimarron National Grassland[1]

Soil Association	Ecotype	Soil	Soil Characteristics	Dominant Vegetation[2]	Site Characteristics	Threats
Richfield-Wagonbed-Ulysses	Shortgrass Prairie	Richfield	very deep soils on nearly level to gently sloping topography. the soils, located on plains and tablelands, are well drained; subsoils are clayey and silty.	shortgrass species dominate uplands. mid- and tallgrass species are found in swales and drainages.	limy uplands and loamy uplands	erosion
		Wagonbed				erosion
		Ulysses				erosion
Atchinson-Happyditch	Cimarron River Corridor	Atchinson	very deep, well drained and is on nearly level to strongly sloping terrain. found on floodplains and terraces; subsoil, the subsoils are loamy.	little bluestem, sideoats grama, big bluestem, blue grama, green needlegrass, switchgrass, western wheatgrass, misc. perennial forbs mid- and tallgrass species occupy low-lying areas and shortgrass species are found on upland sites.	sandy lowland	
		Happyditch				blowing
Atchison-Shore-Haverson	North Fork Cimarron River	Atchison		little bluestem, sideoats grama, big bluestem, blue grama, green needlegrass, switchgrass, western wheatgrass, misc. perennial forbs mid- and tallgrass species occupy low-lying areas and shortgrass species are found on upland sites.		erosion
		Shore				erosion
		Haverson				blowing
Eva-Optima	Sandsage	Eva	very deep soils on undulating to rolling topography. these excessively drained soils are found on dunes and paleoterraces; subsoils are loamy and sandy.	Sandsage, sand bluestem, misc. perennial forbs, misc shrubs, sand lovegrass, sideoats grama, switchgrass	sands	blowing
		Optima	Choppy sands	Choppy sands: sand bluestem, giant sandreed, little bluestem, misc perennial forbs, sand lovegrass, switchgrass, misc shrubs		blowing
Dalhart-Bigbow-Satanta	Sandsage	Dalhart	Sandy, loamy upland	Loamy upland: blue grama, sideoats grama, western wheatgrass, buffalo grass, big bluestem, little bluestem, misc, perennial forbs Sandy: blue grama, sand bluestem, sideoats grama, little bluestem, sand dropseed, yellow		blowing

				Indiangrass, misc, perennial forbs, switchgrass		
		Bigbow		sandsage, blue grama, sideoats grama, western wheatgrass, buffalo grass, big bluestem, little bluestem, misc, perennial forbs		erosion
		Satanta	very deep soils on nearly level to gently sloping topography. these well drained soils are located on eolian modified paleoterraces; subsoils are loamy.	sandsage, blue grama, sideoats grama, western wheatgrass, buffalo grass, big bluestem, misc, perennial forbs, switchgrass	loamy upland	

[1]Data from the Soil Survey of Morton County and Stevens County
[2]Over 5%

Watersheds / Water Resources

Water resources in the Cimarron and Comanche National Grasslands are rare, and thus extremely important to the ecosystem. Riparian areas provide habitat to numerous species. Because watersheds contribute to ecosystems as a whole, it is important to maintain functional streams, rivers, playas, and ponds that each contribute to an individual watershed. “Streams in prairies are . . . endangered, because many of the remaining fragments of prairie are not large enough to encompass a significant, functional watershed” (Dodds et al. 2004, 205). The remaining fragments of these watersheds should be maintained in pristine conditions in order to protect and preserve the remaining biota they support.

There are several problems with water resources in the Grasslands that require attention. Because these scarce water resources are so vital to life in the region, sound management practices must be adopted through specific objectives and guidelines to meet desired conditions.

Watersheds

An assessment undertaken between 1997 and 1999 found at least half of the 10 primary watersheds in the Grasslands in a limited to degraded condition (Winters and Gallagher 1997, 1998). A “limited” condition is defined in the assessment as a Class II watershed, which is one where management activities are occurring, and one that is not in a pristine condition and thus at risk. A “degraded” condition is defined in the assessment as a Class III watershed, where severe damage to stream and riparian function have occurred. All the water systems of the Comanche and Cimarron are impaired by bank damage, noxious weeds, sediment, nutrients, hydrological modifications, and/or flow disruption (Winters and Gallagher 1997, 1998). Improving watershed conditions presents a management challenge for the Grasslands, as about 80 percent of the land within watersheds is owned by private parties.

Stream Channels and Surface Water

There are 2,624 miles of streams on and adjacent to the Grasslands, but only 1,220 miles are actually on public lands (USDA Forest Service 2005(21), 3). Ground and surface water is subject to contamination by livestock grazing and feedlots, pollutants from automobiles, agricultural chemicals, run-off from oil and gas operations, and concentrations of salts and heavy metals from irrigation recharge upstream.

Livestock operations on and off the Grasslands contribute to surface water degradation. Hoof shear and sediment problems are caused by cattle grazing within the Grasslands. Upstream feedlots and other agricultural activities create excessive nutrient problems. The PSICC Watershed Condition Analysis reports

that the entire Sand Canyon Watershed has bank damage. In addition, the riparian corridor along Sand Canyon is dominated by old and dying Cottonwoods, with no re-growth or new generation present. This is due largely to unmanaged livestock grazing. The Forest Service acknowledges this problem; "Unmanaged or ill-adapted livestock grazing can alter a cottonwood and/or willow community, oftentimes to one dominated by grass species or non-natives such as tamarisk. Changes such as these could leave streambanks susceptible to erosion and water susceptible to increases in temperature" (USDA Forest Service 2005(21), 10).

Tamarisk is a major problem in Grassland creeks and rivers. Tamarisk, the primary invasive species in riparian areas of the Grasslands, has displaced native cottonwoods and willows and altered the hydrology of the floodplain by consuming more water than the native vegetation.

Table: Degraded Water Systems of the Cimarron and Comanche National[1]

4TH LEVEL WATERSHED	WATER BODY	LOCATION	CONDITION CLASS	IMPAIRMENTS
Upper Arkansas				
Apishapa River		Timpas Unit, Comanche, NG		
Purgatoire	Purgatoire River (Picketwire)	Timpas Unit, Comanche NG	III	Bank damage, tamarisk infestation
	Tobe Creek	Carrizo Unit, Comanche NG	III	Bank damage, tamarisk infestation
Upper Arkansas – Lake Meredith	Timpas Creek	Timpas Unit, Comanche NG	III	Noxious weeds, bank damage, sediment, tamarisk infestation
	Timpas tributary	Timpas Unit, Comanche NG	II	Noxious weeds, tamarisk infestation
Upper Cimarron				
Bear Creek				
Cimarron Headwaters	Carrizo Creek	Carrizo Unit, Comanche NG	II	Nutrients
	Tecolate Creek	Carrizo Unit, Comanche NG	II	Bank damage, sediment
North Fork Cimarron	North Fork Cimarron	Cimarron NG	II	Tamarisk infestation
	Frazier Lake	Cimarron NG	II	Hydrologic modification
Sand Arroyo		Carrizo Unit, Comanche NG		
Two Butte Creek		Carrizo Unit, Comanche NG		
Upper Cimarron River	Cimarron River	Cimarron NG	III	Noxious weeds (tamarisk), flow

				disruption, sediment
	Cimarron tributaries	Cimarron NG	III	Bank damage, sediment
	Picture Canyon	Carrizo Unit, Comanche NG	III	Bank damage
	Sand Canyon	Carrizo Unit, Comanche NG	III	Bank damage

[1]Table information adapted from USDA Forest Service, Comanche and Cimarron National Grasslands. 2005. Specialist Reports – Water Resources, Chapter 21. May 10.

Playas, Wetlands, Ponds, and Springs

The riparian zones and the few natural ponds, playas, and wetlands that remain on the Grasslands are crucial for wildlife, but many are degraded by poorly managed cattle grazing and the spread of invasive weeds, especially tamarisk and Russian olive that consume more water than native plant species.

There are approximately 600 playas on the Grasslands. Alterations in the surface flow, such as stock dams or road drainage may disrupt the flow of water into these playas. Some of the playas have been dug out in the center to provide "dugout pits" as a water source for livestock year round. Modifying playas in this way actually contributes to water loss. Playas are lined with clay, which creates a natural barrier to water inflitration into the soil. Breaching the clay barrier by digging pits actually contributes to water loss because water can more easiler seep into the soil. Altering playas also harms the native plant and animal communities that playas sustain.

There are only three areas of wetlands mapped on the Comanche National Grassland, but there are many smaller areas too small to map. "These ponds support isolated but minimal riparian habitat, which is threatened by a dropping groundwater table, unmanaged livestock grazing and invasive species." (USDA Forest Service 2005(21), 6).

Wilburton, Mallard, and Point of Rocks Ponds, along with an unamed set of four ponds in the Cimarron Recreation Area, are stocked with non-native fish for sport fishing. Non-native fish have escaped during flood events and high water periods to outcompete native fish species, contributing to the decline of the latter in the region. We recommend that the practice of stocking ponds with non-native fish be discontinued.

Approximately 105 natural springs exist on the Grasslands. Most are used for stockwater, and only one spring and two small ponds in Picture Canyon have been set aside in a permanent exclosure for protection from cattle grazing.

Water Quality

According to the Forest Service, “Threats to surface water quality on the Comanche National Grasslands are: storm water runoff from nearby animal feeding operations (Colorado Department of Public Health and Environment – Water Quality Control Commission 2000); water quality issues associated with unmanaged or ill-adapted grazing in the riparian areas (Kanaan 2004; Federal Interagency Stream Restoration Working Group 1998); sediment from ground disturbing activities, channel instability and sedimentation as a result of riparian species conversion (Rosgen 1996); and spills from oil and gas activities (USDA Forest Service 1991), (USDA Forest Service 2005(21), p. 10).

Several miles of streams in the Grasslands are listed on the States’ 303(d) lists for monitoring and evalution. The 1998 Section 303(d) list includes 19 river segments and 4 lakes in the Cimarron River Basin that have impaired water quality. The greatest impairment in the streams is chloride and the greatest impairment in the lakes is excessive algae (Kansas Department of Health and Environment 2006). However, these segments are considered “use protected.” Colorado regulations say that if a ‘use’ cannot be achieved, the use will be downgraded so that there is no impact to local economies. This simply means that if there is a water quality problem, no action is required because the designated use will just be downgraded. In addition, ignoring water quality problems leads to longer term, and likely more pernicious, impacts to local economies, as local human communities – particularly agricultural ones – cannot persist without access to clean water. An objective for the riparian-aquatic ecosystem is to have five miles of stream removed, or “be progressing toward removal” from the States’ 303(d) and monitoring-evaluation lists within 15 years, (Plan at 66). We believe that <u>all</u> stream miles on these lists should be at least progressing toward removal within 15 years.

Moreover, even though some of the waters within the Cimarron National Grassland are classified as “Outstanding National Resource Waters” by the state of Kansas, this designation only means that discharges to the waters are not allowed. Since agricultural runoff is a non-point source pollution, it is not considered a discharge.

As the Forest Service notes, there are significant adverse impacts from livestock grazing on water quality. “Surface water quality concerns directly related to grazing are water temperature for aquatic life due to the removal of protective riparian vegetation; possible introduction of sediment, nutrients, and bacteria associated with livestock; or toilets in or near the floodplain along the Cimarron River corridor.” (USDA Forest Service 2005(21), 7).

There is a nutrient problem on East Carrizo Creek from a feedlot located upstream of the Carrizo Canyon Recreation Area. This designated beneficial use

to this segment of Carrizo Creek is Recreation 1A, “where ingestion [of water] is probable.” (USDA Forest Service 2005(21), 9).

Roads also cause significant adverse impacts. “Sediment sources in the Grasslands Planning area [come] from the two-track native-surface roads in the canyon that are adjacent to the riparian area and river.” (USDA Forest Service 2005(21), 9). Off-road vehicles degrade water quality by passing through streams, and churning up sediment. Any oil and gas leaks from a vehicle can end up in the water.

Water contamination from oil and gas spills and pumps and other facilities can be a major problem and always exists at a threat on the Grasslands where oil or gas is being extracted.

Fire

Fire and the Role It Plays Should Be Restored to the Grasslands

The Plan states (pg 26):

> Historically, fires and grazing by large herbivores were important interacting disturbances [footnote omitted] that contributed to a grassland landscape with highly variable plant species, composition and vertical structure. Fire suppression and inappropriate timing and intensity of livestock grazing can reduce variability in grass height and species composition across the grasslands. Over the last 50 years, approximately 75% of the Sandsage Prairie and Canyonland Ecosystems and approximately 30% of the Shortgrass Prairie ecosystem have burned less frequently than they had over previous centuries. This may have contributed to reduced habitat quality for and declining populations of lesser prairie chicken and mountain plover. Prescribed fires managed in combination with appropriate timing and intensity of livestock grazing could contribute to improved habitat quality for these grassland birds….and contribute to ecosystem diversity… .

Furthermore, the Historic Range of Variability Report for Habitat states that 76 percent of the grasslands is in condition class 2, which has moderate departure from historic conditions due to fire suppression, and 21 percent is in class 3, which has high departure, HRV-Habitat Report at 3.

This establishes the need to begin restoring the role of fire to the Grasslands. Given the current human uses of the Grasslands and human habitation of the surrounding areas, it would be difficult to fully restore this important disturbance, but some effort toward restoration of fire can and should be made in the plan. To

this end we find the following objectives:

For the Canyonland ecosystem, an increase in "representation of early and mid-seral stage[s]" is desired. Page 61. Areas with documented occurrences of wheel milkweed and Andean prairie clover, both species-of-concern, would be managed for low and moderate frequency, respectively, of disturbances from fire and livestock grazing. Plan at 62.

For the sandsage prairie ecosystem:

> A minimum average of 1% of the ecosystem would be affected by fire (wildfires, prescribed burns of both) annually, with an objective of having 2-5% of the Grasslands affected by fire annually (Plan pg 67).

And for the Shortgrass prairie ecosystem: an average of 0.5 – 2.0 percent of Shortgrass Prairie Ecosystem in the Timpas Unit, and a minimum of 1 percent of the Carrizo Unit (and a desired 2-5 percent of this unit) would be affected by fire (wildfires, prescribed burns, or both) annually. Page 70.

However, these objectives are mostly equal to or less than the recent average annual fire occurrence across the Grasslands, which is 0.5 – 2.0 percent. See HRV-Habitat Report at 3. In other words, the Forest Service proposes little or no increase in fire coverage, and at the minimum coverage specified in the objectives, fire occurrence would be *less* than it is now.

This is unacceptable. Given the key importance of fire in the shaping of the Grasslands' ecosystems, we believe the *minimum* annual fire coverage must be somewhat higher that the *average* such occurrence in recent years. We well recognize the practical difficulties in implementing prescribed fires or not extinguishing natural ignition fires. However, such difficulties cannot be overcome if the Forest makes no effort to do so by setting the goals for fire too low, as is proposed in the Draft Plan. Rather, set the goals considerably higher and address the difficulties as they arise for individual projects.

Diversity and Viability

The Draft Plan fails to provide for the diversity of plant and animal communities and assure the viability of individual species that make up those communities.

The Forest Service must "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives . . .," 16 U.S.C. § 1604(g)(3)(B). Courts have identified the maintenance of diversity on national forests as a substantive standard the Forest Service must meet. See, e.g, Seattle Audubon

Society v. Mosely, 798 F. Supp. 1484, 1489 (W.D. Wash. 1992) (16 U.S.C. § 1604(g)(3)(B) "confirms the Forest Service's duty to protect wildlife. . . . [and] 'requires planning for the entire biological community -- not for one species alone.'"). Maintaining the diversity of plant and animal communities necessarily encompasses maintaining the individual species that comprise those communities. The Draft Plan fails to ensure sustainable populations of individual species, or provide for the all of the plant and animal communities on the grasslands.

The ecological community associated most directly with its keystone species of prairie dog and bison highlights the importance of maintaining entire communities of plants and animals. The Draft Plan adds population control from shooting and lead poisoning to the complex mix of factors influencing and reducing prairie dog populations, compromising the viability of prairie dog populations and numerous other native species on the NNF that depend upon or are associated with prairie dogs and the habitat prairie dogs create, including the black-footed ferret.

Cimarron and Comanche Native Species and Natural Migrants

Over 600 native plant species, close to 400 vertebrate species, and an unknown number of native invertebrate animals occur on the Comanche and Cimarron National Grasslands, at least for some part of the year. The Grassland management plan can help promote the protection of these species and encourage the restoration of others who belong to these lands.

Plants

By 1930, the native vegetation of the Southern Plains had almost completely been replaced by wheat. On what is now the Cimarron National Grassland, for example, only four percent of the native vegetational community remained in the 1930s (Morton County Grazing Association AMP 2002). The last 70+ years have been devoted to restoring vegetation lost during the Dust Bowl. Unfortunately, early and even later restoration efforts did not always include native grasses for planning and reseeding. People and their livestock brought exotic plant species to the region that spread due to suppression of natural fire, loss of bison grazing, and conversion of native prairie to cropland. Native grasses and forbs have made a recovery, but competition from exotic plant species, domestic livestock grazing, the continued lack of fire restorative fire, vehicles, monocultures resulting after seeding following the 1930s Dustbowl (Plan at 27), and the construction of new roads all keep native plants on the defensive. Several rare and endemic species make the Grasslands unique.

The Comanche commissioned a comprehensive inventory of vascular plants, published in 2004 (Hazlett 2004). The Cimarron has no such inventory but has

surveyed rare plant species (Freeman 1989). A comprehensive survey of plants should be completed on the Cimarron to assess the current level of plant diversity and understand native vs non-native composition. These values must be protected from the threats listed above through diligent management.

Invertebrates

Very little is known about grassland invertebrates region-wide and locally, and they remain poorly studied (Arenz and Joern 1996). Yet, invertebrates contribute far more to ecosystem processes than do vertebrate animals. The total biomass of arthropods (the most familiar variety of invertebrates that include insects, spiders, and centipedes) alone exceeds that of all vertebrates combined, minus domestic livestock (Lauenroth and Michunas 1992).

Managing for vertebrate focal species may not provide sufficient habitat conditions for native invertebrates (Samways 1993). Based on what is known, habitat loss, fragmentation, and degradation; chemical pollutants including pesticides, herbicides, and fertilizers; and competition with non-native species all constitute threats to native invertebrates (Arenz and Joern 1996). Different invertebrates respond differently to fire. Managers must consider the effects of timing, frequency, and extent of prescribed burns on invertebrates in the burn area. Patchy burns that provide some non-burned area as refugia for fire-sensitive species and do not exceed 25-50% of intact plant communities are recommended (Opler 1991; Panzer 1988). The management planning process provides an opportunity for the Forest Service to promote knowledge about invertebrates through research and creating baseline data for the long-term monitoring of key Grassland insects, spiders, and the rest of these small creatures.

Fish

The complete modification of the prairie water systems upstream and down has affected native fish species. Water diversion and storage from streams has altered natural water flows and resulted in less water for aquatic species. Herbicides and fertilizers from nearby farms along with cattle excrement and vehicle emissions pollute Grassland waters. Only three streams on the Grasslands provide year-round water: Timpas Creek, Purgatoire River, and Carrizo Creek. Even the Cimarron, once a river with a regular flow, has become an intermittent creek; it is even used as a road in some places. Several native fishes are struggling. The Arkansas River shiner is listed as threatened; the Fish and Wildlife Service designated some waters downstream as critical habitat for this species. The Arkansas darter is a federal candidate for Endangered Species Act listing. The flathead chub, speckled chub, emerald shiner, plains minnow, and plains killfish are all either declining or extirpated from the larger streams. The blacknose shiner and Topeka shiner are barely hanging on or are even gone from the Cimarron River.

Herpetofauna

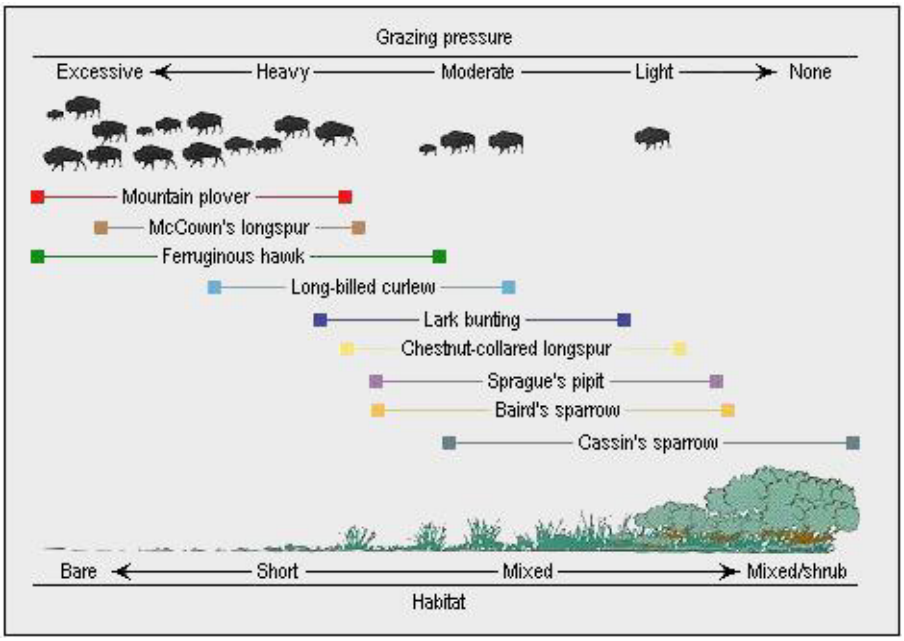
The Draft Plan gives no attention to the native reptiles and amphibians that occur on the Grasslands. Several of these species are declining. Reptiles and amphibians can be key indicator species for ecosystem degradation. The decline or disappearance of any of these “canaries in the coalmine” indicates problems across a whole system (Beiswenger 1986; Blaustein 1994). We have proposed several amphibians and reptiles to be include as Species of Interest for the Grasslands.

Birds

Many grassland birds are experiencing catastrophic declines owing to the cumulative effects of agricultural domination in the Great Plains. Knopf 1996 described the magnitude of avian losses,

> During the last 25 years, grassland species have shown steeper, more consistent, and more geographically widespread declines than any other behavioral or ecological guild of North American birds, including Neotropical migrants (pg. 296).

Brennan and Kuvlesky 2005, root the problem in “a critical mass of negative effects” from a combination of factors including drought, livestock grazing, woody plant encroachment, exotic species invasions, and road-building” (pg. 5). All of these are problems on the Cimarron and Comanche. They put most of the blame for the decline of grassland birds in the West on the loss of wild bison and historic grazing regimes of native grazers to domestic livestock and the shift to cattle ranching on the Plains. Huge herds of bison moved around the open Plains to graze where they pleased, leaving some grassland areas ungrazed for years. Commercial ranching involved confining animals, building roads, suppressing fire, altering hydrologic systems, lowering the water table, and pushing the land beyond its carrying capacity (Saab et al. 1995; Brennan and Kuvlesky 2005). As discussed in the Ecological Processes section, the natural processes of the prairie grasslands—bison grazing, prairie dog colonization, periodic fires and floods, along with occasional droughts -- created a diverse habitat mosaic that supported a range of avian species. Some bird species, such as the Cassin’s sparrow, select for taller structure grasses and shrubs while others, such as the mountain plover, prefer the true shortgrass. The graphic below illustrates the different vegetations structure heights provided by traditional native bison grazing patterns and structure preferences by grassland endemic birds. All of the species included in this graphic occur on the Comanche and Cimarron Grasslands during some part of the year.



(Knopf 1996. pg. 137)

Only twelve birds are endemic to the Great Plains grasslands. Seven of ten of these species monitored by the Breeding Bird Surveys (1966-1991) exhibited long-term population declines (Knopf 1995). The mountain plover, Franklin's gull, Sprague's pipit, Cassin's sparrow, and lark bunting all showed statistically significant drops. The plover, Cassin's sparrow, and lark bunting all occur on the Cimarron and Comanche Grasslands

In fact, the Grasslands provide some of the most important nesting and breeding habitat for grassland birds in the entire Southern Plains. Because of the Forest Service's ability to manage land uses on the Grasslands, restoring a vegetative mosaic on these lands provides the best hope to start reversing the trend in grassland bird decline.

Mammals

Current conditions in the Southern Plains demonstrate how the loss of one "cog in the wheel" can cause dysfunction down the line. Actually the prairie has lost four cogs in the form of keystone mammals. Though extirpated by the 1880s, bison have made a come-back, but are primarily raised like cattle. European trappers took as many beaver as they could for the fur trade and those left at the beginning of the homesteader years were killed by farmers who wanted control of the scarce prairie streams. Beaver dams slowed water flow from west to east, enabling some collection and storage of water for a host of fish, amphibians, and terrestrial species, and also maintained healthy riparian habitats. Prairie dogs have been poisoned and shot down to such low numbers across the western grasslands that the isolated and fragmented colonies are not able to sustain healthy populations of species that depend on them for food and their burrows for

shelter. Finally, wolves, who once preyed on bison in significant numbers were persecuted out of existence on the Plains.

The actions and interactions of these mammals, along with fire and other ecological and climatic processes, maintained the natural habitat and prairie landscape for eons. Beaver helped provide precious water necessary for all life and minimize the effects of extreme flood events. Bison grazing helped keep the grasses short, enabling easier prairie dog colony expansion. Along with serving as prey and expert prairie home-builders, prairie dog burrowing and digging helps aerate and fertilize the soil, which enables more water retention and produces healthier forage on colonies. Prairie dog colonies attracted an array of species from microorganisms, insects to bison. Bison also enjoyed grazing on prairie dog colonies for the more nutritious, succulent grasses. Wolves hunted bison, enforcing some population control and leaving partially eaten carcasses for other hungry species. Decaying bison carcasses further fertilized the soil, part of the ecosystem process removed by the expansion of commercial livestock operations on the Plains. Wolves also kept the populations of smaller, more generalist carnivores, such as coyotes and red foxes, in check. The tiny swift fox, native to the prairie, has suffered greatly due to the loss of the wolf which controls coyotes. Coyotes and red foxes compete with swift foxes for food and often kill the smaller canid. The loss and decline of these mammals have had a ripple effect across the Southern Plains and have, in part, shaped the ecological conditions present on the Grasslands today.

Federally Listed Species

The Endangered Species Act of 1973 (ESA) provides protection for endangered and threatened species and those proposed for listing by requiring federal agencies to ensure activities they conduct, authorize, or fund do not jeopardize the continued existence of those species. Specifically, the ESA 1) requires all federal agencies to use their authority to conserve endangered and threatened species, 16 U.S.C. §§ 1531(c)(2), 1536(a)(1); 2) requires each federal agency to "insure" that any action it authorizes is not likely "to jeopardize the continued existence of any endangered species or threatened species," Id. § 1536(a)(2); 3) requires federal agencies to consult with, in this case, the Fish and Wildlife Service (FWS), before deciding to carry out or authorize any action that might have an effect on these species; 4) and prohibits federal or state agencies from taking endangered or threatened species, 16 U.S.C. § 1538.

The Forest Service acknowledges seven listed species and two candidate species whose ranges coincide with the Comanche and Cimarron National Grasslands (see table below).

Federally Listed Species of the Comanche/Cimarron Region[1]

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS
Arkansas Darter	*Etheostoma cragini*	Candidate
Arkansas River Shiner	*Notopis girardi*	Threatened
Bald Eagle	*Haliaeetus leucocephalus*	Threatened
Interior Least Tern	*Sterna antillarum*	Endangered
Lesser Prairie-chicken	*Tympanachus pallidicinctus*	Candidate
Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened
Piping Plover	*Charadrius melodus*	Threatened
Whooping Crane	*Grus Americana*	Endangered
Black-footed Ferret	*Mustela nigripes*	Endangered

[1]Adapted from: Cimarron and Comanche National Grasslands. 2005. Specialist Report – Existing Conditions Descriptions, Wildlife.

Failure to Comply with the ESA

The Draft Cimarron and Comanche Land Management Plan does not comply with the Endangered Species Act. It fails in both the duty to conserve threatened and endangered species and a duty to consult with the U.S. Fish and Wildlife Service to assure planned actions do not harm listed species and/or their habitat. The Forest Service uses a few species surveys conducted on the Grasslands that did not identify occurrences of select threatened or endangered species to make the claim that it need not account for these species in the management plan (pg. 101-102). At least two of these species, the Arkansas River shiner and the bald eagle are likely to occur on the Grasslands now (see below). The dismissal of these species and failure to provide conservation provisions in the plan for these species is not justified. Nor is the lack of analysis of the potential adverse effects to these species from plan decisions.

The implementation of the current Draft Plan would indeed have significant and harmful impacts to several of these species. The Draft Plan allows the continuance of actions that have and would continue to have a detrimental effect on threatened and endangered species and actions that have likely contributed to the decline of some of these species and their habitats already. Potential future projects that would be in compliance with the current Draft Plan would likely impact threatened and endangered species that currently exist on the Grasslands and affect habitat that could be restored to enable the reestablishment of viable populations of threatened and endangered species to the Grasslands. Some of these current actions and potential future projects that would continue to and are likely to impact threatened and endangered species and their habitats (for better or worse) include livestock grazing, oil and gas development, recreation (especially motorized recreation), fishing and stocking ponds with non-native fish, re-vegetation, riparian area restoration, invasive

species control, and prescribed fire.

The following species accounts illustrate how the Draft Plan is likely to affect key endangered and threatened species on the Comanche and/or Cimarron National Grasslands.

Effects on Listed Species

Arkansas Darter

This ESA candidate is listed as threatened in both Colorado and Kansas (U.S. Fish and Wildlife Service 2004). Both Grasslands are within the historic range of the Arkansas darter and contain suitable habitat for the fish, but neither currently support viable populations of the species. Management actions regarding the Arkansas darter could affect the viability of the species range-wide and affect its ESA status. It is unclear why the Forest Service has not included Desired Conditions, Objectives, or Guidelines to guide future management actions on the Comanche and Cimarron Grasslands that would protect potential populations and individuals that may currently occur on the Grasslands, protect existing and increase potential habitat for the species, and restore viable populations. The Draft Plan provides the following explanation for failing to consider the Arkansas darter or other fish species (including the threatened Arkansas River shiner, see section below):

> The Fisheries Specialist's Report prepared for the Plan revision effort provided a species-specific summary of current conditions for fish in the Planning Area that are of interest for conservation or monitoring objectives (USDA FS 2005e). This report evaluated fish habitat on the Grasslands and the results of fisheries monitoring efforts. The report provided a starting point for developing the species-of-concern and species-of-interest lists, but additional criteria were also considered based on the Interim Directives. The Fisheries Specialist's Report outlines current conditions and limitations concerning management for fish habitat on the Grasslands. Based on this evaluation, no fish species were evaluated further for the species-of-interest list. Only one species (Arkansas darter) met the criteria outlined in the Interim Directives (FSH 1909.12, 43.22a) for consideration for the species-of-concern list. See Species Diversity Evaluation: Fish (USDA FS 2005e) for the description, distribution, and habitat needs of the Arkansas darter, and the rationale for not including it on the species-of-concern list. (Plan at 104)

The Cimarron and Comanche *Species Diversity Evaluation: Fish* includes the following justification for not including the Arkansas Darter in the Draft Plan:

> Because land use practices that result in the loss of suitable habitat for the Arkansas darter largely occur outside the Planning Area, management activities within the Planning Area would not even minimally provide suitable habitat for a self-sustaining population. Because the Forest Service has no authority to direct or manage land use practices on private holdings adjacent to Forest System lands, it can effect little change in creating or sustaining suitable habitat for the Arkansas darter. Therefore, the Arkansas darter is not recommended for inclusion on the species-of-concern list or the species-of-interest list. (pg. 4).

The Comanche and Cimarron Fish Specialist Report included the following assessment of current populations and habitat conditions:

> State wildlife management agencies for both Colorado and Kansas have attempted introductions of native rare fish species in habitat adjacent to the Cimarron and Comanche National Grasslands. Arkansas River darter was introduced into two Grassland ponds in 1999. Surveys in 2001 and 2002 at the Picture Canyon site resulted in no darters captured (USFS 2002). Surveys in 2001 and 2002 at the Comanche Windmill Pond resulted in 2 and 8 individuals respectively. However, a recent survey showed the pond to be populated with only bullfrogs (Gallagher 2004). Potential habitat for Arkansas River darter and southern redbelly dace occurs on the Comanche National Grassland (Winters 2003). In order for introductions of these species to be successful, the riparian corridor would have to receive careful management and connectivity to adjacent habitats would have to occur. (pg. 4-5)

The Forest Service's justification for failing to include provisions for the Arkansas darter and other fish species is not fully convincing. The Grasslands are not prevented from working with adjacent and nearby landowners to protect regional species. The Forest Service should include potential habitat for the Arkansas darter and other native species in its criteria for priority land exchange/acquisition targets, for example. The Grasslands could work more closely with the Colorado and Kansas wildlife agencies to provide more habitat suitable for reintroductions of the darter.

We propose the Arkansas Darter be designated as a Species-of Concern. See justification and proposed management details below in species-of-concern section.

Arkansas River Shiner

Once common in the Cimarron (Kilgore and Rising 1965) and Arkansas Rivers (Kansas Department of Wildlife and Parks 1989), the Arkansas River

shiner is on the verge of disappearing from the Cimarron within the Cimarron Grassland, if it is not gone already (Eberle et al. 1989; Chynoweth 1998). One individual was collected from the Cimarron in 1987 (Eberle et al. 1989). Small populations may still make their way back to the Cimarron in Morton County during periods of high streamflows (Kansas Department of Wildlife and Parks 1989). The Forest Service cites Chynoweth (1998) to argue that the species no longer exists in the Cimarron River and therefore does not require any conservation provisions in the revised management plan (Plan at 101). Though the Chynoweth (1998) survey found no specimens, the study report listed the fish as "probable" to occur in the Cimarron River. Threats in the Grasslands include dewatering of the Arkansas and Cimarron Rivers (Cross et al 1985), competition with non-native fish stocked on the grasslands for sport fishing and other reasons (Fisheries Specialist Report 2005), and quite likely collection by scientists during surveys. [9] The FWS designated Critical Habitat for the shiner in 2005 (70 Federal Register 59808-59846).

Restoring the Arkansas River shiner habitat and reestablishing viable populations of this fish in both Grasslands is still possible. The State of Kansas considers all parts of the Cimarron River critical habitat for the species under Kansas Administrative Regulation 23-17-2 (Kansas Department of Wildlife and Parks 1989). Eberle et al. (1989) recommend restoring streamflows to the Cimarron River in Morton County to bring back populations of protected fish.

The Draft Plan will affect Arkansas River shiner and this species' habitat in the following ways:

- The failure to prohibit non-native fish stocking of Grassland ponds has and will continue to harm the shiner and other native fish species. The Forest Service's "Fisheries Specialist Report" acknowledges non-native fish from stocked ponds can out-compete struggling natives by entering "stream systems through water diversions or during flood events" (Fisheries Specialist Report 2005 citing Chynoweth 1998).

- The riparian and aquatic ecosystem is found suitable for livestock grazing (Plan at 78). The continued allowance of livestock grazing in Grassland riparian areas will continue to degrade and contribute to dewatering of streams and rivers. Cattle trample stream banks, widening channels and contributing to the loss of streambank vegetation. This contributes to water loss by increasing water surface area and loss of stream canopy, which increases evaporation, and by increasing water seepage into the soil and out of stream and river channels. The Forest Service acknowledges that livestock have contributed to stream impairment (Plan at 31) but fail to provide objectives (Plan at 65-66) and guidelines (id. at 87) that would

[9] Eberle et al. 1997 discuss their methods (pg. 1) which include using electroshock and preserving caught samples for the Fort Hayes State University Museum.

reduce these impairments. There is not even one proposed monitoring question designed to observe the impacts of livestock grazing in aquatic and riparian areas. (See Plan at 66.)

- The lack of a plan for riparian area restoration and specific provisions to re-water dewatered rivers, especially the Cimarron River will not produce the important outcome of improving habitat for the Arkansas River shiner.

- The US Fish and Wildlife has noted water quality issues related to oil and gas activities that are harmful to this species (63 Federal Register 64771-64799). Oil and gas must be restricted in areas such as the Cimarron River corridor, where those activities can harm the shiner.

- As discussed in the Recreation section, off-road vehicles are also being heavily used in the Cimarron River. This activity must be restricted to ensure no harm to the shiner.

Bald Eagle

Before the water systems of the Southern Plains were completely altered by upstream and local water diversion for agriculture, municipal use, flood control, and other purposes, the Comanche and Cimarron likely provided excellent habitat for bald eagles, who prefer running streams lined by tall trees for roosting and nesting. Bald eagles also prey on prairie dogs and thus may occur near prairie dog towns in winter in shortgrass prairie habitat (Andrews and Righter 1992). The Comanche and Cimarron Grassland region has the largest complex of black-tailed prairie dogs in the Southern Plains region. The Draft Plan states:

> Because of a lack of suitable habitat, this species is not known or suspected to nest anywhere on the Grasslands (Chynoweth 1998). Bald eagles are an uncommon winter resident on both Grasslands, where they likely feed on rabbits, prairie dogs, squirrels, and carrion (Andrews and Righter 1992; Cable, et al. 1996). (Plan at 101)

The Forest Services uses these claims to justify not including bald eagle conservation or consultation in the Draft Plan. Cable et al. (1996) list bald eagles as “uncommon” winter *and fall* residents but not “rare” or “accidental”. Andrews and Righter (1992), cited by the Forest Service above, describe bald eagles as uncommon to *locally common* winter resident of Colorado’s eastern plains. The Chynoweth (1998) study, a summary of various avian surveys, *never mentions bald eagles or bald eagle habitat* and only applies to the Cimarron Grassland, not the Comanche. The Forest Service Wildlife Specialist Report for the Cimarron and Comanche also cites Hanni 2003 to state, “Section-based bird point-counts conducted on 189 sections within the Planning Area in 2003 did not document any bald eagles” (Wildlife Specialist Report 2005, 17). This study was conducted in the spring, when bald eagles are not known to naturally occur anywhere in the

region. The studies and species accounts the Forest Service uses to determine that bald eagles do not occur in the Grasslands, and therefore do not need to be addressed in the management plan, are insufficient by any standard and are far below the "best available science" standard required by the ESA and by 36 CFR 219.11(a).

The Comanche and Cimarron may not provide the best known habitat for bald eagles currently, but bald eagle sightings in, around, and over the Grasslands are not infrequent occurrences. It is more likely that bald eagles are not common in the Grassland *because they are threatened by current land uses,* not because the Grasslands provide incompatible habitat. One signer of these comments (L. McCain and others, including R. Reading[10]) have seen bald eagles hunting over prairie dog colonies in the Carrizo Unit of the Comanche and roosting in trees near riparian areas on several occasions. It is possible that a bald eagle nest occurs on the Everett Ranch within 1 mile of the Carrizo Picnic Area on the Comanche. Two bald eagles were spotted there, roosting in a cottonwood tree with a nest in November 2004 (L. McCain and R. Reading personal observation 2004). There is one old nest site in Bent County, Colorado, which is adjacent to Baca and Otero Counties where the Comanche Grassland is located (Andrews and Righter 1992).

The Draft Plan will affect bald eagles and the species' habitat in the following ways:

- The failure to acknowledge the real and potential presence of bald eagles in and around the Grassland will preclude them from being considered in future project decisions that are likely to impact habitat and roosting areas.

- The Draft Plan includes the following objective pertaining to cottonwood regeneration: "The distribution and abundance of native woody riparian species, such as cottonwood, sandbar willow, and snowberry, would increase by 20%-50%" (Plan at 65). However, the Plan does not include the means to achieve that goal, beyond removing tamarisk. The failure to include specific objectives and guidelines that would encourage the conservation of young cottonwoods and the re-establishment of cottonwood seedlings is likely to be detrimental to any eagle habitat and potential habitat in the Grasslands.

- As with the Arkansas River shiner, the failure of the Draft Plan to include provisions to limit and exclude livestock grazing in riparian areas will likely continue to degrade existing and potential bald eagle habitat. Cottonwood trees now provide roosting habitat for bald eagles. Cottonwoods are large and plentiful in many areas on the Grasslands, especially along

[10] Richard Reading is a wildlife biologist and Director of Conservation at the Denver Zoological Foundation and an Associate Research Professor at the University of Denver, Department of Biology.

Comanche streams and the Cimarron River corridor, but many of these trees are old and dying off. Sufficient populations of younger trees to replace dying cottonwoods have not been established. One problem is the changes in the water table and alterations to water systems in areas outside of the Grasslands. However, another major barrier to cottonwood regeneration is livestock grazing on the Grasslands themselves. Cattle trample young trees; compact soil, making tree regeneration difficult; and even eat cottonwood seedlings. The Plan includes no objectives or guidelines to prohibit cattle from riparian and aquatic areas. Indeed such areas are specifically considered *suitable* for livestock grazing (Plan at 78).

- Any adverse impacts from oil and gas on riparian areas similarly have the potential to harm bald eagles. In addition, wind turbines and power transmission lines have the potential to cause killing of bald eagles from collision and electrocution.

- Motorized recreation should be restricted to avoid harm to riparian areas which provide habitat for bald eagles.

Interior Least Tern

The interior least tern may occur along the Cimarron River in the Cimarron National Grassland, bare river sandbars, and shorelines of playa lakes (Zuckerman 1991). This Comanche and Cimarron are both within the summer range of this tern (Sibley 2003). They have breeding grounds along the Arkansas River in Otero County and Kiowa Counties in Colorado (Andrews and Righter 1992); the Timpas Unit of the Comanche is in Otero County. The terns are attracted to the large reservoirs in these areas. While neither Grassland has large reservoirs, restoring playa lakes for wildlife, not livestock drinking, would create attractive habitat for the interior least tern.

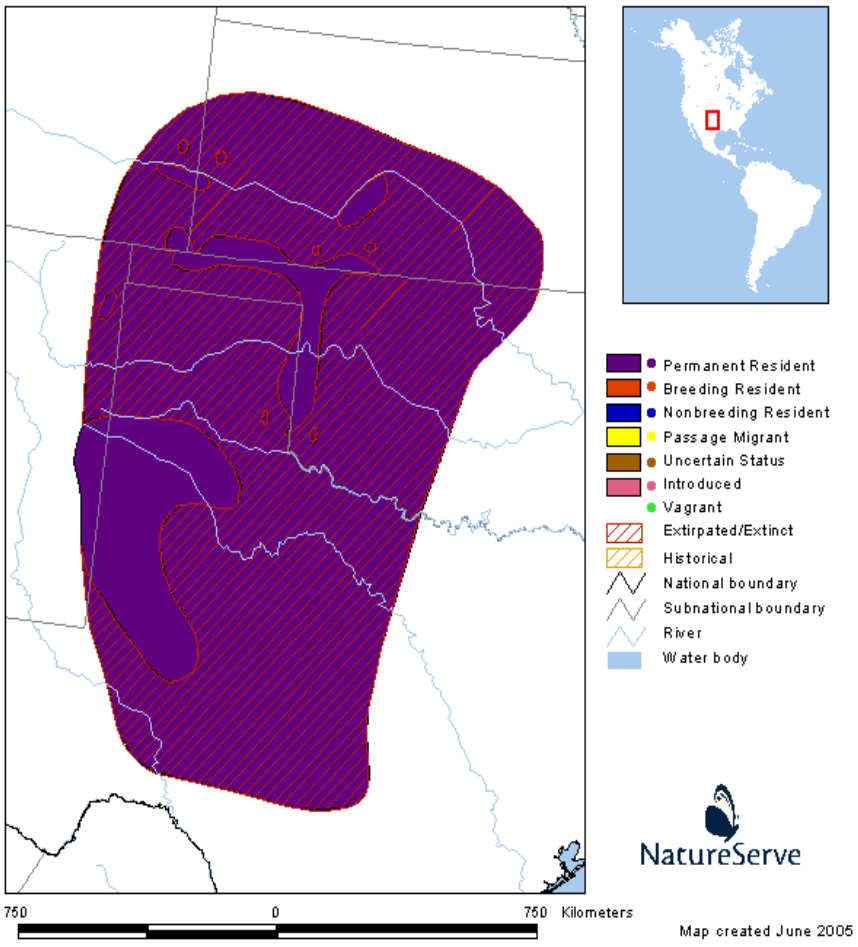
The least tern presents another case where the Forest Service is missing an opportunity to restore and conserve habitat for a listed species, not because the species did not naturally occur in the region but because the species is absent or rare due to human alterations in the species' natural habitat. The Draft Plan includes no objectives or guidelines that would encourage the restoration of playa lakes, which are natural depressions that hold water. Because so much of the land surrounding the Grasslands is private and devoted to agricultural production, it is unlikely that such restoration will occur anywhere but the Grasslands.

Lesser Prairie-Chicken

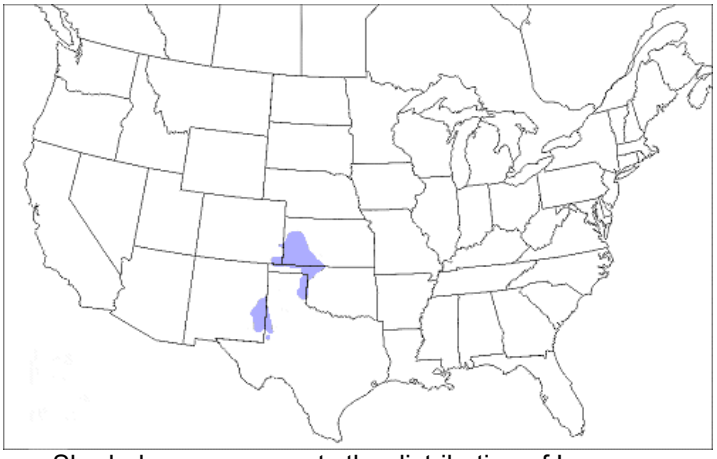
The Forest Service has recommended that the lesser prairie-chicken be designated a species-of-concern. We support this proposed designation. The

lesser prairie-chicken is a candidate for Endangered Species Act protection. The bird is endemic to the Southern Plains and imperiled throughout its six-state range (CO, KS, NE, NM, OK, TX), although listed as extinct in Nebraska and critically imperiled in Oklahoma (NatureServe 2006). The Comanche and Cimarron National Grasslands both have resident populations of this at-risk species. However, the over-all trend in species decline on both Grasslands (see Cimarron and Comanche *Species Diversity Evaluation: Wildlife* 2005) is alarming. Given the restricted range of the lesser prairie-chicken and few public land areas that support lesser prairie-chicken populations, management activities on both the Comanche and Cimarron could have a significant impact on the species' range-wide population. It is essential to protect the species within the Grasslands to help restore healthy populations of the bird and prevent the need for ESA listing.

Historic and Current Range of Lesser Prairie-chicken



Current Lesser Prairie-chicken Range



Shaded area represents the distribution of Lesser Prairie-Chicken. Information courtesy of K. M. Giesen, Colorado Division of Wildlife, Ft. Collins, Colorado.

The Cimarron and Comanche *Species Diversity Evaluation: Wildlife* 2005 assessment (see pages 3-10) provides a discussion of current threats to lesser prairie-chicken populations and management recommendations. Current threats to the species that can be reduced through management actions include: fence collisions; habitat fragmentation due to roads and fences; habitat loss, nest destruction, noise and other disturbances from oil and gas and other facilities; and inappropriate livestock grazing practices.

However, the *Species Diversity Evaluation: Wildlife* 2005 did not provide sufficient information on the threat of oil and gas operations to lesser prairie-chickens and their habitat. On the Cimarron, researchers have documented avoidance by lesser prairie-chickens of oil and gas structures and potential disturbance from noise generated by oil and gas machinery (Elson 2000; Pittman 2003). Yet, recent lease sales by the U.S. Bureau of Land Management have included parcels on the Cimarron with potential lesser prairie-chicken habitat.[11] A 2003 doctoral dissertation also documented lesser prairie-chicken avoidance of human activity and structures and suggested that "[f]uture impact assessments and conservation plans should consider the construction or presence of anthropogenic features as a potential detriment to habitat suitability for lesser prairie-chickens." That study reported that the majority of mortality was due to predation (which is exacerbated by habitat degradation), powerline collisions, and hunting (Hagen 2003).

In southwestern Kansas outside of the Cimarron, Robel et al. documented

[11]Lease Sale Notices are viewable at www.nm.blm.gov. Forest Guardians has protested the lease of these parcels, due to the perils oil and gas development presents to lesser prairie-chickens.

anthropogenic features on the landscape reducing nesting habitat quality for lesser prairie-chickens in the sand sagebrush ecosystem on which they depend. Gas compressors, center-pivot irrigation systems, pumpjacks, vehicular traffic, power plants, and electric transmission lines all caused movement and noise that can disturb prairie-chickens. Gas compressors could be heard two miles away from the source. Out of a total of 214,183 acres of sand sagebrush in their study area, the habitat impacted by oil and gas wellheads doubled between 1973 and 2001, from 8,564 acres to 17,562 acres. Roads impacted some 40,000 acres of sand sagebrush in 2001. Buildings (including gas compressor stations) impacted 15,774 acres in 2001. Electric transmission lines impacted another 16,803 acres of sand sagebrush. Combining these impacts with those of center-pivot irrigation, lesser prairie-chickens would be expected to avoid some 58% of remaining sand sagebrush habitat.

Because of the importance of nest success to lesser prairie-chicken population viability, the authors state that, “any negative impacts of anthropogenic features on nesting of lesser prairie-chickens [are] of great concern” (Robel et al. at p. 6). Robel et al. (at p. 8) therefore recommend that “The avoidance buffers around oil and oil/gas wellheads, electric transmission lines, and buildings must be recognized and integrated into environmental assessments of the development of petroleum resources and the construction of industrial wind energy facilities.”

Jensen et al. (2000) note the need to restore sand sagebrush land in Kansas to benefit lesser prairie-chickens. Walker (2000) similarly recommends conservation of sand sagebrush land in Kansas to facilitate prairie chicken recovery, warning against the destruction or overgrazing of this habitat.

Another threat to lesser prairie-chickens in Kansas and other states is loss of habitat and disturbance due to wind farms. Indeed, the Service recommended in 2003 that wind turbines not be placed within 5 miles of known prairie grouse leks. The Service also recommended avoiding placement of turbines in native grassland habitat so as to protect grassland songbirds (Manville 2004). Because grassland songbirds are the most rapidly declining guild of birds in North America (Sauer et al. 2005), avoidance of placing either wind turbines or oil and gas facilities in their habitat is imperative. In addition, wind turbines can cause significant mortality to raptors, grassland birds, and bats (BLM 2005). Mitigations are imperative.

Quite correctly, the Forest Service has developed a set of Desired Conditions, Objectives, and Guidelines meant to protect the lesser prairie-chicken. We support all of the Desired Conditions that address conserving lesser prairie-chickens and their habitat including consolidating “tracts of NFS lands provide larger blocks of contiguous habitat for the lesser prairie chicken” (Plan at 29), integrating “management of fire and appropriate livestock grazing systems” … “to produce the structure necessary for lesser prairie chicken habitat” (Plan at 33),

and establishing a vegetative mosaic “to provide areas of high-quality nesting and brood-rearing habitat for the lesser prairie chicken” (Plan at 34).

We support some of the Draft Plan objectives proposed for the lesser prairie-chicken and question others, as discussed below.

Draft Plan objective two for the sandsage prairie states, “The abundance of side-oats grama, blue grama, and purple three-awn would be decreased; the abundance of tall-structure grasses, such as sand lovegrass, sand bluestem, big bluestem, and little bluestem, would increase. These changes would improve nesting habitat for lesser prairie chicken (a species-of-concern)” (Plan at 67). We support management objectives and actions that would increase the abundance of taller structure grasses, forbs, and shrubs in lesser prairie-chicken habitat.

Draft Plan objective four for the sandsage prairie states, “The Sandsage Prairie Ecosystem would be managed to meet the vegetation structure identified below [Plan includes tables on seral stage objectives for sandsage vegetation], as a dynamic mosaic on the landscape over time. The objectives for moderate-structure and tall-structure vegetation are designed to provide sufficient nesting habitat for the lesser prairie chicken (a species-of-concern)” (Plan at 67). Seral stage composition may be one component in the goal to achieve sufficient habitat for the lesser prairie-chicken but is insufficient without goals for actual structure height considerations and percentage of available vegetation existing on suitable habitat. At least 60 percent of the available forage in lesser prairie-chicken habitat must be retained to provide sufficient nesting habitat for the species (Robb and Schroeder 2005). Management and monitoring objectives must include goals for structure height and plans to measure vegetational structure within suitable habitat.

Draft Plan objective seven for the sandsage prairie states, “Where appropriate and feasible, livestock grazing would take place in recently burned areas 1) to improve breeding habitat for lesser prairie chicken (a species-of concern) and other native bird species by increasing the grazing pressure on burned areas and reducing the grazing pressure on adjacent, unburned portions of the allotment” (Plan at 67). The Forest Service provides no data to support the claim that increasing grazing pressure on recently burned areas will contribute to the plant diversity, vegetational structure diversity and preference for mid- and tall-structure plants, and forage quantity required for optimal, or even minimally suitable, habitat.

Draft Plan objective nine for the sandsage prairie states, “Recreational viewing of lesser prairie chicken (a species-of-concern) display grounds would be managed to minimize disturbances and adverse impacts to the birds” (Plan at 68). We support this objective. We also believe that it is important for the Forest Service to provide low-impact viewing opportunities of the lesser prairie-chicken for the public to promote understanding of the needs of this bird and support for

conservation measures on the Grasslands.

The Draft Plan includes one monitoring question to apparently guide management direction: “What is the trend in the distribution and abundance of the lesser prairie chicken?” (Plan at 68). It is essential to include appropriate monitoring questions that assess the effect of Grasslands management on the species and on its habitat. This single question is insufficient to evaluate the effects of livestock grazing, oil and gas operations, mining, recreation (including lesser prairie-chicken viewing), and other human activities on the Grasslands’ lesser prairie-chicken population and habitat.

Draft Plan guidelines pertaining to lesser prairie-chickens include:

> **Sand-1.** New structures or facilities should not be constructed within 0.5 mile of known display grounds of lesser prairie chicken (a species-of-concern), to help reduce adverse impacts to breeding and displaying birds. This would not apply to underground pipelines and utilities. (Plan at 87)

We recommend that new structures or facilities not be constructed within **3-5 miles** of known display grounds to prevent disturbance from noise associated with the construction and use of new facilities that would likely disturb the species.

> **Sand-2.** Construction and reconstruction of roads, water impoundments, pipelines, utilities, oil and gas facilities, and fencing; gravel mining; seismic exploration; oil and gas drilling; water well drilling; livestock grazing; and dog training should not occur within 3.0 miles of breeding lesser prairie chickens (a species-of-concern) and their active display grounds from March 15 to July 15, to help reduce adverse impacts to breeding and displaying birds. (Plan at 87)

We support this guideline with the caveat that any construction activities not contribute to the loss of lesser prairie-chicken habitat on the Grasslands.

Our biggest concern about the Draft Plan with regard to lesser prairie-chicken is the absence of objectives and guidelines that would: limit livestock grazing in existing and suitable habitat to achieve 60 percent retention of forage for the species (as recommended by Robb and Schroeder 2005), address existing encroachment of oil and gas operations on the species’ habitat, and set goals for contiguous fence-free habitat. The Colorado Natural Heritage Program recommends establishing a minimum of 10,000-acres of contiguous habitat for the species (CNHP 2004). The Draft Plan should include a goal of establishing 10,000 acre lesser prairie chicken conservation areas of fence- and road-free habitat on both Grasslands.

Mexican Spotted Owl

Habitat for the Mexican spotted owl may occur in the Purgatoire River canyon within the Comanche National Grasslands.

Piping Plover

The piping plover may occur along the Cimarron River in the Cimarron National Grassland, bare river sandbars, and shorelines of playa lakes (Zuckerman 1991). Piping plovers occur along the Arkansas River where they find sandy, open shorelines (Andrews and Righter 1992). The species has been found around the Cimarron Grassland and its presence on both Grasslands should not be ruled out. The Comanche National Grassland is within the summer range of the piping plover (Sibley 2003). The same missed opportunity for the interior least tern discussed above applies to the piping plover.

Whooping Crane

Whooping cranes may occasionally fly over the Grasslands during migration but are unlikely to stop over. The Grasslands do not contain the large wetlands preferred by these cranes.

Black-footed Ferret

The black-footed ferret is one of the most endangered mammals in North America. The ferret's historic range includes the Cimarron and Comanche areas. The ferret is believed to be extirpated from the eastern plains of Colorado and all of Kansas, as well as from all of the surrounding Southern Plains states of Nebraska, Oklahoma, Texas, and New Mexico.

The dramatic decline of the black-footed ferret is due primarily to the loss of the ferret's main food source, prairie dogs. Prairie dogs make up over 90 percent of the ferret diet. Black-footed ferrets rely on prairie dog burrows for breeding dens and refugia; they cannot survive without this keystone rodent (Miller et al. 1996). Black-tailed prairie dog colonies, however, have declined by more than 98 percent. Even more detrimental for the ferret, the small, scattered colonies that are the norm today are not sufficient. Ferrets require very large complexes of prairie dog colonies, but the once common large (>10,000 acres) complexes are almost entirely gone from the Plains, especially in the Southern Plains.

A minimum viable black-footed ferret population is measured as 120 to 150 breeding adults, a number which would have a 95% chance of persistence over 100 years (Harris et al 1989). Each ferret family requires about 100 acres of prairie dogs (Forrest et al 1985). A viable population of ferrets requires more than 10,000 acres of prairie dog colonies (CBSG 2004).

Ferret survival is dependent on the success of reintroduction programs. The success of ferret reintroduction programs is in turn dependent on conservation and restoration of at least ten large prairie dog complexes. To downlist the ferret from “endangered” to “threatened” the Fish and Wildlife Service’s Black-footed Ferret Recovery plan calls for establishing ten self-sustaining sites of black-footed ferrets, a goal it is far from accomplishing. Only one site—Conata Basin in the Buffalo Gap National Grassland in South Dakota—is nearing ferret viability. Conata Basin contains about 20,000 acres of prairie dogs.

There is a significant public interest in returning this species to all representative regions of its historic range. No site in the U.S. Southern Plains has yet attempted a black-footed ferret reintroduction. Because the Comanche and Cimarron Grasslands region hosts the largest black-tailed prairie dog complex in the Southern Plains on public land, it is absolutely essential to protect prairie dog colonies in this special region for there to be any hope of re-establishing black-footed ferret populations in the Southern Plains. Prairie dog poisoning should not be tolerated on the Comanche and Cimarron Grasslands; potential ferret habitat is too precious.

Ferrets are susceptible to sylvatic plague, as are prairie dogs. Thus, establishing many reintroduction sites to promote genetic diversity and allow for ferret survival if some reintroduction sites fail in the face of plague is essential.

We support the objective to have “at least one large (>5000 acre) colony” (Plan at 70, Sec. 2.1.2.d.10.a), however, we recommend replacing the word “colony” with “complex” where a complex is measured as all individual prairie dog colonies no further than one mile from the next. In order to help meet the absolute minimum requirements for future black-footed ferret down-listing, the Multi-state Conservation Plan for the Black-tailed Prairie Dog (Luce 2003) calls for a minimum of one 5,000 acre prairie dog complex per state. Until or unless private landowners step forward to volunteer creation of such a complex on private land, public lands will be required to achieve this goal. Colorado has only two National Grasslands in which this goal can be achieved: the Pawnee and the Comanche. Of the two, the Comanche is by far the location where this goal is most achievable due to size and contiguous area of federal ownership. In Kansas, only the Cimarron National Grassland is available. Colorado and Kansas both require the help of the Cimarron and Comanche National Grasslands in order to fulfill their parts of these multi-state wildlife goals. The Draft Plan should therefore change its objective from “at least one” 5,000 acre colony (or complex) to “at least one 5,000 acre complex in each National Grassland.”

In addition, this 5,000 acre objective by itself is not sufficient. Although the U.S. Fish and Wildlife Service will consider beginning a ferret reintroduction effort in prairie dog complexes as small as 5,000 acres, ultimately ferrets need more than 10,000 acres of prairie dogs in one location to persist as a viable population

(CBSG 2004). Though prairie dog colonies in the Cimarron and Carrizo Unit of the Comanche have expanded in the last few years, the Forest Service must do more to protect the existing prairie dogs and encourage colony expansion to reach the objective of at least one 5,000 acre complex in the short term, with the ability to expand to more than 10,000 acres over the long term.

The Draft Plan included goals for protecting prairie dogs on the grasslands (Plan at 70) but does not acknowledge the importance of the region for future black-footed ferret reintroductions. Reintroducing black-footed ferrets and maintaining a viable ferret population must be explicit objectives in the Comanche and Cimarron Land Management Plan. Developing a ferret reintroduction plan and reintroducing ferrets is possible within the 15-year life of the Cimarron and Comanche Land Management Plan.

Species of Concern

With the implementation of the final Cimarron and Comanche Land Management Plan, the Forest Service will no longer be required to monitor Management Indicator Species (MIS) on the Grasslands or ensure the viability of species populations that occur on the Grasslands. Though the Forest Service may designate Species of Concern and Species of Interest, the planning rule and directives provide few mechanisms for protecting, monitoring, or providing habitat for them.

Even for designated Species of Concern, the Forest Service is required to do no more than help prevent them from becoming federally listed. The Forest Service describes the "Species of Concern" concept and criteria below:

> Species-of-concern are species for which the Responsible Official determines management actions may be necessary to prevent listing under the Endangered Species Act (ESA). The Responsible Official, as appropriate, may identify the following plant and animal species, including macro-lichens, as species-of-concern:
>
> 1. Species identified as proposed and candidate species under the ESA.
> 2. Species with ranks of G-1 through G-3 on the NatureServe ranking system.
> 3. Infraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.
> 4. Species that have been petitioned for federal listing and for which a positive "90-day finding" has been made (a 90-day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review will be conducted).

5. Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

The identified species-of-concern may include listable entities such as distinct population segments or evolutionarily significant units that may be listed under the ESA. (FSH.1909.12.43.22b)

The Draft Plan proposes ten species for Species of Concern status (see table below).

Forest Service Proposed Species of Concern

COMMON NAME	SCIENTIFIC NAME	ESA STATUS	NATURE-SERVE RANK	DIRECTIVE CRITERIA
Forest Service Proposed in Draft Plan				
Plants				
Andean Prairie Clover	Dalea cylindriceps	None	G3G4	1, 2
Colorado Frasera (or Colorado Green Genetian)	Frasera coloradensis	None	G3	1
Colorado Springs Evening Primrose	Oenothera harringtonii	None	G2	2
Raven Ridge False Goldenweed	Oonopis foliosa var. monocephala	None	G2G3T2	1, 3
Wheel Milkweed	Asclepias uncialis ssp. Uncialis	None	G3G4T2T3	2, 3
Sandhill Goosefoot	Chenopodium cycloides	None	G3G4	1, 2
Invertebrates				
None proposed				
Vertebrates				
Black-tailed Prairie Dog	Cynomys ludovicianus	Former candidate ("not warranted" 8/2005)	G3G4	2
Lesser Prairie-chicken	Tympanuchus pallidicinctus	Candidate	G3	1, 2
Mountain Plover	Charadrius montanus	Former proposed ("not warranted" 9/2003)	G2	2
Swift Fox	Vulpes velox	Former candidate ("not warranted" 1/2001)	G3	2

We support all of these designations. We also believe that others should be included in the Forest Service's Concern and Interest species lists. Furthermore, we believe the Draft Plan does not go nearly far enough to protect these species.

The Species of Concern management provisions are insufficient to protect locally imperiled and declining species. In the case of wide-ranging species such as black-tailed prairie dogs and swift foxes, whose current ranges include 10 U.S. states (MT, ND, SD, NE, KS, CO, OK, NM, TX, and WY), and migratory birds, the Species of Concern obligations do not address the local and regional importance of these species. We have included some additional considerations for the current proposed Species of Concern for the Grasslands.

Proposed Plant Species

The livestock grazing treatments proposed for areas containing, or possibly containing, some Species of Concern are inappropriate and potentially harmful. Section 2.1.2.d.9 states:

> Where appropriate and feasible, livestock grazing would take place in areas recently burned, to … 2) increase germination potential in areas near existing populations of Colorado Springs evening-primrose, Colorado frasera, and Raven Ridge false goldenweed (all species-of-concern). (Plan at 70)

The Grasslands' own preliminary specialist reports and other documentation notes that livestock grazing is potentially harmful for the Colorado frasera, a Colorado endemic known only to Baca and eastern Las Animas Counties, because "(g)razing can prevent plants from seeding" (Botany Specialist Report, pg. 3, citing NatureServe 2003). The "Plant Species Assessment" for the Comanche and Cimarron indicates that the Colorado Springs evening-primrose is sensitive to livestock grazing and recommends that disturbance activities be avoided around known populations (Assessment, pg. 4). Thus, grazing as a management action for these plants will cause significant impacts and possibly contribute an the Endangered Species Act listing or even eventual extinction of these species because they are already rare endemics.

We are encouraged that the Forest Service acknowledges the importance of fire to some prairie ecosystems and species. The Plan proposes the following in the Shortgrass Prairie Ecosystem Objectives Section 2.1.2.d.5:

> A minimum average of 1% of the ecosystem on the Cimarron and on the Carrizo Unit of the Comanche would be affected by fire (wildfires, prescribed burns, or both) annually, with an objective of having 2%-5% of the Grasslands affected by fire annually. This would provide and improve habitat for mountain plover and swift fox (two species-of-concern), and may provide new germination sites for the Colorado Springs evening-primrose, Colorado frasera, and Raven Ridge false goldenweed (all species-of-concern). (Plan at 70).

However, depending on its growing stage, fire is beneficial as well as damaging to Colorado frasera; fire can prevent the seeding of actively growing plants (Plant Species Assessment, pg. 7). Thus, the specific times to avoid fire in areas with Colorado frasera must be included in the Plan objectives and/or guidelines.

The Plan includes no monitoring questions or guidelines for any of the plant species. This oversight needs to be corrected.

Black-Tailed Prairie Dog

Black-tailed prairie dogs are keystone species of the shortgrass prairie ecosystem and occur on both the Grasslands. Their colonies provide habitat for a range of other species. Along with the black-footed ferret, nine prairie wildlife species are prairie dog obligates—dependent on these keystone rodents (Kotliar et al. 1999). Black-tailed prairie dog populations have declined by 98-99 percent throughout their range (65 Federal Register 5476-5488). The Grasslands provide important habitat for prairie dogs and their associated species. Because these Grasslands host the largest prairie dog complex in the Southern Plains on public land, the Comanche and Cimarron colonies together make up a precious natural resource. Nothing in the planning regulations, directives, or Draft Plan itself mandates additional protections for prairie dogs. They are still vulnerable to poisoning on both Grasslands. Though a Colorado State policy (Luce 2003) recommends prohibiting prairie dog shooting on federal land, the Cimarron National Grassland actually encourages prairie dog shooting by providing maps of colonies specifically for prairie dog shooters.[12] The Forest Service could kill all of its prairie dogs or lose them through benign neglect and still be compliant with the Draft Plan, and be within the directives for Species of Concern, as long as prairie dogs remained viable in other parts of their range. But this would be a tremendous ecological loss to the Grassland region.

Given the anti-prairie dog sentiment of the local primarily agricultural community in Stevens, Morton, Baca[13], Otero, and Las Animas Counties, it was a relief to see that the Draft Plan contained no Desired Conditions, Objectives, or Guidelines aimed at minimizing prairie dogs on the Grasslands. Indeed, there are some objectives to suggest that the Forest Service is interested in maintaining and expanding prairie dog acreage on the Grasslands, including the objective to have "at least one large (>5000 acre) colony"—a proposal we support (Plan at 70, Sec. 2.1.2.d.10.a). However, these objectives are not supported by necessary monitoring questions or guidelines. What are "appropriate livestock grazing strategies" that "may improve habitat conditions for black-tailed prairie dogs where populations have declined to low levels following plague epidemics"

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[12]See http://www.fs.fed.us/r2/psicc/cim/prairie_dog.shtml.
[13]The Baca County Commissioners just approved a $20,000 budget item to subsidize land owners for prairie dog poison.

(Plan at 70, Sec. 2.1.2.d.10.d)? Does that mean more grazing or less? Where would grazing strategies be applied? How would this be monitored? The Objective 2.1.2.d.10.b proposes to: “Encourage the consolidation of ownership in black-tailed prairie dog *potential* habitat in order to minimize unwanted colonization onto adjoining private lands” (Plan at 70, emphasis added). The object should include *existing* habitat as well; why not include private landowners who may already have prairie dogs on land adjacent to the Grasslands? All of the prairie dog-specific objectives in the Draft Plan are found in the Objective section for the Shortgrass Prairie Ecosystem (2.1.2.d), not in a separate section for prairie dogs.

Lesser Prairie-Chicken

See section above.

Mountain Plover

Section 2.1.2.d.9 states: “Where appropriate and feasible, livestock grazing would take place in areas recently burned, to 1) provide high-quality nesting habitat for mountain plover (a species-of-concern)” (Plan at 70). Livestock grazing is unnecessary and inappropriate in recently burned areas, where livestock should specifically be excluded until native grasses and forbs re-establish themselves. Though livestock grazing may help provide shorter-structure grasses in mixed grass prairies to the benefit of mountain plovers, a newly burned site alone on shortgrass prairie provides excellent habitat for plovers without the addition of grazing.

Swift Fox

The most significant threats to swift fox viability across the species range include incidental take resulting from coyote control, vehicle collisions, and coyote predation (Sovada et al. 1998; Schauster et al. 2002). While the temptation is to implement coyote control in areas where swift fox breed and occur, science continues to show that lethal coyote control has a perverse effect on coyote populations (Goodrich and Buskirk 1995; Knowlton et al. 1991). Management activities that could significantly decrease threats to the swift fox on the Comanche and Cimarron include reducing roads and banning coyote poisoning and shooting.

Additional Recommended Species of Concern

One major concern is that the Forest Service has omitted some important species that should be designated as Species of Concern (See table below).

COMMON NAME	SCIENTIFIC NAME	ESA STATUS	NATURE-SERVE RANK	DIRECTIVE CRITERIA
Plants				
Colorado Gumweed	Grindelia inornata	None	G2	2
Rocky Mountain Bladderpod	Lesquerella calcicola	None	G2	2
Invertebrates				
Regal Fritillary		None	G3	2
Vertebrates				
Arkansas Darter		Candidate	G3	1, 2

Colorado Gumweed and Rocky Mountain Bladderpod

The Colorado gumweed and Rocky Mountain bladderpod were originally recommended as a Species of Interest in the Comanche and Cimarron "Plant Species Assessment" (pg. 4) and meet at least one of the criteria for designation. However, the Forest Service chose not to include them as a proposed species in the Draft Plan, "because very little is known about these species' ecology, or the effects land management practices would have on individuals or populations" (Plan at 104).

The Colorado Natural Heritage Program lists at least two records for the Colorado gumweed on the Comanche from 1997 (CNHP 2003). The Assessment is quite specific about management actions that help or harm the plant:

> The species is apparently tolerant of moderate disturbance. Although a habitat generalist, this species occurs at low density in its habitat. Management actions that may affect this species include grazing, prescribed fire, roads, trails, weed management, and unregulated recreation. Efforts should be made to maintain current populations by avoiding ground disturbance at known sites to protect established plants. Any herbicide use in the vicinity of these populations should be closely monitored. Searches should be conducted for additional plants in appropriate habitat. Soil disturbance may be necessary to provide seedbed for population expansion. (Plant Assessment at 4, 11/3/2005 version; at 4-5, 12/21/2005 version).

The November 3, 2005 version of the Plant Assessment recommends that the Colorado gumweed be designated as a Species of Concern because it is a rare endemic to the area and because the Comanche Grassland provides the best habitat on which to manage it (pg. 4). However, the December 21, 2005 version of the Plant Assessment states, "Colorado gumweed is not recommended as a species-of-concern because this is a species over which Forest Service management would have no known influence in the Plan Area (pg. 6). Given that

the Forest Service has control over grazing, prescribed fire, roads, trail, weed management, and recreation, it is hard to see how it management actions will not affect this species.

The Rocky Mountain bladderpod may be affected by roads, trails and recreation but tolerates some disturbance (Plant Assessment, pg. 8, 11/3/2005 version); these are all activities that the Forest Service can control through management. It is also a good species for monitoring the shale barrens ecosystem described by the Colorado Natural Heritage Program).

Regal Fritillary

The regal fritillary is a butterfly that is declining across its range. Eastern Colorado and Western Kansas are on the western edge of the species range (NatureServe 2006). It is “critically imperiled” though “apparently secure” in Kansas. However, it is declining most severely in the eastern parts of its range and the Southern Prairie region may provide a stronghold for the species due to less habitat conversion for agriculture. Designating this species would also set a good precedent. Very little is currently known about grassland invertebrates. Monitoring and protecting habitat for this butterfly would provide an important first step in improving scientific knowledge about invertebrate species on the Grasslands.

Arkansas Darter

Though the Arkansas darter was originally considered for designation as a Species of Concern by the Forest Service (Species Diversity Evaluation – Fish 2005), the idea was rejected due to a current lack of suitable habitat in the Grasslands. However, darters were found on the Comanche as late as 2002 (Forest Service 2002 – fish survey data). The Colorado and Kansas wildlife departments have reintroduced the species in adjacent waters to the Comanche and Cimarron Grasslands. Potential habitat for the darter currently exists on the Comanche (Winters 2003).

Species of Interest

The Forest Service describes the “Species of Interest” concept and lists criteria for designating Species of Interest in the Forest Service Handbook. These are reproduced below:

Species-of-interest are species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple-use objectives. The Responsible Official may review the following sources for potential species-of-interest:

1. Species with ranks of S-1, S-2, N1, or N2 on the NatureServe ranking system.
2. State listed threatened and endangered species that do not meet the criteria as species-of-concern.
3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies.
4. Bird species on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list.
5. Additional species that valid existing information indicates are of regional or local conservation concern due to factors that may include:
    a. Significant threats to populations or habitat.
    b. Declining trends in populations or habitat.
    c. Rarity
    d. Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
6. Species that are hunted or fished and other species of public interest. Invasive species may also be considered.

These sources may contain numerous species for which there is little concern or public interest. The Responsible Official should consider the following factors when identifying species-of-interest. The presence of one or more factors would suggest, but not compel, that a species be included as a species-of-interest.

a. Species habitat or population has declined significantly in the plan area.
b. Species and its habitats are not well-distributed in the plan area.
c. Species population numbers are low in the plan area.
d. Species is dependent on a specialized and/or limited habitat in the plan area.
e. Species is subject to some imminent threat (for example, invasion of exotic species into habitat or disturbance due to road systems).
f. Species habitat or population is not generally secure within its range and NFS lands act as an important refuge.
g. Species is of public interest, including those species identified cooperatively with State Fish and Wildlife Agencies consistent with the Sikes Act.
h. Species is invasive.
i. Species poses a threat to ecosystem or species diversity (FSH.1909.12, section 43.22c)

The Forest Service has proposed six species in the Draft Plan to be Species of Interest. Five of the six were selected based on a need to protect them within the Grasslands; the other, tamarisk was selected because of its status as an exotic weed that should be reduced within the Grasslands. (See table below.)

Forest Service Proposed Species of Interest

COMMON NAME	SCIENTIFIC NAME	DIRECTIVE CRITERIA
Plants		
Tamarisk	Tamarix ramosissima	h, i
Invertebrates		
None proposed		
Vertebrates		
Elk	Cervus elaphus	6
Ferruginous hawk	Buteo regalis	2
Long-billed curlew	Numenius americanus	2
Northern bobwhite	Colinus virginianus	6
Pronghorn	Antilocapra americana	6

We support all of these recommendations. However, they along with Species of Concern proposals are not sufficient to help advance ecosystem diversity and sustainability within the Grasslands. A broader diversity of Species of Interest are needed to help indicate trends in ecosystem conditions on the Grasslands. We recommend the inclusion of the following.

Additional Recommended Species of Interest

COMMON NAME	SCIENTIFIC NAME	NATURESERVE RANK	STATE STATUS	DIRECTIVE CRITERIA	HABITAT INDICATOR
Plants					
Cheatgrass	*Bromus tectorum*			h, i	° Shortgrass
James' Beardtongue	*Penstemon jamesii*	G4 S1(CO), SX(KS)		1, 5c, 5d	° shortgrass
One-Seed Juniper	*Juneperus monosperma*			h, i	° Shortgrass ° Canyonlands Complex ° Juniper Woodland & Savanna
Plains Cottonwood	*Populus deltoides*			5a, 5b	° riparian
Invertebrates					
Colorado Blue (Butterfly)	*Euphilotes rita coloradensis*	G3G4 S2(CO)	SGCC (CO)	1, 3	° Shortgrass prairie
Rhesus Skipper (Butterfly)	*Polites rhesus*	S2(CO)	SGCC (CO)	1, 3	° Shortgrass prairie

Vertebrates					
Green Toad	*Bufo debilis*	S2(CO & KS)	SGCC (CO) SGCN (KS)	1, 3	◦ Canyonlands Complex
Plains Leopard Frog	*Rana blairi*	S3 (CO) S5 (KS)	SGCC (CO)	3	◦ Canyonlands Complex
Tiger Salamander	*Ambystoma tigrinum*	S5 (CO & KS)	SGCN (KS)	3	◦ Seeps & Springs
Red-Spotted Toad	*Bufo punctatus*	S4 (CO) S2 (KS)	SGCN (KS)	3	◦ Seeps & Springs
New Mexico Spadefoot Toad	*Spea multiplicalus*	G3 S2 (CO) S3S4 (KS)		1	◦ Seeps & Springs
Massasauga	*Sistrurus catenatus*	S5 (CO)	SGCC (CO) SGCN (KS)	3	◦ Shortgrass prairie ◦ Sandsage prairie
Texas Blind Snake	*Leptotyphlops dulcis dissectus*)	S2 (CO)	SGCC (CO) SGCN (KS)	3	◦ Canyonlands Complex
Wandering Garter Snake	*Thamnophis elegans vagrans*	S2 (CO)			◦ Canyonlands Complex
Texas Horned Lizard	*Phrynosoma cornutum*	S2 (CO)	SGCC (CO) SGCN (KS)	3	◦ Canyonlands Complex
Cassin's Sparrow	*Aimophila cassinii*	S3 (KS)	SGCC (CO) SGCN (KS)	3, 4, 5a, 5b, 5c, 5d, a, d	◦ Midgrass prairie
Lark Bunting	*Calamospiza melanocorys*		SGCC (CO) SGCN (KS)	3, 4, g	◦ Midgrass prairie
McCowan's Longspur	*Calcarius mccownii*	S2(CO)	SGCC (CO) SGCN (KS)	1, 3, 4	◦ Midgrass prairie
Cougar	*Puma concolar*		SGCN (KS)	3, 5a, 5c, 5d, a, b, e, f,	◦ Canyonlands Complex
Beaver	*Castor*			a, b, c, d, e,	◦ Riparian

	Canadensis			f	

SGCC (CO) = Species of Greatest Conservation Concern (Colorado)
SGCN (KS) = Species of Greatest Conservation Need (Kansas)

Cheatgrass

The Draft Plan already gives considerable attention to cheatgrass, a particularly persistent and difficult to control exotic plant species. Cheatgrass is adapted to livestock grazing and fire and spreads in burned areas (Pellant 1996). Mowing may be one way to control cheatgrass, but considerable experimentation is likely necessary to determine the most cost-effective and ecologically-sensitive ways to reduce this invasive species. Selecting cheatgrass as a Species of Interest would help give the species the attention it deserves as a problem exotic on the Grasslands.

The spread of cheatgrass is noted as problematic in the Existing Conditions description for the canyonland ecosystem: "Previous overgrazing and farming in some canyon bottomlands has influenced the loss of native plants and an increase of invasive plant species, such as cheatgrass and tamarisk" (Plan at 30). The Draft Plan includes an objective for considering the "(n)umber of acres infested with cheatgrass," (Plan at 61) when setting priorities for invasive plant control. The Plan does not explain what this means for the actual control of cheatgrass. Does the number of acres of cheatgrass determine when or how it is to be controlled? This is not clear but should be. What is clear from the Plan is that cheatgrass is undesirable and should be reduced. It is present in Vogel Canyon and Mesa de Maya, two proposed Special Areas.

Cheatgrass should be included as a Species of Interest because this species requires a plan for control in both Grasslands. Trends in cheatgrass expansion and contraction across the Grasslands should be mapped and monitored. The impacts of cheatgrass treatment should be monitored to assess successful and unsuccessful methods of control and the impacts of control on ecological conditions.

James' Beardtongue

James' beardtongue is a designated "Species of Concern" for the Forest Service's Rocky Mountain Region, and the Comanche and Cimarron management plan should include provisions to protect and restore this species. The Forest Service's *Botany Specialist Report* for the Grasslands indicates that records from Las Animas County, the eastern part of the Comanche Carrizo Unit, may be natural occurrences of the species while records on the Cimarron may have been introduced due to livestock operations (U.S. Forest Service, PSICC(4) 2005 pg. 4, citing Freeman, pers. comm. 2003). However, James' beardtongue is native to the Southern Plains region and historically occurred in Kansas (including Morton County), Colorado, New Mexico, and Texas (NatureServe

2006). NatureServe 2006 ranks the plant as critically imperiled in Colorado and presumed extinct in Kansas. It occurs within the shortgrass prairie ecosystem on sandy slopes.

One-seed Juniper

Though a native species to the Grasslands, particularly the Comanche canyonlands areas, one-seed juniper is overly-abundant due to fire suppression and the change in the Grasslands' grazing regime from wild, free-ranging bison to captive non-native cattle (Brockway et al. 2002; Johnsen 1962; Young and Evans 1981; Anderson 1990). The Draft Plan acknowledges the spread of juniper in the canyonland areas: "One-seed juniper, the community dominant plant, covers the walls, rims and benches of the Canyonland Ecosystem, and has encroached onto the foot slopes and mesa tops of the shortgrass prairie near the canyon slopes" (Plan at 30). Juniper would be an excellent candidate to help monitor the effects of prescribed fire and wildfire on the grasslands aimed at preventing the spread of woody shrubs and trees.

Plains Cottonwood

Looking across the prairie landscape to the widely distributed aquatic and riparian areas, one can see the cottonwood and willow galleries mentioned in the Draft Plan that provide landmarks for the wet areas. A dense ribbon of Cottonwood trees line both sides of the Cimarron River Corridor and other streams in the Grasslands. Cottonwood trees are keystone species of the prairie. They help stabilize streambanks and provide a shady canopy over waterways to reduce water temperature and evaporation. Their leaves are eaten; their trunks and large branches are used as shelter for birds, small mammals, and a range of invertebrates; they provide nesting and roosting sites for small songbirds to large birds of prey, including bald eagles. When they die, they provide homes and food for another set of wildlife species and decompose to rejuvenate the soil.

The Cottonwood populations on the Cimarron and Comanche are generally unhealthy. Most of the trees are old and in the process of dying. Younger generations of cottonwood trees to replace the old have not been able to establish themselves. The loss of water throughout the area because of water impoundment, water diversion, and draining of the Ogallala Aquifer has lowered the water table and dried up former riparian areas. Tamarisk is out-competing cottonwoods in some areas. The continued allowance of cattle grazing in riparian areas has further prevented cottonwood seedlings from maturing. As discussed above in the bald eagle section, cows trample and eat seedlings—killing most before they ever get a foothold. The degradation of cottonwood galleries due to livestock grazing has been well documented (Chaney et al. 1990; Bock et al. 1993; Clary and Medin 1990; Kauffman and Krueger 1984; Ohmart 1996; Samson et al. 1988; Schulz and Leininger 1990).

The Draft Plan acknowledges the importance of cottonwood to the riparian and canyonland ecosystems of the Grasslands and includes objectives (Plan at 65) and a guideline (Plan at 90) meant to promote cottonwood regeneration. The Plan includes monitoring objectives for the cottonwood: “What is the trend in the acreage of cottonwood/willow woodland and the relative abundance of different size classes of cottonwood stands (seedling/saplings, poles, mature woodland)?” (Plan at 66). We support all these provisions in the plan. Promoting the regeneration of cottonwoods is a Desired Condition of the Draft Plan (Plan at 32). This goal should be formalized and strengthened by designating the cottonwood as a Species of Interest.

Colorado Blue

The Colorado blue butterfly is a rare endemic to Colorado (Baca and Las Animas Counties), Nebraska, New Mexico, and Wyoming. The species requires areas of undisturbed prairie habitat and is sensitive to exotic species invasions, conversion of grassland to cropland, and urban development, though it apparently needs some grazing (NatureServe 2006). Because of the lack of undisturbed prairie on private land within and around the planning area and the constant uncertainty of non-Grassland land uses in the region, provisions to protect this species on the Comanche should be implemented and included in the Grasslands management plan.

Rhesus skipper

The rhesus skipper is a wide-ranging Great Plains butterfly that occurs from Canada down through New Mexico and into Arizona. The species is imperiled in Colorado (NatureServe 2006) and is otherwise secure but declining throughout its range. Protection of this species to stem declines will require protection of high-quality, undisturbed shortgrass prairie habitat. Again, the Grasslands, in this case the Comanche, are crucial for the protection of invertebrate species habitat.

Tiger Salamander

Global Long Term Trend Comments: Significant declines likely have occurred mostly in the extensively cultivated regions of the Great Plains and in the southeastern United States where intensive deforestation and drainage of wetlands have occurred.

Under certain conditions, larval populations may be vulnerable to bacterial infections associated with livestock grazing. Fecal contamination of ponds by introduced livestock was suggested as a possible cause of the fatal outbreaks. Die-offs of larvae, apparently associated with pathogenic bacteria, have been observed in Colorado (Hammerson 1999).

Plains Leopard Frog

This species is facing substantial decline throughout its range. Suggested causes of declines or extirpations of local populations include water pollution; groundwater pumping; introduction of exotic fishes and amphibians; agricultural development; increased aridity/drought; habitat loss or alteration; toxicants; competition with *Rana berlandieri*; and predation by, competition with, and/or larval inhibition by bullfrogs (see Brown 1992 and Hammerson 1999). Plains leopard frog larvae are vulnerable to predation from, and generally do not coexist with, predatory fishes (Parris et al. 2001).

Massasauga

This species was originally recommended as a Species of Interest in the Comanche and Cimarron Wildlife Specialist Report. This species is endemic and declining in the planning area.

Texas Horned Lizard

This species is declining within its range due to heavy agricultural use of land and/or other habitat alterations, and overcollecting for the pet and curio trade (Price 1990, Carpenter et al. 1993, Donaldson et al. 1994). Mortality from road traffic is an important local threat in some areas. Males are particularly vulnerable during May-June in Arizona-New Mexico (Sherbrooke 2002). A high level of road mortality may lead to significant local declines (NatureServe 2006).

McCowan's Longspur

McGowan's Longspur is on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list, and a species of concern on both the Colorado and Kansas Comprehensive Wildlife Conservation Plans. The McGowan's longspur is a winter resident of Colorado and Kansas and a good indicator of short-structure vegetation in the shortgrass prairie ecosystem. This species is declining.

Lark Bunting

The Lark Bunting is on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list, a species of concern on both the Colorado and Kansas Comprehensive Wildlife Conservation Plans. The lark bunting is declining throughout the Great Plains (NatureServe 2006). Additionally, the lark bunting is the state bird of Colorado.

Cassin's Sparrow

It is unclear why Cassin's Sparrows did not make the proposed Species of

Interest list. The species is on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list, and a species of concern on both the Colorado and Kansas Comprehensive Wildlife Conservation Plans. They are a perfect candidate for helping to monitor and achieve the Desired Condition of creating a mosaic of vegetation structures on the prairie. Cassin's Sparrows prefer taller vegetation on both the sandsage and shortgrass prairie ecosystems. The Cassin's Sparrow is imperiled and declining in the Grasslands region. The mountain plover (proposed Species of Concern) prefers short-structure vegetation; the long-billed curlew prefers different structure heights for nesting and feeding. The Cassin's sparrow would help round out an emerging set of grassland birds to serve as indicators for shortgrass and sandsage ecosystem conditions. Plus, the bird needs some additional protection.

Cougar

The cougar is listed as a species of greatest conservation need in the Kansas Comprehensive Wildlife Conservation Plan. It is a keystone predator of the canyonlands regions of the Grasslands.

Beaver

The beaver is a keystone species of the Great Plains. Beaver dams slow water flow from west to east, enabling some collection and storage for a host of fish, amphibians, and terrestrial species. Beaver also maintain healthy riparian habitats. Beaver numbers have plummeted over the last two centuries as European trappers took as many beaver as they could for the fur trade, and those left at the beginning of the homesteader years were killed by farmers who wanted control of the scarce prairie streams. Beaver are not secure in the planning area and NFS lands can act as an important refuge for beaver and the habitat they create.

Invasive Species

Invasive species are degrading ecosystems in both the Comanche and Cimarron National Grasslands. A recent Comanche National Grasslands plant survey found 126 non-native plant species in 785 recorded plants—16 percent exotic (Hazlett 2003). Though such an inventory has not occurred in Kansas' Cimarron Grassland, several invasive species are well-known. Cheatgrass (*Bromus tectorum*) is spreading and difficult to control on the terrestrial grassland ecosystems on both the Cimarron and Comanche. Other upland invasive species include field bindweed (*Convolvulus arvensis*), Japanese brome (*Bromus japonicus*), Russian thistle (*Salsola tragus*)—better known as "tumbleweed," alkali or kochia (*Kochia scorpia*), and horseweed (*Conyza candensis*).

The Colorado Noxious Weed Act of 2003 (HB03-1140) classifies weeds into

three categories: A – “a rare noxious weed that should be eradicated wherever it is found”; B – “a weed that is just beginning to spread into an area, it may designated [*sic*] by a commissioner as a weed for eradication”; and C – “wide-spread and well-established weeds” (Hazlett 2003, 13). The Comanche has weeds in each category:

A) yellow star thistle (Centaurea solstitalis)
B) Dalmation toadflax (Bromus inerimis), broadleaf pepperplant (Lepidium latifolium), Russian olive (Elaeagunus angustifolia), and musk thistle (Carduus nutans) [Other potential category B candidates include Russian knapweed (Centaurea repens) and teasel (Dipsacus fullonum).]
C) Canadian thistle (Cirsium arvense), bindweed, cheatgrass, Japanese brome, Russian thistle, kochia, and horseweed.

Tamarisk (*Tamrix* spp.) is a category B weed in some areas and C in others; it is especially pernicious in the Grasslands’ riparian areas. Tamarisk uses much more water than the native cottonwoods and willows it is out-competing. Thus, it is reducing stream channel movement and drying up some of the already small, ephemeral creeks in the Grasslands. It also increases soil salinity and increases fire frequency (Ecological Sustainability Report 2005). These changes in riparian vegetation, soils, and water quantity and composition have degraded habitat for wildlife including elk (*Cervus elaphus*), deer (*Odocoiles* spp.), Lewis’s woodpecker (*Melanerpes lewis*), northern bobwhite (*Colinus virginianus*), red-headed woodpecker (*Melanerpes erythrocephalus*), and wild turkey (*Meleagris gallopavo*). However, completely eradicating tamarisk may actually do more harm than good for some species dependent on riparian trees and woody shrubs, and full elimination has become controversial in some places. One species that may actually benefit from tamarisk is the southwest willow flycatcher (*Empidonax traillii extimus*), whose northernmost range may extend into the southern reaches of the Comanche at the New Mexico border. Thus, phased elimination of tamarisk is required.

Table: Tamarisk Infestations on the Grasslands

LOCATION	STREAM MILES	TAMARISK INFESTATION
Comanche National Grassland		
Bighole Canyon	1.7	<25%
Carrizo Canyon	1.6	None
Holt Canyon	2.9	None
Pat Canyon	0.1	None
Picture Canyon	1.9	Eradicated 2004
Purgatoire Canyon	20.7	>75%
Sand Canyon	1.6	Eradicated 2003
Soldier Canyon	0.8	None
Tecolote Creek	0.6	None

Timpas Creek	5.2	>75%
Tobe Creek	1.3	>25%
Ute Canyon	1.2	<25%
Vogel Canyon	0.5	>75%
Whitby Canyon	1.2	<25%
Cimarron National Grasslands		
Cimarron River	33.8	>75%
North Fork Cimarron River	2.6	<25%

(Data from USDA Forest Service, PSICC 2005)

Other problematic riparian weeds include musk thistle, Dalmation toadflax, Russian olive, and prickly lettuce (Lactuca serriola), among others. The harsh winds, lack of rain, and temperature extremes make it difficult for most exotics to establish themselves on the open grasslands and scrublands, thus weeds tend to be concentrated in the riparian areas. Yellow sweet clover (*Melilotus officinalis*) is ubiquitous in both riparian and upland ecosystems.

Grazing

Agricultural production of crops or livestock has never reached economic or ecologic sustainability in the Southern Plains. Farming still exists on private lands around the Cimarron and Comanche, but it is largely dependent on the increasingly scarce waters of the Ogallala Aquifer and undependable stream systems. A low precipitation year can mean ruin, and this is especially true for the rancher. In 2002, during a cyclical drought period, the government opened up Conservation Reserve Program (CRP) lands to emergency livestock grazing and harvesting for livestock feed. Such emergency actions in the face of natural cyclic conditions call into question the sustainability of commercial livestock grazing in the Southern Plains.

Livestock, particularly cattle, ranching remains the dominant use of the Comanche and Cimarron National Grasslands. It provides some social and private economic benefits and entails social, economic, and ecological costs, including foregone opportunities for native wildlife, fisheries, and wetlands and riparian functioning and recovery (Power 2004, Connelly, et al. 2000; Belsky, et al 1999; Fleischner 1994; Belsky and Blumenthal 1997).

According to the Draft Plan, grazing management in the future will essentially follow the status quo (see Plan at 37). The Forest Service has determined that all ecosystems and special areas are suitable for livestock grazing with the exception of Picket Wire Canyon (Plan at 77-80), which has already been protected from grazing. We believe this suitability decision is in error for the reasons detailed below. The Grasslands can not continue to sustain the current level of use without adverse effects to other resources, species and their habitat.

Therefore, the Plan should find areas showing significant damage from overgrazing and/or other activity (such as OHV abuse and oil-gas activities) as unsuitable for livestock grazing.

The 1984 Pike and San Isabel and Cimarron and Comanche Land and Resource Management Plan designated at least 80 percent of the Comanche and Cimarron federal land base as prescription 6B, managed for intensive livestock grazing (USDA Forest Service 1984) [see table below]. The Forest Service permits livestock grazing in areas designated for other management emphasis: 4B for wildlife, 9A for riparian protection, 10A for existing and potential Research Natural Areas, and 10C for Special Interest Areas. Very few areas are off-limits to domestic livestock. Picket Wire Canyon, the southern-most region of the Comanche's Timpas Unit, is the largest such area. The Canyon hosts a number of historic sites and the famed dinosaur tracks as well as sensitive riparian habitat (U.S. Forest Service PSICC 1994). A short stretch of Timpas Creek is also closed to grazing.

Livestock grazing, though not the most important industry economically, may indeed define the cultural identity in the Comanche/Cimarron region. Large herds of cattle are an accepted and arguably welcomed part of the landscape for the proximal human community. While some corporate cattle operations utilize the Grasslands, most livestock ranchers that lease Cimarron and Comanche allotments live in and around the community and run cattle on their own private properties as well as the public pastures. With low and declining public lands grazing fees and government subsidized control of wildlife species that many ranchers consider pests, allotment lessees have a strong incentive to maximize grazing opportunities by pushing for longer seasons and larger numbers of cattle, measured in Animal Unit Months (AUMs). Grazing on the public Grasslands is just a lot cheaper than on private lands.

Despite strong support for ranching in the local community, the Forest Service must come to terms with the fact that 60+ years of intensive commercial livestock grazing has, on the whole, been detrimental to Cimarron and Comanche ecosystems, flora, and fauna. Unlike many areas of the interior West, the Great Plains evolved with bison and large herds of elk and pronghorn. Prairie plants adapted to large ungulate grazing. Grazing by native species kept the natural vegetative composition in balance. A synergistic relationship between bison and prairie dogs—both keystone species—maintained grassland biodiversity in the Southern Plains (Lott 2002). Bison prefer grazing on prairie dog colonies (as do cattle). Prairie dog burrowing aerates and mixes nutrients into the soil, and their eating and clipping down vegetation stimulates plant re-growth, resulting in vegetation that is more nutritious and succulent than the vegetation outside of colonies. Bison in turn keep vegetation low on and around colonies, allowing prairie dogs to expand more easily than onto ungrazed areas.

Livestock grazing advocates claim that cattle and bison are interchangeable

and serve equivalent ecological functions. But bovine are not bison. The replacement of the native ungulates with these “invasive” species in the 1800s initiated a long-term trend in decline for Southern Plains ecosystems. Though less destructive than farming for this arid region, livestock grazing has impeded the full recovery of native prairie habitat since the Dust Bowl. Bison and cattle differ in the following ways:

- Bison spend little time in fragile riparian areas, while cattle degrade such areas by defecating and loitering in streams and destroying streambanks, which causes erosion and stream disappearance.
- Cattle dependence on water results in destroyed riparian areas, water developments, and groundwater pumping.
- Bison behavior creates a vegetation mosaic across the landscape. In particular, bison wallows provide a refuge for specialized prairie flora. We can’t say the same for cattle.
- When free-roaming, bison don’t return to grazed areas until the vegetation is rejuvenated, while cattle are more stationary.
- Cattle seek refuge from the sun and snow by seeking woody draws and other shelter, while bison are more adapted for inclement prairie weather.
- Cattle overgrazing has been linked with brush encroachment in the southern plains, while bison roaming and grazing patterns are a natural part of prairie ecology.
- Making the range safe for cattle has entailed the stringing of barbed wire across the landscape, which obstructs wildlife migration and causes direct mortality to wild animals.
- Rangeland management for cattle continues to involve the ruthless extermination of any wildlife seen as a predator of cows or a competitor for forage, while bison comfortably co-existed with these animals.
- (Callenbach 1996; Lott 2002)

Some grassland ecosystems require grazing by large ungulates. Optimally, bison would be restored to the Comanche and Cimarron and replace cattle. The Forest Service could and should use the opportunity presented by the management plan revision to move toward restoring bison to the Grasslands. Restoration of bison should be a desired future condition for the grasslands. However, a wholesale exchange of cattle for bison is currently not socially, politically, or economically feasible, nor is it practical in the near-term. Proposing to eliminate cattle grazing would lead to outright revolt among current allotment lessees. Despite the damage grazing does to most arid ecosystems, grazing does benefit some short- and mid-/mix-grass prairie species; bison grazing under historic conditions is optimal, but cattle mimicking the historic grazing regime is better than no grazing at all on *some* ecosystems and in *some* areas within the ecosystems that evolved with grazing. Thus, commercial livestock grazing is likely to continue on the Grasslands for quite some time.

The best available data on ecosystem conditions make it clear, however, that

livestock grazing must be reduced in most areas and eliminated in other parts of both the Cimarron and the Comanche. On the Campo Grazing District within the Comanche, 31 of 71 (44%) grazing allotments demonstrated poor upland vegetation conditions in need of improvement (U.S. Forest Service, PSICC 1998). Thirty-seven of 51 allotments (69%) within the Pritchett Grazing District need improvement. Fourteen Pritchett allotments and 20 in Campo exhibited poor soil health and erosion (Ibid.). The Timpas, Kim, and Cimarron Environmental Assessments do not include allotment-specific data on landscape conditions. The Timpas Grazing District Allotment Management Plan shows 19 of 23 allotments with ecological problems associated with livestock grazing (U.S. Forest Service, PSICC 1998). Range condition assessments for the Cimarron and Comanche reported in the *Vegetation/Ecology Specialist Report* are less than desirable. In the Cimarron: 53 percent of the shortgrass ecosystem vegetation is in fair to very poor condition, 73 percent of the Cimarron River Corridor is in fair to very poor condition, and 92 percent is fair to very poor in sandsage areas (U.S. Department of Agriculture, Forest Service. 1998, 2002a, 2002b, 2004a, 2004b). (See table below.)

CIMARRON	VERY POOR	POOR	FAIR	GOOD	EXCELLENT	UNRATED
Shortgrass	**9%**	**21%**	**23%**	**34%**	**10%**	**3%**
Sandsage	**50%**	**27%**	**15.5%**	**2%**	**1.5%**	**4%**
Cimarron Corridor	**16.5%**	**34%**	**22.5%**	**3%**	**0**	**24%**

Data extrapolated from Cimarron & Comanche Vegetation/Ecology Specialist Report. Pg. 6-7. Version May 10, 2005.

A comparison of watershed conditions between 1997 and 2002 indicates no change in condition. All Grassland watersheds remained moderately impacted to severely degraded; none are in pristine condition (PSICC 2004 Monitoring Report). The only conclusion one can come to from these data is that livestock management on the Cimarron and Comanche Grasslands needs a significant overhaul.

The Forest Service must take the steps here in plan revision to start this process. Desired condition statements, objectives and guidelines must reflect the long term goal to reduce grazing in areas where resource damage is occurring. The determination of suitability should reflect the existing conditions. Deferring the decision on suitability to a future date is irresponsible. Having to reduce grazing due to adverse effects to listed species is the more likely future if steps are not taken now to define a different vision for the future. This would be most unfortunate, as well as disruptive and controversial given the role of grazing in the local social environment. Deferring the decision on suitability until current allotment leases are up for renewal without changes in the desired condition and objectives in the plan now means nothing will likely change in the future. Therefore, areas showing significant degradation from excessive or overly

persistent livestock grazing and/or other activities must be found unsuitable for grazing

Roads and Transportation

Roads are an extremely important consideration in public land management. They provide access for public recreation and for management, but they also cause many problems. On the Grasslands, roads: fragment wildlife habitat, cause erosion, lead to a decrease in water quality, provide access to areas that cannot withstand human activity without substantial damage, provide barriers to the spread of fire, and facilitate the introduction and spread of invasive species.

A quick look at the map for the Grasslands shows a high road density. It is highly likely that this road system exceeds what is needed for any type of access, and that this road system and its use are causing impacts, some of which could be avoided by better management. Surely, some of these roads are not needed, and can be closed and obliterated.

The plan should contain a desired condition, applicable to all ecosystems, to reduce road mileage. The draft Plan does not contain such a desired condition, even though some of the stated desired conditions for all ecosystems (e. g., restoring a more natural fire regime, improving the conditions of watersheds, and improving long-term soil productivity – Plan at 29-30) likely cannot be accomplished without removing roads. Desired conditions for reducing roads are not found in the text for the four individual ecosystems either.

Except for three special areas, there are also no objectives addressing the need to reduce road mileage, even though achievement of the objective of fighting invasive weeds (Plan at 60) could be greatly aided by having fewer roads. Finally, there are no guidelines addressing road reduction, except for three special areas, which have a vague guideline to prevent OHV use as necessary to protect rare plants[14] (Plan at 85-90).

We are disappointed to see the Roads Analysis Report (RAR) cover only roads with a maintenance level of 3 or above, even though the majority of roads on the Grasslands have a lower maintenance level:

> County and Forest System (FS) roads further provide access to most

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[14] This guideline, applicable to Mesa de Maya, OU Creek, Picture Canyon, and Vogel Canyon, states:

> OHV use should be prevented where necessary to protect populations and habitat of species-of-concern plants.

Plan at 89-90.

> areas of the Grasslands. The majority of these roads that network the grasslands that branch to local roads and trails, are maintenance level 2 roads and are not included in this report.

RAR at 9. The lack of sufficient funding for maintenance is cited as a key issue. Id. at 13.

It is these lower maintenance level roads that likely cause the majority of impacts, as they, by definition, are built to a lower standard, thus impacts, e. g., those at stream crossings[15], to various resources are more likely.

A thorough analysis of the levels 1 and 2 road system and of unclassified (non-system) roads[16] is needed to determine the true effects of roads on the Grasslands, and to determine which roads can be closed and obliterated. Possible closures in areas containing unique features and/or having few roads should be closely examined. The goal would be to help protect unique features and to create more lightly roaded or unroaded areas on the Grasslands where natural ecological processes and native species richness could be established and maintained.

As stated elsewhere, the draft Plan has no monitoring questions associated with OHV use. The only monitoring question in the plan addressing roads is "What amount of deferred maintenance has been conducted?" (Plan at 73). This is appropriate, but insufficient to cover the possible impacts of roads and their use. The question also has to be paired with information on each year's deferred maintenance backlog total and the trend in amounts of deferred maintenance over time. Simply knowing the amount of deferred maintenance conducted is not enough. It's critical to know whether that amount represents a growing or shrinking percentage of overall deferred maintenance needs. The Plan must also contain other monitoring questions sufficient to detect the full range of possible impacts from roads and encourage mitigation of impacts.

The Grassland have a huge deferred maintenance backlog of $1.8 million, but only $48,858 was available for road maintenance in fiscal year 2004 (RAR at 11).

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[15]The RAR states:

> Many roads on the Comanche and Cimarron National Grasslands also cross small drainages with no drainage structures (e.g. culverts) installed in the road and therefore serve to impound some stream flows and may reduce peak flows downstream in the watershed.

RAR at 16. See also id. at 17.

[16] The RAR lists developing "a cost effective plan for conducting an inventory of unclassified roads" as a means of addressing general road related problems and risks, and "a strategy to inventory unclassified roads" for addressing risks to "wildlife/sensitive species". RAR at 49.

Closing and obliterating roads would help to decrease this huge backlog, and given federal budget trends is the only way to significantly reduce the maintenance backlog over time. The Plan must include clear direction to reduce road miles in general, and more specifically, to concentrate road closure and obliteration on those roads with the greatest adverse environmental effects.

Visual Quality

Scenery Objectives and Guidelines

The Scenery Management Report prepared for the Comanche-Cimarron Plan notes that

> Scenic resources are an important part of the National Grasslands, as they provide a backdrop for most all activities, especially recreation, that take place.

Scenery Report at 1.

In this light, the Plan should provide design criteria for protecting scenery. Unfortunately, the proposed guideline for "landscape and scenery management" that conditionally requires scenery management system (SMS) objectives to be met[17] has two exceptions that would allow considerable degradation of the scenic resource.

Exception one would allow projects "to exceed a decline of one SMS scenic class… provided the minimum SMS class specified for the each place would not be exceeded" (pg 89). This implies that: 1) there will be a minimum SMS class that could be two or more classes below the existing scenic inventory for a given area, and 2) that a large amount of degradation of the scenic resource would be allowed.

Unspecified "visual improvement measures", consisting of rehabilitation and/or enhancement, would occur "to balance the resulting decline in visual quality" when a decline of more than one scenic class was approved. Id. However, this would not necessarily bring an area back up to the SMS class specified in the objectives.

Exception 2 would allow a decline of more than one SMS class for up to three years. Id. The result of these exceptions is that the scenic resource on the Grasslands would have essentially no protection. This is not acceptable. Please remove the exceptions to the landscape and scenery management guideline. The guideline, because it is discretionary, is already too weak.

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[17] "…SMS objectives <u>should</u> be met…" Plan at 89; emphasis added.

We do not find important information concerning the scenery resource in the Plan documents. Four maps – scenic attractiveness, distance zones/concern levels, existing scenic integrity, and inventoried scenic class – are all listed at the end of the Scenery Report, but are not shown in the Report, nor elsewhere in the plan set of documents. We also do not find anywhere in the plan set of documents the SMS objectives referenced in the guideline on pg. 89.

Energy Development

Oil and Gas

The Cimarron National Grassland has high potential for the occurrence of oil and gas and currently has 436 active oil and gas facilities. Sixty-one percent of the Cimarron is currently under federal mineral lease, with the remainder under private lease. Since 1990, an average of nine new wells have been drilled annually, with a similar number of wells plugged and abandoned each year. The eastern one-fourth of the Carrizo Unit of the Comanche National Grassland contains the Campo Oil Field, which currently has 33 active oil and gas facilities, and a total of 74 (inactive and active) wells. However, only six wells have been drilled in the past decade and the Campo Oil Field appears to be near the end of its productive life. The remainder of the Carrizo and all of the Timpas Unit have low potential for fluid minerals. There are approximately 500 miles of buried oil and gas and associated water pipelines under the Comanche and Cimarron. Some of these pipelines are abandoned in place.

Wind Energy

In 2003, two large wind energy sites were constructed on private lands adjacent to the Grasslands; one in southwest Kansas, and another in southeast Colorado. Another site southwest of Springfield, Colorado has the potential to be developed for wind energy and this would include a portion of the Carrizo Unit.

Common Variety Minerals

Both the Cimarron and Comanche have low to moderate potential for common variety minerals, including sand, gravel, caliche, and building stone. Several sand and gravel pits are located on the Grasslands. Six gravel pits are located on the Cimarron, and five of these are less than 1 mile from the Cimarron River. There are ten gravel pits on the Comanche.

Environmental Harm from Energy and Minerals Extraction

These uses can result in significant threats to native wildlife, plants, and ecosystems, including:

- Harm to native wildlife and plants due to habitat degradation and loss;
- Increased human disturbance, including higher volumes of vehicular traffic, resulting in increased threats from road mortality, air pollution, and shooting of wildlife;
- Noise from pumpjacks, gas compressors, wind turbines, transmission lines, and vehicular traffic;
- Degradation of plant communities, including proliferation of noxious weed with increased disturbance from roads, wellpads, wind-tower pads, pipelines, seismic exploration, gravel pits and open wastewater pits;
- Increased erosion and sedimentation and consequent adverse impacts on native animal species;
- Contamination of water, soil, and natural habitat via saltwater, toxics, and oil spills;
- Heightened bird mortality with unmitigated wind turbines and powerlines; and
- Cumulative environmental impacts resulting from harms from energy development and minerals extraction, alongside livestock grazing, off-road vehicle use, and other harmful activities.

One species that has suffered greatly from oil and gas development is the lesser prairie-chicken. On the Cimarron, researchers have documented avoidance by lesser prairie-chickens of oil and gas structures and potential disturbance from noise generated by oil and gas machinery (Elson 2000; Pittman 2003). Yet, recent lease sales by the U.S. Bureau of Land Management have included parcels on the Cimarron with potential lesser prairie-chicken habitat.[18] A 2003 doctoral dissertation also documented lesser prairie-chicken avoidance of human activity and structures and suggested that, "Future impact assessments and conservation plans should consider the construction or presence of anthropogenic features as a potential detriment to habitat suitability for lesser prairie-chickens." That study reported that the majority of mortality was due to predation (which is exacerbated by habitat degradation), powerline collisions, and hunting (Hagen 2003).

In southwestern Kansas outside of the Cimarron, Robel et al. documented anthropogenic features on the landscape reducing nesting habitat quality for lesser prairie-chickens in the sand sagebrush ecosystem on which they depend. Gas compressors, center-pivot irrigation systems, pumpjacks, vehicular traffic, power plants, and electric transmission lines all caused movement and noise that can disturb prairie-chickens. Gas compressors could be heard two miles away from the source. Out of a total of 214,183 acres of sand sagebrush in their study area, the habitat impacted by oil and gas wellheads doubled between 1973 and

[18]Lease Sale Notices are viewable at www.nm.blm.gov. Forest Guardians has protested the lease of these parcels, due to the perils oil and gas development presents to lesser prairie-chickens.

2001, from 8,564 acres to 17,562 acres. Roads impacted some 40,000 acres of sand sagebrush in 2001. Buildings (including gas compressor stations) impacted 15,774 acres in 2001. Electric transmission lines caused impacts on another 16,803 acres of sand sagebrush. Combining these impacts with those of center-pivot irrigation, lesser prairie-chickens would be expected to avoid some 58% of remaining sand sagebrush habitat.

Because of the importance of nest success to lesser prairie-chicken population viability, the authors state that, “any negative impacts of anthropogenic features on nesting of lesser prairie-chickens [are] of great concern” (Robel et al. at p. 6). Robel et al. (at p. 8) therefore recommend that “The avoidance buffers around oil and oil/gas wellheads, electric transmission lines, and buildings must be recognized and integrated into environmental assessments of the development of petroleum resources and the construction of industrial wind energy facilities.”

Jensen et al. (2000) note the need to restore sand sagebrush in Kansas to benefit lesser prairie-chickens. Walker (2000) similarly recommends conservation of sand sagebrush in Kansas to facilitate prairie chicken recovery, warning against the destruction or overgrazing of this habitat.

Another threat to lesser prairie-chickens in Kansas and other states is loss of habitat and disturbance due to wind farms. Indeed, the Forest Service recommended in 2003 that wind turbines not be placed within 5 miles of known prairie grouse leks. The Forest Service also recommended avoiding placement of turbines in native grassland habitat so as to protect grassland songbirds (Manville 2004). Because grassland songbirds are the most rapidly declining guild of birds in North America (Sauer et al. 2005), avoidance of their habitat when developing either wind turbines or oil and gas facilities is imperative. In addition, wind turbines can cause significant mortality to raptors, grassland birds, and bats (BLM 2005). Mitigations are thus imperative.

Black-tailed prairie dogs may suffer increased shooting as a result of increased human presence related to energy and minerals extraction. As discussed in the Recreation section, prairie dog shooting harms prairie dog populations, along with wildlife dependent on prairie dogs and their towns, such as mountain plover, burrowing owl, swift fox, ferruginous hawks, pronghorn, and many others.

Native ungulates, such as pronghorn, elk, and mule deer, have also suffered declines due to energy development. These impacts are caused both by habitat degradation and loss and ungulate avoidance of disturbed habitat and human activity. In the Pinedale Anticline area in Wyoming, researchers have documented negative impacts to mule deer from oil field development. Sawyer et al. (2005) found that deer selected areas farther from wellpads in the course of field development, and that deer use was lower within 2.7 to 3.7 km of wellpads,

suggesting indirect habitat losses significantly greater than direct habitat loss (e.g., the physical footprint of a wellpad). In addition, these authors cautioned that seasonal restrictions on energy activity may not be enough to compensate for disturbance. Rather, they suggested directional drilling and other strategies to reduce habitat loss.

In an open desert environment in Wyoming, Sawyer and Nielson (2005) discussed likely impacts to elk from increased human activity such as energy development, given elk avoidance of roads and human activity. They predicted changes to elk distribution and habitat use from increased road density and traffic and suggested restrictions on vehicular access in order to protect elk and their habitat.

Similarly, the New Mexico Department of Game and Fish (NMDGF) has documented mule deer and elk decline in northwest New Mexico, within the San Juan basin. In 1999, the agency documented 987 elk and 1,519 deer, contrasted with only 119 elk and 691 deer in 2004 and 2005. These are declines on the order of 88% and 55%, respectively. An NMDGF official reported that oil and gas development definitely played a role in the populations' decline (Clarren 2006).

The most common native ungulate in the Comanche and Cimarron is the pronghorn. But census counts in the late 1990s indicated fewer than 700,000 pronghorn across North America, down from one million in the mid-1980s (Yoakum et al. 1999). There are certainly a variety of factors contributing to this decline, including livestock grazing, fire suppression, fencing, and roads. Energy development should be considered part of the cumulative threats harming this species.

Energy and minerals development also degrades scenic and recreational values on the grasslands. This type of land use is not compatible with special areas on the grasslands. The view from Point of Rocks on the Cimarron would be fantastic were it not marred by several pumpjacks and pads. A gas pipeline just north of Mesa de Maya similarly degrades the scenic value of that area. As of March 2006, it was entirely denuded of vegetation and will undoubtedly provide a seedbed for proliferation of cheatgrass and other noxious weeds in the coming growing season. Herbicides used to treat this type of situation bring with them their own slew of environmental harms (Freilich et al. 2003).

A gas pipeline also runs across the western end of the Bent Canyon Bluffs and non-native plants have been documented by USFS in that area. Both Mesa de Maya and Bent Canyon Bluffs have been recommended by USFS for Special Area designations, yet they are being degraded by oil and gas operations. In addition, several oil wells and energy pipelines are in close proximity or intersect with the Santa Fe National Historic Trails, one of the premier recreation draws to the Cimarron and Comanche.

In the 1992 Oil and Gas Amendment to the 1984 PSICC plan, USFS discussed the incompatibility of oil and gas with the Picture Canyon, Vogel Canyon, Campo Research Natural Area, and the Carrizo Frasera areas (O.U. Creek). Public Law 101-510, which directed the transferred the Picket Wire Canyonlands from the U.S. Army to the Comanche National Grasslands stipulates that, "Lands of the PWC are withdrawn from operation of the mining, mineral leasing, and other mineral entry laws of the United States," (PL 101-510 §(C)(5)). Yet, in the 2005 Draft Comanche & Cimarron plan, USFS describes all of these areas (except the Campo RNA, which is not included in the 2005 plan as a special area) as suitable for oil and gas development.[19] Why? As environmental analysis has not accompanied this plan, we see no reason why the previous decision should be overturned. The 2005 Draft Plan thus constitutes a setback in protection for the values on these special areas from the harms caused by energy development.

Additionally, over 70% of the Cimarron River corridor was leased for oil and gas at the time of the 1992 Oil and Gas Amendment. While USFS maintained that further leasing would not reduce the river's eligibility for Wild & Scenic Rivers designation as a recreation segment, [20] oil and gas development certainly degrades its value for recreational use.

The 1992 Oil and Gas Amendment describes the following conditions under which the Forest Plan provides for a No Surface Occupancy (NSO) stipulation:

1) Slopes steeper than 60%.
2) High erosion hazard rating.
3) High geologic hazard rating.
4) Low visual absorption capacity that prevents reclamation to the established visual quality objective.
5) A conclusion that the action will jeopardize the survival or recovery of federally listed threatened or endangered wildlife or plant species.
6) Intrusion on the critical or essential habitat of a federally listed T&E wildlife or plant species or upon the plant or animal itself.
7) Intrusion upon the habitat of an individual plant or animal species listed by a State as threatened or endangered.[21]

These conditions for an NSO must be carried over to the Comanche & Cimarron Grasslands plan, given that USFS stated in the 2005 Draft Plan that energy development would continue to be managed in accordance with the 1992 Amendment.[22] Stipulations in the 1992 Amendment included: a timing restriction from December 1 to April 15 on the Comanche to protect 75,000 acres that are

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[19]See Draft Plan at Table 2-13.
[20]See PSICC ROD for 1992 Oil and Gas Amendment at p. 11.
[21]*Id* at p. 30.
[22]2005 Draft Plan at p. 42.

important habitat for native ungulates and turkey; a controlled surface occupancy stipulation to protect nearly 50,000 acres on the grasslands for scenic values.

However, significant new information obtained since the 1992 Amendment should compel USFS to increase protections for special status species from energy development. For example, since 1992, the black-tailed prairie dog was petitioned for Endangered Species Act (ESA) listing, and designated a candidate for listing for four years; the lesser prairie-chicken has now been a candidate for listing for eight years; pronghorn survey data indicates significant declines; the Arkansas River shiner was listed under the ESA in 1998; and wind energy development research has revealed the need for mitigation measures to avoid significant harms from this land use to native species. The plan must take these changes into account.

We believe that the likelihood of harm from oil and gas development is high. Therefore, some areas must be found unsuitable for this activity, including all special areas and important habitat for the lesser prairie chicken. In addition, we believe that wind energy development should be concentrated on private lands as much as possible. This would have a number of positive benefits. First of all, effects to wildlife and their habitat as well as recreational users would be lessened on federal lands. Secondly, the direct leasing and tax benefits would accrue to private landowners and by extension the local community to a greater degree than it would should wind energy development take place on federal land.

Special Uses

Plan Must State How Existing, Approved Uses Would Be Affected by Plan Approval

The Grasslands have numerous ongoing uses, most prominently oil-gas exploration, livestock grazing, and OHV use. These uses have been approved at various times under the 1984 Plan. It is possible that compliance with the new plan would require a change in these activities. Therefore, the Plan must contain a concise statement about how existing uses and occupancy of the Grasslands will be affected by the new plan, as required by 36 CFR 219.8(a)(1) and FSH 1909.12, section 28.1 (5).

Conclusions and Recommendations

We appreciate the difficulties the Forest Service has encountered as it attempts to apply the new Planning Regulations and the Planning Directives for the first time. That said, the draft Plan is severely flawed in many respects, as detailed throughout the comments above. We request that the Forest Service thoroughly revise the Plan using the recommendations below and circulate

another draft plan for public comment.

The following recommendations are all important and are in no order of priority.

National Environmental Policy Act Compliance

- Prepare an EIS to accompany the Plan. The document must analyze more than the no-action and proposed action alternatives. It must recognize that the plan makes decisions that will result in impacts to the resources on the Grasslands, and comprehensively disclose those impacts.

- An EIS should fully analyze a full range of reasonable alternatives, including the alternative being submitted by Forest Guardians.

Integrating Environmental Management System with Management Plan

- The EMS be described in reasonable detail and be part of a new draft Plan or be issued separately for public comment.

Monitoring and Evaluation

- The monitoring program must be described in reasonable detail and be part of a new draft Plan or be issued separately for public comment.

- More monitoring questions must be formulated to address the key aspects of desired conditions, as required by the Planning Directives. Questions must address at least the following: possible impacts from OHV use, livestock grazing, oil and gas development, and application of fire.

- Monitoring questions and objectives must facilitate adaptive management. This means, at a minimum, evaluating effects of uses and management practices on ecosystem conditions, and on federally listed, concern, interest, and sensitive species, and making appropriate adjustments to promote ecosystem diversity and integrity.

Suitability for Resource Uses

- The analysis of suitability of lands for various resources must be redone by either analyzing suitability at more local levels or by finding areas damaged by ground disturbing activities unsuitable for such activity pending further review. Suitability determinations for livestock grazing, OHV use, and oil and gas activities are particularly in need of revision.

- Livestock must be excluded from riparian areas, playas, seeps, and springs.

- Objectives for fire coverage must be revised to encourage an increase in the percentage of land burned, either by prescribed burning or wildfire, annually on the Grasslands, to more closely approximate historic conditions. (Fire should not be applied in areas where cheatgrass occurs, however.)

Ecosystem Sustainability and Diversity

- The analysis of ecosystems must be expanded to include at least the following, in addition to the four ecosystems already analyzed: mid-grass prairie, mixed salt desert scrub, shale barrens, lower montane-foothills shrubland, and depressional wetlands (playas).

- The condition of allotments on the Comanche Grasslands must be thoroughly analyzed and disclosed. Efforts should be commenced as soon as possible to improve the range condition in areas found to be in fair or poorer condition on both Grasslands.

- The Plan should have desired conditions, objectives, and guidelines for restoring soils damaged by livestock grazing, OHV use, oil and gas activities, and any other factors.

- The Plan must have desired conditions, objectives, and guidelines as needed to restore watersheds to robust condition. Top priority should be those watersheds rated class III. Class II watersheds should be monitored, with actions taken as needed to prevent any deterioration and begin improvements, as possible.

- During the Allotment Management Plan process or as other opportunities arise, design and implement livestock grazing strategies that provide a mosaic of low, moderate, and high grassland structure.

Species Sustainability and Diversity

Federally Listed Species

- The Forest Service must analyze the possible impacts to ESA-listed species that may be present, including: bald eagle, piping plover, interior least tern, and especially the Arkansas shiner. Consultation with the Fish and Wildlife Service as needed for these species must be concluded before the notice of plan approval is issued. This must be done before a revised draft plan is issued, so the public has this information in order to make informed comments.

- The Forest Service must engage the Fish and Wildlife Service in formal consultation regarding the potential impacts the new land management plan might have on the Arkansas River shiner, bald eagle, interior least tern, piping plover, and black-footed ferret. This must be done before a revised draft plan is issued, so the public has this information in order to make informed comments.

- To aid the recovery of the Arkansas River shiner and Arkansas darter, the Forest Service will discontinue stocking ponds with non-native fish that compete with the native species, upon implementation of this plan.

- Survey methods for the Arkansas River shiner (and for all fish species) should preclude techniques that result in take—the harming of the fish or loss of specimens to the natural environment.

- The Forest Service will collaborate with upstream and instream users of the Grassland water systems, especially the Cimarron River and Arkansas River tributaries, to develop plans and projects that restore water and natural flows to these water systems for the benefit of the Arkansas River shiner, Arkansas darter, and other native species and also to improve bald eagle habitat.

- The Forest Service will begin monitoring specifically for bald eagles in both Grasslands.

- Bald eagles will be included on all lists of species that occur or could occur on both Grasslands.

Species of Concern

- Plant Species of Concern. The Plan will revise objectives and guidelines to be consistent with biological information contained preliminary Ecological Sustainability and Species Reports concerning livestock grazing and fire tolerance and other considerations.

- Lesser Prairie-Chicken. To help reduce adverse impacts to breeding lesser prairie-chicken and their display grounds, do not allow ground-disturbing activities within 5.0 miles of active or historic lesser prairie-chicken lek sites from March 15 to July 15. Do not allow new structures to be erected within 5.0 miles of active or historic lesser prairie-chicken lek sites. This also applies to pipelines, fences, windmills, and underground utilities. Prohibit livestock grazing in grazing allotments with known lesser prairie-chicken leks. Modify livestock grazing practices as needed to reduce adverse impacts of drought on food and cover for lesser prairie-chicken. Reduce fencing around lesser prairie-chicken existing and suitable habitat. Manage viewing activities on lesser prairie-chicken

display grounds to reduce disturbances and adverse impacts to the birds. Do not plant trees in prairie chicken habitat. Manage viewing activities on lesser prairie-chicken display grounds to reduce disturbances and adverse impacts to the birds. Oil and gas facilities will be removed from areas where they are harming lesser prairie-chickens. Designate a lesser prairie-chicken Research Natural Area on both Grasslands.

- Black-Tailed Prairie Dogs. A >5,000-acre prairie dog complex should be a Desired Condition for both grasslands. Recreational shooting of prairie dogs should be prohibited.

- Swift Fox. To reduce disturbances to swift fox during the breeding and whelping seasons, prohibit the following activities within 5 miles of their dens from March 1 to August 31: construction (e.g., roads, water impoundments, oil and gas facilities), reclamation, gravel mining operations, drilling of water wells, oil and gas drilling, seismic exploration, maintenance of oil and gas wells, and permitted recreation events involving large groups of people. Prohibit the use of M-44s (sodium cyanide) for predator control on the Grasslands. Because swift fox are often mistaken for coyotes by hunters, prohibit coyote shooting on the Grasslands.

Species of Interest

- The Plan should propose a more diverse set of Species of Interest to help achieve ecosystem sustainability and diversity desired conditions. Invertebrates as well as true riparian and aquatic species, such as the plains leopard frog and tiger salamander, must be included as Species of Interest

Extirpated Species

- The Plan should contain desired conditions and objectives for restoration of extirpated species such as the black-footed ferret and American bison.

- A black-footed ferret recovery strategy should be developed for the Comanche and Cimarron in cooperation with FWS, the Piñon Canyon Maneuver Site adjacent to the Timpas Unit, the Kansas and Colorado state wildlife departments, interested conservation organizations, and cooperative surrounding landowners. The plan will lay out specifically how 5,000+ - acre prairie dog complexes will be established on both Grasslands and how sufficient numbers of prairie dogs will be conserved and allowed to increase on the Grasslands.

- The Plan will allow bison on the Grasslands, and shall include a Desired Condition to establish a small, genetically wild herd.

Special Areas

- The Plan must propose much stronger protection for the special areas by designating several proposed areas as Research Natural Areas. All proposed RNAs and special areas must be found unsuitable for livestock grazing, OHV use, and oil and gas activity. The Picket Wire canyonlands must be found unsuitable for all oil and gas activity, in accordance with law.

- The Forest Service should include Bravo Canyon, Eightmile, Lone Rock Draw, and Rourke Canyon as Research Natural Areas.

Scenery

- Objectives and guidelines for scenery management should be more clearly stated. They must not allow significant degradation of scenery, and should encourage improvement where possible.

Road Density

- To increase fire coverage and provide better opportunities for non-motorized recreation, the Plan should have one or more desired conditions and objectives for reducing road densities on the Grasslands, and guidelines as needed for attaining them.

Effect of Plan on Existing Uses

- Per 219.8(a)(1), the Plan must contain a statement of how existing Grassland uses would be affected by the Plan.

We appreciate the opportunity to comment on the draft Plan and EA. Please include these comments and attachments as part of the administrative record for this matter. We'll also email an electronic version of this comment letter to aid in comment content analysis. If you have any questions about our comments, please feel free to contact us, per below.

Please continue to send any materials regarding the plan revision process. This includes an EIS if prepared, the notice of plan prior to approval, and eventually the final Plan and all associated documents. We, the undersigned, hereby request to receive these documents in both CD-ROM and paper formats. The addresses and phone numbers of all signatories can be found below.

Lauren McCain will act as point person for any questions on these comments.

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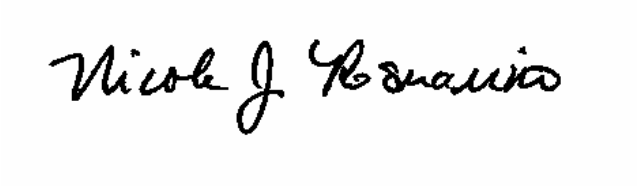

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