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Rocky
Mountain
Region



Cimarron and Comanche National Grasslands Land Management Plan

Process for Developing Plan Monitoring Questions and Performance Measures

September 19, 2006



The photograph of the painted tortoise on the cover was taken on the Cimarron National Grassland by Barb Masinton in June 2005.

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1. Introduction: About Plan Monitoring Programs

This paper briefly describes the genesis of the Plan Monitoring Program for the Cimarron and Comanche National Grasslands Land Management Plan (Grasslands Plan), a process that includes collaboration among the interdisciplinary revision team (ID team), Grasslands District Rangers, District employees, The Nature Conservancy (TNC), Rocky Mountain Region (RO) planning staff and specialists, and Grasslands specialists.

It does not include discussion of methods, protocols, schedules, or monitoring techniques. Those will be included in the Plan Monitoring Guide.

1.1 Goals of a Plan Monitoring Program

Monitoring is critical to adaptive management. The definition of adaptive management in the 2005 Planning Rule¹ is worth quoting here:

An approach to natural resource management where actions are designed and executed and effects are monitored for the purpose of learning and adjusting future management actions, which improves the efficiency and responsiveness of management. (36 CFR 219.16)

A plan monitoring program is essential to gauging progress toward maintaining or reaching desired conditions and objectives stated in the land management plan. It is also essential to discerning any need to change components of the plan itself and to assessing what methods are working and which can benefit from adjustment or change. So that the plan monitoring program can quickly reflect the best available science and changes in conditions, the program can be changed with administrative corrections and public notification, rather than amendments (as required under the 1982 Planning Rule).

1.2. What is a plan monitoring program?

A plan monitoring program is, in part, a set of specific questions whose answers, in the form of performance measures, tell us what kind of progress we're making toward either maintaining or reaching a desired condition or objective in the land management plan. When we design the monitoring questions, we consider monitoring that is currently going on, the best available science, budget, and established and new protocols.

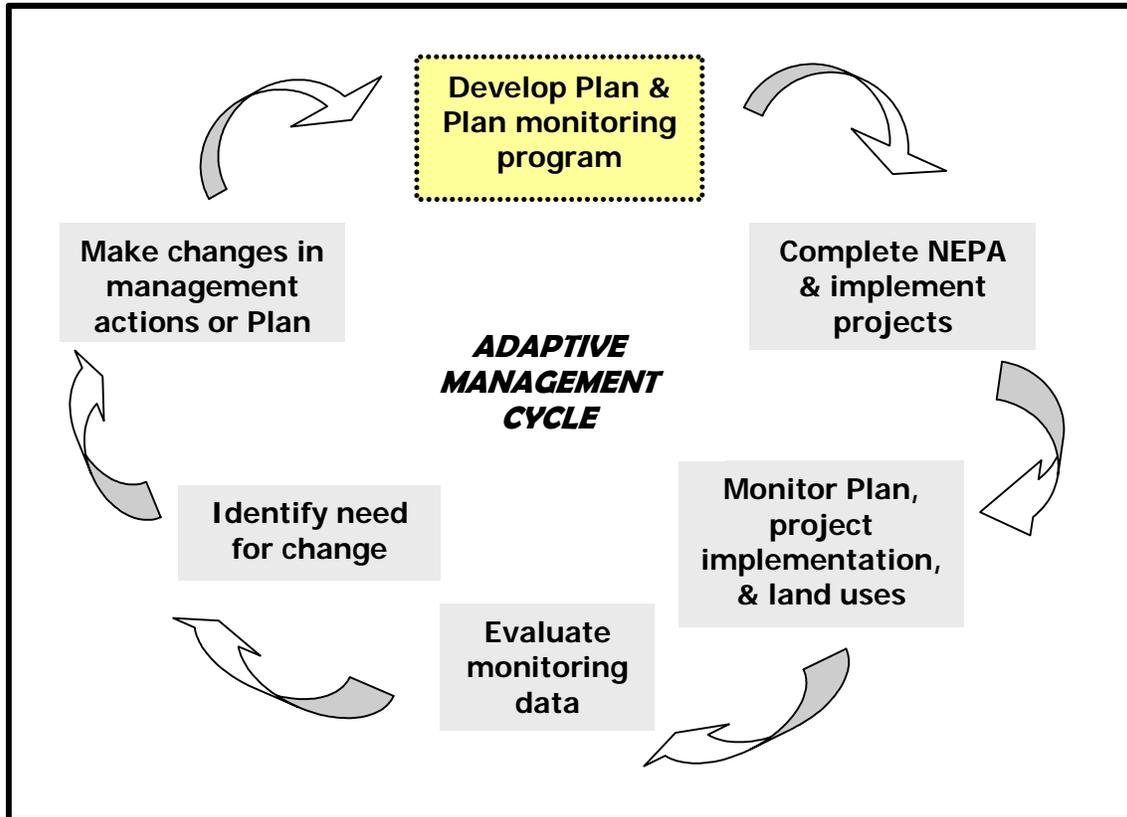
It also includes a monitoring guide that sets out, during the planning period, a monitoring schedule and identifies protocols and methods to be used, data storage, responsibilities for information management, cooperators and their roles in monitoring, and environmental management system (EMS) monitoring procedures associated with the plan.. Monitoring programs also include an annual monitoring work plan; this describes for the fiscal year the specific monitoring tasks that will be carried out, and the personnel and the budget associated with these tasks.

¹ U.S. Department of Agriculture, Forest Service. 2005 National Forest System Land Management Planning, Final Rule. FR 70(3): 1023-1061.

Monitoring questions may be answered in the annual evaluation report, and also in the five-year comprehensive evaluation report.

Figure 1, borrowed from a Dixie-Fishlake National Forests report, shows the adaptive planning cycle.

Figure 1. The adaptive management cycle



2. Developing the Monitoring Questions and Performance Measures

2.1. Getting Started

Initial monitoring questions and performance measures were developed during the planning process by the ID team, District Rangers, and specialists, based on desired conditions in the draft Cimarron and Comanche National Grasslands Land Management Plan (draft Plan), what was missing in the Land and Resource Management Plan, Pike and San Isabel National Forests, the Cimarron and Comanche National Grasslands² (1984 Plan), and in collaboration with Rocky Mountain Region (RO) and Washington Office (WO) staff. We considered monitoring associated with the 1984 Plan, but chose not to include it because it was based on outputs rather than outcomes. We also considered ongoing project and activity monitoring. These questions and measures were included in Part 2: Strategy of the draft Plan which was released for public comment on December 28, 2005.³ Planning directives released January 31, 2006, gave us guidance for further development⁴.

2.2. Workshop with The Nature Conservancy

We had preliminary conversations in February and March 2006 about how we could collaborate with TNC and the Rocky Mountain Research Station on developing a monitoring program under the 2005 Planning Rule. We then hosted a two-day workshop in early May with TNC and RO planning staff.

During this workshop we discussed and modified spreadsheets that TNC had drafted. The spreadsheets included the key aspects and indicators (of ecosystems and species) that were based on desired conditions in the draft Plan and the ecological sustainability evaluation report. Workshop participants collaborated on a process for refining key aspects and indicators and criteria that could guide the development and prioritization of indicators and eventually monitoring questions.

We used a three-step process to prioritize indicators (performance measures) for which monitoring questions would be developed:

1. Refine the list of key aspects and indicators based on desired conditions, ecological sustainability evaluation, and other sources.
2. Identify the existing and desired status of each indicator and describe quantifiable (if possible) or qualifiable ratings for poor, fair, good, and very good condition.

² U.S. Department of Agriculture, Forest Service. 1984. Land and Resource Management Plan, Pike & San Isabel National Forests; the Cimarron & Comanche National Grasslands. Supervisor's Office, Pueblo, CO.

³ U.S. Department of Agriculture, Forest Service. 2005 [December 30]. 90-day comment period on the Draft Cimarron and Comanche National Grasslands Land Management Plan (Draft Grasslands Plan [release of draft plan]. FR 70(250): 77373-77374.

⁴ U.S. Department of Agriculture, Forest Service. 2006 [January 31]. National Forests System Land Management Planning Directives. [Notice of issuance of agency final directives] FR 71(20): 5124-5153.

3. Select criteria and prioritize indicators as high, medium, or low, describing the rationale for assigning a priority. Example criteria were:
 - a. Forest Service compliance issue
 - b. High disparity between existing and desired status (condition)
 - c. Ability to affect a change in status

Spreadsheet information was developed, modified or verified for the following:

1. Ecosystem (the four used in the draft Plan)
2. Grassland units
3. Key aspect that best represents ecosystem health
4. Key aspect is a component of desired conditions as described in the draft Plan
5. Management action needed
6. Potential indicators
7. Priority for monitoring
8. Rationale and comments for priority rating
9. Aspect type (for example, landscape condition)
10. Indicator ratings that describe poor, fair, good, very good conditions

Because our focus was on desired conditions described in the draft Plan, the criteria we used to select the key aspects of desired conditions were based on the following questions from FSH 1909.12:

1. Is there a high degree of disparity between existing and desired conditions?
2. Are management activities likely to affect the desired condition?
3. Does the question respond to a key desired condition?
4. Is there a high degree of uncertainty associated with management assumptions?
5. Can the question be answered cost-effectively?

The main topics iteratively discussed throughout the identification and development of the key aspects and indicators:

1. Rationale behind the prioritization
2. Why we chose the key aspects (of desired conditions) we did
3. Kinds of monitoring that would be useful
4. Different levels of monitoring: effectiveness and implementation monitoring.
5. On-going monitoring by the Forest Service and partners (for example, monitoring conducted by state wildlife agencies)
6. Plan-level monitoring compared to project or activity-level monitoring

2.3. Further Development and Refinement

From mid-May to early-June 2006, the ID team continued work on indicators for ecological resources, and identified key aspects, developed and prioritized indicators for economic, social and physical resources described in the draft Plan. The approach mirrored what was used during the earlier workshop. During this time, TNC submitted a wish-list of their highest-priority indicators for us to consider as we developed the final list. The ID team compared TNC's wish-list with the developing Grasslands' list, identified similarities and differences, and provided rationale.

The ID team next drafted monitoring questions for the indicators (performance measures), and further described the rationale for prioritization. Ongoing monitoring activities associated with the monitoring questions and their associated performance measures of the highest priority were identified.

In June 2006, the Forest Supervisor, the two Grasslands District Rangers, the ID team leader, and the SO Renewable Resources Staff Officer began identifying which monitoring questions and performance measures would be included in the Plan. To do this, we further refined our prioritization method by considering several more criteria along with the five questions from FSH 1909.12.1:

1. Is there a high degree of disparity between the existing and desired condition?
2. Are management activities likely to affect the desired condition?
3. Does the question respond to a key desired condition or objective?
4. Is there a high degree of uncertainty associated with management assumptions?
5. Can the question be answered cost effectively?
6. What is the evaluation of risk in terms of probability and severity of outcome?
7. Does monitoring link to an EMS significant aspect or other element?
8. Does the monitoring question help understand changes in the structure and composition of vegetation for one or more of the four ecosystems?
9. Does the monitoring question help understand species-specific changes in sustainability based on ecosystem function?

As a result, the list of over 60 monitoring questions was narrowed to 24. The list of 24 monitoring questions and their associated performance measures was released in June 2006 for science review and public review.

3. Chronology of Activities

Table 4.1 lists the chronology of activities during the development of the Plan monitoring questions and performance measures.

Table 4.1.

Item #	Activities	Date	Results or Next Steps
1	RO discussed working with The Nature Conservancy (TNC) on monitoring program as an example monitoring program under 2005 Planning Rule; maybe work with Rocky Mountain Research Station (RMRS), too.	January 19, 2006	
2	Meeting with IDT, RO, RMRS, TNC to discuss possible collaboration	February 10, 2006	Schedule workshop or meeting to begin work

Item #	Activities	Date	Results or Next Steps
3	Workshop with TNC, RO, IDT 1.Focused on indicators for ecosystems 2.Decided key aspects of desired conditions, using screening questions from FSH 1909.12 3.Early discussion on possible performance measures	May 2-3, 2006	Schedule another meeting to continue working on indicators for economic, social, and physical resources. Begin documenting process, including criteria.
4	Meeting to continue developing indicators for economic, social, and physical resources. Discussed prioritization criteria based on risk, uncertainty, cost (IDT, RO, TNC)	May 9, 2006	Develop monitoring questions, refine existing and, develop additional indicators (performance measures)
5	TNC shared information they compiled from workshop and meeting	May 15, 2006	ID team to review compiled information
6	Distributed spreadsheets of potential monitoring questions, indicators, workshop results	May 16, 2006	Districts will: 1.Refine questions 2.Prioritize using criteria
7	Meeting in La Junta (Rangers, ID team, Resources staff,) to agree on prioritization process and criteria, review process, and requirements for program	May 17, 2006	ID team to work on draft monitoring questions
8	ID team reviewed existing worksheets and drafted 55 monitoring questions	May 18 – 26, 2006	Send 55 questions to Rangers for further work, consult employees about questions
9	Conference call (Rangers, ID team) narrowed down 55 questions, added new prioritization criteria	May 30, 2006	Refine and prioritize questions, send as spreadsheet to TNC for input
10	TNC submitted their spreadsheet containing a wish list of indicators	June 6, 2006	

Item #	Activities	Date	Results or Next Steps
11	Conf call (District Rangers, IDT leader, SO resources staff officer, Forest Supervisor) Further refined and prioritized questions and measures; discussed TNC input.	June 8, 2006	IDT review and consideration of wish list, Document rationale. Additional prioritization by District Rangers and Forest Supervisor
12	Conference calls (Forest Supervisor, District Rangers, IDT leader). Further refined and prioritized questions and measures.	June 14, 2006	District Rangers continue to review and recommend final list
13	Conference call (Forest Supervisor, District Rangers, IDT leader). Selected 24 monitoring questions with performance measures for final	June 16, 2006	Compile, edit, send for public comment and science review
14	24 monitoring questions and associated performance released for public comment and science review, mailed postcards to mailing list; web posting. Deadline for comments (during an informal public and science comment period) is July 7, 2006	June 19, 2006	Compile comments
15	Extended informal comment period until COB July 14, 2006	July 7, 2006	Compile comments for response by IDTeam
16	Compiling received comments (from WO, RO, science review, public)	July 17, 2006 (ongoing)	Post responses to comments on Web